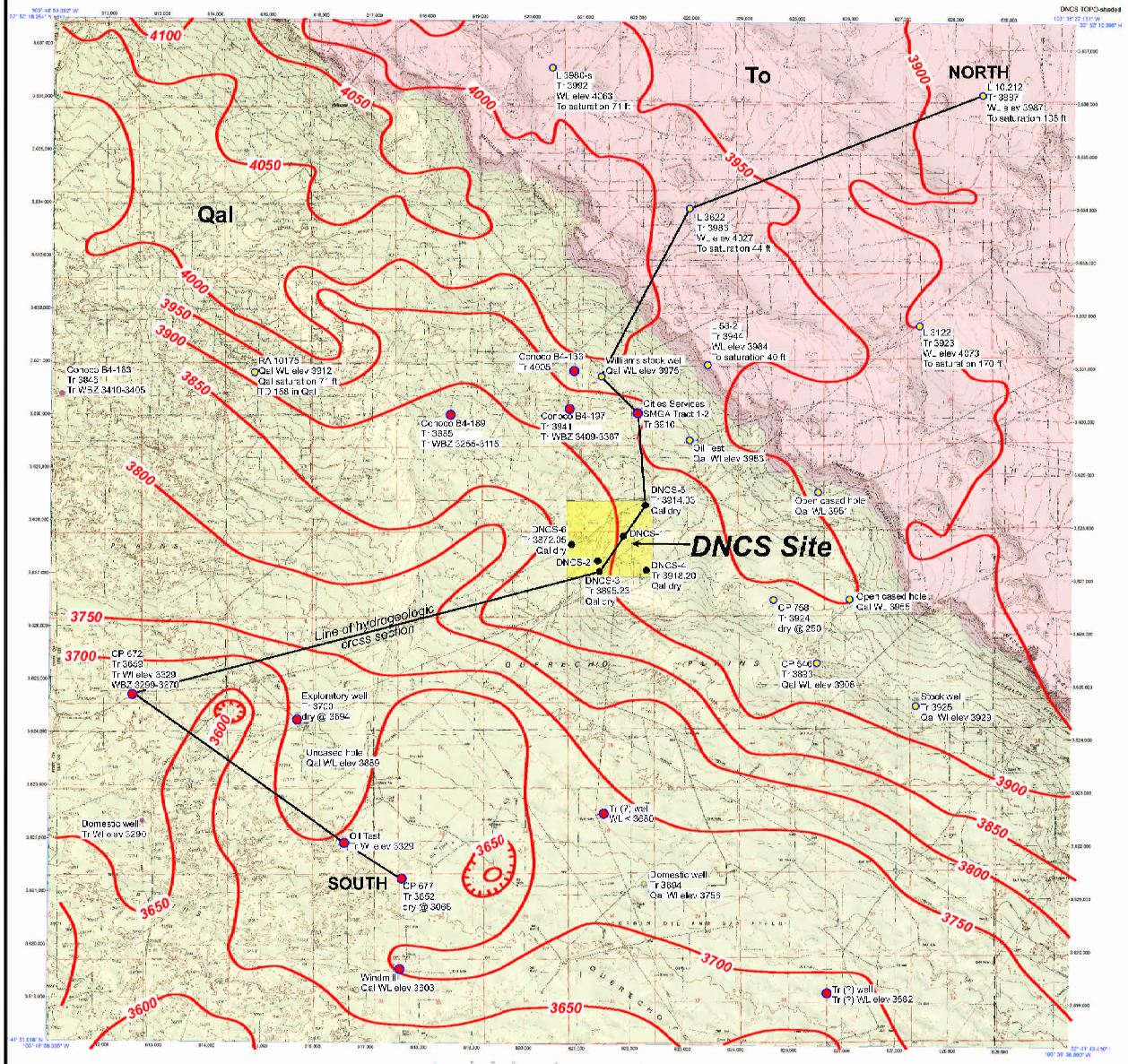
NM1-57

Revised Permit Application

June 2014

Volume 4, Part 3 of 3: Siting and Hydrogeology



LEGEND

- Location of well having Triassic bedrock top elevation or Triassic water bearing zones and/or water levels
- Location of well completed in alluvium or Ogallala Formation
- Location of hydrogeologic boring on the DNCS site
- 3600 — Isopleth on line of equal elevation (feet above MSL) on the top of Triassic bedrock units (from Nicholson and Clebsch, 1961)

To — Outcrop of Terfiary Ogallala Formation

Qal — Outcrop of Quaternary alluvium

NORTH

Scale, miles
0 1.0 2.0

SURFACE GEOLOGY, WELL LOCATIONS AND STRUCTURE ON THE UPPER TRIASSIC REDBED SURFACE

DNCS ENVIRONMENTAL SOLUTIONS
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 10/31/2013	CAD: WELL LOCATIONS.dwg	PROJECT #: 542.01.01
DRAWN BY: DMI	REVIEWED BY: GEI	FIGURE IV.2.7
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\542.01.01\PERMIT FIGURES\WELL LOCATIONS.dwg
Date/Time:Nov. 01, 2013-11:02:48 ; LAYOUT: A (LS)

TABLE IV.2.4
Records of Wells in the Vicinity of the DNCS Site
DNCS Environmental Solutions

Owner or OCD Designation	OSE Permit Number	Location PLS	Location Lat D.dddd	Location Long D.dddd	Use	LS Elev	TD	WL	WL Elev.	Date	WBZ	Top WBZ	Bottom WBZ	WBZ thickness	Trc top	Trc elev	Tsr	Driller Yield	Comments or source
Water Flood Assoc Inc: #2 Mal 2-127-2	L 03980	17.32.1.22233			flood	4251	270	200		3/6/1960	To/Qal	210	265	70	265	3986			OSE Well Record
Water Flood Assoc Inc: #2 Mal 2-127-2	L 03980-s	17.32.1.42213			SRO	4242	255	179	4063	9/21/1962	To/Qal	205	250	76	250	3992			OSE Well Record
Maljamar Repressuring Ag. #5	L 04019	17.32.2.43424			SROO	4195	182	126 est		6/6/1948	To/Qal	126	180		180	4015			OSE Well Record
Maljamar Repressuring Ag. #6	L 04020	17.32.1.43343			SROO	4195	200	100 est		6/2/1950	To/Qal	139	195		195	4000		100	OSE Well Record
Maljamar Repressuring Ag. #7	L 04021	17.32.2.44335			SROO	4203	190	160 est		6/14/1950	To/Qal	160	185		185	4018		100	OSE Well Record
Mescalero Ridge Water Coop	L 04021-s	17.32.3.23422			PS	4282	260	180 est		1/21/2002	To/Qal	180	260		257	4025			OSE Well Record
Chevron: Maljamar Grayburg Unit #12		17.32.3.4323334			OCD	4284	casing to 1384, redbeds to 990								150	4134			OCD Record
Chevron: Maljamar Grayburg Unit #14		17.32.3.44300			OCD	4285	casing to 1275, redbeds to 990								115? 290?				OCD Record
BE Pashall	L 04038	17.32.1.32343			com/dom	4225	225	175		3/3/1960	To/Qal	192	224	50	224	4001			OSE Well Record
Larry Wooton	No permit no	17.32.10.122			dom	4186	156	132		2/6/1959	To/Qal	132	156	24	156 est				OSE Well Record
George Kenemore	RA 8855	17.32.10.11421			dom	4153	158	dry		8/4/1994				0	157	3996			OSE Well Record
Maljamar Coop Repressuring Ag.	L 00051-2	17.32.11.23142			SROO	4142	140	NA		9/10/1947	To/Qal	NA	NA	0	131	4011		100	OSE Well Record
Conoco Pillips	No permit no	17.32.21.300			monitor	4009 est	125	dry		5/15/2007	To/Qal			0	TD in To/Qal				OSE Well Record
Conoco Oil MCA Battery 4 #189		17.32.26.41000	32.803679	103.735041	OCD	3965	1024 Log, cased to 1062				Trc	710	850	0	80	3885			OCD Record 5/11/78
Flo CO2 Inc	RA 10175	17.32.28.12	32.81102	103.773641	dom	3999	158	87 est	3912	2/4/2002	To/Qal	87	124	71	TD in To/Qal				OSE Well Record
Conoco Oil MCA Battery 4 #109		17.32.29.11000			OCD	3937	casing to 873								70	3867			OCD Record 5/11/78
Contoco Oil MCA Battery 4 #154		17.32.29.32000			OCD	3984	casing to 860								105	3879			OCD Record
Conoco Oil MCA Battery 4 #170		17.32.29.32000			OCD	3933	casing to 990								55	3878			OCD Record
Conoco Oil MCA Battery 4 #214		17.32.29.33000			OCD	4091	casing to 1050								214	3877			OCD Record 5/11/78
Conoco Oil MCA Battery 4 #163		17.32.30.13000	32.807566	103.812556	OCD	3895	casing to 870, redbeds to 675				Trc	575	580		50	3845			OCD Record 5/11/78
							anyhdrite 675-810				Pr	810	820						Rustler FM?
Conoco Oil MCA Battery 1 #218		17.32.30.33000			OCD		casing to 1018, redbeds to 590					545	590		50				OCD Record
Continental Oil Pearsall BX #2		17.32.34.241111			OCD	3952	casing to 3515, redbeds to 792								64	3888			OCD Record
Warton Drilling Co	L 03750	17.33.1.140			OWD	4150	180	150		12/21/1957	To/Qal	150	180	30					OSE Well Record
Denver Drilling Company	L 03782	17.33.2.444			OWD	4155	183	152		2/6/1958	To/Qal	151	183	31					OSE Well Record
Yates Petroleum	L 00010.212	17.33.2.44423	32.857521	103.626451	OWFR	4155	273	168	3987	7/7/1994	To/Qal	168	268	105	268	3887		120	OSE Well Record
Carper Co: Daya Operating State B No. 2	L 04935	17.33.2.120			OWD	4167	204	162		7/12/1962	To/Qal	162	201	42					OSE Well Record
Lomax Drilling Co	L 03012	17.33.3.140			Oil	4182	210	155		11/1/1955	To/Qal	186	198	55	198	3984			OSE Well Record
Conoco #2 Caprock 2-174-25	L 03528-s-3	17.33.3.1443			OWD	4183	271	155		12/12/1968	To/Qal	150	265	116	265	3918			OSE Well Record
Maljamar Coop #1 Maljamar 2-137-1	L 03528	17.33.4.44322			OWD	4179	265	158		12/11/1957	To/Qal	160	225	107	240	3939			OSE Well Record
Yucca Water Co	L 03598-x	17.33.5.22220			SR	4198	272	160		6/25/1959	To/Qal	160	260	112	260	3938			OSE Well Record
Yucca Water Co	L 03598	17.33.6.11110			SRO	4243	287	210		6/18/1962	To/Qal	230	280	77	280	3963			OSE Well Record
RE Paschall	L 04524	17.33.6.440			dom	4227	100	90		9/28/1960	To/Qal	--	--	10	--				OSE Well Record
Dual Drilling Co	L 04122	17.33.7.32322			OWD	4229	249	214		5/3/1959	To/Qal	214	249	35	247	3982			OSE Well Record
Kewanee Oil Co	L 02771	17.33.7.4000			PS	4217	227	182		6/28/1955	To/Qal	164	215	45	222	3995			OSE Well Record
Thunderbird Drilling Co	L 03749	17.33.9.342113			OWD	4195	230	160		12/19/1957	To/Qal	160	230	70					OSE Well Record
Continental Oil Company	L 03528-s-2	17.33.9.331432			SRO	4200	262	180		7/19/1967	To/Qal	198	262	82	252	3948			OSE Well Record
Potash Company of America: PCA No. 8	L 01880-s-3	17.33.12.14110			Min Dev	4148	268	155		5/4/1981	To/Qal	159	230	113	258	3890			OSE Well Record
Potash Company of America	L 01880-1884 comb	17.33.12.33444			Min Dev	4135	259	115		5/2/1966	To/Qal	115	250	144	250	3885			OSE Well Record
Donnelly Drilling Co	L 04333	17.33.13.110			OWD	4136	217	165		12/4/1959	To/Qal	165	202	52	--				OSE Well Record
Potash Company of America	L 01880-s-2	17.33.13.31413			Min Dev	4124	235	151		3/16/1972	To/Qal	154	230	84	230	3894			OSE Well Record
Potash Company of America	L 01880	17.33.13.343			Min Dev	4129	245	--		8/18/1955	To/Qal	--	--		--				OSE Well Record (clean-out)
Potash Company of America	L 01882	17.33.13.43444			Min Dev	4128	245	144		3/16/1948	To/Qal	162	228	101	228	3900			OSE Well Record
Potash Company of America	L 01882	17.33.13.434			Min Dev	4128	245			9/22/1964	To/Qal								OSE Well Record (workover)
Potash Company of America	L 01883	17.33.13.44444			Min Dev	4123	259	147		7/24/1952	To/Qal	120	239	112	241	3882			OSE Well Record
Potash Company of America	L 01883	17.33.13.444			Min Dev					9/26/1955									OSE Well Record (workover)
Midland Drilling Co	L 03622	17.33.17.12444	32.838584	103.685601	OWD	4207	226	180	4027	7/25/1957	To/Qal	180	200	46	224	3983			OSE Well Record
Kewanee Oil Co	L 02770	17.33.18.24111			PS	4215	214	179		6/28/1955	To/Qal	169	213	35	213	4002			OSE Well Record
Kewanee Oil Co	L 02773	17.33.18.322			PS	4218	214	184		6/6/1955	To/Qal	196	214	30		4218			OSE Well Record
Kewanee Oil Co	L 02773	17.33.18.322			PS	4225	220	202		7/16/1955	To/Qal	202	215	18	215	4010			OSE Well Record
Henry Black Drilling Co	L 03726	17.33.18.22113			OWD	4216	208	188		11/30/1957	To/Qal	188	207	20	207	4009			OSE Well Record
Warren-Bradshaw Exploration	L 02785	17.33.20.220			OWD	4171	250	190		5/20/1955	To/Qal	190	235	60	235	3936			OSE Well Record
Phillips Petroleum Co	L 03133	17.33.23.31320			OWD	4143	230	160	3983	3/4/1956	To/Qal	158	198	70	220	3923			OSE Well Record
Phillips Petroleum Co	L 03133	17.33.23.310	32.81832	103.6395	OWD	4143	230	70	4073	9/3/1958	To/Qal	158	198	160	220	3923			OSE Well Record (workover)
Southwest Potash Co	L 01695	17.33.25.24444			Min Dev	4093	230	137		4/21/1950	To/Qal	137	187	93	190	3903			OSE Well Record
Zapata Petroleum Co	L 03713	17.33.28.143			OWD	4180	210	dry		10/23/1957	To/Qal	--	--		--				OSE Well Record
El Paso Natural Gas Co	L 00058-2 misc	17.33.29.222221	32.811945	103.682131	Ind-Dom	4188	244	204	3984	7/22/1958	To/Qal	185	228	40	244	3944			OSE Well Record
								201.35		3/14/1961									GAI BLM 1978
Oil Test		17.33.29.34411			Oil Test	4044		61.43	3982.57	2/16/1971	To/Qal								GAI BLM 1978

TABLE IV.2.4
Records of Wells in the Vicinity of the DNCS Site
DNCS Environmental Solutions

Owner or OCD Designation	OSE Permit Number	Location PLS	Location Lat D.dddd	Location Long D.dddd	Use	LS Elev	TD	WL	WL Elev.	Date	WBZ	Top WBZ	Bottom WBZ	WBZ thickness	Trc top	Trc elev	Tsr	Driller Yield	Comments or source
Conoco MCA Unit Battery 4 #133		17.33.30.11000	32.801966	103.709129	OCD	4033	casing to 3913, redbeds to 515, anhydrite 515-533								28	4005			OCD Record 5/11/78
Conoco MCA Unit Battery 4 #134		17.33.30.12000			OCD	4057	casing to 1185, redbeds to 1145								45	4012			OCD Record 5/11/78
Conoco MCA Unit Battery 4 #135		17.33.30.14000			OCD	4062	casing to 20								85	3977			OCD Record 5/11/78
Conoco MCA Unit Battery 4 #197		17.33.30.31111	32.80457	103.710241	OCD	4037	casing to 3963, redbeds to 791, sandstone 628-650								96	3941			OCD Record 5/11/78
Walter Williams stock well		17.33.30.124	32.810128	103.703623		4045		70	3975	7/29/1954									Nicholson & Clebsch
		17.33.30.12432				4053		69.14		2/16/1971									GAI BLM 1978
Cities Svc SMGSA Unit Tract 1 #2		17.33.30.42000	32.803774	103.696154	OCD	4055	casing to 1199								145	3910			OCD Record 5/11/78
DNCS Properties LLC Boring 5		17.33.31.	32.78815	103.69491		3979.03	150	dry						0	65	3914.03			DNCS Site Boring Log
DNCS Properties LLC Boring 6			32d46m54.1s	103d42m27.1s		3939.5	75	dry						0	67	3872.5			DNCS Site Boring Log
Open Cased Hole		17.33.33.4224				4082		130.96	3951.04	2/16/1971	To/Qal								GAI BLM 1978
Dillard & Walterader Drilling Co	L 04363	17.33.35.32142			OWD	4122	226	160		1/5/1960	To/Qal	170	200	66	222	3900			OSE Well Record
Gulf Oil Corp	L 05096	17.33.35.433			OWD	4124	233	150		4/6/1968	To/Qal	150	230	83	230	3894			OSE Well Record
Gulf Oil Corp	L 05096	17.33.35.43332			OWD	4120	233	150		3/15/1963	To/Qal	150	230	83	230	3890			OSE Well Record
BE Frizzell	CP 566	18.32.4.144			dom	3864	133	65		6/3/1977	To/Qal	65	133	68	129	3735			OSE Well Record
Virgil Linam	CP 672	18.32.7.44233	32.756902	103.79895	stock	3759	524	430	3329	8/7/1992	Trc	460	489	29	100	3659			OSE Well Record
Virgil Linam	CP 672	18.32.7.44144			stock	3767	540	460	3307	1/29/1985	Trc	498	510		64?			12	OSE Well Record
Billy Williams	Not permitted	18.32.16.223433	35.752	103.7652	exp	3794	100	dry		9/3/1991	--	--	--	0	94	3700			OSE Well Record
Uncased open hole		18.32.16.22433				3973	100	84.18	3888.82	3/18/1968	To/Qal								GAI BLM 1978
Domestic Well		18.32.20.13311			dom	3470	270	179.35	3290.65	2/23/1971	Trc								GAI BLM 1978
Oil test		18.32.22.32322				3763		434.41	3328.59		Trc								GAI BLM 1978
TXO Production	CP 677	18.32.26.11143	32.724776	103.744505	OWD	3768	700	dry		5/9/1985	Sandstone 500-605			0	116	3652			OSE Well Record
Duval Corp.	O 13 002	18.32.32.111244			exp	3701	2060			6/22/1977	2 WBZ's Trc @ 274, Tsr @ 575					3701	575		OSE Well Record
Windmill		18.32.34.22241			stock	3721		117.46	3603.54	4/6/1971	Trc								GAI BLM 1978
Open Cased Hole		18.33.3.34133				4015		60.1	3954.9	4/5/1966	To/Qal								GAI BLM 1978
OXY USA Inc.	CP 758	18.33.4.34233	32.771967	103.669204	exp	3989	250	dry		5/10/1991	--	--	--		65	3924			OSE Well Record
DNCS Properties LLC Boring 3			32.77692	103.70411	exp	3940.23	150	dry		2/6/2013					45	3895.23			DNCS Site Boring Log
DNCS Properties LLC Boring 4			32.777	103.69465	exp	3968.20	150	dry		2/9/2013					50	3918.2			DNCS Site Boring Log
BJ Wooley	CP 546	18.33.9.42241	32.76111	103.660559	Com	3978	90	70	3908	6/3/1975	To/Qal	70	85	20	85	3893			OSE Well Record
	L 6131	18.33.8.213	32.766525	103.68429			194	100				130	193	63					OSE Waters POD summary
Heyco	CP 702	18.33.11.314112			OWD	4054	100			10/21/1986	To/Qal	52	82	100	82	3972		40	OSE Well Record
Heyco	CP 701	18.33.11.314121			OWD	3997	100			10/20/1986	To/Qal	54	84	100	84	3913		40	OSE Well Record
BJ Wooley	L 8288	18.33.12.33334			Com	3997	79	60		5/11/1982	To/Qal	60	80	19		3997			OSE Well Record
Yates Drilling Co	L 2878	18.33.12.440			OWD	4089	205	150		5/30/1955	To/Qal	150	205	55	200	3889			OSE Well Record
Scharbauer Cattle Co	L 6347	18.33.12.440			stock		170	130		7/12/1968	To/Qal			40					OSE Well Record (clean-out)
BJ Wooley	CP 623	18.33.13.11112			Com	3989	82	60		5/10/1982	To/Qal	70	80	22	80	3909		40	OSE Well Record
Sun Oil	CP 689	18.33.13.12122			OWD	4003	100			12/7/1985	To/Qal	70	95	100	95	3908		100	OSE Well Record
KMR Inc	CP 768 exp	18.33.13.21142			exp	4018	115	70		5/6/1992	To/Qal	80	110	45	110	3908		20	OSE Well Record
Unnamed well (Nicholson)		18.33.14.111	32.753778	103.640397	stock	3965	40	35.8	3929.2	6/3/1954	Qal			4.2	40	3925			Nicholson and Clebsch
Unnamed well (Nicholson)		18.33.19.142	32.735618	103.703433	stock	3820		>140	<3680		Tr(?)								Nicholson and Clebsch
Unnamed well (Nicholson)		18.33.34.133	32.704955	103.658439		3760	200	177.4	3582.6	12/9/1958	Tr(?)								Nicholson and Clebsch
W.E. Ellison	L 3454	18.33.30.220			dom	3791	100	35	3756	3/30/1957	To/Qal	70	97	65	97	3694			OSE Well Record

The map in **Figure IV.2.7** illustrates the elevation and terrain of the upper surface of the Chinle shale bedrock mapped by Nicholson and Clebsch (1961). Note that the Triassic shale top elevations determined by the DNCS onsite borings comport with the unaltered Nicholson and Clebsch (1961) isopleths on the upper redbed surface. **Figure IV.2.8** is a hydrogeologic cross section that was prepared using data from the DNCS site characterization borings, as well as the above referenced sources. **Figures IV.2.7** and **IV.2.8** illustrate the distribution and thickness of the Ogallala, the Quaternary alluvium, the Triassic Chinle bedrock shale and a significant sandstone unit (interpreted to be Santa Rosa Sandstone) that is projected to be laterally extensive in the area. On the DNCS site, the alluvium thickness ranges from 45 ft to 67 ft; based upon data projected from nearby wells, the depth to the Santa Rosa Sandstone beneath the DNCS site is approximately 550 ft. A Site Geologic Cross-Section based on the data acquired from site borings B-4 and B-5 is provided as **Figure IV.2.9**. This cross-section also identifies the landfill units and base grades.

3.4 Site Hydrogeology

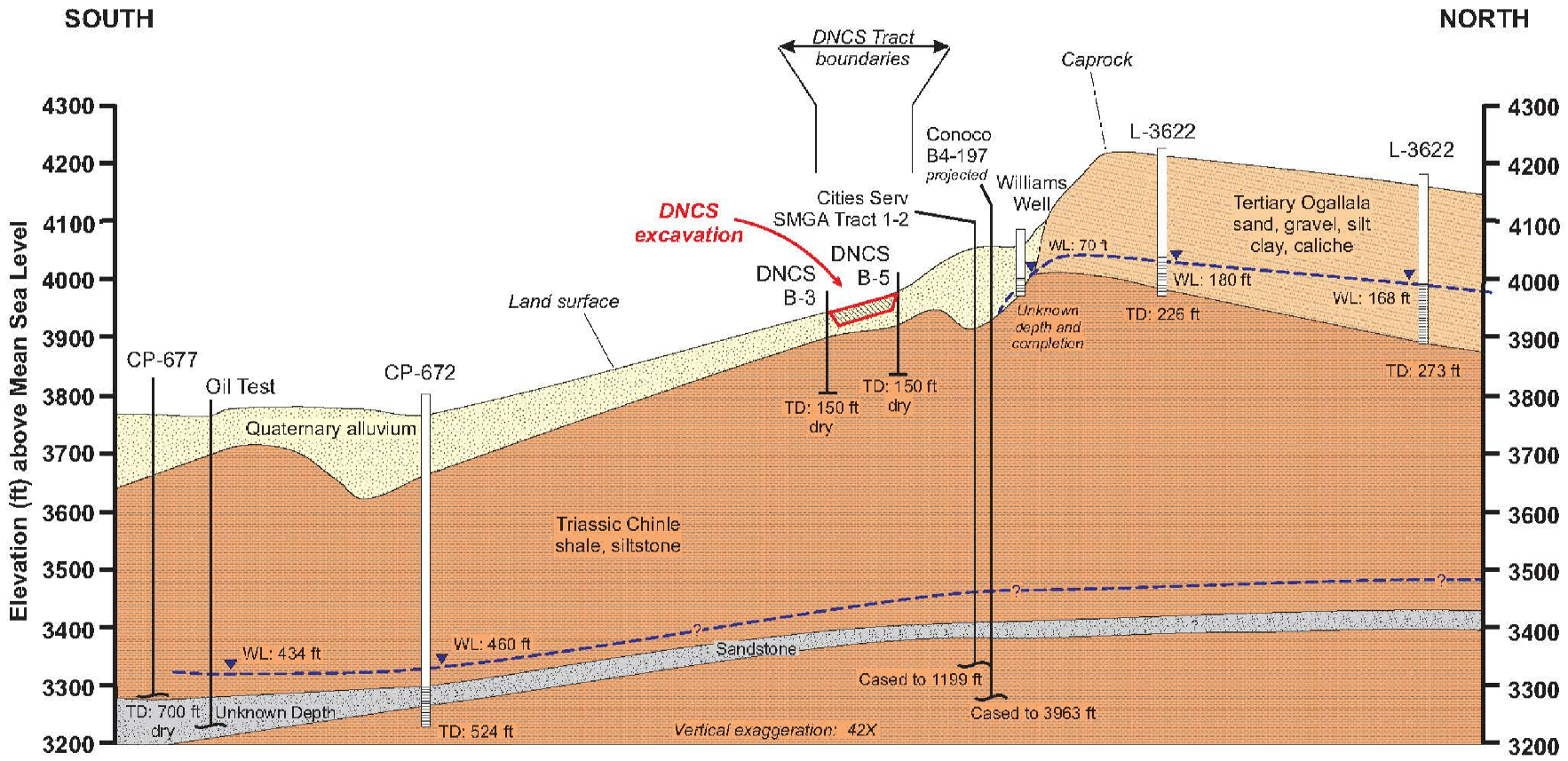
This section addresses regulatory requirements for basic hydrogeologic site data, as well as for demonstration of compliance with siting requirements relative to minimum depth to groundwater, as follows:

> ***19.15.36.8.C.15 NMAC***
> *(a) a map showing names and locations of streams, springs and other watercourses and water wells within one mile of the site;*
> *(b) laboratory analyses, performed by an independent commercial laboratory, for major cations, and anions; BTE;, RCRA metals; and TDS of groundwater samples of the shallowest fresh water aquifer beneath the proposed site;*
> *(c) depth to, formation name, type and thickness of the shallowest fresh water aquifer;*
> *(d) soil types beneath the proposed surface waste management facility; including a lithologic description of soil and rock members from ground surface down to the top of the shallowest fresh water aquifer;*
> *(e) geologic cross sections;*
> *(f) potentiometric maps for the shallowest fresh water aquifer;*

and

> ***19.15.36.13.A(1) NMAC***
> *Depth to groundwater: no landfill shall be located where groundwater is less than 100 feet below the lowest elevation of the design depth at which the operator will place oil field waste*

Hydrogeologic Cross Section
DNCS Permit Site, Lea County, New Mexico



HYDROGEOLOGIC CROSS SECTION THROUGH THE DNCS SITE

DNCS ENVIRONMENTAL SOLUTIONS
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
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Fax: 505-867-6991

DATE: 11/01/2013	CAD: HYDRO X-SEC.dwg	PROJECT #: 542.01.01
DRAWN BY: DMI	REVIEWED BY: GEI	FIGURE IV.2.8
APPROVED BY: IKG	gei@gordonenvironmental.com	

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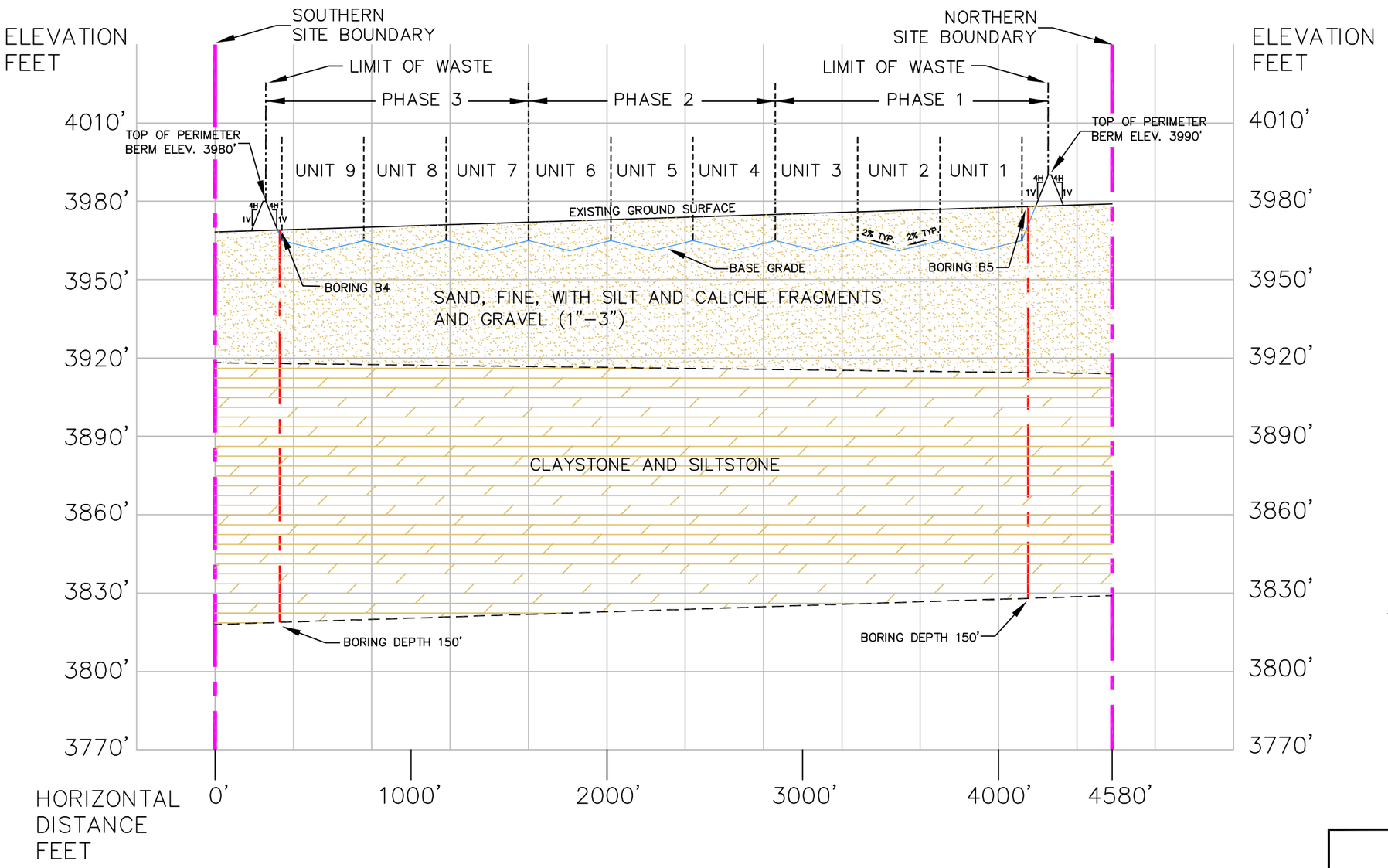

SITE GEOLOGIC CROSS–SECTION

DNCS ENVIRONMENTAL SOLUTIONS
LEA COUNTY, NEW MEXICO

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DATE: 06/11/2014	CAD: GEO X-SEC.dwg	PROJECT #: 542.01.01
DRAWN BY: DMI	REVIEWED BY: DRT	FIGURE IV.2.9
APPROVED BY: IKG	gek@gordonenvironmental.com	

Drawing:P:\acad 2003\542.01.01\RAI 1\GEO X-SEC.dwg
Date/Time:Jun. 12, 2014-13:08:45 ; LAYOUT: B (LS)

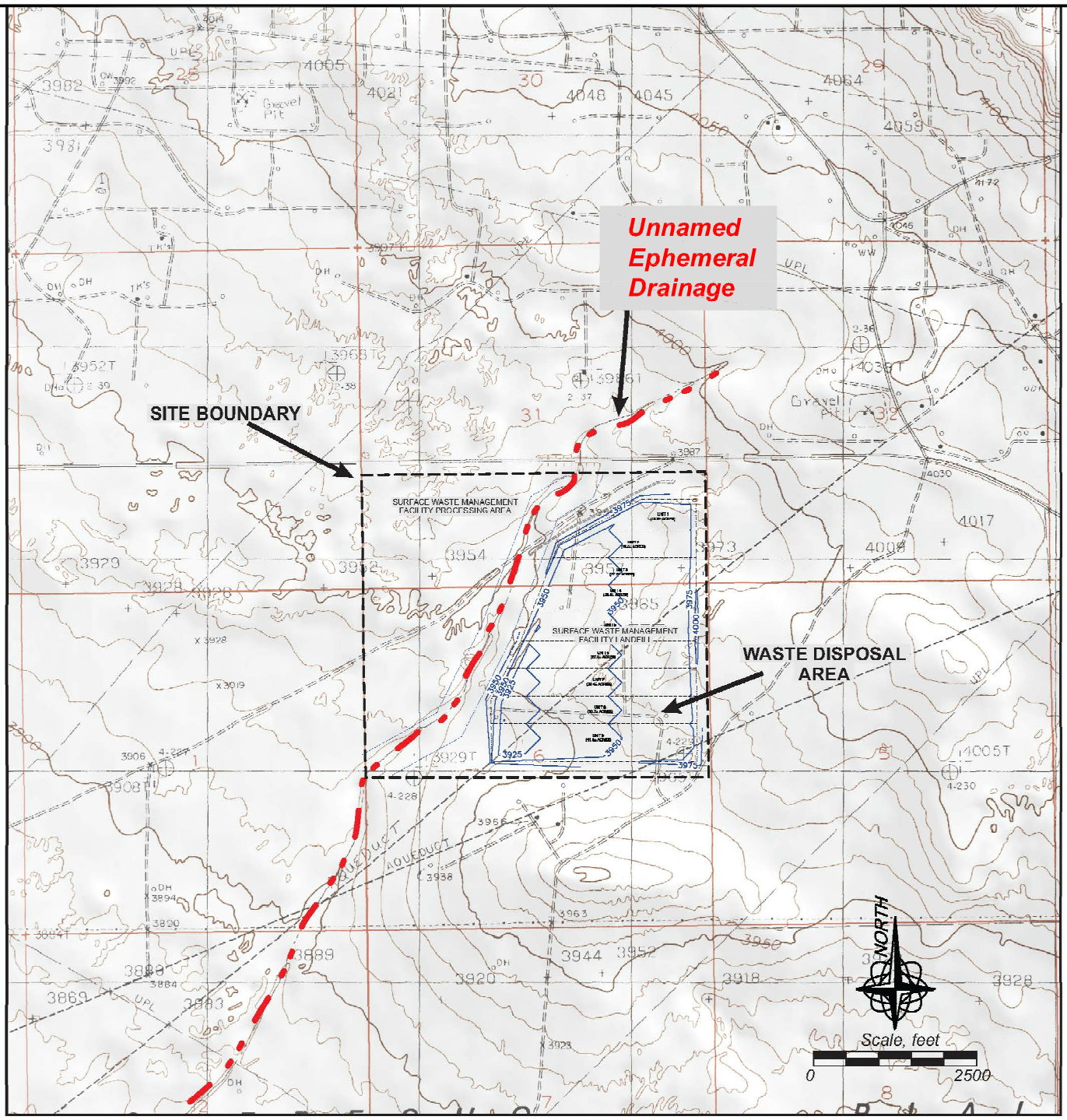
Section 3.3 describes the shallow stratigraphy at the DNCS site. Due to the great depth to the Santa Rosa Sandstone, which is the shallowest fresh groundwater bearing zone in the vicinity of the site, as well as high impedance to vertical movement of fluids present in the upper Triassic Chinle Formation, a *Proposal for Vadose Zone Monitoring, DNCS Environmental Solutions, Lea County, NM* (Golder Associates, Inc, 2013) was submitted to OCD in August 2013. No site demonstration wells have been completed in the Santa Rosa Sandstone and no site specific water level or water quality data are available. Where appropriate, published and agency file data on the Santa Rosa Sandstone relevant to permit application and siting requirements set forth in NMOCD regulations are presented.

3.4.1 Streams, Springs, Watercourses and Water Wells Within One Mile of the Site

No perennial streams or springs are present within one mile of the proposed DNCS site. One unnamed ephemeral wash transects the property; the location of this feature is shown on the map in **Figure IV.2.10**, and discussed in Section 2.2 of this text. There are no water wells within one mile of the proposed DNCS site. Locations of water wells in the vicinity of the DNCS site are shown in **Figure IV.2.7**; a summary of vicinity wells is also included in **Table IV.2.4**. The nearest water wells in the area of the DNCS site include a well completed in alluvium (CP-546), located approximately 2 miles southeast of the site and another well (Williams Stock Well), located approximately 1.5 miles north of the site.

3.4.2 Laboratory Analyses of Shallow Groundwater Samples

The nearest water well to the DNCS site that is completed in Triassic bedrock (presumably Santa Rosa Sandstone) is located approximately 8 miles south of the DNCS site in Section 8, Township 19 South, Range 32 East. Nicholson and Clebsch (1961) reported data from a chemical analysis of a sample from this well; results of the analysis indicated a TDS of 3,680 mg/L and a sulfate concentration of 1,680 mg/L. The TDS concentration reported for this well is comparable to projected TDS values mapped by Dutton and Simkins, (1986) for the area of the DNCS site, which exceeds 3, 000 mg/L.



LEGEND

- Location of drainage feature within one mile of proposed site
- 3950 Landfill basegrade
- Permit property boundary

SURFACE WATER COURSES IN THE VICINITY OF THE DNCS SITE

DNCS ENVIRONMENTAL SOLUTIONS
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 06/11/2014	CAD: SURFACE WATER.dwg	PROJECT #: 542.01.01
DRAWN BY: DMI	REVIEWED BY: DRT	FIGURE IV.2.10
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\542.01.01\RAI 1\SURFACE WATER.dwg
Date/Time:Jun. 12, 2014-13:00:59 ; LAYOUT: A (P)

3.4.3 Depth, Formation Name, Type and Thickness of the Shallowest Fresh Water Aquifer

Copies of New Mexico Office of the State Engineer (NMOSE) Records of Wells in the vicinity of the DNCS site are included in **Attachment IV.2.D**. Several of the NMOSE Well Records contain depth and elevation data for the Triassic redbed tops, as well lower Triassic sandstone intervals from oil well logs obtained from OCD files. Numerous oil wells in the vicinity of the DNCS site penetrated significant sandstone beds in the lower Triassic section. Locations of these wells are shown on the map in **Figure IV.2.7**. Several water wells in the vicinity of the DNCS site which were completed in Triassic bedrock were identified by Nicholson and Clebsch (1961) and Geohydrology Associates, Inc. (1978). Locations of these wells are shown in **Figure IV.2.7**.

Projected geometry of the Santa Rosa Sandstone, as well as the potentiometric surface of this unit are illustrated on the hydrogeologic cross section in **Figure IV.2.8**. Well locations and summary formation and water level data for these wells are listed in **Table IV.2.4**. An oil well located approximately 1 mile north of the DNCS site (Conoco B4-197) penetrated 22 ft of Santa Rosa Sandstone in the depth interval of 628 ft to 650 ft below land surface. A water well located approximately 5 miles southwest of the DNCS site (CP-672) penetrated 29 ft of Santa Rosa Sandstone in the depth interval of 460 ft to 489 ft below land surface. Based upon projected Santa Rosa Sandstone data, it is anticipated that the Santa Rosa Sandstone is approximately 550 ft below land surface and is approximately 25 ft thick at the DNCS site.

3.4.4 Lithology of Stratigraphic Units Above the Santa Rosa Sandstone at the DNCS Site

Stratigraphic units which are above the Santa Rosa Sandstone in the vicinity of the DNCS site include Quaternary alluvium piedmont deposits and upper Triassic Chinle shale. Site characterization borings drilled on the DNCS site penetrated predominantly fine silty gravelly sands with calcrete (caliche) zones in the alluvial section. The site borings penetrated dense siltstone and claystone in the upper Triassic bedrock section to depths of 150 ft below land

surface. Available data from nearby oil wells contain only formation top depths for the Triassic redbeds and lower Triassic sandstones; however significant sand developments were noted only in the lower Triassic section.

3.4.5 Geologic Cross Sections

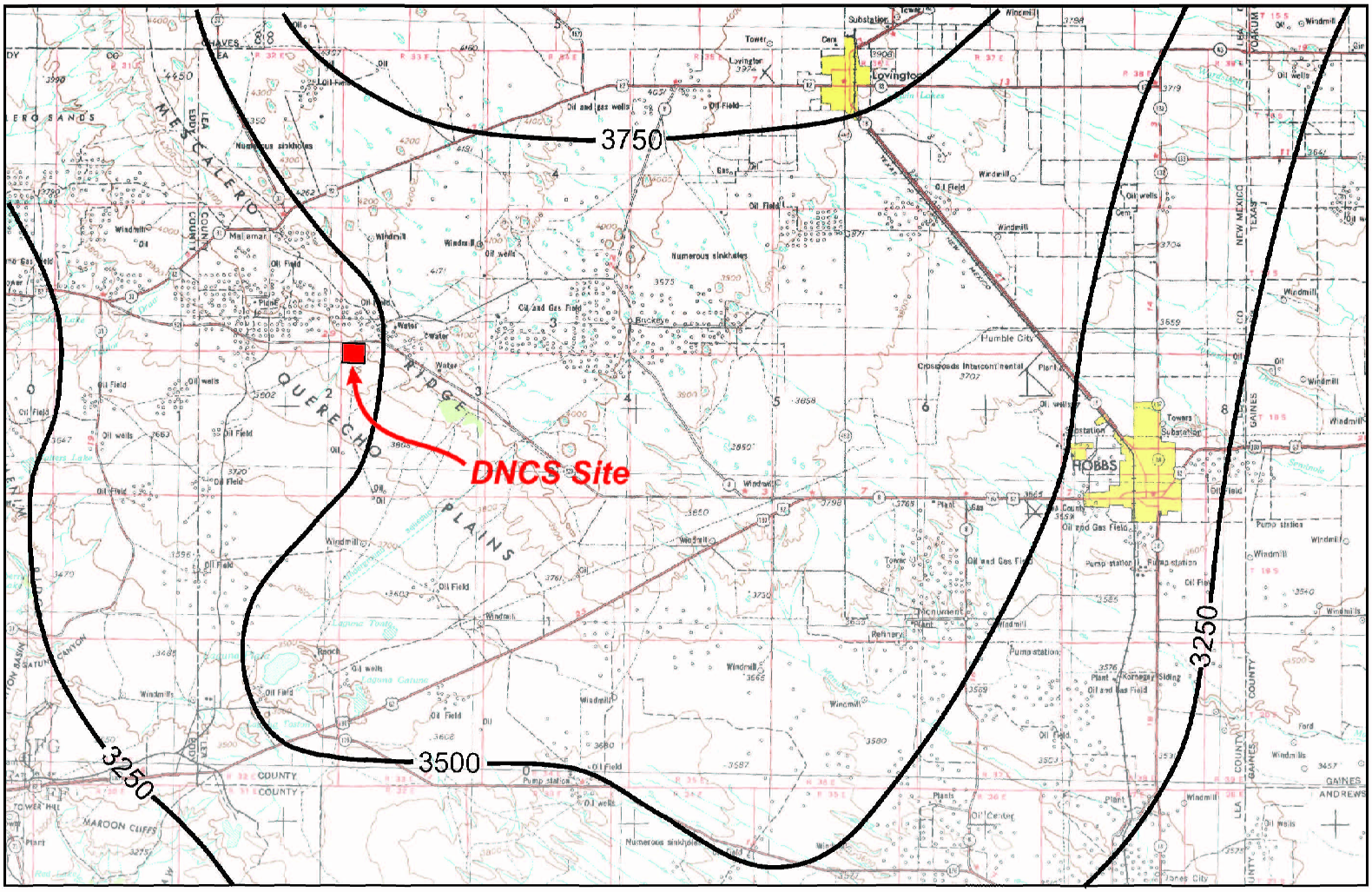
A geologic and hydrogeologic cross section depicting stratigraphy and geometry of the Santa Rosa Sandstone and its potentiometric surface is included in **Figure IV.2.8**. This diagram indicates that the depth to the Santa Rosa Sandstone at the DNCS site is projected to be approximately 550 ft.

3.4.6 Potentiometric Map of the Santa Rosa Sandstone

Potentiometric head value for the Santa Rosa Sandstone is unknown. Dutton and Simkins (1986) prepared a regional projection of the potentiometric surface of the lower Dockum Group aquifer (Santa Rosa Sandstone). The Dutton and Simkins map data is included in **Figure IV.2.11**. Based upon the Dutton and Simkins projection, the head elevation at the DNCS site is expected to be approximately 3475 ft or approximately 490 ft below grade. The artesian head on the Santa Rosa Sandstone at the DNCS location is expected to be approximately 60 ft.

3.4.7 Depth to Shallow Fresh Groundwater

The DNCS site characterization boring investigation results demonstrate that no shallow groundwater is present above a depth of 150 ft below land surface at any of the boring locations.



LEGEND

—3500— Isopleth on potentiometric surface of the lower Dockum aquifer (Santa Rosa Sandstone) showing elevation (ft) above MSL
(from Dutton and Simkins, 1986)

NORTH

Scale, miles
0 6

POTENTIOMETRIC SURFACE OF THE SANTA ROSA SANDSTONE AQUIFER

DNCS ENVIRONMENTAL SOLUTIONS
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
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Fax: 505-867-6991

DATE: 06/11/2014	CAD: POTENTIOMETRIC.dwg	PROJECT #: 542.01.01
DRAWN BY: DMI	REVIEWED BY: DRT	FIGURE IV.2.11
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\542.01.01\RAI 1\POTENTIOMETRIC.dwg
Date/Time:Jun. 12, 2014-13:03:00 ; LAYOUT: A (LS)

4.0 REFERENCES

Brokaw, A.L., Jones, C.L., Cooley, M.E., and Hays, W.H., 1972, Geology and Hydrology of the Carlsbad Potash Area, Eddy County, New Mexico: United States Geological Survey Open-File Report 72-49

Claiborne, H.C., and Gera,, F., 1974, Potential contaminant failure mechanisms and their consequences at a radioactive waste repository in bedded salt in New Mexico: Oak Ridge National Laboratory ORNL-TM-4369

DuChene, H.R., and Cunningham, K.I., 2006, Tectonic influences of Speleogenesis in the Guadalupe Mountains, New Mexico and Texas: New Mexico Geological Society Guidebook, 57th Field Conference, Caves and Karst of Southeastern New Mexico, 2006, p. 211-218.

Dutton, A.R., and Simkins, W.W., 1986, Hydrogeochemistry and Water Resources of the Triassic Lower Dockum Group in the Texas Panhandle and Eastern New Mexico, Report of Investigations No. 161, Bureau of Economic Geology, The University of Texas at Austin, Figures 5 and 10b.

Geohydrology Associates, Inc., 1978, Collection of hydrologic data, eastside Roswell Range EIS area: Open-File Consultant Report to Bureau of Land Management, Denver, Colorado, Contract No. YA-512-CT-7-217, Table 4.

Gordon Environmental, Inc., 2013a, Subsurface Investigation Workplan, DNCS Properties, LLC Site, Lea County, New Mexico: Submitted to NM Energy, Minerals and Natural Resources Department Oil Conservation Division, Santa Fe, NM, Consultant report prepared for DNCS Properties, LLC, Chandler AZ

Gordon Environmental, Inc., 2013b, Supplemental Subsurface Investigation Workplan, DNCS Properties, LLC Site, Lea County, New Mexico: Submitted to NM Energy, Minerals and Natural Resources Department Oil Conservation Division, Santa Fe, NM, Consultant report prepared for DNCS Properties, LLC, Chandler AZ

Golder Associates, Inc., 2013, Proposal for Vadose Zone Monitoring, DNCS Properties, LLC, Lea County, NM: Consultant report prepared for Gordon Environmental, Inc., Bernalillo, New Mexico, submitted to the Oil Conservation Division

Hawley, J.W., 1993a, Overview of the Geomorphic History of the Carlsbad Area, *in* Carlsbad Region, New Mexico And West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p.2-3

Hawley, J.W., 1993b, The Ogallala and Gatuna Formations in the Southeastern New Mexico Region, A Progress Report, *in* Carlsbad Region, NewMexico And West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p.261-269

Hendrickson, G.E., and Jones, R.S., Geology and Ground-Water Resources of Eddy County, New Mexico, New Mexico Bureau of Mines and Mineral Resources, Ground Water Report 3. p. 16

Kelly, T.E., Geohydrology Associates, Inc., 1984, Hydrologic assessment of the Salt Lakes area, western Lea County, New Mexico, Consultant report to Pollution Control, Inc., Lovington, New Mexico, Figure 1.

Leedshill-Herkenhoff, John Shomaker &Assoc. and Montgomery and Andrews, 1999, Lea County Water Users Association, Region 16, Lea County Regional Water Plan, two volumes

New Mexico Bureau of Geology and Minerals, 2003, Geologic Map of New Mexico, 1:500,000 scale map

New Mexico Office of the State Engineer, 2013, Records of wells in the vicinity of the DNCS site, Unpublished agency file well records.

Nicholson, A., and Clebsch, A., 1961, Geology and ground-water conditions in southern Lea County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Groundwater Report 6.

Office of the New Mexico State Engineer, 2013, Electronic image well log files for Lea County, http://www.ose.state.nm.us/water_info_rights_dist2_LeaCountyWellLogs.html

Oriel, S.S., et al., 1967, West Texas Permian Basin Region, *in* Paleotectonic Investigations of the Permian System in the United States: United States Geological Survey Professional Paper 515, p. 21-60

Powers, D.W., et. Al., 1978, "Geological Characterization Report, Waste Isolation Pilot Plant (WIPP) Site, Southeastern New Mexico". SAND 78-1596. Sandia National Laboratories, Albuquerque, New Mexico.

Stipp, T.F., 1954, Editorial Comments, United States Geological Survey Open-File Report

Roswell Geological Society, Stratigraphic Research Committee, 1958, North-South Stratigraphic Cross Section, Delaware Basin – Northwest Shelf, Southeastern New Mexico

United States Geological Survey, 2013, Electronic files for inventory of watershed data for Monument-Seminole Draws Upper Pecos-Black Watersheds in southeastern New Mexico and West Texas, http://water.usgs.gov/lookup/getwatershed?12080003

APPLICATION FOR PERMIT
DNCS ENVIRONMENTAL SOLUTIONS

VOLUME IV: SITING AND HYDROGEOLOGY
SECTION 2: HYDROGEOLOGY

ATTACHMENT IV.2.A

OCD APPROVAL (FEBRUARY 2013)

SUBSURFACE INVESTIGATION WORKPLAN (GEI; JANUARY 2013)

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John Bemis
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division

February 5, 2013

Charles Fiedler
Gordon Environmental, Inc.
213 S. Camino del Pueblo
Bernalillo, New Mexico 87004

RE: Hydrogeologic Investigation Boring Plan
Commercial Surface Waste Management Facility
DNCS Properties, LLC – Surface Waste Management Facility
Facility Location: Section 31, Township 17 South, Range 33 East, NMPM, Lea County, New Mexico

Dear Mr. Fiedler:

The Oil Conservation Division (OCD) has received Gordon Environmental Inc.'s boring plan proposal, dated February 1, 2013 and submitted on the behalf of DNCS Properties, LLC, to investigate and characterize the uppermost aquifer and subsurface geology for a proposed commercial surface waste management (landfill) facility permit located in Section 31, Township 17 South, Range 33 East, NMPM, Lea County, New Mexico. OCD has completed the review and determined that the proposal is adequate to proceed with the site investigation.

OCD agrees that the proposed boring locations appear adequate. However, if the hydrogeologic conditions cannot be determined, additional borings or monitoring wells may be needed.

The OCD appreciates your cooperation in providing a boring plan for review, in order to determine if the submitted application and the proposed site are suitable for consideration of approval. If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Brad A. Jones
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs
DNCS Properties, LLC, 2028 E. Hackberry Place, Chandler, AZ

SUBSURFACE INVESTIGATION WORKPLAN

DNCS PROPERTIES, LLC SITE
LEA COUNTY, NEW MEXICO

JANUARY 2013

SUBMITTED TO:
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
Phone: 505.476.3440

PREPARED FOR:
DNCS PROPERTIES, LLC.
2028 E. Hackberry PL
Chandler, AZ 85286

PREPARED BY:
Gordon Environmental, Inc.
213 South Camino del Pueblo
Bernalillo, New Mexico 87004
Phone: 505.867.6990

Gordon Environmental, Inc.
Consulting Engineers

SUBSURFACE INVESTIGATION WORKPLAN
DNCS PROPERTIES, LLC SITE
LEA COUNTY, NEW MEXICO
JANUARY 2013

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DNCS PROPERTIES, LLC SITE
LEA COUNTY, NEW MEXICO

1.0 PROJECT SUMMARY

The DNCS PROPERTIES, LLC Site has been selected after an exhaustive analysis of both regulatory and non-regulatory criteria as a prime candidate for development of a "Commercial Facility" (i.e., surface waste management facility) for oil and gas wastes permitted under 19.15.36 NMAC (Part 36). The site is currently controlled by DNCS PROPERTIES, LLC (DNCS).

This Subsurface Investigation Workplan (Workplan) defines a field drilling and soil testing program to confirm compliance with the vertical groundwater setback distance of 100'. Gordon Environmental, Inc. (GEI) is requesting Oil Conservation Division (OCD) approval of this Workplan, the results of which will become a primary component of the Application for Permit. We met with OCD on 01/28/2013 to discuss the Project and this Workplan in detail, and followed up this meeting with a submittal of the Workplan on 01/31/13.

The DNCS Project includes a proposed 274-acre ± surface waste management facility. The facility will be comprised of a 203-acre ± landfill, as well as an Administration and Operations Area to support receiving and processing operations for oilfield wastes. The planned Application for Permit will provide design and operating details for the landfill and ancillary facilities. DNCS plans to submit an Application for Permit to OCD in compliance with the regulations for siting, design, and operations of a surface waste management facility for oil and gas wastes (19.15.36 NMAC).

1.1 Project Description

The DNCS site is comprised of 274-acres ± of land located in portions of Section 31, Township 17 South, Range 33 East, NMPM and Section 6, Township 18 South, Range 33 East, NMPM in Lea County, NM (**Figure 1**). **Figure 2** is a site topographic map based on the USGS 7.5 minute Quadrangle for the area which shows the preliminary layout of the DNCS Facility, including the proposed landfill footprint, setbacks, and ancillary operations. It also indicates the location and transect for two borings completed to date (Section 3.2).

The siting portion of the project, of which this Workplan is an integral part, consists of research and fieldwork to address each of the Part 36 siting criteria for surface waste management facilities (19.56.36.13 NMAC). The site has been confirmed on a preliminary basis to meet the other Part 36 siting standards via regional and on-site studies:

- Watercourses
- Floodplains
- Wetlands
- Subsurface mines
- Land use setbacks
- Unstable areas
- Site access
- Mineral rights
- Water wells

Additional field studies are planned once the vertical setback to groundwater is confirmed (i.e., ecological resources).

1.2 Landfill Design

The DNCS land disposal facility is planned as an "area fill" (vs. a "trench fill") with a series of east-west oriented landfill cells (**Figure 2**). The excavation will be conducted within the 203-acre ± footprint identified on the same Figure.

The excavation, based on the preliminary design, ranges in depth form 20' – 45' (see cross-sections **Figures 6**, **7**, **8**, and **9**). The landfill cells are currently shown at either 1,535' or 2,500' in width; and the floor of each cell is 400' ± wide. The perimeter on all four sides of the landfill unit will have a 3:1 sideslope.

The floor of each cell slopes at 2% from east to west, consistent with the surface grades. Each cell would be equipped with a central leachate collection header pipe (6" dia. HDPE); and associated sump, extraction riser, cleanout riser, etc.

The facility footprint is designed to provide a 200' setback from the potential watercourse. The regulatory status of the watercourse will be confirmed as part of future field studies. The existing boring (B-1); and planned borings B-3 – B-5 are all proposed to a depth of 150'

below ground surface (bgs); which is more than adequate to prove up a minimum groundwater depth of 100' below the deepest basegrade elevation (i.e., 45' bgs). **Table 1** provides a summary of the Proposed Boring Locations and elevations.

Table 1
Summary of Existing and Proposed Borings
DNCS PROPERTIES, LLC SITE

Boring	Northing	Easting	Elevation (Surface)	Elevation (Total Depth)
1*	649115	735931	3965	3815
2*	647593	734483	3948	3898
3	646842	734983	3950	3800
4	646842	737783	3974	3824
5	651302	737783	3989	3839

Notes: NGVD29

*Existing drilled on February 2012

1.3 Subsurface Investigation Workplan Objectives

The primary objective of the field effort proposed herein is to collect site-specific subsurface information to identify the stratigraphy, and to verify that a minimum vertical setback of 100 feet exists between viable groundwater and the basegrades of the proposed landfill. This Workplan describes the proposed drilling program to evaluate the subsurface conditions at the proposed DNCS Site in compliance with the requirements of 19.15.36.8.C(15) NMAC and 19.15.36.13.A NMAC. The purpose of this Plan is to outline the rationale and approach by which geologic and hydrogeologic information will be collected to identify site conditions. This drilling program has been developed and will be implemented with OCD approval, to accomplish the following:

- Refine the geologic/hydrogeologic site database as needed
- Characterize subsurface materials for their geotechnical/engineering properties
- Identify parameters for a groundwater monitoring program, if applicable (this Plan does not propose to install monitor wells in conjunction with this effort)

2.0 GEOLOGY AND HYDROGEOLOGY

The local geology of the DNCS site is poorly documented. Most oil and gas well logs in the area do not have detailed lithologic data for strata above the Permian Rustler Formation, which is typically deeper than 1200 feet below ground surface. Generalized geologic and hydrologic information for the area is discussed in Nicholson and Clebsch, (1961), "*Geology and Ground-Water Conditions in Southern Lea County, New Mexico*", New Mexico Bureau of Mines and Mineral Resources Ground-water Report 6. The generalized geologic and hydrologic information for the area west of the site, in Eddy County, is discussed in Hendrickson and Jones, (1952), "*Geology and Ground-Water Resources of Eddy County, New Mexico*", New Mexico Bureau of Mines and Mineral Resources Ground-Water Report 3, 169p. Several revisions to the interpretations of the geolomorphologic, geologic, and stratigraphic relationships of the local deposits have been published since these two studies, i.e., Kelly (1971),Summers (1972), (Bachman (1974), Bachman (1976), Hunt (1977), Bachman (1980), Bachman (1987), Hawley (1993a), Hawley (1993b), Powers and Holt (1993),), Lucas and Anderson (1994a), Lucas and Anderson (1994b), Kennedy (1997), Lehman (1994) , and Ziegler, Kelly and Geismann (2008) (Section 5.0).

2.1 Geomorphology, Geology, and Stratigraphy

An index geomorphic and surface geologic map of the area is presented as **Figure 3**, and a generalized geologic map as **Figure 4.**

A stratigraphic chart representing the expected subsurface geology in the region surrounding the site is presented in **Figure 5.** The only rocks in the chart not expected to exist directly under the site would be the Ogallala Formation. The Ogallala has been removed by erosion in the immediate site area prior to the deposition of Tertiary and Quaternary sediments, but is exposed east of the site on Mescalero Ridge (The Caprock) where it is preserved.

Only late Permian (Ochoan) Rustler Formation and younger rocks are discussed here because potable water is unlikely to occur in rocks deeper or older than these deposits. Domestic, municipal, and stock wells in the general area of the site rarely tap units older than the Rustler Formation rocks.

2.2 Description of Tertiary and Quaternary alluvial and eolian deposits

Mescalero Sands, Mescalero Caliche and Gatuña Formations

"The combination of tectonic, surface-fluvial and subsurface-dissolutional processes acting for at least the past 12 to 13 Ma has produced a very complex system of landforms and valley and depression fills in the Carlsbad area. These units are still incompletely characterized and understood, particularly in terms of absolute chronology of events. **(Figure 3)**.… "Nye (1933, p. 11-12) defined a stepped-sequence of geomorphic surfaces (both erosional and constructional) that flank the modern Pecos floodplain in the Roswell artesian-basin segment of the lower Pecos Valley.

The only post-High Plains surface recognized by Nye east of the valley is the Mescalero Plain, a broad undulating surface locally covered by eolian deposits (Mescalero Sand) and disrupted by many solution-subsidence depressions. The surface is separated from the Llano Estacado by the "Mescalero Ridge" escarpment. Relict and shallowly buried parts of the Mescalero Plain, which stabilized in the late Pliocene (?) to middle Pliocene, are characterized by a caprock calcrete unit that has been designated the "Mescalero caliche" by Bachman (1976, 1980).

Nye (1933) correlated the Mescalero plain with the Diamond A plain, a poorly preserved piedmont surface west of the Pecos Valley that is primarily an erosional feature cut on carbonate rocks of the Sacramento uplift. Projected gradients of these two surfaces, neglecting subsequent solution-subsidence effects, place them from 300-500 ft above the modern valley floor. Valley fills and erosion-surface veneers genetically associated with the Mescalero and Diamond A plains have long been referred to as Gatuña Formation (Lang, 1938; Vine, 1963; Bachman, 1976, 1980, 1981, 1984; Powers and Holt, 1993)." (Hawley, 1993a p.2-3). The thickness of the Tertiary and Quaternary strata is unknown under the site, but can be estimated to be up to 400 feet based on interpretations of driller's logs of oil wells in the area.

2.3 Description of Late Triassic and Late Permian strata

Triassic Rocks

"South of Pavo Mesa and along the east side of Crow Flats, Triassic and Permian rocks are contorted, fractured and exposed as chaotic angular blocks……The Gatuña Formation rests unconformably on this chaotic structure…"(Bachman 1974, p. 55). Triassic-aged Dockum Group (Chinle Group) outcrops are exposed east and south of the site **(Figure 4)**. The Dockum Group is up to 1000 feet thick east of Artesia (Hendrickson and Jones, 1952; p. 23) and consists of redbeds and sandstones. This thickness estimate may also include the underlying late Permian Quartermaster Formation (Dewey Lake Formation).

All Triassic strata in southeastern New Mexico are now considered to be included in the Chinle Group (Lucas and Anderson, 1993b). The sandstone and conglomerate dominated Santa Rosa Formation of the Chinle Group being at the base. The claystone and mudstone dominated San Pedro Arroyo Formation of the Chinle Group conformably overlies the Santa Rosa Formation. The San Pedro Arroyo Formation is reported to be 26 feet thick near The Maroon Cliffs area, 20 miles south of the site, apparently thins to the north, and is absent in the Mesa Diablo Area in northern Chavez County. Triassic rocks unconformably overlie the late Permian (Ochoan) Quartermaster (Dewey Lake) Formation and Rustler Formation strata. Upper Permian (Ochoan) Rustler Formation and Quartermaster Formation (Dewey Lake) rocks are the oldest rocks exposed in the area near the DNCS site (**Figures 3** and **4**).

Quartermaster (Dewey Lake) Formation

The Quartermaster Formation beds (formerly Pierce Canyon redbeds), up to 350 feet thick near Pierce Canyon, at a distance of 40 miles south-southwest of the site, overlie the Rustler Formation rocks. The Quartermaster thins to the north and is absent north of the latitude of Artesia.

Rustler Formation

The Rustler Formation was named by Richardson (1904) for exposures in the Rustler Hills of Culberson County, Texas (Lucas and Anderson, 1993). East of the DNCS site, in the Crow Flats area, Bachman (1974) describes outcrops of Permian Rustler Formation overlain by conglomeratic cross-bedded dark-reddish-brown sandstone of late Triassic age which are overlain by Gatuña Formation strata.

3.0 WORKPLAN OBJECTIVES

Data obtained from the implementation of this proposed effort will confirm the characterization of the site geology and hydrogeology; as well as provide information regarding the presence of groundwater to a depth of at least 100 feet below the proposed deepest landfill basegrade elevation. This data may also be instrumental in defining characterization of the groundwater zone indicated for monitoring; and subsequent placement of the groundwater monitoring well network if applicable (no groundwater monitor wells are proposed with this Plan).

DNCS has made a business decision to confirm that groundwater is greater than 100 feet below the lowest elevation of the design depth of the landfill (as required in 19.15.36.13 A (1)NMAC) prior to committing the resources required to develop a groundwater monitoring plan (as defined in 19.19.15.36.14 B). This decision was made with the understanding that if groundwater exists at this site, 19.15.36.8.B (15) (b) requires "*laboratory analysis, performed by and independent commercial laboratory, for major cations and anions; BTEX; RCRA metals; and TDS of ground water samples of the shallowest fresh water aquifer beneath the proposed site*" as part of the Permit Application. This requirement will necessitate the drilling and installation of a monitor well to provide the required information.

3.1 Preliminary Investigation

A Preliminary Investigation was completed in February 2012, and is a significant predicate for the Scope of Work proposed for this Workplan. Borings B-1 and B-2 were drilled during this initial investigation (**Figure 2**) to confirm the absence of groundwater, and to provide initial geotechnical information to complete the preliminary site screening. Borings proposed

in this Workplan will be continuously cored and sampled at select intervals using a drive sampler(s) for:

- Identification of subsurface materials
- Verification that groundwater is not present
- Collection of selected samples for laboratory testing of the required geotechnical properties in conformance with 19.15.36.8.C(15) NMAC.

3.2 Preliminary Drilling Summary

On February 15, 2012; two exploratory borings (B-1 and B-2) were drilled at the locations shown on **Figure 2**. **Table 2** summarizes the completed information for each of the borings. The borings were drilled by Precision Drilling of Albuquerque, using a CME 85 hollow stem auger (HSA).

Table 2
Summary of DNCS Phase 1 Borings B-1 and B-2
DNCS PROPERTIES, LLC SITE

BORING	GPS COORDINATES	DRILLING METHOD(S)	DEPTH (FBGS)	LITHOLOGY
B-1	N 32º 46.968' W 103º 42.012' Elev. ~3965	A	150 (TD) Elev. ~ 3815	-Coarse-grained soils (i.e., silty sands) were encountered to a depth of 125' below ground surface (bgs). Claystones, likely of the prevalent Chinle formation, were present from 125' to 150' bgs. No free water was encountered during drilling; including the absence of perched water at the sand/claystone interface
B-2	N 32º 46.722' W 103º 42.294' Elev. ~3948	A	50 (TD) Elev. ~3898	-Coarse-grained soils (i.e., silty sands) were encountered to the total depth below ground surface (bgs).

A = hollow stem auger (7" OD); C = continuous core (3.5" OD, 2.5" ID); R = air rotary; S = 2" OD, 1.38" ID split spoon sampler NQ = 75 mm OD, 47.6 mm ID wireline core; TD = total depth drilled; FBGS = feet below ground surface

The primary purposes of this drilling effort was to determine if shallow groundwater is present beneath the proposed Solid Waste Management Facility (19.15.36.13.A NMAC). The drilling was successful in determining that groundwater is not present beneath the site surface to the total depths of the two borings (**Table 1**) at the locations indicated.

3.3 Field Investigation

The proposed Workplan contained herein is documented for formal review and approval by OCD. GEI formulated this Workplan to meet the requirements of the Part 36 Regulations and in response to previous experience on similar projects. GEI will not conduct any further subsurface investigations until this program is approved by OCD.

Based upon GEI's experience on similar sites, this Workplan has been formulated to meet OCD guidelines and suggestions for hydrogeologic characterization of new Part 36 Surface Waste Management Facilities. The field investigation will be refined as the drilling progresses in consultation with OCD.

This Workplan will supplement the data collected from the Preliminary Investigation conducted in February 2012 (Section 3.1). **Figure 2** illustrates the proposed locations of the following:

- Existing Borings B-1 and B-2
- Three proposed borings (B-3, 4 and 5)
- Landfill unit configuration

The three borings (B-3 through 5) will be drilled with continuous coring and sampling at 5-foot intervals to a depth of at least 100 ft below the proposed landfill basegrade (i.e., 150' below ground surface). The borings will be drilled in conformance with Part 36 and OCD policies and guidelines to verify that groundwater does not exist beneath the proposed landfill within 100 ft of the landfill basegrade.

Prior to any drilling of the borings, the New Mexico Office of the State Engineer (OSE) field office in Roswell must issue permits for exploratory wells for each of the three borings. A qualified drilling subcontractor will complete the necessary exploratory well permit applications and obtain OSE approval for drilling the borings.

Three geotechnical borings (B-3 through 5) are proposed at the locations shown on **Figure 2** and identified in **Table 1**. Minor adjustments to the locations may be necessary as determined in the field. The borings will be drilled using a portable CME 75 or CME 85 drill rig capable of using both hollow-stem auger (HSA) and air rotary methods. Each boring will

be drilled to a total projected depth of 150 ft below ground surface at each respective boring location. During HSA drilling, split-spoon, California Modified, brass ring or Shelby tube samples will be collected at 5-foot intervals for visual classification and laboratory analysis for geotechnical properties in conformance with (19.15.36.8.C(15)(g) NMAC) see **Table 3**. **Table 4** provides the OCD Part 36 requirements for soil testing that were identified. In the event that moist soils are encountered, we are prepared to provide standby time (up to 3 hours per occurrence) to assess the degree of saturation and potential for monitoring.

All three geotechnical borings will be plugged from total depth to existing grade. Plugging will be accomplished using 5 percent bentonite-cement grout slurry in conformance with plugging and abandonment standards of both the New Mexico OSE and the New Mexico Environment Department (NMED). DNCS understands that if groundwater is encountered in these borings, additional borings will be required to establish monitor wells for sampling and assessment of the groundwater quality. This is a business decision, made by the DNCS, to pursue confirmation that groundwater is greater than 100 feet below the lowest elevation of the design depth of the landfill (as required in 19.15.36.13 A (1)NMAC).

Table 3
Summary of Proposed Sampling and Laboratory Testing
DNCS PROPERTIES, LLC SITE

Proposed Geotechnical Borings		No. of Laboratory Tests						
ID	Total Depth	Dry Sieve Analysis	Atterberg Limits	K_{sat}	Classification (USCS)	Moisture Content	Dry Density	Standard Proctor Density
B-3	150	9-10	4-5	2-3	9-10	9-10	3-4	3-4
B-4	150	9-10	4-5	2-3	9-10	9-10	3-4	3-4
B-5	150	9-10	4-5	2-3	9-10	9-10	3-4	3-4

Notes:

- Standard penetration tests (blow counts) will be recorded at each sampling interval
- Porosity is calculated from the dry density and moisture content determination from an undisturbed brass ring sample
- Atterberg Limits testing will only be conducted on fine-grained materials

Table 4

OCD Requirements for Soil Testing
(Pursuant to 19.15.36 NMAC)

Total Porosity:

- Initial Properties: Moisture Content (ASTMD2216 - 10; ASTM D6836 – 68(2006))
- Dry Bulk Density (ASTM D6836)
- Calculated Porosity (ASTM D6836 – 68(2006)).

Permeability/Saturated Hydraulic Conductivity:

- Standard Test Method for Measurement of Hydraulic Conductivity of Porous Material Using a Rigid-Wall, Compaction-Mold Permeameter (ASTM D5856 - 95(2007))
- Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter. (ASTM D5084 – 10)

Compaction Ratios:

- Proctor Compaction Test. (ASTM698 – 07e1)

Swelling Characteristics:

- Atterberg Limits. (ASTM D4318 - 10)

Ancillary but necessary work proposed for the Workplan includes:

- Surveying: A professional surveyor licensed in the state of New Mexico will determine the coordinates (X,Y,Z) of all borings

3.4 Sample Recovery

The unconsolidated and dry sands encountered in the preliminary drilling program, and typical of the region, may represent challenges for core sample recovery. The driller plans to deploy the following techniques to improve sample recovery, as necessary:

- "Sand catchers" installed in the shoes of the Core Barrels.
- Use of 4" dia. barrel vs. standard 3" dia. barrel.
- Deployment of split-spoon or California Modified samplers as necessary.
- Back-to-back split spoons with a center bit to ensure undisturbed samples.

3.5 Investigation Results

The results of the implementation of this Workplan comprised of the preliminary drilling program and this proposed investigation will be correlated with the regional database. It will serve as the platform for the engineering design of the facility and future characterization of the site geology and hydrology as required under 19.15.36.8.C(15) NMAC. Upon completion of this Workplan, the resulting data will be included in the Application for Permit.

4.0 ANALYSIS AND REPORTING

The analysis and reporting required to document the site-specific geology and hydrology per 19.15.36.8.C(15) NMAC, and the siting requirement related to depth to groundwater at the proposed facility (19.15.36.13.A NMAC) includes the following:

- Cataloging and managing soil samples
- Illustrative graphics
- Permit application text, figures, tables and attachments

4.1 Sample Handling and Cataloging

Select soil samples will be collected (typically split spoon and maybe Shelby tube) from the borings as described in Section 3.2 of this Workplan. All of the samples will be cataloged, and select samples (representative of the subsurface materials encountered) will be delivered to the geotechnical testing laboratory for testing of select engineering properties (**Table 2**). GEI works closely with the testing laboratory regarding appropriate analysis methods, sample preparation, and timing to meet the project requirements.

4.2 Graphics

Key graphics required for reporting of regional and site-specific geologic and hydrogeologic investigations include boring logs, well completion diagrams, and hydrogeologic cross sections. These graphics form the basis for proper characterization of the subsurface materials, correlation of the materials across the site, correlation of the materials to the regional setting, and also form the basis for the discussion of the regional and site geologic and hydrogeologic conditions (see Section 2.2).

Logs are detailed graphical representations of subsurface conditions at the location of the boring. The logs will include:

- A standardized visual description of the materials drilled, as determined by the qualified GEI professional, from core, drive, and/or cutting samples, as appropriate
- A record of the intervals sampled
- Drilling and sampling methods
- Rig blow counts (for drive samples)
- Percent core recovered
- Drill time

- Engineering index properties (moisture content, density, and USCS classification) and hydraulic conductivity (where appropriate) as determined by the geotechnical testing laboratory
- Project information (logging geologist/engineer, driller, date completed, rig/boring data, surface elevation, and location coordinates)
- Documentation of *in situ* soil moisture in samples recovered

Geologic/hydrogeologic cross sections are required per 19.15.36.8.C(15)(e) NMAC. The boring logs described above form the basis for development of the cross sections. The cross sections illustrate the correlation of soils and lithology across the site in conformance with 19.15.36.8.C(15)(d) NMAC.

5.0 REFERENCES

Bachman, G.O., 1974, Geological Processes and Cenozoic History Related to Salt Dissolution in Southeastern New Mexico, U.S. Geological Survey Open-File Report 74-194, 81 p., Prepared under Agreement No. AT(40-1)-4339 for the Division of Waste Management and Transportation, U.S. Atomic Energy Commission.

Bachman, G.O., 1976, Cenozoic Deposits of Southeastern New Mexico and an Outline of the History of Evaporite Dissolution: U.S. Geological Survey Journal of Research, v. 4, p. 135-149.

Bachman, G.O., 1980, Regional geology and Cenozoic history of Pecos region, Southeastern New Mexico: U.S. Geological Survey Open-File Report 80-1099, 116 p.

Bachman, G.O., 1984, Regional Geology of Ochoan Evaporites, Northern Part of Delaware Basin: New Mexico Bureau of Mines and Mineral Resources, Circular 184, 22 p.

Bachman, G.O., 1987, Karst in Evaporites in Southeastern New Mexico: Sandia National Laboratories, Contractor Report SAND86-7078, 82 p.

Hawley, J.W., 1993a, Overview of the Geomorphic History of the Carlsbad Area, *in* Carlsbad Region, New Mexico and West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p.2-3

Hawley, J.W., 1993b, The Ogallala and Gatuna Formations in the Southeastern New Mexico Region, A Progress Report, *in* Carlsbad Region, New Mexico and West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p. 261-269.

Hendrickson, G.E., and Jones, R.S., 1952, Geology and Ground-Water Resources of Eddy County, New Mexico, New Mexico Bureau of Mines and Mineral Resources Ground-water Report 3, 169p.

Hunt, C.B., 1977, Surficial Geology of Southeast New Mexico, New Mexico Bureau of Mines and Mineral Resources Geologic Map 41 (GM-41).

Kelley, V. C., 1971, Geology of the Pecos country, southeastern New Mexico: New Mexico Bureau of Mines and Mineral Resources Memoir 24, 78 p.

Kennedy, J.F., 1997, The Pleistocene Mescalero Caliche of Southeastern New Mexico, M.S. geology thesis, New Mexico State University, Las Cruces, New Mexico, 138 p.

Lehman, T. M., 1994, The Saga of the Dockum Group and the Case of the Texas/New Mexico Boundary Fault: New Mexico Bureau of Mines and Mineral Resources, Bulletin No. 150, p. 37-51.

Lucas, S.G., and Anderson, O.J., 1993a, Stratigraphy of the Permian-Triassic Boundary Southeastern New Mexico and West Texas, *in* Carlsbad Region, New Mexico and West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p. 219-230.

Lucas, S.G., and Anderson, O.J., 1993b, Triassic Stratigraphy in Southeastern New Mexico and Southwestern Texas, *in* Carlsbad Region, New Mexico and West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p. 231-235.

New Mexico Bureau of Geology and Mineral Resources, 2003, Geologic Map of New Mexico. Scale 1:500,000. http://geoinfo.nmt.edu/publications/maps.html.

Nicholson, A. , Jr., and Clebsch, A., Jr., 1961, Geology and Ground-Water Conditions in Southern Lea County, New Mexico, New Mexico Bureau of Mines and Mineral Resources Ground-water Report 6, 120p.

Nye, S.S., 1933, Physiography; in Fiedler, G.A. and Nye, S.S., Geology and ground-water resources of the Roswell artesian basin, New Mexico: U.S. Geological Survey, Water Supply Paper 639, p. 7-18.

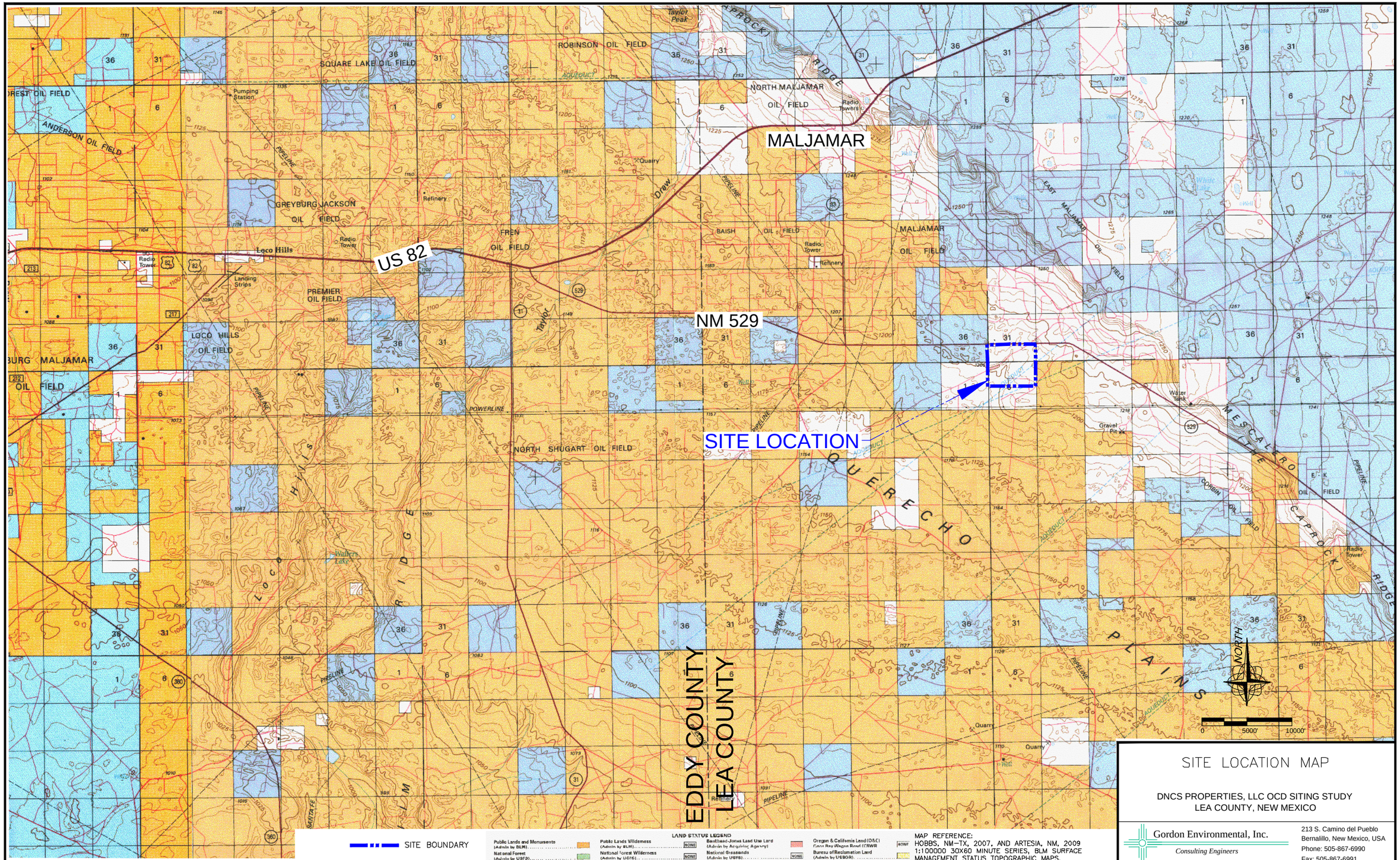
Powers, D.W., and Holt, R.M., 1993, The Upper Cenozoic Gatuña Formation of Southeastern New Mexico, *in* Carlsbad Region, New Mexico and West Texas, New Mexico Geological Society 44th Annual Field Conference Guidebook, October 6-9, 1993, p. 271-282.

Summers, W.K., 1972, Geology and Regional Hydrology of the Pecos River Basin, New Mexico, New Mexico Bureau of Mines and Mineral Resources Open-File-Report 37, Submitted to: The New Mexico Water Research Institute, New Mexico State University, Las Cruces, New Mexico, by: New Mexico Institute of Mining and Technology, Socorro, New Mexico 208p, 20 Tables 60 Figures, 27 Plates.

Zeigler, K.E., Kelly, S., and Geissman, J.W., 2008, Revisions to Stratigraphic Nomenclature of the Upper Triassic Chinle Group in New Mexico: New Insights from Geologic Mapping, Sedimentology, and Magnetostratigraphic/Paleomagnetic Data, Rocky Mountain Geology, v. 43, no2, p. 121-141, 6 figs., November, 2008.

SUBSURFACE INVESTIGATION WORKPLAN
DNCS PROPERTIES, LLC SITE
LEA COUNTY, NEW MEXICO

Figures



SITE BOUNDARY

LAND STATUS LEGEND

Public Lands and Monuments (Admin by BLM)	Public Lands Wilderness (Admin by BLM) NONE	Bankhead-Jones Land Use Land (Admin by Acquiring Agency)	Oregon & California Land (O&C) Coos Bay Wagon Road (CBWR) NONE
National Forest (Admin by USFS)	National Forest Wilderness (Admin by USFS) NONE	National Grasslands (Admin by USFS) NONE	Bureau of Reclamation Land (Admin by USBOR)
National Wildlife Refuge & Mgmt Areas (Admin by USF&WS) NONE	National Wildlife Refuge Wilderness (Admin by USF&WS) NONE	Military Reservation/Corps of Engineers (Admin by DOD) NONE	Other Federal Lands (Admin by Tribal Agency) NONE
National Parks and Monuments (Admin by USNPS) NONE	National Parks/Monuments Wilderness (Admin by USNPS) NONE	State Land	State Land Wilderness NONE
Indian Land or Reservation NONE	Indian Land or Reservation Wilderness NONE	State, County, City, Wildlife, Park and Outdoor Recreation Areas	Private Land

MAP REFERENCE:
HOBBS, NM–TX, 2007, AND ARTESIA, NM, 2009
1:100000 30X60 MINUTE SERIES, BLM SURFACE MANAGEMENT STATUS TOPOGRAPHIC MAPS.

SITE LOCATION MAP

DNCS PROPERTIES, LLC OCD SITING STUDY
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Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
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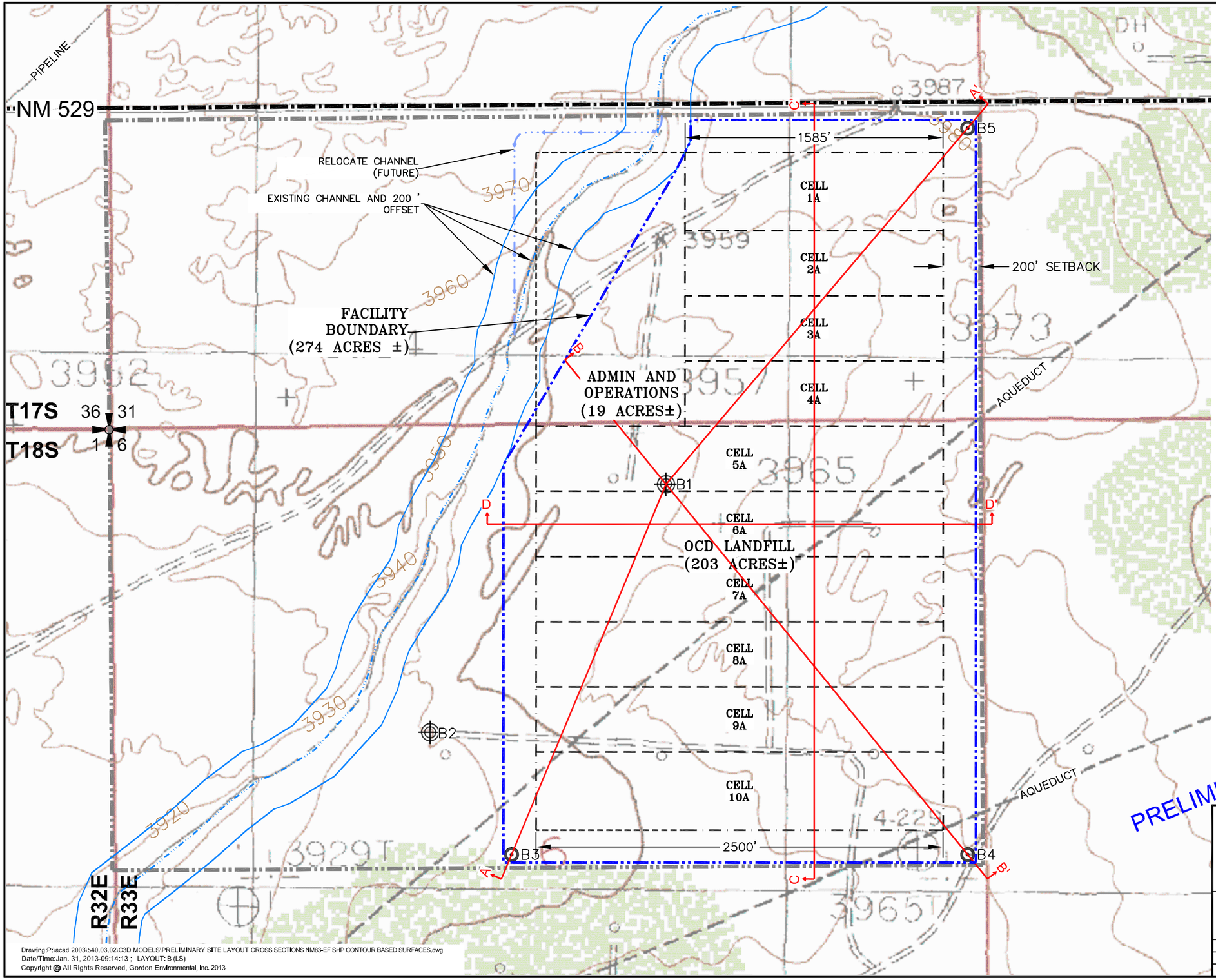
Fax: 505-867-6991

DATE: 01/25/2013	CAD:SITE LOCATION MAP.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: CWF	FIGURE 1
APPROVED BY: IKG	gei@gordonenvironmental.com	



LEGEND

- PROPERTY BOUNDARY
- LANDFILL UNIT BOUNDARY
- LANDFILL CELL BOUNDARY
- STORM WATER FLOW LINE
- NM HIGHWAY 529 CENTERLINE
- B1 EXISTING BOREHOLE
- B3 PROPOSED GEOTECHNICAL BOREHOLE LOCATION
- A A' CROSS SECTION LOCATION

MAP REFERENCE:
DOG LAKE 1985 PROVISIONAL EDITION,
USGS 1:24000, 7.5 MINUTE SERIES, TOPOGRAPHIC MAP

CONTOUR INTERVAL = 10 FEET
NOTE: VERTICAL DATUM = NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)

NORTH

0 300' 600'

PRELIMINARY

TOPOGRAPHIC MAP AND PRELIMINARY SITE LAYOUT

DNCS PROPERTIES, LLC OCD SITING STUDY
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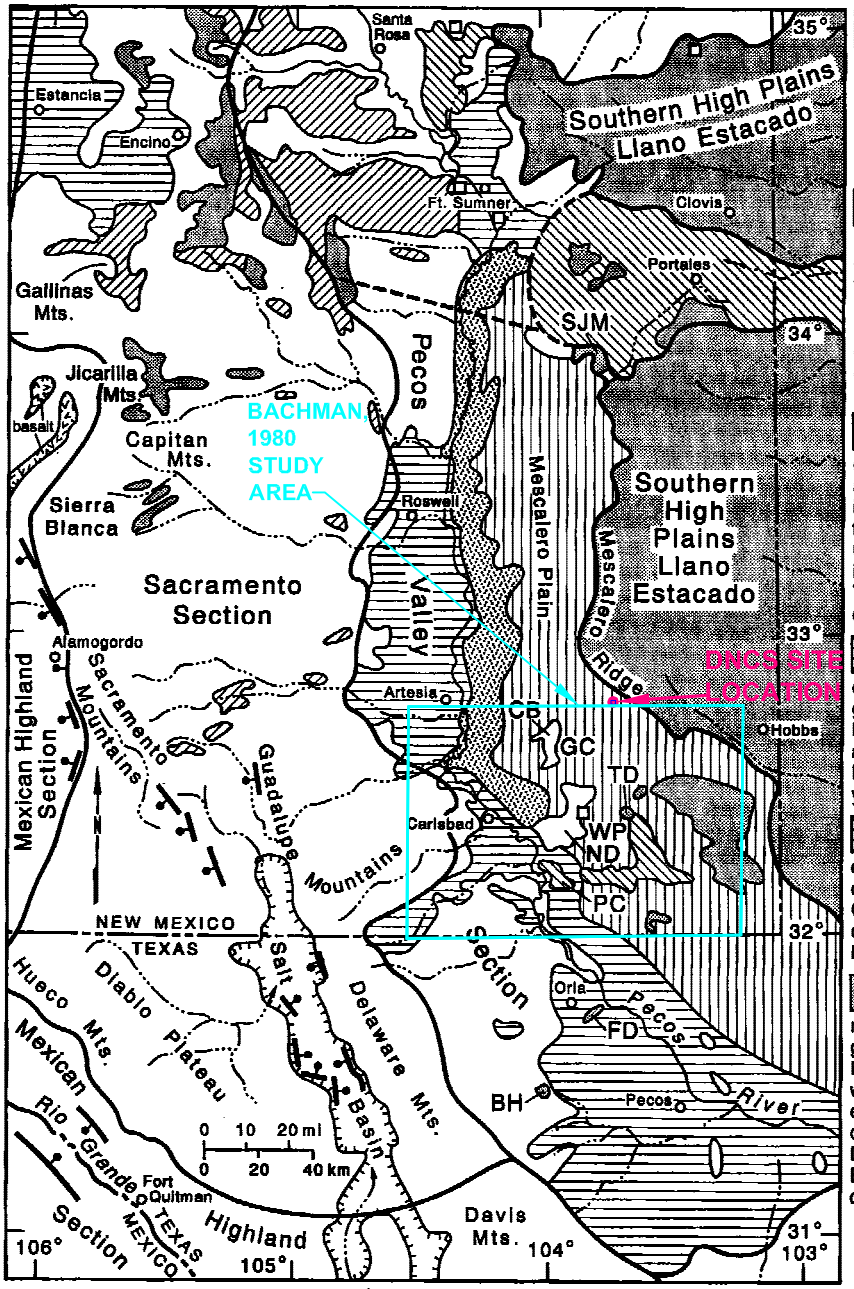
DATE: 01/31/2013	CAD: DNCS PRELIMINARY SITE LAYOUT NMEF.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: IKG	FIGURE 2
APPROVED BY: IKG	gel@gordonenvironmental.com	



Explanation

Undivided valley fill and Permian bedrock units in Fort Sumner to Carlsbad segment of the Pecos Valley; complex of valley-floor alluvium, terrace deposits and solution-subsidence depression fills (Pliocene–Quaternary), including "upper" Gatuña Formation, with extensive exposures of Dewey Lake–Quartermaster (Ochoan), residual Salado–Rustler (Ochoan), and Artesia Group (Guadalupian) rocks.

Undivided valley and basin fill of the Estancia and Roswell–Artesia basins, and Carlsbad–Pecos segment of the lower Pecos Valley (Delaware basin); complex of fluvial and eolian deposits, and undifferentiated fills of solution-subsidence depressions (Middle Miocene–Quaternary); includes Ogallala and Gatuña Formations, "quartzose and limestone conglomerates", and younger valley fill. Outcrops of Triassic and Permian rocks are locally extensive, and small exposures of Precambrian rocks are present on the Pedernal uplift.

Older surficial sediments of the Mescalero Plain and eastern border of the lower Pecos Valley; complex of eolian, fluvial and depression-fill deposits and pedogenic calcretes (Pliocene to Middle Pleistocene) inset below the High Plains (Llano Estacado) surface and the Ogallala caprock calcrete zone; primarily "upper" Gatuña Formation with Quaternary eolian cover, but includes exposures of "lower" Gatuña–Ogallala, and Triassic and upper Permian rocks in solution-subsidence depressions and tributary valleys.

Older piedmont and valley-fill alluvium, and karst-depression fills on upland erosion surfaces of the upper Pecos Valley and Sacramento sections; coarse gravelly to sandy deposits and pedogenic calcretes (late Miocene to early Pleistocene); includes undivided Ogallala and Gatuña Formations, exposures of Precambrian, upper Paleozoic, and Triassic rocks, and discontinuous cover of younger Quaternary alluvial and eolian deposits.

Older fills of the Portales, and upper and lower Pecos Valley segments; complex of fluvial and eolian deposits, calcretes, and solution-subsidence depression fills (middle Miocene to Quaternary); includes Ogallala and "lower" and "upper" Gatuña Formations, and overlying eolian cover sediments correlative with the Blackwater Draw Formation of the Llano Estacado.

Ogallala Formation (middle Miocene to early Pliocene); thick complex of eolian, fluvial, and minor lacustrine deposits (sand, silt, clay, with local gravelly facies), and caprock calcrete zones east of the Pecos Valley; and thin gravelly to sandy alluvial deposits, with calcrete zones, capping upland valley and piedmont erosion surfaces west of the Pecos. Includes 1) extensive cover of Plio–Pleistocene eolian sediments (Blackwater Draw Formation) on the Southern High Plains (Llano Estacado), and 2) Pliocene–Quaternary alluvium, eolian deposits and karst depression fills west of the High Plains.

Early to middle Pleistocene ash-fall deposits derived from Jemez and Yellowstone volcanic centers.

Quaternary fault zones.

Physiographic section boundaries.

Index map of southeastern New Mexico region showing location of major physiographic subdivisions and general distribution patterns of upper Cenozoic deposits that include the Ogallala and Gatuña Formations or their correlatives. Occurrences of Plio-Pleistocene volcanic ashes and zones of known Quaternary faults are also shown. BH = Burnt Hills (TX), CB = Clayton Basin (NM), FD = Fourmile Draw (TX), GC = Gatuña Canyon (NM), ND = Nash Draw (NM), PC = Pierce Canyon (NM), TD = The Divide, SJM = San Juan Mesa (NM) and WP = WIPP site.

REFERENCE: HAWLEY, 1993b,FIGURE 1, P. 262

NORTH

0' 22 44 MILES

GEOMORPHIC AND SURFACE GEOLOGY MAP

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DATE: 01/24/2013	CAD: GEOMORPHIC SURFICAL GEOL.dwg	PROJECT #: 530.01.01
DRAWN BY: MLH	REVIEWED BY: CWF	FIGURE 3
APPROVED BY: IKG	gei@gordonenvironmental.com	

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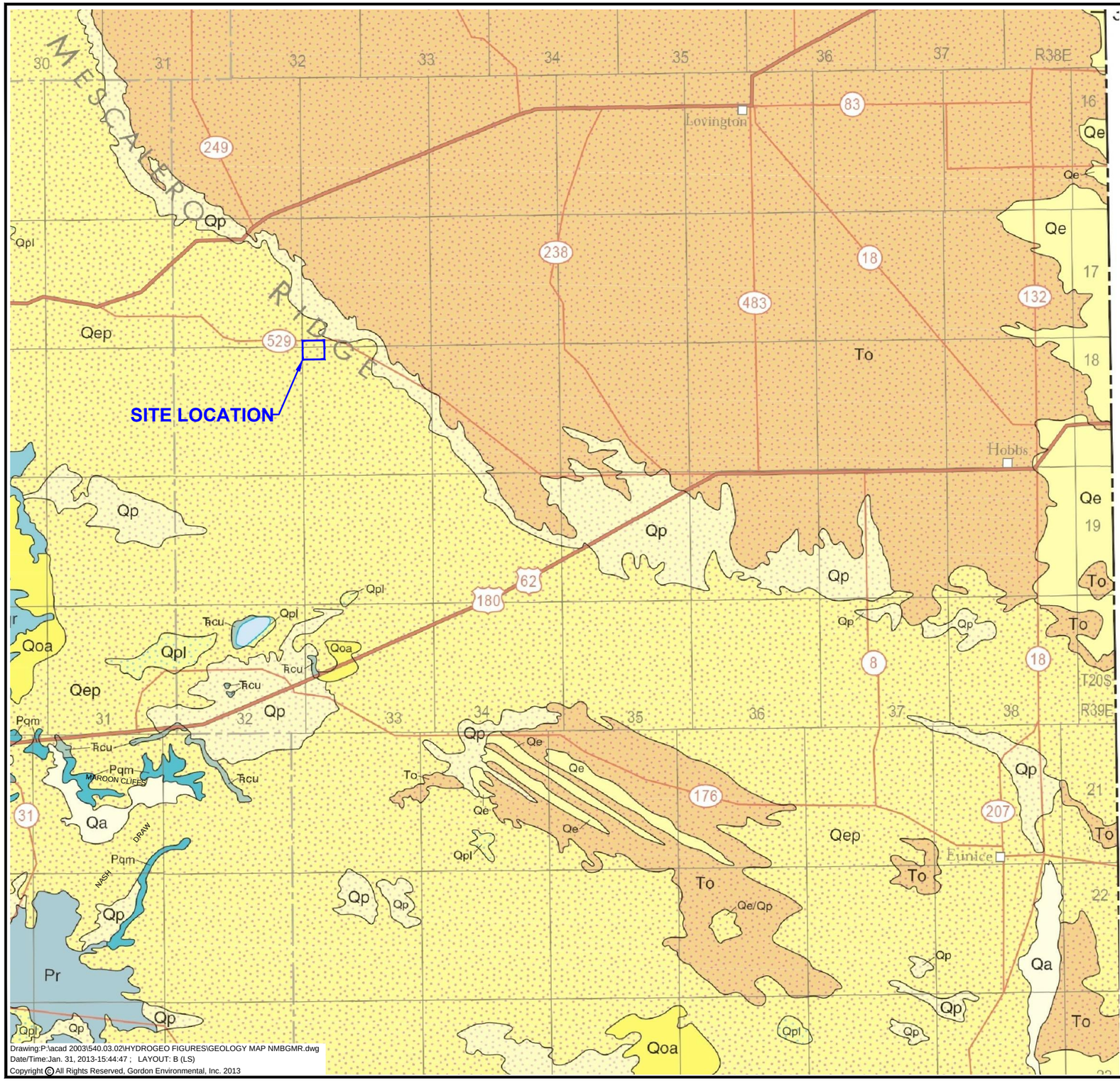

DESCRIPTION OF MAP UNITS

QUATERNARY

Qa Alluvium (Holocene to upper Pleistocene)

Qpl Lacustrine and playa deposits (Holocene)––Includes associated alluvial and eolian deposits of major lake basins

Qp Piedmont alluvial deposits (Holocene to lower Pleistocene)––Includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the piedmont slope, and alluvial fans. May locally include uppermost Pliocene deposits

Qe Eolian deposits (Holocene to middle Pleistocene)

Qep Eolian and piedmont deposits (Holocene to middle Pleistocene)––Interlayered eolian sands and piedmont–slope deposits along the eastern flank of the Pecos River valley, primarily between Roswell and Carlsbad. Typically capped by thin eolian deposits

Qoa Older alluvial deposits of upland plains and piedmont areas, and calcic soils and eolian cover sediments of High Plains region (middle to lower Pleistocene)––Includes scattered lacustrine, playa, and alluvial deposits of the Tahoka, Double Tanks, Tule, Blackwater Draw, and Gatuña Formations, the latter of which may be Pliocene at base; outcrops, however, are basically of Quaternary deposits

TERTIARY

To Ogallala Formation (lower Pliocene to middle Miocene)––Alluvial and Eolian deposits, and petrocalcic soils of the southern High Plains. Locally includes Qoa

TRIASSIC

Trcu Upper Chinle Group/Dockum Group, Red shales with minor siltstone and sandstone. San Pedro Arroyo Formation.

Trs Santa Rosa Formation

PALEOZOIC

Pqm Quartermaster Formation (Upper Permian)––Red sandstone and siltstone (Equivalent to Dewey Lake Red Beds)

Pqr Quartermaster and Rustler Formations (Upper Permian)

Pr Rustler Formation (Upper Permian)––Siltstone, gypsum, sandstone, and dolomite

Psl Salado Formation (Upper Permian) –– Evaporite sequence, dominantly halite

NORTH

0 2.5 5 MILES

REFERENCE:
New Mexico Bureau of Geology and Mineral Resources, 2003, Geologic Map of New Mexico, Scale 1:500,000,

GENERALIZED GEOLOGIC MAP

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DATE: 01/23/2013	CAD: GEOLOGY MAP 1.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: GEI	FIGURE 4
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\540.03.02\HYDROGEO FIGURES\GEOLOGY MAP NMBGMR.dwg
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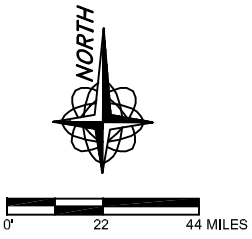
Table 1.--Major stratigraphic and time divisions, southeastern New Mexico (Time divisions from Berggren, 1972, in part.)

ERA	SYSTEM	SERIES	FORMATION	AGE ESTIMATE
Cenozoic	Quarternary	Holocene	Windblown sand	
		Pleistocene	Mescalero caliche Gatuna Formation	ca. 500,000 years ca. 600,000+ years
	Tertiary	Pliocene	Ogallala Formation	-5 million years-------
		Miocene		26 million years-------
		Oligocene Eocene Paleocene	Absent Southeastern New Mexico	65 million years-------
Mesozoic	Cretaceous	Upper (Late) Lower (Early	Absent SE N. Mex. Detritus preserved	136 million years------
	Jurassic		Absent SE N. Mex.	190-195 million years--
	Triassic	Upper (Late) Lower	Dockum Group Absent SE N. Mex.	225 million years
Paleozoic	Permian	Ochoan	Dewey Lake Red Beds Rustler Formation Salado Formation Castile Formation	
		Guadalupian Leonardian Wolfcampian	Capitan Limestone and Bell Canyon Fm. Present but not discussed in this report	280 million years-----

REFERENCE: BACHMAN, 1980, TABLE 1, P. 11



PROJECT AREA STRATIGRAPHIC CHART

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DATE: 01/24/2013	CAD: GEOMORPHIC SURFICAL GEOL.dwg	PROJECT #: 530.01.01
DRAWN BY: MLH	REVIEWED BY: CWF	FIGURE 5
APPROVED BY: IKG	gei@gordonenvironmental.com	

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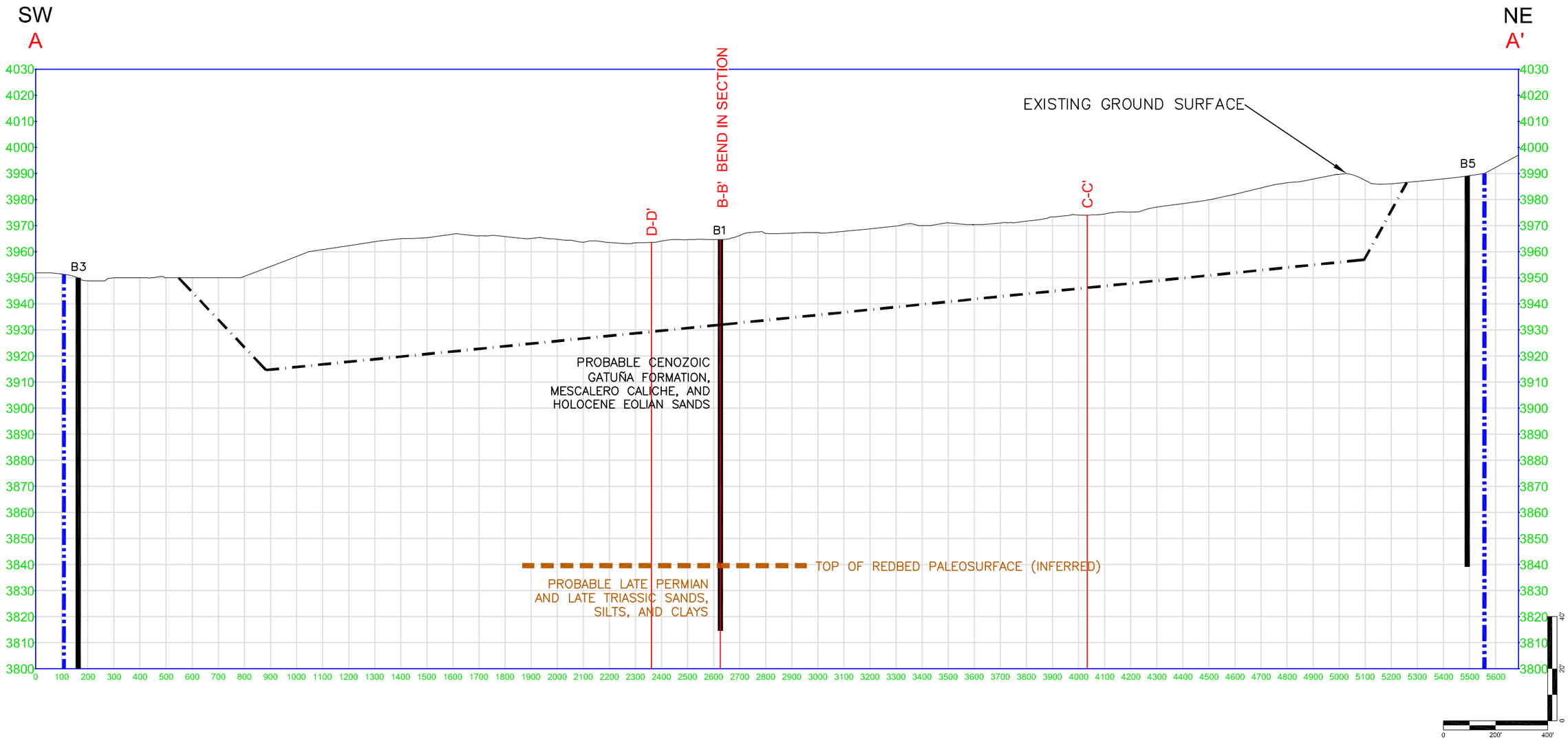

PRELIMINARY

CROSS SECTION A–A'

DNCS PROPERTIES, LLC OCD SITING STUDY
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Fax: 505-867-6991

DATE: 01/30/2013	CAD: DNCS PRELIMINARY SITE LAYOUT NMEF.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: IKG	FIGURE 6
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\540.03.02\C3D MODELS\PRELIMINARY SITE LAYOUT CROSS SECTIONS NM83-EF SHP CONTOUR BASED SURFACES.dwg
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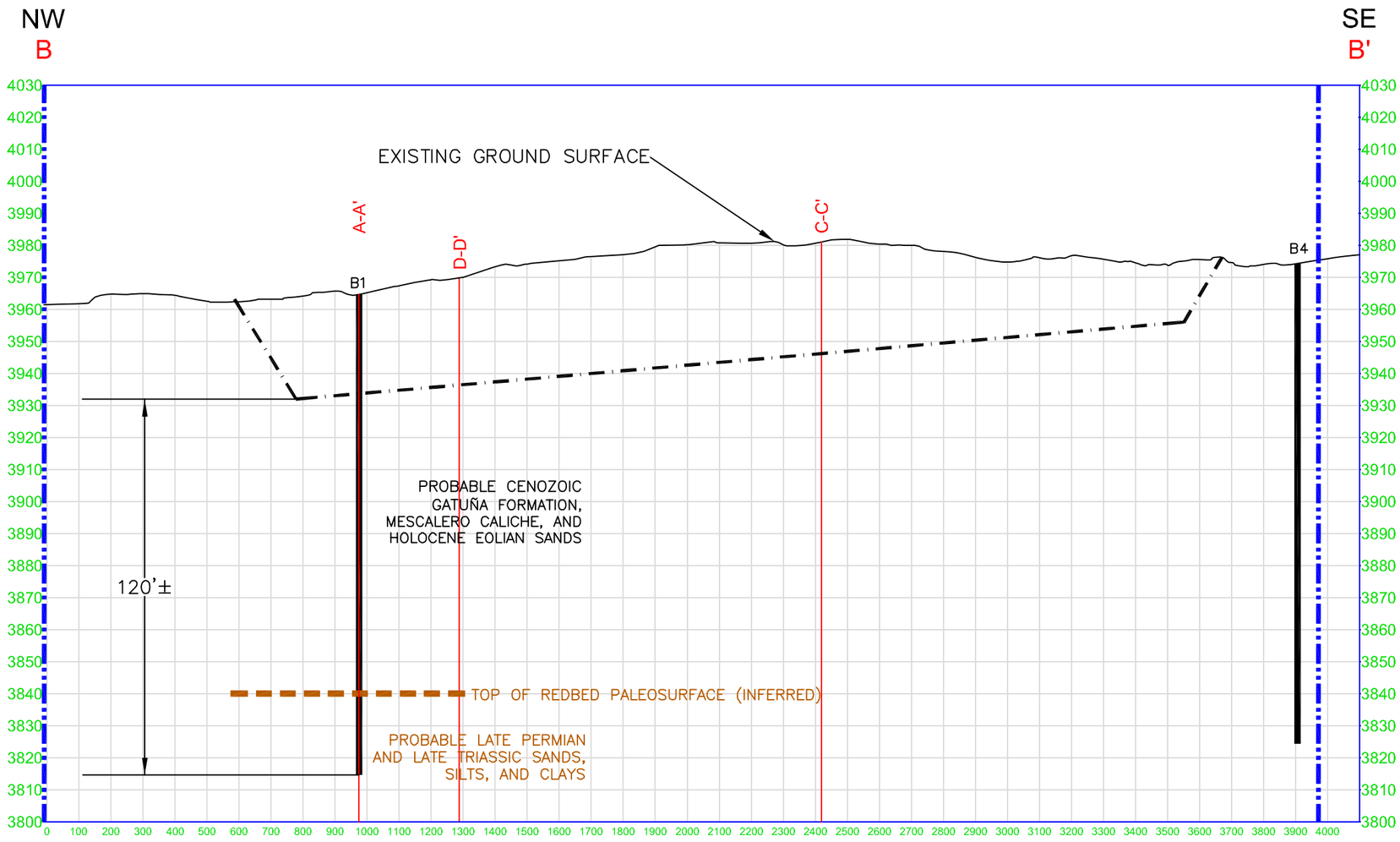

PRELIMINARY

CROSS SECTION B–B'

DNCS PROPERTIES, LLC OCD SITING STUDY
LEA COUNTY, NEW MEXICO

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Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
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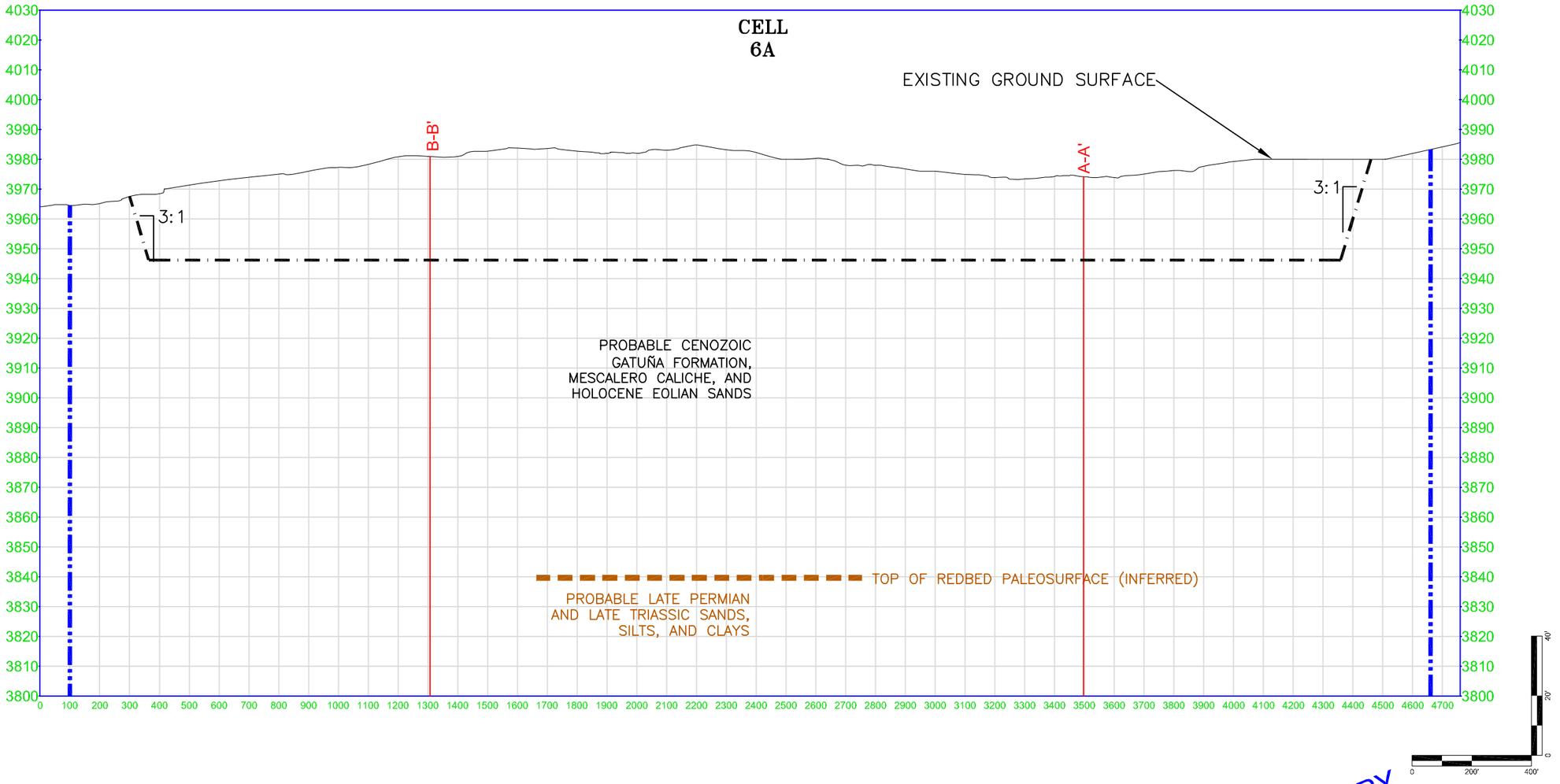
Fax: 505-867-6991

DATE: 01/31/2013	CAD: DNCS PRELIMINARY SITE LAYOUT NMEF.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: IKG	FIGURE 7
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\540.03.02\C3D MODELS\PRELIMINARY SITE LAYOUT CROSS SECTIONS NM83-EF SHP CONTOUR BASED SURFACES.dwg
Date/Time:Jan. 31, 2013-09:04:40 ; LAYOUT: B (LS) (BB)

S
C

N
C'



PRELIMINARY

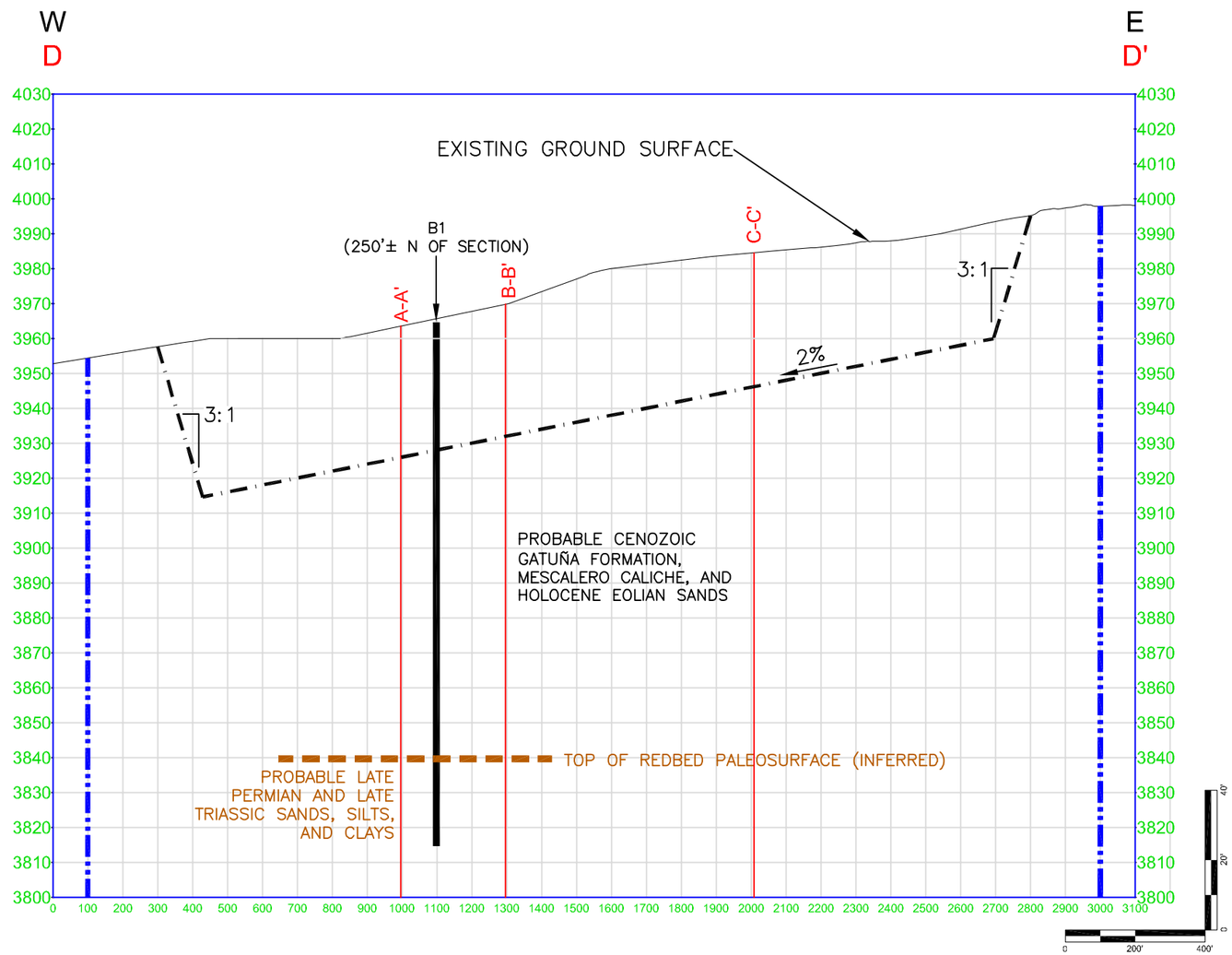
CROSS SECTION C–C'

DNCS PROPERTIES, LLC OCD SITING STUDY
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 01/31/2013	CAD: DNCS PRELIMINARY SITE LAYOUT NMEF.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: IKG	FIGURE 8
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\540.03.02\C3D MODELS\PRELIMINARY SITE LAYOUT CROSS SECTIONS NM83-EF SHP CONTOUR BASED SURFACES.dwg
Date/Time:Jan. 31, 2013-08:45:20 ; LAYOUT: B (LS) (CC)



EXISTING BORING B1 PROJECTED

PRELIMINARY

CROSS SECTION D–D'

DNCS PROPERTIES, LLC OCD SITING STUDY
LEA COUNTY, NEW MEXICO

Gordon Environmental, Inc.
Consulting Engineers
213 S. Camino del Pueblo
Bernalillo, New Mexico, USA
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 01/31/2013	CAD: DNCS PRELIMINARY SITE LAYOUT NMEF.dwg	PROJECT #: 540.03.02
DRAWN BY: MLH	REVIEWED BY: IKG	FIGURE 9
APPROVED BY: IKG	gei@gordonenvironmental.com	

Drawing:P:\acad 2003\540.03.02\C3D MODELS\PRELIMINARY SITE LAYOUT CROSS SECTIONS NM83-EF SHP CONTOUR BASED SURFACES.dwg
Date/Time:Jan. 31, 2013-08:54:45 ; LAYOUT: B (LS) (DD)

APPLICATION FOR PERMIT
DNCS ENVIRONMENTAL SOLUTIONS

VOLUME IV: SITING AND HYDROGEOLOGY
SECTION 2: HYDROGEOLOGY

ATTACHMENT IV.2.B

LOGS OF GEOTECHNICAL BORINGS AT THE DNCS SITE

Gordon Environmental, Inc.
Consulting Engineers

Log of Borehole No.: B3 | Total Depth 150' | Page 1 of 2

DRAFT

Client: DNCS PROPERTIES, LLC | Project No.: 542.01.01

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: 32.77692°	Date Started: 02-06-2013	Drilling Co.: PRECISION SAMPLING	GEI Rep.: MLH
NONE Ft. at completion (below ground surface)	E: -103.70411	Date Comp: 02-08-2013	Rig Type: CME 85	Drill Meth.: HSA, AIR ROTARY
water level data approximate	Elevation: 3940.23	Location: DNCS SITE, LEA COUNTY SE/4, N/2, SEC 6, T18S, R33E, N.M.P.M.	Driller: JUAN BARRAZA	Sampling Meth.: SS/BR/CC/ARC/AC
	COORD REF SYS WGS84		Helper: TINO V.	

Depth (ft. BGS)	Graphic Lithology	Sampling Method (SS BR CC ARC AC)	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
0'			0–1' SAND, FINE AND SILT; BROWN (WINDBLOWN, LOOSE)		UNCONFORMITY AS BASE OF DUNE SAND
			1'–5', SAND; FINE, AND CALICHE LIGHT BROWN (7.5YR 6/4), (POORLY GRADED; POORLY TO MODERATELY INDURATED)		VARIABLY CALICHEFIED FROM 4' TO 40'
5'				13	
			5'–10', SAND; FINE, WITH CALICHE AND TRACE GRAVEL TO 1"; PINK (7.5YR 7/2), (POORLY GRADED; POORLY TO MODERATELY INDURATED)		
10'				33	
					SPARSE GRAVEL TO 2"; ABUNDANT CALICHE FRAGMENTS
15'				31	
			10'–25', SAND; FINE, WITH SILT, CALICHE FRAGMENTS, AND ROUNDED GRAVEL TO 1"; PINK (5YR 8/3), (POORLY GRADED; POORLY TO MODERATELY INDURATED/CALICHEFIED)		
20'				23	
25'				45	
30'				29	TRACE GRAVEL TO 0.5" DIA.
			25'–45', SAND; FINE, WITH SILT, CALICHE FRAGMENTS, AND ROUNDED GRAVEL TO 3.5"; LIGHT REDDISH BROWN (5YR 6/4), (POORLY GRADED; POORLY TO MODERATELY INDURATED/CALICHEFIED)		
35'				20	
					TRACE GRAVEL TO 3.5" DIA.
40'				32	
					INCREASE IN COARSE SAND AND GRAVEL @ CONTACT WITH UNDERLYING CLAYSTONE AND SILTSTONES
45'			UNCONFORMITY	58	CLAYSTONE AND SILTSTONE BEGINS @ 45' GRAVEL TO 2" DIA. (ABUNDANT WEATHERED IGNEOUS ROCK [TERTIARY AGED SIERRA BLANCA VOLCANICS?] AND LIMESTONE CLASTS AT TOP OF CLAYSTONE–SILTSTONE CONTACT / UNCONFORMITY)
			45'–55', CLAYSTONE AND SILTSTONE; WITH CALICHE FRAGMENTS, AND ROUNDED GRAVEL TO 2"; REDDISH BROWN (2.5YR 5/4), (POORLY GRADED; MODERATELY INDURATED)		
50'				100+	
55'				100+	
			55'–70', CLAYSTONE AND SILTSTONE; WITH CALICHE FRAGMENTS, AND ROUNDED GRAVEL TO 2"; REDDISH BROWN (2.5YR 4/4), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)		
60'				95	HOLE CHECKED FOR WATER AFTER SITTING OVERNIGHT (15.5 HOURS), NO WATER DOWN-HOLE.
65'				84+	
70'			70'–85', CLAYSTONE AND SILTSTONE; LIGHT RED (2.5YR 6/8), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)	93+	SWITCHING TO AIR-ROTARY DRILLING AT 80' BGS, NO MORE CONTINUOUS CORING
75'					

KEY

BGS = BELOW GROUND SURFACE SS = SPLIT SPOON ARC = AIR ROTARY CUTTINGS AC = AUGER CUTTINGS CC = CONTINUOUS CORE
HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

Gordon Environmental, Inc.
Consulting Engineers

Log of Borehole No.: **B3** Total Depth **150'** Page **2** of **2**

Client: **DNCS PROPERTIES, LLC** Project No.: **542.01.01**

DRAFT

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: **32.77692'**	Date Started: **02-06-2013**	Drilling Co.: **PRECISION SAMPLING**	GEI Rep.: **MLH**
NONE Ft. at completion (below ground surface)	E: **-103.70411**	Date Comp: **02-08-2013**	Rig Type: **CME 85**	Drill Meth.: **HSA, AIR ROTARY**
water level data approximate	Elevation: **3840.23**	Location: **DNCS SITE, LEA COUNTY SE/4, N/2, SEC 6, T18S, R33E, N.M.P.M.**	Driller: **JUAN BARRAZA**	Sampling Meth.: **SS/BR/CC/ARC/AC**
	COORD REF SYS **WGS84**		Helper: **TINO V.**	

Depth (ft. BGS)	Graphic Lithology	Sampling Method (SS BR CC ARC AC)	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
80'			70'–85', (CONTINUED) CLAYSTONE AND SILTSTONE; LIGHT RED (2.5YR 6/8), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)	160+	BRASS RING SAMPLER BROKE DOWN-HOLE ; SMALL DAMAGED BRASS RING SAMPLE RECOVERED. DRILLHOLE CHECKED FOR WATER AFTER SITTING OVERNIGHT, NO WATER.
85'				100+	NEW "ANVIL" INSTALLED FOR SS SAMPLES
90'			85'–90', CLAYSTONE AND SILTSTONE; PALE RED (2.5YR 6/2), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)	100+	
95'				100+	SOME MnO_2–CALCITE VEINLETS AND PARTING COATINGS NO MORE SPLIT-SPOON SAMPLING ONLY AIR-ROTARY CUTTINGS FROM 90.25' TO 150' BGS
100'			90'–110', CLAYSTONE AND SILTSTONE; LIGHT RED (2.5YR 7/8), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)		
105'					
110'					
115'			110'–115', CLAYSTONE AND SILTSTONE; LIGHT RED (2.5YR 7/6), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)		
120'			115'–125', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)		
125'					
130'					
135'			125'–150'=TD, CLAYSTONE AND SILTSTONE; RED (2.5YR 4/8), AND VARIEGATED BROWN TO GREENISH LAYERS AND SPOTS (POORLY GRADED; MODERATELY INDURATED)		
140'					
145'					DRILLHOLE CHECKED FOR WATER AFTER SITTING OVERNIGHT; NO WATER. NO WATER SATURATION OF ANY MATERIAL ON AUGERS PRIOR TO PLUGGING HOLE.
150'					TD=150'

KEY

BGS = BELOW GROUND SURFACE SS = SPLIT SPOON ARC = AIR ROTARY CUTTINGS AC = AUGER CUTTINGS CC = CONTINUOUS CORE
HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

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Consulting Engineers

Log of Borehole No.: **B4** Total Depth **150'** Page **1** of **2**

DRAFT

Client: **DNCS PROPERTIES, LLC** Project No.: **542.01.01**

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: **32.77700°**	Date Started: **02-08-2013**	Drilling Co.: **PRECISION SAMPLING**	GEI Rep.: **MLH**
NONE Ft. at completion (below ground surface)	E: **-103.69465°**	Date Comp: **02-09-2013**	Rig Type: **CME 85**	Drill Meth.: **HSA, AIR ROTARY**
water level data approximate	Elevation: **3968.2**	Location: **DNCS SITE, LEA COUNTY CENTRAL SEC 6, T18S, R33E, N.M.P.M.**	Driller: **JUAN BARRAZA**	Sampling Meth.: **SS/BR/CC/ARC**
	COORD REF SYS **WGS84**		Helper: **TINO V.**	

Depth (ft. BGS)	Graphic Lithology	Sampling Method (SS BR CC ARC AC)	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
0'			0–2' SAND, FINE AND SILT; BROWN (WINDBLOWN, LOOSE)		
			2'–5', SAND; FINE, RED (2.5YR 4/6), (POORLY GRADED; POORLY TO MODERATELY INDURATED/CALICHEFIED)		UNCONFORMITY CALICHEFIED FROM 4' TO 40'
5'			5'–10', CALICHE AND SAND; FINE, WHITE (2.5YR 8/1), (POORLY GRADED; MODERATELY INDURATED)	84+	
10'			10'–15', CALICHE AND SAND; FINE, PINKISH WHITE (2.5YR 8/2), (POORLY GRADED; MODERATELY INDURATED)	82+	
15'			15'–20', CALICHE AND SAND; FINE, LIGHT REDDISH BROWN (2.5YR 6/4), (POORLY GRADED; MODERATELY INDURATED)		NO SS SAMPLE COLLECTED
20'			20'–25', SAND; FINE, AND CALICHE, LIGHT REDDISH BROWN (2.5YR 7/3), (POORLY GRADED; POORLY TO MODERATELY INDURATED)	34	
25'			25'–30', SAND; FINE, AND CALICHE, LIGHT REDDISH BROWN (2.5YR 7/4), (POORLY GRADED; POORLY TO MODERATELY INDURATED)	35	
30'			30'–55', SAND; FINE, AND CALICHE, LIGHT REDDISH BROWN (2.5YR 6/4), (POORLY GRADED; POORLY TO MODERATELY INDURATED)	39	DUNE SAND?
35'			30'–40', CALICHE AND SAND; FINE, PINKISH WHITE (2.5YR 8/2), (POORLY GRADED; MODERATELY INDURATED)	90	UNCONFORMITY? ABUNDANT ROOT CASTS AND VOIDS
40'			30'–40', CALICHE AND SAND; FINE, AND GRAVEL TO 1"; PINK (2.5YR 8/3), (POORLY TO MODERATELY GRADED; MODERATELY INDURATED)	84+	
45'			30'–40', CALICHE, SAND; FINE, AND GRAVEL TO 1", PINKISH WHITE (2.5YR 8/2), (POORLY TO MODERATELY GRADED; MODERATELY INDURATED)	93+	
50'			UNCONFORMITY	70	UNCONFORMITY
55'			50'–65', CLAYSTONE AND SILTSTONE; WITH CALICHE FRAGMENTS, AND ROUNDED GRAVEL TO 0.5" AT TOP; DARK REDDISH BROWN (2.5YR 3/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)	70+	
60'				64+	
65'				90+	GOING TO AIR-ROTARY DRILLING FROM 65' TO 150' BGS.
70'			65'–75', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 4/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
75'					

KEY

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HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

Gordon Environmental, Inc.
Consulting Engineers

Log of Borehole No.: **B4** Total Depth **150'** Page **2** of **2**

Client: **DNCS PROPERTIES, LLC** Project No.: **542.01.01**

DRAFT

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: **32.77700°**	Date Started: **02-08-2013**	Drilling Co.: **PRECISION SAMPLING**	GEI Rep.: **MLH**
NONE Ft. at completion (below ground surface)	E: **-103.69465°**	Date Comp: **02-09-2013**	Rig Type: **CME 85**	Drill Meth.: **HSA, AIR ROTARY**
water level data approximate	Elevation: **3968.2**	Location: **DNCS SITE, LEA COUNTY CENTRAL SEC 6, T18S, R33E, N.M.P.M.**	Driller: **JUAN BARRAZA**	Sampling Meth.: **SS/BR/CC/ARC**
	COORD REF SYS **WGS84**		Helper: **TINO V.**	

Depth (ft. BGS)	Graphic Lithology	Sampling Method (SS BR CC AC)	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
75'					AIR ROTARY CUTTINGS ONLY, NO MORE AC, SS, OR BR SAMPLES
80'			75'–85', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
85'			85'–95', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 4/3) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; POORLY TO MODERATELY INDURATED)		
90'					
95'			95'–100', CLAYSTONE AND SILTSTONE; RED (2.5YR 5/6) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
100'			100'–105', CLAYSTONE AND SILTSTONE; RED (2.5YR 5/8) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
105'			105'–115', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/3) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
110'					
115'			115'–120', CLAYSTONE AND SILTSTONE; RED (2.5YR 5/6) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; POORLY TO MODERATELY INDURATED)		
120'			130'–130', CLAYSTONE AND SILTSTONE; RED (2.5YR 5/8) WITH SPARSE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
125'					
130'			130'–135', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4) WITH TRACE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
135'			135'–140', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/3) WITH TRACE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; POORLY TO MODERATELY INDURATED)		
140'					
145'			140'–150'=TD, CLAYSTONE AND SILTSTONE; LIGHT REDDISH BROWN (2.5YR 6/4) WITH TRACE VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
150'					CHECKED DRILLHOLE FOR WATER AFTER SITTING OVERNIGHT, NO WATER; OBSERVED AUGER FILLING, NO SATURATED MATERIAL ON AUGERS TD=150'

KEY

BGS = BELOW GROUND SURFACE SS = SPLIT SPOON ARC = AIR ROTARY CUTTINGS AC = AUGER CUTTINGS CC = CONTINUOUS CORE
HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

Gordon Environmental, Inc.
Consulting Engineers

Log of Borehole No.: **B5** Total Depth **150'** Page **1** of **2**

DRAFT

Client: **DNCS PROPERTIES, LLC** Project No.: **542.01.01**

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: **32.78815°**	Date Started: **02-10-2013**	Drilling Co.: **PRECISION SAMPLING**	GEI Rep.: **MLH**
NONE Ft. at completion (below ground surface)	E: **-103.69491°**	Date Comp: **02-11-2013**	Rig Type: **CME 85**	Drill Meth.: **HSA, AIR ROTARY**
water level data approximate	Elevation: **3979.03**	Location: **DNCS SITE, LEA COUNTY EAST CENTRAL SEC 31, T17S, R33E, N.M.P.M.**	Driller: **JUAN BARRAZA**	Sampling Meth.: **SS/BR/CC/ARC**
	COORD REF SYS **WGS84**		Helper: **TINO V.**	

Depth (ft. BGS)	Graphic Lithology	Sampling Method	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
0'		SS BR CC AC	0–3' SAND, FINE AND SILT; BROWN (POORLY TO MODERATELY INDURATED)		"BERM" SOIL HORIZONT 0–3' BGS; MOST DUNE SAND HAS BEEN REMOVED BY MINING FROM THIS LOCATION
			3'–5', CALICHE AND SAND; FINE, WHITE (5YR 8/1), (POORLY GRADED, MODERATELY INDURATED)		UNCONFORMITY
5'				100+	STRONGLY CALICHIFIED FROM 3' TO 10'
			5'–10', CALICHE AND SAND; FINE, PINKISH WHITE (5YR 8/2), (POORLY GRADED; MODERATELY INDURATED)		
10'				44	
			10'–20', SAND, FINE, AND CALICHE; LIGHT REDDISH BROWN (2.5YR 7/4), (POORLY GRADED; MODERATELY INDURATED)		
15'				23	
20'	Qo		20'–25', CALICHE AND SAND, FINE, AND GRAVEL TO 0.5"; PINKISH WHITE (5YR 8/2), (POORLY GRADED; MODERATELY INDURATED)	42	TRACE MnOx STAINED SPOTS TO 3mm DIA.
25'	Qo			29	
			25'–45', SAND, FINE, CALICHE, GRAVEL AND CALCITE CLASTS TO 1"; PINK (5YR 7/4), (POORLY GRADED; MODERATELY INDURATED)		
30'				36	
35'				100+	MnOx–CALCITE VEINLETS, VENTIFACTS AND ROOT CASTS @ 35'–38' (UNCONFORMITY OR PEDOGENIC HORIZON?)
40'				60	
45'	Qs		45'–50', SAND, FINE, CALICHE AND GRAVEL TO 2"; LIGHT REDDISH BROWN (2.5YR 6/4), (POORLY GRADED; POORLY TO MODERATELY INDURATED)	74+	
50'			50'–55', CALICHE, SAND, FINE, AND GRAVEL TO 2"; PINKISH WHITE (2.5YR 8/2), (POORLY TO MODERATELY GRADED; MODERATELY INDURATED)	88+	
55'				100+	HAMMER WEIGHT PROBLEMS (FIXED)
60'	Qs		55'–65', SAND, FINE, CALICHE, AND GRAVEL TO 2" TRACE CLAY AND SILT @ 64–65'; LIGHT REDDISH BROWN (2.5YR 7/3), (POORLY TO MODERATELY GRADED; MODERATELY INDURATED)	100+	
65'			UNCONFORMITY	83+	UNCONFORMITY MnOx–DRUSY CALCITE VEINLETS @ 65'–66'
70'			65'–75', CLAYSTONE AND SILTSTONE; WITH CALICHE FRAGMENTS; DARK REDDISH BROWN (2.5YR 3/3) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)	100+	DOWN TO AIR-ROTARY DRILLING FROM 70' TO 150' BGS.
75'					

KEY

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HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

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Consulting Engineers

Log of Borehole No.: B5 Total Depth 150' Page 2 of 2

Client: DNCS PROPERTIES, LLC Project No.: 542.01.01

DRAFT

Water Level Data	Location COORDS's and Elevation (NAVD88)	Borehole Information		
NONE Ft. While Drilling (below ground surface)	N: 32.78815°	Date Started: 02-10-2013	Drilling Co.: PRECISION SAMPLING	GEI Rep.: MLH
NONE Ft. at completion (below ground surface)	E: -103.69491°	Date Comp: 02-11-2013	Rig Type: CME 85	Drill Meth.: HSA, AIR ROTARY
water level data approximate	Elevation: 3979.03	Location: DNCS SITE, LEA COUNTY EAST CENTRAL SEC 31, T17S, R33E, N.M.P.M.	Driller: JUAN BARRAZA	Sampling Meth.: SS/BR/CC/ARC
	COORD REF SYS WGS84		Helper: TINO V.	

Depth (ft. BGS)	Graphic Lithology	Sampling Method (SS BR CC AC)	Soil/Lithology Description	Rig Blow Counts/ft	Notes:
75'			75'–80', CLAYSTONE AND SILTSTONE; WEAK RED (2.5YR 4/2) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)	100+	
80'			80'–95', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
85'					
90'					
95'			95'–105', CLAYSTONE AND SILTSTONE; RED (2.5YR 5/6) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
100'					
105'			105'–115', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
110'					
115'			155'–120', CLAYSTONE AND SILTSTONE; LIGHT REDDISH BROWN (2.5YR 6/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
120'			120'–125', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/3) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
125'			125'–135', CLAYSTONE AND SILTSTONE; LIGHT RED (2.5YR 6/6) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
130'					
135'			135'–140', CLAYSTONE AND SILTSTONE; REDDISH BROWN (2.5YR 5/4) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
140'			140'–150'=TD, CLAYSTONE AND SILTSTONE; RED (2.5YR 5/6) WITH SOME VARIEGATED BROWN–PURPLE AND GREEN LAYERS AND SPOTS, (POORLY GRADED; MODERATELY INDURATED)		
145'					
150'					CHECKED DRILLHOLE FOR WATER AFTER SITTING OVERNIGHT, NO WATER; OBSERVED AUGER FLIGHTS, NO SATURATED MATERIAL ON AUGERS TD=150'

KEY

BGS = BELOW GROUND SURFACE SS = SPLIT SPOON ARC = AIR ROTARY CUTTINGS AC = AUGER CUTTINGS CC = CONTINUOUS CORE
HSA = HOLLOW STEM AUGER BR = BRASS RING (SPLIT BARREL "MODIFIED CALIFORNIA SAMPLER")

Monitor Well/Piezometer Log

Golder Associates

SITE NAME AND LOCATION: name and location: DNCS Properties, Hobbs, NM

NORTHING 32° 46' 54.1"
EASTING -103° 42' 37.1"
DATUM: amsl NAD 83
ELEVATION:

DRILL RIG: CME-75
ANGLE: 90 BEARING: -

DRILLING METHOD: Hollow Stem Auger 6 1/2" O.D.

SAMPLING METHOD: 1.5" I.D Split Spoon
1.5" I.D Brass Ring

WATER LEVEL: Dry
TIME: 1200
DATE: 6/12/2013
CASING DEPTH: 74'

SURFACE CONDITIONS: Dry, Wind blown Fine sand & shrub/ Grass cover. Near Caliche cover Road.

BORING NO.: B-6
SHEET: 1 of 2
DRILLING START: 0930 DATE: 6/11
DRILLING FINISH: 1130 DATE: 6/11

DRILLING CONTRACTOR: Precision Sampling - Artex Boehm

LOGGED BY: Michael Petersen

DATE: 6/11-6/12/2013

JOB NO.: 13044144

FILE NAME:

DEPTH IN FEET (ELEVATION)	WELL COMPLETION DETAILS	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY[3]/ CEMENTATION[4]	PERMEABILITY (np, l, m, h)	Blows OTHER TESTS[5] Counts
		0-2 Silty Sand, Fine Wind blown Red (2.5YR4/6) Dry to 1'6", then slightly moist								
-2		2-7 Sand, Fine, with Caliche + Trace Gravels to 1", Light Brown (7.5YR6/4) Dry - Poorly Graded, Poorly to Mod. Indurated								23 22
-7	5-6 split spoon	7-13 Sand, Fine, with Caliche + Trace Gravel to 1". Reddish Brown, (7.5YR6/6) Poorly Graded, Poorly to moderately Indurated / Caliche Fied. Dry.								20 43 46
-13	10-11.5 split spoon	13-27 Sand, Fine, with Caliche + Some Gravel to 1". Reddish Yellow (7.5YR7/4) Well Graded, Moderately Indurated / Caliche Fied. Dry.								23 50+
	15-16.5 split spoon									21 32 #1
	20-21.5 split spoon									5 5 11
-27	25-26.5 split spoon	27-48 Sand, Fine, with Silt + Caliche, Trace Gravels up to 1". Light Brown (7.5YR6/4) Poorly Graded, Poorly Indurated. Dry.								23 29 35
	30-31.5 split spoon									18 31 31
	35-36.5 split spoon									

Monitor Well/Piezometer Log

Golder Associates

SITE NAME AND LOCATION: name and location: DNCS Gordon Environmental, Hobbs, NM	DRILLING METHOD: 6 1/2" OD HSA	BORING NO. B-6
	SAMPLING METHOD: 1.5" ID Split Spoon, 1.65" ID Brass Ring	SHEET 2 of 2
NORTHING	WATER LEVEL	DRILLING START: 9:20
EASTING:	TIME	DRILLING FINISH: 11:30
DATUM: amsl	DATE	DATE: 6/11
ELEVATION:	CASING DEPTH	DATE: 6/12
DRILL RIG: CME75	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DRILLING CONTRACTOR: Precision Sampling - Alex Bonham

LOGGED BY: Michael Petersen

DATE: 6/11 - 6/12/2013

JOB NO. 13004144

FILE NAME:

DEPTH IN FEET (ELEVATION)	WELL Samples COMPLETION DETAILS	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY[3]/ CEMENTATION[4]	PLASTICITY (np, l, m, h)	BGV OTHER TESTS[5] Counts
37		27-48 Sand, Fine, with silt & Caliche, Trace gravels up to 1". Light Brown (7.5YR 6/4) Poorly Indurated, Dry- * Finely layered (2-5 mm) horizons beginning 38' Similar soil characteristics.								
	40-41.5 Split Spoon									18 19 14
	45-46.5 Split Spoon									10 10 11
48		48-67 Sand, Well Graded w/ Caliche. Trace Gravels up to 1". White (2.5Y 8/1) Well Indurated / Calcrified. Dry. * Decreased Penetration Rate								
	50-51.5 Split Spoon									22 50+
	55-56.5 Split Spoon									32 21 23
	60-61.5 Split Spoon									12 28 50+
	65-66.5 Split Spoon									22 50+
		Unconformity								
67		67-75 Claystone and Siltstone, with Caliche fragments, Dark Reddish Brown (2.5YR 3/3) Poorly to moderately Graded, Moderately Indurated, Dry-								
	70-70.5 Split Spoon									50+
	70.5-71 Brass Ring	* No Recovery from Brass Ring Sample, Split-spoon sample								70+
75		75' Total Depth								

APPLICATION FOR PERMIT
DNCS ENVIRONMENTAL SOLUTIONS

VOLUME IV: SITING AND HYDROGEOLOGY
SECTION 2: HYDROGEOLOGY

ATTACHMENT IV.2.C

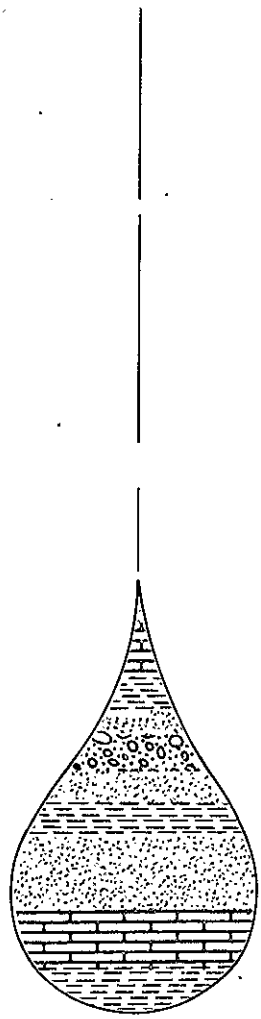
SELECTED WELL DATA FROM WELLS IN THE VICINITY OF THE DNCS SITE

(GEOHYDROLOGY ASSOCIATES, 1978)

COLLECTION OF HYDROLOGIC DATA
EASTSIDE ROSWELL RANGE EIS AREA
NEW MEXICO

by

Geohydrology Associates, Inc.



for

BUREAU OF LAND MANAGEMENT

Denver, Colorado

Contract No. YA-512-CT7-217

1201 Childers Dr., N. E., Albuquerque, N. M. 87112
505-293-6971

3225 Candelaria Rd., N.E., Albuquerque, N.M. 87107
505-345-5713

June 1978

COLLECTION OF HYDROLOGIC DATA
EASTSIDE ROSWELL RANGE EIS AREA
NEW MEXICO

by

GEOHYDROLOGY ASSOCIATES, INC.

Albuquerque, New Mexico

for

BUREAU OF LAND MANAGEMENT

Denver, Colorado

Contract No. YA-512-CT7-217

June 1978

CONTENTS

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ILLUSTRATIONS

Page

TABLES

L E A C O U N T Y

Records of wells from Lea County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
16.38.30.211	Irrigation		118.0	57.48	Ogll	Jan.7,1975	
30.31111	Irrigation	3755		56.29	Ogll	Feb.17,1971	
30.41334	Irrigation	3749		58.74	Ogll	Feb.17,1971	
31.24434	Used windmill	3737		66.44	Ogll	Feb.18,1966	
32.42113	Irrigation	3722		81.72	Ogll	Feb.17,1971	
34.131	Irrigation		140.0	61.22	Ogll	Mar.18,1958	
34.131	Irrigation			97.42	Ogll	Jan.7,1975	
35.110	Used well			41.33	Ogll	Jan.6,1952	
35.124114	Irrigation	3693		62.92	Ogll	Feb.11,1971	
35.21112	Irrigation	3694		62.34	Ogll	Feb.11,1971	
35.33122	Irrigation	3702		71.68	Ogll	Feb.11,1971	
16.39. 5.31132	Abandoned irrigation	3702		62.98	Ogll	Feb.12,1971	
6.31111	Irrigation	3704		45.09	Ogll	Feb.12,1971	
7.33132	Irrigation	3695		54.85	Ogll	Feb.12,1971	
17.311142	Irrigation	3685		69.03	Ogll	Feb.11,1971	
17.34422	Irrigation	3680		75.90	Ogll	Feb.11,1971	
19.133121	Irrigation	3684		57.76	Ogll	Feb.11,1971	
20.13311	Irrigation	3673.02	132.0	54.74	Ogll	Feb.26,1963	
20.31111	Irrigation	3673		60.50	Ogll	Feb.26,1963	
20.41143	Open cased hole			68.84	Ogll	Feb.11,1971	
29.23332	Irrigation	3678.7	172.0	83.54	Ogll	Jan.7,1975	
29.343344	Irrigation	3681		77.22	Ogll	Feb.11,1971	
30.11413	Irrigation	3682		60.30	Ogll	Feb.11,1971	
30.43424	Abandoned stock	3661		51.89	Ogll	Feb.15,1961	
17.32. 1.32343	Irrigation	4225		165.85	Ogll	Mar.15,1966	

Records of wells from Lea County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
17.32. 1.32343	Used oil test	4225		173.19	Ogll	Mar.10,1966	
2.433	Industrial/domestic	4240	200	60	Ogll	1948	Yield:50gpm(est)
2.434	Industrial/domestic	4240	192	60	Ogll	Jun.1,1950	
2.434343	Industrial	4195		148.33	Ogll	Mar.14,1961	
2.443	Industrial/domestic		190		Ogll		Yield:50gpm(est)
3.13443	Unused industrial	4239		168.14	Ogll	Feb.10,1966	
3.140	Industrial				Ogll		
3.320	None	4250		175.6	Ogll	Jul.21,1954	
3.32114	Industrial	4232		162.21	Ogll	Feb.8,1971	Oil test
3.43333	Industrial	4200		136.89	Ogll	Feb.8,1971	
4.442	None	4180		82.9	Qtal	Jun.3,1954	
11.231	Industrial/domestic	4180	139		Ogll		
11.233	Industrial/domestic	4200	140	70	Ogll ?	Sep.20,1947	Yield:9gpm(est)
11.34332	Open hole	4096		47.11	Ogll	Feb.8,1971	
11.411	Industrial/domestic	4170	200	70	Ogll ?	Jun.15,1946	Yield:90gpm(est)
11.411	Industrial/domestic		130	70	Ogll ?	Sep.23,1947	Yield:50gpm(est)
12.44414	Abandoned stock	4168		120.13	Ogll	Feb.11,1966	
14.12121	Domestic	4092		31.53	Ogll	Feb.8,1971	
17.33. 3.14134	Unused	4184		146.98	Ogll	Feb.14,1966	
4.241441	Oil test	4183		159.58	Ogll	Feb.18,1971	
4.44322	Unused	4179		149.72	Ogll	Feb.6,1961	
4.4444	Shot hole	4173	152.0	145.20	Ogll	Mar.14,1961	
5.22221	Industrial	4198		162.20	Ogll	Mar.31,1971	
6.11111	Used floodwell	4198	310.0	209.87	Ogll	Mar.31,1971	
6.42411	Unused	4223		181.94	Ogll	Feb.18,1971	

Records of wells from Lea County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
17.33. 7.141221	Open hole	4234		192.54	Ogll	Feb.15,1971	
7.323221	Open hole	4229		188.61	Ogll	Feb.15,1971	
9.342113	Open cased hole	4191		171.39	Ogll	Feb.15,1971	
12.24333	Used windmill	4118		122.79	Ogll	Feb.16,1971	
13.341	Observation	4124	252	165.46	Ogll	Jan.8,1975	
13.434	Industrial	4123		175.54	Ogll	Jan.17,1961	
16.24242	Stock	4176		165.43	Ogll	Feb.11,1966	
18.22133	Domestic	4216		182.83	Ogll	Feb.15,1971	
18.322	Industrial/domestic	4230	220		Ogll		
18.3223	Industrial	4224		196.59	Ogll	Mar.13,1961	
20.221443	Open hole	4165	160.0	147.39	Ogll	Mar.14,1961	
20.24143	Used windmill	4173		163.45	Ogll	Feb.15,1971	
22.43233	Used windmill	4140		155.17	Ogll	Feb.16,1971	
23.3132	Open cased hole	4143		157.62	Ogll	Feb.16,1971	
25.244	Industrial		230.0	140.07	Ogll	Jan.3,1967	
26.422	Abandoned industrial	4125	200.3	162.35	Ogll	Sep.7,1956	
28.110	None	4185	241	198.0	Ogll	May 11,1954	
29.222221	Industrial	4188		201.35	Ogll	Mar.14,1961	
29.34411	Used oil test	4044		61.43	Ogll	Feb.16,1971	
30.12432	Domestic	4053		69.14	Ogll	Feb.16,1971	
33.4224	Open cased hole	4082		130.96	Ogll	Feb.16,1971	
17.34. 2.1310	Used windmill	4057		85.94	Ogll	Feb.16,1971	
2.343442	Abandoned	4048		86.15	Ogll	Feb.16,1971	
4.4320	Used windmill	4079		99.79	Ogll	Feb.16,1971	
7.213242	Open cased hole	4123		130.33	Ogll	Feb.16,1971	

Records of wells from Lea County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
17.38.21.41211	Irrigation	3682	112.0	48.23	Ogll	Feb.3,1971	
23.111141	Irrigation	3673.9		48.0	Ogll	Aug.3,1971	
27.133	Irrigation		125.0	33.92	Ogll	Jan.23,1962	
30.113	Used well			37.10	Ogll	Jan.11,1957	
30.12111	Irrigation	3704		56.97	Ogll	Feb.3,1971	
30.312			56.0	41.12	Ogll	May 22,1953	
31.21111	Irrigation	3691		56.97	Ogll	Feb.3,1971	
31.31111	Irrigation		110.0	50.32	Ogll	Jan.7,1975	
31.41422	Irrigation	3684		59.61	Ogll	Aug.3,1971	
32.232432	Irrigation	3689		66.90	Ogll	Feb.3,1971	
34.113	Irrigation	3660	126.0	48.18	Ogll	Jan.7,1975	
35.14413	Irrigation	3659		56.93	Ogll	Feb.4,1971	
36.212	Irrigation			68.37	Ogll	Jan.23,1962	
17.39.18.13314	Used windmill	3674		78.07	Ogll	Feb.3,1971	
18.33242	Irrigation	3663		64.04	Ogll	Feb.3,1971	
19.31332	Abandoned stock	3648		50.04	Ogll	Feb.22,1966	
30.23444	Abandoned irrigation	3657	165.0	66.20	Ogll	Feb.22,1966	
31.42121	Irrigation	3640		64.39	Ogll	Feb.4,1971	
32.111	Irrigation			87.78	Ogll	Jan.6,1970	
32.41322	Irrigation	3642		80.17	Ogll	Feb.4,1971	
18.32.16.22433	Uncased open hole	3793	100	84.18	Ogll	Mar.18,1968	
20.13311	Domestic	3470	270.0	179.35	Trcl	Feb.23,1971	
22.32322	Oil test	3763		434.41	Trcl	Apr.6,1971	
34.22241	Windmill	3721		117.46	Trcl	Apr.6,1971	
18.33. 3.34133	Open cased hole	4015		60.10	Qtal	Apr.5,1966	

Records of wells from Lea County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
18.33. 3.343	Domestic/stock	4012	64	59.18	Qtal	Feb.19,1971	
10.23244	Domestic	4005	75	41.64	Qtal	Feb.9,1971	
10.44211	Stock	3985	60	41.64	Ogll	Feb.9,1971	
11.4433	Irrigation	3986		42.40	Qtal	Feb.9,1971	
12.44211	Windmill	4089		137.48	Qtal	Feb.5,1971	
13.13144	Open cased hole	3968		31.85	Qtal	Feb.8,1971	
13.44244	Open cased hole	3973		46.66	Qtal	Feb.8,1971	
14.111	None	3965	40.0	35.8	Qtal	Jun.3,1954	
14.1114	Windmill	3976		35.20	Qtal	Feb.9,1971	
14.11140	Stock	3976	46.0	35.84	Qtal	Mar.6,1968	
19.142	Stock	3820		140+	Trsc ?	Dec.9,1958	
23.23140	Open cased hole	3881	58	45.65	Qtal	Feb.9,1971	
34.133	None	3760	200.0	177.4	Trsc	Dec.9,1958	
18.34. 1.12222	Industrial	3991		79.70	Ogll	Mar.6,1961	
2.223333	Industrial	4009		98.03	Ogll	Feb.4,1971	
4.11124	Open cased hole	4064		126.78	Ogll	Feb.4,1971	
8.23213	Windmill	4042		104.20	Ogll	Feb.4,1971	
11.43212	Industrial	4000	211.0	110.78	Ogll	Feb.23,1971	
12.42333	Industrial	3982	204.0	111.01	Ogll	Feb.19,1971	
15.24130	Windmill	4015		103.28	Ogll	Feb.5,1971	
18.413212	Open cased hole	4076		143.30	Ogll	Feb.5,1971	
20.323323	Windmill	4015		98.92	Ogll	Feb.5,1971	
20.323333	Domestic/stock	4020	111.0	100.19	Ogll	Mar.6,1968	
22.343				109.92	Ogll	Jan.8,1975	
25.13111	Uncased shot hole	3977		94.88	Qtal	Mar.9,1961	

APPLICATION FOR PERMIT
DNCS ENVIRONMENTAL SOLUTIONS

VOLUME IV: SITING AND HYDROGEOLOGY
SECTION 2: HYDROGEOLOGY

ATTACHMENT IV.2.D

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORDS FOR WELLS IN THE VICINITY OF THE DNCS SITE

SECTION _____

TOWNSHIP 17S

RANGE 32E

Form WR-23 FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

#2	Mo. 2-127-2		

(Plat of 640 acres)

(A) Owner of well Water Flood Assoc., Inc.

Street and Number 3017 Lubbock St.

City Ft Worth 9, State Texas

Well was drilled under Permit No. L-3980 and is located in the NE ¼ NE ¼ NE ¼ of Section 1 Twp. 17S Rge. 32E

(B) Drilling Contractor O. R. Musslewhite License No. WD99

Street and Number Box 56

City Hobbs, State New Mexico

Drilling was commenced March 6, 1960

Drilling was completed March 15, 1960

Elevation at top of casing in feet above sea level 4257 Unkown Total depth of well 270

State whether well is shallow or artesian Shallow Depth to water upon completion 200

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	210	265	55	Sand, grey tight
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10 3/4	40	8	0	270	270	Shoe collar	122	260

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received MAR 22 AM 8:35 1960

File No. L-3980 Use Water Flood Location No. 17.32.1.22233

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1	Brown	Soil & rock
1	20	19	White	Caliche & rock
20	90	70	Grey	Sandy shale
90	120	30	"	Sand
120	150	30	"	Sand, hard
150	165	15	"	Sand
165	180	15	Red	Sand
180	185	5	Grey	Sandy shale
185	210,	25	"	Sand
210	265	55	"	Sand, hard tight
265	270	5	Red	Sandy shale

L S Elev 4251'
Depth to K Trc 265'
Elev of K Trc 3986'?

Loc. No. 17.32 l. 33322

Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet ✓

Determined by Inst. Leveling ____

Other ____

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.

O. R. Musselwhite
Well Driller

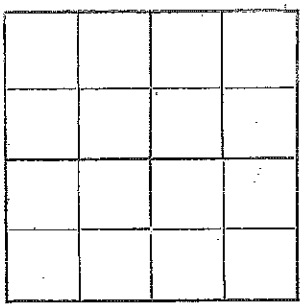
change the location on map
to read Sec. 1. 22233
Was plotted @ 1. 33322

Form WR-23 FIELD ENGR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well H.E. Paschall,
Street and Number 412 Central St.
City Artesia State New Mexico,
Well was drilled under Permit No. L - 4079 and is located in the ¼ ¼ ¼ of Section 1 Twp. 17 S Rge. 32 E,
(B) Drilling Contractor G.O. Aldredge License No. WD. 79
Street and Number Box 379
City Lovington State New Mexico,
Drilling was commenced Feb. 18 19 60
Drilling was completed March 3. 19 60

Elevation at top of casing in feet above sea level ____ Total depth of well 225 Ft.
State whether well is shallow or artesian Shallow Depth to water upon completion 175 Ft.

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	192	210	18	Red water sand
2	212	224	12	Brown Water sand
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
8"		welded	0	225	225	Collar	182	225
							Gravel packed	

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		12			10 sacks mud used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____
Street and Number ____ City ____ State ____
Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____
Plugging method used ____ Date Plugged ____ 19 ____
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received STATE ENGINEER OFFICE RECEIVED MAR 25 AM 8:22 1960

File No. L-4079 Use Comm & Dom. Location No. 17.32.1.32343

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2	Gray	Surface soil
2	5	3	White	Caliche rock
5	70	65	Red	Sand
70	110	40	Brown	Sand
110	125	15	Brown	Sand rock
125	192	67	Brown	sand
192	210	18	Red	Water sand
210	212	2	Red	Shale
212	224	12	Brown	Water sand
224	225	1	Red	Shale

L S Elev 4225'
Depth to K Trc 224'
Elev of K Trc 4001'

Loc. No. 17.22.1.322345

Hydro. Survey X Field Check

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling

Other

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.

G. B. Wheelage
Well Driller

Form WR-23

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well [illegible] Co.

Street and Number Box 125

City Maljamar, State New Mex.

Well was drilled under Permit No. L-3980-X and is located in the [illegible] 1/4 660' of E. LINE of Section 1 Twp. 17 Rge. 32

(B) Drilling Contractor [illegible] License No. [illegible]

Street and Number Box 579

City Lovington, State New Mexico.

Drilling was commenced Sept. 21 1962

Drilling was completed Oct. 12 1962

Elevation at top of casing in feet above sea level 4242 Total depth of well 255

State whether well is shallow or artesian Shallow Depth to water upon completion 179

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	205	225	20	Gray water sand
2	220	250	22	[illegible] water sand
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
[illegible]	Heavy	[illegible]	0	255	255	Halliburton [illegible] open end	215	255

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		16	Gravel	packed	[illegible] sacks of [illegible] in hole while drilling.

Section 5 PLUGGING RECORD

Name of Plugging Contractor ______ License No. ______

Street and Number ______ City ______ State ______

Tons of Clay used ______ Tons of Roughage used ______ Type of roughage ______

Plugging method used ______ Date Plugged ______ 19____

Plugging approved by:

______
Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received STATE ENGINEER OFFICE DISTRICT II ROSWELL, N. MEX. 1962 NOV -7 AM 8:15

File No. L-3980-X Renumbered L-3980-S Use SRO Location No. 17.32.1.422134

#3 Maljamar 2-127-2

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1	Brown	Top Soil
1	20	19	White	Caliche rock
20	228	108	Brown	Sandy clay
228	250	22	Gray	Water Sand
250	255	5	Red	Shale
328	250	22	brown	Water Sand
250	255	5	Brown	Shale
				Top of red bed

4242'

L S Elev

Depth to K Trc 250'

Elev of K Trc 3992'

SP 17.32.1.432 13

Loc. No.

Hydro. Survey X Field Check

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling

Other

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.

C.O. Aldredge
Well Driller

L-3980-X

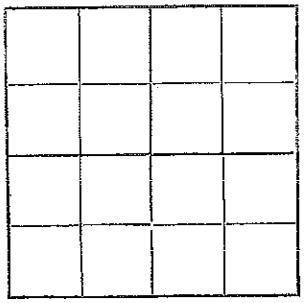
17.32.1.420

Form WR-23 FIELD ENGR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Maljamar Repressuring Agreement #6

Street and Number

City State

Well was drilled under Permit No. L-4020 and is located in the SW ¼ SW ¼ SE ¼ of Section 2 Twp. 17 Rge. 32

(B) Drilling Contractor George Pennington License No.

Street and Number

City Loco Hills, State New Mexico

Drilling was commenced 19

Drilling was completed June 2, 19 50

Elevation at top of casing in feet above sea level Total depth of well 200 ft.

State whether well is shallow or artesian shallow Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	139	195	60	Sand and little gravel
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7			0	196	196		153	196
10 3/4			0	145	145	Pulled as well was gravel packed.		

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-4020 Use S. R. O. O. Location No. 17.32.2.433 43

#5 well file 2-132-1

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	20		brown	Top soil
20	45			Caliche
45	100		red	Sandrock
100	135			Sand and little gravel (water section)
195	200		red	Shale
				Driller estimated that well was good for
				100 gallons of water per minute.
				This well is located in State Section 2,
				T. 17 S., R. 32 E., N.M.P.M., Lea County,
				New Mexico.
				L S Elev 4195
				Depth to K Trc 135
				Elev of K Trc 4060
				L- 17.32.2.433
				Loc. No.
				Hydro. Survey Field Check X
				SOURCE OF ALTITUDE GIVEN
				Interpolated from Topo. Sheet X
				Determined by Inst. Leveling
				Other

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.

George Pennington
Well Driller

L-4020

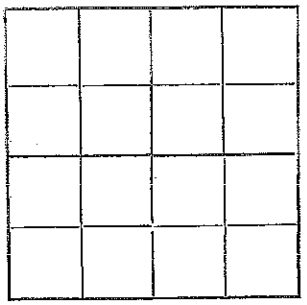
17.32.2.433

Form WR-23 FIELD ENGR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Maljamar Repressuring Agreement #5

Street and Number

City State

Well was drilled under Permit No. L-4019 and is located in the SE ¼ SW ¼ SE ¼ of Section 2 Twp. 17 Rge. 32

(B) Drilling Contractor Ed. Burke License No.

Street and Number

City Hobbs, State New Mexico

Drilling was commenced 19

Drilling was completed May 6, 19 48

Elevation at top of casing in feet above sea level Total depth of well 182 ft.

State whether well is shallow or artesian Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	126	180		Red water sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7			0	182	182		113	182

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
0	182	10			

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-4019 Use S.R.O.O. Location No. 17.32.2.434 24

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	20		brown	Top Soil
20	38		brown	Loose sand
38	70		grey	Firm sand
70	82		brown	Loose sand
82	98		red.	Sandrock
98	126		brown	Sand and gravel
126	180		red	Water sand
180	182		red	Shale

This well is located in State Section 2, T-17 S., R. 32 E., N.M.P.M., Lea County, New Mexico.

L S Elev 4195

~~Depth to K~~ Trc 180

Elev of K Trc 4015

Loc. No. 17.32.2. 4 3434

~~Hydro. Survey~~ ~~Field Check~~ X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling

Other

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.

Ed. Burke
Well Driller

L-4019

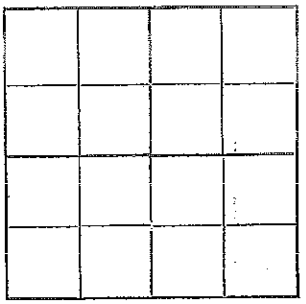
17.32.2.434

Form WR-23 FIELD ENGR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Maljamar Co-op Repressuring Agreement #7

Street and Number

City State

Well was drilled under Permit No. L-4021 and is located in the SW ¼ SE ¼ SE ¼ of Section 2 Twp. 17 S. Rge. 32 E.

(B) Drilling Contractor George Pennington License No.

Street and Number

City State

Drilling was commenced 19

Drilling was completed June 14, 19 50

Elevation at top of casing in feet above sea level Total depth of well 190 ft.

State whether well is shallow or artesian shallow Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	160	185	25	Sand and little gravel.
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7			0	197	197		153	197
10 3/4			0	155	155	Pulled as well was gravel packed.		

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-4021 Use S. R. O. O. Location No. 17.32.2.44332

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	20		brown	Top soil
20	50			Caliche
50	120		Brown	Loose sand
120	160		red	Sand rock
160	185			Sand and little gravel (water section)
185	190		red	Shale
				Eight yards of pea gravel was placed between
				10-3/4" pipe and 7" pipe; 10-3/4" pipe runs
				to 155' and pulled as well was graveled.
				Driller estimated that well was good for
				100 gallons of water per minute.
				This well is located in State Section #2,
				T-17S, R-32E, NMPM, Lea County, New Mexico.
				10" hole was drilled by George Pennington
				of Loco Hills, New Mexico. Completed
				June 14, 1950.
				L S Elev 4203'
				Depth to K Trc 185'
				Elev of K Trc 4018'
				Fr 17.32.2.44333
				Loc. No.
				Hydro. Survey Field Check X
				SOURCE OF ALTITUDE GIVEN
				Interpolated from Topo. Sheet X
				Determined by Inst. Leveling
				Other

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.

George Pennington
Well Driller

L-4021

17.32.2.443

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Mescalero Ridge Water Coop. Owner's Well No. _____
Street or Post Office Address P.O. Box 49
City and State Maljamar, NM 88264-0002

Well was drilled under Permit No. L-4021-S and is located in the:

a. ____ ¼ NE ¼ SE ¼ SE ¼ of Section 3 Township 17S Range 32E N.M.P.M.
in Lea County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Alan Eades License No. WD1044

Address 1200 E. Bender Blvd., Hobbs, NM 88240

Drilling Began 1-21-02 Completed 1-21-02 Type tools rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 260 ft.

Completed well is XX shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
185	257	72	Sand & SAndy Brown Clay	
			Stringers	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6	160psi				260		180	260

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY #215199

Date Received 02/05/02

Quad _____ FWL _____ FSL _____

File No. L-4021-S Use Suppl Location No. 17.32.3 445
23422

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	Top Soil
1	26	25	Caliche
26	90	64	Sand
90	132	42	Sandy Brown Clay & Sandstone Stringers
132	185	53	Sand & Sandstone Stringers
185	257	72	Sand & SAndy Brown Clay Stringers
257	260	3	Red Clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Alan Eades by Andrew Root
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.3.4323334

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	40		Caliche
40	116		Anhydrite and sand
116	150		Sand
150	363		Red bed
363	695		Red bed and shells
695	990		Red shale with shells

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.3.4323334 Elevation: 4284' GL
Owner: Chevron U.S.A. Inc.
Maljamar (Grayburg) Unit #12
Record of Casing: 8 5/8" - 1344'

Rotary

660' FSL - 1905' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.3.44300

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	115		Caliche
115	255		Red rock
255	290		Sand
290	1055		Red rock
			L S Elev 4285 4285
			Depth to K 290 Trc 115
			Elev of K 3995 Trc 4170

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.3.44300 Elevation: 4285' DF
Owner: Chevron Oil Co.
Maljamar (Grayburg) Unit #14
Record of Casing: 8 5/8" - 1275'

Rotary

330' FSL - 990' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Form WR-23

FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Harry Yoder

Street and Number

City Maljamar State New Mexico

Well was drilled under Permit No. Misc. 2-1-59 and is located in the E ¼ NE ¼ NW ¼ of Section 19 Twp. 17S Rge. 32E

(B) Drilling Contractor C. C. Alford License No. W.D.79

Street and Number Box 379

City Loving, New State New Mexico

Drilling was commenced December 29 19 61

Drilling was completed January 1, 19 62

Elevation at top of casing in feet above sea level Total depth of well 156

State whether well is shallow or artesian Shallow Depth to water upon completion 132

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	132	156	24	Red River Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8	Welded		0	156	156	None	136	156

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		7			5 sacks of drilling mud placed
					in top of hole while drilling
					well to keep hole from caving

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

STATE ENGINEER OFFICE DISTRICT II ROSWELL, N. MEX. 1962 JAN 18 AM 8:14

Date Received

File No. Misc. 2-6-59 Use Dom Location No. 17.32.10.122

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2	Brown	Top Soil
2	42	7	White	Caliche Rock
42	132	12	Brown	Sandy Clay
132	150	24	Red	Red Rock Sand

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.

C.O. Aldredge
Well Driller

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well ConocoPhillips Owner's Well No. EW-1
Street or Post Office Address P.O. BOX 2197
City and State Houston, TX 77252

Well was drilled under Permit No. _____ and is located in the:

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 21 Township 17 S Range 32E N.M.P.M.,

b. Tract No. _____ of Map No. _____ of the S.W. Qtr. MALJAMAR E&PL

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in LEA _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor SCARBOROUGH DRILLING, INC. License No. WD 1188
Address P.O. Box 305, LAMESA, TX 79331 806-872-3285

Drilling Began 5-14-2007 Completed 5-15-2007 Type tools AIR ROTARY Size of hole _____ in.

Elevation of land surface or UNKNOWN at well is _____ ft. Total depth of well 125 ft.

Completed well is ☑ shallow ☐ artesian. Depth to water upon completion of well N/A ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

STATE ENGINEER OFFICE RECEIVED 2007 JUL

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
4"	sch 40	PVC	+2	95		.020	95	125

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
0	80	8 3/4	CEMENT		POURED
80	120	8 3/4	BENTONITE		POURED
120	125	SAND	SAND		POURED

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. No File Number w 0556 Use monitor well Location No. 17.32.21 Sw

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	SAND: Yellowish RED, vfg, dry, damp, loose.
5	20	15	Silty SAND: REDDISH brown - REDDISH yellow, loose.
20	25	5	SANDSTONE: Loosely consolidated, very pale brown
25	60	35	SAND Minorly Consolidated, lt. reddish brown, soft, dry, silty, vf-fine, non plastic
60	80	20	SAND Loosely consolidated, very pale brown vf-fine, silty, non plastic, dry
80	90	10	SANDSTONE w/ shale interbeds; lt yellowish brown loosely consolidated, vf-f, dry.
90	110		SAND interbedded w/ shale; SAND - yellowish brown, loose, slightly damp, silty. Shale; brown, very fine
110	120	10	SAND interbedded w/ shale; SAND - yellowish brown, loose, slightly damp, non plastic, silty. Shale: greenish gray, silty, dense
120	125	5	SAND, lt. yellowish brown, damp, slightly plastic, loose, vf-fine, silty.

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Lee Sedlacek
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office [illegible]. All sections except Section 5 shall be answered as completely and accurately as possible when any well is

Form WR-23 FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres) — #5 on Cap-2-147-6

(A) Owner of well Texaco, Inc.

Street and Number Box 2109

City Midland. State Texas

Well was drilled under Permit No. L-5288 and is located in the 330 ft. from S. Line 1980 ft. from East Line ¼ SE ¼ ¼ of Section 36 Twp. 17S Rge. 34E

(B) Drilling Contractor [illegible] License No. [illegible]

Street and Number Box 56

City Hobbs. State New Mexico

Drilling was commenced Jan. 11, 1965

Drilling was completed Jan. 17, 1965

3788

Elevation at top of casing in feet above sea level Unknown Total depth of well 231

State whether well is shallow or artesian Shallow Depth to water upon completion 30

Section 2 — PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	105	155	50	Sand, consolidated, course
2	175	195	20	Sand
3	220	228	8	Sand & gravel
4				
5				

Section 3 — RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10 3/4	32.75	8	0	231	231	None	103-231	

Section 4 — RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 — PLUGGING RECORD

Name of Plugging Contractor ______ License No. ______

Street and Number ______ City ______ State ______

Tons of Clay used ______ Tons of Roughage used ______ Type of roughage ______

Plugging method used ______ Date Plugged ______ 19__

Plugging approved by:

______ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

STATE ENGINEER OFFICE

Date Received 1965 JAN 21 AM 8:24

File No. L-5288 Use Comm. Location No. 17.34.36.443 134

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2	Black	Soil & rock
2	26	26	White	Caliche & rock
26	80	52	Grey	Sandy shale
80	85	5	"	Sand rock
85	140	55	"	Sand
140	155	15	"	Sand rock
155	165	10	"	Sandy shale
165	195	30	"	Sand & sand rock
195	220	25	"	Sand rock
220	228	8	"	Sand & gravel
228	231	3	Red	Red bed, shale

L S Elev 3988'
Depth to K Trc. 228'
Elev of K Trc. 3760'

Loc. No. 17.34.36.443134
Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling ____
Other ____

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.

O. R. Musselwhite
Well Driller

L-5288

17.34.36.443

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well George Kenemore Owner's Well No. RA 8855

Street or Post Office Address PO Box 154

City and State Maljamar NM

Well was drilled under Permit No. RA 8855 and is located in the:

a. SE ¼ NW ¼ NW ¼ ¼ of Section 10 Township 17 S Range R 32 E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor J & K Drilling License No. WD 1235

Address Box 1493 Lovington NM 88260

Drilling Began 7/28/94 Completed 8/4/94 Type tools Cable Size of hole 8¼ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 158 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 0 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			No water was found drilling	
			this well.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
	No csg was ran in well							

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received August 10, 1994 Quad _____ FWL _____ FSL _____

File No. RA-8855 Use Domestic Location No. 17.32.10.11421

150

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	18	18	Sand top soil light brown in color
18	20	2	Caliche
20	38	18	red sand
38	40	2	med hard sandstone, red in color
40	50	10	white sand with red gravel
50	60	10	red sand with red and black flintstone gravel
60	80	20	Brown colored sand with red and white colored sandstone gravel.
80	135	55	Red shale with mixture of multi-colored grave.
135	157	22	Red colored shale with red, blue, and gray gravel
157	158	1	Red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

Drilled well to 158 feet, 1 foot into Red Bed lormation. No water was encountered.while drilling this well. Owner wants to go on to 200 feet. Rigged down and moved off hole. Hole was left openwith 12 foot 9 5/8 csg in top of well.

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.

Earl Illston
Driller

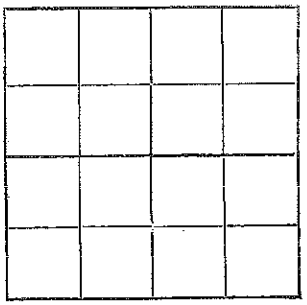
INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. A[illegible]ions, except Section 5, shall be answered as completely and accurate[illegible] possible when any well is drilled, repaired or de[illegible]hen this form is used as a plugging record, only Section 1(a) and Secti[illegible]d be completed.

Form WR-23 STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Maljamar Cooperative Repressuring Agreement

Street and Number Room 200, Booker Bldg.,

City Artesia, State New Mexico

Well was drilled under Permit No. L-2-L51 and is located in the NW ¼ SW ¼ NE ¼ of Section 11 Twp. 17 Rge. 32

(B) Drilling Contractor Burke License No.

Street and Number Hobbs,

City State New Mexico

Drilling was commenced 19

Drilling was completed September 10, 19 47.

Elevation at top of casing in feet above sea level Total depth of well 140 ft.

State whether well is shallow or artesian Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7			0	139	139			

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-2-L-51 Use S.R.O. Location No. 17.32.11.231 44

Well 47 Mod. 2-/32-/

23/432

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	5			Top soil
5	22		White	Packed sand
22	48		gray	Soft sand
48	93		red	Soft sand
93				Top of water sand
93	131			Coarse water sand
131				Bottom of sand
131	140		red	Clay
140				Total depth.
				139' of 7" OD Lapweld pipe run, consisting
				of the last two joints perforated, which
			4142	amounted to 43'. Total water sand thickness
	L S Elev			38'. Hole was bailed in an effort to create
	Depth to K		Trc 131	a crevice and remove as much sand as possible.
	Elev of K		Trc 4011	
	17.32.11.23144			Well was gravel packed with 9½ yards. It is
				hoped that more gravel can be placed between
Loc. No.				casing and the outer wall after well has
Hydro. Survey	Field Check X			been pumped.
				It is estimated that the well is capable of
				producing 100 gallons per minute. This well
SOURCE OF ALTITUDE GIVEN				was completed on September 10, 1947. It was
Interpolated from Topo. Sheet X				drilled by Burke, Phone No. 90, Hobbs, N. M.
Determined by Inst. Leveling				
Other				

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.

Burke

Well Driller

L-2-L-51

17.32.11.231

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.32.26.41000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	15		Caliche
15	80		Red clay
80	105		Red shale
105	210		Red bed
210	265		Blue shale
265	710		Red bed
710	850		Red sand (water 710-810)
850	983		Red bed
983	995		Red sand
995	1024		Red bed
			L S Elev 3936
			Depth to K Trc 15
			Elev of K Trc 3921

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.26.41000 Elevation: 3936' DF
Owner: Continental Oil Co.
MCA Battery 4 #189
Record of Casing: 8 1/4" - 1062'

Cable

1980' FSL--1980' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well FLO CO2 INC. Owner's Well No. _____
Street or Post Office Address 3700 Kermit Hwy.
City and State Odessa, TX 79764

Well was drilled under Permit No. RA-10175 and is located in the:

a. _____ ¼ _____ ¼ NE ¼ NW ¼ of Section 28 Township 17S Range 32E N.M.P.M.
in Lea County.
b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Alan Eades License No. WD 1044

Address 1200 E. Bender Blvd., Hobbs, NM 88240

Drilling Began 2-4-02 Completed 2-4-02 Type tools rotary Size of hole 7 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 158 ft.

Completed well is [XX] shallow [ ] artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
87	89	2	Sand & Gravel	
89	116	27	Sandy yellow & blue clay	
116	124	8	Hard gray shale	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
5 3/4	160psi				158		118	158

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY T# 222219

Date Received 03/06/2002
File No. RA-10175 Quad _____ FWL _____ FSL _____
Use Drink & Sanitary Loc. No. 18.32S.28.12

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	Top Soil
1	8	7	Sand w/ clay & Sandstone Stringers
8	44	36	Sand & Sandstone Stringers
44	55	11	Sandy Red Clay
55	87	32	SAndy yellow & blue clay
87	89	2	Sand & Gravel
89	116	27	Sandy yellow & blue clay
116	124	8	Hard gray shale
124	158	34	Yellow, blue & red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Allan Eades by Andrea Boot
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.32.29.11000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	70		Surface sand
70	190		Red bed
			L S Elev 3937
			Depth to K Trc 70
			Elev of K Trc 3867

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.29.11000 Elevation: 3937' GR

Owner: Continental Oil Co.
MCA Unit Battery 2 #109

Record of Casing: 8" - 873'

Cable

660' FNL - 660' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 7 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.32.29.24000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	85		Surface sand and caliche
85	105		Sandstone
105	755		Shale
			L S Elev 3984
			Depth to K Trc 105
			Elev of K Trc 3879

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.29.24000 Elevation: 3984' DF

Owner: Continental Oil Co.
MCA Unit Battery 2 #154

Record of Casing: 8" - 860'

Cable

1980' FNL - 660' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 7 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.29.32000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	55		Sand and caliche
55	350		Red mud
350	470		Red shale
	✓		
			L S Elev 3933
			Depth to K Trc 55
			Elev of K Trc 3878

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.29.32000 Elevation: --- 3933

Owner: Continental Oil Co.
MCA Unit Battery 2 #170
Record of Casing: 8" - 990'

Cable

1980' FSL - 1980' FWL

✓

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad 107.1.0 FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.29.33000

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	45		Sand and caliche
45	85		Red sand
85	125		Caliche
125	400		Red bed

L S Elev 3919 ?
Depth to K ______ Trc 85 ?
Elev of K ______ Trc 3834 ?

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.29.33000

Elevation: 4091' DF OK

Owner: Continental Oil Co. 2/4
MCA Unit Battery 2 ~~#124~~
Record of Casing: 8" - 1050'

Topo. Elev. 3909
DF Elev. 3919

Cable

660' FSL - 660' FWL OK

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.30.13000

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	50		Surface formation
50	575		Red bed
575	580		Shale (water)
580	675		Red bed
675	810		Anhydrite
810	820		Sand water
			L S Elev 3895
			Depth to K Trc 50
			Elev of K Trc 3845

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.30.13000 Elevation: 3895' DF
Owner: Continental Oil Co.
MCA Unit Battery 1 #163
Record of Casing: 8" - 870'

Cable

1980' FNL - 660' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.30.33000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	50		Surface sand and caliche
50	545		Red bed and red rock
545	590		Red bed, sandy
	✓		
			L S Elev 3871
			Depth to K Trc 50
			Elev of K Trc 3821

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.30.33000 Elevation: 3871' DF

Owner: Continental Oil Co.
MCA Unit Battery 1 #218
Record of Casing: 10 3/4" - 68'
8 5/8" - 1018'
Cable

660' FSL - 660' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78 Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.34.241111

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	64		Sand and caliche
64	82		Red bed
82	792		Sand, red, and shale
			L S Elev 3963 DF
			Depth to K Trc 64
			Elev of K Trc 3898

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.34.241111 Elevation: 3952' Sea Level
Owner: Continental Oil Co.
Pearsall BX #2
Record of Casing: 8 5/8" - 59'
5 1/2" - 3515'
Rotary

1345' FNL - 1295' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 7 need be completed.

SECTION _____

TOWNSHIP 17S

RANGE 33E

Form WR-23

STATE ENGINEER OFFICE

STATE No. 1

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.

Section 1

(Plat of 640 acres)

(A) Owner of well WARTON DRILLING COMPANY

Street and Number Box 2807

City Odessa State Texas

Well was drilled under Permit No. ____ and is located in the ¼ SE ¼ NW ¼ of Section 1 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Abbott Brothers License No. WD-46

Street and Number Box 637

City Hobbs State New Mexico

Drilling was commenced December 19 19 57

Drilling was completed December 31 19 57

Elevation at top of casing in feet above sea level ____ Total depth of well 180

State whether well is shallow or artesian shallow Depth to water upon completion 150

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	150	180	30	water sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	16	10	0	180	180	plain	150	180

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19 ____

Plugging approved by:

____

____ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received DEC 30 1957

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3750 Use O.W.D Location No. 17.33.1.140

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		soil
1	20	19		caliche
20	150	130		dry sand
150	160	10		water sand

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.

Merrill Abbott

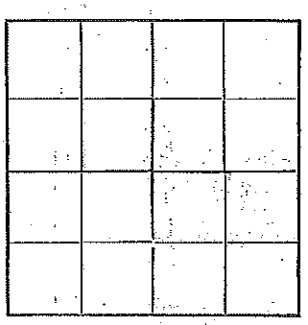
Well Driller

Form WR-23 Orig. & 3 U.S. STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Denver Drilling Company
Street and Number Box 669
City Odessa State Texas
Well was drilled under Permit No. L-3782 and is located in the
S E ¼ S E ¼ S E ¼ of Section 2 Twp. 17 S Rge. 33 E
(B) Drilling Contractor Cayton Drilling Co. License No. WD-183
Street and Number Box 1021
City Lovington State New Mexico
Drilling was commenced Feb. 6 19 58
Drilling was completed Feb. 8 19 58

Elevation at top of casing in feet above sea level Total depth of well 183 Ft.
State whether well is shallow or artesian Shallow Depth to water upon completion 153 Ft.

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	151	170	19	Water Sand
2	176	183	7	Water Sand
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8	17	10	0	183	184	None	140	183

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
18	183	10	400 lbs.		Dry Mix - Hole Gravel Packed

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received FEB 20 1958

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3782 Use O. & U. D Location No. 17.33.2.444

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	4	3		Rock
4	12	8		Caliche
12	18	6		Boulder
18	26	8		Caliche
26	80	54		Sandy Clay
80	151	71		Dry Sand
151	170	21		Water Sand
170	176	6		Sandy Clay
176	183	7		Water Sand

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.

CAYTON WATER WELL DRILLING COMPANY
Well Driller
Grady Backus

STATE ENGINEER OFFICE

WELL RECORD

Revised June 1972

Section 1. GENERAL INFORMATION

(A) Owner of well Yates Petroleum Owner's Well No. _____

Street or Post Office Address 105 South 4th. Street

City and State Artesia, New Mexico 88210

Well was drilled under Permit No. L-10,212 and is located in the:

a. _____ ¼ _____ ¼ SE ¼ SE ¼ of Section 2 Township 17-S. Range 33-E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service, Inc. License No. WD 421

Address P.O. Box 692 Tatum, New Mexico 88267

Drilling Began 7-7-94 Completed 7-7-94 Type tools rotary Size of hole 14 3/4in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 273 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 168 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
168	268	100	sand	120

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
8 5/8	.250		1	273	273	none	153	273

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received 07/13/94

Quad _____ FWL _____ FSL _____

File No. L-10.212 Use secondary recovery of oil-water flood Location No. 17S.33.2.44423

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	soil
1	27	26	caleche
27	168	141	sand and rock with stringers of clay
168	268	100	sand (water)
268	273	5	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Corky Horn
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All [illegible]ons, except Section 5, shall be answered as completely and accurat[illegible]ossible when any well is drilled, repaired or deepen[illegible]en this form is used as a plugging record, only Section 1(a) and Sectio[illegible]d be completed.

Form WR-23

FIELD ENGR. LOG

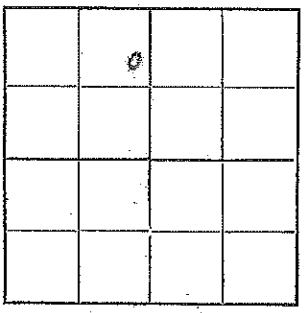
STATE ENGINEER OFFICE

DATA OIL DRILLING COMPANY
STATE "B" No. 2

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Owner Drilling Company

Street and Number 300 Harper Building

City Artesia State New Mexico

Well was drilled under Permit No. ..... and is located in the

SE ¼ SW ¼ NW ¼ of Section 2 Twp 17 S Rge. 30 E

(B) Drilling Contractor W. B. Burks License No. WD-111

Street and Number P.O. Box 306

City Hobbs State New Mexico

Drilling was commenced July 11 19 .....

Drilling was completed July 12 19 62

Elevation at top of casing in feet above sea level ..... Total depth of well 204

State whether well is shallow or artesian shallow Depth to water upon completion 182

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	182	204	22	water sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	20	10	0	197	197	none	185	197

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ..... License No. .....

Street and Number ..... City ..... State .....

Tons of Clay used ..... Tons of Roughage used ..... Type of roughage .....

Plugging method used ..... Date Plugged ..... 19 .....

Plugging approved by:

..... Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received ..... JUL 19 1962 AM 8:29 STATE ENGINEER OFFICE ROSWELL, N. MEX. DISTRICT II

File No. L-4935 Use OWD Location No. 17.33.2.120

OWD - RR

Section 6 LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		top soil
1	22	21		caliche
22	66	24		Sand sand, pack
66	71	5		hard sand
71	78	7		loose sand
78	162	84		peak sand
162	201	39		water sand
201	206	5		tight sand

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.

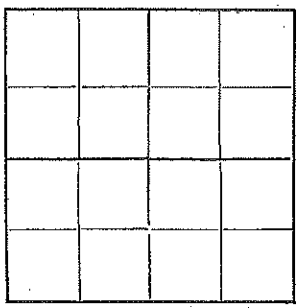
Edward B Burke
Well Driller

Form WR-23 STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Pete Lemax Drilling Co.

Street and Number Box 424

City Hobbs State New Mexico

Well was drilled under Permit No. L-3012 and is located in the ¼ SE ¼ NW ¼ of Section 3 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Clayton & Porter License No. WD-163

Street and Number Box 1021

City Lovington State New Mex.

Drilling was commenced Nov. 1 19 55

Drilling was completed Nov. 1 19 55

Elevation at top of casing in feet above sea level ..... Total depth of well 210

State whether well is shallow or artesian Shallow Depth to water upon completion 155

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	186	198	12	Water Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	16	10	0	210	210	none	100	210

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ..... License No. .....

Street and Number ..... City ..... State .....

Tons of Clay used ..... Tons of Roughage used ..... Type of roughage .....

Plugging method used ..... Date Plugged ..... 19 .....

Plugging approved by:

..... Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received NOV 10 1955

OFFICE GROUND WATER

File No. L-3012 Use Oil Location No. 17.33.3.140

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2		Rock & Soil
2	14	12		Rock
14	20	6		Caliche
20	180	160		Sand & Rock Shells
180	186	6		Rock
186	198	12		Water Sand
198	210	12		Sandy Clay

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.

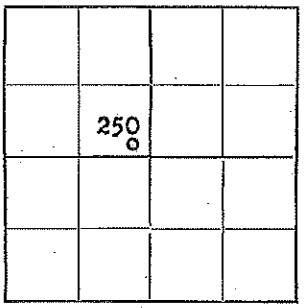
Jack Cayton
Well Driller

Form WR-23 STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Continental Oil Company
Street and Number P. O. Box 460
City Hobbs State New Mexico
Well was drilled under Permit No. L-3528-S-3 and is located in the
SE ¼ SE ¼ NW ¼ of Section 3 Twp. 17S Rge. 33E
(B) Drilling Contractor Walco Drilling, Inc. License No. WD-349
Street and Number P. O. Box 806
City Hereford State Texas
Drilling was commenced December 20 1968
Drilling was completed December 21 1968

Elevation at top of casing in feet above sea level 4,195 Total depth of well 271
State whether well is shallow or artesian Shallow Depth to water upon completion 155

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	150	212	62	Sandrock and red fine sand
2	212	237	25	Clean red sand
3	237	239	2	Red clay and sand
4	239	265	26	Sand and small gravel
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
12-3/4	49.56	---	0	270	270	---	181	227

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received JAN 14 1969 8:02 AM

STATE ENGINEER OFFICE

File No. L-3528-S-3 Use WATERFLOOD Location No. 17.33.3.144

#2 Caprock 2-174-25

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	6			Top Soil
6	30			Rock, caliche and sand
30	50			Sand, sandrock and caliche
50	88			Sand and sandrock
88	90			Rock
90	150			Sand and sandrock
150	212			Sandrock and fine red sand
212	237			Clean red sand
237	239			Red clay and sand
239	265			Sand and small gravel
265	270			Red Bed

L S Elev 4183'

Depth to K Trc 265'

Elev of K Trc 3918'

Loc. No. 17.33.3. 14443'

Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling ____

Other ____

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.

WALCO DRILLING, INC.
Well Driller

BY: R. Paul Coneway

R. Paul Coneway
President

Form WR-23 Orig. & 3 STATE ENGINEER OFFICE

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.

Section 1

660	N of	S line	
660	W of	E. line	
W ter	Lease	W 99	
			0

(Plat of 640 acres)

(A) Owner of well Maljamar Co-op Repressuring Agreement

Street and Number 200 Booker Building

City Artesia State New Mexico

Well was drilled under Permit No. L-3528 and is located in the ¼ SE ¼ SE ¼ of Section 4 Twp. 17 S Rge 33 E

(B) Drilling Contractor Abbott Bros. License No. WD-46

Street and Number Box 637

City Hobbs State New Mexico

Drilling was commenced December 11 1957

Drilling was completed December 16 1957

Elevation at top of casing in feet above sea level ______ Total depth of well 265

State whether well is shallow or artesian Shallow Depth to water upon completion 158

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	160	225	65	Water Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
16			0	19	19			
10 3/4	34	Welded	0	265	265	plain	170	232
							6 rows 1/8"x12"	

12 cu. yds. gravel pack before pumping.

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ______ License No. ______

Street and Number ______ City ______ State ______

Tons of Clay used ______ Tons of Roughage used ______ Type of roughage ______

Plugging method used ______ Date Plugged ______ 19____

Plugging approved by:

______ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received DEC 30 1957 OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3528 Use Oilfield water flooding Location No. 17.33.4.44322

#1 Malj. 2-137-1

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	21	20		Caliche
21	150	129		Pack Sand
150	160	10		Hard Shell
160	225	65		Water Sand
225	240	15		Sandy Clay
240	265	25		Red Bed

L S Elev _____ 4179'
Depth to K _____ Trc 240'
Elev of K _____ Trc 3939'

FV 17.33.4.443225

Loc. No. _____
Hydro. Survey _____ Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling _____
Other _____

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

L-3528

17.33.4.440

Form WR-23 FIEL[illegible]R. LOG STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Yucca Water Co.

Street and Number Ft. Worth Nat'l. Bank Building

City Ft. Worth 2 State Texas

Well was drilled under Permit No. ______ and is located in the SE ¼ NE ¼ NE ¼ of Section 5 Twp. 17S Rge. 33E

(B) Drilling Contractor Abbott Bros. License No. ______

Street and Number Box 637

City Hobbs State New Mexico

Drilling was commenced June 18 19 59

Drilling was completed June 25 19 59

Elevation at top of casing in feet above sea level ______ Total depth of well 272

State whether well is shallow or artesian shallow Depth to water upon completion 160

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation
	From	To		
1	160	260	100	water sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth		Feet	Type Shoe	Perforations	
			Top	Bottom			From	To
10 3/4	24	weld	0	272	272	open	165	260

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet		Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
From	To				

Section 5 PLUGGING RECORD

Name of Plugging Contractor ______ License No. ______

Street and Number ______ City ______ State ______

Tons of Clay used ______ Tons of Roughage used ______ Type of roughage ______

Plugging method used ______ Date Plugged ______ 19 ______

Plugging approved by:

______
Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug		No. of Sacks Used
	From	To	

FOR USE OF STATE ENGINEER ONLY

Date Received FILED JUL 7 1959 OFFICE GROUND WATER [illegible] ROSWELL, NEW MEXICO

File No. L-3598-X Use ~~D.W.D.~~ Secondary Recovery Location No. 17.33.5.22220

#1 Map 2-125-2

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	14	13		Caliche
14	95	79		sand and gravel
95	160	65		tight sand (hard)
160	260	100		water sand
260	272	12		red clay

L S Elev 4198'

Depth to K Trc 260'

Elev of K Trc 3938'

Formation 17.33.5.222

Loc. No.

Hydro. Survey Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling

Other

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

L-3598-X

17.33.5.222

Form WR-23

STATE ENGINEER OFFICE

FIELD 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.

Section 1

(Plat of 640 acres)

(A) Owner of well Yucca Water Company

Street and Number 300 Park Avenue

City New York 22 State N. Y.

Well was drilled under Permit No. L-3598 and is located in the NW ¼ NW ¼ NW ¼ of Section 6 Twp. 17S Rge. 33E

(B) Drilling Contractor B. E. Greenwood License No. WD-115

Street and Number 215 Birdway Avenue

City El Paso, State Texas

Drilling was commenced June 18, 1962 19

Drilling was completed June 25, 1962 19

Elevation at top of casing in feet above sea level 3800 Total depth of well 287 feet

State whether well is shallow or artesian shallow Depth to water upon completion 210 feet

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	~~[illegible]~~	~~[illegible]~~	~~20~~	~~Sandy clay and small gravel~~
2	230	255	25	Sand with streaks of clay
3	255	260	5	~~Small gravel~~ Brown sand and clay - gray gravel
4	265	270	5	Brown sand
5	270	280	10	Brown small gravel and sandy clay

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
12-3/4	30	welded	~~[illegible]~~		287	welded	~~247~~ 242 242	~~287~~ 282

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received STATE ENGINEER OFFICE DISTRICT II 1962 JUL 12

File No. L-3598 Use SRO Location No. 12.33.6.111

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	20	20	White	Dolomite
20	60	40	Brown	Caliche and sand
60	220	160	Brown	Fine Sand
220	230	10	Brown	Clay
230	255	25	Brown	Sand with Streaks of clay
255	260	5	Gray	Gravel
260	265	5	Brown	Clay
265	270	5	Brown	Sand
270	280	10	Brown	Small gravel and sandy clay
280	285	5	Brown	Clay
285	287	2	Purple	Clay

L S Elev 4243'
Depth to K Trc 280'
Elev of K Trc 3963'

Loc. No. 17.33.6.111D
Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet ____
Determined by Inst. Leveling ____
Other Altitude Rept.

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.

B. E. Greenwood
Well Driller

B. E. Greenwood

L-3598

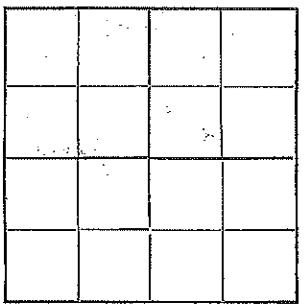
17.33.6.111

Form WR-23 FIELD ENGR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well H. E. Paschall

Street and Number 605 S. 11th St.

City Artesia State New Mexico

Well was drilled under Permit No. L-1524 and is located in the

¼ SE ¼ SE ¼ of Section 6 Twp. 17 S. Rge. 31 E.

(B) Drilling Contractor P & P Drilling Co. License No. WD-281

Street and Number 1121 S. Love

City Lovington State New Mexico

Drilling was commenced Sept. 23 19 60

Drilling was completed Sept. 26 19 60

Elevation at top of casing in feet above sea level ____ Total depth of well 100 ft.

State whether well is shallow or artesian Shallow Depth to water upon completion 90

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
			None					

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		7			

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19 ____

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received 10-26-60

1960 OCT 26 AM 8:3

STATE ENGINEER OFFICE SANTA FE, N. MEX.

File No. L-1524 Use Dom. Location No. 17 33. 6. 440

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				This was a clean out job from
				75 ft. to 100 ft. on a domestic well, for
				Stock watering only.

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.

Otis N. Powell

Well Driller

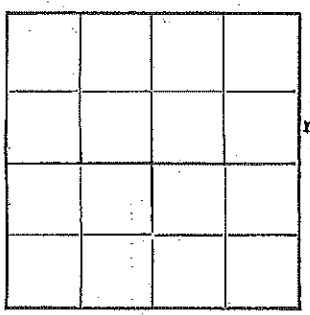
Form WR-23 FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Duel Drilling Co; c/o S. O. Lamb

Street and Number

City Colorado City State Texas

Well was drilled under Permit No. L-4122 and is located in the near center ¼ NE ¼ SW ¼ of Section 7 Twp. 17 S Rge. 33E

(B) Drilling Contractor P & P Drilling Co. License No. WD-287

Street and Number 1101 South Love

City Lovington State New Mexico

Drilling was commenced May 1 19 59

Drilling was completed May 3 19 59

Elevation at top of casing in feet above sea level Total depth of well 219 ft.

State whether well is shallow or artesian Shallow Depth to water upon completion 214 ft

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	214	219		
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
		None						

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		7		None	

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

FILED
JUN 24 1959
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. L-4122 Use O.I.D. Location No. 17.33.7.32322

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1			Soil
1	4			Rock
4	25			Clichie
25	75			Sandy Clay
75	140			Dry Sand
140	194			Sandy Clay
194	214			Water Sand
214	230			Sandy Clay
230	244			Sand
244	247			Sand & Gravel
247	249			Red Bed

L S Elev 4229'
Depth to K Trc 244'
Elev of K Trc 3985

Loc. No. 17.33.7. 32325
Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling ____
Other ____

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.

Otis W. Pruett
Well Driller

L-4122

17.33.7.320

Form WR-23 STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well KENAMEE OIL COMPANY
Street and Number Box 124
City HALJAMAR State NEW MEXICO
Well was drilled under Permit No. STATE WATER WELL #5 and is located in the
C ¼ SE ¼ ¼ of Section 7 Twp. 17S Rge. 33E
(B) Drilling Contractor C. O. ALDREDGE License No. 79
Street and Number Box 379
City LOVINGTON State NEW MEXICO
Drilling was commenced JUNE 28 19 55
Drilling was completed JULY 13 19 55

Elevation at top of casing in feet above sea level Total depth of well 227
State whether well is shallow or artesian SHALLOW Depth to water upon completion 182

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	164	188	24	LIGHT WATER SAND
2	188	215	27	GOOD WATER SAND AND GRAVEL
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10	32	8	0	217	217	HOWE	183	217

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		12¼			6 SACKS OF AQUAGEL POURED IN TOP OF HOLE TO HOLD BACK QUICKSAND WHILE DRILLING WELL

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received JUL 28 1955

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-2771 Use Munic Location No. 17 33 7 4000

Section 6 LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	4	4	WHITE	TOP ROCK
4	12	8	RED	SAND
12	17	5	WHITE	HARD ROCK
17	51	34	RED	SAND
51	64	13	GRAY	CALICHE
64	104	40	RED	SAND
104	117	13	GRAY	HARD CALICHE
117	134	17	GRAY	LIME AND STREAKS OF SAND
134	149	15	GRAY	BROKEN LIME
149	155	6	BROWN RED	SAND
155	164	9	GRAY	BROKEN LIME
164	188	24	RED	SAND - LIGHT WATER SAND
188	189	1	GRAY	LIME SHELL
189	215	26	BROWN	SAND AND GRAVEL - GOOD WATER SAND
215	220	5	RED	SANDY SHALE
220	222	2	RED	PACK SAND
222	227	5	RED	SHALE
	SET 10" PIPE AT 217 2 FEET INTO RED SANDY SHALE			
	TOTAL DEPTH 227			
				L S Elev 4217
				Depth to K Trc 222
				Elev of K Trc 3995
				P30 17.33.7.400
				Loc. No.
				Hydro. Survey Field Check X

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.

C.B. Aldridge
Well Driller

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

L-2771

17.33.7.400

Form WR-23 FIELD [illegible] LOG

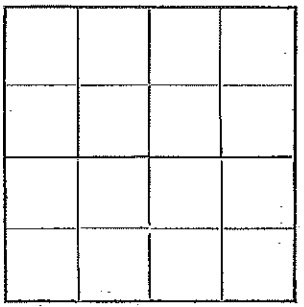
STATE ENGINEER OFFICE

WELL RECORD

Phil[illegible]s State # 1

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Thunderbird Drilling Co.

Street and Number 322 Fidelity Union Bldg.

City Dallas State Texas

Well was drilled under Permit No. ____ and is located in the

¼ SW ¼ SW ¼ of Section 9 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Abbott Bros. License No. WD-46

Street and Number Box 637

City Hobbs State New Mexico

Drilling was commenced Dec. 19 19 57

Drilling was completed Dec. 21 19 57

Elevation at top of casing in feet above sea level ____ Total depth of well 230

State whether well is shallow or artesian Shallow Depth to water upon completion 160

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	160	230	70	Water Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19 ____

Plugging approved by:

____ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received DEC 30 1957

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3749 Use D.&D. Location No. 17.33.9.330

.342113

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	19	18		Caliche
19	160	141		Dry Sand
160	230	70		Water Sand

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

Form WR-23

STATE ENGINEER OFFICE

CORRECTED COPY

FIELD ENGR. LOG

WELL RECORD

Unit Well 243

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Continental Oil Company

Street and Number P.O. Box 460

City Hobbs State New Mexico

Well was drilled under Permit No. L-3528-S-2 and is located in the NW ¼ SW ¼ SW ¼ of Section 9 Twp. 17S Rge. 33E

(B) Drilling Contractor Abbot Brothers License No. WD-46

Street and Number P.O.Box 657

City Hobbs, State New Mexico

Drilling was commenced 7-8-67 19

Drilling was completed 7-19-67 19

Elevation at top of casing in feet above sea level Total depth of well 262'

State whether well is shallow or artesian Shallow Depth to water upon completion 180'

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	198	262	64'	Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
12 3/4	36	welded	-1	262	263	open	170	250
							4 rows 3/16 X 12	

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received OCT 18 1967

File No. L-3528-S-2 Use S R Corrected Location No. 17.33.9.33/432'

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		surface soil
1	26	25		caliche
26	78	52		sand, tight
78	96	18		sand, loose
96	129	33		sand, tight
129	232	103		sand
232	252	20		sandy clay
252	262	10	red	clay

L S Elev 4200'
Depth to K Trc 2525'
Elev of K Trc 3948'

SP 17.33.9.331432

Loc. No.
Hydro. Survey Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo Sheet X
Determined by Inst. Leveling
Other

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.

Murrell Abbott
Well Driller

L-3528-S-2

17.33.9.331

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well Ideal Basic Industries, Inc. %Potash Company of America Owner's Well No. # 8

Street or Post Office Address P.O. Box 31

City and State Carlsbad, New Mexico 88220

Well was drilled under Permit No. L-1880-S-3 and is located in the:

a. ___ ¼ NW ¼ SE ¼ NW ¼ of Section 12 Township 17S Range 33E N.M.P.M.

b. Tract No. ___ of Map No. ___ of the ___

c. Lot No. ___ of Block No. ___ of the ___
Subdivision, recorded in Lea County.

d. X= ___ feet, Y= ___ feet, N.M. Coordinate System ___ Zone in the ___ Grant.

(B) Drilling Contractor Abbott Bros. Drilling License No. WD-46

Address Hobbs, New Mexico 88240

Drilling Began 4/21/81 Completed 5/4/81 Type tools Cable Size of hole 24 in.

Elevation of land surface or ___ at well is ___ ft. Total depth of well 268 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well 155 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
159	230	71	Sand	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
14	36.71	Welded	0	269	269		155	268

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor ___

Address ___

Plugging Method ___

Date Well Plugged ___

Plugging approved by:

State Engineer Rep[illegible]

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received May 14, 1981

Quad ___ FWL ___ FSL ___

File No. L-1880-S-3 Use ~~IND.~~ MOO Location No. 17.33.12.14142 .14/LC

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	Soil
1	26	25	Caliche
26	125	99	Sand
125	159	34	Sand and sand rock
159	230	71	Sand-water
230	241	11	Sand
241	258	17	Sand and clay streaks
258	268	10	Red clay

L S Elev 4148'
Depth to K Trc 241'
Elev of K Trc 3907'

Loc. No. 17.33.12.14110
Hydro. Survey Field Check PCA Survey

~~SOURCE OF ALTITUDE GIVEN~~
Interpolated from Topo. Sheet
Determined by Inst. Leveling
Other

Section 7. REMARKS AND ADDITIONAL INFORMATION

'81 MAY 14 AM 8 28
STATE ENGINEER OFFICE
ROSWELL, N.M.

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.

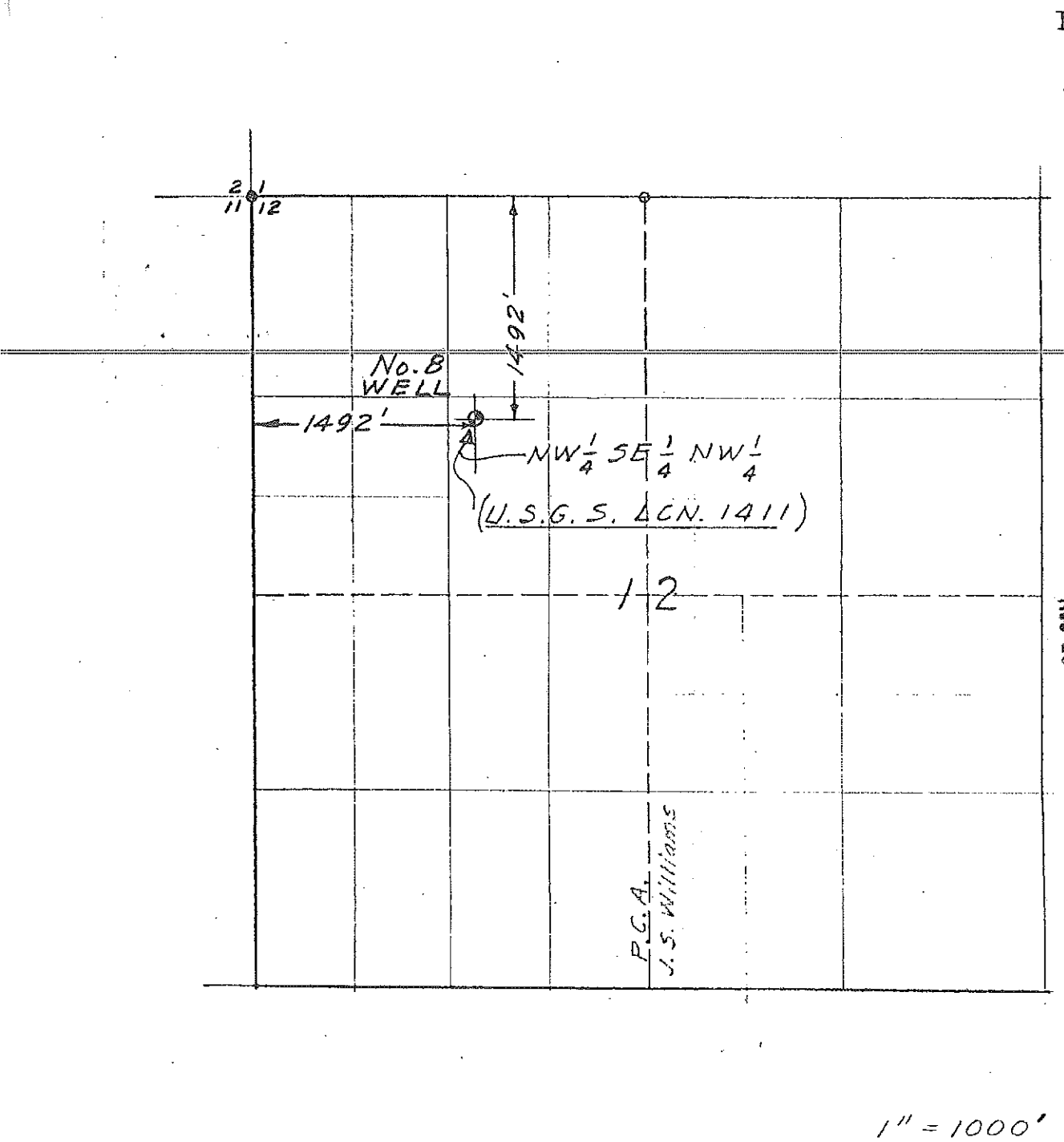
Murrell Abbott
Driller 3-6

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

LOCATION - CAPROCK NO. 8 WATER WELL.
POTASH CO. OF AMERICA - CARLSBAD, N.M.

SECT. 12, T. 17 S., R. 33 E.

($W\frac{1}{2}$ of Sect. - P.C.A. deeded land.)



1" = 1000'

L-1880-S-3 .14110

ECJ
8/17/81

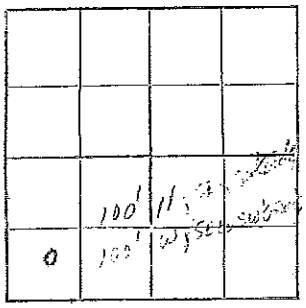
Form WR-23 STATE ENGINEER OFFICE

FIELD 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.

Section 1



(Plat of 640 acres)

(A) Owner of well Potash Company of America

Street and Number P. O. Box 21

City Carlsbad State New Mexico

Well was drilled under Permit No. L-1860 thru L-1864 Comb. 5 and is located in the SE ¼ SW ¼ SW ¼ of Section 12 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Abbott Bros. License No. WD- 66

Street and Number P. O. Box 637

City Hobbs State New Mexico

Drilling was commenced May 3 19

Drilling was completed May 5 19 66

Elevation at top of casing in feet above sea level Total depth of well 250

State whether well is shallow or artesian shallow Depth to water upon completion 115

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	115	230	115	Water sand
2	235	250	15	Sand and gravel
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
14	85	Weld	0	250	250	open	120	240
Drilled 24" hole								

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received ✓

STATE ENGINEER OFFICE
DISTRICT II
ROSWELL, N. M.
SEP 29 AM 8:31
1966

File No. L-1880 thru L-1864 Comb 5 Use Ind. & Com Location No. 17.33.12.33844 ✓

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	23	22		Caliche
23	70	47		Sand
70	115	45		Sand, dry
115	230	115		Sand, water
230	235	5		Sandy clay
235	250	15		Sand and gravel
250	259	9	red	Clay

L S Elev 4132'
Depth to K Trc 250'
Elev of K Trc 3882'

Loc. No. 17.33.12.334AAA1
Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet ____
Determined by Inst. Leveling ____
Other ____

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.

Murrell Abbott
Well Driller

L-1880 Then 1884 Conv B. S

17.33.12.334

Form WR-23

FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well

Street and Number Donnelly Drilling Company

City Box 432 State

Well was drilled under Permit No. and is located in the

¼ ¼ ¼ of Section Twp. Rge.

(B) Drilling Contractor Ed Burke License No. 338

Street and Number #3111

City Box 306 State

Drilling was commenced November

Drilling was completed December 4 19 59

December 5 59

Elevation at top of casing in feet above sea level Total depth of well 217

State whether well is shallow or artesian Shallow Depth to water upon completion 165

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2	165	202	37	Water Sand
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	20	30	0	198	198	Open	177	198

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

STATE ENGINEER OFFICE
DISTRICT II
ROSWELL, N. M.
1959 DEC 10 AM 8:51

File No. L-4333 Use D.W.D. Location No. 17.33.13.110

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	14	14		Caliche
14	68	54		Sand (tight)
68	83	15		Sand (loose)
83	140	57		Sand (tight)
140	165	25		Sand (loose)
165	202	37		Sand (water)
202	217	15		Sand (tight)

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.

Edward B Burke
Well Driller

Form WR-23

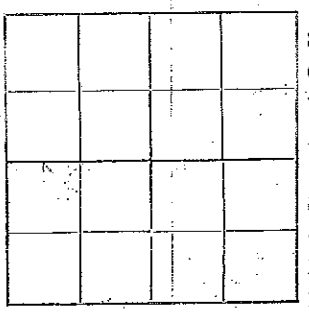
STATE ENGINEER OFFICE

FIELD 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.

Section 1



(Plat of 640 acres)

(A) Owner of well Potash Company of America

Street and Number Box 31

City Carlsbad, N.M. 1880-S-2 State

Well was drilled under Permit No. and is located in the

NE¼ NW¼ SW¼ of Section 13 Twp. 17S Rge. 33E

(B) Drilling Contractor Abbott Bros. License No. WD-46

Street and Number Box 637

City Hobbs, N.M. State

Drilling was commenced March 9, 1972 19

Drilling was completed March 16, 1972 19

Elevation at top of casing in feet above sea level Total depth of well 235

State whether well is shallow or artesian shallow Depth to water upon completion 151

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
14	30	welded	1	238	238	none	118	228

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-1880-S-2 Use COM Location No. 17.33.13.3143

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	4	4	brown	surface soil
4	28	24	gray	caliche
28	45	13	brown	sand tight
45	102	57	brown	sand loose
102	153	51	brown	sand tight
153	154	1	red	shale
154	198	44	brown	sand
198	201	3	red	shale
201	218	17	brown	sand
218	225	7	brown	sandy clay
225	230	5	gray	gravel
230	235	5	red	clay

L S Elev 4124 ✓
Depth to K Trc 230 ✓
Elev of K Trc 3894 ✓

Loc. No. 17.33.13.31413
Hydro. Survey Field Check HWP

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet 4124
Determined by Inst. Leveling
Other

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.

Murrel Abbott
Well Driller

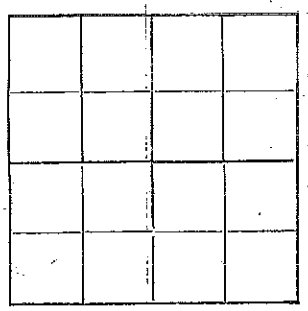
Form WR-23 STATE ENGINEER OFFICE

Orig in S.E.

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Potash Company of America

Street and Number

City Carlsbad State New Mexico

Well was drilled under Permit No. L-1880 and is located in the SW ¼ SE ¼ SW ¼ of Section 13 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Gaynon & Porter License No. WD-183

Street and Number Box 1023

City Lovington State New Mexico

Drilling was commenced August 18 1955

Drilling was completed August 18 1955

Elevation at top of casing in feet above sea level Total depth of well 245

State whether well is shallow or artesian Shallow Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received SEP 30 1955

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-1880 Use Ind & Dom. Location No. M 33 13 343

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
This was work done on a repair Permit.				
Well was cleaned out from 232' to 245'.				

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.

Jack Compton
Well Driller

Form WR-23 *Orig in S.F.*

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Potash Company of America

Street and Number P. O. Box 31

City Carlsbad, State New Mexico

Well was drilled under Permit No. L-1882 and is located in the SE ¼ SW ¼ SE ¼ of Section 13 Twp. 17 S. Rge. 33 E.

(B) Drilling Contractor Randolph Johnston License No. WD-22

Street and Number West Grand Ave.

City Artesia State New Mexico

Drilling was commenced February 2, 19 48

Drilling was completed March 16, 19 48

Elevation at top of casing in feet above sea level 4128 Total depth of well 245

State whether well is shallow or artesian shallow Depth to water upon completion 144

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received SEP 12 1950 OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-1882 Use *[illegible]* Location No. 17.33.13.434441

Section 6 LOG OF WELL

Depth in Feet		Thickness in Feet	Color	Type of Material Encountered
From	To			
				I. S Elev 4128
				Depth to K Trc > 240
				Elev of K Trc < 3888
				Loc. No. 17.33.13.43444
				Hydro. Survey Field Check X
				SOURCE OF ALTITUDE GIVEN
				Interpolated from Topo. Sheet
				Determined by Inst. Leveling X
				Other

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.

Randolph Johnston
Well Driller

(4)

No. 3 Caproch Water Well

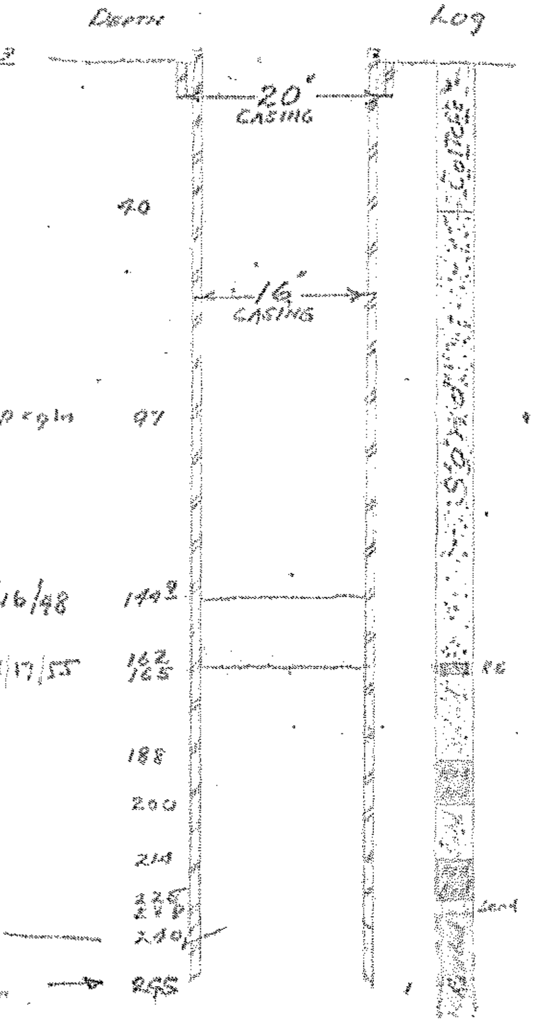
No L-1882 Lea County-Basin

Drilled Feb 2, 1948
To Mar 16, 1948

By - Buck Thierwac

Location SE¼, SW¼ SE¼
Sec 13 T17S R33E

Collar Elev. 4129.05 ft



APPROVED BY	Log of No 3 Caproch Water Well	POTASH COMPANY OF AMERICA CARLSBAD, NEW MEXICO	
		DRAWN BY Dep Eng	DRAWING NO.
		CHECKED BY	3-1374
	SCALE- 1" = 30' DATE- 8-24-55	DIRECTED BY R.R.D.	

Form WR-23

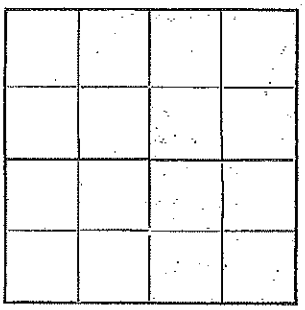
FIELD ENGR. L[illegible]

STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Potash Co. of America

Street and Number Box 31

City Carlsbad, State New Mexico

Well was drilled under Permit No. L-1882 and is located in the SE ¼ SE ¼ SE ¼ of Section 13 Twp. 17 S Rge. 33 E

(B) Drilling Contractor P & P Drilling Co. License No. WD-281

Street and Number 1121 S. Love

City Lovington State New Mexico

Drilling was commenced Sept. 22 19 64

Drilling was completed Sept. 24 19 64

Elevation at top of casing in feet above sea level ____ Total depth of well 245

State whether well is shallow or artesian Shallow Depth to water upon completion ____

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
14			226	245	14			

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19 ____

Plugging approved by:

____
Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received ✓

OCT 30 [illegible]

File No. L-1882 Use Ind & Dom (Repair) Location No. 17.33.13.434

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				This was a repair Job-on Potash Mine well
				Cleaned & Drilled Fr 220 ft to 240 ft.
				Run Pipe Scratcher- Set 14 ft. of 14 in
				casing -in Bottom of Hole & Bailed.

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.

Otis W. Pruett
Well Driller

Form WR-23 Orig. S.E. STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Potash Company of America

Street and Number

City Carlsbad State New Mexico

Well was drilled under Permit No. L-1883 and is located in the SE ¼ SE ¼ SE ¼ of Section 13 Twp. 17 S. Rge. 33 E.

(B) Drilling Contractor Emmatt Barron License No.

Street and Number

City Carlsbad State New Mexico

Drilling was commenced June 11 19 52

Drilling was completed July 24 19 52

Elevation at top of casing in feet above sea level Total depth of well 259

State whether well is shallow or artesian Shallow Depth to water upon completion 147

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	120	135	15	Br. hard chunky sand
2	219	239	20	Br. muddy sands very little gravel
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
16			0	150	150			
13 5/8			12'3"	259				

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received November 1, 1955

File No. L-1883 Use Ind. & Dom. Location No. 17.33.13.444 44

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	20	20		Lime & Caliche
20	50	30		hard fine sand
50	60	10		fine red sand
60	65	5		br. hard sand
65	80	15		fine red sand
80	95	15		br. hard chunky sand
95	120	40		fine sand
120	135	15		br. hard chunks sand
135	145	10		fine sand
145	147	2		hard sand
147	150	3		red bed
150	170	20		fine sand
170	173	3		red bed
173	210			fine & cores sand some gravel
210	219	9		red bed
219	239	20		br. muddy sands
239	241r	2		course gravel
241	259			red bed-some gravel

L S Elev 4123r
Depth to K Trc 241r
Elev of K Trc 3882r

Loc. 17.33.13.44444

Loc. No.

Hydro. Survey Field Check

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

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.

/s/ Emmett Barron
Well Driller

L-1883

17.33.13.444

Form WR-23 Orig. 22 S.F. STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Pethch Company of America

Street and Number

City Carlsbad State New Mexico

Well was drilled under Permit No. L-1883 and is located in the

S E ¼ S E ¼ S E ¼ of Section 33 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Cayton & Porter Drlg. Co. License No. WD-183

Street and Number Box 1021

City Lovington State New Mexico

Drilling was commenced Sept. 20 19 55

Drilling was completed Sept. 26 19 55

Elevation at top of casing in feet above sea level Total depth of well

State whether well is shallow or artesian Depth to water upon completion

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received FILED JUL 16 1956 OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-1883 Use Ind & Dom. Location No. 17.33.13.444

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				Pull 230 ft. 6" pump. Clean out and bail hole and reset pump.

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.

CATTON & PORTER DRILLING COMPANY
Well Driller
M. R. Porter

Form WR-23 FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well POTASH COMPANY OF AMERICA

Street and Number Box 31

City Carlsbad State New Mexico

Well was drilled under Permit No. L-1883 and is located in the ¼ SE ¼ SE ¼ of Section 13 Twp. 17 S Rge. 33 E

(B) Drilling Contractor P & F Drilling Co. License No. WD-281

Street and Number 1121 S. Love

City Lovington State New Mexico

Drilling was commenced Aug 21 19 60

Drilling was completed Aug 21 19 60

Elevation at top of casing in feet above sea level ________ Total depth of well 100 ft.

State whether well is shallow or artesian Shallow Depth to water upon completion ________

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
				None				

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		7	None		

Section 5 PLUGGING RECORD

Name of Plugging Contractor ________ License No. ________

Street and Number ________ City ________ State ________

Tons of Clay used ________ Tons of Roughage used ________ Type of roughage ________

Plugging method used ________ Date Plugged ________ 19__

Plugging approved by:

________ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

STATE ENGINEER OFFICE ROSWELL, N. MEX.

Date Received 1960 AUG 24 AM 8:1

File No. L-1883 Use Ind & Dom. Location No. 17.33.13.440

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				This was a clean out job, on a Domestic well, for a Potash Mine.
				Fished out suction pipe, and cleaned well from 70 ft to 100 ft.

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.

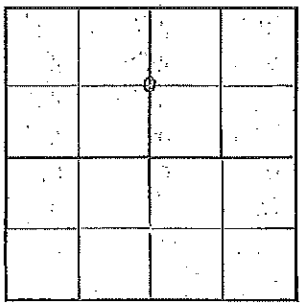
Otis H. Truett
Well Driller

Form WR-23 — STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Midland Drilling Company

Street and Number 110 W. Ohio St.

City Midland State Texas

Well was drilled under Permit No. L-3622 and is located in the

Center¼ ¼ NW ¼ ¼ of Section 17 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Cayton Drlg. Co. License No. WD-189

Street and Number Box 1021

City Lovington State New Mexico

Drilling was commenced July 22 19 57

Drilling was completed July 25 19 57

Elevation at top of casing in feet above sea level Total depth of well 226 Ft.

State whether well is shallow or artesian Shallow Depth to water upon completion 180 Ft.

Section 2 — PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	180	200	20	Water Sand
2				
3				
4				
5				

Section 3 — RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	17	10	0	226	226	None	180	226

Section 4 — RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
18	226	10	500 lbs.		Dry Mix. Hole Gravel packed

Section 5 — PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

FILED
AUG 1 1957
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. L-3622 Use Owner Location No. 17.33.17.12444

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2		Soil
2	12	10		Caliche
12	18	6		Boulder
18	180	162		Sand, Shell, & Clay
180	200	20		Water Sand
200	224	24		Sand, Shell, & Gravel
224	226	2		Red Bed

L S Elev 4209 ✓
Depth to K Trc. 224 ✓
Elev of K Trc. 1985 ✓

Loc. No. 17.33.17.12444 ✓

Hydro. Survey _____ Field Check X (Not Found)

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling _____

Other _____

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.

CAYTON Drilling Company
Well Driller
Jack Cayton

L-3622

17.33.17

Form WR-23 — STATE ENGINEER OFFICE

Orig. CSF

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.

Section 1

(Plat of 640 acres)

(A) Owner of well: KEWANEE OIL COMPANY
Street and Number: MALJAMAR, NEW MEXICO
City: ______ State: ______
Well was drilled under Permit No. STATE WATER WELL #4 MUNICIPAL USE and is located in the C ¼ NE ¼ ¼ of Section 18 Twp. 17S Rge. 33E

(B) Drilling Contractor: C. O. ALDREDGE License No. 79
Street and Number: BOX 379
City: LOVINGTON State: NEW MEXICO
Drilling was commenced: JUNE 6 1955
Drilling was completed: JUNE 28 1955

Elevation at top of casing in feet above sea level ______ Total depth of well 214-6
State whether well is shallow or artesian: SHALLOW Depth to water upon completion 179

Section 2 — PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	169	185	16	LIGHT WATER SAND
2	185	213	28	GOOD WATER SAND
3				
4				
5				

Section 3 — RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10	32	8	0	214-6	214.6	NONE	182	214.6

Section 4 — RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		12¼			8 SACKS OF AQUEGEL POURED IN TOP
					OF HOLE TO HOLD BACK QUICKSAND
					WHILE DRILLING WELL

Section 5 — PLUGGING RECORD

Name of Plugging Contractor ______ License No. ______
Street and Number ______ City ______ State ______
Tons of Clay used ______ Tons of Roughage used ______ Type of roughage ______
Plugging method used ______ Date Plugged ______ 19__
Plugging approved by: ______

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

FILED

Date Received: JUL 28 1955

OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. L-2770 Use Munic. Location No. 17.33.18.24111 200

#4 on OCE-2-2034

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	3	3	BROWN	SOIL
3	68	65	RED	SAND
68	71	3	GRAY	LIME
71	98	17	WHITE	CALICHE
98	117	19	RED	SAND
117	129	12	WHITE	CALICHE
129	163	34	RED	SAND
163	165	2	BROWN	SHALE
165	189	24	RED	SAND AND GRAVEL LIGHT WATER SAND
189	192	3	LIGHT GRAY	LIME SHELL
192	198	6	RED	SAND
198	213	15	BROWN	WATER SAND - GOOD
213	214	1	RED	SHALE

RUN 10" PIPE TO 213-6 CLEANED OUT DROVE PIPE FROM 213-6 TO 214-6 - ONE FOOT IN RED BED

TOTAL DEPTH 214.6

L.S Elev 4215

Depth to K Trc 213

Elev of K Trc 4002

PRO 17.33.18.200 1

Loc. No.

Hydro. Survey X Field Check

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling

Other

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.

G. B. Aldredge

Well Driller

L-2770

17.33.18.200

Form WR-23

STATE ENGINEER OFFICE

L-2773

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.

Section 1

#3 on OC-2-203-1			

(Plat of 640 acres)

(A) Owner of well KEWANEE OIL COMPANY

Street and Number

City MALJAMAR State NEW MEXICO

Well was drilled under Permit No. CLEAN OUT OIL CAMP WELL # 2 and is located in the EXTREME CORNER N.E. ¼ CORNER SW ¼ ¼ of Section 18 Twp. 17 Rge. 33

(B) Drilling Contractor C. O. GARDNER License No. 79

Street and Number BOX 379

City LOVINGTON State NEW MEXICO

Drilling was commenced JUNE 1 19 55

Drilling was completed JUNE 6 19 55

Elevation at top of casing in feet above sea level Total depth of well 214

State whether well is shallow or artesian SHALLOW Depth to water upon completion 184

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	196	214	18	QUICK SAND
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10			± 0	214	214	RED BED		
	WELL ALREADY CASED WHEN CLEANED OUT							

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		No Mud Used			

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received JUL 11 1955

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-2773 Use Municipal Location No. 17.33.18.a 322

#3 on OC-2-203-1

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
196	214	18	RED	QUICK SAND

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.

G. O. Nicholson
Well Driller

Form WR-23

STATE ENGINEER OFFICE

I-2

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.

Section 1

(Plat of 640 acres)

KEWANEE OIL CO.

(A) Owner of well BOX 124

Street and Number MALJMAR N. MEX.

City STATE WATER WELL DRILLED ON 4-1947 State

MUNICIPAL USE

2090 Well was drilled under 2090 Permit FROM WEST LINE 16 17S and is located in the 33E

¼ ¼ C. O. ALDRIDGE ½ of Section Twp. Rge.

(B) Drilling Contractor BOX 379 License No.

Street and Number LOVINGTON NEW MEXICO

City JULY 14 State 55

Drilling was commenced JULY 16 55

Drilling was completed 19

4230 220

Elevation at top of casing in feet above sea level SHALLOW Total depth of well 202

State whether well is shallow or artesian Depth to water upon completion

Section 2

PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	202	215	13	QUICK SAND
2				
3				
4				
5				

Section 3

RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
10 3/4	40.5#	8	0	215.2	215.2			
		WELL WAS DRILLED	4-19-47	WAS ALREADY CASED	WHEN CLEANED OUT			

Section 4

RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
			NO MUD	USED	

FILED
JUL 28 1955
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

Section 5

PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

FILED
JUL 28 1955
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

Date Received

File No. L-2773 Use Municipal (Repair) Location No. 17.33.18 322 32233

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
202	215	13	RED	QUICK SAND
215	220	5	RED	RED BED

L S Elev 4225
Depth to K Trc 215
Elev of K Trc 4010

FV 17.33.18.322

Loc. No.
Hydro. Survey Field Check X

SOURCE OF ALTITUDE
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

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.

C.C. Aldredge
Well Driller

L-2773

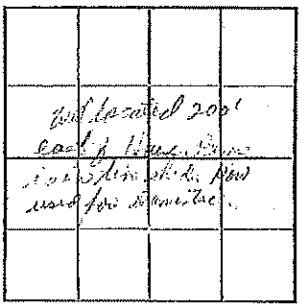
17.33.18.322

Form WR-23 Orig S.E. STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Henry Black Drilling Company
Street and Number Box 174
City Midland State Texas
Well was drilled under Permit No. L-3726 and is located in the
¼ ¼ N E ¼ of Section 28 Twp. 17 S Rge. 33 E
(B) Drilling Contractor Cayton Drlg. Co. License No. WD-183
Street and Number Box 1021
City Lovington State New Mexico
Drilling was commenced November 25 19 57
Drilling was completed November 30 19 57

Elevation at top of casing in feet above sea level 4216 Total depth of well 208 Ft.
State whether well is shallow or artesian Shallow Depth to water upon completion 188 Ft.

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	188	194	6	Water Sand
2	203	207	5	Water Sand & Gravel
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	20	10	0	208	208	None	148	208

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
20	208	10	400 lbs.		Dry Mix; hole gravel packed

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received FEB 10 1958

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3726 Use D.&D. Location No. 17.33.19.230

22/15

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	8	7		Caliche
8	12	4		Boulder
12	18	6		Caliche
18	26	8		Boulder
26	188	162		Sandy Clay Shell
188	194	6		Water Sand
194	203	9		Sandy Clay
203	207	5		Water Sand & Gravel
207	208	1		Red Bed

L S Elev 4216'
Depth to K Trc 207'
Elev of K Trc 4009'

Loc. No. 17.33.18. 22113

Hydro. Survey Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Chart X

Determined by Inst. Leveling

Other

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.

CATTON DRILLING COMPANY
Well Driller
Jack Catton

L-3726

17.33.18.230

Form WR-23

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Warren and Bradshaw Expl. & Drg. Co.
Street and Number 2504 West Brunson
City Midland State Texas
Well was drilled under Permit No. L-2875 and is located in the NE ¼ NE ¼ ¼ of Section 20 Twp. 17 S Rge. 33 E
(B) Drilling Contractor Abbott Brothers License No. WD-46
Street and Number P.O. Box 637
City Hobbs, State New Mexico
Drilling was commenced May 16 1955
Drilling was completed May 20 1955

Elevation at top of casing in feet above sea level Total depth of well 250
State whether well is shallow or artesian shallow Depth to water upon completion 190

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	190	235	45	Water sand (Ogallala) (Low yield)
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	17	8	0	250	250	no	190	250

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FILED
MAY 26 1955
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

FOR USE OF STATE ENGINEER ONLY

Date Received May 26, 1955

File No. L-2875 Use Oil Location No. 17.33.20.220

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	9	8		Caliche
9	60	51		Tight sand
60	120	60		Sand
120	190	70		Tight Sand
190	235	45		Water Sand
235	250	15		Sandy Clay

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.

Murrell Abbott
Well Driller

Form WR-23 STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Phillips Petroleum Corp.
Street and Number Box 1351
City Odessa State Texas
Well was drilled under Permit No. Applied L-3133 and is located in the
Center ¼ NW ¼ SW ¼ of Section 23 Twp. 17 S Rge. 33 E
(B) Drilling Contractor Clayton & Porter Drlg. Co. License No. WD-183
Street and Number Box 1021
City Lovington, State New Mexico
Drilling was commenced February 29 19 56
Drilling was completed March 4 19 56

Elevation at top of casing in feet above sea level ____ Total depth of well 230
State whether well is shallow or artesian Shallow Depth to water upon completion 160

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	158	198	40	Water Sand-Gravel
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	32	8	0	230	230	None	160	230

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____
Street and Number ____ City ____ State ____
Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____
Plugging method used ____ Date Plugged ____ 19 ____
Plugging approved by: Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

Basin Supervisor

FOR USE OF STATE ENGINEER ONLY

Date Received MAR 14 1956

RECEIVED
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. L-3133 Use Oil Location No. 17.33.23.300 313207

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	8	8		Rock
8	12	4		Caliche
12	20	8		Rock
20	112	92		Sand
112	158	46		Sandy Clay
158	198	40		Water Sand & Gravel
198	220'	22		Sand
220	230	10		Red Clay

L S Elev 4443'
Depth to K Tre 220'
Elev of K Tre 3923'

PL 17.33.23.3130'

Loc. No.
Hydro. Survey Field Check X

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

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

L-3133

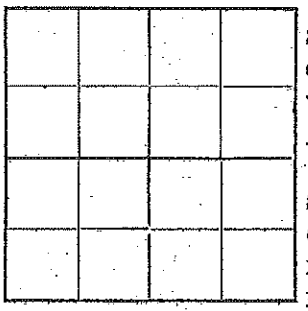
17.33.23.310

Form WR-23 Original S.E. STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Phillip Petroleum Co.
Street and Number Box 758
City Hobbs State New Mexico
Well was drilled under Permit No. L3133 and is located in the
¼ NW ¼ SW ¼ of Section 23 Twp. 17 S Rge. 33 E
(B) Drilling Contractor P & P Drilling Co. License No. WD 281
Street and Number 1121 South Love
City Lovington State New Mexico
Drilling was commenced Sept 2 19 58
Drilling was completed Sept 3 19 58

Elevation at top of casing in feet above sea level ____ Total depth of well 230 ft
State whether well is shallow or artesian Shallow Depth to water upon completion 70 ft

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7 In.	hole				no casing			

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____
Street and Number ____ City ____ State ____
Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____
Plugging method used ____ Date Plugged ____ 19 ____
Plugging approved by: ____ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received SEP 26 1958

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3133 Use I.&D. Location No. 17.33.23.310

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				This is an old well drilled March 1956
				and later plugged, well was 230 ft. of 7"
				casing. We drilled out plug, clean out
				and bailed out hole; to be used for oil well
				Drilling purposes

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.

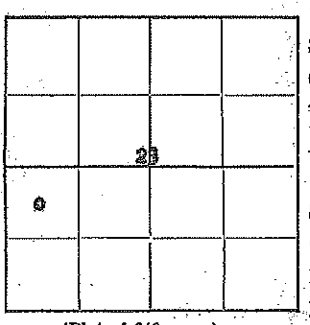
Grady Backus
Well Driller

Form WR-23 FIELD GR. LOG STATE ENGINEER OFFICE

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Phillips Petroleum Company
Street and Number Box 2105
City Hobbs State New Mexico
Well was drilled under Permit No. L-3133 and is located in the
¼ NW ¼ SW ¼ of Section 23 Twp. 17S Rge. 33E
(B) Drilling Contractor Clayton Water Well License No. NR
Street and Number P. O. Box 1021
City Lovington State New Mexico
Drilling was commenced 19
Drilling was completed Well reopened 11-21-59 19

Elevation at top of casing in feet above sea level 4144 Total depth of well 230'
State whether well is shallow or artesian Shallow Depth to water upon completion *

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				* See original well record.
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7"	20 & 23	8	0	230	230	-	*	

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
					None

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.
Street and Number City State
Tons of Clay used Tons of Roughage used Type of roughage
Plugging method used Date Plugged 19
Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received 1959 NOV 27 AM 8:20 STATE ENGINEER OFFICE

File No. L-3133 Use O.W.D. Location No. 17.33.23.3.1.0

LOG OF WELL

Depth in Feet		Thickness in Feet	Color	Type of Material Encountered
From	To			
				See original well record.

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
PHILLIPS PETROLEUM COMPANY

Form WR-23 STATE ENGINEER OFFICE

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.

Land Commissioners Prospectors No. M2902

Section 1

#5-	C-2-	153-5	

(Plat of 640 acres)

(A) Owner of well Southwest Potash Co.

Street and Number Box 472

City Carlsbad State N. M.

Well was drilled under Permit No. and is located in the SE ¼ SE ¼ NE ¼ of Section 25 Twp. 17 S Rge. 33E

(B) Drilling Contractor T. M. Theriac License No.

Street and Number P.O.Box 1434

City Hobbs State N.

Drilling was commenced April 8 19 50

Drilling was completed April 21 19 50

Elevation at top of casing in feet above sea level Total depth of well 230

State whether well is shallow or artesian Depth to water upon completion 137 (reported)

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	137	187	50	Tertiary Sands and gravels
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
13 3/8		New seamless			194'8"	Bethleham Texas Pattern	94'2"	193'4"

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received December 29, 1952

File No. L1695 Use Location No. 17.33.25.244 4/4 5

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	18			Hard crust top soil; caliche various hardness
18	28			Harder caliche fragments
28	38			Larger caliche fragments
38	50			Caliche and fine sil, approx. 20% brown sand
50	60			Fine dry sand, clear red brown particles
60	105			Red, brown and clean sand, few particles hard limestone
105	110			Fine sil and brown sand-quicksand
110	115			90% small clear & brown sand, trace of lime
115	130			Sil of various size, small brown & clear sand
130	135			Sil and brown and red sand
135	137			Hit water at 137', brown and clear quicksand
137	160			Larger particles sil-sand more porous
160	174			Few large particles brown and clear sill & quarts. Small flakes of red compaction shale
174	180			Clear, brown, red and orange sand
180	185			Sand same - few ½" to 1" and gravel, small flakes of red clay
185	190			Red and brownish clay in much larger quantity
190	200			Solid red bed, sand disappearing fast
200	225			Red bed solid, no sand encountered.

[S Elev 4093
Depth to K Trc 190
Elev of K Trc 3903

Loc. No. 17.33.25.24444
Hydro. Survey Field Check X

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.

T. M. Theriac
Well Driller

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

17.33.25.24K

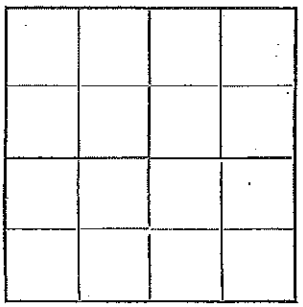
Form WR-23 Roswell S.E. STATE ENGINEER OFFICE

WELL RECORD

Phillips State Lease Water well

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.

Section 1



(Plat of 640 acres)

(A) Owner of well ZAPATA PETROLEUM CORP.

Street and Number Box 2216

City Midland State Texas

Well was drilled under Permit No. ____ and is located in the SW ¼ SE ¼ NW ¼ of Section 28 Twp. 17 S Rge. 33 E

(B) Drilling Contractor Abbott Brothers License No. WD-46

Street and Number Box 637

City Hobbs State New Mexico

Drilling was commenced October 21 19 57

Drilling was completed October 23 19 57

Elevation at top of casing in feet above sea level ____ Total depth of well 210

State whether well is shallow or artesian shallow Depth to water upon completion none

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	None			
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19 ____

Plugging approved by:

____ Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received DEC 30 1957

OFFICE GROUND WATER SUPERVISOR ROSWELL, NEW MEXICO

File No. L-3713 Use O.W.D. Location No. 17.33.28.144

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		soil
1	16	15		caliche
16	210	194		dry sand

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.

Murrell Abbott
Well Driller

Form WR-23

East Maljamar Plant W.W. #1

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well El Paso Natural Gas Company

Street and Number P. O. Box 1492

City El Paso State Texas

Well was drilled under Permit No. Misc. 2-L-58 and is located in the NE ¼ NE ¼ NE ¼ of Section 29 Twp. 17S Rge. 33E

(B) Drilling Contractor Abbott Bros. License No.

Street and Number P. O. Box 637

City Hobbs State New Mexico

Drilling was commenced 19

Drilling was completed July 22, 1958 19 58

Elevation at top of casing in feet above sea level Total depth of well 244'

State whether well is shallow or artesian Shallow Depth to water upon completion 204'

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	165	228	43	Water Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8			0	244	244		168	244

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received RECEIVED NEW MEX. STATE ENGINEER OFFICE DISTRICT II MAR 31 PM 2:20 1961

File No. Misc. 2-L-58 Use Ind'l Dom. Location No. 17.33.29.222ZZ

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		Soil
1	18	17		Caliche
18	80	62		Sand
80	85	5		Sand rock
85	125	40		Sand
125	185	60		Tight sand and Rock
185	228	43		Water, sand
228	244	16		Sand and Red Clay

L S Elev 4188 ft.
Depth to K Trc 244 ft.
Elev of K Trc 3944 ft.

Loc. No. 17.33.29.222 22

Mydro. Survey Field Check

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
Determined by Inst. Leveling
Other

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

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.33.30.11000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	28		Caliche and gravel
28	223		Shale and shells
223	515		Red rock
515	533		Anhydrite
		✓	L S Elev 4039
			Depth to K Trc 28
			Elev of K Trc 4011

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.33.30.11000 Elevation: 4039' DF
Owner: Continental Oil Co.
MCA Unit Battery 4 #133
Record of Casing: 10" - 21'
7" - 3913'
Rotary

660' FNL - 660' FWL

✓

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.33.30.12000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	45		Caliche and sand
45	375		Red bed
375	1145		Red bed, red rock
			L S Elev 4057
			Depth to K Trc 45
			Elev of K Trc 4012

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.33.30.12000 Elevation: 4057' DF

Owner: Continental Oil Co.
MCA Unit Battery 4 #134

Record of Casing: 8" - 1185'

Rotary

660' FNL - 1980' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.33.30.14000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	30		Caliche
30	85		Caliche and sand
85	810		Red bed and red rock
	✓		L S Elev 4072 DF
			Depth to K Trc 85
			Elev of K Trc 3987

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.33.30.14000 Elevation: 4062' GL
Owner: Continental Oil Co.
MCA Unit Battery 4 #135
Record of Casing: 10" - 20'

Rotary

1980' FNL - 1980' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use Oil Location No. 17.33.30.31111

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	66		Sand
66	73		Rock
73	96		Sand
96	160		Red bed
160	270		Red sand and red bed
270	437		Red bed
437	546		Red bed and shells
546	608		Red bed and blue shale
608	628		Red bed
628	650		Sand
650	791		Red bed, sand, shells, shale
791	806		Lime shells
806	1078		Shale, red bed
			L S Elev 4037
	✓		Depth to K Trc 96
			Elev of K Trc 3941

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.33.30.31111 Elevation: 4037' DF
Owner: Continental Oil Co.
MCA Unit #197
Record of Casing: 8 5/8" - 128'
7" - 3963'

Rotary

2615' FSL - 25' FWL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.33.30.42000

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	98		Caliche and sand
98	145		Sand and gravel
145	1171		Red rock and red bed
			L S Elev 4060
			Depth to K Trc 145
			Elev of K Trc 3915

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.33.30.42000 Elevation: 4060' DF

Owner: Cities Service Co.
S. M. G. S. A. Unit Tract 1 #2

Record of Casing: 8 5/8" - 1199'

Rotary

1980' FSL - 660' FEL

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Form WR-23

FIELD ENGR. LOG

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well Dillard & Waltermier Drilling CO.

Street and Number P.O. Box 1206

City Odessa, State Texas.

Well was drilled under Permit No. L - 4363 and is located in the NW ¼ NE ¼ SW ¼ of Section 35 Twp. 17 S Rge. 33 E

(B) Drilling Contractor C. O. Aldredge License No. W D 79

Street and Number P.O. Box 379

City Lovington State New Mexico.

Drilling was commenced Dec. 29 19 59

Drilling was completed Jan. 5 19 60

Elevation at top of casing in feet above sea level Total depth of well 226

State whether well is shallow or artesian Shallow Depth to water upon completion 160 Ft

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	170	180	10	Brown water sand
2	183	200	17	Brown water sand & gravel
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8	Welded	8	0	222	222	None	176	222

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
					6sacks of aquagell pored in hole while well was beeing drilled

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

RECEIVED
DISTRICT II
STATE ENGINEER OFFICE
1960 JAN 19 AM 8:25

File No. L-4363 Use O.W.D. Location No. 17.33.35.321 32142

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	2	2	Brown	soil
2	30	28	White	Calchie rock
30	70	40	Brown	sand
70	140	70	Red	sand
140	150	10	White	Caliche
150	152	2	Red	~~Sandx~~ Shale
152	170	18	Red	Sand
170	180	10	Brown	water sand
180	189	3	Red	shale
183	200	17	Brown	water sand &gravel
200	222	22	Red	Shale & sand rock 2
222	226	4	Red	Red bed

L S Elev 4122'
Depth to K Trc 222'
Elev of K Trc 3900'

17.33.35.32142

Loc. No.
Hydro. Survey Field Check X

~~SOURCE OF ALTITUDE GIVEN~~
~~Interpolated from Topo. Sheet~~ X
~~Determined by Inst. Leveling~~
~~Other~~

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.

C.C. Aldredge
Well Driller

L-4363

17.33.35.321

Form WR-23

STATE ENGINEER OFFICE

FIELD 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.

Section 1

		0	

(Plat of 640 acres)

(A) Owner of well GULF OIL CORPORATION

Street and Number P.O. BOX 2167

City HOBBS State NEW MEXICO

Well was drilled under Permit No. ____ and is located in the SE ¼ SW ¼ SE ¼ of Section 35 Twp. 17 S Rge. 39 E

(B) Drilling Contractor LOCKE BROTHERS License No. WD-46

Street and Number P.O. Box 697

City Hobbs State New Mexico

Drilling was commenced April 4 19____

Drilling was completed April 6 19 63

Elevation at top of casing in feet above sea level ____ Total depth of well 283

State whether well is shallow or artesian shallow Depth to water upon completion 150

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	150	230	80	water sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	20	10	0	233	233	open	150	233

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ____ License No. ____

Street and Number ____ City ____ State ____

Tons of Clay used ____ Tons of Roughage used ____ Type of roughage ____

Plugging method used ____ Date Plugged ____ 19____

Plugging approved by:

____
Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received STATE ENGINEER OFFICE RECEIVED 1963 APR 11 AM 8:05

File No. L-5696 Use OWD Location No. 17.33.35.433

OWD - RR

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1		soil
1	10	17		caliche
10	150	132		sand
150	230	80		water sand
230	239	9		sandy clay

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.

Murrell Abbott Jr.
Well Driller

Form WR-23

STATE ENGINEER OFFICE

~~SANTA FE~~ FIELD 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.

Section 1

(Plat of 640 acres) — 280 FSL, 2410 FEL

(A) Owner of well [illegible]

Street and Number P.O. Box [illegible]

City [illegible] State [illegible]

Well was drilled under Permit No. L-5096 and is located in the [illegible] ¼ [illegible] ¼ [illegible] ¼ of Section [illegible] Twp. [illegible] Rge. [illegible] 3

(B) Drilling Contractor [illegible] License No. [illegible]

Street and Number P.O. Box [illegible]

City [illegible] State [illegible]

Drilling was commenced March [illegible] 19

Drilling was completed March [illegible] 19 [illegible]

Elevation at top of casing in feet above sea level Total depth of well 239

State whether well is shallow or artesian Shallow Depth to water upon completion 150

Section 2

PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	150	230	80	water sand
2				
3				
4				
5				

Section 3

RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	20	10	0	230	230	open	150	230

Section 4

RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5

PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received ✓

STATE ENGINEER OFFICE
DISTRICT II
ROSWELL, N. MEX.
1963 APR 11 AM 8:06

File No. L-5055 Use OWD Location No. 17.33.35.43332

OWD - OK

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1 ft	1		soil
1	16	17		caliche
16	150	132		sand
150	230	80		white sand
230	235'	5		sandy clay

L S Elev 4120'
Depth to K Tr 5235'
Elev of K Tr -3887'

Loc. No. 17.33.35.43332'

Hydro. Survey ____ Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling ____

Other ____

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.

Murrell Abbott

Well Driller

SECTION _____

TOWNSHIP 18S

RANGE 32E

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well B.E. Frizzell Owner's Well No. _____
Street or Post Office Address P.O. Box 190
City and State Hobbs, New Mexico 88240

Well was drilled under Permit No. CP-566 and is located in the:

a. _____ ¼ SE ¼ SE ¼ NW ¼ of Section 4 Township 18S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. 13 of the Chapparel Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Abbott Bros. License No. WD-46

Address P.O. Box 637, Hobbs, New Mexico 88240

Drilling Began 6/1/77 Completed 6/3/77 Type tools Cable Size of hole 8½ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 133 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 65 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
65	133	68	Sand	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	21	Welded	0	133	133	None	65	133

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
					Cement at top

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received June 13, 1977

Quad _____ FWL _____ FSL _____

File No. CP-566 Use Dom Location No. 18.32.4.144

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	Surface soil
2	26	24	Caliche
26	65	59	Sand-tight
65	91	26	Sand-water
91	107	16	Sand-tight
107	129	22	Sand-water
129	133	4	Sandy clay

'77 JUN 13 AM 8 21
STATE ENGINEER OFFICE
ROSWELL, N. M.

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Murrell Abbott
Driller H.B.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 7 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Virgil Linam Estate Owner's Well No. _____
Street or Post Office Address % Faye L. Klein, P.O. Box 1503
City and State Hobbs, New Mexico 88241

Well was drilled under Permit No. CP-672 and is located in the:

a. Center of ¼ ¼ SE ¼ SE ¼ of Section 7 Township 18S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Abbott Bros. Drilling License No. WD-46

Address P.O. Box 637, Hobbs, New Mexico 88240

Drilling Began 7/17/92 Completed 8/7/92 Type tools Cable Size of hole 10 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 524 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 430 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
460	517	57	Sand	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
9 5/8	33	Welded	0	125	125		None	
5½	15	Welded	0	527	527		459	524

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received August 12, 1992 Quad _____ FWL _____ FSL _____

File No. CP-672 Use CLOW STOCK Location No. 18.32.7.44233

18.32.7.44233

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	6	6	Top soil
6	21	15	Caliche
21	94	73	Red and brown clay
94	100	6	Grey sand (Water cased off with 9 5/8" pipe)
100	402	302	Red bed with brown & blue streaks
402	456	54	Red clay
456	460	4	Brown clay
460	489	29	Sand W/clay streaks (WATER)
489	493	4	Red clay
493	517	24	Sand W/clay streaks
517	524	7	Red Bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER OFFICE
ROSWELL NEW MEXICO
'92 AUG 12 AM 10 41

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.

Murrell Abbott
Driller

J.B.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well: Virgil Linam Est. by Faye L. Kline — Owner's Well No. _____
Street or Post Office Address: Carlsbad Hwy.
City and State: Hobbs, NM 88240

Well was drilled under Permit No. Cp672 and is located in the:

a. ____ ¼ ____ ¼ SE ¼ SE ¼ of Section 7 Township 18S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W.Bender, Hobbs,NM 88240

Drilling Began 1-22 --85 Completed 1-29-85 Type tools tricone Size of hole 83/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 540 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 460 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
498	510	12	clay & gravel, small amt. of sand	12

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
65/8	160PVC		-1	540	541		480	540

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received February 8, 1985 Quad _____ FWL _____ FSL _____

File No. CP-672 Use STOCK Location No. 18.32.7.44144

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	6	6	blowsand
6	12	6	gray & white sand
12	16	4	soft caliche
16	64	48	brown clay
64	150	86	red clay
150	220	70	brown clay
220	498	278	red clay with stricks of brown & gray clay
498	510	12	small gravel, brown clay
510	540	30	brown & red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER
ROSWELL, NM

FEB 8 8 37 AM '85

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.

Larry Parkins
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Billy Williams Owner's Well No. TH #1

Street or Post Office Address

City and State Maljamar, N. Mex.

Well was drilled under Permit No. and is located in the:

a. SE ¼ SW ¼ NE ¼ NE ¼ of Section 16 Township 18S Range 32E N.M.P.M.

b. Tract No. of Map No. of the

c. Lot No. of Block No. of the Subdivision, recorded in County.

d. X= feet, Y= feet, N.M. Coordinate System Zone in the Grant.

(B) Drilling Contractor Larry Felkins License No.

Address Hobbs, N. Mex.

Drilling Began 9/3/91 Completed 9/3/91 Type tools Rotary Size of hole 5¼ in.

Elevation of land surface or at well is ft. Total depth of well 100 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well Dry ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor

Address

Plugging Method

Date Well Plugged

Plugging approved by:

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad FWL FSL

File No. None Use EXP Location No. 18.32.16.223433

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	20	20	sand
20	36	16	sand – some gravel
36	42	6	sand, some gravel, red clay
42	70	28	red clay and sand
70	79	9	red clay, some gravel
79	85	6	sand
85	94	9	sand and gravel
94	100	6	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

Jerry Fellers by Joe
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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. If this form is used as a plugging record, only Section 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well T X O Prod. Owner's Well No. _____
Street or Post Office Address c/o Glenn's Water Well Service, Inc.
City and State Box 692 Tatum, New Mexico 88267

Well was drilled under Permit No. CP-677 and is located in the:

a. _____ ¼ W½ ¼ NW ¼ NW ¼ of Section 26 Township 18-S. Range 32-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD 421

Address Box 692 Tatum, New Mexico 88267

Drilling Began 5/9/85 Completed 5/9/85 Type tools Rotary Size of hole 7 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 700 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			Dry Hole	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
	well was pluged	with sand	and mud		

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received May 15, 1985

Quad _____ FWL _____ FSL _____

File No. CP-677 Use OWD Location No. 18.32.26.11143

18.32.26.11143

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	12	12	sand-loose
12	24	12	clay
24	47	23	caleche
47	58	11	sand
58	84	26	sandy clay
84	102	18	red clay sticky
102	116	14	sand and gravel
116	142	26	red clay sticky
142	315	173	brown clay
315	325	10	purple clay
325	378	53	red clay
378	408	30	pink red clay
408	440	32	brown shale and blue streaks
440	500	60	brown shale-grainey
500	530	30	sand rock -fine
530	545	15	brown shale
545	605	60	sand rock-medium
605	616	11	brown shale
616	675	59	sand rock
675	700	25	red shale

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER
ROSWELL, NM
MAY 15 8 28 AM '85

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

INSTRUCTIONS: This report should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Duval Corporation Owner's Well No. _____
Street or Post Office Address 5357 East Pima St.
City and State Tucson, AZ 85712

Well was drilled under Permit No. 0-13-002 and is located in the:

a. NE ¼ NW ¼ NW ¼ NW ¼ of Section 32 Township 18 S Range 32 E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Boyles Bros. License No. _____

Address 1624 Pioneer Road, Salt Lake City, Utah 84104

Drilling Began May 31, 1977 Completed June 22, 1977 Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 2060 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
274			TRC	
575			TRS	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
7			0	20				
4½	9½		0	1195				

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
1195		5 7/8		10	Displacement

Section 5. PLUGGING RECORD

Plugging Contractor Boyles Bros.
Address 1624 Pioneer Rd, Salt Lake City, U
Plugging Method Displacement
Date Well Plugged June 22, 1977
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1	0	2040	165
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received July 20, 1981

Quad _____ FWL _____ FSL _____

File No. 0-13-002 Use EXP Location No. 18.32.32.111244

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		

Section 7. REMARKS AND ADDITIONAL INFORMATION

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section [illegible] need be completed.

SECTION _____

TOWNSHIP 18S

RANGE 33E

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Oxy USA Inc. Owner's Well No. _____
Street or Post Office Address PO Box 56250
City and State Midland, Texas 79710

Well was drilled under Permit No. CP-758 Exploratory and is located in the:

a. ____ ¼ ____ ¼ ____ ¼ SW ¼ of Section 4 Township 18S Range 33E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Dubose Drilling Inc. License No. WD-1107

Address 5407 N. Golder, Odessa, Texas 79764

Drilling Began 5-8-91 Completed 5-10-91 Type tools rerun Size of hole 12 3/4 in.

Elevation of land surface or _____ at well is XXX ft. Total depth of well 250 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well absent ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			ABSENT	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor Dubose Drilling Inc.
Address _____
Plugging Method Back fill with cuttings
Date Well Plugged 5-10-91
Plugging approved by: Ken Fraquez
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received May 16, 1991

Quad _____ FWL _____ FSL _____

File No. CP-758-Exploratory Use EXP Location No. 18.33.4.34233

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	5	5	Surface soil
5	32	27	caliche
32	50	18	purple / grey clay
50	65	15	clay and shale conclomerate purple and g
65	90	25	brown clay wiht rgrey stringers
90	120	30	red bed
120	190	70	Brown clay
190	195	5	color change to light brown clay
195	250	55	brown clay
			no water, back fill hole with cuttings

Section 7. REMARKS AND ADDITIONAL INFORMATION

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All ns, except Section 5, shall be answered as completely and accuratel ssible when any well is drilled, repaired or deepene n this form is used as a plugging record, only Section 1(a) and Section be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well B. J. Woolley dba Caprock Sand & Gravel Owner's Well No. _____

Street or Post Office Address Box 776

City and State Eunice, New Mexico 88231

Well was drilled under Permit No. CP-546 and is located in the:

NW¼ SE¼ a. NE ¼ NE ¼ SE ¼ ¼ of Section 9 Township 18-S Range 33-E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor W. L. Van Noy License No. WD-208

Address Box 74 Oil Center, New Mexico 88266

Drilling Began June 1,1975 Completed June 3, 1975 Type tools Spudder Size of hole 10 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 90 / 70 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
70	85	15	fine water sand.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8"	welded		0	90	90	none	70	85

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received October 2, 1978

Quad _____ FWL _____ FSL _____

File No. CP-546 Use COM. Location No. 18.33.9.42241

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	top soil
5	30	25	caliche
30	65	35	brown sand rock
65	70	5	hard rock
70	85	15	fine water sand
85	90	5	red bed.
			L S Elev 3978
			Depth to K Trc 82
			Elev of K Trc 3893
			Loc. No. 18.33.9.422 41
			Hydro. Survey Field Check FB
			SOURCE OF ALTITUDE GIVEN
			Interpolated from Topo. Sheet X
			Determined by Inst. Leveling
			Other

Section 7. REMARKS AND ADDITIONAL INFORMATION

1970 OCT -2 AM 8 27
STATE ENGINEER OFFICE
ROSWELL, N.M.

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.

W. L. Van Tray
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 6 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Heyco's Harvey Yates Owner's Well No. _____
Street or Post Office Address c/o Glenn's Water Well Service, Inc.
City and State Box 692 Tatum, N.M. 88267

Well was drilled under Permit No. CP- 702 and is located in the:

a. _____ ¼ SE ¼ NW ¼ SW ¼ of Section 11 Township 18-S. Range 33-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service, Inc. License No. WD 421

Address Box 692 Tatum, N.M. 88267

Drilling Began 10/21/86 Completed 10/21/86 Type tools Rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 100 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
52	82	30	gravel	40

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	.158						50	90

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received October 27, 1986

Quad _____ FWL _____ FSL _____

File No. CP-702 Use OWD Location No. 18.33.11.314112

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	soil
2	24	22	calecche
24	52	28	sand
52	82	30	gravel
82	100	18	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

OCT 27 9 22 AM '65

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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. If this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Heyco's Harvey Yates Owner's Well No. _____
Street or Post Office Address c/o Glenn's Water Well Service, Inc.
City and State Box 692 Tatum, N.M. 88267

Well was drilled under Permit No. CP-701 and is located in the:

a. _____ ¼ E½ ¼ NW ¼ SW ¼ of Section 11 Township 18-S. Range 33-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service, Inc. License No. WD421

Address Box 692 Tatum, New Mexico 88267

Drilling Began 10/20/86 Completed 10/20/86 Type tools Rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 100 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
54	84	30	gravel	40

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	.156						50	90

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received October 27, 1986

Quad _____ FWL _____ FSL _____

File No. CP-701 Use OWD Location No. 18.33.11.314121

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	soil
2	22	20	caleche
22	54	34	sand
54	84	30	gravel
84	100	16	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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

INSTRUCTIONS: This report should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well B. J. Wooley Owner's Well No. _____

Street or Post Office Address P.O.Box 207

City and State Hobbs, NM 88240

Well was drilled under Permit No. L-8288 and is located in the:

a. ____ ¼ ____ ¼ SW ¼ SW ¼ of Section 12 Township 18S Range 33E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____
Subdivision, recorded in ____ Lea ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 5-11-82 Completed 5-11-82 Type tools button bit Size of hole 9 7/8 in.

Elevation of land surface or ____ at well is ____ ft. Total depth of well 79 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 60 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
60	80	20	sand & gravel	60

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	160PVC		+1	79	80		XX 60	79

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor ____

Address ____

Plugging Method ____

Date Well Plugged ____

Plugging approved by:

____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received September 24, 1982

Quad 107.2.0 FWL ____ FSL ____

File No. L-8288 Use COMMERCIAL Location No. 18.33.12.33334

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	blow sand
2	15	13	caliche
15	59	44	sand
~~RAN~~ 59	79	20	gravel
79	80	1	gray yellow clay
			L S Elev 3993
			Depth to K Tre 79
			Elev of K Tre 3914
			Loc. No 33 12. 23334
			Hydro. Survey Field Check L-5
			SOURCE OF ALTITUDE GIVEN
			~~Interpolated from Topo. Sheet~~ X XX 80
			Determined by Inst. Leveling
			Other

Section 7. REMARKS AND ADDITIONAL INFORMATION

SEP 27 3 42 PM '82

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.

Larry Jelkins
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 7 need be completed.

Form WR-23

STATE ENGINEER OFFICE

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.

Section 1

(Plat of 640 acres)

(A) Owner of well S. P. Yates Drilling Company

Street and Number 311 Carper Building

City Artesia State New Mexico

Well was drilled under Permit No. L-2878 and is located in the

¼ SE ¼ SE ¼ of Section 12 Twp. 18S Rge. 33E

(B) Drilling Contractor Claude Tatum License No. WD33

Street and Number 524 West Washington

City Lovington State New Mexico

Drilling was commenced May 22 1955

Drilling was completed May 30 1955

Elevation at top of casing in feet above sea level unknown 4090 Total depth of well 205

State whether well is shallow or artesian shallow Depth to water upon completion 150

Section 2

PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation
	From	To		
1	150	205	55	Water sands
2				
3				
4				
5				

Section 3

RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth		Feet	Type Shoe	Perforations	
			Top	Bottom			From	To
6	20	8	0	205	205	none	150	205

Section 4

RECORD OF MUDDING AND CEMENTING

Depth in Feet		Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
From	To				

FILED
JUN 29 1955
GROUND WATER SUPERVISOR
OFFICE
ROSWELL, NEW MEXICO

Section 5

PLUGGING RECORD

Name of Plugging Contractor ________ License No. ________

Street and Number ________ City ________ State ________

Tons of Clay used ________ Tons of Roughage used ________ Type of roughage ________

Plugging method used ________ Date Plugged ________ 19____

Plugging approved by:

____
Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug		No. of Sacks Used
	From	To	

FOR USE OF STATE ENGINEER ONLY

Date Received June 29, 1955

File No. L-2878 Use Oil Location No. 18.33.12. 440

Stock

44:[illegible]

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	10	10	white	Calliche and rock
10	40	30	white	calliche and rock
40	80	40	red	dry sand
80	160	80	white	coarse sand
160	200	40	red	water sands
200	205	5	red	clay

L S Elev 4089

Depth to K ___ Trc 200

~~Elev of K~~ ___ Trc 3889

Loc. No. 18.33.12. 44122

Hydro. Survey Field Check X

SOURCE OF ALTITUDE GIVEN

Interpolated from Topo. Sheet X

Determined by Inst. Leveling ___

Other ___

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.

Claude Tatum

Well Driller

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well B.J. Wooley Owner's Well No. _____

Street or Post Office Address P.O.Box 207

City and State Hobbs, NM 88240

Well was drilled under Permit No. CP-623 and is located in the:

a. _____ ¼ _____ ¼ NW ¼ NW ¼ of Section 13 Township 18S Range 33E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM

Drilling Began 5-10-82 Completed 5-10-82 Type tools button bit Size of hole 97/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 82 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 60 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
70	80	10	sand & gravel	40

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	160PVC		+1	82	83		70	80

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received September 24, 1982 Quad 107.2.0 FWL _____ FSL _____

File No. CP-623 Use COMMERICAL Location No. 18.33.13.11112

18.33.13.1112

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	6	6	blow sand
6	11	5	caliche
11	70	59	sand
70	80 ~~XX~~	10~~XXX~~	gravel & sand
80	82	2	red bed

L S Elev 3989
Depth to K Trc 80
Elev of K Trc 3909

~~Loc. No.~~ 18.33.13. 11112
Hydro. Survey Field Check FB

SOURCE OF ALTITUDE GIVEN
Interpolated from Topo. Sheet X
~~Determined by Inst. Leveling~~
Other

Section 7. REMARKS AND ADDITIONAL INFORMATION

SEP ... AM '82

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.

Larry Fishin, Driller, pf

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Sun Oil Owner's Well No. _____
Street or Post Office Address c/o Glenn's Water Well Service, Inc.
City and State Box 692 Tatum, N.M. 88267

Well was drilled under Permit No. CP-689 and is located in the:

a. _____ ¼ _____ ¼ NE ¼ NW ¼ of Section 13 Township 18-S. Range 33-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD 421

Address Box 692 Tatum, N.M. 88267

Drilling Began 12/7/85 Completed 12/7/85 Type tools rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 100 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
70	95	25	gravel	120

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
102'	.142	steel casing					65	100

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received December 13, 1985 Quad _____ FWL _____ FSL _____

File No. CP-689 Use OWD Location No. 18.33.13.12122

18. 33. 13. 1

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	sand
5	29	24	caleche
29	65	36	sand
65	95	30	gravel
95	100	5	yellow clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

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

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate 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 1(a) and Section 5 shall be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well KMR, INC. Owner's Well No. _____

Street or Post Office Address P.O. BOX 1832

City and State HOBBS, NM 88240

Well was drilled under Permit No. CP-769-EXPLORATORY and is located in the:

a. _____ ¼ NW ¼ NW ¼ NE ¼ of Section 13 Township 18S Range 33E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor LARRY'S DRILLING, INC. License No. WD882

Address 2116 W. BENDER HOBBS, NM 88240

Drilling Began 5-6-92 Completed 5-6-92 Type tools BUTTON BIT Size of hole 97/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 115 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 70 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
80	115	35	SAND & SANDSTONE	20

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	160PVC		0	115	115		90	110

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received May 21, 1992

Quad _____ FWL _____ FSL _____

File No. CP-769-Exploratory Use EXP Location No. 18.33.13.21142

(THIS WELL WILL NOW BE CP-72-A - TO BE USED FOR COM USE) 18.33.13.21142

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	12	12	SAND
12	21	9	CALICHE
21	36	15	SAND & GRAVEL
36	52	16	~~XXXXXAN~~ SAND, RED & GRAY CLAY
52	66	14	RIO SAND & SOME CLAY
66	85	19	SAND & SOME GRAVEL
85	110	25	SAND & GRAVEL
110	115	05	RED BED

Section 7. REMARKS AND ADDITIONAL INFORMATION

'92 MAY 21 AM 10 10
STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO

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.

Larry Graham
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, 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 1(a) and Section 6 need be completed.

Form WR-23

STATE ENGINEER OFFICE

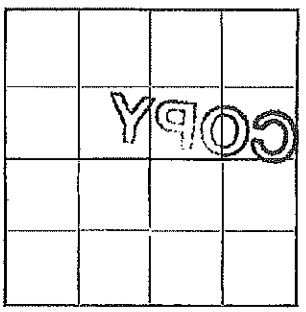
COPY

FIELD 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.

Section 1



(Plat of 640 acres)

(A) Owner of well Scharbauer Cattle Company

Street and Number Box 1471

City Midland, State Texas

Well was drilled under Permit No. L-6347 and is located in the

¼ SE ¼ SE ¼ of Section 12 Twp. 18S Rge. 33E

(B) Drilling Contractor O. R. musslewhite License No. WD99

Street and Number Box 56

City Hobbs, State New Mexico

Drilling was commenced July 11, 19 68

Drilling was completed July 12, 19 68

Elevation at top of casing in feet above sea level ..... Total depth of well 170

State whether well is shallow or artesian Shallow Depth to water upon completion 130

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				Cleaned out old well.
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6	10							

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ..... License No. .....

Street and Number ..... City ..... State .....

Tons of Clay used ..... Tons of Roughage used ..... Type of roughage .....

Plugging method used ..... Date Plugged ..... 19 ....

Plugging approved by:

..... Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

RECEIVED
JUL 22 1968
OFFICE
GROUND WATER SUPERVISOR
ROSWELL, NEW MEXICO

File No. L-6347 Use Stock Location No. 18.33.12.440

41229

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
				Cleaned out old well.

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.

O. R. Musselwhite
Well Driller

Form WR-23

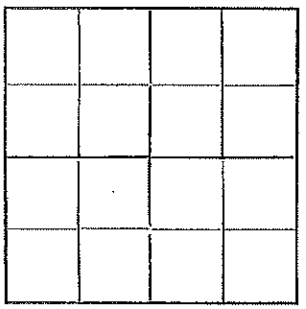
STATE ENGINEER OFFICE

Orig. to S.E.

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.

Section 1



(Plat of 640 acres)

(A) Owner of well Mr. W. H. Ellison

Street and Number Star Route B.

City Hobbs State New Mexico

Well was drilled under Permit No. L-3454 and is located in the

N E ¼ N E corner ¼ of Section 30 Twp. 18 S Rge 33 E

(B) Drilling Contractor O.R. Musslewhite License No. W D 99

Street and Number P.O. Box 56

City Hobbs State New Mexico

Drilling was commenced March 29 19 57

Drilling was completed March 30 19 57

Elevation at top of casing in feet above sea level ..... Total depth of well 100

State whether well is shallow or artesian shallow Depth to water upon completion 35

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	70	97	27	Red sand and sand rock
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8	20	none	0	100	100	none	75	100

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ..... License No. .....

Street and Number ..... City ..... State .....

Tons of Clay used ..... Tons of Roughage used ..... Type of roughage .....

Plugging method used ..... Date Plugged ..... 19 .....

Plugging approved by:

..... Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received .....

File No. L-3454 Use Dom Location No. 18.33.30.220

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	1	1	Brown	Soil
1	25	24	White	Cleachie and rock
25	50	25	Grey	Sandy shale
50	97	47	Red	Sand and sand rock
97	100	3	Brown	Quartsite
				L S Elev ____ ____
				Depth to K____Trc____
				Elev of K____Trc____

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.

C. R. Musselwhite

Well Driller