Proposal for an Oil Treating Plant Permit and Surface Waste Disposal in Lea County, New Mexico

Prepared for

Controlled Recovery Inc. Hobbs, New Mexico February 1990

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
EXHIBIT NO. 10

CASE NO. 9882

Ely

James T. Wright
Consulting Hydrologist
Roswell, New Mexico



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PROPOSAL FOR AN OIL TREATING PLANT PERMIT AND SURFACE WATER DISPOSAL IN LEA COUNTY, NEW MEXICO

INTRODUCTION

On September 22, 1989 I was contacted by Ken Marsh and asked to review existing hydrological reports covering western Lea County and evaluate the possibility of constructing a surface disposal system on land owned by him located in the N 1/2 S 1/2 and S 1/2 N 1/2 of Section 27, T. 20 S., R. 32 E.

After reviewing these reports and collecting as much basic geohydrological data that was available from the United States Geological Survey, the New Mexico State Engineer, the U.S. Bureau of Land Management and other minor sources, I advised Mr. Marsh that there was a possibility of getting a permit from the Oil Conservation Division, but that we would need to drill some exploratory holes in the immediate area in order to obtain sufficient data to do some detailed sub-surface mapping in order to determine the direction of ground water movement from the proposed site.

On October 31, 1989, seven exploratory holes were drilled by Larry's Drilling and Pump Co. of Hobbs, New Mexico on the property owned by Ken Marsh in Section 27, T. 20 S., R. 32 E. On January 26, 1990, three additional exploratory holes were drilled on U.S.B.L.M. land in the immediate vicinity of the Ken Marsh property. Larry's Drilling and Pump Co. of Hobbs also drilled these holes. Data collected from these holes as well as data collected from previously drilled holes and existing wells is shown in Table I of this report.

GENERAL GEOLOGY

The site is located in western Lea County in the southern portion of the Querecho Plains. A group of four playa lakes are located within the general area with the closest one being Laguna Toston, located about 1 mile northwest of the site. Laguna

Toston has a surface area of approximately 160 acres and is presently being used as a disposal pond by one of the potash companies.

A geologic map of southern Lea County taken from U.S. Bureau of Mines Ground-Water Report 6 is included in this report as Figure III. An inspection of this map shows that the surface geology consists of alluvial material in the vicinity of the proposed site.

LOCAL GEOLOGY

The area covered by this study includes most of Township 20 South, Range 32 East, with the principal area of interest being Section 27. The Quaternary alluvium in the immediate vicinity of Section 27 varies in thickness from 0 to 45 feet. The underlying Red Beds of Triassic and Permian age are approximately 800 feet thick. These formations consist predominantly of clays and siltstones, but some very fine grained sandstone may also be present. The upper part of these Red Beds is believed to be Chinle Formation and the lower portion Dewey Lake Red Beds. These formations are underlain by the Rustler Formation which is about 300 feet thick underneath the site area. The Rustler Formation consists primarily of anhydride or gypsum with some limestone and clays.

HYDROLOGY

The alluvium at the proposed site area is less than 45 feet thick with the thickness of the saturated sediments varying from 0 to 8 feet. Test hole #la located in the NE 1/4 NE

A bailing test ran on test hole #5 on November 9, 1989 by Ken Marsh indicates that the permeability of the water bearing formation is very low. Hole was bailed dry in 1 hour. Bailing test produced 2 gallons of water in 15 minutes or 0.13 gallons per minute. Test hole #3 was dry when completed on November 1, On November 9, 1989 the fluid level was 41.1 feet below land surface and on November 21, 1989 it was 32.56 feet below Test hole #7 had a fluid level of 49.07 feet below land surface on November 1, 1989, 38.25 feet on November 9, 1989, 33.31 feet on November 21, 1989 and 33.33 feet on January 26, The long period of time that it took the fluid to reach equilibrium in the holes is also an indicator of low Although there is some water in ground water permeability. storage underneath the proposed site, it is not economically feasible to produce this water due to the extremely low yields. Most of the ranches in this area of Lea County obtain their water from water transmission lines which deliver Ogallala water from wells in the Buckeye area to the potash mines located in western Eddy County.

OUALITY

Ken Marsh had water samples collected from all of the holes in the vicinity of the proposed site on February 6, 1990. These samples were analyzed by Rozanne Johnson, Bacteriologist for the City of Hobbs laboratory. According to Mr. Marsh, it was her opinion that the water was unfit for human or animal consumption. Copies of her analysis are included in this report.

SUMMARY AND CONCLUSIONS

The alluvium in the vicinity of Section 27, T. 20 S., R. 32 E. is thin and contains only minimal quantities of ground water. Production of this water from wells is not feasible due to the low well capacities. The only water wells presently being used are located over one mile east of the proposed site and are up gradient from the water table altitude at the proposed site. Microbiological water reports of the shallow ground water underlying the proposed site indicate that the water is not potable.

In my opinion the disposal of brine in surface disposal pits at the proposed site located in Section 27, T.20 S., R. 32 E. will not contaminate any fresh ground water supplies. Water from these pits will migrate downward until it reaches the base of the alluvium. Since the upper part of the Triassic is relatively impermeable the water will move laterally down gradient and eventually discharge into the playa lakes located to the north. The volume of the east pit shown on Figure I is approximately 368,000 barrels; and the volume of the west pit is approximately 336,000 barrels.

WELL-NUMBERING SYSTEM

The system of numbering wells in New Mexico is based on the common subdivisions in sectionized land, and, by means of it, the well number, in addition to designating the well, locates its position to the nearest 0.625-acre tract in the land net. The number is divided into four segments by periods. The first segment denotes the township north or south of the New Mexico base line; the second denotes the range east or west of the New Mexico principal meridian; and the third denotes the section. An "N" is added to the first segment of the well number if the well is north of the base line, but no letter is added if the well is south of the base line. Similarly, where wells are located west of the meridian, a "W" is added to the second segment of the well number of those wells west of the meridian but no letter is added if the well is east of the meridian.

The fourth segment of the number, which consists of five digits, denotes the particular 0.625-acre tract in which the well is situated. For this purpose the section is divided into four quarters numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters, respectively. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. The 40-acre tract is divided into four 10-acre tracts and the third digit denotes the 10-acre tract. The 10-acre tract is divided into four 2.5-acre tracts and the fourth digit denotes the 2.5-acre tract. The 2.5-acre tract is divided into four tracts containing 0.625 acres each and the fifth digit determines this tract. Thus, well 12.36.24.12311 in Lea County is in the NW 1/4 NW 1/4 SW 1/4 NE 1/4 NW 1/4 Sec. 24, T. 12 S., R. 36 E. If a well cannot be located accurately to a 10-acre tract, a zero is used as the third digit, and if it cannot be located accurately within a 40-acre tract, zeros are used for both the second and third digits. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted.

Letters a, b, c, ---- are added to the last segment to designate the second, third, fourth and succeeding wells in the same 0.625-acre tract.

The following diagram shows the method of numbering the tracts within a section:

Diagram: System of numbering wells in New Mexico.

Sections within a township R.14 E. T. 19 S.\ 3,0 Well R.14 E. Well 19.14.35.22442 WELL

Tracts within a section

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130-100 NH HA	100-140 CLAY & SHALE	
20.32.21.42424	20.32.21.434343	20.32.21.44444
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ngle. The in	correctly, givin B, and R. or W.I. k vertical, give aformation	given herew	Lessee or permittee Farmers Education Address 3500 Bast Loth Avenue Der Driller O. F. Featherstone Commenced drilling 200 F Hole No. Pagec. 27 T 200 R Method of drilling Robery This is a complete part eposect red did of the bore I	inished			
Section statement or Elevation	representation of top of h	United State	U. S. Geological Survey (Title) ce Criminal claim de N. S.M., 80, makes it a crimin epartment or Agency of the United States as to any m. FORMATION RECORD	leologiahal offense to make a willfully false			
DE:	то	Thickness of stratum	Geologic formations; character of rock; oil, gas and water horizons; coal and other mineral occurrences				
Fest Inches	Fed Inches	Fed Inches					
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
************							
***************************************							
******							
***************************************							

# Parmers 21-F

		·	<b></b> .	14
<b>558</b>	From	To	Inter	<u>Formation</u>
	01	201	201	Caliche - A little silty clay in the bottom 101.
	201	1401	20	Sand - Fine grained. Approx. 30% red shale in the lower 10
	704	70	301	Shale - Brown and gray.
	701	1601	901	Shale - Reddish brown.
,,,,,,	1601	2001	140	Siltatone - Red, some gray.
	2001	220	501	Siltatone - Red to magenta, a little gray. Approx. 40% sandstone.
	2201	2801	601	Sandstone - Red. Approx. 20% red to magenta siltstone.
54	2801	3001	201	Shale - Red, a little magenta and grey.
	300°	3101	10	Sandstone - Red. A little red and grey shale.
	3101	3301	201	Clay - Red, silty.
	3301	3601	301	Sandstone - Red. Approx. 15% red shale.
	3601	3801	201	Shale - Red to magenta.
55.	3801	1400	201	Clay - Red, silty.
	14001	500	1001	Shale - Red to maganta. Broken caliche pebbles.
	5001	5501	501	Shale - Brown, a little grey. Approx. 2% calichs.
	5501	6601	110'	Shale - Brown, very little grey. Traces of caliche.
	6601	7201	601	Shale - Brown. Some red clay. Trace caliche.
<b>(</b> \$6	7201	7501	30 [‡]	Shale - Brown, little grey. Trace caliche.
	7501	8101	601	Siltatone - Red. Some brown shale. Very little green shale
SEX CALCULA	8101	8900	80*	Shale - Red and brown, silty. Trace of caliche and green shale.
	8901	9001	101	Clay - Red, sandy. Trace of mypeum.
11.00	9001	9601	601	Anhydrite - Grey, some gypsum. Approx. 20% red clay.
	9601	10104	501	Anhydrite - Dark grey. A little brown and grey clay.
	1010	1080	70	Shale - Red. Approx. 20% gypsum and anhydrite.
العطن التاكانية	.0801	1100	201	Shale - Red. Approx. 40% gypsum and amhydrite.
	11001	1110	10	Shale - Red. Approx. 10% gypsum and anhydrite.

<b>8</b> 2	From		To		Int	er	Formation
	11101		11301		201		Oypenm and ambydrite - Approx. 5% red shale.
	1130		1150		201		Ambydrite - Gray. Set casing at 1132' 10".
	11501		1170		201		limestone - Tan. A little grey ambydrite. (Culebra).
	11701		1180		10		Clay - Red and grey.
	1180		1200		20		Halite - Approx. 20% brown clay.
	12001		12361		361		Helite - Approx. 4% brown elsy.
			12361				Start coring - 2-23-53.
	12361	Oμ	12391	řα	31	Ļ"	Halite - Clear to faint orange. Occasional bleb of orange polyhalite. Approx. 2% brown clay.
	12391	ļīn	12401	<u> 1</u> 111	1,	On	Clay - Red, silty. Approx. 15% halite.
	12401	Įти	1247	6н	7.	24	Halite - Clear, medium grained. Approx. 40% red miltatone.
	1247	Qu.	1251	S _{it}	31	8u	Siltstone - Red. Approx. 5% halite.
	1251	2 ¹⁴	12531	J _H	1,	11 ^µ	Halite - Clear, medium grained. Approx. 40% red and grey siltatone.
	12531	1"	12571	5 _H	40	<b>1</b> 11	Siltatone - Red. A few halite crystals, more prominent in the top 2*.
	12571	Su.	1264	ħ _H	71	2 ¹¹	Clay - Red, silty. Occasional carnallite and halite bleb.
	1264	7n	12661	7tn	21	On	Siltatone - Brown. Numerous small carnallite blebs.
	12661	Ļņ	1267	24	01	10 ⁴	Anhydrite - Grey. A few small carnallite blobs. A few halite crystals.
2.5	12671		1268	. <b>Q</b> н	01	10 ^µ	Siltatone - Red. Numerous small carnallite blebs. A few halite crystals.
	1268	On	1271	2 ^{tt}	31	2u	Anhydrite - Grey and grey clay. A few halite crystals. Red, silty clay seems at 1268 $^{\rm h}$ $^{\rm H}$ and 1269 $^{\rm h}$ .
	1271	2"	1271	6 <b>4</b>	01	Lu	Clay - Red, silty. A few halite and carnallite blebs.
	1271'	6 ⁴	1272	5×1	0	11"	Clay - Brownish grey. Some grey anhydrite. A few halite and carnallite blebs.
	1272'	5#	12721	10 ⁿ	01	54	Halite - and brown clay. Scattered earnallite blabs.
100000	1272	10 ^H	12731	1#	0	<b>3</b> "	Clay - Green. A few halite and carnallite blebs. (12th ore some).

# LOSS OF EXPLORATORY HOLES LARRY FELKINS, DRILLER

TEST HOLE #1	TEST HOLE #2	TEST HOLE #3
20.32.27.424443	20.32.27.422221	20.32.27.234210
IS ELEV. 3553 DRILLED: 10/31/89	IS ELEV. 3546 DRILLED: 10/31/89	IS ELEV. 3542
DRILLED: 10/31/89	DRILLED: 10/31/89	DRILLED: 10/31/89
0-12 CALICHE	0-8 CALICHE	0-12 CALICHE
12-24 SAND COARSE	828 SAND	12-34 SAND THIN LAYERS GRAVEL
24-28 SAND & GRAVEL	28-32 SAND & CRAVEL	34-50 RED BED
28-34 SAND FINE	32-30 GKAY RUCK	(DRY)
	36-38 SAND & GRAVEL	
39-41 KED BED	38-50 RED BED	
41-44 GRAY ROOK	(DRY)	
44-97 THIN LAYERS SAND & GRAVEL		
RED SAND GRAY ROCK SANDY		
YELLOW GRAY & BROWN CLAY		
(DRY)		
TEST HOLE #4 20.32.27.412333 LS ELEX. 3550	TEST HOLE #5	TEST HOLE #6
20.32.27.412333	20.32.27.144133	20.32.27.132121
LS ELEV. 3550	IS ELEV. 3539	L6 ELEV. 3529
IS ELEV. 3550 DRILLED: 10/31/89	IS BLEV. 3539 DRILLED: 10/31/89	DRILLED: 10/31/89
0-8 CALICHE	0-2 CALICHE	0-12 CALICHE
8-39 SAND & GRAVEL	2-24 SAND DAMP AT 18 DOWN	12-24 SAND THIN GRAVEL
39-42 RED BED		24-32 SAND & GRAVEL WET
42-60 LAYERS RED, YELLOW, CRAY	28-34 SAND	32-34 GRAY CLAY
SANDY CLAY WITH SOME	34-36 GREEN CLAY	34-36 RED BED
GRAVEL LAYER OF GRAY ROOK	36-40 RED SAND & RED BED DAMP	36-38 GREEN & GRAY CIAY
(DRY)		38-50 RED BED
• , ,	40-44 RED BED DRY 44-46 GRAY CLAY	(WATER AT 26 FT.)
	46-60 LAYERS OF RED BED GRAY	·
	CLAY GREEN CLAY	
	(WATER AT 21 FT.)	
IEST HOLE #7	TEST HOLE #la	TEST HOLE #2a
20.32.27.314122	20.32.28.222224	20.32.22.322142
IS ELEV. 3541	IS ELEV. 3519	IS ELEV. 3527
DRILLED: 10/31/89	DRILLED: 01/26/90	DRILLED: 01/26/90
0-9 CALICHE	0-8 CALICHE	0-6 CALICHE
9-28 SAND LIGHT	8-24 SAND & CLAY	6-10 SAND
28-35 SAND DARK	24-28 GRAVEL & SAND	10-20 SAND CLAY ROOK
35-37 RED BED	28-34 CLAYS YELLOW & BROWN	20-35 RED CLAY & SAND
37-38 Gray Clay	34-37 RED BED	35-45 RED CLAY & CRAVEL
38-40 SAND THIN LAYERS CLAY	CASED 37 FT. PERFS 29 FT.	45-55 RED BED
40-50 RED BED THIN LAYERS GRAY		CASED 50 FT. PERFS BOTTOM 30 FT.
& CREEN CLAY		
(WATER AT 47 FT.)		•
	TEST HOLE #3a	
	20.32.28.243123	
	LS ELEV. 3522	
	DRILLED: 01/26/90	
	0-8 CALICHE	
	8-20 CALICHE SAND CRAVEL	
	20-45 DRY BROWN & RED CLAY	
	45-55 RED BED	
	CASED 55 ET DEDES 40 ET	

CASED 55 FT. PERFS 40 FT.

# LOGS OF EXPLORATORY HOLES BASED ON INSPECTION OF DRILL CUITINGS

TEST HOLE #1	TEST HOLE #2	TEST HOLE #3
TEST HOLE #1 20.32.27.424443	TEST HOLE #2 20.32.27.422221	20.32.27.234210
IS ELEV. 3553	LS ELEV. 3546	LS FLEV. 3542
IS ELEV. 3553 DRILLED: 10/31/89		DRILLED: 10/31/89
,		· · · · · · · · · · · · · · · · · · ·
0-5 CALICHE	0-5 CALICHE 5-10 CALICHE 10-15 FINE SAND 15-20 FINE SAND W/SMALL GRAVEL 20-25 FINE SAND 25-30 FINE SAND	0-5 SAND AND CALICHE
5-10 CALICHE	5-10 CALICHE	5-10 CALICHE W/SOME SAND
10-15 CALICHE-FINE SAND	10-15 FINE SAND	10-15 CALICHE
15-20 SAND CALICHE	15-20 FINE SAND W/SMALL GRAVEL	15-20 SAND
20-25 SAND	20-25 FINE SAND	20-25 CALICHE AND VERY FINE SAND
25-30 SAND	25-30 FINE SAND	25-30 SAND-GRAVEL
1.5-20 SAND CALIDHE 20-25 SAND 25-30 SAND 30-35 NO SAMPLE 35-40 SAND GRAVEL	30-35 GREY SILITY SANDBIONE 35-40 RED BED W/TRACE OF GRAVEL	30-35 RED SHALE W/TRACE OF GRAVEL
35-40 SAND GRAVEL	35-40 RED BED W/TRACE OF GRAVEL	35-40 RED BED W/SOME GRAVEL
40-45 RED CIAY	40-45 RED BED	40-45 RED BED
45-50 RED BED	40-45 Red Bed 45-50 Red Bed	45-50 RED BED
50-55 VERY FINE SILILY SAND	· · · · · · · · · · · · · · · · · · ·	
55-60 SILIY SAND-GREY SHALE		
-TRACE OF GRAVEL		
60-65 SAND		
65-70 GREY SILISIONE		
70-75 RED CLAY W/TRACE OF GRAVEL		
75-80 RED SHALE		
80-85 RED CLAY W/SOME SAND		
85-90 RED CTAY		
90-95 RED CLAY		
95-99 NO SAMPLE		
TEST HOLE #4 20.32.27.412333 LS ELEV. 3550	TEST HOLE #5 20.32.27.144133 LS ELEV. 3539	TEST HOLE #6
20.32.27.412333	20.32.27.144133	20.32.27.132121
IS ELEV. 3550	LS ELEV. 3539	LS ELEV. 3529
DRILLED: 10/31/89		DRILLED: 10/31/89
-	•	
	0-10 SOIL-CALICHE	0-10 CALICHE
5-10 CALICHE	10-20 CALICHE AND SAND	10-20 CALICHE SAND
10-15 SAND W/SOME CALICHE	20-30 SAND AND CRAVEL 30-35 CREX SILITY SAND	W/SOME CRAVEL
15-20 SAND & GRAVEL	30-35 GREY SILITY SAND	20-30 VERY FINE SAND
W/SOME CALICHE	35-40 GREY CLAY	W/SOME GRAVEL
20-25 SAND	40-45 RED CLAY	30-40 RED BED W/SOME FINE SAND
25-30 SAND AND GRAVEL	45-50 RED AND GREY CLAY	& TRACE OF GRAVEL
30-35 BROWN SAND AND GRAVEL	W/SOME CRAVEL	40-45 RED BED
35-40 CLAY AND SAND	50-55 RED BED	45-50 RED BED
	55-60 RED BED	
45-50 GREY CLAYEY SAND		
W/SOME GREY SHALE	•	•
50-55 RED BED W/SOME GRAVEL		
(SILISIONE)		
55-60 GREY CLAY AND SAND		
TATACOMO CITOCON		

W/SOME CHERT

20.32.27.314122 LS ELEV. 3541 DRILLED: 10/31/89						
10-20						
20-30	VERY FINE SAND					

TEST HOLE #7

	122 122 210
	W/SOME RED CLAY
30-35	NO SAMPLE
35-40	RED BED
40-45	RED BED
<b>45-</b> 50	RED SILIT (LIGHT COLORED)

TEST HOLE #la					
20.32.28.222224					
is elev.	3519				
DRILLED:	01/26/90				

CALICHE
CALICHE W/SOME SAND
SAND & CLAY
W/SOME SANDSTONE
SAND AND CLAY
W/SOME GRAVEL
GREY & YELLOW CLAY
BROWN SAND AND GRAVEL
RED BED

TEST HOLE #2a	
20.32.22.322142	:
LS ELEV. 3527	
DRILLED: 01/26	/90

0- 5	CALICHE
5-10	CALJOHE WIRACE OF SAND
10-15	CALICHE W/SOME SAND
15-20	RED CLAY
20-25	RED CLAY - CALICHE
25-30	RED CLAY
30-35	RED CLAY W/SOME SAND
35-40	SAND AND CLAY
40-45	SAND-CRAVEL RED CLAY
45-50	RED BED - DARK RED
50-55	RED BED - DARK RED

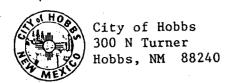
TEST HOLE #3a 20.32.28.243123 LS ELEV. 3522 DRILLED: 01/26/90

35-37 RED BED

0-5 CALICHE
5-10 SAND AND CALICHE
10-15 SAND GRAVEL W/SOME CLAY
15-20 SAND GRAVEL W/SOME CLAY
20-25 RED CLAY
25-30 RED CLAY
30-35 RED CLAY
35-40 RED CLAY W/TRACE OF GRAVEL
40-45 RED CLAY
45-50 DARK RED CLAY
50-55 NO SAMPLE

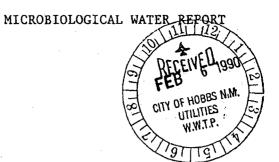
APPENDIX

" B "



Time Test Started //30 Date FEB 7 1990

Time Test Ended //30 Date FEB 7 1990



SAMP	LE IDENTIFICAT	ION	RESULTS OF COLIFORM TESTING					
Quality Cont	rol No.	County	Coliform per 100 ml					
40D-	9	LEA	TEST	Presumptive	Confirmed	Completed		
Water Supply	System Name	WSS Code No.	TEST	24 hrs	48 hrs	48-72 hrs		
37 miles Wol t	tabbs on 62-180 CTION INFORMAT	ION	MF					
Date Collected	Time Collecte	d Collected By	MPN		·			
Mo. Day Yr.	9:00		MPN			·		
	<u> </u>	Demy						
2-6-90	Collection  At Well	#14		Non-Colifor	m per 100 r	al		
_	Ho well		no	n-coliforms	TWIC CO	olonies		
	YPE OF SYSTEM		<u> </u>					
Check One			FO	R INTERPRETAL	ION OF REST	ILES		
[] Public No	n- [] Sw	imming Pool	PL	EASE CALL THE	ENVIRONME			
Community		/		PROVEMENT DIV	ISION AT			
[] Public Co	mmunity V Pr	ivate Well 🔪	39	7-5250.	$\mathcal{A}$	, )		
Disinfected	[] Yes W	No	-11					
}	mg/1 (	-	71		1/1/			
Kesiduai:		for fecal	I//	Now	Well Va	am in		
		test)	Ва	cteriologist		2		
			}	1//	/			
	SON FOR SAMPLI	NG		10	/	· · · · · · · · · · · · · · · · · · ·		
Check One			[]	Unsatisfacto	ry Sample			
Routine S.	ample [] Spec	ial Sample						
[] Check Sam	ple [] Moni	tor Sample		- -	<del></del>	· · · · · · · · · · · · · · · · · · ·		
TE	STING REQUIRED		'					
Check One								
	y (MF)-Sample : king Water Act	required for						
[] MPN								
() III.N								
			ļ					
SEND REPORT AN	D BILL TO THE	FOLLOWING		•				
NAME ONTRO	olled Kew	very Inc		A FEE OF \$10	0.00 PLUS T	AX IS		
COMPANY		<i>,</i>		CHARGED FOR	EACH TEST.			
ADDRESS	369					001		
	lahe 10 r	n perul	)	20,32,22		Fru		
	UV), $I$	1100010	•	OFFICE USE (	JNLY			

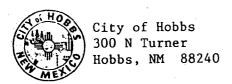
MICROBIOLOGICAL WATER REPORT



Time Test Started //30 Date FEB 6 1990

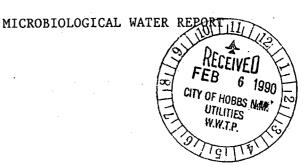
Time Test Ended //30 Date FEB 7 1990

	<del></del>	DEC. 1 00 00 00		77110
SAMPLE IDENTIFICATION		RESULTS OF CO		TING
Quality Control No. Count	-y	1	per 100 ml	<u> </u>
	EA TEST	Presumptive		
Water Supply System Name WSS (	Code No.	24 hrs	48 hrs	48-72 hrs
37miles Wol Hobbs ON 62-180	MF			
COLLECTION INFORMATION				
Date Collected Time Collected Coll	lected By MPN			
Mo. Day Yr. 10:15	mur !			
Collection Point				
2-6-90 Atulel #	9/-	Non-Colifor	m per 100 r	nl
HTWELL #	孝(O) no	on-coliforms	////C c	olonies
TYPE OF SYSTEM			)	***************************************
Check One	F	or <i>e</i> nterpretaz	ION OF RESI	ULTS
[] Public Non- [] Swimming		LEASE CALL THE		NTAK
Community	1 0/	PROVEMENT DIV	ISION AT	( )
[] Public Community [ Private	Well 3	7-5250	//	1 . /
Disinfected [] Yes   No		X	/ /	[ // -
				Moura
Residual: mg/l (require for fe		Kun	ne St	<u> </u>
test)	Ba	cteriologist		
		(/)	1	
REASON FOR SAMPLING			- · · · · · · · · · · · · · · · · · · ·	
Check One	l r	Unsatisfacto	ry Sample	•
Routine Sample [] Special Sa		•		
[] Check Sample [] Monitor Sa	mple			
TESTING REQUIRED		<del></del>		<del></del>
Check One				
Potability (MF)-Sample requir	ed for	1000		
Safe Drinking Water Act				·
[] MPN			:	
L			•	
CEND, DEDODE AND DITT HO HUD BOLLO	ITNO			
SEND REPORT AND BILL TO THE FOLLOW	ITMG			
NAME CONTRolled Kecovery	1 m	A FEE OF \$1	0.00 PLUS T	AX IS
COMPANY	<del></del>	. CHARGED FOR	EACH TEST.	
ADDRESS X 369	<del></del>	20.32.27	132121	) Ia
Hobbs, nm 8	8240	OFFICE USE	ONLY	
20 -01		ì		.



Time Test Started //36 Date FEB 7 1990

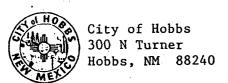
Time Test Ended //36 Date FEB 7 1990



4								
	LE IDENTIFICAT			RESULTS OF CO		CING		
Quality Cont	rol No.	County		Coliform	per 100 m1	,		
900	-13	LEA	TEST	Presumptive	Confirmed	Completed		
Water Supply	System Name	WSS Code No.	TEST '	24 hrs	48 hrs	48-72 hrs		
37 milES Wol			MF					
	CTION INFORMAT							
Mo. Day Yr.	Time Collected	d Collected By	MPN	-				
Mo. Day II.	9:45	Denny						
2-6-90	Collection	Point		Non-Colifor	m per 100 r	nl		
	At Well	#5	no	n-coliforms	TNTC 0	olonies		
Check One	YPE OF SYSTEM							
	• .		FO	R ANTERPRETAT	CION OF RESU	JLTS /		
	n- [] Sw:	imming Pool		FASE CALL THE PROVEMENT DIV		VTAL /		
Community				7-5250.	ISION AI			
1	mmunity V Pr	/	-			LII		
Disinfected	[] Yes 🕡	No (	7			A VA		
Residual:	mg/1 (			$\mathcal{M}_{-1}$	inne	John		
		for fecal	Bacteriologisch					
,	,	test)		1/	•			
	SON FOR SAMPLI	NG		1/				
Check One			[]	Unsatisfacto	ry Sample			
Routine S	ample [] Spec	ial Sample						
[] Check Sam	ple [] Moni	tor Sample						
TE	STING REQUIRED					· · · · · · · · · · · · · · · · · · ·		
Check One								
	y (MF)-Sample	required for				•		
•	king Water Act					<del></del>		
[] MPN								
L								
SEND REPORT AN	D BILL TO THE	FOLLOWING			*			
NAME		····		A FEE OF \$1	0.00 PLUS T	AX IS		
COMPANY ON	Healled Ko	overy Inc		CHARGED FOR	EACH TEST.			
ADDRESS	×3169	1		91 2000	14 122	) Lev		
	<u>,,                                   </u>			20.32.27. 1	41100 (	100		
	obbs, n	M 88240		OFFICE USE	ONLY			
Dan	1001			[	31	. 1		

20.32.27. 234210

OFFICE USE ONLY



ADDRESS '

Time Test Started / 30 Date FEB 6 1990

Time Test Ended / 30 Date FFB 7 1990



				er rgi	
SAMPLE IDENTIFICA	TION	Γ	RESULTS OF CO	LIFORM TEST	ring
Quality Control No.	County		Coliform	per 100 ml	
90-0-11	LEA	TEST	Presumptive		Completed
Water Supply System Name	WSS Code No.		24 hrs	48 hrs	48-72 hrs
37 miles Wd Hobbs on 62-18 COLLECTION INFORM		MF			
Date Collected Time Collect		MPN			
Mo. Day Yr. 9:30	Remmy	III N		<del></del>	
2-6-90 Collection			Non-Colifor	m per 100 m	nl
1111 am	L #3	no	n-coliforms /	W/C co	olonies
TYPE OF SYSTEM	[	<u> </u>			
			R INTERPRETAT		
	Swimming Pool		EASE CALL/THE PROVEMENT DIV		NTAL
Community			7-5250.	1510N AI	
[] Public Community	rivate Well				. / . / .
Disinfected [] Yes	No	7			1/1
Residual:mg/l	(required		0 4	***************************************	Valan O
-	for fecal	$\frac{1}{Ba}$	cteriologiat	ma	Johns.
	test)		77	J	
REASON FOR SAMPI	ING	i			
Cheok One		[]	Uncertafact	www. Comple	
Routine Sample [] Spe	cial Sample	[]	Unsatisfacto	огу защрте	
[] Check Sample [] Mor	_				
() Check Sample [] Hor	iltor Sample				<del></del>
TESTING REQUIRE	D			<del></del>	
Check One			•		1
Potability (MF)-Sample Safe Drinking Water Ac					•
[] MPN					<del></del>
SEND REPORT AND BILL TO THE	FOLLOWING			*	
NAME			A FEE OF \$1	0.00 PLUS 1	AX IS
COMPANY CONTROLLED	Rocovery Inc	1	CHARGED FOR	EACH TEST.	

MICROBIOLOGICAL WATER REPORT



6 1990 Time Test Started Date FEB Date FEB 7 1990 Time Test Ended 130

SAMPLE IDENTIFICAT			RESULTS OF CO	LIFORM TEST	<b>TING</b>	
Quality Control No.	County		Coliform	per 100 ml		
40D-10	LEA	TEST	Presumptive			
Water Supply System Name	WSS Code No.		24 hrs	48 hrs	48-72 hrs	
37m. 1=5 W of Hobbs on 62-182		MF				
COLLECTION INFORMAT						
Ma Dans 97-1	Collected by	MPN				
10.00	Demy					
7-1-90 Collection	Point	1	Non-Colifor	m per 100 r	nl	
1/34	#7	no	n-coliforms	MC co	olonies	
TYPE OF SYSTEM						
Check One		FO	R INTERPRETAT	ION OF RESU	JLTS	
[] Public Non- [] Sw:	imming Pool		EASE CALL THE		TAL	
Community	<b>/</b>		PROVEMENT DIV	ISION AT		
[] Public Community L Private Well		3/97-5250				
Disinfected [] Yes		1		1/1		
Residual: mg/1 (			Melin	LK V	Suxon	
1	for fecal	$1/\overline{Ba}$	cteriologist		21119	
1	test)		778232	1		
DEACON FOR CAMPILL	NC.		10	<del> </del>		
REASON FOR SAMPLIS	NG					
1.		[]	Unsatisfacto	ry Sample	-	
Routine Sample [] Spec	ial Sample	1				
[] Check Sample [] Monit	tor Sample		·			
TESTING REQUIRED						
Check One	:	'				
Potability (MF)-Sample of Safe Drinking Water Act	required for					
[] MPN						
[] FIEM						
		!				
SEND REPORT AND RILL TO THE I	OUTNO			×		

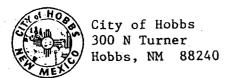
NAME COMPANY ADDRESS

A FEE OF \$10.00 PLUS TAX IS

CHARGED FOR EACH TEST.

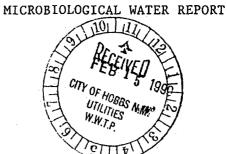
20.32.27. 3/4/22

OFFICE USE ONLY

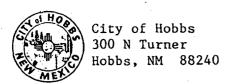


Date FEB 1 5 1990 Time Test Started /:30

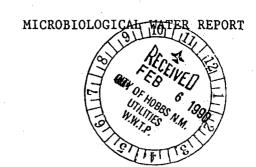
Time Test Ended /:30 Date FEB 1 6 1990



)			121	181	
L CAMPAR TRANSPORTER CAMPA	<del></del>		DB0111 mg 07 00		
SAMPLE IDENTIFICATI Quality Control No.	County	<b> </b>	RESULTS OF CO	per 100 ml	ring
90 C-96	,			1	
Water Supply System Name	LEA	TEST	Presumptive		
water supply system name	was code No.		24 hrs	48 hrs	48-72 hrs
37 miles west of Hobbs 62/80 COLLECTION INFORMATI		MF		:	
Date Collected Time Collected					
Ma Day V.	D. week	MPN			
2,007	Denny				
2-14-90 Collection			Non-Colifor	m per 100 n	n1
At well =	#8		n-coliforms		
TYPE OF SYSTEM		no	n-colliorms		olonies
Check One		70	n (Ivernand)		17 ma
[] Public Non- [] Swi	mmine Pool		R INTERPRETATE		
Community	mmilia 1001		PROVEMENT DIV		, ret
[] Public Community 41 Pri	wata Wall	, ,	7-5250./		1
		/ /		/ 1 .	
Disinfected [] Yes	No		/ /		//
Residual: mg/l (r		1	( Carrie	o (() Kel)	moon
l .	or fecal	$\int \frac{1}{Ba}$	cteriologist	7	1112)
t	est)	/			
REASON FOR SAMPLIN	G			/	
Check One	······································	r ı	Uncettefeete	Comple	· · · · · · · · · · · · · · · · · · ·
Routine Sample [] Speci	al Sample	Li	Unsatisfacto	ry sample	
1					
[] Check Sample [] Monit	or sample				
TESTING REQUIRED					·····
Check One		,			
Potability (MF)-Sample r	equired for				
Safe Drinking Water Act	•				•
[] MPN					
	_				
SEND REPORT AND BILL TO THE F	OLLOWING			*.	
NAME CONTROlled Recov	OR I TAN		A FEE OF \$1	0 00 PLHS T	AX TS
MILE <u>2701 27764 1460</u> 0	ercy -		A FEE OF WIN	0.00 1200 1	10
COMPANY		÷	CHARGED FOR	EACH TEST.	,
ADDRESS 71, 219			. =		19th
ADDRESS XX 369			20.32.27.	32/423	from
Hobbs. On	7 88240		OFFICE USE	ONLY	
200 1001				Marie 1970 a	7-1
PHONE 397-6521			1 000000 # "	<b>*</b> 1	



Time Test Started /30 DateEB 6 1990
Time Test Ended /30 DateEB 7 1990

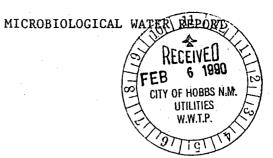


SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No.	County	<u> </u>		per 100 ml	TING	
90-D 8	LEA	TEST	Presumptive		Completed	
Water Supply System Name		LEST	24 hrs	48 hrs	48-72 hrs	
37 miles west of Hollos 62 Ha	Ь					
COLLECTION INFORMAT	·	MF				
Date Collected Time Collected	d Collected By	MPN				
Mo. Day Yr. 8:45	Demuy			<del> </del>	<u> </u>	
Collection		<del> </del>	Non-Colifor	m per 100 r	n1	
2-6-90 At Well	7#1A	no	n-coliforms			
TYPE OF SYSTEM		<u> </u>	<del>_</del>			
Check One		FO	R INTERPR <del>ET</del> AT	ION OF RESI	JLTS	
[] Public Non- [] Sw:	imming Pool	PL	EASE CALL THE	ENVIRONME		
Community	-		PROVEMENT DIV	ISION AT	7)	
[] Public Community   Pri	ivate Well	39	7/5250.		/ 1	
Disinfected [] Yes		LL	1 /		/ / //	
		171		/ / Y	11/2 0	
Residual:mg/1 (		$\perp \mu$	man	uo (\L	ounce	
	for fecal test)	Ba	cteriologist			
•	LESC/	<b>'</b> .	///	- 1		
REASON FOR SAMPLI	NG					
Check One		[]	Unsatisfacto	ry Sample	•	
Routine Sample [] Spec	ial Sample			-		
[] Check Sample [] Monit	tor Sample					
TESTING REQUIRED						
Check One					·	
Potability (MF)-Sample : Safe Drinking Water Act	required for	i i				
[] MPN		ļ. 				
SEND REPORT AND BILL TO THE	FOLLOWING	-	,			
NAME CONTROLLE RECOVERY	Ine		A FEE OF \$1	0.00 PLUS 1	AX IS	
COMPANY			CHARGED FOR	EACH TEST.		
ADDRESS BX369			20,32,28	222224	Du	
. ,	140				V	

Time Test Ended

/:30 Date FEB 6 1990 Time Test Started 1:30 Date FEB 7 1996

97-12571



	·				
SAMPLE IDENTIF			RESULTS OF CO	****	<b>TING</b>
Quality Control No.	County		Coliform	per 100 ml	1
90 10-14	LEA	TEST	Presumptive		
Water Supply System Na		1201	24 hrs	48 hrs	48-72 hrs
37 miles Wolf Hobbs 62 COLLECTION INFO		MF			
Date Collected Time Coll		1			
Mo. Day Yr. 9:15	1_	MPN			
1 1 2011	tion Point		Non-Colifor	m per 100 i	n1
256 10 Atw	ell #3A	no	n-coliforms		
TYPE OF SYS	rem	<u> </u>			<del></del>
Check One		FO	R INTERPRETA	CION OF RESU	ULTS
[] Public Non- [	] Swimming Pool		EASE CALL THE		NTAL _
Community			PROVEMENT DIV	VISION AT	1
[] Public Community U	Private Well	3/9	7-5250.		
Disinfected [] Yes	W No	1			
Residual: mg		I/Z	Malu	mie-	Holm
	for fecal	/ Ba	cteriologist		T /
	test)	٧	171		/ /
REASON FOR SA	MPLING	1			/
Check One		r1	Unsatisfacto	orv Sample	
Routine Sample []	Special Sample		onbuc zbz ucco	ay bumpio	
[] Check Sample []	Monitor Sample	ļ			· · · · · · · · · · · · · · · · · · ·
TESTING REQU	IRED	İ	-	·	
Check One					
Potability (MF)-Sam					
Safe Drinking Water	Act				<del></del>
[] MPN					
		]			•
SEND REPORT AND BILL TO	THE FOLLOWING	#* *	,		
(			A BEE OF 41	0 00 DI 110 T	NV TO
NAME CONTROLLED IN	ORDERY INC		A FEE OF \$1	0.00 PL05 1	.AA 15
COMPANY			CHARGED FOR	EACH TEST.	_
ADDRESS 369			20.32.28	243/23	3 Jan
thobbs (	m 88240	<u> </u>	OFFICE USE	ONLY	

# ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION HOBBS, NEW MEXICO

WELL OWNERSH	IP: Controlled Recovery	y Inc.	WELL :	#: 2	2 <b>A</b>	
	STATEFEDERAL					
	N: Unit Letter S			20	Range	32
	TER - FOOTAGE LOCATION:					
	Moniter well					feet
•						
			· · · · · · · · · · · · · · · · · · ·			
SAMPLE NUMBE	R:1	TAKEN BY:	Eddie Se	ay &	Ken Mar	sh
			2/27/90		-	
			n.			
	Specific Conductance:	1700	· !	mh		
	Total dissolved solids:	1190		PPM		
• • • •	Chlorides:	568		PPM		
	Sulfates:			PPM		
	Ortho-phosphates: Very					
	Sulfides: None	Low	Med		Hi	
	OTHER:					
			_			
DATE ANALYZE	D: 2/28/90	BY: Clal.	, , λ			
DATE ANALIZE	D: 2/20/90		NSERVATION :	DIVIS	ION	
		Eddie W	. Seay	'		
REMARKS:	Sample taken at 44 feet.	•				
	Top of water at 38 feet.					
5 ml sampl	Le $710 \times .8 = 568 \text{ ppm}$ (	01				
SC - mete	ered 1700					
TDS - calc						
	·	·				

# ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION HOBBS, NEW MEXICO

WELL OWNERSHIP: Controlled Rec	covery	Inc.		WELL	#: 6		
LAND STATUS: STATE FEDE	RAL	FE	E	_ ** .			
WELL LOCATION: Unit Letter				ownship _	20	Range	32
QUARTER/QUARTER - FOOTAGE LOCATI	ON:						
WELL TYPE: Moniter Well				DEP	гн	?	feet
WELL USE:							<del>.</del>
SAMPLE NUMBER: 1		TAKEN	BY:	Eddie Se	ay & K	en Mars	sh
	<del>.                                      </del>	DATE:		2/27/9	0		
	1.						
Specific Conductance	e:		27	50	шW	* .	
Total dissolved sol	*				- PPM		
Chlorides:			8	66.1	- PPM	1	
Sulfates:	<del></del>				PPM		
Ortho-phosphates:	Very L			· ·		Hi	
Sulfides:			and the second second	and the second second	1.0	Section 1997	
OTHER:							
DATE ANALYZED: 2/28/90		BY: 6	20 0	, , )			
DATE ANALIZED: 2720730		ŎĪ	L CONS	ERVATION	DIVIS	ION	
		Ed	ldie W.	Seay			
REMARKS: Sample taken at 40	feet.						
Top of water at 23	feet.						
25 ml sample 142 x 6.1 titra	ation	= 866.1	l ppm C	:1			
SC - metered 2750							
TDS - calculated					in the Gall		
					ing the		
						1 1 1 1 1 1 1	
						* " <u></u>	

# ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION HOBBS, NEW MEXICO

WALCK	
	WELL #: _5
Recovery I	.nc.
L OWNERSHIP: Controlled Recovery I	FEE 20 Range 32_
LL OWNERSHIP: Controlled Recovery  ND STATUS: STATE FEDERAL Section Se	FEE rion27
TI LOCATION: Unit Letter	2 feet
LL LOCATION: Unit Letter	DEPTH ?
ELL TYPE: Moniter well	
ELL USE:	TAKEN BY: Eddie Seay & Ken Marsh
	TAKEN B1:
SAMPLE NUMBER:1	DATE: 2/27/90
	m.h.
	50,000+ PPM
Specific Conductance:	<b>99</b>
Specific Spe	37,275
Chlorides:	
그 경기에 가장 그 사람들은 사람들이 가는 그 얼마를 하는 것이 없었다. 그 사람들이 가장 그 사람들이 가장 되었다.	Low Low Med Hi
Sulfates: Very Ortho-phosphates: Very	Low Med Hi
None	
Sulfides: None	
OTHER:	The state of the s
	BY: Edding DIVISION
DATE ANALYZED: 2/28/90	BY: OIL CONSERVATION DIVISION Eddie W. Seay
DATE ANALYZED:	Eddie W.
PEMARKS: Sample taken at 40 fe	iet.
1 ml sample 3550 x 2000	H. 1888 1888 1888 1888 1888 1888 1888 18
1 ml sample 3530 A 200 SC - meter pegged out at 50,000	
强重的对方表现 医多克耳氏管	

# ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION HOBBS, NEW MEXICO

WELL OWNERSHI	P: Contro	lled Recover	y Inc.	WELT.	#: 1A	
•	STATE				-	<u> </u>
	: Unit Lette			Townshin	20 Rar	1ge 32
	ER - FOOTAGE					
WELL TYPE: M				DEPI	H ?	feet
WELL USE:	<u> </u>					<del></del>
WELL USE.						
SAMPLE NUMBER	. 1		TAKEN BY:	Eddie Sea	y & Ken l	larsh
	•••	· · · · · · · · · · · · · · · · · · ·	DATE:	2/27/90		
er en	Specific Cond	uctance:	50	,000+	mh	•
the state of the s	Total dissolv	and the second of the second o	and the second s	??	PPM	
	Chlorides:		136	,675	PPM	
	Sulfates:				PPM	
	Ortho-phospha	tes: Very L	A CONTRACTOR OF THE CONTRACTOR	and the second of the second	and the second of the second o	
	Sulfides:	None	Lo	w Med	H1	
	OTHER:					
DATE ANALYZET	): 2/28/90		BY: Col.			
			OIL C	ONSERVATION U.S. SOON	division	
(1) : 이 경찰과 (1) 전 (1) (1) 함께 된 이 및 경찰을 받았는데 (1)			Eddie	W. Seay		
REMARKS:	Sample	and the second second second second	The second second	25년 기계 (1945년) 1858년 - 1958년 (1957년)		
		water at 20				
	e 2550 x 38.5		The state of the s	ppm Cl		
SC - meter	pegged out at	50,000 plus	3.			
					and Marin	
			·			
		· · · · · · · · · · · · · · · · · · ·				
					<del></del>	i de transcription

# ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION HOBBS, NEW MEXICO

WELL OWNERSH	IP: Controlle	d Recovery	Inc.	WELL #: _	3A
LAND STATUS:	STATE FEDERA	AL	FEE		
WELL LOCATIO	N: Unit Letter	Section	Tov	mship <u>20</u>	Range _ 32
QUARTER/QUAR	TER - FOOTAGE LOCATION	N:			
WELL TYPE: _	Moniter well			DEPTH	feet
WELL USE:					
SAMPLE NUMBE	ER:1	TAK	EN BY: E	ddie Seay &	Ken Marsh
		DAT	E: <u>2/</u>	27/90	
	Specific Conductance	:	50,0	<u>00+</u> 皿ん	
	Total dissolved soli	ds:		?? PPN	
	Chlorides:		95,8		
	Sulfates:			PPN	
	Ortho-phosphates: V	ery Low	Low	Med	H1
	Sulfides: N	one	Low	Med	Hi
	OTHER:				
보다면 중 길에를 보다했다. 그리즘(1) 첫 성기의 전기가					
DATE ANALYZI	ED: 2/28/90	BY:	Eldin	المعلك ليا	
			OIL CONSE Eddie W.	RVATION DIV	ISION - CONTRACT OF THE PROPERTY OF THE PROPER
			Eddie W.	seay	
ভিত্তিব্যৱস্থা সংকল্প ক্রমণ করে ভ	Sample taken at 40 fee		حي الرائزة والإسراء والأراز	n sang natau a sa Nggaranggangan sang	
	Top of water at 20 fee	t.			
1 ml samp	le 3550 x 27 titration	n = 95,8	50 ppm C1		
SC - meter	r pegged out at 50,000	plus.			
			· · · · · · · · · · · · · · · · · · ·		
<u> </u>				* ** 1	