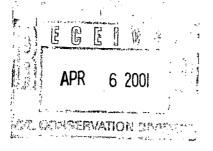
RECR-10 Windmill Oil

Preliminary Assessment Report (BLM)

2001



Preliminary Assessment of the Windmill Oil Site Unit J, Section 30, Township 18S, Range 38E, Lea County, New Mexico

Prepared for:
U.S. Department of the Interior
Bureau of Land Management
National Applied Resource Sciences Center
Contract No. 1422-N660-C-98-3003
Task Order 00-53-OY2

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Date Prepared: February 23, 2001

Introduction

At the request of the Bureau of Land Management, Dynamac Corporation personnel have completed an assessment of all available information regarding the Windmill Oil Site (Contract No. 1422-N660-C-98-3003, Task Order 00-53-OY2). The task order specifically requested that Dynamac Corporation contact the New Mexico Oil Conservation Division, review the location of all registered wells in the area, identify local property and oil well owners, research the published literature on ground-water resources in the area and accumulate all available information on the site. A brief report summarizing site information, identifying data gaps and suggesting further data collection activities was also requested. This report was researched and written in response to the Bureau of Land Management's request. Given the obscure nature of many of the materials referenced in this report, all references are provided in Appendix A.

General History of the Hobbs Oil Field Area

According to a technical report produced in 1993 by the U.S. Department of Energy, the Hobbs Oil Field was ranked the 77th largest oil field based on cumulative production data compiled in 1991 (U.S. DOE, 1993). The Hobbs Field was discovered in 1928 and continues to produce crude oil. The Ogallala aquifer serves as a sole source drinkingwater aquifer for the Lea County area and overlies the entire Hobbs Field. Crude oil was first discovered in the Ogallala formation in the Hobbs Field area in the 1950's by a surface owner attempting to drill for water. In the search for suitable water, the surface owner drilled thirteen wells, all of which displayed visual signs of petroleum contamination (New Mexico Oil Conservation Commission, 1965).

Final Report of the Committee Studying Protection of the Hobbs Fresh Water Sands

After discovery of crude oil in the Ogallala formation, the New Mexico Oil Conservation Commission (NMOCC) requested the production of a report describing the condition of ground-water resources in the northwestern portion of the Hobbs Field. The committee responsible for producing this report consisted of state agencies (NMOCC and the New Mexico State Engineer's Office), Hobbs City Water Board members, and oil company representatives (New Mexico Oil Conservation Commission, 1957a). Pan American Petroleum Corporation, Continental Oil Company, Samedan Oil Corporation, Shell Oil Company, and Tidewater Oil Company were represented on the committee. In addition, Mr. E.G. Minton, Lea County Hydrologist, participated in meetings prior to issuance of the final report.

Subcommittees were formed with each consisting of both industry and agency representatives. Subcommittee members were responsible for collecting information regarding the topics outlined by the NMOCC. They sought information and advice from all available sources including recognized authorities, research organizations, and reports. In summary, the report concluded that:

- 1. The regional dip of the Ogallala formation (potential direction of crude oil migration) was approximately 15 to 20 feet per mile in a southeasterly direction. Ground water moved 9 to 12 inches/day to the southeast.
- 2. The upper 5 to 40 feet of the formation consists of caliche and is underlain by coarse sand and gravel.
- 3. Oil introduced into the Ogallala formation would be free to move given sufficient oil saturation.
- 4. Once contaminated with crude oil, approximately 10 to 12 percent of the oil, with respect to saturation, would remain after skimming and water flushing of the Ogallala sand. Migration pathways would also retain approximately 12 percent of the oil after free phase product had moved through the pathway.
- 5. The structure of the caliche (fracture orientation and formation structure) could affect the movement of oil.
- 6. Eight water wells were contaminated with oil in Section 30, as determined by visual inspection. The oil thickness measured in these wells ranged from 0.5 to 6.3 ft. A trace of oil was reported for one well.
- 7. The exact extent of contamination could not be determined.
- 8. It would be necessary to remove all oil from the Ogallala sands to prevent further contamination of ground water.
- 9. Some of the City of Hobbs water wells were potentially located downgradient of the contaminated area.
- 10. Oil was expected to be immobilized near the top of the aquifer. Screening of municipal water wells near the base of the aquifer reduced the possibility of contaminants impacting water supplies.
- 11. Observation wells should be installed between the contaminated area and municipal wells.
- 12. Other sources of contamination existed. These included waste pits, storm sewer ditches, pipeline leaks, and surface spills.
- 13. Regulations were needed to prevent further contamination of ground water.
- 14. Any additional water wells should be completed near the base of the aquifer.
- 15. Conditions in the Hobbs Field were found to cause casing deterioration.
- 16. Quarterly pressure tests should be conducted on all production wells.

Pressure testing revealed that many production wells were leaking in the Hobbs Field (Figure 1). Inspection of Figure 1 illustrates that, at the time of the report, leaking production wells and contaminated water wells were present in 16 sections. Subcommittee members reported approximately 52 historical cases of well leaks and subsequent repairs in the Hobbs Field to the NMOCC in July 1957 (New Mexico Oil Conservation Commission, 1957b). An NMOCC memorandum dated July 26, 1957 indicated that committee members estimated that 300,000 barrels of crude were in the aquifer (New Mexico Oil Conservation Commission, 1957c). Getty Oil Company (Tidewater Oil Company) and Humble Oil and Refining Company operated those wells that were leaking or had historically leaked in Section 30 of Lea County. Humble Oil and

Refining Company reported to the NMOCC that a leak had been discovered in the cellar of the Federal-Bowers "A" No. 2 on August 2, 1953 (Humble Oil, 1953). Pressure testing on the bradenhead of this well resulted in a flow of 18 barrels per hour: The duration of the leak prior to detection was not known. However, it is known that the well was installed in 1930. Records indicate that Windmill Oil later operated oil recovery wells on unit J of Section 30, the same unit where the Federal-Bowers "A" No. 2 well was located.

History and Operations of Windmill Oil Company

Joseph O. Walton obtained a hearing with the NMOCC on April 14, 1965 to discuss the capture and sale of crude oil in the Ogallala formation (New Mexico Oil Conservation Commission, 1965). Mr. Walton explained that W. Ayers had sought his advice in 1965 concerning the occurrence of oil in new domestic-use water wells that he was attempting to install and use in Section 30 of Lea County. Mr. Walton stated that he recognized that this issue had existed since the release of the NMOCC report in 1957. He testified that it was at that time that he decided to try to salvage oil from the Ogallala formation. He then testified that he sought help in designing an inexpensive means of recovering the oil from Pat Ballew of the Seminole Safety Anchor Company. Mr. Ballew assisted Mr. Walton in designing windmill powered oil skimmers. Mr. Walton also reminded the NMOCC that they had given him permission to test this system. Mr. Walton then testified to the NMOCC that he was attempting to provide a service to the community by removing nuisance oil from the only potable water source in the area. In addition, he argued before the committee that the oil that he was attempting to recover was "fugitive" oil and not protected by mineral and oil leases granted to lease operators. The NMOCC granted Mr. Walton's request to recover and market oil from the Ogallala formation in Section 30, Township 18 south, Range 38 east, Lea County, New Mexico on May 4, 1965 (Case No. 3235, Order No. R-2902). Both Humble Oil Company and Getty Oil Company objected to the granting of this judgment to Mr. Walton. Eventually, a settlement was reached between Mr. Walton and Humble Oil that allowed Mr. Walton to recover and market oil from unit J of Section 30. The operation of Windmill Oil and Humble Oil in unit J of Section 30 was covered by Federal Lease No. LC-032233-A (Bureau of Land Management, 1966). Grimes Land Company of Hobbs, NM currently owns the surface rights of the property.

Mr. Walton, doing business as Windmill Oil Company, subsequently proceeded to recover fugitive oil from the Ogallala formation. Sixty-eight of seventy-seven wells installed by Windmill Oil produced oil. Humble Oil granted Windmill Oil the right to operate 15 wells (all producers) in Section 30. NMOCC records indicate that Windmill Oil applied for and received requests for allowable and authorization to transport approximately 425,000 barrels of fugitive oil between 1965 and 1996. More than 200,000 barrels of oil were produced between 1965 and 1970. The production rate of Windmill Oil's wells decreased dramatically between 1970 and 1996 (Figure 2).

Degree and Extent of Crude Oil Contamination in the Ogallala Formation

Decreases in production rate experienced by Windmill Oil were likely associated with declining water levels that allowed oil to migrate below the vertical extent of Windmill Oil's wells. Several lines of evidence point to this conclusion. Windmill Oil's production trend closely resembles the water level elevation trend (Figure 2). Therefore, it may be concluded that the amount of oil available for skimming decreased as the water table decreased due to increased withdrawal of ground water in the area. Thus, oil migrated to vertical levels below the screened interval of the wells. This line of reasoning is also supported by the finding that many of Windmill Oil's wells were dry by the mid 1990's. Field investigations conducted by Bill Olson (NMOCD) in 2000 verified that most of the shallow wells in the area are, indeed, dry. However, one well on the Ayers residence near the site was completed deeper than the other wells surveyed. A layer of oil 15.86 feet thick was discovered in the well (30.53 feet of water separated the oil layer from the bottom of the well). Lastly, interviews with local water well drillers revealed that oil is routinely encountered both on the surface and at depth in the Ogallala formation. Oil encountered at the surface of the Ogallala is likely from near surface leaks while oil encountered at depth is probably related to casing leaks at depth. According to Allen Eades, a Hobbs area driller (telephone: 505 392-7750), encounters with oil in the formation are frequent near the Windmill Oil Site. Mr. Eades has not documented the exact locations where oil was encountered. Instead, the current practice is to drill below affected areas before setting water well screens.

The amount of oil recovered by Windmill Oil indicates that, at a minimum, a substantial residual source of petroleum remains in the sediments overlying the aquifer. Although contaminants found in the residual phase are not independently mobile, percolation of water from the surface after precipitation events will continue to dissolve and transport contaminants to the aquifer. This process would ensure that a sizeable plume of dissolved oil constituents would exist even if all of the free phase crude oil had been removed. In addition, the longer that free phase oil is allowed to remain in place while water levels decrease, the worse the condition becomes since the "smear" zone of residual phase oil will increase in thickness further complicating and expanding remedial procedures.

It is very likely that some portion of the contaminants is in a free phase state located at the top of the aquifer. The apparent relationship between water level and production trends suggests that the controlling factor on production was the relationship between well screen depth and water table instead of volume of free-phase crude oil remaining. Therefore, it may be assumed that a substantial amount of crude oil remains in the aquifer. The presence of free-phase crude can sustain or cause the expansion of a dissolved plume of contaminants over a substantial length of time. The rather common presence of oil in the Ogallala formation, as evidenced by local drillers, can also be considered as anecdotal evidence of the extent of contamination. Given that more than 425,000 barrels (~17,000,000 gallons) of oil have been recovered from the site and that at least 42,500 barrels (~1,700,000 gallons) of oil are probably still in the formation, then it

is not unreasonable to assume that the length of the dissolved plume of contaminants emanating from this source can be measured in miles.

Vulnerability of Receptors

According to J.R. Harris, Municipal Water System Manager, City of Hobbs, the nearest municipal water supply well operated by the City of Hobbs is approximately two to three miles from the site. In addition, Mr. Harris stated that the municipal wells operated by the City of Hobbs are not downgradient of the Windmill Oil site based on the regional direction of ground-water flow to the southeast. However, this may not necessarily be true since, according to a report written by Susan Morris (New Mexico Environment Department, Ground Water Quality Bureau) it has been observed that local ground-water flow direction is controlled by the dip of the Red Beds underlying the Ogallala aquifer (New Mexico Environment Department, 2001). The direction of dip is not accurately known on a scale necessary to define contaminant flow paths and is thought to be non-uniform. Additional characterization will be required to determine the direction of dip proximal to the site and its true effect on direction of migration.

A second factor that seemingly is providing some protection of municipal wells is the location of well screens in vertical relation to the oil. Typically, production water wells are screened at the base of aquifer to ensure the longest life possible of the wells. Since the majority of the oil is likely at the water table, then a layer of clean water is separating the contaminants from the well screens. However, the decreasing thickness of the Ogallala aquifer is a well-documented problem (USGS, 1995). Therefore, as the Ogallala formation continues to be dewatered, the likelihood of contamination of municipal water wells increases. The example water levels used in Figure 2 were taken from a water well in Section 30 and showed a twenty foot decrease in water levels over a twenty year period. Given the continued demand for water by oil and agricultural industries and other municipalities, the rate of dewatering is likely to remain constant or increase.

Several private wells sampled near the Windmill Oil Site by Bill Olson and Wayne Price (NMOCD) did not show any signs of gross contamination by crude oil. The Ayers, King, Powers, Kerbo, Pfeiffer, Jones, Handy and Flowers families used these wells. It was assumed that private water wells in the area are screened near the base of the aquifer. Again, it is possible that the distance between the oil on the surface of the aquifer and well screens at the base of the aquifer along with the likely low rates of pumping prevents contaminants from entering the private wells. This serves as the simplest explanation for the lack of contamination. Nevertheless, oil can still be found in the Ogallala formation in one remaining shallow well that is screened across the water table (New Mexico Oil Conservation Division, 1996). This well is located generally north (upgradient based on regional ground-water flow) of the Windmill Site at 1700 Robert Lane and Mahon. Thus, concerns have been raised that the local direction of ground-water flow may be different than regional flow (New Mexico Oil Conservation Division, 1997). However, it is not known if the oil found in this well is migrating from the Windmill Oil Site.

Conclusions

Due to the lack of site information, it is impossible to produce concrete conclusions regarding the site. However, the information currently available is adequate for the construction of a simple site conceptual model. Initial conclusions based on this preliminary assessment are as follows:

- 1. The Federal-Bowers "A" No. 2 well was drilled by Humble Oil Company, which has since been renamed Exxon Oil Company, on property where the Bureau of Land Management controlled the mineral lease.
- 2. A leak of 18 barrels per hour was documented at the Federal-Bowers "A" No. 2 well.
- 3. Windmill Oil Company operated oil recovery wells screened in the Ogallala formation on the property occupied by the Federal-Bowers "A" No. 2 well and controlled by the Bureau of Land Management. Surface rights are owned by Grimes Land Company, Hobbs, NM. However, Windmill Oil also operated in other units of Section 30. Therefore, it is not known if other production wells in Section 30 contributed to contamination found beneath unit J.
- 4. Windmill Oil Company removed a substantial amount of oil.
- 5. Trend analyses suggest that decreased production by Windmill Oil Company wells was related to decreasing water levels. Therefore, it is likely that more recoverable oil remains beneath the site.
- 6. The extent and degree of contamination is not known.
- 7. The direction of migration is not known.
- 8. The threat to municipal and private water wells may not be accurately understood. Since the Ogallala aquifer serves as the sole source of drinking water for the area, the potential implications of contamination are severe.
- 9. The occurrence of crude oil in the Ogallala formation is likely widespread and due to multiple sources not associated with the Windmill Oil site.
- 10. More studies are needed to accurately define the degree and extent of contamination.
- 11. In the meantime, the health of rural residents must be protected either by repeated sampling and analyses of each residential well or by providing city water.
- 12. A meeting between interested parties should be scheduled after finalization of this report. A potential list would include Exxon Oil, along with other interested oil companies, BLM, City of Hobbs, NMOCD, Grimes Land Company, City of Eunice, and residents living near Windmill Oil.

In summary, the most plausible conclusion is that the Federal-Bowers "A" No. 2 well, owned by Exxon Oil, released the crude found beneath the BLM lease in unit J. At this time, it is not known how much oil remains, how far it has migrated, which direction it has migrated, and which receptors it is likely to impact. Additional studies will be

necessary to answer these questions. However, the degree and extent of contamination is probably significant.

Suggestions for Data Acquisition

Since only historical data and anecdotal information are available, additional data are needed to determine the current extent and magnitude of problem. However, initial assessments suggest that the problem is significant. It may be advisable to initially use non-invasive site characterization techniques (surface geophysics) to optimize monitoring well placements and possibly detect the remaining crude oil. Given the relatively shallow depth to water, surface geophysics may detect a lens of oil floating on the water table. Later, monitoring wells will be needed to accurately determine the origin, extent and degree of contamination, potential receptors and the direction of migration. During well installation, cores of subsurface material can be acquired and sampled for residual phase contamination. In addition, monitoring wells can be sampled to determine the presence of free-phase crude oil and dissolved phase contaminants in ground water.

The use of direct-push well installations may be possible. Direct-push installation of wells does not produce investigation-derived waste that must be disposed. This type of installation is also faster and somewhat less expensive than conventional hollow stem auger methods. However, subsurface materials may provide too much resistance for the effective use of direct-push techniques.

References

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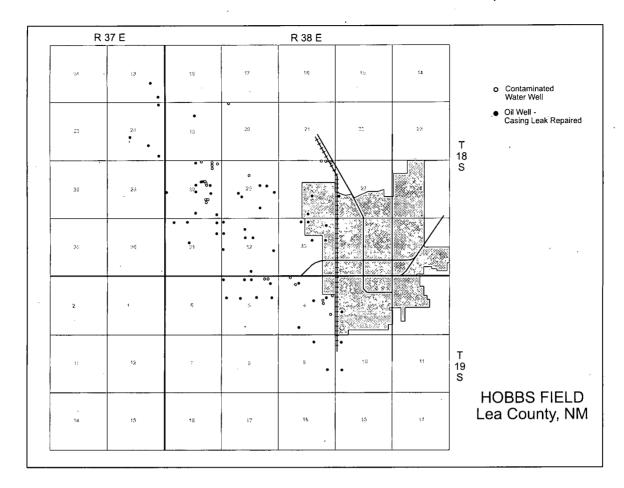
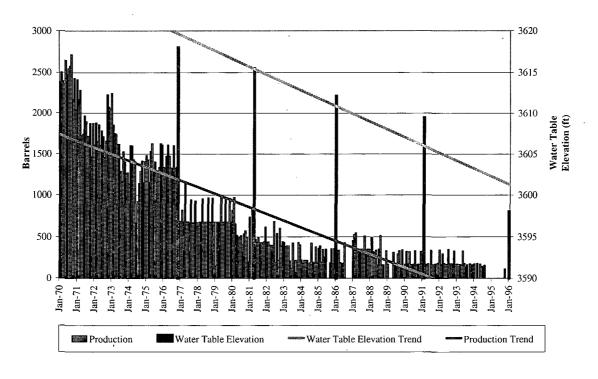


Figure 1. Leaking Production Wells and Contaminated Water Wells in the Hobbs Field.

Figure 2. Windmill Oil Production vs Water Table Elevation (1970 - 1996)



Appendix A

DOE/EIA-TR-0567

Largest U. S. Oil and Gas Fields

August 1993

Table 2. Top 100 U.S. Oil Fields Group-Ranked According to Ultimate Recovery, 1991 (Continued)

				Field Size Ranking Codes			
Rank	Location	Field Name	Discovery Year	Ultimate Proved Cumulative Annual			
				Recovery	Reserves	Production	Production
	AK	Endicott	1978	10	1	20	1
	CA	Brea-Olinda	1897	10	10	10	20
	CA	Cat Canyon	1909	10	10	10	50
	CA	Cymric	1916	10	5	20	5
	CA	Dominguez	1923	10	100	10	100
•	CA	Inglewood	1924	10	20	10	20
	CA	Kettleman Dome North	1928	10	200	5	200
	CA	Lost Hills	1910	10	5	20	5
	CA	McKittrick	1887	10	. 10	10	50
	CA	· Mount Poso	1923	10	20	10	10
	FL & AL	Jay	1970	10	10	. 10	10
	GF	Eugene Island SA Blk 330	1971	10	10	10	5
	GF & LA	Grand Isle Blk 16	1948	10	50	10	
	GF & LA			10 10			20
		Grand Isle Blk 43	1956		20	10	10
	GF & LA	South Pass Blk 27	1954	10	10	10	10
	IL	Clay City Consol	1937	. 10	20	10	20
	IL & IN	Lawrence County Division	1900	10	20	10	20
	IL	Louden	1937	10	100	10	50
	(L	Salem Consol	1938	10	50	10	50
	KS	Chase-Silica	19 29	10	50	10	50
	KS	El Dorado	1915	10	50	10	50
51	LA & TX	Caddo Pine Island	1901	10	20	10	20
	LA	Lake Washington	1931	10	50	10	20
	LA	Timbalier Bay	1938	10	50	10	50
through	NM	Eunice Monument	1929	10	5	10	20
	. NM	Hobbs	1928	10	10	10	10
	ОК	Glennpool	1905	10	100	10	50
100	OK	Healdton	1913	10	20	10	20
	OK .	Sooner Trend	1938	10	20	10	10
	PF	Hondo	1969	10	2	50	5
	TX	Anahuac	1935	10	100	10	100
	ΤX	Archer County Regular	1911	10	50	10	50
	ΤX	Diamond -M-	1940	10	20	10	
	TX & NM		•				50
	TX	Dollarhide Fostor	1945	10	10	20	10
		Foster	1932	10	10	10	20
	TX	Fullerton	1942	10	5	10	5
	TX	Giddings	1960	10	10	20	2
	TX	Hastings East	1934	10		10	200
	TX	Howard-Glasscock	1925	10	5	10	5
	TX	Keystone	1935	10	20	10	50
	TX	Salt Creek	1942	10	5	10	5
	TX	Seeligson	1938	10	200	10	200
	TΧ	Stephens County Regular	1915	10	10	10	10
	TX	TXL	1944	10	10	10	50
	TΧ	Talco	193 6	10	20	10	20
	TΧ	Thompson	1921	10	20	10	20
	TX	Ward-Estes North	1927	10	20	10	10
	TX	West Ranch	1938	10	50	10	50
	υτ	Greater Aneth	1956	10	5	10	10
	WY	Oregon Basin	1912	10	10	10	5
op 100	Volume Subt	otal (billion bbls)		82.8	14.7	68.2	1.3
F		of U.S. Total		44.0%	56.5%	42.0%	49.7%

Ranking Codes: 1=Field nationally ranked in top 10 in category; 2=top 20; 5=top 50; 10=top 100; 20=top 200; 50=top 500; 100=top 1,000; 200=top 2,000; 500=top 5,000; 1000=top 10,000; *=lower than top 10,000; *= zero volume.

Notes: •Field groups are listed in descending volumetric order with respect to the subject category (data italicized). Fields within each group are sorted alphabetically by State abbreviation and then by field name. •GF=Gulf of Mexico offshore Federal domain; PF=Pacific offshore Federal domain. •Crude oil statistics include lease condensate. •Natural gas statistics are defined on a wet, after lease separation basis.

Table 3. Top 100 U.S. Oil Fields Group-Ranked According to Proved Reserves, 1991 (Continued)

				Field Size Ranking Codes				
Rank	Location	Field Name	Discovery Year	Ultimate	Proved Cumulative Annual			
				Recovery	Reserves	Production	Production	
	AK	Granite Point	1965	.50	10	50	20	
	AK	McArthur River	1965	· 5	10	5	5	
	AK	Middle Ground Shoal	1963	20	10	20	20	
	AK	Niakuk	1984	100	10	- .	_	
	AL	Chunchula	1974	50	10	100	20	
	CA	Belridge North	1912	50	10	50	20	
	CA	Brea-Olinda	1897	10	10	10	20	
,	CA	Cat Canyon	1909	10	10	10	50	
	CA	Kern Front	1925	20	10	20	20	
	CA	McKittrick	1887	10	10	10	50	
	CA	Placerita	1920	50	10	100	50	
	CO	Wattenberg	1970	50	10	100	10	
	FL & AL	Jay	1970	10	10	10	10	
	GF	Eugene Island SA Bik 330	1971	10	10	10	.5	
	GF ·	Ewing Bank Blk 873	1991	100	10 10	-		
	GF	<u> </u>	1973	50	10	- 50	 5	
	GF	High Island SA Blk A573				. 50		
	GF	Mississippi Canyon Blk 109		100	10	20	500	
	GF & LA	South Marsh Is SA Blk 130	1973	20	10	20	10	
		South Pass Blk 27	1954	10	10	10	10	
	GF & LA	South Pass Blk 61	1955	20	10	20	5	
-a .	GF	West Delta Bik 30	1949	5	10	5	. 5	
51	LA 	Port Hudson	1977	50	10	100	10	
	MT	Pennel	1955	50	10	50	20	
	NM	Drinkard	1944	50	10	50	100	
hrough	NM	Hobbs	1928	10	10	10	10 .	
	NM	Maljamar	1926	20	10	· 20	50	
	NM ·	Monument	1935	20	10	20	200	
100	PF	Dos Cuadras	1968	20	10	20	10	
	PF	Point Pedemales	1983	50	10	100	10	
	TX	Anton-Irish	1944	20	10	20	20	
	TX	Cedar Lake	1939	50	10	50	20	
	TX & NM	Dollarhide	1945	10	10	20	10	
	TX	Foster	1932	10	10	10	20	
	TX	Giddings	1960	10	10	20	2	
•	TX	Goldsmith	1935	5	10	5	10	
	TX	Hawkins	1940	5	10	2	5	
	TX	Kelly-Snyder	1948	2	10	1	5	
	TX	Mabee	1944	50	10	50	20	
	ΤX	Means	1934	20	10	20	5	
	TX	Panhandle	1910	1	10	1	5	
	ΤX	Pegasus ·	1949	20	10	20	50	
	TX	Stephens County Regular	1915	10	10	10	10	
	TX	TXL	1944.	10	10	10	50	
	TX	Tom OConnor	1934	5	10	5	- 10	
	TX	Welch	1942	20	10	. 20	20	
	UT & WY	Anschutz Ranch East	1979	50	10	50	· 5	
	UΤ	Bluebell	19 49	20	10	50	10	
	. WY	Hartzog Draw	1976	50	10	50	10	
	WY	Oregon Basin	1912	10	10	10	5	
	WY	Salt Creek	1889	5	10	5	10	
op 100	Volume Subt	otal (billion bbis)		69.4	17.1	52.3	1.4	
Top 100	Percentage of	•		36.9%	65.8%	32.2%	53.0%	

Ranking Codes: 1=Field nationally ranked in top 10 in category; 2=top 20; 5=top 50; 10=top 100; 20=top 200; 50=top 500; 100=top 1,000; 200=top 2,000; 500=top 5,000; 1000=top 10,000; *=lower than top 10,000; -= zero volume.

Notes: •Field groups are listed in descending volumetric order with respect to the subject category (data italicized). Fields within each group are sorted alphabetically by State abbreviation and then by field name. •GF=Gulf of Mexico offshore Federal domain; PF=Pacific offshore Federal domain. •Crude oil statistics include lease condensate. •Natural gas statistics are defined on a wet, after lease separation basis.

Table 4. Top 100 U.S. Oil Fields Group-Ranked According to Cumulative Production, 1991 (Continued)

	Location	Field Name		Field Size Ranking Codes			
Rank			Discovery	Ultimate Proved Cumulative An			
			Year	Recovery	Reserves	Production	Production
	CA	Brea-Olinda	1897	10	10	10	20
	CA	Cat Canyon	1909	10	10	- 10	50
	CA	Coyote West	1909	20	200	10	100
	CA	Dominguez	1923	10	100	10	100
	CA	Inglewood	1924	10	20	10	20
	CA	McKittrick	1887	10 .	10	10	50
	CA	Mount Poso	1923	10	20	10	10
	CA	San Ardo	1947	5	5	10	10
•	FL & AL	Jay	1970	10	10	10	10
	GF	Eugene Island SA Blk 330	1971	10	10	10	5
	GF & LA	Grand Isle Blk 16	1948	10	. 50	10	20
	GF	Grand Isle Blk 43	1956	10	20	10	10
	GF & LA	South Pass Blk 27	1954	10	10	10	10
	IL	Clay City Consol	1937	10	20	10	20
	IL & IN	Lawrence County Division	1900	10	20	10	20
	iL	Louden	1937	10	100	10	50
	IL.	Main Consol	1906	20	50	10	50
	IL & IN	New Harmony Consol	1930	20	50	10	5 0
	IL	Salem Consol	1938	10	50	10	50
	KS	Chase-Silica	1929	10	50	10	50
	KS	El Dorado	1915	10	50	10	50
51	LA & TX	Caddo Pine Island	1901	10	.20	10	20
٠.	LA	Lafitte	1935	20	50	10	50
	ĹΑ	Lake Washington	1931	10	50	10	20
hrough	LA	Timbalier Bay	1938	10	50	10	50
mough	NM	Eunice Monument	1929	10	5	10	20
	NM	Hobbs	1928	10	10	10	10
100	OK	Glennpool	1905	10	100	10	50
.00	OK	Healdton	1913	10	20	10	20
	OK	Sooner Trend	1938	10	20	10	10
	TX	Anahuac	1935	10	100	10	100
	TX	Archer County Regular	1911	10	50	10	50
	ΤX	Cogdell	1949	20	50	10	50
	TX	Diamond -M-	1940	10	20	10	50
	TX	Foster	1932	10	10	10	20
	TX	Fullerton	1942	10	5	10	5
	TX	Hastings East	1934	10	200	10	200
	TX	Hendrick	1926	20	50 50	10 10	100
	TX	Howard-Glasscock	1925	10	5	10 10	5
	ΤX	Keystone	1935	10	20	10	50 50
	ΤX	Salt Creek	1942	10	5	10	5
	τχ	Seeligson	1938	10	200	10	200
	TX	Stephens County Regular	1915	10	10	10	10
			1944			10	50
	TX TX	TXL Talco	1936	10 10	10 20	.10	20
	ΤX	Thompson	1921	10	20	10	20
	ΤX	Ward-Estes North	1927	10	20	10	10
	ΤX	West Ranch	1938	10	50 50	10	50
	UT ·	Greater Aneth	1956	10	5	10	10
	wy	Oregon Basin	1912	10	10	10	5
Гор 100		total (billion bbis)		82.4	13.9	68.5	1.3

Ranking Codes: 1=Field nationally ranked in top 10 in category; 2=top 20; 5=top 50; 10=top 100; 20=top 200; 50=top 500; 100=top 1,000; 200=top 2,000; 500=top 5,000; 1000=top 10,000; *=lower than top 10,000; -= zero volume.

Notes: •Field groups are listed in descending volumetric order with respect to the subject category (data italicized). Fields within each group are sorted alphabetically by State abbreviation and then by field name. •GF=Gulf of Mexico offshore Federal domain; PF=Pacific offshore Federal domain. •Crude oil statistics include lease condensate. •Natural gas statistics are defined on a wet, after lease separation basis.

Table 5. Top 100 U.S. Oil Fields Group-Ranked According to Annual Production, 1991 (Continued)

•				Field Size Ranking Codes			
			Discovery	Ultimate	Proved	Cumulative	Annual
Rank	Location	Field Name	Year	Recovery	Reserves	Production	Production
	, AL	Hatters Pond	1974	50	. 20	100	10
	CA	Huntington Beach	1920	2	. 5	2	10
	CA	Mount Poso	1923	10	20	10 -	10
	CA	San Ardo	1947	5	5	10	10
	CA	Yowlumne	1974	50	50	50	10
	CO	Wattenberg	1970	50	10	. 100	10
	FL & AL.	Jay	1970	10	10	10	10
	GF.	East Cameron SA Blk 321	1971	50	20 "`	100	10
,	GF	Eugene Island SA Blk 361	1973	100	20	100	10
	GF	Grand Isle Blk 43	1956	10	20	10	10
	GF	Green Canyon Blk 184	1981	100	20	500	10
	GF & LA	Main Pass Blk 73	1975	50	20	50	10
	GF ·	Main Pass SA Blk 311	1977	. 50	20 .	50	10
	GF	Mississippi Canyon Blk 281	1976	100	50	100	10
	GF	South Marsh Is SA Blk 128	1976	-50	50	50	10
	GF	South Marsh Is SA Blk 130	1973	20	10	20	10
	GF & LA	South Pass Blk 27	1954	10	10	10	10
	GF GF	South Pass Blk 49	1974	50	20	50	10
	GF	South Pass EA Blk 62	1965	50 50	20	50	10
	GF & LA	South Pass SA Blk 78	1973	100	20	100	10
	GF GF	South Timbalier Blk 52	1950		20	100	10 10
51	GF			50			
51		West Delta Blk 109	1975	· 50	20	100	10
	GF	West Delta Blk 79	1966	20	20	20	10
	LA	Port Hudson	1977	50	10	100	10
through	LA	South Pass Blk 24	1950	5	20	5	10
	NM	Dagger Draw North	1964	100	20	200	10
	NM	Hobbs	1928	10	10	10	10
100	OK.	Golden Trend	1945	5	20	5	10
	OK	Hewitt	1919	20	20	20	10
	ОК	Sooner Trend	1938	10	20	10	10
, ,	PF	Beta	1976	20	5	50	10
	PĘ.	Dos Cuadras	1968	. 20	10	20	10
	PF	Point Arguello	1981	20	2	500	10
	PF	Point Pedemales	1983	50	10	100	10
	TΧ	Alabama Ferry	1983	100	50	200	10
	ΤX	Cowden South	1930	20	20	. 20	10
	TX & NM	Dollarhide	1945	10	10	20	10
	TX	Goldsmith	1935	5	· 10	՝ 5	10
	TX:	Katz	1951	50	50	50	10
	.TX	Prentice	1950	20	5	20	10
	ŤΧ	Stephens County Regular	1915	10	1 10	10	10
	,TX	Tom OConnor	1934	5	10	5	10
	TX	Ward-Estes North	1927	10	20	. 10	10
	TX	Wasson 72	1940	20	5	50	10
	ÜΤ ·	Altamont	1960	50	20	50	10
•	ŰΤ	Bluebell	1949	20	10	50	10
	UT	Greater Aneth	19 56	10	5	10	10
	· WY	Hartzog Draw	1976	50	10	50	10
t	WY	Lost Soldier	1916	20	20	20	10
	WY	Salt Creek	1889	20 5	10	5	10
			1003				
Top 100		total (billion bbls)		68.0	15.8	52.2	1.5
Τορ 100	Percentage (of U.S. Total		36.1%	61.0%	32.1%	56.0%

Ranking Codes: 1=Field nationally ranked in top 10 in category; 2=top 20; 5=top 50; 10=top 100; 20=top 200; 50=top 500; 100=top 1,000; 200=top 2,000; 500=top 5,000; 1000=top 10,000; *=lower than top 10,000; -= zero volume.

Notes: •Field groups are listed in descending volumetric order with respect to the subject category (data italicized). Fields within each group are sorted alphabetically by State abbreviation and then by field name. •GF=Gulf of Mexico offshore Federal domain, •F=Pacific offshore Federal domain. •Crude oil statistics include lease condensate. •Natural gas statistics are defined on a wet, after lease separation basis.

BEFORE THE NEW MEXICO OIL CONSERVATION Hobbs Sandaces, New Mexico April 14, 1965

REGULAR HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

IN THE MATTER OF:

APPLICATION OF JOSEPH O. WALTON TO REMOVE AND MARKET OIL FROM THE OGALALLA FORMATION, LEA COUNTY, NEW MEXICO

Case No. 3235

BEFORE:

GOVERNOR JACK M. CAMPBELL

SECRETARY-DIRECTOR A. L. PORTER

LAND COMMISSIONER GUYTON B. HAYS

TRANSCRIPT OF HEARING



MR. PORTER: Call Case Number 3235.

MR. DURRETT: Application of Joseph O. Walton to remove and market oil from the Ogalalla formation, Lea County, New Mexico.

MR. PORTER: I'd like to call for appearances in Case Number 3235.

MR. WALTON: Mr. Porter, my name is Joseph O.

Walton. I am the applicant in this case, and I represent myself

MR. PORTER: Are there any other appearances in

Case Number 3235? ... The witness may be sworn.

JOSEPH O. WALTON, the witness, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. WALTON: If it please the Commission, my name is Joseph C. Walton. I am an attorney, living in Lovington, New Mexico, and have lived in Lea County for approximately thirty years. I make application here this morning to salvage oil that is polluting underground water in the northwest part of the Hobbs Pool. The bound forms I have just given to each of the Commissioners, the attorney and the member of the staff are eighteen exhibits that I propose to offer, and do offer at this time. They are identified by subject and date in the index, and each of those exhibits is taken from the official files of



the Office of the Oil Conservation Commission of New Mexico.

I will not go into those exhibits individually and in detail;

but I now offer those exhibits in evidence, and ask this Commission to take judicial knowledge of their own records and the exhibits I have now offered.

MR. PORTER: Are there any objections to the admission of Mr. Walton's exhibits?

GOVERNOR CAMPBELL: Mr. Walton, Exhibit 18 appears to be handwritten notes of some sort. Are these from the files of the Oil Conservation Commission?

- A Yes, sir.
- Q In Hobbs?
- A No, sir.--Yes, sir, in Hobbs.
- Q Is there an indication on there by whom the notes were made?

A There are no indications, nor the date of these. The reason is that it gives a brief history of the casing procedure of the oil companies in Lea County, and also of the leak. It is offered merely for its historical value, and it was written in longhand by an unidentified employee, I assume of the Commission.

Q It appears to be made by several people. You're not offering this as any official position of the Oil Conservation Commission?

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No, sir, none of those exhibits are anything that is an official position or policy of the Commission-they are merely factual exhibits.

MR. PORTER: If there is no objection, the exhib: will be admitted into the record.

MR. WALTON: As far back as 1953 one of the major oil companies in Lea County reported to this Commission that they had uncontrolled flow of oil in a bradenhead of the well they were then producing, and they asked authority from this Commission to market at least 3,000 barrels of oil that had then been produced. Before the source of the oil was discovered I believe about 8,000 barrels of oil wore marketed from that bradenhead of this oil company's well. In testing the well of this company it was determined that the source of the cil wasn't that well; and this company stated that they were notifying offsetting oil companies of their problem and for them to take appropriate action. This Commission at that time in 1953, did take appropriate action and required tests for leaking casing and the repair of them. The next thing we know officially of the leaking conditions of wells in Lea County and the Hobbs Pool was a resolution of the City Commission of the City of Hobbs, calling upon this Commission to take affirmative action to stop contamination and take such steps as appropriate to relieve contamination that had already been

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This Commission took such action. caused.

GÖVERNOR CAMPBELL: When was this?

In 1954. In 1957 a surface owner in the northwest part of th Hobbs Pool attempted to drill for water. In drilling some thirteen wells he found oil on the top of the Ogalalla formation. The Ogalalla formation is the source of all potable water of Lea County. Quite a furore was raised at that time, and the Commission called a special meeting in Hobbs for October 9, 1957. All operators were notified of this meeting, and it was attended by quite a few people, including representatives of all operators of Lea County. At that time Mr. Porter appointed a committee to study condition of the water in the northwestern part of the Hobbs Pool, and authorized or directed this committee to make reports and recommendations as to how to alleviate the contamination in the existing wells and to set up rules and regulations -- suggested rules and regulations for this Commission to follow to assure no more future contamination. This committee was composed of representatives of the oil companies or operators of Lea County, the City Commission, the State Engineer, and several others; but anyhow, they made a very extensive, exhaustive study, and in September 1957 they submitted their final report.

This final report found some thirteen or fourteen wells in this area we spoke about that were contaminated by



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gas; some of them several miles -- in other words, this wasn't confined to any particular area. They found some seven or eight wells contaminated with oil. I believe a great many people here were present at that meeting, and actually went out and saw some contamination of some of these water wells. The Commission then directed that very rigorous steps be taken to test the oil wells for leaks, and to repair them in those leaks that were found. I believe since the inception of this field, it has been found that about sixty-six wells have at one time leaked. Since 1957, as a result of the report, I believe this Commission has required that wells be tested at least four times a year, and one of those tests in the presence of a representative of the Commission. As far as I know, as far as I have been able to find out, there are now no wells leaking and there is no continuing recharge to the contamination process out in the area I propose to operate.

Among the things this committee reported was that the Ogalalla formation is the fresh water formation of Lea County. Over a period of years the water level has decreased, thereby having what they term "dry water sand" at the top of the formation. That is where the oil has accumulated that I propose to salvage. The committee also reported that over a period of years, this—which they assumed at that time the oil was confined to a relatively small area—would, as the

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water table decreased, tend to spread out in various directions, In spreading out, the report states that at least twelve feet of the oil that reached a dry water sand would remain in that sand, unrecoverable, and of course we know that once water sand has been contaminated or saturated with oil, it's almost impossible to decontaminate it to the extent that, even though it refills with fresh water, that that water would be potable. Also, as the water table declines the oil will follow it down, and as it follows it down it again contaminates the fresh water strata, that is forever lost for fresh water.

They made several recommendations as to how the water could be decontaminated to make it potable, and among them was that the owner of the land should take extensive steps in his casing procedure, and that if he then encountered any gas in the water it could be cascaded over two or three times, over activated charcoal, to make it potable. It also suggested to land owners who owned the land that had oil, to accumulate the water and oil on the surface and let it out and skim it off the top. That is what I am asking to do. I am asking to comply with the recommendation of that committee, and in doing this I believe I can salvage some oil off the top of the water that will have a market value. It has been stated that if a land owner in this area drilled a well for water and encountered oil on top of that water sand, he could produce or he



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could bail out that water and the oil indefinitely, without any control of this Commission or anyone else, provided he did not attempt to market the oil. In other words, he could skim the water off and make potable water, and he could burn the oil or otherwise dispose of it and destroy it, and this committee would have no control over him in trying to clear up his own water. Of course, doing that would be a waste; and this Commission is created by law to prevent waste, and I am attempting to get authority to dispose of this oil on an economical basis. These land owners wanted oil. It is not, in my opinion, any quantity of oil that accumulates; and in having any new source, the quantity of oil is limited, the amount is unknown; I don't know who could estimate how much oil is on top of this water, but in my opinion I can go in there and salvage this oil for an economical disposal of the oil itself, which would be helping the land owners and helping to decontaminate the water and prevent spread in other directions: and also, as the water table declines, to help prevent the contamination of additional strata of water-bearing sand.

About two or three months ago--about three or four months ago, a man out in this northwestern part of town attempted to drill a well for water. He encountered oil. He moved over and drilled another well and again encountered oil. In the first well, however, he attempted to case off the oil--

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he went down about 110 feet and he was unable to case it off, and he was still getting contaminated water, so he moved over and tried another well and encountered the same difficulty. He then came to see me--having had actual knowledge of this contamination since 1953 and particularly in 1957, when, as an attorney, I had represented a land owner and attempted to pinpoint the responsibility of these leaks, and I filed a lawsuit to attempt to do that. The case never went to trial and was finally dismissed because of my inability to prove the source of this oil and pinpoint it to any well, any group of wells o any ownership. I am of the opinion that today you still cannot pinpoint it; you still cannot say, "This well is contaminating my water, and this company is liable for it"--I don't think that can be done.

So when this man came to see me some four months ago, and having known of this and wondered in my own mind why somebody had not attempted to salvage the oil, if it was salvageable, I decided to try it myself. So I went out to this man's land. The well was open; was in casing. I watched them bail water and oil out, and I determined that it looked sufficiently good at that time, or bad for the landowner, that I sought technical assistance from Mr. Pat Ballew of the Seminole Safety Anchor Company to help me rig up some economical way that oil could be skimmed, so we came up with this weird looking



windmill you see in my exhibit. It's on a gin pole and there's a regular windmill on top. The reason it's on a gin pole is it's anchored down by four wires and when we pull the tubing or casing we loosen up two of the guys and pull the windmill back and we don't have to take it down to work on it. That's the reason it's not on four posts.

MR. PORTER: Is that still up, after the wind Saturday?

A Yes, sir. I've been shut down since the 24th of last month. Then after I saw the mill could work, I went to Mr. Porter in Santa Fe and told him of my problems and intention, and asked permission to continue to test this process of production or salvage. When I use the word "production," I mean "salvage." I'm not producing; I'm salvaging oil on top of the water. I'm not a producer. Mr. Porter at that time consulted with other members of the Commission and they gave me authority to test the windmill for thirty days, or until I produced 100 barrels of oil. My thirty days was up the 24th of last month, and I had at that time produced approximately 100 barrels of oil. The paper says I produced 140. That 40 barrels was produced before I went to Mr. Porter and asked his permission, and I've still got it. I've sold 100 barrels, but I've still got 40 in the tank.

Now at this time, with permission of the Commiss-

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ion--it won't take but just a very few minutes--I'd like to demonstrate to you how I propose to salvage this oil. We salvage water on the downstroke rather than the upstroke, and we are actually literally skimming it off the top of the water and with permission of the Commission I'd like to show you this little demonstration. This is the end of a three-inch casing that we insert in the bottom of the well. This oneinch pipe goes through this casing and has an opening -- a oneinch opening in the bottom. The fluids come in through the sides. Now, on that one-inch pipe I have constructed a piston which is of the simplest type, and this is a cylinder that sets over the top of this piston. Of course here I have a cut-off valve that will keep the oil from going back into the well, and also keep it from going--flowing back into the well I have pumped. This also has a one-inch opening. My sucker rod is one-inch pipe. The sucker rod comes up to the top of the surface and then has a tee over to the tank where I produce the fluids. The one-inch pipe is clamped to the production, rod of the windmill. Now, between the -- on the downstroke we pump the fluid; on the upstroke we fill the cylinder, and every time the windmill turns over it's going to pick up whatever fluid is in there. Then if it ever becomes necessary to return any water that we might be producing, back to the water surface from your separator on the surface. The outlet to the

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separator can come right down to the pipe and casing, and of course as you saw a few minutes ago, we have an outlet here that will return water to the water formation. So literally we can set that casing on top of the water and we're not even putting any influence on the water below it, because we're drawing it in from the side. If any fluid gets in that little trap in the bottom there, we're going to produce it. We're going to produce it with a windmill, and every time that windmill goes up or down you're pumping fluid if there is any there. If there is no fluid there it will do no damage for the windmill to pump dry for six months; but then when fluid does get in there we will pick it up and take it out.

The presence of the oil on top of the water is a nuisance; it's a public nuisance as well as a private nuisance to the people who have land out there. It's a continuing nuisance; it's still there; and we've known it's been there since 1953, twelve years ago. It's a creeping nuisance, in that it's creeping out further. Your committee reported that eventually it would dissipate itself into new water-bearing sands by this 12% that it will hold before it would reach a point of saturation. Now, I'm asking--how this oil will flow into that, the rate of flow I don't know. I don't know how much oil is there. During this thirty-day period I produced on the average, three barrels a day. How long that will last I

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don't know, but you can see from our operation the simplicity of it—the simplicity of the windmill. I could let the wind—mill set out there and if I got half a barrel a day, or a quarter a day, after I have recovered my initial investment it's all gravy—I don't have any power problem; if the oil comes in I'll pull it out if the wind blows.

GOVERNOR CAMPBELL: You don't have any problem with the wind blowing, do you?

A No, sir; every morning I look out to see if the wind's blowing. I enjoy seeing it--I guess I'm the only person in Lea County that welcomes a sandstorm.

MR. PORTER: I don't know if this Commission has jurisdiction over "gravy."

barrels a day, but I'm just telling the Commission that to take care of the saturated point of this sand, I believe we can do it. I don't believe we can do it by one well each 2½ acres; I don't believe the porosity of this field will do it. It may take four wells for a 2½-acre tract—this area was subdivided for residences in 2½-acre tracts. I feel reasonable confident that at least four wells will do it; but since I'm'salvaging oil, since I'm abating a nuisance, I don't think this Commiss—ion should concern itself with how I do it. I think you ought to say, "Joe, go out there and get that oil off any way you can,



because it's a nuisance which ought to be off," and actually what this meeting should be about, Mr. Porter--there ought to be a subsidy granted to persons like me that would take it off. I think we know it was an unavoidable mistake--let's say, an unavoidable event, that this oil got onto the water sand, but it is there, that is a fact. It is a nuisance which should be removed, and what I'm asking you to do is to not grant me permission to operate as an oil operator; I operate as the New Mexico Water Company -- I'm asking you to permit me to market the oil I'm able to salvage from this nuisance. I don't know how much I'm going to produce -- I don't know how much I'm going to salvage. It may be that I could salvage ten barrels a day at first, and then it may drop down to nothing, so I can't say I want authority to salvage so many barrels of oil. I want authority to sell all the oil I am able to salvage, regardless of how I produce it -- I mean salvage it.

Now, somebody's got to regulate it. I don't mind being regulated: I'll conform to any regulation this Commission or the State Engineer imposes, because I know when you deal with a commodity that goes into the Interstate Commerce Commission there's a possibility of hot oil operation. I know somebody's got to regulate it and I'm ready to be regulated in any reasonable way in marketing the oil.

That is my case.

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CROSS-EXAMINATION

MR. PORTER: In other words, you're not seeking permission to produce, but to market?

> A Right.

MR. PORTER: Does anyone have a question of Mr. Walton?

MR. IRBY: If I may, I'd like to ask clarification of one point Mr. Walton made in his statement, when he spoke of returning the water to the Ogalalla sands. I'm not sure how he's going to do this and what treatment the water will receive prior to return to the sand; and if he will, I'll appreciate his clarification of that point. I am Frank Irby, State Engineer's Office.

Mr. Irby, any type of settling process on the surface that would settle the water out would be advisable. I have here a little sketch that shows an oil and water separator that would be adjacent to the production. Then you would take the oil from that as it settles off to go over to the storage tank. I'm not saying we're going to return the water unless with the State Engineer's approval, but if we did return it it would be bled off the separator directly into this casing and go into the same source from which we were pumping.

After going through the separator?



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After going through the separator.

MR. PORTER: Does that answer your question? MR. IRBY: Yes, sir.

GOVERNOR CAMPBELL: Is that area within the defined limits of a declared water basin?

Yes, sir. I believe I have talked to the State Engineer about it. I would appreciate it if Mr. Irby would make a statement to this Commission as to the stand of the State Engineer on my proposed operation. Mr. Irby, would you-

MR. PORTER: Are you in a position to do that at this time?

MR. IRBY: Is the Commission ready for statements in the case?

MR. PORTER: Well, we're ready for statements at any time, of course. If you want to go ahead and make your statement, it will be fine. Anyone else may -- we're not going to dismiss Mr. Walton yet; if anyone wants to ask a question of him he may. I think it might be appropriate if you would make your statement at this time, if you are prepared to do so, Mr. Irby.

MR. IRBY: To be sure I won't contradict what I said before, I'll refer to my notes. Mr. Chairman, members of the Commission: It is the position of the State Engineer that it would be advisable to remove this oil from the surface of

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the water in the Ogalalla sands, if it is physically feasible to do so. We realize that this is a contaminate; we would like to see it removed. We realize, of course, that the regulation of everything pertaining to oil and gas is vested in the Commission and not in the State Engineer. We do take a strong interest in the preservation of the quality of the water as well as the production of the water. This well Mr. Walton has his equipment on now is a permitted well within the Lea County underground water basin. I have studied, some time ago, the report Mr. Walton refers to, made by the committee appointed by the Commission, and I know of no subsequent reports on this subject. If there is regulation as Mr. Walton suggests, I think it should be through the Commission. The State Engineer is basically concerned with water problems, and only incidentally concerned with oil problems. The State Engineer is ready and willing to lend any assistance to the Commission or to any committee the Commission appoints to help alleviate this situation. It isn't the intention of the State Engineer to impose his thoughts or theories on the Commission.

That's all I have, sir, unless there are some questions.

GOVERNOR CAMPBELL: Nr. Irby, don't you agree, or do you agree that the situation here is obviously one of oil being present in a water reservoir, rather than a large volume 120 SIMMS BIDG. . P. O. BOX

of water being present in an oil reservoir?

MR. ÎRBY: Yes, sir.

GOVERNOR CAMPBELL: That heing the case, then jurisdiction—and I'm not arguing the point—I think would have to be a cooperative effort, but basically it is a water problem?

MR. IRBY: It's certainly a problem to the basin and to the water users, and for that reason it may be classified basically as a water problem.

GOVERNOR CAMPBELL: Does your study of the 1957 report and your knowledge of this water basin satisfy you that there is no present recharge of oil into this area?

MR. IRBY: I wasn't satisfied of it at the time the report came out, but the quarterly casing surveys confirms me that this is certainly true today.

GOVERNOR CAMPBELL: Mr. Walton, who did you get your leases from?

A I don't have leases; I have agreements with the surface owners to permit me to come in there and damage their property and erect this weird water contraption.

Q No royalty?

A I pay them--if I salvage any fluid that has a market value, I pay them a certain part of it for the privilege of being on their surface. I failed to state this, but



nuisance?

in my opinion this oil has been known to exist since 1953, and no person, even after this committee made its extensive report, attempted to salvage any of that oil; they have made no attempt to decontaminate the water; and the oil present on top of this water sand is unclaimed, abandoned, wild, fugitive, and it belongs to whoever captures it.

GOVERNOR CAMPBELL: Salvages it?

A Salvages it---yes, sir.

MR. PORTER: Does anyone else have a question?

MR. NUTTER: Mr. Walton, you mentioned that this
a private nuisance and a public nuisance, and you also declared
that it is a creeping nuisance. How has it been a creeping

A Because of the committee's report, for one thing, that says there will be a tendency for the oil that accumulated in what they considered then a small area, to follow the water table on out, which is physically—from a physical standpoint is the natural thing for it to do. And another thing, only two weeks ago there was one man in this same area that I was talking to, that had up to this summer been able to produce fresh water from his land. About two or three weeks ago he was pumping water into his yard to irrigate it, and it developed oil. It has ruined his yard.

Q You mean it might be an increasing nuisance in



the future--the water table had been lowered, and oil suddenly became available, or--

A A creeping nuisance, both horizontally and laterally and vertically.

Q The committee in 1957—this was shortly after the casing leaks were first detected—claimed this oil may have been moving laterally at that time; but is there any evidence today that the oil is moving laterally?

A Other than this one well I spoke about, and other than the physical characteristics of oil on water sand—that as the table declines the oil is not just going to perpendic—ularly cut off, it's going to seek its lowest level; and to me that is a physical fact—we know it will tend to do that; if you have a foot of water sand and reduce the oil from adjacent sant it's going to creep out, and it certainly is a creeping nuisance downward.

Q As the water table would decline, the oil will follow the water table down?

A Yes, sir.

How would you dispose of the produced water, if you were to dispose of it, in the Ogalalla formation?

A I'm going to produce as little water as is physically possible. That that I am going to dispose of, I will settle out as I have diagrammed, and return it through three-



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- Q The Ogalalla water--and if I'm wrong, Mr. Irby, correct me--but I think the Ogalalla water does have a certain amount of movement to it?
- A According to this committee report it moves from elve to eight inches a day, but the committee also says it will be a tendency for oil on top of the water to stabilize itself, because as the water moves, the oil is going on into a new water-bearing sand, and as it goes into the new water-bearing sand, 12% of it is going to be absorbed before the sand is saturated.
- Q If the water is static, or moving at the rate of twelve inches a day, the injection of produced water back into the Ogalalla is going to make the movement more extreme?
- A Such a very, very small amount that it wouldn't be noticeable. If I produce water, maybe once a day or once a week I'm going to be putting it right back into the well I took it out of, and by the time I have put the water back in, the water that is moving twelve inches a day is still in the well bore.
- Q This is the point I'm trying to make. If the water is more or less static and you produce some water and oil, and re-inject the water, isn't there a possibility that it would disturb the static flow in the reservoir and cause the oil to



spread more?

A I don't believe so. I'm not going to put in more water than I have taken out.

Q But in the time you've taken this water out and that reservoir has come to a stabilized condition again, when you put the water back in, something has to move in order for that water to have a place to go, and you're going to move oil and water; and won't this cause the oil to spread?

A I believe if it did, it would be so nominal, because when you produce water or oil you have a tendency to
create a cone of depression, and when you put the water back
in you would fill the cone of depression you created maybe two
or three days ago.

Q That cone is going to have to be filled with something?

A It would be filled with air or oil. I'm hoping it will be filled with oil, coming from the side--that would be ideal; and if I can put as many as four wells on each 2½ acres I've got a bigger area I'm draining from.

Q When you put water in, that would cause the cone of oil to be spread?

A No, sir, it's going to cause the cone to be filled back up.

Q With water?



NEW MEXICO

A Yes, sir. In other words, I'm going to produce the same water two or three times, but when I produce the water I think I'm going to produce oil with it.

Q In the operation of your civic project, if this happens to be on a tract on which the surface rights belong to some resident who has a home there, and the state owns the mineral rights to the tract, do you think the State is entitled to a royalty from that oil?

A Fortunately none of this land belongs to the State. I do understand that Mr. Bolton, the attorney for the Commission of Public Lands, has stated that if any oil is produced from State land, regardless of the source, somebody is going to have to pay royalty to the State.

Q This case is advertised, "Joseph O. Walton seeks to remove and market oil from the Ogalalla formation, Lea County, New Mexico," without restriction to any particular area; and in the alternative, you seek authority to remove and market oil from three test wells in Section 30. It seems to me that the State does have land in Lea County, New Mexico.

- A The State owns the southwest quarter of Section 30
- Q Are you in effect, by saying that no State land is involved, taking the alternative route on your application, because the first application-
 - A Yes, I see what you mean.



NEW MEXICO

PHONE 243-6691 . ALBUQUERQUE,

- Q Your first application seeks authority to remove and market oil from Lea County--
 - A Yes.
- Q --Which includes State Land, Federal and and fee land.
- A Yes, but I'm not going on any land without permission of the owner of the land. I wouldn't even think of going on State land without the approval of the Commission of Public Land, no more than I would think of trespassing on some surface land without permission.
- Q In the event of a fee lease where the oil operator has a lease entitling that operator to oil and gas rights from the surface to the middle of the earth, are you trespassing on their lease?
- A No, sir, for this reason: When they got that oil lease they got it from a mineral owner. The mineral owner owned only what was on that least at the time he executed the lease. This oil wasn't on that land; it wasn't present, in the same position it was at the time the lease was executed. The mineral owner warrants his title to the oil company, to the lessee. How can he warrant title to something that doesn't exist at the time he gives the lease? This wasn't in existence.
 - Q Is there any positive evidence or proof that this



oil wasn't present at the time the lease was issued?

testify to it; all the land owners can testify to it. The report of this committee went on an assumption that this was a contamination that did not exist except by wells that had leaked from production of oil at ground depth. I can get you any number of ranchers and farmers and land owners that have drilled wells that were not contaminated until the oil industry came in and drilled their wells. Another thing—this oil, according to this committee report, is from the San Andres formation and not from the Ogalalla formation. I believe this Commission can take judicial notice of the law of nature that there is no oil in the Ogalalla formation. This is a contamination that has got there from other sources.

Q I think they can take judicial notice of the fact that there is oil in the Ogalalla now.

A Yes, sir; and if I get authority to do this, I'll go out right after this meeting and turn my windmill on.

Q How much of this oil can you remove actually, as a civic project, to improve the quality of the water? Can you remove 100% of the oil from the water?

A No, nobody can remove 100%. I have stated before what the committee reported, and I have to agree that there's going to be 12% that's going to hold before it gets saturated.



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• PHONE 243-6491

120 SIMMS BLDG. . P. O. BOX 1092

I got the impression from your direct testimony that this was primarily a civic project.

No, sir, I'm very sorry if I left that idea. I said that while I was doing it, it would be performing a civic service. That's true; I'll stick by it. I would say if we can go out there and drain every bit of oil, even that 12%, off, a land owner would be much prouder of that than my going out and skimming the decontaminate off that fresh water.

I still would like clarification of your application, which is for two different things--first, authority to remove and market oil from the Ogalalla without restriction concerning the method of operation or quantity of oil removed --tlat's the first application; and the alternative seeks authority to remove and market oil from three test wells in Section 30, without restriction concerning the method of operation or quantity of oil recovered. You stated that as far as State land was concerned you would not remove any oil from



any State lease because of your royalty; so in effect does that limit your application to fee leases or Federal leases?

A No, sir, it does not, for this reason: If I can go to the Commissioner of Public Land and tell him that the water on top of this formation is contaminated and that I can see that I can pay him a royalty, I would certainly try to get that authority from the State Land Office--yes, sir, I would try to get that authority. Whether he would grant it or not, I don't know--I've never approached him.

Q Have you discussed the matter with the United States Geological Survey, in regard to Federal leases?

A No, sir, but I would say the same thing--if they would give me such a lease and I was convinced that there was salvageable oil on top of the water formation, I would not hesitate to approach them and seek a lease.

Q Would this be a water lease or an oil lease?

A Well, I used the wrong term. I would seek an agreement with them that I could go on their land to erect such equipment as I needed—it would not be a lease. I don't think you can give a lease to salvage something that you don't own, and in my opinion this oil as it is now is not owned—it's abandoned, it's unclaimed, it's just like a deer on the range—it doesn't belong to the surface owner; it belongs to whoever kills it.



Q This almost sounds like a recapitulation of the law of capture, which was the original law of oil and gas production, which has more or less been abandoned over the last several years. In other words, this doesn't belong to anyone?

A That's right. I'm familiar with the law you spoke of, that oil wasn't owned-in-place.

- Q It doesn't belong to anyone?
- A Yes, sir.

GOVERNOR CAMPBELL: He's speaking of the oil involved in this application-this particular application.

MR. NUTTER: And it does belong to the man who reduces it?

A Yes, sir.

MR. NUTTER: No further questions.

REDIRECT EXAMINATION

BY MR. DURRETT:

Q I have one or two. First, I realize the case has been advertised concerning Lea County, but in fact you don't intend to operate all over Lea County?

- A No, sir.
- Q What areas are you speaking about?
- A I'm speaking about the area I have shown in Exhibit

 2. It's entirely in Section 30, Township 18 South, Range 38

 East, and almost entirely within the east half of that area.



You'll notice that at the top of the mar here are the areas I personally know, that have water wells contaminated with oil. Below in the southeast quarter of Section 30, I know of no test wells, but I have extended it by dotted lines, since I think it goes in that direction. The well I was operating was in Section 30—I mean in Tract 33 on Exhibit 2, and that's just across a little road from the southeast quarter of Section 30, and there's no reason to believe that if you have a contaminated oil well thirty feet away, it wouldn't be contaminated across the road.

- Q But you're speaking of Section 30?
- A That's right. I have limited it to those areas I know or believe are contaminated by oil on the surface.
- Q I believe you stated there is a mineral lease involved that has been issued on this land?
 - A Yes, sir--it was fee land.
 - Q Who would be the lessee?
- A There are two lessees. I believe the northeast quarter there is owned by Getty Oil Company and operated by Tidewater; and I believe the south lease is owned by Humble Oil. On Exhibit 1 is a map that does show ownership, and I have ringed in red not all the wells in Hobbs Pool that have leaked, but those in the immediate area.
 - Q Have you discussed your proposal with the lessees?



- A No, sir, I have not.
- Q I believe you stated on direct, and I think in answer to a question from the Governor, that you did not propose to pay royalty, as such, on your cil recovery?
 - A No.
- Q Now, that would be true, as far as your thinking right now, if you would move over to some State acreage, is that correct?
- A Yes, sir, and it would be on such terms as the Commission of Public Lands thought was advisable to the State.
 - Q What about taxes?
- A I assume any oil that goes into commerce--that taxes will have to be paid on it just as though it was produced oil.
 - Q Do you propose to pay those taxes?
 - A Yes, sir, I certainly would.
- Q One other question. Am I correct—let me rephrase that. Are you or are you not asking the Commission to determine who has a legal right to produce the oil we're talking about?
- A No, sir, I am not. I don't believe this committee could determine that, because if it did, then it would have to be made a party to every lawsuit involving a dispute over royalty.



Q Then are you asking the Commission to authorize oil to be recovered if it can be legally done?

A No, sir, not exactly. I'm asking them to authorize me to recover or salvage oil. The title to it is a legal question that has never been presented. I think I'm on sound ground to say that it is abandoned and belongs to the taker, but if there is any dispute as to the title as to the oil, that would be between me and whoever claims it.

- Q You don't want the Commission to determine that?
- A No, sir.
- Q Now, pursuing the same line of thought, am I correct in saying that you are not asking the Commission to authorize you as an individual to do this--you are asking the Commission to authorize any party who desires to skim oil off the Ogalalla formation, and market it?

A That's correct. I'm not asking for any exclusive. I don't know if the Commission has authority to grant any exclusive, right for me to do what I say I want to; I'm asking them to establish that I can do it. If anybody else wants to get the same authority they can use this hearing, I assume, to base that authority on, and I assume that if this Commission gave me that authority it wouldn't necessitate another hearing—it would authorize Mr. Porter to grant authority to anybody to do what I want to do.

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- Q That would cover anybody that wanted to go out and do this?
 - A Yes, sir:
- Q Am I also correct that you seek authority to be removed from all rules the Commission has, concerning the production of oil?
 - A Yes, sir.

MR. DURRETT: I believe that's all i have.

GOVERNOR CAMPBELL: When you get down to it, all you're asking is authority to market your product?

A That's all I'm asking, yes, sir.

MR. PORTER: I think you may have told us the depth of the well you have used as an experimental well--

- A Twenty-nine feet.
- Q Twenty-ninc feet deep?
- A Yes, sir, and it was originally drilled, I believe, to 110 feet, but my salvage operation is at twenty-nine feet.
- Q I got the impression somewhere that the operation was at $48\frac{1}{2}$ feet.
- A I may have told you that, because when I first started out we were lowering and raising the casing, trying to find the static level of the water. When we started we may have started at 48 feet.
 - Q But the depth of the well is 110 feet?

A Yes, but then I put in a submergible pump to where
I could pump it off quick and know where the water was. I kept
raising it until I got to 29 feet.

Q How deep do you anticipate drilling additional wells?

A I wouldn't want to go more than 35 feet, because the more you disturb the water sand, the more trouble you're going to have with water, and I don't want to have any trouble with water.

GOVERNOR CAMPBELL: You want your troubles all to be oil?

A Yes, sir.

MR. PORTER: Does anyone else have any question of Mr. Walton?

MR. IRBY: On a technical point, I want to say that I don't fully agree with Mr. Walton's description of the creation and rebuilding of total compression under water table conditions; and the point I'd like to make is that, producing at the rate of a barrel or a half-barrel of water per day, which is a part of his testimony, the natural forces of the water in place are going to keep this cone refilled, if one is created. The pumping rate is so small there will not be a cone created—you've got to get into higher pumping rates to creat a cone.



GOVERNOR CAMPBELL: Are you able to draw a conclusion as an engineer as to whether, assuming the facts that Mr. Walton stated as to the rate of pumping, that would or would not interfere with the natural conditions in the Ogalalla formation so far as water is concerned?

MR. IRBY: Only to the extent that when water is drawn off from the separator and recharged through the same well from which it is produced, there would be a slight mound created, and I don't know what the size of these tanks he's talking about are, but this would control the size of the mound. But I'm assuming that these are comparatively small tanks, and the mound would naturally be small; but at lower pumping rates there would be no cone of depression created—the natural forces of the water would keep it filled.

MR. WALTON: If I recharge the well with 100 barrels of oil over a period of a week, by the same token coming would be very slight too, in that well.

GOVERNOR CAMPBELL: The mound?

MR. WALTON: -- The mound would be very slight.

MR. IRBY: Yes, that's what I stated.

MR. WALTON: In other words, there would be no cone to speak of--no cone at all at that small rate of production, but say in one day's time I wanted to recharge the well with 100 barrels of water, the mound would be very slight.



SPECIALIZING IN. DEPOSITIONS, HEARINGS, STATE MENTS, EXPERT TESTIMONT, DALLT COPT, CONVENTIONS

MR. IRBY: Over what period of time?

A One hundred barrels--100 a week.

MR. IRBY: If it's over a week then the mound would be insignificant; nevertheless the mound would exceed any cone caused by pumping.

MR. WALTON: I stand corrected by Mr. Irby.

MR. PORTER: Mr. Irby, do you see any possible ill effects as far as fresh water is concerned, in an operation carried on such as Mr. Walton has proposed that he would carry on?

MR. IRBY: I think it would be helpful to the water problem in general to have this oil removed, but I would prefer to see it done in a somewhat different manner. I would prefer to see the oil removed at a specific well, and the water recharged to the formation after cleanup at a place outside the known contaminated area. This would have the tendency to build a mound, if one is built, around the oil contained area, which would have a tendency to push oil toward the producing well. It would work in a manner somewhat similar to peripheral flood.

MR. WALTON: I would be glad to operate under the rules of the State Engineer, but it is my idea that the water produced would be so insignificant that the mound would be insignificant. But should the case arise, I will keep the State Engineer informed; and should the case arise that he



thinks it should be recharged in an area outside the contaminated area, I would be glad to conform with any rules and regulations he sets up.

MR. PORTER: Does anyone else have a question of Mr. Walton? ... Mr. Ballew?

MR. BALLEW: I understand, Mr. Walton, you're going to take ten to twenty gallons out of one borehole per day, and going to inject back fresh water underneath where you're taking out, so I don't see that it would involve any other water, rather than the very borehole in which he's operating because he's injecting fresh water back where he took fresh water out, so it couldn't affect any outside water.

MR. WALTON: That's right.

MR. IRDY: I have one question. I thought Mr. Walton stated this, but on remembering, I believe he didn't. What would be the oil-water ratio?

When I first went in there and got a static water level I was able to produce 100% oil for a very short time, and then when I put the windmill on there and it was keeping it drained down constantly, it did get to producing maybe up to 50% water, but it would be in spurts, as it would come in. I did produce sometimes 50%.

MR. IRBY: With the 100 barrels of oil, how much



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A I would roughly estimate that with the 140 barrels I produced, as a rough estimate I produced thirty to forty barrels of water.

- Q You had no measurement on this?
- A No, sir.

MR. PORTER: Does anyone else have a question? ...

Mr. Walton may be excused. Does anyone else desire to present
testimony in this case? Are there any statements?

MR. CHRISTY: Sim Christy, representing Humble
Oil Refining. Humble, as mentioned in the testimony, is the
offset operator in the southeast. Humble respectfully suggests designation as operator of the pool, and establishment
of rules for orderly production of any water which may exist
in the shallow pool. It is further suggested that an appropriate allowable should be established, equivalent to the
applicable depth allowable for each forty-acre tract, regardless
of the number of wells orilled on the forty-acre proration
area.

MR. MOTTER: I am E. F. Motter, representing the Hobbs City Water Commission. We have prepared a statement we would like to read into the record.

"The Water Department of the City of Hobbs advises you that the City of Hobbs presently has water rights to 7,300



acre feet in Township 18 South, Range 38 East, for municipal purposes, and at the present time this is the only source of water supply for municipal use of the City of Robbs.

"This statement is not to be construed as a protest or an objection to the application, but to remind the Commission of a fact of which they are aware--that the producing of a large amount of water for the recovery in ratio of a small amount of oil might well jeopardize the municipal source, and this fact should be considered in your determination of this application."

GOVERNOR CAMPBELL: Whose side are you on? MR. PORTER: Does anyone else have a statement? Mr. Durrett, I believe you have some comments?

MR. DURRETT: I have a letter from Tidewater Oil Company which I will read into the record if the Commission so desires. First I will state that the letter is from H. E. Berg, with Tidewater. The letter reads: "Gentlemen: Mr. Joseph O. Walton, Iovington, New Mexico, has furnished this company with a copy of his letter to you of March 22, 1965, in which he requested that he be granted authority to salvage and market oil commingled with or on top of water found in the Ogalalla formation through wells situated in the northeast quarter of Section 30, Township 18 South, Range 38 East, Lea County. We understand that Mr. Walton's request has been set

for hearing on April 14, 1965.



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"Getty Oil Company owns the oil and gas lease covering the northeast quarter of Section 30. This lease is operated for Getty by Tidewater. Tidewater as the operator mentioned for the Getty Oil Company lease has no authority to permit a third party to abstract or remove oil from land governed by Getty, nor can Tidewater waive the rights Getty has by virtue of its lease. We do note, however, that Mr. Walton in his letter of March 22, 1965 expressed the opinion that the oil he seeks to recover is not owned by anyone, and it can be claimed by anyone. Tidewater, as operator of the oil and gas lease covering the land referred to, does not agree with this opinion."

MR. PORTER: They didn't say what they did agree with?

MR. DURRETT: No, sir, they did not.

MR. PORTER: Do you have any other statements?

MR. DURRETT: I believe that's all, Mr. Porter.

MR. PORTER: If there are no further statements to be made in this case, the Commission will take the case under advisement.



STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALLLO)

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do hereby certify that the proceedings in the foregoing case were taken by me in shorthand and transcribed by me, and that the foregoing is a true and correct transcript of proceedings to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, my hand and seal of office this 26th day of April, 1965.

Markett Haker

My commission expires
May 30, 1968.



OIL CONSERVATION COMMISSION

HOBBS, NEW MEXICO

THE OIL CONSERVATION CONVISSION MEETING OF JULY 9. 1957.

Hotico of the meeting v s given by EEDRADUH 20-57 from Lr. A. L. Portor, Jr., Secretary-Director, dated Jur 21, 1957. The subject of the Econorandum was "Protection of Fresh Water I recurses" and directed to all operators in the Hobbs Pool Area. The meeting was called for 10:00 O'Clock A. E. On July 9, 1957 at the Hobbs Office of the CCC. The Econorandum pointed out that the meeting was called at the request of the Hobbs City Commission.

The meeting was called to order by the Director who gave a resume of the reason for calling the meeting which pertained to the fresh water contamination northwest of the Kobbs City limits. Shortly after opening the meeting a field trip to inspect the contaminated areas was conducted by Mr. E. J. Fischer, OCC District Engineer. The first stop was at the Dowell plant north of the city. A lighted match was held over a water hose, and when the valve was opened small spurts of gas would burn intermittently. The second stop was made on the Ellison property. A demonstration was made by Mr. Eric Engbrecht, OCC Oil & Gas Inspector, which indicated that the water well had 19.1 feet of fluid including 6.3 feet of 34 gravity oil. This water well is located 1250 feet from the east line and 2380 feet from the north line of Section 30, T-18-S, R-38-E. Stop No. 3 was a disposal pit of Numble Oil and Refining Co. and Stop No. 4 was the Phillips Lake where gas bubbles appeared operadically on the surface of the water. When the bubble burst a rainbow of oil was observed. This was the last stop of the field trip and the meeting was adjourned until 1:15 P. M.

At 1:15 P. M. the meeting was called to order by Mr. Porter in the Little Theatre of the Hobbs High School, at which time Mr. Porter called on the writer to briefly outline the pollution problem for the benefit of those who were not present at the morning session. This was done. Also it was pointed out that the Commission had been aware of the problem for several years, and that it had diligently discharged its duty to see that all necessary repairs were made by the operators.

The fact that casing leaks did exist was first brought to the attention of the Oil Commission by letter from the Humble Oil and Refining Co. on August 12, 1953. The Director of the OCC called a meeting of Hobbs Pool operators on August 25, 1953, and issued a directive that tests for easing leaks be performed before October 1, 1953. To insure that the operators had found all leaks a second directive was written on March 12, 1954. This directive called for a Commission representative to witness tests on Hobbs Pool area wells.

On March 15, 1934 at a special meeting of the City Council Resolution No. 686 was adopted; this resolution declared that an emergency existed due to casing leaks in wells and requested the Oil Commission to take appropriate action to rectify this condition. As indicated above the Commission had already taken action to rectify this condition.

In August of 1956 a meeting was hold by the CCC, at which meeting it was brought to the attention of operators that water contamination existed in Section 30 of T-18-5, R-38-E. Kr. Portor, Director, and Kr. Walker, Commission member, informed the operators that check for easing leaks must continue and that leaking easing would not be televated. Kr. Porter directed that a four section block surrounding the contaminated area be rechecked immediately and that a recheck of all

"Exhibit 12"

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OIL CONSERVATION COMMISSION

HOBBS, NEW MEXICO

Houbs area wells be made in the near future. Both orders have been complied with.

During the testing of the Hobbs Pool area from August 1933 to 1937 a total of 52 wells were found to have had looks. These looks have been repaired at a known cost of some 460,000 deliars.

After the above summary by this writer U_{2} . Portor called on the operators for an expression of their views on the matter.

Ex. A. R. Dallow representing the Cun Cil Company suggested that the problem be usualled to determine the feesibility of pumping the offending oil from the fresh water equifer, and pledged this company's cooperation toward solving the problem.

Lloyd A. Calhoun, member of the Hobbs City Water Board, addressed the chair to make a statement. He stated that the Hobbs Water Board had been keenly aware of the possibilities of contemination of the city acuifer for ever 3 years, and had taken steps to provide an adequate and contamination-free water supply for at least the next 20 years. At the Water Board meeting of May 10, 1954 the subject of oil and gas infiltration into the water system was discussed. He further mentioned that a member of the CCC staff had met with the Water Board and City Commission and described the program being then carried out by the CCC.

About the middle of 1954 a majority of the Hebbs Water Deard members went to Santa Fe and conferred with Wr. Bliss, State Engineer, and Wr. Irby, Assistant. Both officials were informed of the contamination. These officials were very positive in their accurances that the City wells were not in any immediate danger of contamination. They pointed out that on the basis of exhaustive engineering studies it had been determined that the lateral movement of the water in the Cgallala reservoir was about 2½ feet per year. At this time the Water Board made application and received water rights north of the Hebbs Cil Pool for an amount sufficient to support a population of 80,000 within 20 years.

Calhour stressed his abhorronce to the type of scare headline publicity which had been given by the local newspaper and the wire services. He emphatically assured all of the Gil Company representatives and the GGC that the Hebbs City water system was not in jeopardy, and made a motion that the Hebbs City Council withdraw from the matter.

At this point in. Portor called on the City Council for a statement. There were no statements heard from this body.

Up. Irby of the Ctate Engineer's office stated that he disliked the publicity given, and had no solution for the problem and folt that the CCC and operators were capable of handling the situation.

En. C. F. Taylor representing Gulf Cil Corp. read a prepared statement that pledged their fullest cooperation and would take every resonable precaution to provent leaks.

Mr. H. E. Mandows speaking for Numble Cil and Refining Co. stated that their walls were not contaminating the fresh water aquifer, also that they would continue to observe their wells for leaks and cooperate.

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OIL CONSERVATION COMMISSION

HOBDS, NEW MEXICO

Er. J. W. Brown spoke for Pan American Petroleum Corp. and gave a brief summary of the manner in which they were combating corresion and pledged to continue their observations for leaks.

Er. Glenn Staley, New Mexico Gil and Gas Engineering Committee, stated that the first easing looks came to their attention in 1934. The wells in the area were immediately repaired. He further said that the cating would continue to be corroded but that the operators have always been cooperative in repairing leaks.

Sinclair Oil and Gas Company stated that they recognized the problem and would continue their cooperation.

Chio Oil Co. stated that all of their leaks had been repaired and would continue to cooperate. Shell Oil Co., Continental Oil Co., Gackle Drlg. Co., Skelly Oil Co. and Amerada Pot. Corp. all made similar statements.

 $k_{\rm T}$. Portor called on $k_{\rm T}$. Don Fallam, Hobbs City Attorney, for a statement since $k_{\rm T}$. Calhoun had put his request that the City withdraw in the form of a motion. $k_{\rm T}$. Hallam said that the City's position was still as that stated in his letter to $k_{\rm T}$. Portor of June 19, 1957 and the City would not withdraw.

At this point Nr. Porter appointed the following Committee to make a study of fresh water contamination in the Hobbs area and make recommendations as to:

- (1) Any action that may be taken by the Commission in addition to what is prosently being done to prevent further contamination
- (2) Any corrective measures that may be employed to prevent further spread of present contamination

Pan American Pet. Corp., Chairman Samedan Oil Corp. Shell Oil Co. Tidewater Oil Co. Continental Oil Co. City Water Board State Engineer Hobbs CCC Office

A progress report was requested within 30 days.

The meeting was adjourned.

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July 26, 1957

Er. A. L. Portor, Jr., Director Cil Conservation Commission Box: 671 Santa Fe, New Mexico

Door Ar. Portor:

The first moeting of the committee that you appointed to study the fresh water pollution problem in the Mabbs area was hold on July 19, 1957. A list of the committee members is enclosed for your information.

At this mosting Mr. E. G. Minton, Los County Mydrologist, gave a brief talk on the general geology and hydrology of the erea. Mr. Minton stated that from past studies the water moves at about 7 to 9 inches a day, however due to the Cone of December 1 (courseles about the erea of the City Make) it mobably of Dopression (covering about the area of the City Limits of Hebbs) it probably was moving at two to three times this rate. This Cone of Depression is some 25 feet deep and 5 to 6 miles in diameter causing the water to flow towards the center. of Fobbs. When asked for suggestions from committee members he put forth the idea of downtoring the conteminated area and reinjecting the treated water. The difficulty of this type of project would be that water wells in the area would so dry. He made an ostimate that if the entire saturated section was opened one well could probably produce 800 to 1,000 gals/min. Er. Minton also stated that water wells had no casing or plug and abandonment requirements.

After Mr. Minton's talk, Mr. Jack Brown, Chairmen, proposed methods of conducting the mootings and the following items were decided upon:

- Conduct informally
- Monbers notify altornates
- Linimum of minutes
- 4. Custum to be 5 members
- 5. Rule of majority
- No action of member binding on his organization
- 7. No charges to committee
- 8. Cally members and alternates attend moetings unless others invited

No. Zeno Spiegol gave a long talk on the general hydrology of the Hobbs areas its Jack Brown stated that subcommittees would be formed to study specific phases of the problem and the next meeting was called for 9:00 A.M. July Zith at the

"Exhibit 14"

Perter-Page 2

At the second meeting of this committee, July 25th, numerous items were discussed which took most of the day.

It was the concensus of the numbers that the area of contamination was small in extent, possibly 2 to 5 acres, and that if as much as 300,000 barrels had entered the frach water equifor that due to the fact that the oil would ride on top of the water it would be filtered out within one mile. This is not a final answer but to determine in some manner what we were looking at, 300,000 barrels was assumed to be in the equifor. Due to the dry water sends in the upper partiens of the equifor within one mile distance it would filter out if it was riding on top of the water.

However the committee is going sheed with its studies. The CCC Hebbs Office has been requested to furnish the committee with information on all remedial work completed and other pertinent information.

A subsermittee was formed, Tidewater Chairman, to investigate the feasibility of the committee recommending the conner in which future water walls should be completed. The following organizations were appointed to this subsermittee:

City Water Beard Sancdan Oil Co. State Engineer

A second subcommittee was formed, Hobbs CCC Chairman, to determine the location of all water wells in the Hobbs Pool area, and determine all physical characteristics of such wells as to pipe, depth and purity of water. The following organizations were appointed to the subcommittee:

Sholl Oil Co. Continental Oil Co. Stato Engineer

A third subcommittee was appointed, Sameden Chairman, to investigate contamination of the fresh water acuifer from causes other than oil wells. The following expenizations were appointed to this subcommittee:

Pan American Pet. Corp. City Water Board

The afternoon session was largely taken up by discussing methods of preventing future contamination.

Casing programs and mothods the CCC used in checking for leaks was discussed.

Following considerable discussion of proventing future contamination, the committee may recommend the following:

 That surface pipe set on clamps should be corrected, and that a small diameter pipe be used to vent all surface bradenheads to the atmosphere at all times or install a sensitive gauge.

"Exhibit 14"

-24.

Portor-Page 3

- 2. That quartorly tests by operators be submitted to the CCC with the contification that no locks were found or if locks were found a program for correction. Cno such test each year to be witnessed by the CCC.
- 3. That packers be installed on all flowing wells and the annular space be filled with tweet oil.

The committee meeting was adjourned until 9:00 A.M. August 1, 1987.

Yours very truly,

OIL CONSERVATION COMMISSION

R. F. Montgomory Proration Manager

RFNync co-E. J. Fischer, Engineer CCC, Hobbs encl.

Exhibit 14."

HUMBLE OIL & REFINING COMPANY

FIO. REMOVED TANKS

P. O. Box 2347 Hobbs, New Mexico August 5, 1953

New Moxico Oil Conservation Commission P. O. Box 2045 Hobbs, New Mexico

Gentlemen:

Authority is requested to run approximately 3000 barrels of discress cil which is now flowing, uncontrolled, from the bradenhead on our Federal Bowers "A" A/C 1 Well #2, Unit J, Section 30, T-18-S, R-38-E, Hobbs Pool. This well is flowing into a pit at an estimated rate of 18 barrels per hour.

We are now moving in a workover rig to kill the well and work same over.

humble Pipe Line Company is transporter of oil from this lease. Cil produced in excess of current allowable for this well will be charged against the future allowable.

Yours very truly,

HUMBLE OIL & REFINING COMPANY

RiG/jsp

ce: Mr. W. E. Hubbard Mr. J. W. House R. M. Gillette



UNITED STATES

DEPARTMENT OF THE INTERIOR

DIVISION OF LANDS AN AGENTALS PROGRAM MANAGEMENT & LAND OFFICE

P. O. Box 1449 Santa Fe, New Mexico 87501 4.10a

August 4, 1966

Oil & Gas

DECISION

Lessee:

Humble Oil &

Regining Co.

Operator: Joseph O. Walton

d/b/a Windmill Oil Company

Operating Agreement Approved

Approval is hereby given to an operating agreement dated June 21, 1966, between the parties named in the caption involving 25 acres of land covered by oil and gas lease LC 032233(a). The land involved is the North 20 acres of the NWASE's (NAWASE's), and the West 5 acres of the Nine ask (Wilder Maria Et), Sec. 30, T.18 J., R. 38 B., N.M.P.M., with depth limited to the Ogalalla formation. The conveyance is also limited to the recovery of oil only. The agreement is to remain in effect for the life of the lease/86 long as oil is recovered from the Ogalalla formation by the operator, whichever is the shorter term. Cassation of recovery of oil from the Ogalalla formation for a continuous period in excess of three months will terminate the agreement.

This decision does not grant approval to any previous operations by the operator on the above-described land.

The lessee is maintaining a nationwide bond.

4، بخلام بدر

Sincerely yours,

Fred E. Padilla

Chief, Branch &f Oil & Gar

GS(3)Hobbs, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

> CASE No. 3235 Order No. R-2902

APPLICATION OF JOSEPH O. WALTON TO REMOVE AND MARKET OIL FROM THE OGALALLA FORMATION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 14, 1965, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 4th day of May, 1965, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Joseph O. Walton, seeks authority to remove and market oil from the Ogalalla formation in Section 30, Township 18 South, Range 38 East, NMPM, Lea County, New Mexico, without restriction concerning the method of operation or quantity of oil recovered.
- (3) That the applicant proposes to recover crude oil from existing water wells completed in the Ogalalla formation and water wells to be drilled and completed in the Ogalalla formation in said Section 30.
- (4) That the Ogalalla formation in said area contains fresh water supplies designated by the State Engineer and that

-2-CASE No. 3235 Order No. R-2902

the presence of crude oil in said formation may constitute a hazard to said water supplies.

(5) That the Commission lacks jurisdiction to determine who has the right to recover said crude oil or the title to said crude oil but should authorize the recovery and marketing of said crude oil in order to prevent waste and protect fresh water supplies designated by the State Engineer.

IT IS THEREFORE ORDERED:

- (1) That crude oil may be recovered from existing water wells completed in the Ogalalla formation and water wells to be drilled and completed in the Ogalalla formation in Section 30, Township 18 South, Range 38 East, NMPM, Lea County, New Mexico.
- (2) That said crude oil may be marketed provided Commission Form C-104 has been filed with the Commission's Hobbs District Office stating the name of the seller, the name of the transporter, the amount of oil to be sold, and the location of the water well from which the oil was recovered.
- (3) That each person or persons recovering crude oil under the provisions of this order shall keep a daily record of the amount of oil recovered from each water well, and shall file a monthly report, in duplicate, with the Commission's Hobbs District Office stating the amount of oil recovered and the amount of oil sold from each water well during the month.
- (4) That the Commission will not determine who has the right to recover said crude oil or the title to said crude oil.
- (5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

SEAL

Integrated Site Assessment
Snyder Street Chlorinated Solvent Plume Site
Hobbs, New Mexico

CERCLIS ID# NM0000605159

January 18, 2001

Susan Morris
New Mexico Environment Department
Ground Water Quality Bureau
Superfund Oversight Section

Lazy Daisy Laun-Dry Klean (Reference 20). The 1983 local Hobbs telephone directory has the facility listed as the Lazy Daisy Laundry and Dry Clean (Reference 21). Later directories indicate that this facility was not in operation as of 1991 and that the Allsup's convenience store no.37 was listed at the location (Reference 22). NMED staff, during and unrelated site inspection in Hobbs in October, 2000, drove by the location and noted that the building adjacent to the Allsup's convenience store was boarded up and that there was a lint trap and vents in the back of the facility (Reference 9, page 9).

Sewer Lines

Sewer lines in the vicinity of the site are generally older clay lined pipes (Reference 12, page 10). There are sewer lines that run adjacent to Municipal Well # 10 and flow is south towards the City Sewage Treatment Plant. Sewer lines also run south along Dal Paso. However as noted in modeling reports conducted for the design of the gasoline contamination remediation system for the NMED, there is a pronounced cone of depression caused by the pumping of the municipal wells in the area of the Synder Street Park (Reference 24, page 42), thus any PCE that was released from the sewer lines, could travel down through the soil into the groundwater and then could be pulled toward the municipal wells regardless of where the leak occurred.

2.2 Ground Water Pathway

2.2.1 Ground Water Characteristics

Underlying the site is the Quaternary alluvium, which overlies and is continuous with the Ogallala Aquifer (Reference 24, page 32). The Ogallala is the principal water source in the Southern High Plains of Lea County (References 24, p.32; 25, page 9). The alluvium is generally 40 to 50 feet thick and is comprised of calcareous fine sand, silt and clay. The Ogallala formation is of Tertiary age and overlies the Dockum Red Beds of Triassic age (References 24, page 34; 25, 44). Wells set in the Triassic rocks have low water yields, as the formations have low permeability (Reference 25, page 5).

The Ogallala is primarily a calcareous, unconsolidated sand but it also contains some clay, silt and gravel and some consolidated, silica cemented conglomeratic sandstone beds 1 and 3 feet thick (Reference 24, Figure 7). The lithologic logs of wells near the site show that the bottom of the Ogallala, and thus the top of the Red Beds, to be approximately 208 feet below the surface (Reference 24, Figure 7).

The site is situated on slightly sloping alluvial deposits. At the site, the saturated thickness of the Ogallala Aquifer is about 90 feet (Reference 24, page 32). The depth to water is approximately 112 feet in the monitoring wells adjacent to the public supply wells adjacent to Municipal Well # 10 (Reference 24, Figure 7). Ground water elevation

maps depict a relatively flat gradient (approximately 0.008) across the area of the park (Reference 24, p.21). Regional groundwater flow direction in the High Plains area is to the southeast but is locally controlled by the dip of the Red Beds (Reference 26). Due to the pumping of the municipal water supply wells, the direction of the groundwater flow within the City of Hobbs has been altered. Ground water studies of the area show a depression in the water table near the cluster of municipal wells at the site. (Reference 27, page 21). In 1991, due to a release of gasoline associated with a leaking underground storage tank site, the Hobbs City Wells Site, Municipal Well # 9 was taken off-line as a municipal supply well (Reference 24, page 39). In 1996, Municipal Weil #12 was taken off-line and shut down due to the contamination that resulted from the petroleum release from the UST site (References 9, page 4; 28).

The remedial system for the UST site consists of extracting and treating contaminated ground water followed with re-injection of the water to the aquifer. The system has been in operation since 1995 and has altered the flow pattern in that there is a documented area of depression in the center of the extraction system. Since 1999, three additional recovery wells were installed approximately 500 feet northwest of Municipal Well #10, at the UST remediation site. These recovery wells became operative in August of 1999 (Reference 10).

Based on actual field measurements made during the investigation and characterization of the UST site, the hydraulic conductivity at the site is 30 feet/day or 0.009 cm/second (References 26, page 21; 29).

2.2.2 Ground Water Pathway Receptors

The Ogailala aquifer is the only source of drinking water in Lea County. Other uses of ground water include industrial, commercial and agricultural uses (Reference 25, p.9).

The Municipal water supply system for the city of Hobbs consists of 27 wells. The 27 municipal water supply wells for the City of Hobbs are all interconnected through a series of five reservoirs. Water enters the municipal distribution lines from the reservoirs and directly from well #5. While there is no actual blending of the water from the reservoirs, it is possible that residences on one side of town may be using the same water as residences on the opposite of the town (Reference 30). Thus, no one well provides more than 40% of the water by volume to the entire municipal water system.

Of the 27 wells, 3 wells (#9, #12, and #18) are off-line due to non-site related ground water contamination. Five wells (#5, #25, #26, #27, #28) are seasonal wells and are used during periods of high water usage (Reference 30). Thus there are 19 active wells that comprise the City of Hobbs Municipal Water Supply System. Presented in Table 2 is information about the well construction and well use for Municipal Wells #-9, #10, #11,

#12 and #14. Well logs for Municipal Wells #10, #11, #12 and #14 are presented in Reference 31.

Within a 4-mile radius of the site there are a total of 15 active municipal wells that serve the city of Hobbs and four community water systems (Reference 4, 5, 28, 30). Approximately 29,712 persons are served from the City of Hobbs Municipal Water Supply System (Reference 32). Since the system is a blended system where no one well supplies more than 40% of the water delivered to the system, the population served by Municipal Well #10 is calculated by dividing the total population served by the 19 active wells. The calculated population served by Municipal Well #10 is 1,553 persons. The population served by the municipal wells within a 4-mile radius of the site is 23, 295 persons (Table 3, References 4). According to the New Mexico Drinking Water Bureau database a total number of 104 persons are served by the community water systems that are within 4 miles of the site (References 4, 5, 33). The distance of the wells from the site and the number of persons served by the wells is shown in Table 3.

2.3 Ground Water Pathway IA Investigation Results

During the IA site visit, groundwater samples were collected from 4 of the UST monitoring wells and from Municipal Wells #10, #11, #12, and #14. Well construction information for the municipal wells is presented in Table 2. And the well construction information for the monitoring wells is presented in Reference 24, Appendix A.

2.2.3.1 Volatile Organic Compounds

Ground water samples were collected from monitoring wells H7, H14, H2I, H24 and analyzed for volatile organic compounds. Monitoring well construction information is presented in Table 4. The ground water samples were then sent through the US EPA Contract Laboratory Program (CLP) for analysis for Low Concentration Volatile Organic Analysis (Table 5). The samples were persevered with ice only and sent overnight to the CLP laboratories for analysis. PCE was not detected in any of the samples analyzed (Reference 34 and Table 5). The only volatile organic contaminants detected were the gasoline contaminants, benzene, toluene, ethylbenzene, and xylenes (BTEX). BTEX was detected in samples from H7 and H21. Toluene was also detected in the equipment rinseate blank at an estimated concentration of 2 µg/L (Reference 34, page 8 and Table 5). Samples from H7 and H I and the field and equipment rinseate blanks were qualified by the EPA Quality Assurance Reviewers because these samples were analyzed two to three days past the technical holding time limits (Reference 34, page 4).

Due to the high contract required detection limit (CRDL) of $10 \mu g/L$ for the CLP Low Concentration Volatile Analysis, the data is of limited value in confirming the presence of

Record of Communication

Date: November 13, 2000

Susan Morris, Environmental Specialist, NMED, Ground Water Quality Bureau

J.R. Harris, Municipal Water System Manager, Public Utilities, City of Hobbs (505)397-9314.

RE: Current Status of the Municipal Water Supply System for the City of Hobbs.

Mr. Harris clarified that there are a total of 27 wells that serve the Municipal Water System of the City of Hobbs. Three wells, #9,# 12 and #18 are not on-line because of contamination. Well # 9 was taken off line in 1991 and # 12 was taken off-line around 1996. Both wells were impacted by the gasoline contamination arising from the Hobbs City Wells UST site. Well # 18 was taken off-line in 1997 due to an unrelated ground water contamination site.

Of the 27 wells that serve the municipal water system, five wells are seasonal wells that are brought on-line during periods of high water use. The wells are #25, #26, #27, #28 and #5. Another well, Well #50, was taken off line in 1988.

There are two irrigation wells located in south Hobbs. These wells, Prairie Haven and Everglade, are not part of the potable water supply system.

Record of Communication

Date: August 16, 1999

Susan Morris, Environmental Specialist, NMED, Ground Water Quality Bureau

Anne Dean, Manager of the City Water Testing Section, City of Hobbs

RE: Discussion of the Municipal Water Distribution System, Hobbs, New Mexico.

The 27 municipal water supply wells for the City of Hobbs are all interconnected through a series of five reservoirs. Wells #9, #10, #11, #12, #14 had all been connected to the Snyder Reservoir from where the water then enters the distribution lines. Water enters the municipal distribution lines from the reservoirs and directly from well #5. While there is no actual blending of the water from the reservoirs, it is possible that residences on one side of town may be using the same water as residences on the opposite of the town. Thus, no one well provides more than 40% of the water by volume to the entire municipal water system. Since the system is a blended system where no one well supplies more than 40% of the water delivered to the system.

Table 2. Well Construction and Use Information for the City Of Hobbs Municipal Wells

- 10 m	-			ــــــــــــــــــــــــــــــــــــــ		
	CW14	CW12	CW11	CW10	CW9	Well no.
	18S.38E.35.11314	18S.38E.35.13242	18S.38E.35.13100	18S.38E.35.134414	18S.38E.35.13300	Location
	SW corner of Avenue A and Abel	SW corner of Clinton and DelPaso	NW corner of city Park	NW comer of Jefferson and Snyder	within city yard north of Snyder	Location Description
	On line	Not in use*	On line	On line	within city yard Not in use*(1) north of Snyder	Slatus
	1954	1953	1951	1951	1947	Date Completed
明神の	16	16	16	16	24	Outside Diameter(in)
	205	211	211	211	205	Total depth (ft)
は悪いい	70-207	101-206	156-208	156-208	Data Not Available	Perforated interval (ft bgs)
	139	172	156	142	171	1
	well record	well record	well record	well record	as built record	Pump Depth Reference (It bgs)

* wells # 9 and 12 were taken off line in 1998 due to the contamination from the leaking underground storage tank site.
(1) Well not available for sampling since sand trap has been removed

(References 9, page 5 and 31)

NEXICO ENERGY, MENERALS AND NATURAL RESOURCES DEPARTMEN

POST OFFICE BOX 1980 H0885, NEW MEXICO 88241-1980 (505) 393-6161

NMOCD_INTER-OFFICE CORRESPONDENCE

TO:

Jerry Sexton-NMOCD District I Supervisor

From:

Wayne Price-Environmental Engineer

Date:

August 15, 1996

Reference: Request to investigate dead vegetation at Floyd Ayers residence located at the corner of 1700 Robert Lane and Mahon, Lea Co. NM west

side of Hobbs.

Subject:

Field Report

Comments:

Mr. Ayers pointed out a small area in his backyard approximately 5 feet in diameter that was mostly barren. There were ants and ant lions (doodle bugs) noted to be living in the bare spot. The soil was dry and tree roots noted. The area sets between a pecan and peach tree. The surrounding area has grass and or weed growth.

Area was sampled using a post hole digger. A sample was taken at approximately 8" deep and tested for volitle organics with a PID. Results varied between 0-11 ppm. Another sample was taken in the yard in which there was grass growing, same depth, results were 0-17 ppm. Both soil samples were observed as negative on contamination from a visual and olfactory smell standpoint. The top soil is native and noted to be dark brown to black. It was not classified. around the yard and other grass did not appeared to be stressed in any way.

Mr. Ayers has lived in this residence since 1964. He could not recall any buried pipelines, septic systems, etc. near the area of lack of vegetation. He also indicated he has not used any herbicides or pesticides in this area.

Mr. Ayers property comprises a 2.5 acre lot which is located in the area of a historical crude oil leak from years ago. This area became know as the "Windmill Oil Co. Area" because windmills were used to pump the oil from the shallow ground water aquifer below.

Mr. Ayers property had three of these wells at one time. All three produced oil and per Mr. Ayers royalty checks were received from this production.

The well located just east of the house near the shop in the backyard was sampled using a 3 foot PVC bailer. The depth to ground water is estimated at 33 feet below ground surface. The sampled revealed a minimum of two feet of light crude oil, no water was observed.

Mr. Ayers noted this material was very volitle and was placed into a coffee can and was lighted with a match. The crude oil burned vigorously and consistent until put out.

Mr. Ayers drilled another well sometime in the early 1980's north of his house hoping to find good water. He indicated it had oil in it also. They are presently drinking bottle water, but are connected to a Marathon Oil Co. water well which is approximately 300 yards SW of their house. He indicated it had a gassy smell to it from time to time. They use this water for bathing, watering lawn, washing clothes etc.

Conclusion:

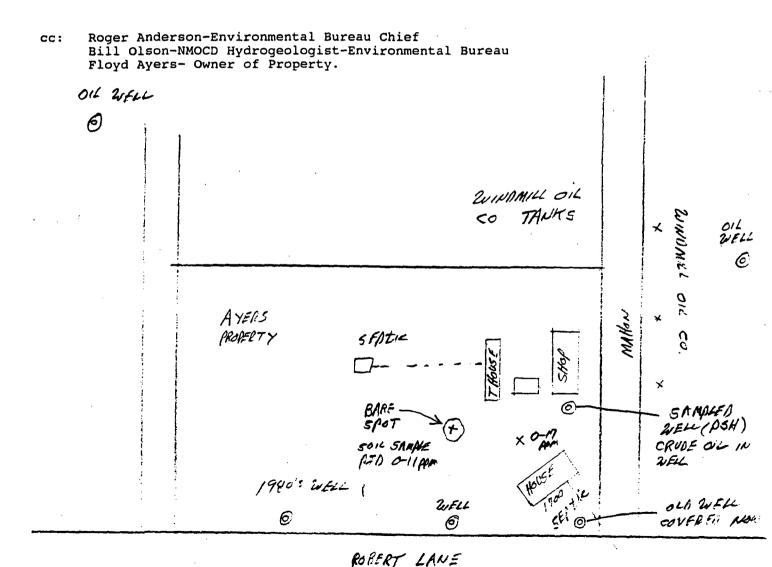
The small surface area in question did not show any definite signs of contamination from any Oil & Gas activity that I could find at this time. The PID readings were significantly lower than our NMOCD guidelines limits of 100 ppm for BTEX volatiles. The areas around the spot appeared normal.

There is significate ground water contamination in this area which has been a matter of record for many years.

Recommendation:

I recommended to Mr. Ayers to contact the Lea County Extension agent Mr. Wallace Cox who might be able to assist him if it is a horticulture problem.

Recommend NMOCD have Marathon sample the fresh water supply to ensure the water quality meets human health standards under WQCC regulations.



← N

MARATHOI WATER WELL

NEW MEXICO OIL CONSERVATION COMMISSION SANTA FE, NEW MEXICO e the original and 4 copies with the appropriate district office)

CERTIFICATE OF COMPLIANCE AND AUTHORIZATION: 35
TO TRANSPORT OIL AND NATURAL GAS

Company or	Operator Hu	mble Oil & Refinin	g Company	Lease Paderal Rowers A Fee
Well No.	2 Unit I	_etter_ J S 30 '	T 183 R 38E	Pool Hobbs
County	Lea	Kind of Leas	e (State, Fed	. or Patented) Federal
	ices oil or co		-	:Unit 6 S 30 T 185 R 38E
		, =		Line Corporation
Address			• •	Midland, Texas
	(Give address	to which approve	d copy of this	form is to be sent)
	Transporter o		illips Petrole	
Address			bbs. New Mexic	<u> </u>
		to which approve	d copy of this	form is to be sent)
If Gas is not	being sold, g	ive reasons and a	lso explain it	s present disposition:
<u> </u>				
			•	
				•
Reasons for	Filing: Pleas	e check proper bo	x) New Wo	P11 ()
			•	() C'head () Condensate ()
		Concest One, On	E, Dry Cas	() O head () Condendate ().
Change in O	wnership	() Other	(·)
Remarks:			•	(Give explanation below)
	HUR	ANGE OPERATOR NAM IBLE OIL & REFINING (TO EXXON CORPORA EFFECTIVE JANUARY 1	COMPAN Y TION	
	gned certifies e been compli		Regulations	of the Oil Conservation Com-
Executed thi	s the 14th da	y of December	_19 _55	Effective January 1,
:			ву 📝	n in Kryw
Approved		19	Title	- Agent
OIL C	ONSERVATIO	N COMMISSION	Compan	y Humble Oil & Refining Company
v 7114	Trustro	ug	Address	Bex 2347, Hobbs, N.M.
. 10		3	A.D.	



United Start The Party of the Interior

BUREAU OF LAND MANAGEMENT ROSWELL HISTSRAMT OFFICE 2909 West Second Street Roswell, New Mexico 88202 BUREAU OF LAND MGMT HOBBS, NM



IN REPLY REFER TO: 3100 (06200)

JAN 15 1997

Exxon Corporation Attention: Mr. Alex Correa P.O. Box 1600 Midland, TX 79702

Re:

Designation of Operator
Lease NM LC-032233A

memen:

Gentlemen:

Exxon Corporation (Exxon) is lessee of record for lease NM LC-032233A. By Designation of Operator (Form 9-1123), copy enclosed, dated May 21, 1986, Exxon designated Shirey and Steinburg as operator and agent to operate 10 wells located in S/2 NW/4 SE/4 and N/2 SW/4 SE/4 Sec.30, T18S, R38E.

Messrs. Shirey and Stienburg have both passed away, and the wells have been in

Messrs. Shirey and Stienburg have both passed away, and the wells have been in shut-in status for quite some time. All accounting matter with the Minerals Management Service have been resolved and the only remain detail is to plug the wells, remove all equipment and clean-up the locations.

Since Messrs. Shirey and Stienburg are deceased, the Designation of Operator is no longer valid. Therefore, Exxon, as the lessee of record of the subject lease, is responsible for the plugging of the well and the cleanup of the locations.

Accordingly, you are requested to file a notice of intent to plug the wells. Attached for your information is a copy of the completion report for the wells.

If you have any question concerning this letter please contact Armando Lopez at (505)627-0248.

Sincerely,

(Orlg Sdg) Tony E Ferguson

Tony L Ferguson, Assistant District Manager, Minerals Support Team

cc:

NM (06780, T. O'Brien) NM (067, V. Balderaz) NM (06200, A. Lopez) Lease File (NMLC-032233A)

Bill Olson

From:

Wayne Price

Sent:

Friday, April 18, 1997 2:47 PM

To:

Roger Anderson

Cc:

Gary Wink; Jerry Sexton; Bill Olson

Subject:

Ground Water Contamination

Importance:

Dear Roger,

Eades Water Well drilling Co. requested I witness well drilling of new water well at a Jan Pfeiffer's residence located at 4011 W. Bender. According to Eades and Ms Pheiffer's father their existing well had become contaminated with oil & gas. I believe this location is at the northern edge of the West Hobbs Pool historical crude oil contamination of the water table.

The new well was drilled with no noticeable contamination.. They drilled it to 188' and just tagged the top of the Red Bed. This well was screened 20' at the bottom.

Please note Eades pointed out that they have performed quite a bit of work in this area and it appears the red beds might be dipping to the north and east. The new well drilled is north of existing wells that have become contaminated. The old Windmill Oil co. area lies mostly to the south and west of this location. The ground water gradient normally is to the SE however it appears there might be a localized gradient to the north or east. This was also experienced at the Dowell location just east about 1/2-3/4 mi.

It might be that all these years the contamination plume is moving in a direction that would not normally be expected giving us a false sense of security thinking that the plume is stationary. Obviously there must be more scientific information than what I am giving you here but maybe we have been looking in the wrong direction. I have not investigated what lies ahead of this plume if it were heading in the N or NE direction.

Please note I understand that Channel 7 KOAT was going to be on site later that day they were with Gary earlier in the day.

I am going to set up a file on this for tracking purposes. Please let me know if you require any further information, sampling testing etc.



Roswell, New Mexico September 24, 1957

MEMORANDUM

TO:

New Mexico Cil Conservation Commission

Attention: Mr. A. L. Porter, Jr., Secretary-Director

FROM:

Committee Studying Protection of

Hobbs Fresh Water Sands

SUBJECT: Final Report of the Committee

Transmitted herewith is the completed final report of the Committee. This report contains no direct recommendations since it is the consensus of the Committee that the need for any corrective action is adequately shown in the Committee findings. In some instances this corrective action is outside of the jurisdiction of the Oil Conservation Commission. We trust that you will arrange to have these matters brought to the attention of the appropriate persons or agencies.

It was the decision of the Committee that attendance at its meetings should be restricted to representatives of the agencies and companies appointed to the Committee, and to guest speakers specifically invited to a particular meeting. Mr. E. G. Minton, Lea County Hydrologist, was the only such speaker. The need for closed meetings was indicated by the somewhat negative results observed at the general meeting held in Hobbs on July 9, 1957.

The official representatives designated by each of the agencies and companies appointed to the Committee are listed as follows:

Pan American Petroleum Corporation

C. L. Kelley, Chairman, Roswell, New Mexico

J. W. Brown, Alternate, Roswell, New Mexico

Continental Oil Company

R. L. Adams, Member, Roswell, New Mexico

F. T. Elliot, Alternate, Hobbs, New Mexico

Hobbs City Water Board

L. A. Calhoun, Member, Hobbs, New Mexico

W. G. Abbot, Alternate, Hobbs, New Mexico

New Mexico Oil Conservation Commission

R. F. Montgomery, Member, Hobbs, New Mexico

E. J. Fischer, Alternate, Hobbs, New Mexico

Samedan Oil Corporation

C. W. Putman, Member, Hobbs, New Mexico

C. E. Layhe, Alternate, Hobbs, New Mexico

Shell Oil Company

W. E. Owen, Hember, Hobbs, New Mexico

R. C. Cabaniss, Alternate, Hobbs, New Mexico

State Engineer's Office

Zane Spiegel, Member, Santa Fe, New Mexico R. L. Borton, Alternate, Roswell, New Mexico

Tidewater Oil Company

H. P. Shackelford, Member, Hobbs, New Mexico

R. N. Miller, Alternate, Hobbs, New Mexico

Other representatives of the agencies and commentes appointed to the Committee attended meetings as second alternates, served as members of subcommittees, or otherwise assisted in the work of the Committee.

R. C. Lannen

E. V. Boynton

Continental Oil Company

Continental Oil Company

Continental Oil Company

Jos Anderson

Continental Oil Company

Eric Engbrecht J. W. Runyan

New Mexico Oil Conservation Commission New Mexico Oil Conservation Commission

J. W. Montgomery

Shell Oil Company

J. W. Meek

Pan American Petroleum Corporation

All of the Committee meetings were held in the Oil Conservation Commission Conference Room in Hobbs, New Mexico. The first meeting was held on July 19, 1957; subsequent all day meetings were held on July 25, August 1, August 8, August 15, August 22, and September 5. In addition to meetings of the Committee as a whole, three subcommittees held numerous meetings to complete their work assignments.

All of the agencies and companies appointed to the Committee had representatives present at each of the Committee meetings, with the exception of one meeting when one organization was unable to have a representative present.

By Committee decision the initial distribution of this final report is being restricted. In addition to the copies furnished to the Oil Conservation Commission, each designated member and alternate is to receive one copy. All have agreed to hold their copies confidential pending your decision as to the proper disposition of the report.

FINAL REPORT OF COMMITTEE STUDYING PROTECTION OF HOBBS FRESH WATER SANDS SEPTEMBER 24, 1957

At the request of the City Commission of Hobbs, New Mexico, the New Mexico Oil Conservation Commission called a meeting of all operators in the Hobbs, Bowers, and Byers-Queen Pools on July 9, 1957, in Hobbs.

During that meeting and subsequently by Mr. A. L. Porter, Jr.'s letter dated July 10, 1957, a Committee was appointed to make a study of fresh water contemination in the Hobbs Pool area and make recommendations to the New Mexico Oil Conservation Commission, as to:

- Any action that may be taken by the Commission in addition to what is presently being done to prevent further contamination;
- Any corrective measures that may be employed to prevent further spread of present contamination.

The Committee consisted of representatives from the following compenies and agencies:

Pan American Petroleum Corporation - Chairman Samedan Oil Corporation Shell Oil Company Tidewater Oil Company Continental Oil Company Hobbs City Water Board State Engineer's Office Hobbs Commission Staff

After collecting additional information regarding water wells and contamination of water wells in the Hobbs Pool area, after giving consideration to existing information and all reports of fresh water contamination, and after obtaining advice and assistance from recognized authorities on ground water and from research organizations and from texts and reports on geology and petroleum engineering, the Committee concluded its study by making numerous findings with respect to the overall problem of fresh water contamination in the Hobbs Pool area.

I. The Physical Characteristics of the Ogallala Formation and the Movement of Water Through This Aquifer.

The Committee finds:

- (1) The entire Hobbs Pool area is directly underlain by the Ogallala formation of Tertiary age.
- (2) The Ogallala formation, in the Hobbs Pool erea, is an effective fresh-water aquifer with a thickness of 175'-200' of which approximately 100'-150' is saturated with water.
- (3) The regional dip of the Ogallala formation is approximately 15-20° per mile in a southeasterly direction.
- (4) The Ogallala formation consists largely of fine-grained sand in varying stages of cementation and consolidation. The material of the upper 5-40° is often firmly cemented by calcium carbonate to form hard dense caliche which commonly underlies the land surface in the area. The basal portion of the Ogallala is often composed of coarse sand and gravel. Thin discontinuous clay lenses are often found interbedded within the sand of the Ogallala formation. The Ogallala is underlain by Red Beds.

- (5) Clay lenses and thin zones of very fine sand which are relatively well-cemented occur within the Ogallala formation. These are not continuous or of great lateral extent. The Ogallala ground-water reservoir, therefore, is unconfined and acts as a unit.
- (6) Water levels in the Hobbs Pool area have declined as much as 12 since 1940 due to large withdrawals and regional drought.
- (7) Water level measurements made during August, 1957, show that water levels in the Hobbs Pool area stand at from 18-65' below the land surface. In many instances this level is below the base of the caliche.
- (8) The pore space in the eand of the Ogallala formation above the water table would normally contain pellicular water and air.
- (9) There would be some water saturation in the sand of the Ogallala formation above the water table due to capillary forces, depending upon the physical characteristics of the sand and the thickness of sand above the water table.
- (10) Pressure in the sand of the Ogaliala formation above the water table would be atmospheric unless affected by outside forces.
- (11) The water table in the Ogallala formation has a gradient of 15° per mile in a southeasterly direction. The water is moving at 9 to 12" per day in that direction.
- (12) A negative area of influence, called a cone of depression, is developed by wells pumping water from the Ogallala formation.
- (13) The vertical and lateral extent of a cone of depression is dependent upon the rate of withdrawal, duration of pumping, and the lithologic characteristics of the aquifer within the cone of depression.
- (14) Ground-water mounds, or positive areas of influence, can be created by injecting water into the Ogaliala formation by recharge wells.
- (15) The positive areas of influence around recharge wells probably would not be large and would exist only in the area of the ranharge well.
- (16) The introduction of a second or third phase, oil or gas, below the water table in the Ogallala formation would cause a reduction in the relative permeability in that portion of the Ogallala sand occupied by the oil-water-gas mixture.
- (17) Where both oil and gas are present below the water table, relative permeability of the sand to oil and gas would be zero if the water saturation varied from about 88% to 100%. The relative permeability of the sand to oil and gas increases as water saturation decreases below about 88%. Therefore, oil and gas in the Ogallala formation would not move until water saturation is decreased to less than about 88% of the total pore space occupied by a mixture of water-oil-gas.
- (18) Oil or gas introduced into the Ogallala formation would be free to move provided only that sufficient saturation by oil or gas occurred.
- (19) Once a portion of the Ogallala sand is saturated by oil or gas, it would not be possible to reduce this oil or gas saturation below about 10-12% saturation by the reduction of pressure or by moving water through the sand.

- (20) Any movement of oil or gas in the Ogallala formation below the water table would result in a minimum of about 12% of the oil or gas remaining trapped in the sand through which the oil or gas moved.
- (21) Oil introduced into the Ogallala formation above the water table could result in the sand tending to become oil-wet thereby resulting in residual oil saturation much higher than if introduced below the water table.
- (22) Gas produced with oil is soluble to some extent in the water of the Ogallala formation, depending upon the amount of gas in contact with the water and the pressure at the point of contact.
- (23) Gas dissolved in the Ogallala water would have no effect upon the movement of the water unless free gas began breaking out of the water below the water table. In such a case a reduction in the relative permeability of the sand to water would result.
- (24) Dissolved gas would move with the water in a south-easterly direction at a rate of approximately 9 to 12" per day.
- (25) Gravitational forces would tend to move oil or free gas in the Ogallala formation upward toward the water table.
- (26) A comparison of the water wells contaminated with oil and their relationship to the structure of the base of the caliche shows that these wells are located in the structural highs while water wells contaminated with gas are located both in structural highs and lows. Refer to Exhibit No. 1 which is a map of the Hobbs Pool area contoured on the base of the caliche.
- (27) The structure of the base of the caliche could possibly affect the movement of oil and gas toward structural highs. Refer to Exhibit No. 1.

II. Apparent Contaminated Conditions Which Exist in the Ogallala Formation in the Hobbs Pool Area.

The Committee finds:

- (1) A total of 378 water wells were located in the area. This includes temporarily abandoned and producing wells. It is believed that this represents about 80% of the total number of water wells in the Hobbs Pool area. The majority of these wells are plotted on Exhibit No. 1.
- (2) Based on tests made by Committee members, 17 water wells are suspected to be contaminated by gas. This contamination is in varying degrees, from gas contamination sufficient enough to burn with a small intermittent flame, to a slight taste. The wells are as follows:

Name	Location	Degree of Contamination
Gibbins Easton Gockle Security Supply Ohio Oil Baker Tool Harwell Dowell Humble Oil Bensing	SW SE NE 4-19-38 SW SE NE 4-19-38 SE SE NE 4-19-38 NW NE NE 5-19-38 SE SE SE 32-18-38 SW SE SW 32-18-38 NW NE NE 22-18-38 NW NE NE 22-18-38 SW NE SW 30-18-38 NE IW NE SW 30-18-38	Slight Taste Gas Slight Taste Gas Strong Taste Gas Slight Taste Gas Strong Taste Gas Slight Taste Gas Strong Taste Gas Will Burn Moderate Taste Gas Very Slight Taste Gas

Name	<u>Location</u>	Degree of Contamination
Green Merteugh Moon Moon Goins Ellison L-2230 Pacific Pump	NE NE NE 30-18-38 NY NE NE 30-18-38 NY NE NE 30-18-38 SW NE NE 30-18-38 SW SE NE 30-18-38 SW SE NE 30-18-38 NW NE NE 5-19-38	Very Strong Taste Gas Old Well Would Burn Moderate Taste Gas Moderate Taste Gas Strong Taste Gas Moderate Taste Gas Slight Taste Gas

One of the above water wells (Ohio) is reported to have been contaminated with gas since 1930 when the nearest oil wells were more than a mile away,

The greatest degree of gas contamination was found in the Dowell (NE NE 28-18-38) water well. This well proved to be contaminated to such an extent that small sporadic flames of gas were observed when a lighted match was held over an opened water faucet.

(3) Of the 378 known water wells, 9 are known to have oil standing in the well bore and 3 are reported to be oil contaminated. The wells known to have oil in the well bore are as follows:

Name	Location	Degree of Contamination
Amerada Pet. Ellison L-2230 # 1	C N/2 29-18-38 SW NE NE 30-18-38 SE NW NE 30-18-36 SE SW NE 30-18-38 NE SW NE 30-18-38 SE NW NE 30-18-38 SE SW NE 30-18-38 SE SW NE 30-18-38	19.4 feet 6.3 feet 0.5 feet 0.5 feet 0.8 feet 0.6 feet Trace Cil 2.4 feet 3.8 feet

In the case of the Ellison wells, the owner reported the presence of oil to the New Mexico Oil Conservation Commission and subsequently Commission personnel confirmed the presence of oil in the degree indicated above.

The Amerada well in which 19.4 feet of oil was found was not being produced when first inspected by Committee members. Subsequently, pumping equipment was installed and the 19.4 feet of oil was recovered. As of this date the well is pumping water and no new oil has entered the well bore. Information reported to the Committee indicates the possibility that the oil entered the well bore from the curface and not from the fresh water aquifer.

The wells reported to be contaminated by oil are located as follows:

Name	Location	Degree of Contamination
Jackson	NE NW NW 20-18-38	Unknown
Phillips	NE NW NW 4-19-38	Unknown
Pacific Pump	NW NE NE 5-19-38	Trece

The Jackson well is reported to have oil in the well bore; however, it is the opinion of this Committee that it probably is lubricating oil from the water well pump.

(L) One well is reported to be contaminated by sewage. It is located as follows:

<u>Nama</u>			<u>Lo</u>	cation	Degree of Contamination				
Phillips	#6	SE	NE NW	4-19-38	Unknown				

(5) Forty-two wells were sampled. These samples were analyzed for chloride and sulfide content. Among these 42 water wells

are all wells that were suspected to be contaminated, the remainder being water wells near these wells. The sulfide determination did not indicate any contamination although some of the wells are known to be gas contaminated. With samples collected and analyzed by different methods, the presence of gas contamination might have been detected. A list of the wells and the results of the analysis are shown on Exhibit No. 2. Exhibit No. 3 shows the analysis of a sample collected from one of the Ellison wells during 1956 by Mr. Charles Reider, then a member of the Commission Staff.

(6) In response to the Committee's request, water analyses on 9 water wells were received from oil operators that operate water wells in the Hobbs Pool area. These analyses are included as Exhibit No. 4.

III. Feasibility of Fliminating or Removing The Apparent Contamination.

The Committee finds that there are no practical nor feasible means, now known, by which the apparent oil and gas contamination can be completely removed from the Ogallala formation for the following reasons:

- (1) Evidence available gives no clear indication of the exact extent of the apparent contamination.
- (2) Oil and gas contamination can exist at various depths with the same or other depths in the same area showing little or no contamination.
- (3) More shallow wells evidence oil or gas contamination than deeper wells, thereby tending to confirm that oil or gas entering the Ogallala will migrate upward toward the water table.
- (4) To remove oil or gas from the Ogallala, it would be necessary to flush the contaminated portion of the sand with water, draw the oil or gas into a producing water well, permit the contamination to gradually migrate or disperse, or use a combination of these methods.

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- (5) The combination of high withdrawal rate water wells in an area of apparent contamination encircled by recharge wells would tend to create an extended area of influence. However, the expected results in moving or fluening oil or gas would not justify the large volume of water necessary to be handled to create such an extended area of positive and negative influence.
- (6) In order to decontaminate an area of oil contamination, it would be necessary to essentially remove all of the oil to prevent any further show of contamination. While it is theoretically possible to flush out the cil down to an immobile residual saturation, in practice this would be impossible.
- (7) An area of gas contamination could probably be decontaminated by the use of combined high rate withdrawal and recharge wells. Even so, it would be necessary to remove gas produced with water before injecting the water in the recharge wells. Under these conditions it would be more practical to simply remove the gas from water produced for domestic purposes without a recharge program.
- (8) The general and areal movement of water in the Ogallala formation in a southeasterly direction will tend to migrate or disperse the dissolved gas away from an area of apparent contamination.

IV. The Possibility of Contamination of The Hobbs City Water Supply By Migration from the Area of Apparent Contamination.

The Committee finds:

- (1) Certain of the City of Hobbs water wells are located in the path of ground-water movement from the contaminated area in NE/4 30-18-38.
- (2) Existing oil contamination is expected to be immobilized within the aquifer, especially in the relatively 'dry" zone at the top of the aquifer, before it reaches the city wells. Further, as the city wells are completed at or near the base of the aquifer, the possibility of oil contamination has been greatly reduced.
- (3) Since gas in solution may travel a great distance, certain city wells may be subject to some gas contamination in the future.
- (4) Observation wells should be established and maintained between the contaminated area and the city wells.

The Hobbs City Water Board advised that the City had purchased 6 sections of water rights located 3 or 4 miles to the north and northwest of the Hobbs Pool area. These water rights are considered to be outside of any possible contamination from the Hobbs Pool area.

V. Possible Contamination of the Fresh Water in the Ogallala Formation by Sources Other Than Oil or Gas Wells Such as Sewage, Waste Oil and Acid, Open Storm Sewer Ditches, Gas Plant Waste Water, Refuse, and Oil and Oilfield Brines Held in Earthen Pits.

The Committee finds:

- (1) One water well was reported to be contaminated by sewage.
- (2) It was found that many service companies operating in the Hobbs Pool area are dumping waste material in earthen pits at random, thus creating a source of possible contamination. The City of Hobbs maintains a supervised pit east of the city wherein such waste can be disposed, for a nominal fee, thus eliminating this source of possible contamination to the Hobbs fresh water supply.
- (3) One large storm sewer ditch exists in the southern part of the Hobbs Pool area. The depth of this ditch is such that if it does not actually penetrate the aquifer it is very close to doing so, and is considered a hazard to the underlying fresh water. Although samples of water collected from the ditch by Committee members during August, 1957, did not indicate severe contamination, the open ditch is subject to accidental severe contamination from a number of sources at any time. The analyses of two samples of water collected from the ditch are shown in Exhibit No. 5.
- (4) Analyses indicate that water coming directly from the Phillips Gasoline Plant is not a potential source of contemination (196 PPM CL) but that the lake in which it accumulates is high in chlorides (3450 PPM CL). It is possible that oilfield brines are also introduced into this lake. Disposal of such brines by other means may cause the lake to become gradually lower in chlorides. See Exhibit No. 6 for more complete analyses of plant waste water.
- (5) No accumulation of refuse was found that could be considered as a source of permanent contamination to the fresh water sands.

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- (6) It was found that numerous sources of possible contamination exist in the form of pipeline drips, tank battery burn pits, and salt water disposal pits. The latter source is expected to be eliminated in the near future after installation of proposed salt water disposal systems. Holding or disposing of oil in earthen pits is considered a possible source of contamination to the fresh water sands. This possible source of contamination can be controlled by NMOCC under existing rules and regulations.
- VI. Possible Need For Rules and Regulations Governing the Drilling, Completion, and Abandonment of Water Wells in the Hobbs Pool Area.

The Committee finds:

- (1) There are no rules nor regulations governing the drilling, completion, and abandonment of water wells in the Hobbs Pool area.
- (2) There is a definite need for rules and regulations governing water wells to prevent further contamination of water in the Ogallala formation and to minimize the risks of producing contaminants that are now in the aquifer.
- (3) Rules and regulations should, in part, govern the location, depth, casing and cementing programs, surface and subsurface completion procedure, inspection, and abandonment of water wells.
- (4) There is also a need for rules and regulations governing the drilling and abandonment of any boring or excavation that penetrates the fresh water sands.
- VII. Establishment of a Water Well Observation Program To Detect Any New Contamination and to Observe the Movement, if any, of Contamination from the Area Northwest of Hobbs.

The Committee finds:

- (1) At least 42 water wells, and probably more, are available for observation purposes in the Hobbs Pool area. Exhibit No. 7 is a tabulation listing these wells according to their location and accessibility to water level measurements and to water sample collection.
- (2) As much information as possible should be collected regarding the potential observation wells. Such information should ideally include the driller's log, date drilled, depth, casing program, location of any perforations, and an accurate description of the well location.
- (3) An effective network of observation wells can be established by evaluating the potential observation wells with regard to their location within the Hobbs Pool area and to information available regarding their completion.

VIII. The Possibility of, end Methods for, Obtaining Potable Water From the Areas of Apparent Contamination.

The Committee finds:

- (1) It should be possible to obtain potable water at almost any location in the Hobbs Pool srea provided that proper depth is penetrated, proper methods used to complete the water well, and reasonable caution is used in locating the well with respect to nearby possible sources of contamination.
- (2) Since most contamination by oil and gas is evidenced in shallow wells, and since oil and gas will tend to migrate upward toward the water table, it would be advisable to complete water wells as deep as possible in the Ogallala, cement casing to the completion depth, seal around the top of the casing at the surface, and have the casing extend above the natural ground level.
- (3) Since some evidence indicates that various depths may be contaminated, casing should be cemented so that shallower intervals can be tested if contamination is found in deeper intervals.
- (4) If a water well in the Hobbs Pool area evidences contamination by oil and/or gas, this water can be made potable by removing the oil at the surface by a simple skimming or settling process. Gas can be removed by aeration. If gas contemination is severe, it might be necessary to flow the water over several cascade type trays with a layer of activated charcoal in the bottom of each. This charcoal should not require frequent replacement. If a disagreeable odor or taste of hydrogen sulfide remains a few PPM of chlorine added to the water should remove the odor and taste. Water from gas contaminated wells produced directly into and held in pressure tanks will retain gas in solution to be released when water is withdrawn.

IX. Causes of Oil and Gas Well Casing Deterioration.

The Committee finds:

- Cil Conservation Commission records indicate that to this date defective casing has been repaired at 63 Hobbs Pool wells. There are numerous causes of this deterioration of casing in oil and gas wells. Some of these causes are listed as follows:
- (1) Corrosive conditions are known to exist in the Hobbs Pool which can cause leaks in any casing string subjected to these conditions.
- (2) Severe internal casing corrosion can result from the presence of hydrogen sulfide contained in gas produced with the Hobbs crude oil.
- (3) External or internal casing corrosion can result from electrolytic action, action of sulfate reducing bacteria, or galvanic action.
- (4) Stress concentrations resulting from even mild corrosion can cause failures of the well casing.
- (5) Wear between the tubing and casing in pumping wells as is caused by the movement of tubing during the pumping cycle can cause casing leaks.
- (6) Pressure in formations behind the casing can cause collapse of the casing.

(7) Casing will be subjected to continued high pressure from the producing formation throughout the foreseeable future. Hobbs Pool bottom hole pressures averaged 966 psig in 1954 and 941 psig in 1956, indicating very gradual decline. With continued high pressure on the casing and considering the age of the remaining Hobbs Pool wells where casing has not been repaired, the instance of casing leaks may be expected to increase during the 20-30 years remaining life of the pool.

X. Methods of Preventing or Minimizing Oil and Gas Well Casing Deterioration.

The Committee finds that them are numerous means and materials available to the oil industry by which oil and gas well casing deterioration can be minimized or eliminated. Some of these means and materials are listed as follows:

- (1) Coatings applied to the interior and/or exterior of casing.
- (2) Numerous and various chemicals injected into oil and gas wells to minimize corrosive attack,
- (3) Induced electrical current or elimination of electrical current to minimize electrolytic corrosive attack.
- (4) Spotting chemically treated mud outside of casing or circulating cement outside of casing to prevent corrosive attack by sulfate reducing bacteria,
- (5) Setting packers in the casing in or above the producing formation and filling the annular space above the packer with non-corrosive liquid.
 - (6) Circulating cement between strings of casing.
- (7) Using anchors or guides to prevent tubing-on-casing wear.

XI. Methods of Determining the Existence of Defective Casing.

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The Committee finds that there are numerous methods available by which defective casing can be detected. Some are listed as follows:

- (1) Internal caliper surveys to gauge the extent, depth and location of corrosive attack on the internal string of casing.
- (2) Temperature surveys to locate temperature snomalies which are possible indications of casing leaks.
- (3) Hydraulic pressure tests using packers to determine if a leak exists and to locate the leak.
- (4) Potential profile surveys to determine the probability of external casing corrosion and thereby the likelihood of casing leaks.
- (5) Bradenhead pressure surveys to determine by pressure observations on the several casing strings the possible existence of casing leaks.
- (6) Chemical analysis of produced water as an indication of a casing leak through the presence of foreign water.

- (7) Lack of normal clearance between tubing and casing as an indication of possible casing collapse or of parted casing.
- (8) Any observed abnormal performance of the well with respect to bottom hole pressure, gas-oil ratio, water production, or oil production.
- (9) Unusual performance or presence of foreign liquid or gas in shallower oil, gas, or water wells in the vicinity.
- (10) Electical logs, permeability surveys, and radioactive tracer surveys to locate leaks or parted casing.

The method or combination of methods best adapted for any particular well will depend upon the conditions which exist at each individual well. The bradenhead pressure survey is least expensive, quicker, and very effective under proper conditions.

XII. Methods of Repairing Oil and Gas Well Casing Found to be Defective.

The Committee finds that there are numerous means by which casing can be effectively repaired. The method to be used will depend upon the conditions which exist at the individual well. Some of these methods are as follows:

- (1) Recover the entire casing string found to be defective and run and cement an entirely new casing string.
- (2) Run and cement a full string of smaller casing inside the defective casing.
- (3) Recover that portion of the casing string found to be defective, replace casing, and re-run casing string using casing bowl overshot or other method to tie back on to and seal with casing left in the hole.
- (4) Run and cement a liner covering that portion of the casing found to be defective.
- (5) Circulate cement to the surface between casing strings during completion or repair operations.
- (6) Squeeze cement through casing leaks and obtain a solid final build up squeeze pressure.

XIII. Programming of Bradenhead Pressure Tests on Oil and Gas Wells In the Hobbs Pool Area.

The Committee finds:

- (1) Bradenhead pressure surveys, where the several casing strings are open for pressure measurement, should indicate whether or not a casing leak exists and therefore the possibility of fresh water sand contamination at the well being tested.
- (2) Bradenhead pressure surveys conducted annually are too infrequent to provide adequate warning of possible contamination of the fresh water sand.
- (3) Bradenhead pressure surveys conducted quarterly should provide more adequate warning of possible contamination of the fresh water sand.
- (4) It should be necessary for the NMOCC to witness only one of the quarterly bradenhead pressure surveys each year.

- (5) The operators of the individual wells should conduct the other three surveys, recording and saving the test results, and filing a certification with NMOCC that all wells operated by that operator have been tested and whether or not leaks were found.
- (6) All producing oil and gas wells, abandoned wells, temporarily abandoned wells, and salt water disposal wells, should be scheduled for the quarterly bradenhead surveys.
- (7) There are a number of old oil wells in the Hobbs Pool area with the intermediate casing set on open surface casing with clamps, thereby preventing pressure observation. Such open surface casing is a possible source of fresh water sand contamination since the top of the surface casing is in the bottom of cellars. In order to obtain valuable information during bradenhead pressure surveys and to eliminate one possible source of contamination, the top of the annular space between the clamped intermediate casing and the surface casing should be sealed and vented to the surface.

EXHIBIT NO. 2 ANALYSIS OF 42 SELECTED WATER WELLS IN HOBBS POOL AREA

Analysis was to include only sulfide and chloride content. However no sulfides were identified.

However no sulfides were identi	fied.				
Name and Source	Ţ	OC8	tion	Date Obtained	Chloride mg/1
BLACKBURN, Tap at well	SW SE	SW	32-1.8-38	8-14-57	56
CONTINENTAL, Abd. Hole	NE SH		13-18-37	8-14-57	72
HOBBS ICE CO.	NW SE	SW	34-18-38	8-15-57	112
SUN OIL CO. Tap at Kuth's	SW NE		5-19-38	8-14-57	96
OHIO OIL CO. NO. 2, Tap by	NW SE		32-18-38	8-14-57	48
Storage Tank	****		.5~ _5		40
YATES SHELL STATE, Abd. Well	MV SE	SE	23-18-37	8-14-57	80
HOBES IRON & METAL, Tap	NW SE		3-19-38	8-14-57	80
ROBERT OWINGS. Tap	NW NE	NE	3118-38	8-13-57	80
BRIANT, From well	NE SI		30-18-38	8-13-57	56
D D 1411-D 11-10	NE NE		30-18-38	8-13-57	72
RYBANT, Tap	NE NE	ME	30-18-38		48
HOBBS GAS CO., Tap	NN NE		28-18-38	8-13-57	112
C. MYERS, Tap	SE SE		4-19-38	8-14-57	48
SIMON, Tap	SE SE	-	32-19-38	8-14-57	64
PHILLIPS NO. 3, Well Tap	NW NE		32-19-38 4-19-38	8-14-57	104
PHILLIPS NO. 2, Pump Tap	MA NE	Mar	1,_19_3#	8_7157	88
BROWN WELL SERVICE, Tap	NE NW	HI.	5-19-18	8-14-57	112
Water from Phillips Gasoline	NW SE		4-19-38	8-12-57	749
Plant from ditch to W-most	**** (45)	44.*	4-17-50	0-16-71	147
pond					
PHILLIPS NO. 6, Tap at Well	NW NE	ND. F	4-19-38	8-13-57	227
HUMBLE OIL, Tap at Well	SW NE		30-18-38	,-	
JACKSON, Sample from earth				8-13-57	72
ditch 10 yds. S. of pump	NE NY	MM	20-19-38	8-13-57	494
STEETE Men server		٠.		4 - 4	
STEELE, Tep sample CAZEE, Tep	SE NE		4-19-38	8-12-57	96
	SW NE		30-18-38	8-13-57	64
PACIFIC PUMPS, Tap Sample	NW NE		5-19-38	6-12-57	64
SECURITY, Tap Sample	NE NW	-	5-19-38	8-12-57	80
H. EASTON, Tap Sample (S. House)	SW SE		4-19-38	8-14-57	64
GIBBONS, Tap Sample (N. House)	SW SE		4-19-38	8-12-57	40
BAKER TOOL, Tap Sample	SE SE		32-18-38	8-12-57	40
OHIO OIL CO., Tap Sample	SE SE	SE	32-18-38	8-12-57	128
E. W. BENSING, Tap Sample	NE NW		30-18-38	8-13-57	80
ROBERT BENSING, Tap Sample	NE NW		30-18-38	8-13-57	80
JESS HARVEIL	NW NE	-	28-18-38	8-13-57	104
DOWELL, INC., Tap Sample	NE NE		28-18-38	8-13-57	56
MAYFIELD, Tap Sample	NE SE		30-18-38	8-13-57	72
GOINS, Tap Sample	SW NE		30-18-38	8-13-57	343
W. E. MOON, Tep Sample	NW NE		30-18-38	8-13-57	104
MERTAUCH, Tap at new well	NW NE		30-18-38	8-13-57	56
BLAKLEY, Tep	NE SE		30-18-38	8-13-57	80
L. DEVERS, Tap Sample	SW SE		30-18-38	8-13-57	64
P. L. RIEVE, Tap Sample	Su se i		30-18-38	8-13-57	104
COX, Well Sample	NE SE		30-18-36		48
*DOWELL, Gas in line and	NE SE	NE	30-18-38	8-22-57	80
spurting as sample				•	
was taken					

*Contained sulfide present as ferrous sulfide in trace quantity. No free hydrogen sulfide was found in this sample nor in any of the other samples listed above.

With samples collected and analyzed by different methods, the presence of gas contamination might have been detected.

ANALYSIS OF SAMPLE FROM ELLISON WELL AUGUST, 1956

Air and Water			95.37%
Methane			2.30%
Ethane	•		0.15%
Propene		i	0.49%
CO2	:		1.49%
Butane (plus)			0.14%
H ₂ S			0.06%

Analysis made by Permian Basin Pipeline using Mass Spectrometer. Sample collected by Mr. Charles Reider, then a member of the Commission Staff.

ANALYSIS OF WATER IN PARTS PER MILLION FROM WATER WELLS IN HOBBS POOL AREA

NAME		LOC	ATION	DATE	Na	Ca	Mg	30 ₄	Cl	co ₃	HCO3
Pan American	ne sv	WM	33-18-38	9-1950 7-1951 7-1952 8-1957	35 54 32 9	74 57 60 103	18 16 21 21	77 62 62 69	50 53 57 60	0 0 0 12	226 202 232 201
Pan American	se ne	SE	4-19-38	9-1950 7-1951 7-1952 8-1953 6-1956	51 45 56 32 63	123 128 137 139 80	25 29 27 25 12	56 53 30 72 63	181 195 227 163 78	100000	256 256 268 262 256
Pan American	nw ne	NE	9-19-38	10-1950 7-1951 7-1952 8-1953 8-1955 5-1956	67 52 52 31 58 66	39 79 36 124 80 86	18 21 21 19 17	109 93 96 114 103 113	82 67 71 85 70 71	0 0 0 12 0 0	262 250 262 238 218 256
Humble Federal Bowers N	io. 3			7-1957	Ų.	190	46	22	66		-,,
Sun Oil Co. McKinley No. 1	NE	NE.	5-19-38	11-1953	56	95	15	80	120	0	205
McKinley No. 2	NE	NE	5-19-38	11-1953	47	ωı	14	98	53	0	227
Gulf Oil Corp. West Grimes				9-1952 7-1953 7-1954 7-1955 7-1956	36 50 50 46 65	70 59 62 65 96	7 7 5 6 19	48 44 45 45 119	31 33 32 31 92	00000	229 235 235 238 250
East Grimes				7 - 1953 7 - 1954 7 - 1955	78 60 53	93 92 94	12 12 14	130 102 99	82 74 74	0 0 0	244 244 244

ANALYSIS OF WATER SAMPLES FROM LARGE STORM SEWER DITCH

The chloride and sulfide content of the two water samples, each designated "open sewer, Hobbs, New Mexico", submitted August 21, 1957, was negligible. Both samples gave a negative Endo Ager Test, indicating they were free of fecal contamination.

They contained organic metter, both dissolved and in suspension, and considerable dissolved iron.

The sodium, potassium, and calcium content was 12, 4, 24 and 9, 4, 28 parts per million, respectively.

ANALYSIS OF WASTE WATER

Phillips Gasoline Plant

Sample No. 1 - Waste water direct from plant Date Collected - 8/6/57

Phenolphthalein end point = 550 ppm
Methyl orange (M-orange) = 620 ppm
Total hardness = 0
Chlorides = 196 ppm
Ph = 11.55
Orthophosphete = 45 ppm
Hydrogen sulfide = 0 ppm

Not considered potable but is soft. Will not scale.

Sample No. 2 - Waste water from large pit behind Phillips Plant Date Collected - 8/6/57 Algae growth moderate

Phenolphthalein end point = 0 ppm Methyl orange (M-orange) = 196 ppm Total hardness = 1700 ppm Chlorides = 3450 ppm Ph = 7.55 Orthophosphate = 20 ppm Hydrogen sulfide = 0 - 1.7 ppm

Not considered potable due to hardness and chlorides.

EXHIBIT NO. 7

7,

MATER WELLS IN THE HOBBS POOL AREA WHICH COULD BE UTILIZED FOR OBSERVATION PURPOSES

Accessibility of Well

ž		For Collection	For Collection of Pater Sample		
Well Location	For Measurement Of Mater Lavel	From Tap or Discharge Pipe	Thief or Trip Sampler	Fresent Use	Remarks
NE ST 13-16-37	× ~		×	Abandoned	Sampled 8/14/57
MI SW SE 13-18-37	×	*		Stock	!!ind:ull
NH SE SE 23-16-37	×		×	Abandoned	Sampled 8/14/57
SE SE SE 24-18-37	~	*		Domestic	Windmill.
E IN SE 17-18-38	٠.	¢.			Not checked
ता आ आ १६	٠.	۰۰	٥.		Not checked
St 34 34 19	×		×	Abandoned	
HE NV NV 20		×		Irrigation	Sampled 8/13/57
SE/4 21	٥٠	ç.	C •		Kany wells. Not checked
NET NW 27	Ç.	61	6.	Standby	City Fell #13
SM SW SE 27	, o •	٥.		Municipal	City Well
N/2 28	6.	۰۰	٥.		Many wells. Not checked,
温 5.1 16 29	×		×	Abandoned	Contained oil 8/14/57
S.: NE SE 29	×		×	Abandoned	N° most of two wells

Accessibility of Well

2

	Remarks		Domestic, Irrig. Many Wells, Conteminated area.	÷		Windmill	Three wells present. Sample from contaminated well.		Not checked		Plugged with timber	Plugged with bull plug	Meny wells. Not checked.	Many wells. Not checked.	
	Present Use	Domestic	Domestic, Irrig.	Abandoned	Abandoned	Domestic	Domestic			Abandoned	Abandoned	Abandoned			Domestic
of Mater Sample	Thief or Trip Sampler		×	×	×			×		×	×	×	. 61		
For Collection of later Sample	Tap or Discharge Pipe	×	*			×	×		٥٠					~	
For Mesminoment	Of later Level	×	×	×	×	×	c	×	*	×	×	×	٠٠	٠.	×
·	Well Location	St 12 M 30	FE/4 30	NE NE SM 30	St NE St 30-16-38	SE SE SE 30	S. 725 SE 30	NE IE SV 31	SE 54 SE 31	NE NE NE 32	IE SV IE 32	NE NE NE 32	\$/2 32	低/4 33	SH SE SH 33

Accessibility of Well

-	For Measurement	For Collection From	For Collection of Water Sample From By		
Vell Location	Of fater Level	Tap or Discharge Pipe	Thief or Trip Sampler	Present Use	Remarks
NE 31: 31: 34	×		×	Domestic	
St 50 50 34	*		×	Abandoned	
NW SE SY: 34		*			• .
N/2 34	6.	0.			Many wells. Not checked
5/2 3-19-38	٠٠	~•			Many Wells. Not checked
N/2 4	۰.	Ç.			Nany wells. Not checked
85-61-1 MS 1'S MS	*		*	Abandoned	
7 3S 3N 3S	0•	×		Domestic	Sampled 8/12/57
N/2 5	×	×			Many wells. Not checked
NE NE SE 6	X .		Ħ	Abandoned	Timber plug
9 W W AS	6.	K		Stock	Windmill
NE/14 9-19-38	¢.				4 wells here. None checked.
SW NE SE 10	œ	×		Domestic	Windmill.
SE SA SE 10	×		ĸ	Abandoned	

Preliminary Assessment of the Windmill Oil Site Unit J, Section 30, Township 18S, Range 38E, Lea County, New Mexico

Prepared for:
U.S. Department of the Interior
Bureau of Land Management
National Applied Resource Sciences Center
Contract No. 1422-N660-C-98-3003
Task Order 00-53-OY2

Prepared by: Kelly Hurt, Ph.D. Dynamac Corporation 3601 Oakridge Boulevard Ada, OK 74820

Date Prepared: February 23, 2001

Introduction

At the request of the Bureau of Land Management, Dynamac Corporation personnel have completed an assessment of all available information regarding the Windmill Oil Site (Contract No. 1422-N660-C-98-3003, Task Order 00-53-OY2). The task order specifically requested that Dynamac Corporation contact the New Mexico Oil Conservation Division, review the location of all registered wells in the area, identify local property and oil well owners, research the published literature on ground-water resources in the area and accumulate all available information on the site. A brief report summarizing site information, identifying data gaps and suggesting further data collection activities was also requested. This report was researched and written in response to the Bureau of Land Management's request. Given the obscure nature of many of the materials referenced in this report, all references are provided in Appendix A.

General History of the Hobbs Oil Field Area

According to a technical report produced in 1993 by the U.S. Department of Energy, the Hobbs Oil Field was ranked the 77th largest oil field based on cumulative production data compiled in 1991 (U.S. DOE, 1993). The Hobbs Field was discovered in 1928 and continues to produce crude oil. The Ogallala aquifer serves as a sole source drinkingwater aquifer for the Lea County area and overlies the entire Hobbs Field. Crude oil was first discovered in the Ogallala formation in the Hobbs Field area in the 1950's by a surface owner attempting to drill for water. In the search for suitable water, the surface owner drilled thirteen wells, all of which displayed visual signs of petroleum contamination (New Mexico Oil Conservation Commission, 1965).

Final Report of the Committee Studying Protection of the Hobbs Fresh Water Sands

After discovery of crude oil in the Ogallala formation, the New Mexico Oil Conservation Commission (NMOCC) requested the production of a report describing the condition of ground-water resources in the northwestern portion of the Hobbs Field. The committee responsible for producing this report consisted of state agencies (NMOCC and the New Mexico State Engineer's Office), Hobbs City Water Board members, and oil company representatives (New Mexico Oil Conservation Commission, 1957a). Pan American Petroleum Corporation, Continental Oil Company, Samedan Oil Corporation, Shell Oil Company, and Tidewater Oil Company were represented on the committee. In addition, Mr. E.G. Minton, Lea County Hydrologist, participated in meetings prior to issuance of the final report.

Subcommittees were formed with each consisting of both industry and agency representatives. Subcommittee members were responsible for collecting information regarding the topics outlined by the NMOCC. They sought information and advice from all available sources including recognized authorities, research organizations, and reports. In summary, the report concluded that:

- 1. The regional dip of the Ogallala formation (potential direction of crude oil migration) was approximately 15 to 20 feet per mile in a southeasterly direction. Ground water moved 9 to 12 inches/day to the southeast.
- 2. The upper 5 to 40 feet of the formation consists of caliche and is underlain by coarse sand and gravel.
- 3. Oil introduced into the Ogallala formation would be free to move given sufficient oil saturation.
- 4. Once contaminated with crude oil, approximately 10 to 12 percent of the oil, with respect to saturation, would remain after skimming and water flushing of the Ogallala sand. Migration pathways would also retain approximately 12 percent of the oil after free phase product had moved through the pathway.
- 5. The structure of the caliche (fracture orientation and formation structure) could affect the movement of oil.
- 6. Eight water wells were contaminated with oil in Section 30, as determined by visual inspection. The oil thickness measured in these wells ranged from 0.5 to 6.3 ft. A trace of oil was reported for one well.
- 7. The exact extent of contamination could not be determined.
- 8. It would be necessary to remove all oil from the Ogallala sands to prevent further contamination of ground water.
- 9. Some of the City of Hobbs water wells were potentially located downgradient of the contaminated area.
- 10. Oil was expected to be immobilized near the top of the aquifer. Screening of municipal water wells near the base of the aquifer reduced the possibility of contaminants impacting water supplies.
- 11. Observation wells should be installed between the contaminated area and municipal wells.
- 12. Other sources of contamination existed. These included waste pits, storm sewer ditches, pipeline leaks, and surface spills.
- 13. Regulations were needed to prevent further contamination of ground water.
- 14. Any additional water wells should be completed near the base of the aquifer.
- 15. Conditions in the Hobbs Field were found to cause casing deterioration.
- 16. Quarterly pressure tests should be conducted on all production wells.

Pressure testing revealed that many production wells were leaking in the Hobbs Field (Figure 1). Inspection of Figure 1 illustrates that, at the time of the report, leaking production wells and contaminated water wells were present in 16 sections. Subcommittee members reported approximately 52 historical cases of well leaks and subsequent repairs in the Hobbs Field to the NMOCC in July 1957 (New Mexico Oil Conservation Commission, 1957b). An NMOCC memorandum dated July 26, 1957 indicated that committee members estimated that 300,000 barrels of crude were in the aquifer (New Mexico Oil Conservation Commission, 1957c). Getty Oil Company (Tidewater Oil Company) and Humble Oil and Refining Company operated those wells that were leaking or had historically leaked in Section 30 of Lea County. Humble Oil and

Refining Company reported to the NMOCC that a leak had been discovered in the cellar of the Federal-Bowers "A" No. 2 on August 2, 1953 (Humble Oil, 1953). Pressure testing on the bradenhead of this well resulted in a flow of 18 barrels per hour. The duration of the leak prior to detection was not known. However, it is known that the well was installed in 1930. Records indicate that Windmill Oil later operated oil recovery wells on unit J of Section 30, the same unit where the Federal-Bowers "A" No. 2 well was located.

History and Operations of Windmill Oil Company

Joseph O. Walton obtained a hearing with the NMOCC on April 14, 1965 to discuss the capture and sale of crude oil in the Ogallala formation (New Mexico Oil Conservation Commission, 1965). Mr. Walton explained that W. Ayers had sought his advice in 1965 concerning the occurrence of oil in new domestic-use water wells that he was attempting to install and use in Section 30 of Lea County. Mr. Walton stated that he recognized that this issue had existed since the release of the NMOCC report in 1957. He testified that it was at that time that he decided to try to salvage oil from the Ogallala formation. He then testified that he sought help in designing an inexpensive means of recovering the oil from Pat Ballew of the Seminole Safety Anchor Company. Mr. Ballew assisted Mr. Walton in designing windmill powered oil skimmers. Mr. Walton also reminded the NMOCC that they had given him permission to test this system. Mr. Walton then testified to the NMOCC that he was attempting to provide a service to the community by removing nuisance oil from the only potable water source in the area. In addition, he argued before the committee that the oil that he was attempting to recover was "fugitive" oil and not protected by mineral and oil leases granted to lease operators. The NMOCC granted Mr. Walton's request to recover and market oil from the Ogallala formation in Section 30. Township 18 south, Range 38 east, Lea County, New Mexico on May 4, 1965 (Case No. 3235, Order No. R-2902). Both Humble Oil Company and Getty Oil Company objected to the granting of this judgment to Mr. Walton. Eventually, a settlement was reached between Mr. Walton and Humble Oil that allowed Mr. Walton to recover and market oil from unit J of Section 30. The operation of Windmill Oil and Humble Oil in unit J of Section 30 was covered by Federal Lease No. LC-032233-A (Bureau of Land Management, 1966). Grimes Land Company of Hobbs, NM currently owns the surface rights of the property.

Mr. Walton, doing business as Windmill Oil Company, subsequently proceeded to recover fugitive oil from the Ogallala formation. Sixty-eight of seventy-seven wells installed by Windmill Oil produced oil. Humble Oil granted Windmill Oil the right to operate 15 wells (all producers) in Section 30. NMOCC records indicate that Windmill Oil applied for and received requests for allowable and authorization to transport approximately 425,000 barrels of fugitive oil between 1965 and 1996. More than 200,000 barrels of oil were produced between 1965 and 1970. The production rate of Windmill Oil's wells decreased dramatically between 1970 and 1996 (Figure 2).

Degree and Extent of Crude Oil Contamination in the Ogallala Formation

Decreases in production rate experienced by Windmill Oil were likely associated with declining water levels that allowed oil to migrate below the vertical extent of Windmill Oil's wells. Several lines of evidence point to this conclusion. Windmill Oil's production trend closely resembles the water level elevation trend (Figure 2). Therefore, it may be concluded that the amount of oil available for skimming decreased as the water table decreased due to increased withdrawal of ground water in the area. Thus, oil migrated to vertical levels below the screened interval of the wells. This line of reasoning is also supported by the finding that many of Windmill Oil's wells were dry by the mid 1990's. Field investigations conducted by Bill Olson (NMOCD) in 2000 verified that most of the shallow wells in the area are, indeed, dry. However, one well on the Ayers residence near the site was completed deeper than the other wells surveyed. A layer of oil 15.86 feet thick was discovered in the well (30.53 feet of water separated the oil layer from the bottom of the well). Lastly, interviews with local water well drillers revealed that oil is routinely encountered both on the surface and at depth in the Ogallala formation. Oil encountered at the surface of the Ogallala is likely from near surface leaks while oil encountered at depth is probably related to casing leaks at depth. According to Allen Eades, a Hobbs area driller (telephone: 505 392-7750), encounters with oil in the formation are frequent near the Windmill Oil Site. Mr. Eades has not documented the exact locations where oil was encountered. Instead, the current practice is to drill below affected areas before setting water well screens.

The amount of oil recovered by Windmill Oil indicates that, at a minimum, a substantial residual source of petroleum remains in the sediments overlying the aquifer. Although contaminants found in the residual phase are not independently mobile, percolation of water from the surface after precipitation events will continue to dissolve and transport contaminants to the aquifer. This process would ensure that a sizeable plume of dissolved oil constituents would exist even if all of the free phase crude oil had been removed. In addition, the longer that free phase oil is allowed to remain in place while water levels decrease, the worse the condition becomes since the "smear" zone of residual phase oil will increase in thickness further complicating and expanding remedial procedures.

It is very likely that some portion of the contaminants is in a free phase state located at the top of the aquifer. The apparent relationship between water level and production trends suggests that the controlling factor on production was the relationship between well screen depth and water table instead of volume of free-phase crude oil remaining. Therefore, it may be assumed that a substantial amount of crude oil remains in the aquifer. The presence of free-phase crude can sustain or cause the expansion of a dissolved plume of contaminants over a substantial length of time. The rather common presence of oil in the Ogallala formation, as evidenced by local drillers, can also be considered as anecdotal evidence of the extent of contamination. Given that more than 17,000,000 gallons of oil have been recovered from the site and that at least 1,700,000 gallons of oil are probably still in the formation, then it is not unreasonable to assume that

the length of the dissolved plume of contaminants emanating from this source can be measured in miles.

Vulnerability of Receptors

According to J.R. Harris, Municipal Water System Manager, City of Hobbs, the nearest municipal water supply well operated by the City of Hobbs is approximately two to three miles from the site. In addition, Mr. Harris stated that the municipal wells operated by the City of Hobbs are not downgradient of the Windmill Oil site based on the regional direction of ground-water flow to the southeast. However, this may not necessarily be true since, according to a report written by Susan Morris (New Mexico Environment Department, Ground Water Quality Bureau) it has been observed that local ground-water flow direction is controlled by the dip of the Red Beds underlying the Ogallala aquifer (New Mexico Environment Department, 2001).

A second factor that seemingly is providing some protection of municipal wells is the location of well screens in vertical relation to the oil. Typically, production water wells are screened at the base of aquifer to ensure the longest life possible of the wells. Since the majority of the oil is likely at the water table, then a layer of clean water is separating the contaminants from the well screens. However, the decreasing thickness of the Ogallala aquifer is a well-documented problem (USGS, 1995). Therefore, as the Ogallala formation continues to be dewatered, the likelihood of contamination of municipal water wells increases. The example water levels used in Figure 2 were taken from a water well in Section 30 and showed a twenty foot decrease in water levels over a twenty year period. Given the continued demand for water by oil and agricultural industries and other municipalities, the rate of dewatering is likely to remain constant or increase.

Several private wells sampled near the Windmill Oil Site by Bill Olson and Wayne Price (NMOCD) did not show any signs of gross contamination by crude oil. The Ayers, King, Powers, Kerbo, Pfeiffer, Jones, Handy and Flowers families used these wells. It was assumed that private water wells in the area are screened near the base of the aquifer. Again, it is possible that the distance between the oil on the surface of the aquifer and well screens at the base of the aquifer along with the likely low rates of pumping prevents contaminants from entering the private wells. This serves as the simplest explanation for the lack of contamination. Nevertheless, oil can still be found in the Ogallala formation in one remaining shallow well that is screened across the water table (New Mexico Oil Conservation Division, 1996). This well is located generally north (upgradient based on regional ground-water flow) of the Windmill Site at 1700 Robert Lane and Mahon. Thus, concerns have been raised that the local direction of ground-water flow may be different than regional flow (New Mexico Oil Conservation Division, 1997). However, it is not known if the oil found in this well is migrating from the Windmill Oil Site.

Conclusions

Due to the lack of site information, it is impossible to produce concrete conclusions regarding the site. However, the information currently available is adequate for the

construction of a simple site conceptual model. Initial conclusions based on this preliminary assessment are as follows:

- 1. The Federal-Bowers "A" No. 2 well was drilled by Humble Oil Company, which has since been renamed Exxon Oil Company, on property where the Bureau of Land Management controlled the mineral lease.
- 2. A leak of 18 barrels per hour was documented at the Federal-Bowers "A" No. 2 well.
- 3. Windmill Oil Company operated oil recovery wells screened in the Ogallala formation on the property occupied by the Federal-Bowers "A" No. 2 well and controlled by the Bureau of Land Management. Surface rights are owned by Grimes Land Company, Hobbs, NM. However, Windmill Oil also operated in other units of Section 30. Therefore, it is not known if other production wells in Section 30 contributed to contamination found beneath unit J.
- 4. Windmill Oil Company removed a substantial amount of oil.
- 5. Trend analyses suggest that decreased production by Windmill Oil Company wells was related to decreasing water levels. Therefore, it is likely that more recoverable oil remains beneath the site.
- 6. The extent and degree of contamination is not known.
- 7. The direction of migration is not known.
- 8. The threat to municipal and private water wells may not be accurately understood. Since the Ogallala aquifer serves as the sole source of drinking water for the area, the potential implications of contamination are severe.
- 9. The occurrence of crude oil in the Ogallala formation is likely widespread and due to multiple sources not associated with the Windmill Oil site.
- 10. More studies are needed to accurately define the degree and extent of contamination.
- 11. In the meantime, the health of rural residents must be protected either by repeated sampling and analyses of each residential well or by providing city water.
- 12. A meeting between interested parties should be scheduled after finalization of this report. A potential list would include Exxon Oil, along with other interested oil companies, BLM, City of Hobbs, NMOCD, Grimes Land Company, City of Eunice, and residents living near Windmill Oil.

In summary, the most plausible conclusion is that the Federal-Bowers "A" No. 2 well, owned by Exxon Oil, released the crude found beneath the BLM lease in unit J. At this time, it is not known how much oil remains, how far it has migrated, which direction it has migrated, and which receptors it is likely to impact. Additional studies will be necessary to answer these questions. However, the degree and extent of contamination is probably significant.

Suggestions for Data Acquisition

Since only historical data and anecdotal information are available, additional data are needed to determine the current extent and magnitude of problem. However, initial assessments suggest that the problem is significant. It may be advisable to initially use non-invasive site characterization techniques (surface geophysics) to optimize monitoring well placements and possibly detect the remaining crude oil. Given the relatively shallow depth to water, surface geophysics may detect a lens of oil floating on the water table. Later, monitoring wells will be needed to accurately determine the origin, extent and degree of contamination, potential receptors and the direction of migration. During well installation, cores of subsurface material can be acquired and sampled for residual phase contamination. In addition, monitoring wells can be sampled to determine the presence of free-phase crude oil and dissolved phase contaminants in ground water.

The use of direct-push well installations may be possible. Direct-push installation of wells does not produce investigation-derived waste that must be disposed. This type of installation is also faster and somewhat less expensive than conventional hollow stem auger methods. However, subsurface materials may provide too much resistance for the effective use of direct-push techniques.

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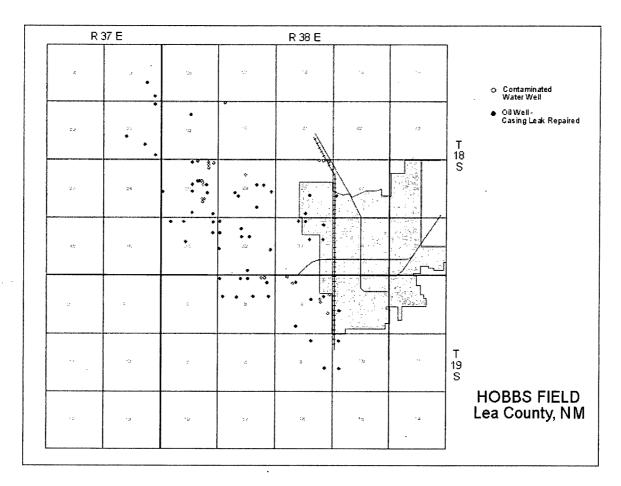
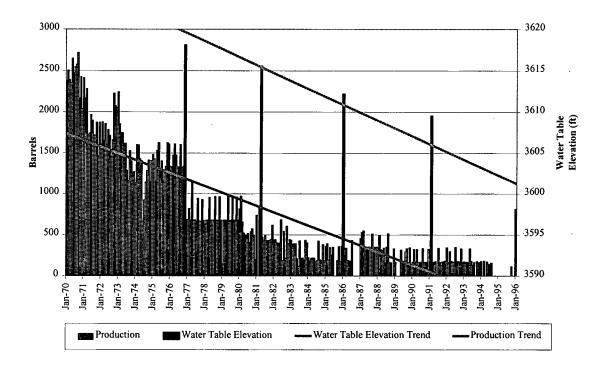


Figure 1. Leaking Production Wells and Contaminated Water Wells in the Hobbs Field.

Figure 2. Windmill Oil Production vs Water Table Elevation (1970 - 1996)



Appendix A

FIFTH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA

IN THE DISTRICT COURT OF LEA COUNTFILED JUL 2 9 1965 OFFICE

STATE OF NEW MEXICO

W.M.Beauchamp

CLERK OF THE DISTRICT COURT

WINDMILL OIL COMPANY, A Co-Partnership	campose	d .
of JOSEPH O. WALTON and JOEY BALLEW, an		
JOSEPH O, WALTON and JOEY BALLEW, Indiv	iquality	
VS	}	No24262
HUMBLE OIL & REFINING COMPANY, A Corporat	tion	

Defendant.....

and WILLIAM CECIL GRIMES

		•	
NOTIO	CE OF SETTING CAS	SE ON MOTION	
To: Neal and Neal, P.O). Box 278, Hobbs, New	Mexico	
	-		
		Attorney(s) For Plaintiff	
Girand, Cowan and Re	еве, Р.О. Вох 1290, н	obbs, New Mexico	
Hinkle. Bondurant &	Christy,P.OBox10.	Roswell, New Mexico	
You are hereby notified t	hat the above styled and no	umbered cause has been set for hear	ing on
NOTION		· ·	
	MONDAY	, at9:00 o'clockA.M	on the
		House in Lovington, Lea County, New M. BEAUCHAMP WM Beauch Clerk of the District Court.	
	By:	Deputy	
TATE OF NEW MEXICO,		·	
OUNTY OF LEA.) ss.		
30 SEA.	CERTIFICATE OF	MAILING	
		·	
	ove and foregoing copy of	within and for Lea County, New I NOTICE OF SETTING ON MOTIO	
IN WITNESS WHEREO	F, I have hereunto set in	y hand and affixed the Scal of said	Court
this	f JULY 19	•	p
	<u>.</u>	Clerk of the District Court.	Mamp
	Ву:	Deputy	

HITH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA

IN THE DISTRICT COURT OF LEA COUNTY OCT 10 1966 OFFICE

STATE OF NEW MEXICO

W.M. To Law Lawy

WINDMILL OIL COMPANY, a copartnership composed of Joseph O. Walton and Joey Ballew, et al

18

Plaintiffs,

V8

No. 24262

HUMBLE OIL & REFINING COMPANY, a corporation, et al

Defendants;

NOTICE OF DISMISSAL

PLEASE TAKE NOTICE that the undersigned as counsel of record for Plaintiffs in the above entitled cause do herewith dismiss this cause pursuant to Rule 41 (a) of the New Mexico Rules of Civil Procedure as against each and all the Defendants.

NEAL & NEAL

Attorneys for Plaintiff
P. O. Box 278
Hobbs, New Mexico

Care No. 2426 2

Civil Docket, Lea County, New Mexico

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IN THE DISTRICT COURT OF LEA COUNTY JUDICIAL DISTRICT OF NEW MEXICO COUNTY OF LEA STATE OF NEW MEXICO. WINDMILL OIL COMPANY, A CO-PARTNERSHIP COMPOSED OF JOSEPH O. WALTON AND JOEY BALLEW AND W.M.Beauchamp JOSEPH O. WALTON AND JOEY BALLEW, CLERK OF THE DISTRICT COURT INDIVIDUALLY, PLAINTIFFS. VS. NO. 24262 HUMBLE OIL AND REFINING COMPANY A CORPORATION, AND WILLIAM CECIL GRIMES. DEFENDANTS.

COMPLAINT

COME the plaintiffs and for cause of action against the defendants, state and show:

- 1. That the plaintiff is a partnership composed of Joseph O. Walton and Joey Ballew with its principal place of business in Lovington, Lea County, New Mexico. That the plaintiff Joseph O. Walton is a resident of Lea County, New Mexico. That the plaintiff Joey Ballew is a resident of Gaines County, Texas.
- 2. That the defendant Humble Oil and Refining Company is a foreign corporation authorized to transact business in the State of New Mexico with an agent for service therein and the defendant William Cecil Grimes is a resident of Hobbs, Lea County, New Mexico.
- 3. That the controversy and issues which form the basis of this cause of action arose in Lea County, New Mexico. That an actual controversy exists between the parties to this action which can be adjudicated by the Court in this suit for declaratory judgment which actual controversy is hereafter more particularly described in this Complaint.

- 4. That William Cecil Grimes is the owner of the SEz of Section 30, Township 18 South, Range 38 East, N.M.P.M., Lea County, New Mexico, which land was patented to the predecessors in title of William Cecil Grimes under the Homestead Grazing Act which said patent reserved to the United States Government all mineral deposits in and under the land. Thereafter, the United States Government issued to Humble Oil and Refining Company its oil and gas lease covering said land which lease is now owned by the said Humble Oil and Refining Company which lease is in force and effect by reason of production thereon by Humble Oil and Refining Company from the Bowers sand and from the San Andres formation which lies in and under said land and which contain a mineral deposit of oil and gas.
- 5. That heretofore and for many years prior to the institution of this action and prior to the matters hereinafter alleged it became apparent that there were large quantities of oil and gas which had perculated into the Ogalalla sand a pure water bearing formation which lies beneath the lands in question and is encompassed within the area of the Lea County Shallow Water Basin. That the defendant William Cecil Grimes as the owner of the surface of said lands and his assigns, had and have the right under the Laws of New Mexico to produce water from such formation for domestic purposes as provided by the Laws of New Mexico. That by reason of the appearance of large quantities of oil in said water bearing sand, the same became contaminated and substantially and materially effected the value of the surface thereof and of the rights of William Cecil Grimes and his assigns to produce water for domestic purposes

from such water bearing formation. That the presence of such oil has been known for many years but the same did not wist prior to the penetration of the Bowers and San Andres sands by oil wells drilled in the area and said oil percolated into said water bearing sand from the oil wells that were drilled in what is known as the Hobbs Pool in Lea County, New Mexico and was not initially present in said water sand and was not a mineral deposit therein or thereunder. That the presence of such oil in the water bearing sand has been a matter of common knowledge for many years and was and is a matter that for many years has been known to the defendant Humble 011 and Refining Com-That Humble Oil and Refining Company has never claimed to be the owner of said oil and gas in said water bearing sand, has never attempted to produce the same prior to the event herehafter set out and has at all times claimed it had no duty or obligation of any kind to produce such oil and gas or to remove the same from the water bearing formation in which it appears. That the same constitutes and is and has for many years been a nuisance by reason of its contamination of the public waters of New Mexico and particularly the domestic waters which underlie the lands of the defendant William Cecil Grimes and which under the Laws of New Mexico are available to him and other persons lawfully using such surface for domestic purposes.

6. That theoil now present in said Ogalalla sand is and for many years has been static in quantity and there have been no additions to the oil present in such sand for many years. The existence and location thereof and of the fact that no further oil was proceding into such sand has been known to the defendant for many years and the defendant Humble Oil and Refining Company during all of such period of time has failed

to take any steps to abate such nuisance, has permitted said oil to remain unclaimed in said water bearing sand and has claimed no right, title or interest therein but has disclaimed responsibility therefor or ownership thereof in public hearings and in each instance in which the problem has been publicly or privately discussed.

- 7. That william Cecil Grimes and the plaintiffs entered into contracts, copies of which are hereto attached marked Exhibits A, B and C, and made a part hereof the same as if set out in full herein. That by the terms, conditions and provisions of the contracts, plaintiffs agreed with the said William Cecil Grimes that they would enter into the lands of the defendant William Cecil Grimes, attempt to remove the oil contamination from the water bearing sand and in the event they were successful in so doing they would pay to the said William Cecil Grimes 1/8 of any liquid with a marketable value produced therefrom which said contracts are in full force and effect.
- 8. That thereafter plaintiffs entered into the lands above described, drilling wells thereon to the water bearing formation and began to remove from such water bearing formation the contamination therein in the form of saleable oil. That prior to drilling such wells the plaintiffs obtained from the Oil Conservation Commission of the State of New Mexico and from the State Water Engineer the necessary permits to drill such wells for such purposes and to market the product therefrom. The order of the Oil Conservation Commission of the State of New Mexico authorizing such action by the plaintiffs herein was made after a public hearing and notice thereof in accordance with the provision of the Oil Conservation Act of New Mexico.

That at said hearing the defendant Humble Oil and Refining Company was present and was in all things cognizant of such proceedings and entered an appearance in said cause. not protest the issuance of the order therein or in any manner contest the right of plaintiffs to conduct the activities hereinabove described and to remove the oil which was contaminating the water bearing formation from such formation for the purpose of rehabilitating the same and removing the nuisance that was then and there and is now present and has been present to the knowledge of the defendant Humble Oil and Refining Company. That the only activity taken by the said Humble Oil and Refining Company in such hearing was a request of the 011 Conservation Commission that the water bearing formation containing said oil be declared to be an oil pool subject to pro-ration and requested the Oil Conservation Commission to prorate the same. That the Commission at said hearing refused to establish the areas in question as an oil pool and refused to issue any pro-ration orders in respect thereto other than the order authorizing and permitting plaintiffs herein to remove the contaminating oil from the pure water bearing formation for the purpose of decontaminating same and authorizing plaintiffs herein to sell the products so recovered upon the public markets.

9. That thereafter and after the plaintiffs began the production of oil from said water bearing formation for the purpose of removing the contamination therefrom, Humble Oil and Refining Company according to the best knowledge, information and belief of the plaintiff herein asserted the ownership of

saidoil and the right to produce the same. It notified the purchaser, Permian Corporation, who was purchasing the oil, pursuant to the Oil Conservation Commission order, that they were the owners of such oil and that the Permian Corporation would pay the proceeds thereof to plaintiffs at the peril of Permian Corporation. That by reason of such action upon the part of Humble Oil and Refining Company, Permian Corporation has advised plaintiffs they will refuse to pay to plaintiffs the proceeds of the oil delivered to them by plaintiffs until such time as their right to receive payment therefor has been established by judicial decree.

That the action of the defendant Humble Oil and Refining Company in procuring the withholding of the sale price of the oil produced and saved from the water bearing sand made it impossible fro the plaintiffs to discharge their obligation to the defendant William Cecil Grimes during the time such payments are withheld. That such failure to make payments to the said William Cecil Grimes, absent good and lawful excuse therefor, would constitute a breach of the contract and obligations of plaintiffs to the defendant William Cecil. Grimes. That a controversy exists between all of the parties as to whether or not plaintiffs have a right to produce and save said oil and pay a portion of the proceeds thereof to William Cecil Grimes; a controversy exists as to whether or not the failure of the plaintiffs to make payment to William Cecil Grimes in light of the withholding of the payment for theoil produced and saved by Permian Corporation constitutes a breach of the contract between William Cecil Grimes and the plaintiffs

herein; and as to whether or not Humble Oil and Refining Company is the owner or has the right to produce and save same, all of which matters constitute an actual controversy that the Court has jurisdiction to adjudicate between the parties in this cause.

WHEREFORE, plaintiffs pray that the Court enter its declaratory judgment determining the rights of the parties in respect to the matters hereinabove alleged and for such other and further relief as to the Court upon the trial of this cause may deem fair and proper.

OF NEAL & NEAL, HOBBS, NEW MEXICO.

(ATTORNEYS FOR PLAINTIFFS).

AGREEMENT

THIS	AGREEMENT	made this	the 6th	day of	_April
196 <u>5</u> , between	WILLIAM C	ECIL GRIM	ES, a marr:	ied man	dealing
in his sole and	separate p	roperty,			

hereinafter called the First Party (whether one or more) and Joseph O. Walton, hereinafter called the Second Party,

WITNESSETH:

WHEREAS, the First Party is the owner of the surface estate of the land described as follows:

The Wig of the SEig, Section 30, Township 18 South, Range 38 East, N.M.P.M., Lea County, New Mexico, less a strip of land 70'x660' across the southeast part of said tract belonging to O. L. House

WHEREAS, over a peiod of undetermined years and from unascertainable sources, oil and other petroleum substances have accumulated on the top of and/or s comingled with the waters underlying said land and are not in a natural oil bearing formation; and

WHEREAS, said oil and/or petroleum substances have and are now contaminating said water and water sands, and are unclaimed; and

WHEREAS, Second Party represents that he will drill or cause to be drilled holes to a depth to encounter said oil or petroleum substances existing in the upper portions of the water reservoir underlying said land, and through the pumping off of such upper portions can and will protect the underlying water and water sands from further contamination, and First Party desires to grant unto Second Party the rights of ingress and egress, and to use so much of the surface of said above described lands as is necessary to attempt and complete said operation,

NOW, THEREFORE, for and in consideration of the sum of One Dollar (\$1.00) cash in hand paid to the First Party by the Second Party, and in consideration of other sums to be paid as hereinafter specified and in consideration of the undertakings herein mentioned, the First Party hereby grants unto the Second Party the exclusive right to investigate, explore, prospect, drill and undertake such activities as may be deemed feasible to attempt

ORIGINAL DOCUMENT

to decombaminate the waterd underlying the above described land above 100 feet below the confices, subject to all outstanding oil, gas and mineral leaded, and all emboting rights-of-way. The Second Party, in acres puling to decombaminate said waters, agrees to balvage and save from such operation all fluid which may have a commercial value and to market the same under the following conditions:

- 1. This Agreement is for a term of the year and as long thereafter as any operations for decontamination of said water and water sands are being carried on on the above described property by Second Party.
- 2. That the Second Party may maintain as many decontamination wells as he may deem feasible, and will pay to the First Party 1/3th of the gress market value at the wellhead of all salvaged fluids, but in no event not less than the sum of Ten Bollars (\$10.00) per menth for each well location used in the Lecontamination process.
- 3. If he sursides forcy shall have the use of the sursides of conditions sufficient for drilling operations, pipe and substage fine-filteses, provided, however, that such storage facilities chall so only for the salvaged fluids produced on the above described lands.
- 4. That Second Party agrees to plug all abundaned or unused wells and once a well is plugged or abendaned a second well will not be re-entered or re-used by Second Party, and that no other or surther well will be drilled nearer than 100 feet to any auch plugged or abandaned well. It is appreadly agreed, however, that the plugging or abandaning of any well or wells will not formed the rights of Second Party so long as Second Party operates and maintains at least one well, provided further than should Second Party fail to operate and maintain any wellfor a period of almost (60) consecutive days then and in that event Second Party agrees upon notice to remove Second Party's property therefrom and plug and abandon said well in accordance with the reles and regulations of the State Engineer's Office.
- 5. That the method of decentamination and the separation of the fluids from the water shall be at the discretion of the Second Party and the Second Party is under no obligation to autompt to decontaminate or separate said fluids energy as herein contained.
- 6. That the Besond Party shall have ingress and agrees for the supposes for which this Agreement is made, but shall drill no well within 150 feet of a residence nor within 600 feet of the Lovinguen-Carlobad enself right-of-way line, and shall not destroy may embuding structure or other improvement placed thereon by any cabborized party, provided, however, that the Second Party, with the suppose permission of the First Party, may use any well heretofore Crilled by the First Party and in such event the Second Party will ply the First Party the cetual cost of drilling such well or the sum of \$250.00, whichever sum is the least.
 - 7. That the Second Party assumes all liability and

obligation to obtain all necessary permits and authorizations from any regulating authority relating to the salveging, removal and disposition of all narketable firefor.

8. That will were payable to the First Porty chall be payable monthly and may be under by depositeing such cums to the credit of the First Para in the New Mexico Dank and Truct Company, Main Office, Nobbe, New Mexico.

J. The Second Forty of his option may discharge any ten, moregule, or other lien or contract of purchase relating to said land, and in the event Second Party does so, he shall be authorogated to such lien or purchase contract with the right to one force or pay the same and apply royalties accruing hereunder for satisfying the same.

10. Second Party agracs to hold Pirst Party haraless against any claim or claims arising by reason of Second Party's operation conducted upon the lands, and in this connection will furnish Party Party with a Cortificate of Insufance in an amount catisfactory to Pirst Party, insuring Second Party from loss to persons or property by reason of Second Party's operation, and failure to maintain such insurance shall subject this Agreement to cancellation.

11. That the mights of either party lembunder may be assigned in whole only and the provisions hereof and i extend to the heart successors, and assigned, but no change in the ownership of the inverse of the Finet Party, however accomplished, shall counts up enlarge the colligations or diminish the rights of the Second Party, and no change of such exactship by the First Party shall be binding on the Second Party until he is furnished with a cortified copy of the recorded instruments evidencing the same.

IN WITHESS WITHERF this instrument is emecuted on the date first above written.

STATE OF NEW NEXTCO, COUNTY OF LEA.

The foregoing instrument was delinewledged before me this, the 6th day of April , 1965 , by

WILLIAM CECIL GRIMES

Ty Commission Empires: S April 25, 1965

STATE OF NEW MEXICO COUNTY OF LEA FILED

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ORIGINAL DOCUMENT

ACREEMENT

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		cals the 6th day of April a
196 5,	between WILLIAM CECIL	GRIMES, a married man dealing in
	his sole and separate	property

horeinafter called the First Party (whether one or more) and Joseph O. Walton, hereinsfeer called the Second Party,

WITNESSETH:

WHEREAS, the Pirat Party is the owner of the surface

estate of the land described as follows:

THE NEW SEX, SECTION 30, TOWNSHIP 18 SOUTH, RANGE 38 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

WHENEAS, over a period of undertermined years and from unascertainable sources, oil and other petroleum substances have accumulated on the top of and/or is comingled with the waters underlying said land and are not in a natural oil bearing formation; and

WHEREAS said oil and/or petroleum substances have and are now contaminating said water and water sands, and are unclaimed; and

WHENEAG Second Party represents that he will drill or cause to be drilled holes to a depth to encounter suid oil or petroleum substances existing in the upper portions of the water reservoir underlying said land, and through the pumping off of such up or portions can and will protect the underlying water and water at his from further contamination, and First Party desires to grant unto Second Party the rights of ingress and egress, and to us a much of the surface of said above described lands as is necessary to attempt and complete said operation,

NOW, The DORE, for and in consideration of the sum of the Dollar (\$1.00) each in hand paid to the Pirst Party by the Second Party, and in consideration of other sums to be paid as hereinafter specified, and in consideration of the undertakings herein mentioned, the First Party hereby grants unto the Second Party the exclusive right to investigate, explore, prospect, drill and undertake such activities as may be deemed feasible to attempt

to deconteminate the waters underlying the clove described land above 100 feet below the surface, subject to all ourstanding oil, gue and mineral leases, and all emisting rights-ef-way. The Second Party, in attempting to deconteminate said waters, agrees to salvage and save from such operation all fluid which may have a commercial value and to market the same under the following conditions:

- 1. This Agreement is for a term of one year and as long thereafter as any operations for decontemination of said water and water sands are being carried on on the above described property by Second Party.
- 2. That the Second Party may maintain as many decontamination wells as he may doem factible, and will pay to the First Party 1/3th of the gross market value at the wellhead of all selvaged fluids, but in no event not less than the sum of Ten Dollars (\$10.00) per month for each well location used in the decontamination process.
- 3. That the Second Party shall have the use of the surface of said land sufficient for crilling operations, pipe and storage facilities, provided, however, that such storage facilities shall be only for the solvaged fluids produced on the above described lands.
- unused wells and once a well is plugged or abandance assembly will not be re-entered or re-used by Second Party, and that no where or further well will be drilled nearer than 100 feet to any such plugged or abandance well. It is expressly agreed, however, that the plugging or abandaning of any well or wells will not forfeit the rights of Second Party or long as Second Party operates and maintains at least one well, provided further than should Second Party fail to operate and maintain any well for a period of pluty (60) consecutive days then and in that event Second Party agrees upon notice to remove Second Party's property therefrom and plug and abandon said well in accordance with the rules and regulations of the State Engineer's Cifice.
- 5. That the method of decontamination and the separation of the fluids from the water shall be at the discretion of the Second Party and the Second Party is under no obligation to attempt to decontaminate or separate said fluids encept as herein contained.
- for the purchase for which this Agreement is made, but shall drill no well within 150 feet of a residence nor within 300 feet of the Lovington-Carlosad cutoff right-of-way line, and shall not destroy any emisting structure or other improvement placed thereon by any cathorised party, provided, however, that the Second Party, with the empress permission of the First Party, may use any well heretofore willed by the First Party and in such event the Second Party will pay the First Party the actual cost of drilling such well or the sum of \$250.00; whichever sum is the least.
 - 7. They the Second Party assumes all liability and

obligation to obtain all necessary permits and authorizations from any regulating authority relating to the salveging, removal and disposition of all nerhousels flushes.

- O. That all sems payable to the First Party shall be payable monthly and may be made by depositing such tuns to the credit of the First Party in the New Memico Bank and Trust Company, bain Office, Nobbs, New Memico.
- 9. There the Second Perty at his option may discharge any ten, mortgage, or other lien or contract of perchase relating to said land, and in the event Second Perty does so, he shall be subrogated to such lien or purchase contract with the right to enforce or pay the same and apply royalties according hereunder for satisfying the same.
- 10. Second Party agrees to hold First Party horniess against any claim or claims arising by reason of Second Party's operation conducted upon the lands, and in this connection will furnish First Party with a Cartifleste of Insurance in an amount catisfactory to First Party, insuring Second Party From loss to persons or property by reason of Second Party's operation, and failure to maintain such insurance shall subject this Agreement to cancellation.
- 11. That the rights of either party hersender may be assigned an whole only and the provisions hereof shall entend to the heirs successors, and assigns, but no change in the emerchip of the interest of the Finet Party, however accomplished, shall operate so enlarge the obligations or diminish the rights of the Second varty, and no change of such exacrship by the First Party shall to binding on the Second Party until he is furnished with a certified copy of the recorded insuraments evidencing the same.

IN WITNESS WHEREOF C.f.s instrument is emeduted on the date first above written.

**Millian Cecl Summer | Millian Cecl Summer | Mill

STATE OF NEW MENICO,)
COUNTY OF LEA.

The foregoing instrument was acknowledged before methic, the 6th day of April , 1965 , by

WILLIAM CECIL GRIMES

April 25, 1968

STATE OF NEW MEXICO COUNTY OF LEA FILED

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AGRERMENT

TAI	S AGREERLY made	chis the 6th day of April GRIMES, a married man dealing	
		property	

hereinsfter called the First Party (whether one or more) and Joseph O. Walton, hereinsfter called the Second Party,

WITNESSETK:

WAIREAS, the First Party is the owner of the surface estate of the land described as follows:

THE SEŁ SEŁ, SECTION 30, TOWNSHIP 18 SOUTH, RANGE 38 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO, LESS 5 ACRES IN THE SOUTH PART OF SAID TRACT BELONGING TO O.L. HOUSE

whereas, over a period of undertermined years and from unascertainable sources, oil and other petroleum substances have accumulated on the top of and/or is comingled with the waters underlying said land and are not in a natural oil bearing formation; and

WHEREAS said oil and/or petroleum substances have and are now contaminating said water and water sands, and are unclaimed; and

WHENEAS Second Party represents that he will drill or cause to be drilled holes to a depth to encounter said oil or petrolem substances emisting in the upper portions of the water reservoir underlying said land, and through the pumping off of such upper portions can and will protect the underlying water and water sands from further contamination, and First Party desires to grant unto Second Party the rights of ingress and egress, and to use so much of the surface of said above described lands as is necessary to attempt and complete said operation,

MOW, IMPROTORE, for and in consideration of the sum of One Dellar (\$1.00) each in hand paid to the First Party by the Second Party, and in consideration of other sums to be paid as hereinafter specified, and in consideration of the uncertakings herein mentioned, the First Party hereby grants unto the Second Party the excitative right to investigate, explore, prospect, drill and undertake such activities as may be deemed feasible to attempt

to decontentate the waster their yells the above described land above 100 feet below the carrieds, subject to all outstanding oil, gas and minoral leases, and all a louding rights-of-way. The Second Party, in attempting to decontent and said valuation, agrees to sal-vage and save from such operation. The final value may have a compared to be all the sale and order the following conditions:

- i. This Agreement is for a termisof one year and as long thereafter as any operations for accontamination of said water and vator sands are being carried on on the above described property by Second Party.
- 1. That the Second Party may maintain as thiny decontemination colle as he may deem feasible, and what pay to the First Party 1/coll of the gross market value at the wellhead of all salvaged find a, but in no event not less than the sum of Ten Dollars (\$10.00) or month for each well location used in the decontamination process.
- 3. The the Second Party shall have the ubdoff the surface of said land sufficient for drilling operations, pipe and storage facilities, provided, however, that such storage facilities the shall be only for the salvaged fluids produced on the above described land.
- thus Second Party agrees to plug all abandoned or unused wells and once a well is plugged or abandoned a second well will not be re-accord or re-used by Second Party, and that no other or further well will be drilled nearer than 100 feet to any auch plugged or abandoned well. It is empressly agreed, however, that the plugging or abandoning of any well or wells will not forfeit the rights of Second Party so long as Second Party operates and maintains at least one well, provided further than should Second Party fail to operate and maintain any well for a period of simpy (60) consecutive days then and in that event Second Party agrees went notice to remove Second Party's property therefrom and plug and abandon said well in accordance with the rules and regulations of the State Engineer's Office.
- 5. That the method of decontemination and the separation of the fluids from the water shall be at the distriction of the Second Party is under no obligation to attempt a deconteminate or separate said fluids energy as herein contain.
- 5. That the Second Parcy shall have ingreed and egress for the purposes for which this Agreement is made, but shall drill no well within 150 feet of a residence nor within 500 feet of the levinguen-Carlobad cutoff right-ol-way line, and shall not destroy any emisting structure or other improvement placed thereon by any cushorized party, provided, however, that the Second Party, with the engress permission of the First Party, may use any well heretofore drilled by the First Party and in such even, the Second Party will pay the First Party the actual cost of drilling such well or the sum of \$250.00, whichever sum is the least.
 - 7. That the Second Party assumes all liability and

obligation to obtain all measurary permits and authorizations from any regulating authority relating to the salvaging, removal and the disposition of all marketable fluids:

- 8. That all cume payable to the First Party shall be payable monthly and may be made by depositing such sums to the payable of the First Party in the New Mexico Bank and Trust Company, hain Office, Mobbs, New Mexico.
- 9. There the Second Farry or his option may discharge any ten, moregage, or other lien or contract of purchase relating to said land, and in the event Second Party does so, he shall be subregated to such lien or purchase contract with the right to enforce or pay the same and apply royalties accruing hereunder for satisfying the same.
- 10. Second Terry agrees to hold First Party harmless against any claim or claims artising by reason of Second Party's operation conducted upon the lands, and in this connection will furnish First Party with a Certificate of Insurance in an amount satisfactory to First Party, insuring Second Party from loss to persons or property by reason of Second Party's operation, and failure to maintain such insurance shall subject this Agreement to cancellation.
- il. That the rights of either party horsunder may be assigned in whole only and the provisions hereof shall entend to the heizs, successors, and assigns, but no change in the emership of the interest of the Pirst Party, however as amplicated, shall operate to enlarge the obligations or diminish the rights of the Second Party, and no change of a chickership by the First Party shall be binding on the Second Party until he is furnished with a certified copy of the recorded instruments evidenting the same.

IN WITNESS WEREDT this instrument is empouted on the date first above written.

Sullam Cail Drine*

STATE OF NEW MEMICO, COUNTY OF LEA.

WILLIAM CECIL GRIMES

e:

April 25, 1965

STATE OF NEW MEXICO
COUNTY OF LEA
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and Recorded in Book 2324.
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IN THE DISTRICT COURT OF LEA COUNSTATE OF NEW MEXICO COUNTY OF LEA STATE OF NEW MEXICO. JUL 2 1965 OFFIC WINDMILL OIL COMPANY, A CO-W.M.Beauchamp PARTNERSHIP COMPOSED OF JOSEPH O. WALTON AND JOEY BALLEW, AND CLERK OF THE DISTRICT COURT JOSEPH O. WALTON AND JOEY BALLEW, INDIVIDUALLY, PLAINTIFFS, No. 14262 VS. HUMBLE OIL AND REFINING COMPANY, A CORPORATION, AND WILLIAM CECIL GRIMES, DEFENDANTS. DEMAND FOR JURY TRIAL

COME NOW the plaintiffs in the above styled and numbered cause and demand a jury trial of all issues in the above styled and numbered cause.

OF NEAL & NEAL BOX 278

HOBBS, NEW MEXICO

(ATTORNEYS FOR PLAINTIFF'S)

IN THE DISTRICT COURT, COUNTY OF LEA, STATE

WINDMILL OIL COMPANY, A CO-PARTNERSHIP COMPOSED OF JOSEPH O. WALTON AND JOEY BALLEW, AND JOSEPH O. WALTON AND JOEY BALLEW, Plaintiff S. INDIVIDUALLY, FIFTH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA HUMBLE OIL AND REFINING COMPANY, CORPORATION, AND WILLIAM CECII GRIMES IN MY 1965 Office W.M.Beauchamp STATE OF NEW MEXICO CLERK OF THE DISTRICT COURT HUMBLE OIL AND REFINING COMPANY, A CORPORATION. (THE CORPORATION COMPANY, LINCOLN BUILDING, POST OFFICE BOX 787; SANTA FE, NEW MEXICO - AGENT FOR SERVICE IN NEW MEXICO.) Defendan DEFENDANT—GREETING: You are hereby commanded to appear before the Fifth Judicial District Court of the State of New Mexico, sitting within and for the County of Lea, that being the county in which the complaint herein is filed, within thirty days after the service of this summons, then and there to answer the complaint of the above named Plaintiff...... in the above cause. You are notified that unless you so appear and answer, the Plaintiff... will apply to the Court for the relief demanded in the complaint together with the costs of suit. WITNESS, the Honorable KERMIT E. NASH, District Judge: of the Fifth Judicial And Anti-District: Court of the State of New Mexico, and the Seal of the District Court of Lea County, this 2 day of JULY A.D., 19 65 W. M. BEAUCHAMP **ENDORSEMENT** A statement of the nature of this action in general terms is

as per copy of complaint hereto attached and copy of Jury Demand

NEAL & NEAL

Attorney.S... for Plaintiff

P.O. BOX 278, HOBBS, NEW MEXICO.

Address

SHERIFF'S RETURN

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	THE STATE OF NEW MEXICO	\$ \$s.		
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100	this summons together with a copy of the	complaint, filed	in said cause to (each of)	the following de-
	fendant herein named, to-wit:	114.5.21.17	L IQ — MANGELLEGG BRÂV ACT — AN ANGEL	
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IN THE DISTRICT COURT OF LEA COUNTY

STATE OF NEW MEXICO.

STATE OF NEW MEXICO

JUL 8 1965 OFFICE

W.M.Beaudamy CLERK OF THE DISTRICT COURT

PLAINTIFFS.

VS.

HUMBLE OIL AND REFINING COMPANY, A CORPORATION, AND WILLIAM CECIL) GRIMES,

WINDMILL OIL COMPANY, A CO-PARTNERSHIP COMPOSED OF JOSEPH

BALLEW, INDIVIDUALLY,

O. WALTON AND JOEY BALLEW, AND JOSEPH O. WALTON AND JOEY

DEFENDANTS.

ENTRY OF APPEARANCE

The undersigned, GIRAND, COWAN & REESE, of Hobbs, A STATE OF THE STATE OF THE STATE OF New Mexico, hereby enter their appearance as attorneys for William Cecil Grimes, defendant in the above styled and numbered cause.

DATED This _____day of July, A.D., 1965.

OF GIRAND, COWAN & REESE, Hobbs, New Mexico.

(Attorneys for William Cecil Grimes, Defendant).

FIFTH JUDICIAL DISTRICT STATE: OF NEW MEXICO COUNTY OF LEAVE

JUL 2 9 1965 FORMER

IN THE DISTRICT COURT OF LEA COUNTY

STATE OF NEW MEXICO

WINDMILL OIL COMPANY, a Co-Partnership)∵
composed of JOSEPH O. WALTON and JOEY) {
BALLEW, and JOSEPH O. WALTON and JOEY	
BALLEW, Individually,	
Proposition of the second of t	1

CLERK OF THE DISTRICT COURT.

Plaintiffs

V8

No: 24,262

HUMBLE OIL & REFINING COMPANY; a Corporation; and WILLIAM CECIL GRIMES;

Defendants.

MOTION TO DISMISS FOR: FAILURE TO JOIN INDISPENSABLE PARTIES

Comporation, and moves the Court to dismiss Plaintiffs' Complaint for failure to join therein parties who are indispensable to final disposition of this Cause on the ground that as more particularly appears on the face of the Complaint; the United States of America is a party indispensably necessary to a full and final adjudication of this controversy and has not been made a party hereto.

WHEREFORE, Defendant moves that Plaintiffs' Complaint be

dismissed.

HINKLE, BONDURANT & CHRISTY

Actorneys for Defendant,

Humble Oil & Refining Company

P. O. Box 10

Roswell, New Mexico

CERTIFICATE OF SERVICE

The undersigned, one of the Attorneys for the Defendant,

Humble Oil & Refining Company, certifies that on this 27.

Humble Oil & Refining Company, certifies that on this 27.

day of July, 1965, he mailed a copy of the foregoing Motion to day of July, 1965, he mailed a copy of the

one of Counsel

FLED AUG 2 3 1957 PM AND

IN THE DISTRICT COURT OF LEA COUNTY M. Bauch suip

STATE OF NEW MEXICO

CITEX OF THE DISTRICT COURT

W. H. ELLISON

PLAINTIFF

LIDENATER OIL COMPANY a corporation,

AND

GETTLOTH COMPANY,Y, corporation

DEFENDANTS

Comes now the Real f; W. H. Ellison, by his attorneys DesGirand and Joseph C. Walton, and for cause of action againstathe Defendants, Fidewater Oil Company and Catty Oil ompany, states:

that the Plaintiff is a resident of Lea County New Mexico, and is the owner of the surface estate to the lands described as follows:

> Beginning at a point 660 feet West and South 0'3"
> East 2310 feet from the Northeast Corner of Section
> 30; Twp. 18 S., Rge. 38 E., thence West 660 feet;
> thence South 0'3" East 330 feet, thence East 660
> feet, thence North 0'3" West 330 feet to the point of beginning, containing 5 acres, more or less.

That the Defendants are foreign corporations authorized to do business in the State of New Mexico, and are the owners and operators under an oil and gas lease, covering in part, all of the above described land.

З.

That the Plaintiff is the owner and holder of Water Permits No. L-2230 and No. L-3454, issued by the State Engineer of the State of New Mexico, to use public waters of the State for domestic and irrigational purposes not exceeding the lawful irrigation of 2 1/2 acres of land each year.

4

That the Defendants, in the ownership and operation of the oil and gas lease above mentioned, have so operated the oil and gas wells thereunder that the potable water underlying the land of the Plaintiff, and for which he had permits to appropriate as aforesaid, have become so polluted with oil and gas and other deleterious substances from the wells of the Defendants that the said water has become useless and harmful for the said domestic or irrigational uses.

5.

That the Defendants have caused and permitted the continued pollution of said water, in violation of the Rules and Regulations of the Oil and Gas Conservation Commission of the State of New Mexico, against statutory provisions of the laws of the State of New Mexico, and contrary to the criminal provisions of the statutes of the State of New Mexico, to the detriment of the public waters of the State of New Mexico.

6.

That the Defendants have knowingly permitted the conditions to exist, as above described, and have under the laws of the State of New Mexico created a nuisance which they have not attempted to abate and are not at this time attempting to abate and that said polution is knowingly and intentionally being permitted to continue by the said Defendants.

place of abode on said land, but has been forced to haul in all drinking water and water for family purposes and has had to abandon one well and drill another seeking potable water and in further efforts to obtain potable water he has drilled some 13. additional wells without success insofar as pertains to his property.

8

That because of the actions on the part of the Defendants as aforesaid the property belonging to the Plaintiff has become useless and his labors to no avail, all to his damage in the sum of \$15,000.00.

9

That in addition to the damages above stated, the Plaintiff has expended the sum of \$2,500.00 in an unsuccessful attempt to obtain potable water.

10.

That the actions on the part of the Defendants are, and has been willful and intentional and with no effort to abate at statutory nuisance and in addition to the actual damages above suffered, the Plaintiff is entitled to recover the sum of \$10,000.00 punitive or exemplary damages.

WHEREFORE, the Plaintiff prays that he have and recover judgment against the Defendants as herein prayed.

W. D. GIRAND, AND JOSEPH O. WALTON HOBBS, NEW MEXICO ATTORNEYS FOR PLAINTIFF

By Dood OWallo

STATE OF NEW MEXICO: COUNTY OF LEA

IN THE DISTRICT COURT OF LEA COUNTY, FILED OCT 4 1957 OFFICE

STATE OF NEW MEXICO.

W.M 13 earchamp CLERK OF THE DISTRICT COURT

W. H. KLLISON.

. NO. 15,386

TEDEWATER OIL COMPANY, A CORPORATION, AND CHITY OIL COMPANY, A CORPORATION,

DEFENDANTS.

MOTION TO DISMISS

COME NOW the defendants in the above styled and numbered cause and move the Court to dismiss the same by reason of the fact the Complaint fails to state a cause of action upon which relief can be granted.

WHEREFORE, defendants pray that the above styled and numbered cause be dismissed.

> POST OFFICE SOX 278 HORRS, HEW MEXICO. (ATTORNEYS FOR DEFENDANTS)

WE HEREBY CERTIFY THAT WE HAVE MAILED A COPY OF THE FOREGOING PLEADING TO OPPOSING COUNSEL OF RECORD THIS October 3, 1957

FIFTH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA

FILED OCT 5 1957 OFFICE

IN THE DISTRICT COURT OF LEA COUNTY sauchamp.

STATE OF NEW MEXICO. . CLERK OF THE DISTRICT COURT

PLAINTIFF.

MO. 15,386

TIDENATER OIL COMPANY, A CORPORATION, AND CRITY OIL COMPANY, A CORPORATION,

DEFENDANTS.

AMENDED MOTION TO DISMISS

"COME NOW the defendants herein and move to dismiss." the above styled and numbered cause for the following reasons:

- 1. That the Complaint fails to state a claim upon which relief can be granted.
- 2. That the State of New Mexico is an indispensable party to the action.

WHEREFORE, defendants pray that said cause be

MEAL & MEAL (ATTORNETS FOR DEFENDANTS)

WE HEREBY CERTIFY THAT WE HAVE MAILED A COPY OF THE FOREGOING PLEADING TO OPPOSING COUNSEL OF RECORD THIS

WITNESS, the Honorable JOHN R. BRAND,

District Judge of the Fifth Judicial

District Court of the State of New Mexico.

and the Seal of the District Court of Lee County,

this 23rd day of August

A. D. 195

W. M. Beauchamp Clerk of the District Courts

By Deputy

A statement of the nature of the action in general terms, vias

See copy of Komplaint attached

W. M. Beauchampe Clerk of the District Courts

W. M. Beauchampe Clerk of the District Courts

Depoty

FIFTH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA

IN THE DISTRICT COURT OF LEA COLLED JUN 2 5 1958 OFFICE

STATE OF NEW MEXICO

W.M. Bauckamp

W. H. ELLISON

PLAINTIFF

NO. 15,386

TIDEWATER OIL COMPANY, A CORPORATION AND GETTY OIL COMPANY A CORPORATION

Carlo Mar Della

DEFENDANTS

AMENDED COMPLAINT

Comes now the Plaintiff, W. H. Ellison, by his attorneys, W. D. Girand and Joseph O. Walton, and by leave of Court files. This Amended Complaint and for cause of action against the Defendants, Tidewater Oil Company, a corporation, and Getty Oil Company, a corporation, states:

1:

That the Plaintiff is a resident of Lea County, New Mexico, and is the owner of the surface estate to the lands described as follows:

Beginning at a point 660 feet West and Southh 0'3" East 2310 feet from the Northeast Corner of Section 30, Twp. 18'5. Rge: 38 E., thence West 660 feet, thence South 0'3" East 330 feet, thence East 660 feet, thence North 0'3" West 330 feet to the point of beginning, containing 5 acres, more or less;

and is the owner and holder of Water Permits No. L-2230 and No. L-3454, issued by the State Engineer of the State of New Mexico, to appropriate and put to beneficial use the waters of the Lea County Underground Water Basin for domestic purposes and for the irrigation of 2 1/2 acres of land.

2.

That after the said permits were issued and in accordance therewith the Plaintiff drilled a well for water and appropriated

the underground waters of the Lea County Underground Water Basin to beneficial use.

З.

That the defendants are foreign corporations authorized to do business in the State of New Mexico, and are the owners and operators of an oil and gas lease covering certain lands in Section 30, Township 18 South, Range 38 East, Lea County, New Mexico, which includes the lands belonging to the Plaintiff as above described.

4.

That the Defendants, in the ownership and operation of said oil and gas lease have so operated the oil and gas well's drilled upon the lands that the potable water underlying the land of the Plaintiff and which the Plaintiff had appropriated to beneficial use, have become polluted with oil and gas and other deliterious substances from the wells of the Defendants and that said waters beneficially appropriated by the Plaintiff have become useless and harmful for domestic and irrigation purposes.

5.

That the Defendants have caused and permitted the continued pollution of said water, in violation of the Rules and Regulations of the Oil and Gas Conservation Commission of the State of New Mexico, against statutory provisions of the laws of the State of New Mexico, and contrary to the criminal provisions of the statutes of the State of New Mexico, to the detriment of the public waters of the State of New Mexico, and to the detriment of the water beneficially appropriated by the Plaintiff.

6.

That the Defendants have knowingly permitted the conditions to exist, as above described, and have under the laws of the State of New Mexico created a nuisance which they have not abated and are not at this time attempting to abate and that said polution is knowingly and intentionally being permitted to continue by the said Defendants.

7.

That the Plaintiff erected his permanent place of abode on said land and beneficially used the underground water for domestic and irrigation purposes for several years until the water became contaminated and polluted by the oil and gas and other deliterious substances from the wells belonging to the Defendants and the Plaintiff has been forced to abandon the original well and drill another well seeking potable water, and the second well after completion and using the water for beneficial purposes also became contaminated and polluted and that the Plaintiff has been forced to haul water from other sources for domestic uses, the said water underlying the land of the Plaintiff no longer being fit for beneficial use.

8.

That in further efforts to obtain potable water, the Plaintiff has drilled some thirteen other additional wells with out success in so far as it pertains to the possible location of potable waters upon his property.

9.

That because of the actions on the part of the Defendants as aforesaid, the property belonging to the Plaintiff has become useless, and his labors to no avail, all to his damage in the sum of \$15.000.00.

10.

That in addition to the damages above stated, the Plain-ville tiff has expended the sum of \$2,500.00 in an unsuccessful attempt to obtain potable water.

That the actions on the part of the Defendants are and later to abate a suffered, the Plaintiff is entitled to recover the sum of one sum of the sum of th

WHEREFORE, the Plaintiff prays that he have and recover

W. D. GIRAND, AND JOSEPH O. WALTON Hobbs, New Mexico Attorneys for Plaintiff

meiled a copy of the foregoing pleasing to opposing counsel

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HETH JUDICIAL DISTRICT STATE OF NEW MEXICO COUNTY OF LEA

FILED AUG 1 3 1958 OFFICE

IN THE DISTRICT COURT OF LEA COUNTY,

STATE OF NEW MEXICO.

W.M.Beausamp CLERK OF THE DISTRICT COURT

W.H. ELLISON,

PLAINTIFF.

VS.

NO. 15,386

TIDEWATER OIL COMPANY, A CORPORATION, AND CETTY OIL COMPANY, A CORPORATION,

DEFENDANTS.

MOTION TO DISMISS AMENDED COMPLAINT

COME NOW the defendants herein and move to dismiss the above styled and numbered cause for the following reasons:

- 1. That the Amended Complaint filed herein fails to state a claim upon which relief can be granted.
- That the State of New Mexico is an indispensable party to the action.

WHEREFORE, defendants pray that said cause be dismissed.

HOBBS, NEW MEXICO

(ATTORNEY FOR DEFENDANTS)

N/1s

WE HEREBY CERTIFY THAT WE HAVE MAILED A COPY OF THE FOREGOING PLEADING TO

HFTH JUDICIAL DISTRICT STATE OF NEW MEXICO' COUNTY OF LEA

IN THE DISTRICT COURT OF LEA COUNTY OF 1958 OFFICE

STATE OF NEW MEXICO

W.M.Beauchamp CLERK OF THE DISTRICT COURT

W. H. ELLISON

PLAINTIFF

TIDEWATER OIL COMPANY, CORPORATION AND GETTY OIL COMPANY, A CORPORATION

DEFENDANT

ORDER

This cause coming on this day to be heard on motion of the Plaintiff to dismiss with projudice the Amended Complaint filed in the above styled and numbered cause and the Court being fully advised in the premises finds that the same should be dismissed with prejudice.

NOW, THEREFORE, IT IS ORDERED, ADJUDGED AND DECREED That the Amended Complaint be and the same hereby is dismissed with prejudice.

APPROVED:

NEAL & NEAL

Jeseph O. Walton Attorney for Plaintiff

Attorneys for Defendants

· Civil Docket, Lea County, New Mexico

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