

RECR-10 Windmill Oil

Committee Studying Protection of Hobbs Fresh Water Sands

Report by Committee to Study
Contamination of Hobbs Fresh
Water Sand

Mr. H. G. Webber - Midland

Production

Hobbs

Messrs: Mr. R. H. Coe - Tulsa
H. D. Page - Tulsa
S. E. Cavanaugh - Los Angeles

Attached is copy of report from "Committee Study-
ing Protection of Hobbs Fresh Water Sands" that was
submitted to the New Mexico Oil Conservation Commission.

Mr. H. D. Page received a copy of this report on
his recent visit to Hobbs. A copy of the report was
handed to Mr. C. Melvin Neal Wednesday, October 16, 1957.


H. P. Shackelford

HPS:bn

Attachment

*Johnson and Abbott
Shackelford & Hunsaker*

Roswell, New Mexico
September 24, 1957

MEMORANDUM

TO: Designated Members and Alternates on
Committee Studying Fresh Water Contamination
in the Hobbs Pool Area

FROM: J. W. Brown, Acting Chairman

SUBJECT: Final Committee Report

Attached is your copy of the final draft of the Committee report. As you will recall, the Committee agreed at its last meeting on September 5, 1957, that each designated member and alternate would receive one copy (2 copies to each organization appointed to the Committee). It was also agreed that these copies would be kept confidential pending a decision by the Oil Conservation Commission as to what distribution should be made.

In accordance with the desires of the Committee, I am holding ten (10) copies of the report to be mailed to the Oil Conservation Commission on October 2, 1957, unless advised by Committee members that changes should be made in the report. Please advise me by telephone of any necessary changes. If numerous changes are suggested, it may be desirable to call another Committee meeting.

I regret that the press of other duties has delayed final preparation of this report. I take this opportunity to express my sincere appreciation to each of you for your cooperation and work in expediting the completion of the assignment given this Committee.

Spec Report

Roswell, New Mexico
September 24, 1957

MEMORANDUM

TO: New Mexico Oil 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, Member, 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 companies 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
R. J. Francis
Joe Anderson

Continental Oil Company
Continental Oil Company
Continental Oil Company
Continental Oil Company

Eric Engbrecht
J. W. Runyan

New Mexico Oil Conservation Commission
New Mexico Oil Conservation Commission

J. W. Montgomery

Shell Oil Company

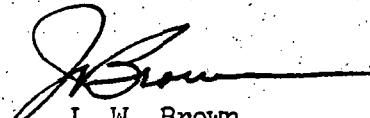
J. W. Meek

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.


J. W. Brown
Acting Chairman

Confidential

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 contamination in the Hobbs Pool area and make recommendations to the New Mexico Oil Conservation Commission, as to:

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

The Committee consisted of representatives from the following companies 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 area 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 sand 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 Ogallala 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 Ogallala 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 recharge 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 southeasterly 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:

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Gibbins	SW SE NE 4-19-38	Slight Taste Gas
Easton	SW SE NE 4-19-38	Slight Taste Gas
Gackle	SE SE NE 4-19-38	Strong Taste Gas
Security Supply	NW NE NE 5-19-38	Slight Taste Gas
Ohio Oil	SE SE SE 32-18-38	Strong Taste Gas
Baker Tool	SW SE SW 32-18-38	Slight Taste Gas
Harwell	NW NE NE 28-18-38	Strong Taste Gas
Dowell	NE NE NE 28-18-38	Will Burn
Humble Oil	SW NE SW 30-18-38	Moderate Taste Gas
Bensing	NE NW NE 30-18-38	Very Slight Taste Gas

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Amerada Pet.	C. N/2 29-18-38	19.4 feet
Ellison L-2230 # 1	SW NE NE 30-18-38	6.3 feet
" # 2	SE NW NE 30-18-38	0.5 feet
" # 3	SE SW NE 30-18-38	0.5 feet
" # 4	SE SW NE 30-18-38	0.8 feet
" # 5	NE SW NE 30-18-38	0.6 feet
" #11	SE NW NE 30-18-38	Trace Oil
" #12	SE SW NE 30-18-38	2.4 feet
" #13	SE SW NE 30-18-38	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 surface and not from the fresh water aquifer.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Jackson	NE NW NW 20-18-38	Unknown
Phillips	NE NW NW 4-19-38	Unknown
Pacific Pump	NW NE NE 5-19-38	Trace

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.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
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 Eliminating 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.

(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 flushing 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 oil 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 contamination (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.

(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 sub-surface 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, and 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 area 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 contamination 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:

Oil 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 986 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 there 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.

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 anomalies 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) Electrical 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.

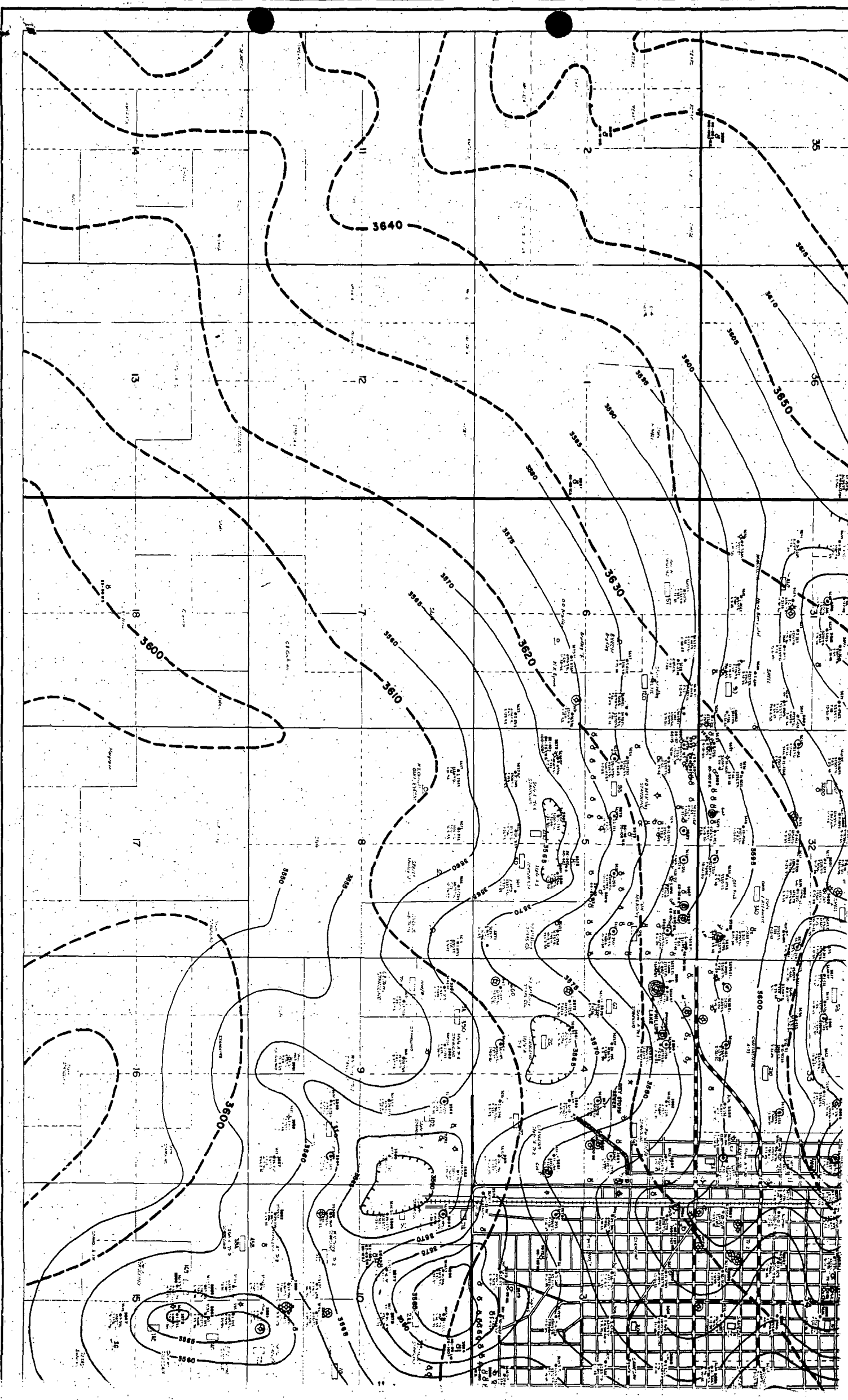
(6) All producing oil and gas wells, abandoned wells, temporarily abandoned wells, and salt water disposal wells, should be scheduled for the quarterly bradenhead surveys.

(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.

N. M. OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO
HORRS

ABANDON WATER WELL
WATER WELL
CITY WATER WELL

Producing Well
Abandoned Well
City Water Well



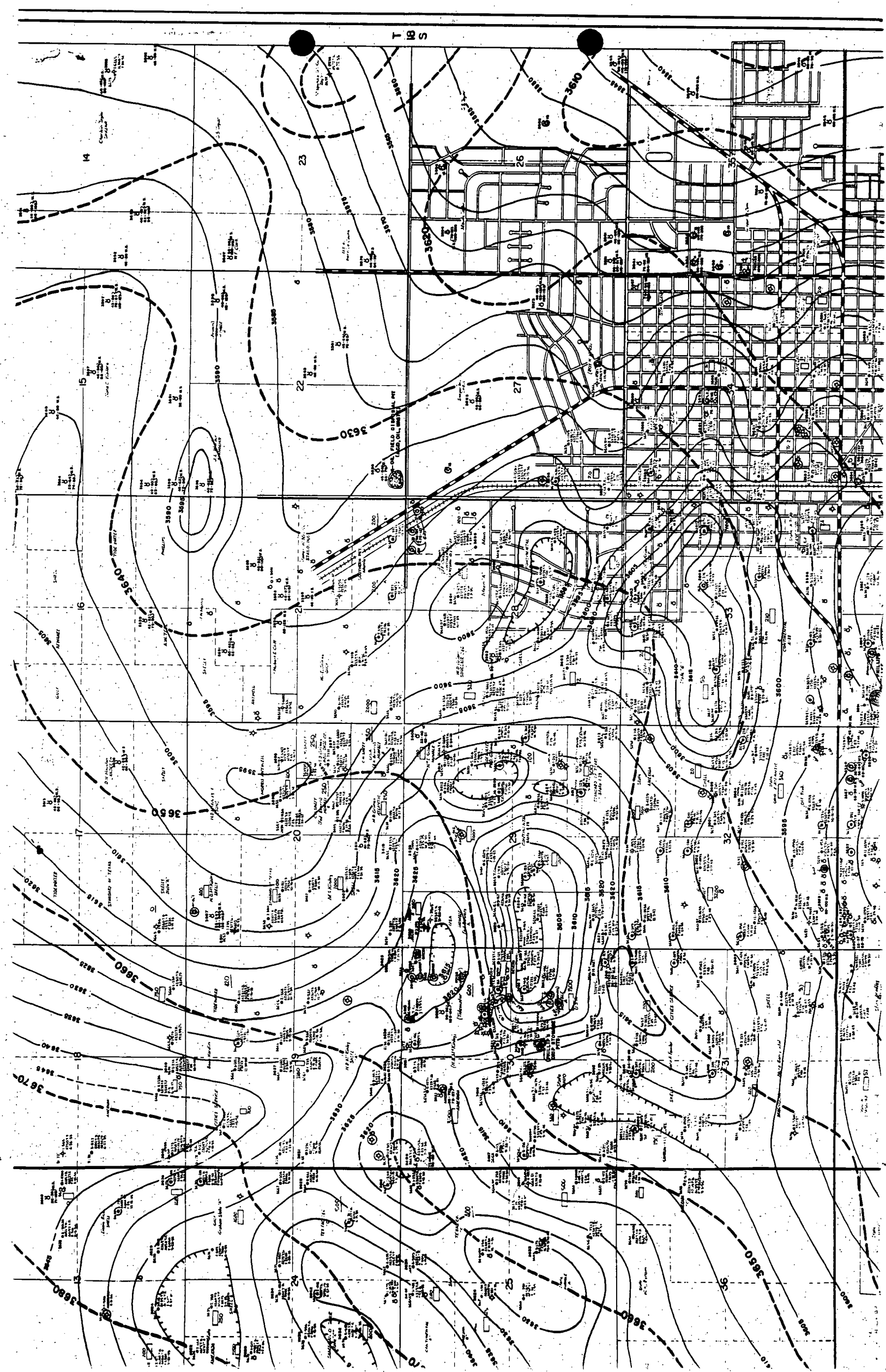


EXHIBIT NO. 2

ANALYSIS OF 42 SELECTED WATER WELLS IN HOBBS POOL AREA

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

<u>Name and Source</u>	<u>Location</u>	<u>Date Obtained</u>	<u>Chloride mg/l</u>
BLACKBURN, Tap at well	SW SE SW 32-18-38	8-14-57	56
CONTINENTAL, Abd. Hole	NE SW 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 NE 5-19-38	8-14-57	96
OHIO OIL CO. NO. 2, Tap by Storage Tank	NW SE SE 32-18-38	8-14-57	48
YATES SHELL STATE, Abd. Well	NW SE SE 23-18-37	8-14-57	80
HOBBS IRON & METAL, Tap	NW SE NW 3-19-38	8-14-57	80
ROBERT OWINGS, Tap	NW NE NE 31-18-38	8-13-57	80
BRIANT, From well	NE SW NE 30-18-38	8-13-57	56
R. D. MOOR, Well	NE NE 30-18-38	8-13-57	72
RYBANT, Tap	NE NE NE 30-18-38	8-13-57	48
HOBBS GAS CO., Tap	NW NE NE 28-18-38	8-13-57	112
C. MYERS, Tap	SE SE NE 4-19-38	8-14-57	48
SIMON, Tap	SE SE SE 32-19-38	8-14-57	64
PHILLIPS NO. 3, Well Tap	NW NE NW 4-19-38	8-14-57	104
PHILLIPS NO. 2, Pump Tap	NW NE NW 4-19-38	8-14-57	88
BROWN WELL SERVICE, Tap	NE NW NE 5-19-18	8-14-57	112
Water from Phillips Gasoline Plant from ditch to W-most pond	NW SE NW 4-19-38	8-12-57	749
PHILLIPS NO. 6, Tap at Well	NW NE NW 4-19-38	8-13-57	327
HUMBLE OIL, Tap at Well	SW NE SE 30-18-38	8-13-57	72
JACKSON, Sample from earth ditch 10 yds. S. of pump	NE NW NW 20-19-38	8-13-57	494
STEELE, Tap sample	SE NE SW 4-19-38	8-12-57	96
CAZEE, Tap	SW NE NE 30-18-38	8-13-57	64
PACIFIC PUMPS, Tap Sample	NW NE NE 5-19-38	8-12-57	64
SECURITY, Tap Sample	NE NW NE 5-19-38	8-12-57	80
H. EASTON, Tap Sample (S.House)	SW SE NE 4-19-38	8-14-57	64
GIBBONS, Tap Sample (N.House)	SW SE NE 4-19-38	8-12-57	40
BAKER TOOL, Tap Sample	SE SE SW 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 NE 30-18-38	8-13-57	80
ROBERT BENSING, Tap Sample	NE NW NE 30-18-38	8-13-57	80
JESS HARWELL	NW NE NE 28-18-38	8-13-57	104
DOWELL, INC., Tap Sample	NE NE NE 28-18-38	8-13-57	56
MAYFIELD, Tap Sample	NE SE NE 30-18-38	8-13-57	72
GOINS, Tap Sample	SW NE NE 30-18-38	8-13-57	343
W. E. MOON, Tap Sample	NW NE NE 30-18-38	8-13-57	104
MERTAUGH, Tap at new well	NW NE NE 30-18-38	8-13-57	56
BLAKLEY, Tap	NE SE NE 30-18-38	8-13-57	80
L. DEVERS, Tap Sample	SW SE NE 30-18-38	8-13-57	64
P. L. RIEVE, Tap Sample	SW SE NE 30-18-38	8-13-57	104
COX, Well Sample	NE SE NE 30-18-38	8-13-57	48
*DOWELL, Gas in line and spurting as sample was taken	NE SE NE 30-18-38	8-22-57	80

*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.

EXHIBIT NO. 3

ANALYSIS OF SAMPLE
FROM ELLISON WELL
AUGUST, 1956

Air and Water	95.37%
Methane	2.30%
Ethane	0.15%
Propane	0.49%
CO ₂	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.

EXHIBIT NO. 4

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

NAME	LOCATION	DATE	Na	Ca	Mg	SO ₄	Cl	CO ₃	HCO ₃
Pan American	NE SW NW 33-18-38	9-1950	35	74	18	77	50	0	226
		7-1951	54	57	16	82	53	0	202
		7-1952	32	80	21	82	57	0	232
		8-1957	9	103	21	89	60	12	201
Pan American	SE NE SE 4-19-38	9-1950	51	123	25	56	181	0	256
		7-1951	45	128	29	53	195	0	256
		7-1952	56	137	27	30	227	0	268
		8-1953	32	139	25	72	163	0	262
		6-1956	63	80	12	63	78	0	256
Pan American	NW NE NE 9-19-38	10-1950	67	89	18	109	82	0	262
		7-1951	52	79	21	93	67	0	250
		7-1952	52	86	21	96	71	0	262
		8-1953	31	124	19	114	85	12	238
		8-1955	58	80	17	103	78	0	218
		5-1956	66	86	17	113	71	0	256
Humble Federal Bowers No. 3		7-1957		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	81	14	98	53	0	227
Gulf Oil Corp. West Grimes		9-1952	36	70	7	48	31	0	229
		7-1953	50	59	7	44	33	0	235
		7-1954	50	62	5	45	32	0	235
		7-1955	46	65	6	45	31	0	238
		7-1956	65	96	19	119	92	0	250
East Grimes		7-1953	78	93	12	130	82	0	244
		7-1954	60	92	12	102	74	0	244
		7-1955	53	94	14	99	74	0	244

EXHIBIT NO. 5

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 Agar Test, indicating they were free of fecal contamination. They contained organic matter, 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.

EXHIBIT NO. 6

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
Orthophosphate = 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

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

Accessibility of Well

Well Location	For Measurement Of Water Level	For Collection of Water Sample			Present Use	Remarks
		Tap or Discharge Pipe	From By	Thief or Trip Sampler		
NE SW 13-18-37	x		x		Abandoned	Sampled 8/14/57
NW SW SE 13-18-37	x	x			Stock	Windmill
NW SE SE 23-18-37	x		x		Abandoned	Sampled 8/14/57
SE SE SE 24-18-37		x			Domestic	Windmill
SW NE SE 17-18-38	?	?	?			Not checked
SE SE SW 18	?	?	?			Not checked
SW SW SW 19	x		x		Abandoned	
NE NW NW 20		x			Irrigation	Sampled 8/13/57
SE/4 21	?	?	?			Many wells. Not checked
NW NW 27	?	?	?		Standby	City Well #13
SW SW SE 27	?	?			Municipal	City Well
N/2 28	?	?	?			Many wells. Not checked.
NW SW NE 29	x		x		Abandoned	Contained oil 8/14/57
SW NE SE 29	x		x		Abandoned	N ^o most of two wells

Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>Tap or Discharge Pipe</u>	<u>From Thief or Trip Sampler</u>		
SW NE NW 30	x	x		Domestic	
NE/4 30	x	x	x	Domestic, Irrig. Many Wells, Contaminated area.	
NE NE SW 30	x		x	Abandoned	
SW NE SW 30-18-38	x		x	Abandoned	
SE SE SW 30	x	x		Domestic	Windmill
SW NE SE 30	?	x		Domestic	Three wells present. Sample from contaminated well.
NE NE SW 31	x		x		
SE SW SE 31	x	?			Not checked
NE NE NE 32	x		x	Abandoned	
NE SW NE 32	x		x	Abandoned	Plugged with timber
NE NE NE 32	x		x	Abandoned	Plugged with bull plug
s/2 32	?		?		Many wells. Not checked.
NE/4 33	?	?			Many wells. Not checked.
SW SE SW 33	x			Domestic	

Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>From</u>	<u>By</u>		
NE SW SW 34	X		x	Domestic	
SW SW SW 34	x		x	Abandoned	
NW SE SW 34		x			
N/2 34	?	?			Many wells. Not checked
S/2 3-19-38	?	?			Many wells. Not checked
N/2 4	?	?			Many wells. Not checked
SW SW SW 4-19-38	x		x	Abandoned	
SE NE SE 4	?	x		Domestic	Sampled 8/12/57
N/2 5	X	X			Many wells. Not checked
NE NE SE 6	x		x	Abandoned	Timber plug
SW NE NE 6	?	x		Stock	Windmill
NE/4 9-19-38	?	?			4 wells here. None checked.
SW NE SE 10	?	x		Domestic	Windmill
SE SW SE 10	x		x	Abandoned	

C.J. Sanders
To Santa Fe Drilg Co. (UK) LTD.
Box 680
Tripoli, Libya

Mrs. C.J. Sanders
1822 Chisolm Drive
Duncan Okla
Area 405-255-7312

Following data covering the NE/4 of Section 30-18S-38E is from the 1969 Tax Roll for Lea County, New Mexico

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
John R. Brown	321 Castle Ave. Hobbs, New Mexico 88240	2.50	Tract beginning S 0°3" E 2310' FNE/Cor. of Section 30-18S-38E, thence W 330'; S 0°3" E 330'; E 330'; N 0°3" W 330' to beginning (less S 30' for road) - Tract 8, Watkins S/D.
Loren D. Bryan	P. O. Box 2065 Hobbs, New Mexico 88240	1.01	Tract beginning 660' W & S 0°3" E 2310' FNE/Cor of Section 30-18S-38E, thence W 221'; S 0°3" E 200'; E 221' N 0°3" W 200' to beginning.
George Cazee	Star Route B, Box 56 Hobbs, New Mexico 88240	2.50	Tract beginning 990' S & 330' W of NE/Cor. of Section 30; thence W 330'; S 330'; E 330' & N 330' to beginning.
"	"	0.92	Tract beginning 208.7' W of SE/Cor. NE/4 NE/4 of Section 30; thence W 121.3'; thence N 0°3" W 330'; thence E 121.3'; thence S 0°3" E 330' to beginning.
Joe Cleveland	Star Route B, Box 55-1 Hobbs, New Mexico 88240	2.50	Tract beginning 1320' S & 330' W of NE/Cor. of Section 30, thence W 330'; S 330'; E 330'; N 330' to beginning.
W. A. Cox	Star Route B, Box 54 Hobbs, New Mexico 88240	5.00	Tract beginning W 660' & S 0°3" E 1980' FNE/Cor of Section 30-18S-38E, thence S 0°3" E 330'; W 660'; N 0°3" W 330'; E 660' to beginning.
E. D. Divers c/o Quinton Mitchell	Star Route B, Box 53 Hobbs, New Mexico 88240	1.25	W/2 SW/4 SE/4 SE/4 NE/4 of Section 30-18S-38E.
W. H. Ellison	1734 Monte Vista Alamogorda, New Mexico 88310	1.25	E/2 SW/4 SE/4 SE/4 NE/4 of Section 30-18S-38E.

437-1075

9:55 AM 5:37 No answer.

1:45 PM 5:21-69. Informal discussion

no word from in last 4 days. No answer. 5-28-69

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
Alfonso Garcia	Star Route B, Box 52 Hobbs, New Mexico 88240	2.50	Bensing Tracts - Tracts A-B-C & tract beginning 990' W & S 0°3" E 2310' FNE/Cor. of Section 30-18S-38E, thence W 330'; S 0°3" E 330'; E 330'; N 0°3" W 330' to beginning.
G. W. Goins	2417 Wyoming Carlsbad, New Mexico	0.17	Beginning 1320' W & S 0°3" E 1650' from NE/Cor. Section 30, thence W 65'; thence N 15°44" E 234.14'; thence S 0°3" E 230' to beginning, part of tract 24, Bensing S/D.
Denzel T. Isbell	Star Route B, Box 56-A Hobbs, New Mexico 88240	5.00	All of tract beginning W 660' & S 0°3" E 660' from NE/Cor. Section 30-18S-38E, thence S 0°3" E 330'; W 660'; N 0°3" W 330'; E 660' to beginning.
Dr. Jack F. Kirk	Box 2112 Hobbs, New Mexico 88240	2.50	Tract beginning 990' W of NE/Cor. Section 30, thence S 0°3" E 330'; W 330'; N 0°3" W 330'; E 330' to beginning.
"	"	2.50	Tract beginning 990' W & S 0°4" E 330' from NE/Cor. Section 30; thence S 0°4" E 330'; W 330'; N 0°4" W 330'; E 330' to beginning.
M. H. Mayfield	Star Route B, Box 54-A Hobbs, New Mexico 88240	5.00	Tract beginning 660' W & S 0°3" E 1650' FNE/Cor. of Section 30-18S-38E, thence W 660'; S 0°3" E 330'; E 660'; N 0°3" W 330' to beginning, known as tract 6.
Jack E. Mertaugh	467 S. Bisbee Willcox, Arizona 85643	1.25	Tract beginning 660' W of NE/Cor. Section 30, 18S-38E, thence W 165'; S 0°3" E 330'; E 165'; N 0°3" W 330' to beginning (less R/W along N & E side for road)
Ralph Messenger	Star Route B, Box 542 Hobbs, New Mexico 88240	1.25	Tract beginning N 89°59" W 660' & S 0°3" E 1815' from NE/Cor. Section 30-18S-38E, thence S 89°59" E 330'; S 0°3" E 165'; N 89°59" W 330'; N 0°3" W 165' to beginning.
D. D. Montgomery	Star Route B, Box 49-E Hobbs, New Mexico 88240	2.50	Tract beginning S 0°3" E 330' from NE/Cor. of Section 30, thence S 0°3" E 330'; W 330'; N 0°3" W 330'; E 330' to beginning.

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
Robert Dale Moon	7377 Alameda Ave. El Paso, Texas 79915	0.43	Tract beginning 660' W & S 0°4" E 660' from NE/Cor. Section 30, thence W 150'; N 0°4" W 125'; E 150'; S 0°4" E 125' to beginning.
William E. Moon	Star Route B, Box 58 Hobbs, New Mexico 88240	2.07	Tract beginning 660' W & S 0°4" E 330' from NE/Cor. Section 30-18S-38E; thence S 0°4" E 205'; W 150'; S 0°4" E 125'; W 180'; N 0°4" W 330'; E 330' to beginning.
E. C. & Thelma Oliver	Star Route B, Box 58-A Hobbs, New Mexico 88240	2.50	Tract beginning 330' W & 330' S from NE/Cor. Section 30, thence W 330'; S 330'; E 330'; N 330' to beginning.
Robert E. Owings	Star Route B, Hobbs, New Mexico 88240	2.50	Tract beginning 330' W of Common Corner of Sections 14, 20, 29 & 30; thence S 330'; W 330'; N 330'; E 330' to beginning (W 20' easement)
Willard E. Pennington	Star Route B, Box 49-A Hobbs, New Mexico 88240	1.25	Tract beginning @ NE/Cor. Section 30, thence W 330'; S 165'; E 330'; N 165' to beginning (N 30' easement)
Sam J Purvis	Star Route B, Box 51	2.50	Watkins S/D, Tract No. 5: beginning 1320' S 0°2" E of NE/Cor. of Section 30-18S-38E, thence W 300'; S 0°3" E 330'; E 330'; N 0°3" W 330' to beginning, being NE/4 NE/4 SE/4 NE/4 of Section 30.
A. W. & Sadie A. Rash	618 E. Snyder Hobbs, New Mexico 88240	2.50	Tract beginning 1650' S of NE/Cor. Section 30-18S-38E, thence W 330'; S 0°1" E 330'; E 330'; N 0°1" W 330' to beginning.
Joe Sayre	Star Route B, Box 59-A Hobbs, New Mexico 88240	1.25	Tract beginning 825' W of NE/Cor. of Section 30, thence W 165'; S 0°3" E 330'; E 165'; N 0°3" W 330' to beginning (less R/W along N & E side for road)
K. L. Simmons	1001 Hollis Dr. Hobbs, New Mexico 88240	2.50	Watkins Tract No. 14: beginning W 660' & S 0°3" E 660' from NE/Cor. Section 30, thence S 0°3" E 330'; E 330'; N 0°3" W 330' to beginning.

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
C. D. Slaughter	Star Route B, Box 51-CC Hobbs, New Mexico 88240	1.25	Tract beginning 2145' S of NE/Cor. of Section 30-18S-38E; thence W 330'; S 165'; E 330' & N 165' to beginning.
Raymond Franklin Stone	404 East Yeso Hobbs, New Mexico 88240	1.08	Tract beginning @ SE/Cor. SE/4 SE/4 NE/4 NE/4 of Section 30-18S-38E, thence W 208.71'; N 0°3' W 225.65'; E 208.71'; S 0°3' E 225.65' to beginning.
Cecil J. Taylor	Star Route B, Box 55-A Hobbs, New Mexico 88240	10.00	Tract beginning 660' W & S 0°3' E 990' FNE/Cor. Section 30, thence W 660'; S 0°3' E 660'; E 660'; N 0°3' W 660' to beginning.
R. D. Vickers	Star Route B, Box 54-1 Hobbs, New Mexico 88240	2.50	NW/4 SE/4 SE/4 NE/4 of Section 30-18S-38E.
Albert A. Wilks	Star Route B, Box 51-C Hobbs, New Mexico 88240	1.25	Tract beginning 1980' S of NE/Cor. of Section 30-18S-38E, thence W 330'; S 0°1' E 165'; E 330'; N 0°1' W 165' to beginning.
Kenneth Williams	Star Route B, Box 49-D Hobbs, New Mexico 88240	0.76	Tract beginning S 0°3' E 660' from NE/Cor. Section 30; thence S 0°3' E 100'; N 89°59' W 330'; N 0°3' W 100'; S 89°59' E 330' to beginning.
Kenneth Williams	Star Route B, Box 50-A	1.25	S/2 of Tract beginning @ NE/Cor. Section 30-18S-38E; thence W 330'; S 330'; E 330'; N 330' to beginning, located in the NE/4NE/4 NE/4 NE/4.
Nathan E. Williams	600 E Stanolind Road Hobbs, New Mexico 88240	1.74	Tract beginning S 0°3' E 760' from Common Corner to Sections 19, 20, 29 & 30-18S-38E; thence S 0°3' E 230'; N 89°59' W 330'; N 0°3' W 230'; S 89°59' E 330' to beginning.
"	"	0.50	Tract beginning on E boundary line of Section 30-18S-38E, from which the NE/Cor. bears N 0°3' W 990'; thence along E boundary line S 0°3' E 104.3'; S 89°59' W 208.7'; N 0°3' W 104.3'; N 89°59' E 208.7' to beginning and located in NE/4 NE/4 Section 30.

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
Virgil R. Wittman	Star Route B, Box 55 Hobbs, New Mexico 88240	1.25	Tract beginning N 89°59' W 660' & S 0°3' E 1650' from NE/Cor. Section 30, thence S 89°59' E 300'; S 0°3' E 165'; N 89°59' W 330'; N 0°3' W 165' to beginning.
W. R. Erickson	109 Baja Hobbs, New Mexico 88240	1.49	Tract beginning 881' W & S 0°3' 2310' from NE/Cor. of Section 30; thence W 109'; S 0°3' E 330'; thence E 330'; thence N 0°3' W 130'; thence W 221'; thence N 0°3' W 200' to beginning.
"	"	2.50	Bensing Tract 25; 330' N&S, 330' E&W
C. A. Berry	3808 39th Street Lubbock, Texas 79400	1.25	Bensing Tract 1; 330' N&S, 165' E&W
Joe B. Conaway	Star Route B, Box 66-C Hobbs, New Mexico 88240	1.25	Bensing Tract 2; 330' N&S, 165' E&W
"	"	1.25	Bensing Tract 3; 330' N&S, 165' E&W
"	"	2.50	Bensing Tract 9; 330' N&S, 330' E&W
W. E. Arms	309 East Vega Hobbs, New Mexico 88240	1.25	Bensing Tract 4; 330' N&S, 165' E&W
Archie E. Scarbrough	319 West Humble Hobbs, New Mexico 88240	1.34	Bensing Tract 5; 330' N&S, 176.3' E&W
N. E. Utz	Star Route B, Box 61 Hobbs, New Mexico 88240	2.50	Bensing Tract 6; 330' N&S, 330' E&W
Everett W. Bensing	Star Route B, Box 60 Hobbs, New Mexico 88240	0.89	Bensing Tract 7; 253' N&S, 153.7' E&W
Dr. Jack F. Kirk	Box 2112 Hobbs, New Mexico 88240	0.27	Bensing Tract 8; 77' N&S, 153.7' E&W
"	"	2.75	Bensing Tract 12; 330' N&S, 362.5' E&W

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
William D. Holladay	Star Route B, Box 62 Hobbs, New Mexico 88240	2.25	Bensing Tract 11; 330' N&S, 297.5' E&W
Reginald Scott	Star Route B, Box 66 Hobbs, New Mexico 88240	2.50	Bensing Tract 10; 330' N&S, 330' E&W
D. D. Dobbs	Star Route B, Box 68 Hobbs, New Mexico 88240	2.50	Bensing Tract 13; 330' N&S, 330' E&W
W. N. Stewart	Star Route B, Box 65-A Hobbs, New Mexico 88240	2.50	Bensing Tract 14; 330' N&S, 330' E&W
"	"	2.50	Bensing Tract 18; 330' N&S, 330' E&W
Clint Nixon	Box 62 Hobbs, New Mexico 88240	2.25	Bensing Tract 15; 330' N&S, 297.5' E&W
Robert L. Bensing	Box 1117 Hobbs, New Mexico 88240	2.75	Bensing Tract 16; 330' N&S, 362.5' E&W
"	"	2.25	Bensing Tract 32; 330' N&S, 297.5' E&W
Church of Firstborne c/o E. B. Thomas	Star Route B, Box 125 Hobbs, New Mexico 88240	2.50	Bensing Tract 17; 330' N&S, 330' E&W
Ray Durham	200 No. Dal Paso Hobbs, New Mexico 88240	2.25	Bensing Tract 19; 330' N&S, 297.5' E&W
"	"	2.75	Bensing Tract 20; 330' N&S, 362.5' E&W
L. C. Odell	229 So. Grimes Hobbs, New Mexico 88240	2.50	Bensing Tract 21; 330' N&S, 330' E&W
Floyd & Audrey Eaton	Star Route B, Box 65-2 Hobbs, New Mexico 88240	2.50	Bensing Tract 22; 330' N&S, 330' E&W
"	"	2.50	Bensing Tract 26; 330' N&S, 330' E&W

RECORD OWNER	ADDRESS	NO. ACRES	LEGAL DESCRIPTION
Doyle T. Forrester	Star Route B, Box 63 Hobbs, New Mexico 88240	2.25	Bensing Tract 23; 330' N&S, 297.5' E&W
"	"	2.08	All of Bensing Tract 24 except the 0.17 acre tract in SW/Cor. owned by G. W. Goins.
Glenn Nance et al	Box 732 Eunice, New Mexico 88231	2.25	Bensing Tract 27; 330' N&S, 297.5' E&W
Tommy Lehman	Star Route B, Box 64 Hobbs, New Mexico 88240	1.76	All of Bensing Tract 28; 330' N&S, 297.5' E&W
C. J. Sanders	1822 Chisolm Drive Duncan, Oklahoma 73533	2.50	Bensing Tract 29; 330' N&S, 330' E&W
"	"	2.50	Bensing Tract 30; 330' N&S, 330' E&W
George W. Bell	Box 1193 Hobbs, New Mexico 88240	2.25	Bensing Tract 31; 330' N&S, 297.5' E&W
"	"	2.25	Bensing Tract 35; 330' N&S, 297.5' E&W
W. F. Ayers	Star Route B, Box 69-A Hobbs, New Mexico 88240	2.50	Bensing Tract 33; 330' N&S, 330' E&W
Joseph O. Walton	805 Beech Hobbs, New Mexico 88240	2.50	Bensing Tract 34; 330' N&S, 330' E&W
T. D. Lehman	Star Route B, Box 64 Hobbs, New Mexico 88240	2.02	All of Bensing Tract 36 except 0.23 acre tract (110' x 140') located in SE/Cor. of Bensing tract 36 owned by Evelyn J. Walton.
Evelyn J. Walton	2007 No. Fowler Hobbs, New Mexico 88240	0.23	A 110' x 140' tract described as follows: beginning 30' N & 30' W of SE/Cor. of Bensing tract 36; thence W 110'; N 0°3' W 140'; E 110'; S 0°3' E 140' to beginning.

* * * * *

R. C. Powless
May 29, 1969

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter
NL = Night Letter
IT = International Letter Telegram

1201

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at destination.

LA30 KA382

(05)

1957 SEP 18 PM 3 38

K FUC325 PD=FAX TULSA OKLA 18 352P MC=

H P SHACKELFORD=

TIDEWATER OIL CO HOBBS NMEX=

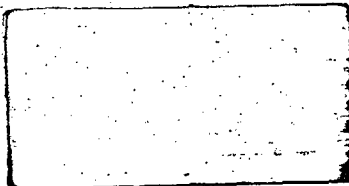
FURNISH C. M. NEAL ANALYSIS REPORTS ATTACHED TO YOUR AUGUST SIXTH LETTER=

JACK D JONES=

No. 34986	To Secy
By RB At 241P	To Be [Signature]

[Handwritten signature]

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE



Other Damage Suits

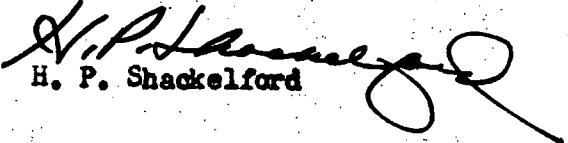
Mr. Jack Jones - Tulsa

Producing - Hobbs

September 16, 1957

Attached is a clipping which appeared
on the front page of the Hobbs Daily News-
Sun September 13, 1957.

It seems that Mr. Walton is getting a lot
of business.


H. P. Shackelford

HP8:bb

Attachment

Lawsuit Filed For \$200,000

Suit for more than \$200,000 is on file in district court against a movie theater organization in connection with the May 11 drowning of Tony Allen Glasspoole of Hobbs.

The 8-year-old son of Mr. and Mrs. Robert A. Glasspoole was drowned in a rain-filled pit near the Flamingo Drive-In Theater, while attempting to float on a raft in it. The plaintiff's through their attorney, Joseph O. Walton, ask \$150,000 plus \$50,000 in punitive and \$682.30 in actual damages in the case.

Filed against Video Independent Theaters Inc., All States Theaters Inc. and Eagle Drive-In Inc., the suit alleges that the pit "was an attractive nuisance or constituted a concealed danger in the nature of a trap which the defendants knew, or should have known, existed and which was attractive to children of tender years"

The pit is described in the complaint as about 200 feet long and about 30 feet deep. The plaintiffs contend that it is "neither adequately fenced nor posted to warn against the hazards thereof. . . ."

The complaint also contends that the pit, about 500 feet from a public highway, was "in a community where many children of tender years lived and approximately 35 of whom were of school age and boarded a school bus within the near vicinity of said pit. . . ."

The Glasspoole child and two others, aged 4 and 6 years, allegedly were playing in the pit at the time when the boy was drowned.

The Flamingo theater is about a mile north of the Hobbs city limits, on the Denver City Highway.

SIXTH MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
SEPTEMBER 5, 1957

The sixth and last meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OGC Conference Room in Hobbs, New Mexico, on September 5, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
Joe Anderson, Alternate	Continental Oil Company
L. A. Calhoun, Member	Hobbs City Water Board
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
G. W. Putman, Member	Samedan Oil Corporation
R. E. Layne, Alternate	Samedan Oil Corporation
R. C. Cabaniss, Alternate	Shell Oil Company
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company

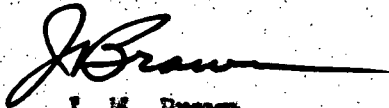
The meeting was called to order at 9:30 a.m. by J. W. Brown, Acting Chairman.

Final reports were heard from subcommittees.

The major portion of the meeting was devoted to a review of a draft of the final report. Agreement was reached as to the contents, form, and distribution of the final report.

No other meetings of the Committee are planned.

The meeting was adjourned at 3:00 p.m.


J. W. Brown
Acting Chairman

COMMITTEE MEETING 7-5-57

Ameriada - Pumped off air.
Does not believe well in
Producing any air. (19.4 air in top
water found.) Possible that
air could have been put
in well. Will put in findings.

Committee Meeting
Water Contamination

Mr. R. H. Coe - Tulsa

Production

Hobbs

Mr. H. G. Wesberry - Midland

August 26, 1957

Mr. Jack Jones - Tulsa

Fourth meeting of "Committee to Study Protection of Hobbs Fresh Water Sands" met Thursday, August 22, 1957 at 9:00 A.M. in the New Mexico Conservation Commission conference room. Mr. J. W. Brown, Pan American Petroleum Corporation, presided. Representatives from Continental Oil Company, Samedan Oil Company, Shell Oil Company, Tidewater Oil Company, Hobbs City Water Board, New Mexico Oil Conservation Commission and State Engineers office were present.

Firms selected to work out the various findings of the committee, discussed their results.

The Hobbs City Water Board and the OCC reported on "Apparent Contamination Conditions which exist in the Ogallala formation northwest of the city of Hobbs." Attached are their findings.

A water well, on Amerada's lease, located in center of north half of Sec. 29, 18S, 38E, was found to contain oil. The well was last checked in 1953. Amerada pumped this well and recovered about 3 bbls. oil, rest water. This well is about 1/4 mile west of Tidewater's Grimes lease.


H. P. Shackelford

HPS:bb

CITY WATER BOARD AND HOBBS OCC

Paragraph No. 3

Apparent contaminated conditions which exist in the Ogallala formation in the Hobbs Pool area

Findings

- I. That a total of 378 water wells were inspected in the Hobbs Pool area
 - A. That of the 378 water wells inspected one well was found to be contaminated with sewage
Phillips SW NE NW 4-19-38
 - B. That of the 378 water wells inspected 18 wells were reported to be contaminated with gas
 1. That many water wells which were reported to be contaminated with gas have to date not proven to be contaminated
 2. That one water well has been contaminated with gas since 1930
Ohio SE SE SE 32-18-38
 3. That one well inspected proved to be contaminated to such an extent that sporadic flames of gas were observed when a lighted match was held over an opened water faucet
Dowell NE NE NE
 4. That the following wells have or were reported as having gas contamination

Gas:

Gibbins	SW SE NE	4-19-38
Easton	SW SE NE	4-19-38
Cackle	SE SE NE	4-19-38
Security	NW NE NE	5-19-38
Ohio	SE SE SE	32-18-38
Baker	SW SE SW	32-18-38
Harwell	NW NE NE	28-18-38
Dowell	NE NE NE	28-18-38
Humble	SW NE SW	30-18-38
Bensing	NE NW NE	30-18-38
Green	NE NE NE	30-18-38
Mataugh	NW NE NE	30-18-38
Moon	NW NE NE	30-18-38
Moon	SW NE NE	30-18-38
Goins	NE SE NE	30-18-38
Ellison L-2230	SW SE NE	30-18-38

Gas Questionable:

Atlantic(State Bradley) SW SE NE 6-19-38

Trace of Salt Water and Gas:

Steels SE NE SE 4-19-38

- C. That of the 378 water wells inspected 12 wells were found to be contaminated with oil in amounts measured in the well bore from 1/2 inch to 29.4 feet, all but three at and near the Ellison property in the SW/4 NE/4 Sec. 30, T-18-S, R-38-E. The following wells have or were reported as having oil contamination

Oil:

Phillips		NE NW NW	4-19-38
Ellison	1-2230-1	SW NE NE	30-18-38
"	No. 13	SE SW NE	30-18-38
"	12	SE SW NE	30-18-38
"	2	SE SW NE	30-18-38
"	3	SE SW NE	30-18-38
"	4	SE SW NE	30-18-38
"	5	NE SW NE	30-18-38
Amerada		C N/2	29-18-38

Gas With Trace of Oil:

Ellison	No. 3	NE SW NE	30-18-38
Pacific*		NW NE NE	5-19-38

* Reported to have oil but not confirmed

RFM/me
August 23, 1957

CITY WATER BOARD AND HOBBS OCC

Paragraph No. 3

Apparent contaminated conditions which exist in the Ogallala formation in the Hobbs Pool area

Findings

- I. That a total of 378 water wells were inspected in the Hobbs Pool area
 - A. That of the 378 water wells inspected one well was found to be contaminated with sewage
Phillips SW NE NW 4-19-38
 - B. That of the 378 water wells inspected 18 wells were reported to be contaminated with gas
 1. That many water wells which were reported to be contaminated with gas have to date not proven to be contaminated
 2. That one water well has been contaminated with gas since 1930
Ohio SE SE SE 32-18-38
 3. That one well inspected proved to be contaminated to such an extent that sporadic flames of gas were observed when a lighted match was held over an opened water faucet
Dowell NE NE NE
 4. That the following wells have or were reported as having gas contamination

Gas:

Gibbins	SW SE NE	4-19-38
Easton	SW SE NE	4-19-38
Gackle	SE SE NE	4-19-38
Security	NW NE NE	5-19-38
Ohio	SE SE SE	32-18-38
Baker	SW SE SW	32-18-38
Harwell	NW NE NE	28-18-38
Dowell	NE NE NE	28-18-38
Humble	SW NE SW	30-18-38
Bensing	NE NW NE	30-18-38
Green	NE NE NE	30-18-38
Hettrich	NW NE NE	30-18-38
Moon	NW NE NE	30-18-38
Moon	SW NE NE	30-18-38
Goins	NE SE NE	30-18-38
Ellison L-2230	SW SE NE	30-18-38

Gas Questionables:

Atlantic(State Bradley)SW SE NE

6-19-38

Trace of Salt Water and Gas:

Steele SE NE SE

4-19-38

- C. That of the 378 water wells inspected 12 wells were found to be contaminated with oil in amounts measured in the well bore from $\frac{1}{8}$ inch to 29.4 feet, all but three at and near the Ellison property in the SW/4 NE/4 Sec. 30, T-18-S, R-38-E. The following wells have or were reported as having oil contamination

Oil:

Phillips		NE NW NW	4-19-38
Ellison L-2230-1		SW NE NE	30-18-38
" No. 13		SE SW NE	30-18-38
" 12		SE SW NE	30-18-38
" 2		SE SW NE	30-18-38
" 3		SE SW NE	30-18-38
" 4		SE SW NE	30-18-38
" 5		NE SW NE	30-18-38
Amerada		C N/2	29-18-38

Gas With Trace of Oil:

Ellison No. 3	NE SW NE	30-18-38
Pacific*	NW NE NE	5-19-38

* Reported to have oil but not confirmed

RFM/mc

August 23, 1957

C
O
P
Y

Mr. R. H. Coe - Tulsa

Production Hobbs

Mr. H. G. Wesberry - Midland
Mr. Jack Jones - Tulsa

August 26, 1957

Attached is a news item which appeared in the Hobbs
Daily News-Sun, August 25, 1957.

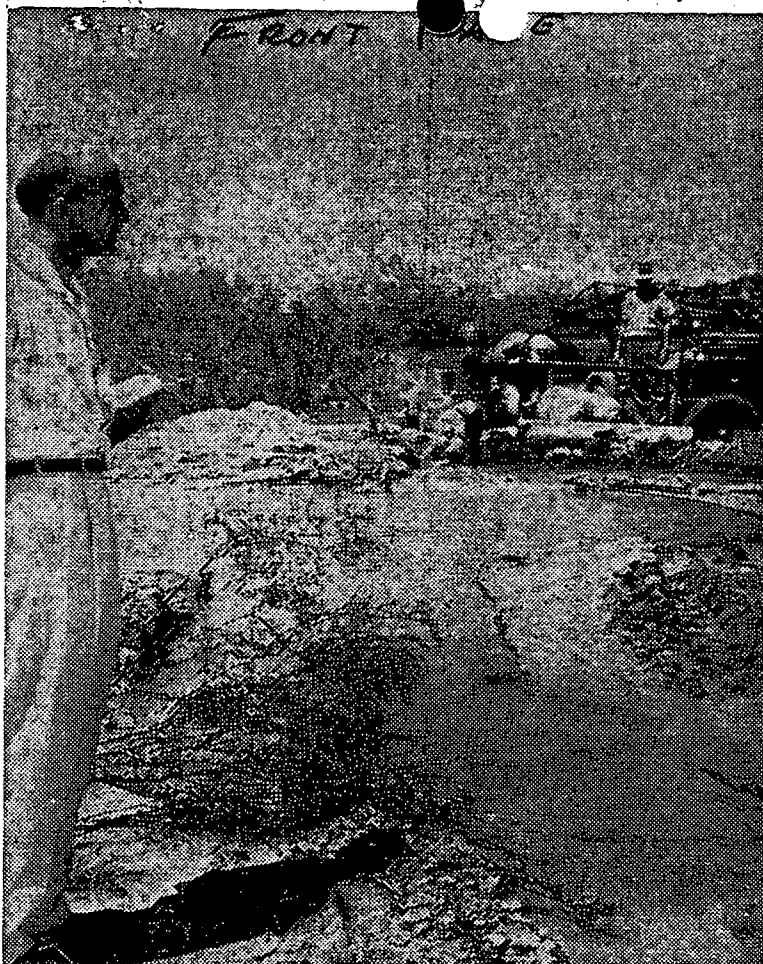
The one thing that I thought very interesting was
the manner in which Mr. Joseph Walton (attorney for
Mr. Ellison, who is suing for oil in his water well on
Getty Oil Company's McKinley lease) completed his water
well. He certainly didn't advise Mr. Ellison to complete
his in a like manner when trying to get water on the
McKinley lease. (I do not think they were really looking
for water on the McKinley lease.)

I thought this might be of some interest to you.


H. P. Shackelford

HPS:hh

Enclosure



IT'S A GUSHER—A water gusher, that is, at the site of the "Green Meadows" development under way by Joseph Walton of Hobbs, shown here inspecting the well. The well flowed 1,100 gallons of water a minute in testing operations yesterday. Water from it will be used to fill a fishing and boating lake, first to be 10 acres in size but later to be expanded to 25 acres. The lake and other developments will be on an 80-acre tract north of Hobbs. News-Sun photo by Jim Rawls.

Recreation Project Planned for Hobbs

Development of an area scheduled eventually to include a 25-acre lake, a large motel, swimming pool, trailer park, restaurant and service station is under way on an 85-acre tract north of Hobbs.

Testing of a well that will supply water for the lake is under way this weekend, Joseph O. Walton, owner and developer of the project, said. First phase of the undertaking will be a 10-acre lake which is to be stocked with bluegill, bass and catfish.

The lake is due to be open for fishing this fall.

Site of the development is an area east of State Road 18, about two miles north of Hobbs. The front of the area joins a roadside park there.

Both the original lake and the section to be added later are in natural shallow lakebeds which will be deepened. Dirt is being removed now from the first of the two sites.

Name of the project, Walton said will be "The Green Meadows."

The entire area will be landscaped, Walton said, with trees and shrubs. Also to be included are picnic grounds and barbecue pits.

The motel is planned as a 50-unit installation, opening onto a

ply water for the lake is under-
way this weekend, Joseph O. Wal-
ton, owner and developer of the
project, said. First phase of the
undertaking will be a 10-acre lake
which is to be stocked with blue-
gill, bass and catfish.

The lake is due to be open for
fishing this fall.

Site of the development is an
area east of State Road 18, about
two miles north of Hobbs. The
front of the area joins a roadside
park there.

Both the original lake and the
section to be added later are in
natural shallow lakebeds which
will be deepened. Dirt is being re-
moved now from the first of the
two sites.

Name of the project, Walton
said will be "The Green Mea-
dows."

The entire area will be land-
scaped, Walton said, with trees
and shrubs. Also to be included
are picnic grounds and barbecue
pits.

The motel is planned as a 50-
unit installation, opening onto a
section of the lake. The restau-
rant, Walton said, is to be large
enough to accommodate civic clubs
and other sizable groups.

All the structures, including a
small building for the right of way
to the lake, will be built on
the site.

be constructed at the north
south entrance to the devel-
opment area.

"At first," Walton explained,
"boating on the lake will be limited
to boats without motors. Mo-
torboats will be permitted later,
after the full 25-acre lake is fin-
ished."

"The lake is going to be stock-
ed with fish at a ratio of 1,000
bluegill for every 100 bigmouth
bass and 100 catfish. The fish and
wildlife officials set that as an
ideal for growing of large fish."

The lake will be commercially
fertilized to provide food for the
bluegill, and those fish in turn
will be food for the catfish and
bass, he added.

In the middle of the original
lake will be an island with a light-
ed fountain to provide added scen-
ic beauty for the area.

The 100-unit modern trailer
park will be separated from the
rest of the project to provide large
lots and yards for occupants of
trailers there.

The well now being completed
is being drilled to 130 feet and
will be cased, and perforated at
varying depths where testing
shows the water flow to be most
prolific. Testing to remove sand
and other foreign matter from the
well is due to last from 24 to 48
hours.

The well is being drilled by J.
E. Barton of Hobbs, veteran wa-
ter well driller. A power pump
supplied by Stewart and Stevenson
Services of Lubbock, Tex., will
draw an estimated 1,250 gallons
of water per minute from the well.

Another feature of the well
will be an overflow conservation
arrangement. A 14-inch overflow
casing will be installed in the lake,
so that when water passes the
maximum level it will drain back
into the well in a recharge opera-
tion.

Damage Suit - McKinley Lease

Mr. R. H. Coo - Tulsa

Production Hobbs

**Messrs: S. E. Cavanaugh - Los Angeles
H. G. Westberry - Midland
H. D. Page - Tulsa
Jack Jones - Tulsa**

August 24, 1957

Attached is news item which appeared on the front page of the Hobbs

Daily News - Sun, Friday, August 23, 1957.

**Original Signed By
H. P. SHACKELFORD
H. P. Shackelford**

HPS:WG

w/encl.

Two Firms Sued For Oil and Gas Allegedly in Water

Suit was filed against the Tidewater and Getty Oil Companies today, asking \$27,500 damages in connection with alleged pollution of water near the north city limits of Hobbs.

Plaintiff in the suit is W. H. Ellison. The suit seeks \$15,000 in actual damage, \$2,500 for expenses and \$10,000 in punitive damage.

Ellison, in the suit, contends through attorneys Joseph O. Walter and W. D. Girard that the water under his holdings has "become so polluted with oil and gas and other deleterious substances from the wells of the defendants that said water has become useless and harmful for the said domestic or irrigational uses."

Ellison's home, about two miles west of the Lovington highway and a half-mile south of West Bender, is on a tract of about five acres. The land and water wells figured in the recent hearing held here by the Oil Conservation Commission in connection with the possible pollution of city water supplies.

The Ellison property was included on a tour by OCC, city and oil industry officials in connection with the hearing, which had been requested by the Hobbs city commission.

The hearing was asked after a city commission meeting in which possible pollution of water was discussed extensively. The commission expressed fear that contamination of city water supplies might result from casing leaks in oilwells near water wells.

The suit was to be filed by District Court Clerk W. M. (Billy) Beauchamp today.

In the complaint the Ellison attorneys allege that Ellison holds water permits allowing him to irrigate up to 2½ acres of land each year and 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.

The defendants have, the complaint alleges, "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 pollution is knowingly and intentionally being permitted to continue."

The complaint contends that Ellison has attempted to erect his permanent abode on the land but has been forced to haul in all drinking water and water for family purposes, and that he "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."

FIFTH MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
AUGUST 22, 1957

The fifth meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico, on August 22, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
R. J. Francis, Alternate	Continental Oil Company
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
R. E. Layhe, Alternate	Samedan Oil Corporation
R. C. Cabaniss, Alternate	Shell Oil Company
J. W. Montgomery, Alternate	Shell Oil Company
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company
Others present:	
Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	New Mexico Oil Conservation Commission

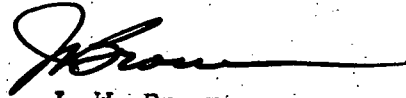
The meeting was called to order at 9:15 a.m. by J. W. Brown, Acting Chairman.

Reports were heard from the two sub-committees which had not completed their assignments.

Major portion of the meeting was devoted to the preparation of the Committee's final report. Draft copies of items to be included in the final report were reviewed in detail by the Committee.

The next meeting was scheduled to be held at 9:00 a.m. in
the OGC Conference Room in Hobbs on September 5, 1957.

The meeting was adjourned at 3:45 p.m.



J. W. Brown
Acting Chairman

FIFTH MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
AUGUST 22, 1957

The fifth meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico, on August 22, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
R. J. Francis, Alternate	Continental Oil Company
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
R. E. Layhe, Alternate	Samedan Oil Corporation
R. C. Cabaniss, Alternate	Shell Oil Company
J. W. Montgomery, Alternate	Shell Oil Company
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company
Others present:	
Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	New Mexico Oil Conservation Commission

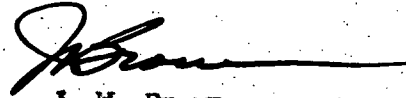
The meeting was called to order at 9:15 a.m. by J. W. Brown, Acting Chairman.

Reports were heard from the two sub-committees which had not completed their assignments.

Major portion of the meeting was devoted to the preparation of the Committee's final report. Draft copies of items to be included in the final report were reviewed in detail by the Committee.

The next meeting was scheduled to be held at 9:00 a.m. in
the CCC Conference Room in Hobbs on September 5, 1957.

The meeting was adjourned at 3:45 p.m.



J. W. Brown
Acting Chairman

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

The Committee finds as follows:

(1) The entire Hobbs Pool Area is directly underlain by the Ogallala formation of Tertiary age.

(2) The Ogallala formation, in the Hobbs Pool Area, 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 of 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.

(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 sand of the Ogallala formation above the water table would normally contain pellicular water and air.
(interstitial)

(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 Ogallala 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 Ogallala 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 recharge 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, permeability of the sand to water would be zero if the oil and gas saturation varied from 100% down to 70%. (The permeability of the sand to water increases as oil and gas saturation decreases below 70%). [Therefore, water in the Ogallala formation would not move until oil or gas saturation is decreased to less than 70% of the total pore space occupied by a mixture of water-oil-gas.]

(18) Oil or gas in the Ogallala formation below the water table would not move until oil or gas saturation increased above about 12% of the total pore space occupied.

(19) Oil or gas introduced into the Ogallala formation would be free to move provided only that sufficient saturation by oil or gas occurred.

(20) 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 12% saturation by the reduction of pressure or by moving water through the sand.

(21) Any movement of oil, or gas ^{about} in the Ogallala formation below the water table would result in a minimum of 12% of the oil or gas remaining trapped in the sand through which the oil or gas moved.

(22) Oil introduced into the Ogallala formation above the water table could result in the sand becoming oil-wet thereby resulting in residual oil saturation much higher than if introduced below the water table.

(23) 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.

(24) Gas dissolved in the Ogallala water would have no affect 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.

(25) Dissolved gas, ~~but not oil~~, would move with the water in a southeasterly direction at a rate of approximately 9 to 12" per day.

(26) Gravitational forces would tend to move oil or ^{free} gas in the Ogallala formation upward to the water table.

(27) 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 structural highs while water wells contaminated with gas are located both in structural highs and lows.

(28) The structure of the base of the caliche could possibly affect the movement of oil and gas toward structural highs.

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

1. A total of 378 water wells were located in the area. It is believed that this represents about 80% of the total number of water wells located in the Hobbs Pool Area. *This includes 74 producing wells.*

2. Seventeen water wells are ^{reported} to be contaminated by gas. Based on taste tests by Com. members the following 17 water wells are *sus to be* contaminated by gas in varying degrees. They are located as follows:

Gibbins	SW SE NE 4, 19-38
Easton	SW SE NE 4, 19-38
Gackle	SE SE NE 4, 19-38
Security Supply	NW NE NE 5, 19-38
Ohio Oil	SE SE SE 32, 18-38
Baker Tool	SW SE SW 32, 18-38
Harwell	NW NE NE 28, 18-38
Dowell	NE NE NE 28, 18-38
Humble Oil	SW NE SW 30, 18-38
Bensing	NE NW NE 30, 18-38
Green	NE NE NE 30, 18-38
Mertaugh	NW NE NE 30, 18-38
Moon	NW NE NE 30, 18-38
Moon	SW NE NE 30, 18-38
Goins	NE SE NE 30, 18-38
Ellison, L-2230	SW SE NE 30, 18-38

One water well (Ohio Oil, SE SE SE 32, 18-38) is reported to have been contaminated with gas since 1930.

One water well (Dowell, NE NE NE 28, 18-38) proved to be contaminated to such an extent that 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 be contaminated by oil and 3 are reported to be contaminated by oil. The wells known to be contaminated by oil are located as follows:

Amerada Petroleum	C N/2	29, 18-38
Ellison, L-2230, No. 1	SW NE NE 30,	18-38
" 2	SE NW NE 30	"
" 3	SE SW NE 30	"
" 4	SE SW NE 30	"
" 5	NE SW NE 30	"
" 11	SE NW NE 30	"
" 12	SE SW NE 30	"
" 13	SE SW NE 30	"

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

Jackson	NE NW NW 20, 18-38
Phillips	NE NW NW 4, 19-38
Pacific Pump	NW NE NE 5, 19-38

The amount of oil observed to be present in the well bores of the nine contaminated wells ranged from 0.5 inches to 19.4 feet.

4. One well is reported to be contaminated by sewage. It is located as follows:

Phillips #6

SE NE NW 4, 19-38

111
21

Feasibility of Eliminating 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.
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 flushing 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 oil 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 ~~re~~injecting the water in the recharge wells. Under these conditions it would be more practical to simply remove the gas from wells furnishing water 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.

certain.

1. 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 and add (4)

~~3. As gas in solution may possibly travel a great distance, the city wells are in some danger of gas contamination in the future.~~ *certain*
~~may possibly show~~

~~4. As the city wells are completed at or near the base of the aquifer, the possibility of oil contamination has been greatly reduced.~~

~~4. Observation wells should be established and maintained between the contaminated area and the city wells.~~

may be subject to some gas contamination in the future.

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 as follows:

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 oil and acid 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 ~~has~~ is very close to doing so. The unsupervised dumping of various waste products into this ditch is a definite hazard to the underlying fresh water. Three wells adjacent to ~~this pit~~ ^{an additional} are reported to be contaminated.

4. Analyses indicate that water ^{coming} directly from the gasoline plant is not a potential source of contamination but that the lake in which it accumulates is high in chlorides. 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.

5. No accumulation of refuse was found that could be considered as a source of permanent contamination to the fresh water sands.

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.

The purpose

VI Possible Need for Rules and Regulation Governing the Drilling, Completion, and Abandonment of Water Wells in the Hobbs Pool Area.

1. There are no rules or 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 ~~domestic~~ water wells to (a) prevent further contamination of water in the Ogallala formation, and to (b) 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 ~~domestic~~ water wells.

4. There is ^{a/s o g} ~~a definite~~ need for rules and regulations governing the drilling and abandonment of geophysical "shot holes", core tests, or any other boring or excavation that penetrates the Ogallala formation.

fresh water sands.

VIII The Possibility of, and Methods for, Obtaining Potable Water from the Areas of Apparent Contamination.

The Committee finds as follows:

1. It should be possible to obtain potable water at almost any location in the Hobbs Pool Area 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 contamination is severe, it might be necessary to use 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 produced into and held in pressure tanks will retain gas in solution to be released when water is drawn ~~for household use.~~

with) from a faucet.

IX. Causes of oil and Gas Well Casing Deterioration And Methods of Determining The Existence of Defective Casing.

The Committee finds as follows:

There are numerous causes for 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, 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 is caused by the movement of tubing during the pumping cycle and 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 941 psig in 1956 and 986 psig in 1954, indicating very gradual decline.

⑧ NMOCC records indicate that to this date defective casing has been repaired at 63 Hobbs Pool wells.

9. 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 can be expected to increase during the 20-30 years remaining life of the pool.

X Methods of Detection (see above)

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 anomalies as possible casing leaks. *indications of*
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. Electrical 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.

II
Programming of Bradenhead Pressure Tests on Oil and Gas Wells in the Hobbs Pool Area.

The Committee finds as follows:

1. Bradenhead pressure surveys, ^{should} where the several casing strings are open for pressure measurement, ~~will~~ 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.

^{It should be necessary for}

4. The NMOCC ~~has not been authorized~~ to witness only one of the quarterly bradenhead pressure surveys.

5. The operators of the individual wells ^{should} ~~can~~ 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 ~~that no indication of a leak has been found.~~ ^{whether or not leaks have been found.}

6. All producing oil and gas wells, ~~including~~ 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.

8. 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.

9. 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.

VII

Methods of Repairing Oil Well Casing Found To Be Defective And
The Prevention of Casing Deterioration.

The Committee finds as follows:

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, ~~listed in the general order of preference with respect to protection of the fresh water sands,~~ 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 defective 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. Circulating cement to the surface between casing strings during completion or repair operations.
6. Squeezing cement through casing leaks and obtaining a solid final build up squeeze pressure. ~~Leaks repaired by this method should be protected by setting a packer below the leak (s) and filling the annular space above the packer with non-corrosive liquid.~~

IX-A

There 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 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.

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.

1. At least 42 wells, and probably more, are available for observation purposes in the Hobbs Pool area. The attached tabulation lists 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, accurate location of the well with reference to the land net and to relatively permanent landmarks, and an accurate description of the measuring point.
3. It is believed that 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. ✓

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

Well Location	Accessibility of Well			Present Use	Remarks
	For Measurement Of Water Level	For Collection of Water Sample From	By Thief or Trip Sampler		
NE SW 13-16-37	X		X	Abandoned	Sampled 8/14/57
NW SW SE 13-16-37	X	X		Stock	Windmill
NW SE SE 23-16-37	X		X	Abandoned	Sampled 8/14/57
SE SE SE 24-16-37		X		Domestic	Windmill
SW NE SE 17-18-38	?	?	?		Not checked
SE SE SE 18	?	?	?		Not checked
SW SW SW 19	X		X	Abandoned	
NE NW NW 20		X		Irrigation	Sampled 8/13/57
SE/4 21	?	?	?		Many wells. Not checked.
NW NW 27	?	?	?	Standby	City Well #13
SW SW SE 27	?	?		Municipal	City Well
N/2 28	?	?	?		Many wells. Not checked.
NW SW NE 29	X		X	Abandoned	Contained oil 8/14/57
SW NE SE 29	X		X	Abandoned	N' most of two wells
SW NE NW 30	X	X		Domestic	
NE/4 30	X	X	X	Dom., Irrig.	Many wells. Contaminated area.
NE NE SW 30	X		X	Abandoned	

WATER WELLS IN THE HERRS POOL AREA WHICH COULD BE UTILIZED FOR OBSERVATION PURPOSES (Continued)

Well Location	Accessibility of Well			Present Use	Remarks
	For Measurement Of Water Level	For Collection of Water Sample Tap or Discharge Pipe	By Thief or Trip Sampler		
SW NE SW 30-18-38	X		X	Abandoned	Windmill
SE SE SW 30	X	X		Domestic	Three wells present. Sample from contaminated well.
SW NE SE 30	?	X		Domestic	
NE NE SW 31	X		X		Not checked
SE SW SE 31	X	?			
NE NE NE 32	X		X	Abandoned	Plugged with timber
NE SW NE 32	X		X	Abandoned	Plugged with bull plug
NE NE NE 32	X		X	Abandoned	Many wells. Not checked.
S/2 32	?		?		Many wells. Not checked.
NE/4 33	?	?			
SW SE SW 33	X			Domestic	
NE SW SW 34	X		X	Domestic	
SW SW SW 34	X		X	Abandoned	
NW SE SW 34		X			
N/2 34	?	?			Many wells. Not checked.
S/2 3-19-38	?	?			Many wells. Not checked.
N/2 4	?	?			Many wells. Not checked.

WATER WELLS IN THE KEBBS POOL AREA WHICH COULD BE UTILIZED FOR OBSERVATION PURPOSES (Continued)

Well Location	For Measurement Of Water Level	Accessibility of Well		Present Use	Remarks
		For Collection of Water Sample Tap or Discharge Pipe	By Thief or Trip Sampler		
SW SW SW 4-19-38	X		X	Abandoned	
SE NE SE 4	?	X		Domestic	Sampled 8/12/57
N/2 5	X	X			Many wells. Not checked.
NE NE SE 6	X		X	Abandoned	Timber plug
SW NE NE 6	?	X		Stock	Windmill
NE/4 9-19-38	?	?			4 wells here. None checked
SW NE SE 10	?	X		Domestic	Windmill
SE SW SE 10	X		X	Abandoned	

COMMITTEE MEETING - AUG. 22, 1957

378 - Water wells picked

31 Contaminated

12 air in well

1 Sewage " "

18 gas " "

58 Check wells

48 Collected Sample Wells

Amended old water well

F.L. 25.25'

air 29.7' ~~0~~ - Same

T.D. 121'

Casing ?

lost 2 years air movement

nearest air leak 1400'. Repaired

1953 (West & north)

air located in Structural High

Gas " " " High & Low

Believe several water sands
in Ellersburg area (occ) - Barren
in this area between water sands.

Amended & Ellersburg water
well have same F. No.

(Ohio well definitely black)

Contaminated with
gas 1930 -

water well
Ohio SE/SE/SE -
32-18-38

Hobbs bar core water
well - west of Danwell 1/2 mile.
Said have some oil & gas.

Humboldt told OCC that probably
#1 McKinley will result of
Humboldt well back.

Next Meeting Thursday
Sept 5, 1957

Hobbs Area & Related Pools
Casing Leaks & leaks repaired
to July, 1957

Messrs: R. H. Coe & W. J. Haugh - Tulsa

Production

Hobbs

Messrs: H. G. Wesberry & H. E. Wendt - Midland

August 9, 1957

Jack Jones - Tulsa

S. E. Cavanaugh - Los Angeles (610 S. Main)

Please find attached a list of casing leaks and leak repairs in the Hobbs Area and related pools as of July, 1957.

This tabulation was prepared by the Hobbs Water Contamination Committee of which Tidewater is a member.

The heading of this table is somewhat misleading in that it represents communication between casing string which could either be leaks or bad cement jobs.


H. P. Shackelford

RNM:bb

Attachment

HOBBS AREA & RELATED POOLS

CASING LEAKS & LEAKS REPAIRED JULY 1957

OPERATOR	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Dropped)			Liner		Date Leak Found	String and Depth of Leak	Repaired Date	Remarks
			Surface	Intermediate	Production	Patch Liner	Full String				
MERADA PET. CO. State B Bowers State B Sept 11'30 Hobbs State B Sept 6'30 Hobbs	5-O	29-18-38	10" 220/200	7" 1665/300	5" 3136/300						
	1-F	29-18-38	12" 210/200	9" 2740/400	7" 3997/500						
	2-G	29-18-38	12" 221/250	9" 2756/500	7" 3995/200			8/25/53	7" 1788/1810	12/22/53	
ATLANTIC RFG. CO. Grimes Hobbs	1-O	20-18-38	12" 232/200	9" 2790/500	6" 4037/300						
	1-A	31-18-38	12" 242/N.R.	9" 2744/N.R.	7" 3938/N.R.			9/22/53	7" 964/1894 2187/2211	10/29/53	
FOWLER SERVICE OIL CO. Fowler May 14'30 Hobbs Fowler Apr 16'34 Hobbs	4-H	31-18-38	12" 242/100	9" 2760/300	7" 3955/150			5" New String 4190?/635	7 x 9 2700	8/16/54	
	1-O	28-18-38	12" 222/180	9" 1637/300	7" 3975/400						
ONTINENTAL OIL CO. (Min Cost \$1,900 Max Cost \$15,000 Avg. \$6,516) Grimes July 14'34 Hobbs Grimes May 13'35 Hobbs State A-29 Hobbs State A-29 Apr 16'47 Bowers	3-J	38-18-38	10" 245/150	7" 1635/300	5" 4015/300			9/23/53	7" 370'	11/21/53	
	3-K	29-18-38	15" 252/1000	9" 2729/600	7" 3953/300			7/7/54	5" 292/412	7/16/54	
	5-K	29-18-38	10" 380/200	7" 1573/425	5" 3197/450			9/11/56	7" x 5"	2/3/57?	
								8/29/56		7/1/57	Leak in well head Tested 1500 p.s.i. O.K.
State A-33 Sept 16'30 Hobbs State A-33 Nov 12'31 Hobbs State A-33 Mar 1'32 Hobbs State A-33 Feb 1'33 Hobbs	1-M	33-18-38	12" 209/165	9" 2738/500	7" 3976/275			No leak indicated in well file			
	4-J	33-18-38	15" 232/425	9" 2757/600	7" 3928/325			5" Liner	7" 524		
	6-N	33-18-38	15" 223/387	9" 2754/600	7" 3971/350			3871/4232	1116/1176	11/13/53	
PETTY OIL CO. (Opr. by Tidewater) McKinley July 4'30 Hobbs	7-G	33-18-38	15" 237/235	9" 2756/600	7" 3970/350			5" 3911/4236	7" 259	7/26/54	
	1-G	30-18-38	12" 245/200	9" 2758/600	7" 3856/250			5" 4243/300	7" x 9" ?	12/3/54	
			Cost \$2,500 Max Cost \$25,000.					5" 99jts. 4% gel. 405	7" 400/500	7/1/54	

HOBBS AREA & RELATED POOLS

CASING LEAKS & LEAKS REPAIRED JULY 1957

OPERATOR	LEASE/DATE COMP - POOL	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Dropped)			Liner	Leak Found	String and Depth of Leak	Repaired Date	Remarks
				Surface	Intermediate	Production					
GETTY OIL CO. (Continued) McKinley July 15 '30 Hobbs McKinley Aug 21 '30 Hobbs McKinley May 29 '47 Bowers McKinley July 13 '47 Bowers		2-H 4-B 6-G 7-B	30-18-38 30-18-38 30-18-38 30-18-38	12" 251/200	9" 2756/600	7" 3858/250	5" 4202/450	6/3/54	7" 227/903	7/7/54	\$35,000+
				12" 245/200	9" 2753/600	7" 3998/250		9/6/56	Could not get circulation	9/12/56	
				11" 1474/400		5" 3160/200		9/4/56	Could not get circulation	9/14/56	
				8" 1503/400		5" 3175/200		9/4/56		9/6/56	
GULF OIL CORP. Graham St. A Aug 10 '32 Hobbs Grimes, W.D. Nov 1 '32 Hobbs Grimes, W.D. Aug 16 '34 Hobbs Grimes, W.D. Nov 16 '34 Hobbs Grimes, W.D. Oct. 16 '35 Hobbs		2-A 2-H 3-B 4-A 2-N	24-18-37 33-18-38 33-18-38 33-18-38 21-18-38	13" 229/300	9" 2790/600	7" 3975/250	5" Liner	12/7/55		1/10/56	
				13" 221/175	9" 2761/500	6" 3959/250	3914/4169	4/17/56	7" ?	5/22/56	
				13" 292/200	9" 2746/350	7" 3930/250	5" 4086/75	(7/2/46)	5" 3589/3775	(7/10/46)	
				13" 285/200	9" 2739/350	7" 3970/150	5" Liner	(10/9/53)	489/499	(3/5/54)	
				13" 281/225		7" 4109/1300	3919/4175	2/14/56		5/21/56	
Grimes, W.D. A Apr. 18 '30 Hobbs Grimes, W.D. A June 13 '30 Hobbs Grimes, W.D. Feb 16 '31 Hobbs Grimes, W.D. July 1 '34 Hobbs Grimes, W.D. Sept 16 '34 Hobbs		1-D 2-F 7-C 8-E 9-L	32-18-38 32-18-38 32-18-38 32-18-38 32-18-38	15" 200	9" 3000	6" 4200	5" 250w/48	12/28/54	7" 425/1687	1/4/55	Replaced Surface Connections
				15" 200 N. A.	9" 3000 N. A.	6" 4200 N. A.	0/4224	12/28/53	6" 1049/1080	4/12/54	
								5/24/53	7" Sur. Nipple	7/4/53	
				13" 220 N. A.	9" 2750 N. A.	7" 3950 N. A.		6/21/54	7" above 1208	6/28/54	
				15" 238/200	9" 2757/350	7" 3954/200		4/2/54	7" 1725/1935	4/10/54	
HUMBLE OIL & RFG. CO. Fed. Bowers A Oct. 1 '30 Hobbs " " " " " " " " " " " " Fed. Bowers A Sept 1 '30 Hobbs		8-O 8-O 5-I	30-18-38 30-18-38 30-18-38	12" 220/210	9" 2738/650	7" 3974/300		2/27/46	7" @ 60'	3/14/46	
				12" 210/200	9" 2739/650	7" 3963/300	5" 3905	9/ /47		10/10/47	
								Aug. 28 '47	7" @ ?	9/15/47	

HOBBS AREA & RELATED POOLS

CASING LEAKS & LEAKS REPAIRED JULY 1957

OPERATOR	LEASE - DATE COMP - POOL	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Dropped)			Liner		Leak Found	String and Depth of Leak		Repaired Date	Remarks
				Surface Cement	Intermediate	Production	Patch Liner	Full String					
HUMBLE OIL & RFG. (Continued) Fed. Bowers A Aug 28'30 Hobbs Fed. Bowers A Aug 12'30 Hobbs " " " Fed. Bowers A Aug 28'30 Hobbs MAGNOLIA PET. CO. Berry Nov 18'30 Hobbs		4-P 2-J " 3-M 1-K	30-18-38 30-18-38 " 29-18-38 31-18-38	12" 204/200	9" 2750/650	7" 3960/300			10/2/47	7" @ ?		10/24/47	
				12" 242/225	9" 2750/650	7" 3960/300	5" 4208		8/7/47 8/2/53	7" @ ? Temp Anoms. 18" 2160/3676 7" number of scales			
				12" 203/200	9" 2736/650	7" 3960/300	5" 3940 circ		8/7/47			9/29/47	
				13" 245 N.A.	9" 2800 N.A.	7" 3955 N.A.	5" Liner 3847/4190		9/6/56			11/11/56	
OHIO OIL CO. State 30 Oct 3'30 Hobbs State 32 Aug 14'30 Hobbs State 32 Oct 5'30 Hobbs		3-L 3-J 5-C	30-18-38 32-18-38 32-18-38	12" 243/225	9" 2751/550	7" 3900/350			1/30/57			3/8/57	
				12" 205/225	9" 2750/475	7" 3968/350	5" 4244/655		6/29/54	7" 266/1567/1200 & 1567		9/3/54 9/9/54	
				16" 221/250	9" 2750/556	7" 3925/225	5" 4235		7/26/54	7" aprox. 1200			
PAN AMERICAN PET. CORP. Byers NE-4 Mar 1'33 Hobbs Byers NE-4 Aug 13'30 Hobbs " " H.D.McKinley NW-5 Oct. 20'30 Hobbs McKinley Oct 7'30 Hobbs McKinley Dec 9'30 Hobbs McKinley Jan 1'45 Hobbs State A "5" May 16'33 Hobbs		26-H 33-G " 1-C 6-I 26-F 29-E 8-B	4/19/38 4/19/38 " 5-19-38 5-19-38 5-19-38 5-19-38 9-19-38	16" 199/85	10" 1570/75	8" 3961/150	5" 4205/675		3/8/47	8" @ 3140		3/8/47	
				16" 152/360	10" 1523/75	8" 3250/60	6" 3952/50		9/24/53 3/8/55	6" 1865 7" @ 1500		6/1/55 3/7/55	
				16" 162/55	10" 2749/300	6" 3920/150			6/18/57				
				16" 185/75	10" 2782/390	6" 3977/150			9/10/53			3/17/54	
				13" 212/150	9" 2780/300	6" 3950/150			10/13/53?			12/2/54	
State A "5" May 16'33 Hobbs		8-B	9-19-38	13" 210/200	9" 2780/500	7" 3999/300			10/17/53	7" 2095/2126		11/3/54	
				16" 217/100	10" 2810/450	7" 3993/100			6/20/57				

HOBBS AREA & RELATED POOLS

CASING LEAKS & LEAKS REPAIRED JULY 1957

C	FOR	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Drilled)		Liner	Leak Found	String and Depth of Leak	Repaired Date	Remarks
				Surface	Intermediate					
F	DATE DUMP - POOL	AMERICAN PET. CORP (Cont)	3-D 10-19-38 11-1 9-19-38 8-1 10/19/38 2-F 33-18-38 26-P 33-18-38 26-N 4-19-38 11-C 4-19-38 8-D 34-18-38	16" 158/50	10" 1543/75	Patch Liner Full String	9/28/53	8" 0/227	11/2/54	Liner 3939/4190 Liner 3900/4212 Liner 3872/4221 No record in file.
				16" 196/100	10" 1593/75		9/28/53	8" 1224	11/2/54	
				16" 204/125	10" 1597/75		11/11/53	8" 1182/1160	10/17/54	
				12" 200	9" 2800		9/28/53	7" 1224	4/7/54	
				16" 209/125	10" 2752/400		8/26/46	No leak found	8/12/46	
				16" 193/50	10" 3275/650		6/13/47	1043	7/14/47	
				16" 201/125	10" 2754/400		6/30/48	838	8/24/48	
				16" 223/90	10" 1646/350		2/17/48	7" 815/1180	3/4/48	
				12" 205/175	7" 4039/500		1/2/51	7" 2163	8/12/54	
				12" 212/150	7" 3983/150				1/8/51	
S	L OIL COMPANY (Cost to add ice Sept 4, '32 Hobbs Rice Dec. 14 '35 Hobbs State B 12 '34 Hobbs)	L OIL COMPANY (Cost to add ice Sept 4, '32 Hobbs Rice Dec. 14 '35 Hobbs State B 12 '34 Hobbs)	1-F 25-18-37 2-X 24-18-37 1-P 13-18-37 3-I 13-18-37 2-C 33-18-38	Oil in annulus	to Flowing wells	Patch Liner Full String	2/14/57	7" 1500 p.s.i for 30 min.NF.	5/27/57	No record in file.
				12" 228/200	9" 2786/600		8/4/54	7" above 100	8/13/54	
				12" 264/200	9" 1591/600		9/28/53	7" 526/557	11/16/53	
				12" 296/150	9" 2760/150					

CASING LEAKS & LEAKS REPAIRED JULY 1957

OWNER	DATE COMP - POOL	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Dropped)			Liner	Leak Found	String and Depth of Leak	Repaired Date	Remarks
				Surface	Intermediate	Production					
SKULL OIL CO. (Continued)	State F Dec 10 '41 Bowers anger Inv. Co. Jun 15 '35 Hobbs	1-A	23-18-37	8" 1592/525		4" 4099/130		3/?/57	4" 3300/2575	6/5/57	
		3-J	27-18-38	12" 257/155	9" 1645/200	7" 4075/250		9/28/53	7" 800	6/6/57	
		2-W	27-18-38	12" 233/700	9" 1648/350	7" 4060/250					
SKULLY OIL CO.	Hobbs Hobbs	2-F	31-18-38	12" 208/300	9" 2796/400	7" 3964/450	5" 4211/325	12/5/55	No Leak 7"	12/11/55	
		1-C	31-18-38	12" 266/185	9" 2750/400	7" 3973/450	5" 4215	8/28/53	7" No leak	5/26/54	
SOUTHERN PET. EX-L CO. INC.	Morris A Mar 1 '36 Hobbs	1-O	21-18-38	12" 252/200		7" 4066/468	5" 0-572	4/23/57			
		1-P	21-18-38	10" 259/175		7" 4097/400	4" 4072/400 4 1/2"	7/1/57 7/10/56		7/20/56	
STANDARD OF TEXAS	State Sept 17 '30 Bowers	2-O	29-18-38	13" 242/150	9" 2822/725	7" 3951/300		3/27/57		5/10/57	
SUN OIL COMPANY	Kinley Aug 15 '30 Hobbs Kinley Aug 13 '30 Hobbs Kinley Aug 19 '30 Hobbs Kinley Oct 16 '30 Hobbs	1-A	5-19-38	12" 192/190	9" 2746/500	7" 3984/225	5" 4180 NA.	3/26/54	7" ?	5/4/54	
		2-H	5-19-38	12" 200 NA	9" 2900 NA	7" 4000 NA	5" 4168/50	9/28/53	7" 1226/1650	4/26/54	
		3-B	5-19-38	12" 200 NA	9" 2900 NA	7" 4000 NA	5" 4175 NA	9/28/53	7" 1877/1832	4/2/54	
		4-F	5-19-38	12" 2000NA	9" 2900 NA	7" 4000 NA	5" 4200/65	9/9/53	7" 77/3790	4/2/54	Bad Collars
SUNRAY MID-CONTINENT OIL CO.	Powder Nov 12 '30 Hobbs	1-D	31-18-38	13" 300	9" 2750/600	7" 3950/425		9/30/53	7" 3100	10/21/53	

HOBBS AREA & RELATED POOLS

CASING LEAKS & LEAKS REPAIRED JULY 1957

OPERATOR LEASE - DATE COMP - POOL	WELL & UNIT	S-T-R	CASING PROGRAM (All fractions Dropped)			Liner		Leak Found	String and Depth of Leak	Repaired Date	Remarks
			Surface Cement	Infiltration	Production	Patch Liner	Full String				
TEXAS PACIFIC COAL & OIL CO. State G July 2'30 Hobbs State G Nov 7'30 Hobbs	1-P 3-J	24-18-37 24-18-37	20" 105/125	12" 1521/300	9" 2815/700	7" 3880/200	9/30/53 No Leak just remedial	7" 2350	3/15/57 7/9/56		
			12" 215/200	9" 2810/400	7" 3878/300						
TIDEWATER OIL CO. Bome Hardin Nov 6'30 Hobbs Grimes Oct 4'30 Hobbs	3-B 3-I	19-18-38 29-18-38	12" 217/200	9" 2750/600	7" 3952/300	5" 3691	12/18/42	7" x 9"	2/23/43		
			15" 228/200	9" 2715/600	7" 3900/300	4233/120					
Grimes (P&A) Sept 15'30 Bowers	2-H	29-18-38	15" 230/200	9" 2718/600	7" 3880/300	5" 3350/100	9/25/46	7" Bad Conditions	9/27/46		

Committee Meeting
Water Contamination

Mr. R. H. Coe - Tulsa

Production Hobbs

Mr. H. G. Wesberry - Midland

August 8, 1957

Mr. Jack Jones - Tulsa

Fourth meeting of "Committee to Study Protection of Hobbs Fresh Water Sands" met Thursday, August 8, 1957 at 9 A.M. in the New Mexico Oil Conservation Commission's conference room. Mr. J. W. Brown, PanAmerican Petroleum Corporation, presided. Representatives from Continental Oil Company, Samedan Oil Company, Shell Oil Company, Tidewater Oil Company, New Mexico Oil Conservation Commission and State Engineer's office were present.

The Committee appointed to check all water wells reported their findings to date. 374 water wells were found in the Hobbs area. 27 of the water wells were contaminated. 9 of the wells were contaminated with oil, 1 with oil and gas, 16 with gas and 1 with sewage. 32 were found that had been abandoned, but not plugged.

Ohio Oil Company drilled a water well in the early days of the field and the water was gassy. At that time the only oil wells in the Hobbs Pool were at least one mile east of the water well.

Continental Oil Company's State A-29 Well No. 6, Unit N, found oil in the salt section. On September 10, 1946 applied for permission to run the distress oil.

Four committees were appointed to work on the findings of the "Committee to Study Protection of Hobbs Fresh Water Sands". Final report of committee should be in with in five weeks.

Next meeting called for 9 A.M., August 22, 1957.

HPS
H. P. Shackelford

HPS:hh

FOURTH MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
AUGUST 8, 1957

The fourth meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico, on August 8, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
R. J. Francis, Alternate	Continental Oil Company
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
G. W. Putman, Member	Samedan Oil Corporation
J. W. Montgomery, Alternate	Shell Oil Company
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company

Others present:

Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	New Mexico Oil Conservation Commission

The meeting was called to order at 9:15 a.m. by J. W. Brown, Acting Chairman.

Reports were heard from the two sub-committees which had not completed their assignments.

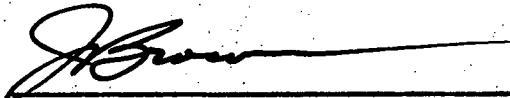
Final discussion was held on several items which had not been completed at previous meetings.

Considerable discussion was devoted to the preparation of the Committee's final report. Assignments were made to the various

organizations and companies to commence drafting the final report.

The next meeting was scheduled to be held at 9:00 a.m. in the OCC Conference Room in Hobbs on August 22.

The meeting was adjourned at 11:30 a.m.

A handwritten signature in dark ink, appearing to read 'J. W. Brown', is written over a solid horizontal line.

J. W. Brown
Acting Chairman

COMMITTEE MEETING - AUGUST 8, 1957

Jack Brown - Presiding - Pan Am

Water well Committee: R. Montgomery

374 water wells found

Contaminated 27 - (9 oil - 16 gas)

1 sewage - 1-620)

Found 32 wells - Not used that
are still open.

64 wells - done some remedial

work in Hobbs Pool Area.

Dated from 1946

Oh, of water well
contaminated when drilled and
only oil wells were 1 mile or more
out.

Observation Wells Look For:

1. Water Table

2. Sample of Fluid, ^{a check for Gas & O.I.}
(Quantitative ~~analysis~~
Hydrocarbon & Cl.)

3. Sample all contaminated wells, except 6 known
which have been checked. Check wells immediately
surrounding area of contamination. Total
about 40 wells.

Also check open wells if time
Permits.

Check & bet observation after
the Sunday

Committee to check other means
of Pollution.
We have sent samples off
for analysis.

About 4 Byers box wells
in Robber Area.

Phillips has some southern
sites where the blow box tries
Some times they have 100 plus
barrels in the pit.

Every day - more oil produced
in eastern Pitt?

Continental State A-29 - #6
Unit N - 29-48-23
Oil & Salt Section while
drilling

Sept. 10, 1946 permission
to run distillate oil.

Group of 2 - would make
4 groups.

7-9

S. Eng. - #1

OCC - 10-11

- | | | | |
|----|-----------------|---|------------------------|
| #1 | State Eng. | - | Pan American |
| 2 | Occ. | - | Continental |
| 3 | Occ. | - | City water bond |
| 4 | Pan Am. | - | Continental |
| 5 | City water Bond | - | Shell. |
| 6 | City water Bond | : | Somedown. |
| 7 | Tide water | - | Shell. (Jr) |
| 8 | State Eng. | - | Continental |
| 9 | Tide water | - | Shell. (Jr Montgomery) |
| 10 | Occ. | - | Pan Am. |
| 11 | Occ. | | Somedown. |
| 12 | Somedown. | - | Tide water |
| | (See 8 in) | | |

Probably need some Exhibits.

To make Bridge Brief & money. Start at beginning with end finding.

Next Meeting Aug 22, 1957

Omaha

Sec. 29, 1825, 380

Well Co. Center of
N/2 of Section

Roswell, New Mexico
August 5, 1957

MEMORANDUM

TO: A. L. Porter, Jr., Director, Oil Conservation Commission

FROM: Committee Studying Fresh Water Contamination
in the Hobbs Pool Area.

SUBJECT: Progress Report.

This Committee was appointed and its assignment made at the general meeting called by the Oil Conservation Commission on July 9, 1957. At that time a progress report was requested within 30 days. This is that progress report.

The Committee met for the first time in Hobbs, New Mexico, on July 19, 1957, and subsequently on July 25, 1957, and August 1, 1957. All of the organizations and companies appointed to the Committee had representatives present at each meeting.

It is the consensus of the Committee that their assignment as a whole is approximately 50% completed and that their work will be completed with a final report prepared by the first week of September, 1957.

The principal items discussed during the three committee meetings were as follows:

1. The physical characteristics of the Ogallala formation and the movement of water through this aquifer. Introduction on the subject was furnished by Messrs. E. G. Minton and Zane Spiegel.
2. The exhibits prepared by Mr. J. W. Runyan and presented at the general meeting held on July 9, 1957.
3. Apparent contaminated conditions which exist in the Ogallala formation northwest of the City of Hobbs.

Progress Report Cont'd

4. Feasibility of eliminating or removing the apparent contamination.
5. The possibility of contamination of the Hobbs City water supply by migration from the area of apparent contamination.
6. Possible contamination of the fresh water 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 held in earthen pits.
7. Possible need for rules and regulations governing the drilling, completion and abandonment of water wells in the Hobbs pool area.
8. Establishment of an observation water well program to detect any new contamination and observe the movement, if any, from the area to the northwest of the City of Hobbs.
9. Possibility of, and methods for, obtaining potable water from the areas of apparent contamination.
10. Methods of determining the existence of defective casing in oil and gas wells.
11. Programing of bradenhead pressure tests on oil and gas wells in the Hobbs Pool area.
12. Method of repairing oil well casing found to be defective.

During the course of the above discussion, the need for subcommittees was indicated and three were appointed at the meeting on July 25.

1. Subcommittee to locate and gather data on all water wells in the Hobbs Pool area.

Oil Conservation Commission - Chairman
Continental Oil Company
State Engineer's Office
Shell Oil Company

This subcommittee made a progress report on August 1, indicating that their assignment was approximately 35% completed and expected to complete their assignment within three weeks.

Progress Report Cont'd

2. Subcommittee to study water well completion and abandonment practices in the Hobbs Pool area.

Tidewater Oil Company - Chairman
City Water Board
State Engineer's Office
Samedan Oil Corporation

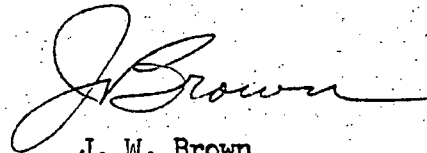
This subcommittee made a progress report on August 1, indicating that their assignment was completed.

3. Subcommittee to study possibilities of fresh water contamination through the disposal of waste products.

Samedan Oil Corporation - Chairman
Pan American Petroleum Corporation
City Water Board

This subcommittee made a progress report on August 1, indicating that their assignment was 75% completed and should complete their assignment within one week.

For the Committee



J. W. Brown
Acting Chairman

Copies to: Official Members and Alternates

Committee Meeting
Water Contamination

Mr. R. H. Coe - Tulsa

Production Hobbs

Mr. H. G. Wesberry - Midland

August 1, 1957

Mr. Jack Jones - Tulsa

Third meeting of "Committee to Study Protection of Hobbs Fresh Water Sands" met Thursday, August 1, 1957 at 9:00 A.M. in the New Mexico Conservation Commission's conference room. Mr. J. W. Brown, Pan American Petroleum Corporation, presided. Representatives from Continental Oil Company, Samedan Oil Company, Shell Oil Company, Tidewater Oil Company, Hobbs City Water Board, New Mexico Oil Conservation Commission, and State Engineers Office were present.

There was a general discussion of work performed by the three sub committees appointed at last meeting. Two of the committees had not completed their work. Attached is a letter from "Committee to Study Completion of Fresh Water Wells".

The Oil Conservation Commission reported that a total of 67 casing leaks have been repaired in the Hobbs Pool. Nine of these leaks were prior to 1952 and some date back to 1946. There are 293 wells in the Hobbs Pool and 51 wells in the Bowers Pool for a total of 344 wells. This means that 20% of the wells in the Hobbs & Bowers Pools have been worked on for casing leaks.

The next meeting of this committee was called for 9:00 A.M., August 8, 1957.

I heard, from a confidential source, that a damage suit will soon be filed.


H. P. Shackelford

HPS:bb

Attachment

Hobbs, New Mexico
July 31, 1957

Mr. J. W. Brown, Chairman
Committee Studying Protection of Hobbs Fresh Water Sand
Box 899
Roswell, New Mexico

Dear Mr. Brown:

Committee appointed to study fresh water well completion in the Hobbs Pool met in Tidewater Oil Company's office at 9:00 A.M., Wednesday, July 31, 1957.

Present at this meeting were:

W. G. Abbot - City Water Board
J. E. Wright - State Engineers Office
G. W. Putman - Samadan Oil Company
C. E. Layne - Samadan Oil Company
H. W. Miller - Tidewater Oil Company
H. P. Shackelford - Tidewater Oil Company

After a general discussion of water well completion, the above members agreed upon, and wish to submit, the following recommendations for completion of fresh water wells in the Hobbs Pool:

- A. Minimum requirements for completing a water well.
 - (1) Set casing 25' below top of water table.
 - (2) Use five sacks of cement around bottom of casing.
 - (3) Construct well in such manner that no surface contamination can occur.
- B. That State Engineers' Office supervise the drilling and plugging of all fresh water wells.

Very truly yours,

HPS:bn

H. P. Shackelford, Chairman

cc: Mr. W. G. Abbot
Mr. J. E. Wright
Mr. G. W. Putman & C. E. Layne

THIRD MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
AUGUST 1, 1957

The third meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico on August 1, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
E. C. Lannen, Alternate	Continental Oil Company
R. J. Francis, Alternate	Continental Oil Company
W. G. Abbott, Alternate	Hobbs City Water Board
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
G. W. Putman, Member	Sasadan Oil Corporation
R. E. Layhe, Alternate	Sasadan Oil Corporation
J. W. Montgomery, Alternate	Shell Oil Company
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company
Others present:	
Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	New Mexico Oil Conservation Commission

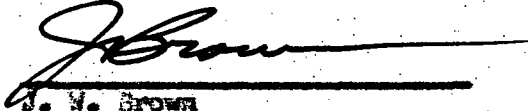
The Meeting was called to order at 9:00 a.m. by J. W. Brown, Acting Chairman.

Reports were heard from the three sub-committees appointed at the meeting on July 25.

Preparation of the progress report and the final report were discussed. A sub-committee was designated to prepare the progress report.

- 2 -

The meeting was adjourned at 11:55 a.m.


J. W. Brown
Acting Chairman

MEETING - Aug. 1, 1957
3RD MEETING

Discussion of Recommendation for
Completion of water well Completion.
Motion:

Accepted thanks and Report
Recommendation.
Water Well Committee
Faund -

74 Water wells - Six
Contaminated -

Southern part through Friday
Northern part Monday.
(Finding T.O. - Cony, RPNCH - Hydrocarbon Contaminant)

Other Means of Contamination

Holter - maintenance faulting
out of Town for service
companies to dispose of waste.
Recommend they use them.

Gasoline plant - waste not bad.
Get analysis of plant water.

(Since 1931) (Two lots where it comes out
of plant & complete overexposed.)

Oil Wells. 2/1/57

Cemented each String to Surface -
Cannot take a Pressure.
Should Run pressure test, ~~by pressure~~
by Pressure, at String.

Total Leaks - that have
been repaired in the Noble Prod-
67. (9 Leaks to 1952 - Some
go back to 1946).

Must Draft Program report by
August 9th.

~~Should~~ Complete Report 6 weeks
from today.

Next Meeting 8-8-57 (Thursday)
9 A.M.

^{garden}
Phillips & Corp - 6 wells -
3 Contaminated.

Committee check ditch &
City Storm Sewer - SW of town
Analysis of water sample.

Spent some time working on
idea about final report -
Ending -

Hobbs, New Mexico
July 31, 1957

Mr. J. W. Brown, Chairman
Committee Studing Protection of Hobbs Fresh Water Sand
Box 899
Roswell, New Mexico

Dear Mr. Brown:

Committee appointed to study fresh water well completion in the Hobbs Pool met in Tidewater Oil Company's office at 9:00 A.M., Wednesday, July 31, 1957.

Present at this meeting were:

W. G. Abbot - City Water Board
J. I. Wright - State Engineers Office
G. W. Putman - Samedan Oil Company
C. E. Layhe - Samedan Oil Company
A. N. Miller - Tidewater Oil Company
H. P. Shackelford - Tidewater Oil Company

After a general discussion of water well completion, the above members agreed upon, and wish to submit, the following recommendations for completion of fresh water wells in the Hobbs Pool:

- A. Minimum requirements for completing a water well,
 - (1) Set casing 25' below top of water table.
 - (2) Use five sacks of cement around bottom of casing.
 - (3) Construct well in such manner that no surface contamination can occur.
- B. That State Engineers' Office supervise the drilling and plugging of all fresh water wells.

Very truly yours,

HPS:bh

H. P. Shackelford, Chairman

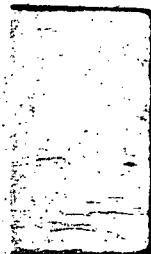
cc: Mr. W. G. Abbot
Mr. J. I. Wright
Mr. G. W. Putman & C. E. Layhe

COMMITTEE MEETING - JULY 31, 1957

9 A.M.

TIDEWATER OIL CO.'S - OFFICE

WATER WELL COMPLETION & ABANDONMENT



C. MELVIN NEAL
J. W. NEAL

NEAL & NEAL
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONE:
EXPRESS 3-5171
P. O. BOX 278

July 30, 1957

Mr. Jack D. Jones, Legal Department,
Tidewater Associated Oil Company,
Post Office Box 731,
Tulsa, Oklahoma.

IN RE: OIL & GAS POLLUTION - HOBBS POOL.

Dear Mr. Jones:

I instructed the photographer to make the pictures about which we were talking when you were out here in regard to the above matter, but as yet I have not been provided with the prints.

I have had no further indication that suit was to be instituted.

Mr. Perry, the local adjuster who handles the claims against Continental Casualty Company in this city, called me today and told me that he had been notified by the Denver office of the Continental Casualty Company, whom we sometimes represent, that there was a possibility Tidewater's insurance coverage afforded them protection in connection with the above matter. I do not know why they communicated this information to me as there is certainly nothing in my files to indicate a claim has been filed with Continental. If there is such a policy, it might be advisable to provide them with notice that the demand for damages has been made upon the company.

Very truly yours,


C. M. NEAL

N/lb

cc: Tidewater Oil Company,
Box 547, Hobbs, New Mexico.
Attention: Mr. H. P. Shackelford.

Committee Meeting
Water Contamination

Mr. W. J. Haugh - Tulsa

Production

Hobbs

Mr. H. G. Wesberry - Midland

July 26, 1957

Mr. Jack Jones - Tulsa

Second meeting of "Committee to Study Protection of Hobbs Fresh Water Sands," met Thursday, July 25, 1957 at 9:00 A.M. in the New Mexico Conservation Commission Conference Room. Mr. J. W. Brown, Pan American Petroleum Corporation, presided. Representatives from Continental Oil Company, Samedan Oil Company, Shell Oil Company, Tidewater Oil Company, Hobbs City Water Board, New Mexico Oil Conservation Commission, and State Engineers' Office were present. A representative of the New Mexico Oil & Gas Engineering Committee was also present.

There was a general discussion on how to remove the oil in the area of the Ellison water well from the water sand. No plan was advanced as to how it could be accomplished. It was the opinion of some present, that the oil was in a sand just above the water sand and had water wells been cased and cemented, when completed, there would have been no oil in the water sand. It seems that the 14 1/2 inch water wells drilled recently were drilled illegally, as no record, to date, has been filed with the State Engineers' Office.

It seems to be the opinion of members of the Committee that it would be a rather difficult problem to say which well caused the damage in the area of the McKinley lease.

Tests of oil wells for casing leaks was discussed. The committee felt that no well should have the annulus between surface casing and intermediate string open. Many wells drilled during the early days of the Hobbs Field did not use a bradenhead. The intermediate string was set on the surface string, using a clamp and leaving the annulus open. In deep cellars, and especially so on pumping wells, this is a probable source of contamination. It was decided to recommend Quarterly casing test, with the tests to be witnessed by MOCO engineer, annually.

Three sub-committees were formed. They were: 1. Committee to Check All Water Wells in this Area and Plot them on a Map, with the idea of checking them regularly to see if oil, in water sand, is moving toward Hobbs. Members on this committee are: R. F. Montgomery, MOCO - Chairman, Continental Oil Company, State Engineers Office, and Shell Oil Company; 2. Committee to Study Completion of Fresh Water Well and submit recommendation for completion and abandonment of future water wells. Members on this committee are: R. F. Shackelford, Tidewater Oil Company, - Chairman, City Water Board, Samedan Oil Company, and State Engineers Office.

COMMITTEE MEETING

- 2 -

3. Committee to Study other Means of Fresh Water Sand Contamination.
Members on this committee are: G. E. Loyhe, Samedan Oil Co., - Chairman,
Pan-American Petroleum Corporation, and City Water Board.

The committee on water well completion and abandonment will meet
Wednesday, July 31, 1957. The general committee will meet again on
Thursday, August 1, 1957.



H. P. Shackelford

HPS:bh

SECOND MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
JULY 25, 1957

The second meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico on July 25, 1957. Official representatives present and taking part in the meeting were as follows:

J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
R. C. Lannen, Alternate	Continental Oil Company
R. J. Francis, Alternate	Continental Oil Company
W. G. Abbott, Alternate	Hobbs City Water Board
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
R. E. Layhe, Alternate	Samedan Oil Corporation
R. C. Cabaniss, Alternate	Shell Oil Company
J. W. Montgomery, Alternate	Shell Oil Company
Zane Spiegel, Member	State Engineer's Office
R. L. Borton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company
R. N. Miller, Alternate	Tidewater Oil Company

Others present:

Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	New Mexico Oil Conservation Commission

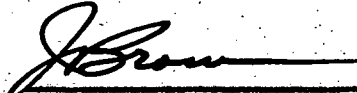
The Meeting was called to order at 9:00 a.m. by Mr. J. W. Brown, Acting Chairman.

The entire meeting was devoted to the discussion of elimination of contamination which may already exist and possible action to prevent future contamination. During the discussion three sub-committees were appointed.

1. Subcommittee to gather data on all existing water wells located in the horizontal limits of the Hobbs Pool.
2. Subcommittee to study drilling and completion practices for future water wells in the Hobbs Pool Area.
3. Subcommittee to study possibilities of contamination by disposal of waste materials in the Hobbs Pool Area.

It was agreed that the next meeting of the committee would be held in the Oil Conservation Commission Conference Room in Hobbs, at 9:00 a.m., August 1, 1957. In the meantime, subcommittees would meet.

The meeting was adjourned at 3:15 p.m.


J. W. Brown
Acting Chairman

COMMITTEE MEETING - 7-25-57 - 9 A.M.

NMOCC CONFERENCE ROOM

JACK BROWN - PAN AMERICAN - Presiding.

1. Practical way to Remove oil
from water formation.

2. Humble well flowed 8000 +,
then oil out production in
8-53. Found leaks in 9 3/8" in
8-47 @ 1200, 1500' & 2000'.

Well one or 2 location
in a westerly direction was repaired
and Humble's wells started
decreasing rapidly.

(in a westerly area)

Dec. 30 - 10 leaks repaired

(Some not leaks - just safety measure)

Production stopped by Sept 8, 1953,
(Started Repair on #1 Well by Sept. 8, 1953)

Do not believe Humble's well
Responsible - Maybe.

Bill Abbott - ~~Chen~~

Shwed probably M^c Kibby. It
according to time. Could have
been the well. (Pod) (we don't agree.)

~~///~~

Maybe water Sender not as
well correct, in this area,
as thought (State Water Engineer)

~~///~~

Abbott - Suggested operation
hard to get. No further comment.

Pon American found
no similar case in their
records.

~~///~~

Elimination of contamination
in existing water wells.

Ellison found oil in water
well this Spring (1957).

Go in Ellison wells - Case
and perhaps need to see if oil
can be eliminated.

Speagle - New Mexico Water Board
Does not believe present uncased
wells - ^{New} not open - do not
present a hazard to future
drilled, ~~can~~ cased and cemented
water wells - His opinion.

R. Montgomery - ^{water} wells drilled
found ~~some~~ oil in sand
above water.

Doubt if water well could
be cased.

40-45' Sand rock.

Summary. - Brown -

1. Don't know area of contamination
(Rules out the Drilling of W. Wells)
2. List of water wells between
place of Contamination and Hobbs,
(A good Suggestion).

~~Submitted~~ Sub-Committee
from to get data on all water
wells in the Hobbs area
analyze and prepare map
showing same. Motion
carried.

R. Montgomery - Chairman.

1. Continued.
2. State Engineer.
3. Shell.

No permit to drill water wells on file. All wells drilled illegally by Ellison.

Water well completion.
1. Should be a rule to follow in completing water wells

~~Shoemaker~~

Chairman - water well completion

1. Abbot City Water Board

2. Sanedon.

3. State Engineer Office

Bob Boston
MAZ 6521 - Russell

Program for future water wells, completion and abandoned to prevent future contamination.

Statement as to how to complete wells to prevent least contamination.

Meeting 7/25/57 1:30 P.M.

P.A.M. - American President

1. OIL WELLS.

a. Description of testing of by
Eric Embright. Record
pressure between strings.

b. Seal all surface casing
and bring relief pipe to
Surface.

OCC Witness. Tests once a year.
operator should test Quarterly at
least. Three times a year, run
by company & Submit statement
to OCC that wells have been
tested, & Naturalized.

Surface Company
previously dumped waste
in Joe Brauer's dump.
Montgomery thinks it is a great
hazard (one co. 200 bbl and oil
per month).

Bob Layke - Smedley - Chairman

1. Study methods of
contamination other than
from oil wells.

A. Roy - Amman
to City Water Board

Committee Meeting
9 A.M. 8-1-57

Water well Committee
9 A.M. 8-31-57

Committee Meeting

Mr. W. J. Haugh - Tulsa

Production Hobbs

Mr. H. G. Wesberry - Midland
Mr. Jack Jones

July 22, 1957

First meeting of "Committee to Study Protection of Hobbs Fresh Water Sands," met Friday, July 19, 1957 at 1:30 P.M. in the New Mexico Conservation Commission Conference Room. Mr. J. W. Brown, Pan American Petroleum Corporation, presided.

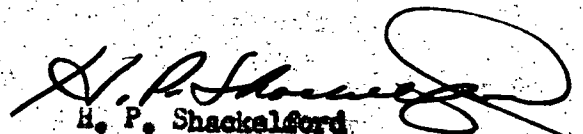
Representatives from the following companies, in addition to Pan American, were present: Continental Oil Company, Samedon Oil Company, Shell Oil Company, and Tidewater Oil Company. Also, represented were: Hobbs City Water Board, New Mexico Oil Conservation Commission, State Engineer's office, and New Mexico Oil and Gas Engineering Committee.

Mr. E. G. Minton, with Lea County Water Re-charge Committee, gave a short talk on Ground Water Movement. He stated that general movement of Ground Water in this area was from northwest to southeast and the rate of travel was 7 to 9 inches per day. Several questions were asked about regulations governing the drilling, completion and plugging of water wells. They are no regulations in this area governing any of these operations. His definition of a water well driller, I thought, was different from any I had ever heard. He said, "Anyone with \$20 and could sign his name could qualify as a water well drilling contractor."

It was voted that the meetings should be closed to outsiders. It seems to be the opinion of all present that Hobbs City Water supply was not in danger, that the contamination was a local condition and that it would be hard to say who was at fault.

The chairman told me, after the meeting, that he understood we were having a little trouble with the surface owners in this area, and if any talk at these meetings seemed to indicate that we were at fault, just to give him a sign and he would stop it immediately, because the purpose of the Committee was not to try to fix the blame on anyone. I appreciated this.

The next meeting will be at 9 A.M., July 25, 1957.


H. P. Shackelford

HPS:bb

MEETING OF
COMMITTEE STUDYING PROTECTION OF
HOBBS FRESH WATER SANDS
HOBBS, NEW MEXICO
JULY 19, 1957

A meeting of the Committee Studying Protection of Hobbs Fresh Water Sands was held in the OCC Conference Room in Hobbs, New Mexico on July 19, 1957. Official representatives present and taking part in the meeting were as follows:

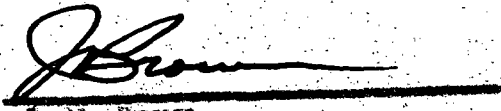
J. W. Brown, Acting Chairman	Pan American Petroleum Corporation
R. C. Larman, Alternate	Continental Oil Company
E. V. Boynton, Alternate	Continental Oil Company
L. A. Calhoun, Member	Hobbs City Water Board
W. C. Abbott, Alternate	Hobbs City Water Board
R. F. Montgomery, Member	New Mexico Oil Conservation Commission
E. J. Fischer, Alternate	New Mexico Oil Conservation Commission
G. E. Layne, Alternate	Samedan Oil Corporation
W. E. Owen, Member	Shell Oil Company
R. C. Cabaniss, Alternate	Shell Oil Company
Zane Spiegel, Member	State Engineer's Office
L. L. Barton, Alternate	State Engineer's Office
H. P. Shackelford, Member	Tidewater Oil Company
R. M. Miller, Alternate	Tidewater Oil Company
Others present:	
Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyon	New Mexico Oil Conservation Commission
G. Hirschfeld	New Mexico Oil and Gas Engineering Committee

The Meeting was called to order at 1:30 p.m. by Mr. J. W. Brown, Acting Chairman.

Mr. E. G. Minton from Lovington, New Mexico, was guest speaker and spoke on the movement of water in the fresh water sands. Afterwards, the Committee discussed possible means to prevent spread of contamination in the fresh water sands and eliminate the contamination which may have already occurred. No conclusion was reached.

It was agreed that the next meeting of the Committee would be held in the GCS Conference Room in Hobbs, at 9 a.m. July 25, 1957.

The meeting was adjourned at 4:10 p.m.


J. W. Brown
Acting Chairman

JULY 19, 1957 - 1:30 P.M.

FIRST COMMITTEE MEETING

COMMITTEE APPOINTED BY MRS. A. L. PORTER
7-9-57 TO STUDY FRESH WATER
SAND CONTAMINATION - HOBBS AREA.

CHAIRMAN - RON AMERICAN PETROLEUM.
JACK BROWN

SAMEOON

BOB LOYNE

TIGEWATER, SHACKELFORD & MILLER

E. G. MINTON - LEA COUNTY RE CHARGE WATER
PROGRAM

N. M. O. & B. C. MONTGOMERY & FISHER

John R. R. R.

ZANE SPEEGLE - STATE ENGINEER OFFICE

LLOYD CALITOCEN - CITY WATER BOARD

1:40 P.M. 7/19/57

E. G. MINTON - TALK ON GROUND WATER
Movement - General NW to SE Movement
15' mile square water table. Rate 729"/Day
average.

Cone of Depression local near
center of city in Hobbs - 25' in depth
5 to 6' in width. Natural movement
increased to 3 times normal toward

Movement of water from public
~~water~~ area in to wind Hobbs.

Suggested:

Water well Driller: Anyone with
\$20.00 & Can sign his name.

Should be some law governing
completion & plugging water wells.

Committee:

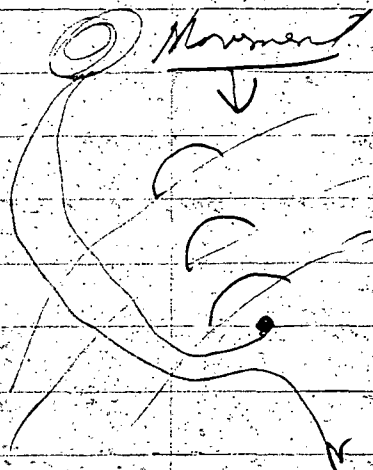
1. What additional measures should be taken

2. What measure should be taken to try & eliminate present conditions.

5 of 8 present present to constitute a Quorum.

No charges incurred against Committee or any member of Committee.

"Committee Closed" majority agreed.



Slope 10-20/mile.

Water Bed - Subarea approx
175' thick. Coarse
gravel at Base - make it good
aquifer.

Exploration of water tunnel by
Mr. Zone sprayed in Ogallala
formation.

NEXT MEETING THURSDAY
JULY 25, 1957. 9 A.M.
N.M.O.C.G. - Conference Room.

INTER-OFFICE CORRESPONDENCE

TIDEWATER OIL COMPANY
TIDAL PIPE LINE COMPANY

SUBJECT:

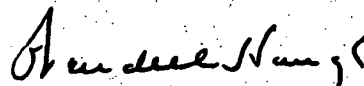
Our File No. _____

Your File No. _____

TO: Mr. H. P. ShackelfordFROM: Production - Tulsa
(Dep't.) (Location)COPIES: Mr. H. G. WesberryDATE: July 17, 1957

This is in reply to your letter of July 12, 1957, regarding the designation of committee representatives to study the prevention of contamination of fresh water sands in the Hobbs pool. We are in agreement that you act as our official representative in this matter.

We wish to compliment you on the manner in which you have kept us advised and the initiative you have taken. We also wish to pass on to you that Messrs. Jones and Cavanaugh were very impressed with the condition of the McKinley lease and they complimented you very highly.



Wendell Haugh

WH:hm

July 17, 1957

MR. CHARLES R. BROWN
TULSA

Re: Getty Oil Company McKinley Lease,
Lea County, New Mexico

The New Mexico Oil Conservation Commission held a hearing at Hobbs, New Mexico, on July 9, 1957 to hear evidence of pollution of the water supply for the City of Hobbs. This hearing was called at the request of city officials. Tidewater was represented by the undersigned and Messrs. Shackelford and Miller from the Hobbs Production Office and Mr. Wesberry from the Midland Office. Mr. Melvin Neal, Attorney, also attended at our request. Mr. Cavanaugh attended the meeting on behalf of Getty Oil Company.

A. L. Porter, Jr., State Geologist and Secretary of the Conservation Commission, presided over the meeting. As soon as the meeting opened, Mr. Porter announced that a tour of the area had been planned to point out instances of pollution and possible causes of the pollution. Under the direction of the Commission staff all parties at the hearing then proceeded to the Hobbs field, making predetermined stops for demonstrations and comments by staff members. The first stop was the site of Dowell's Hobbs Office within the City of Hobbs. Dowell drilled a water well at this site several years ago to a depth of 120'. A lighted match was placed above the nozzle of a hose connected to this well and spurts of flame indicated the presence of gas in the water.

The next stop was on the McKinley Lease. We were taken to the back yard of Mr. W. H. Ellison, surface owner of part of the lease, and shown a jar of crude which had been taken from his water well. Tape measurements indicated that the well had 6.3' of free oil above the water level. This was the major stop on the tour. The staff explained in detail the appearances of oil in water wells on this lease. As you have previously been advised, all of these wells are drilled to the shallow water sand. It was interesting to note that the free oil column in the water wells diminished as the wells approached the McKinley No. 6. Wells drilled immediately adjacent to the No. 6 have less than one foot of oil.

The group was next taken through the central part of the field, where large open oil pits and waste water pits were pointed out.

When the hearing reconvened after the tour, a staff member gave the group a report on the background of the hearing. Mr. J. O. Walton, an attorney in Hobbs, had appeared before the City Commission and stated that the city water supply might be in danger of pollution from oil wells. (On that same date Mr. Walton wrote Tidewater demanding damages for Messrs. Ellison and Goins.) The Commission then called this meeting to discuss the problem.

The Commission had known of fresh water pollution for several years. Since 1954 they have conducted casing leak surveys. Some 45 casing leaks were discovered and all have been repaired at a cost of approximately \$400,000 to the operators. There are no casing leaks in the field at this time. The Commission then asked for comments on methods to protect the water supply.

Lloyd Calhoun, Member of the City Water Board and President of the Chamber of Commerce, announced that the Water Board had investigated the problem and that there is no threat to the city water system. He asked the City to withdraw its request for hearing and condemned the newspaper publicity. The City Attorney said the City was interested in a solution to the problem of the oil that is now in the water formation, and that they wanted the hearing to continue in order to seek the solution.

Various operators pledged their support to the Commission in its efforts to avoid pollution. The presiding official, Mr. Porter, then stated that he was also of the opinion that there is no contamination of the city water supply and that he had attempted to explain that to the newspapers. He then appointed a committee to study the problem and recommend any action required to prevent further pollution. The committee is composed as follows:

Pan American - Chairman
Tidewater
Shell
Standard
Continental

City Water Board
State Engineer's Office
Commission Staff

We reach the following conclusions as a result of this hearing:

1) The water bearing sands underlying the surface of the Hobbs pool are in three lenses, which may or may not be in communication. The shallowest sand has been contaminated for years. The City is taking its water from the deepest sand, which shows no evidence of

Mr. Charles R. Brown - Page 3

oil contamination. We are in no danger of being sued by the City at this time.

2) Pollution of the shallow water formation first occurred in about 1935. Most of the operators in the field contributed to the pollution. In any lawsuit for damages the defendant could join all operators in the field as co-defendants and require contribution of damages from most of them. The statute of limitations might prevent any recovery by a plaintiff.

3) Tidewater and Getty will probably be sued by Ellison and Goins. Their attorney brought up the matter of possible pollution of the city water supply to create public sentiment in favor of his clients and against oil producers. We have several possible defenses to such a lawsuit, and have a fair chance of winning the case.

Original Signed
JACK D. JONES

Jack D. Jones

JDJ:ah

Oogaloga - from cadastre to and below

June 27, 1957

MR. CHARLES R. BROWN
TULSA

Re: OIL AND GAS POLLUTION OF WATER
SANDS UNDERLYING HOBBS FIELD,
LEA COUNTY, NEW MEXICO

The Hobbs Field embraces an area of approximately eight miles northwesterly and southeasterly by approximately four miles at the widest part. Approximately half of the field is located within the city limits of Hobbs. There are 293 San Andres wells in the Field producing from the approximate depth of 4200 feet, six of which are Tidewater wells and four of which are Getty Oil Company wells. There are also 51 Bowers sand wells producing from the approximate depth of 3200 feet, of which two are Tidewater wells and three are Getty wells.

The Oogaloga water sand at approximately 100 feet underlies all of the Hobbs Pool and a considerable area in addition. Wells drilled to this sand are the source of water for the City of Hobbs. Tidewater has an Oogaloga sand water well on its Grimes Lease and also on its Hardin Lease, both of which produce uncontaminated potable water. Four or five water wells have been drilled in the past on Getty's McKinley Lease. We do not have the depth of these wells, but assume that they were drilled to the approximate depth of 30 to 50 feet. Mr. Shackelford will check these wells. — *No Read value*

Mr. Shackelford will also further check the Dowell water well approximately a mile and a half east of the McKinley tract and advise the depth of the completion and any local condition that might explain contamination in that well.

We were advised by Mr. Dunlavy of Skelly that contamination in the 30/50 foot water sand has existed in this Field for the past 15 years. Mr. Shackelford will further check evidence of early contamination, particularly in proximity to the McKinley Lease.

The wells drilled on the tracts on subdivisions of the McKinley Lease have been drilled to the 30/50 foot sand and completed and produced from open holes with probably not more than eight

all wells are Ogallala

Mr. Charles R. Brown - #2

to ten feet of surface casing. The approximate cost of drilling such a well in this manner would be \$50 to \$75. The cost of drilling a 100 foot Ogallala sand water well, including the casing and equipment, would be approximately \$1750.

Getty's McKinley Lease, which is more than a half mile from the nearest city water connection, has been subdivided by the surface owners, two of whom (Ellison and Goins) have employed Joseph A. Walton (now associated with W. D. Girard), who has made claims on behalf Goins for damages in the amount of \$45,000 and Ellison in the amount of \$25,000, based on contamination of water wells on their respective properties. Walton has stated in each demand that his client has drilled some fourteen wells and has concluded that all of the water underlying his land is contaminated. We are not replying to these demands, and anticipate that suit will be filed shortly in both cases. We also anticipate that further suits may be filed on behalf of other purchasers in this subdivision.

No claims have been made against Tidewater for water contamination on any Tidewater lease.

do not know

Walton appeared at a meeting of the Hobbs City Commissioners on June 17 on a petition to apply to the Oil Conservation Commission for a hearing on contamination of water sands threatening the Hobbs water supply. The evidence that Walton presented at this hearing was stated to be samples taken from water wells drilled on the McKinley Lease. We assume, and Mr. Shackelford is making a further investigation to verify, that all wells drilled by Walton's clients on the McKinley Lease were to the 30/50 foot sand and that no wells have been completed on the McKinley Lease to the Ogallala sand. It would therefore appear that the evidence that Walton presented of contamination of the 30/50 foot depth would not indicate contamination of the Ogallala sand, the source of Hobbs' water supply, there being no communication between these sands. Nevertheless, at the request of the City Commission, the New Mexico Oil Conservation Commission has set a hearing on July 9 at 10 A. M. at the Office of the Oil Conservation Commission at Hobbs for the purpose of determining the most feasible method of protecting the fresh water from contamination, at which each operator in the Hobbs Pool is asked to have at least one representative present who is authorized to speak on the policy of the company. Mr. Jack Jones will attend from this office, representing Tidewater as operator. Mr. Melvin Neal, local counsel at Hobbs, will appear for Getty

Mr. Charles R. Brown - #3

Oil Company. I have advised Mr. Cavanaugh of this meeting and he has indicated that he will attend for Getty Oil Company.

Reference is made to Mr. Shaskellford's report of June 12, 1957 summarizing the casing leak surveys made by the New Mexico Oil Conservation Commission on the McKinley Lease and remedial work which has been done on that lease. Mr. Shaskellford advises that all tests which indicated pressure build-up between casing in the McKinley wells showed it to be between intermediate strings, and have in no case indicated a casing leak in the formation casing which could cause contamination of water sands in these wells. Therefore, the records of the New Mexico Conservation Commission showing the results of these pressure tests and our remedial work on these wells should not be evidence of casing leaks which would cause the contamination complained of in the 30/50 foot water sand on the McKinley Lease. We can expect, however, that these claimants will attempt to use these surveys and our remedial work as evidence of casing leaks causing contamination. Other than these pressure surveys and our remedial work, and except for the fact that we are producing oil and gas on this lease, there is no evidence that we know of to indicate the McKinley wells are a source of the 30/50 foot sand water contamination.

Summarizing, we are of the opinion that the claims for water contamination on the McKinley Lease may be defended on the following grounds:

- 1) That Getty Oil Company has at all times exercised due care in the drilling, completion and operation of its wells on the McKinley Lease to prevent water contamination, and that Getty Oil Company at no time has violated any rule or regulation of the New Mexico Oil Conservation Commission with respect to protection of fresh waters.
- 2) That the contamination of the 30 foot water sand has existed for many years and the fact of this contamination was common knowledge in the area. In order to sustain a defense under New Mexico's four year statute of limitation we will have to establish either that the landowner knew of the contamination of this sand or by the exercise of diligence should have known.

Skelly was contacted, we believe, by previous landowner.

- 3) The evidence of prior contamination can also be used to establish that the contamination existed prior to the time these claimants acquired title, and unless there is evidence of a continuing contamination the present claimants would be unable to recover for the contamination that existed at the time they purchased the property, in the absence of an assignment of the prior owner's right of action.
- 4) Open hole completions of claimants' wells is not a reasonable method of completion in an oil field of this character, and the highest degree of diligence by the oil and gas lessee could not prevent contamination of water wells completed in this manner. 7
- 5) Even if it be found that the lessee is charged with the duty of preventing contamination of the 30 foot water sand, the surface owner would be required to minimize his damage by drilling a water well to the 100 foot sand where, the evidence will establish, there is uncontaminated water source. Therefore, the measure of damage in any case would not exceed the difference between the cost of completion of a 30 foot sand well and the completion of a 100 foot sand well, which in no case would exceed \$1700. I do not mean to suggest that we should attempt to use this as a basis of settlement, inasmuch as it might be a very expensive matter to pay \$1700 to the surface owner of each subdivision of the McKinley Lease.

At the July 9 hearing it is my recommendation that neither Tidewater nor Getty Oil Company make any statement unless called upon to do so by the examiner for the Oil Conservation Commission. If either company is called upon to make a statement, I would make a statement in general terms to the following effect: that Getty Oil Company and Tidewater have at all times operated their properties to protect fresh water sands underlying these properties, and that they have at all times taken such remedial measures necessary to prevent contamination. If either company is specifically questioned on casing leak surveys, we can state that all casing leaks indicated on these surveys have been between intermediate strings and cannot be considered as a source of contamination of fresh water sands and, further, that we will at all times cooperate with the Oil Conservation Commission, the City of Hobbs, and all surface owners in the protection of fresh water sources.

Mr. Charles R. Brown - #5

Inasmuch as Tidewater and Getty have only 15 wells out of a total of 344 wells in this Field, we should not take the lead in this hearing. We can expect, however, that Walton will appear for the purpose of questioning our representative, and for this reason I would think that it might be advisable to make any statement through our local counsel, Melvin Neal. Mr. Jones and Mr. Neal will confer with Mr. Cavanaugh and follow his decision with respect to any statement by Getty Oil Company.

Original S. E. K.
HARRY D. PAGE

HDP:LB

HARRY D. PAGE

cc Messrs. S. E. Cavanaugh
Melvin Neal
Wendell Haugh
H. P. Shuckelford ✓

No Maps

Fresh Water - Hobbs Area

Mr. H. D. Page - Tulsa

Production Hobbs

Mr. W. J. Haugh - Tulsa

June 28, 1957

As requested in your telephone conversation of June 27th, we have obtained additional data on the fresh water in the vicinity of Hobbs. We are also attaching a copy of the map submitted with our report dated June 12th.

The strata producing water is found in the Ogallala formation which vertically extends from the base of the caliche to the top of the Red Beds. In the vicinity of Hobbs, this water sand is composed of 3 lenses found at a depth of 30-50', 70-100', and 135-160'. In other areas in Lea County fresh water is found as low as 100'. At the present time the NMOC is trying to determine if an impervious barrier exists between the lenses. Preliminary work to date indicates no existing one. A map is attached showing the limits of Ogallala water in the Lea County Water Basin.

In Table I you will find the formation records of Tidewater's water wells on the Grimes and Mardin leases. Both of these wells are producing good quality water and are completed in the 135'-160' strata.

A few years ago, Dowell, Inc. moved their yard, north of Hobbs on the Lovington Highway. They drilled a water well to supply water needed for their operations. This water well is located in NW/4 NE/4 of Section 28, T18S, R38E, Lea County, New Mexico, approximately 1-3/4 miles east from the Getty McKinley lease. The well was drilled to a total depth of approximately 120'. Pipe was set through with cement and perforated. This is a good high volume water well, however, it makes some gas. An oil well, just north of Dowell's well, was worked on shortly after completion of the water well and the gas contamination was decreased considerable. A work-over rig recently moved in to work over the west offset to the above mentioned oil well.

Table II shows the location and total depth of all water wells that have been used by the city of Hobbs. In all cases wells which have been abandoned were done so because of insufficient water volumes. Location of these wells are shown on the attached Hobbs City Map. None of the wells produce above 140' and all produce good quality water. Well #13 near the Dowell has been watched very closely for two years for signs of water contamination, but none has appeared as yet. For the last two months this well has been used for emergency pumping only.

Mr. Dunlavy, Supt. for Skelly Oil, stated that water in the area of Getty's McKinley has been contaminated for 10-12 years, but no definite proof can be found.

Well records on the Grimes, State "B" and Hardin leases have been reviewed and we find that 3 casing repair jobs have been performed, however, one of these wells has since been abandoned. These wells and description of work performed is listed below:

Grimes #2:

11-1-46 Found holes in 7" @ 1530 to 2960'. Ran 5-1/2" and set @ 3350' w/ 100 sks. Perforated 3270-72' and squeezed w/ 50 sks.. Perforated 3086-88 and squeezed with 100 sks. Perforated 3148-3255' in Bowers sand for production.
7-6-51 Well abandoned.

Grimes #3:

1-1-46 Ran Baker Packer and found holes in 7" casing at 368-373 & 398-403. Squeezed with 120 sks. cement. Drilled out cement. Tested casing w/ 1000# before and after drilling plug. Held okay.

Boone Hardin #3

1-12-43 Perforated 7" casing @ 2710 and cemented with 450 sks. Cement circulated between 7" & 9-5/8" csg. Tested with 1200# before and after drilling plug. Held okay.

In the later part of 1956, a casing leak survey was conducted by the OCC on the three leases and no casing leaks were found.

The data on Hobbs City water wells was obtained from a member of the City Water Board and we were informed that the Water Board was not consulted before action was taken by the City Commission. Some people believe the action to be a "head-line seeking" adventure. This member of the Water Board informed us that for over two years, they had been aware of the problem and had met with the State Water Engineer to discuss financing of water wells away from the city, if and when the present Hobbs supply was contaminated. New Mexico State Engineer, Mr. Bliss, informed them at the time that lateral movement of fresh water was not over 2-1/2 ft. per year.

Should you need additional information or desire that Mr. Melvin Neal receive a copy of this letter, please advise.

H. P. Shackelford

RMM:hh

TABLE I

CRINES WATER WELL

FORMATION RECORD

0 - 30	Caliche
30 - 40	Dry Sand
40 - 60	Sand
60 - 65	Lime
65 - 70	Dry Sand
70 - 100	Water Sand
100 - 105	Lime (Set 12-1/2" csg.)
105 - 130	Sand
130 - 135	Shale
135 - 160	Water Sand
	TOTAL DEPTH

MARDIN WATER WELL

FORMATION RECORD

0 - 2	Soil
2 - 30	Caliche
30 - 35	Dry Sand
35 - 50	Water Sand
50 - 60	Lime
60 - 90	Sand
90 - 95	Lime
95 - 130	Water Sand
130 - 135	Shale
135 - 180	Water Sand

Perforated two joints on bottom
no shoe 12-1/2" set at 145'.

TABLE II

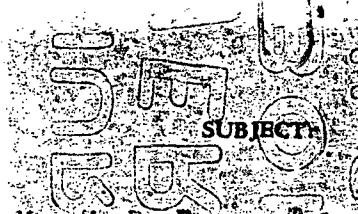
HOBBES CITY WATER WELLS

<u>WELL NO.</u>	<u>LOCATION</u>	<u>DEPTH</u>	<u>REMARKS</u>
1	Scharbeaur @ Shipp	168	Emergency Pumping Only
2	"	168	Abandoned
3	"	168	"
4	"	168	Emergency Pumping Only
5	"	168	Abandoned
6	Midwest @ First	No Record	"
7	Leech @ Royanna	"	"
8	Permian @ Fowler	"	"
9	City Park	194	
10	"	194	
11	"	194	
12	"	194	
13	Kingsley Drive @ Acoma	210	Emergency Pumping Only
14	Cain @ Ave A	196	
15	Rose Lane @ Penasco	200	
16	Yaso @ Grayson	200	
17	NW Corner Sec. 36, 18, 38	200	

INTER-OFFICE CORRESPONDENCE

TIDE WATER ASSOCIATED OIL COMPANY

TIDAL PIPE LINE COMPANY



SUBJECT

Fresh Water - Hobbs Area

Our File No.

Your File No.

TO: Mr. H. D. Page - Tulsa

FROM: Production Hobbs

COPIES: Mr. W. J. Haugh - Tulsa

DATE: June 28, 1957

As requested in your telephone conversation of June 27th, we have obtained additional data on the fresh water in the vicinity of Hobbs. We are also attaching a copy of the map submitted with our report dated June 12th.

The strata producing water is found in the Ogallala formation which vertically extends from the base of the caliche to the top of the Red Beds. In the vicinity of Hobbs, this water sand is composed of 3 lenses found at a depth of 30-50', 70-100', and 135-160'. In other areas in Lea County fresh water is found as low as 100'. At the present time the NWOC is trying to determine if an impervious barrier exists between the lenses. Preliminary work to date indicates no existing one. A map is attached showing the limits of Ogallala water in the Lea County Water Basin.

In Table I you will find the formation records of Tidewater's water wells on the Grimes and Hardin leases. Both of these wells are producing good quality water and are completed in the 135'-160' strata.

A few years ago, Dowell, Inc. moved their yard, north of Hobbs on the Lovington Highway. They drilled a water well to supply water needed for their operations. This water well is located in NW/4 NE/4 of Section 28, T18S, R38E, Lea County, New Mexico, approximately 1-3/4 miles east from the Getty McKinley lease. The well was drilled to a total depth of approximately 120'. Pipe was set through with cement and perforated. This is a good high volume water well, however, it makes some gas. An oil well, just north of Dowell's well, was worked on shortly after completion of the water well and the gas contamination was decreased considerable. A work-over rig recently moved in to work over the west offset to the above mentioned oil well.

Table II shows the location and total depth of all water wells that have been used by the City of Hobbs. In all cases wells which have been abandoned were done so because of insufficient water volumes. Location of these wells are shown on the attached Hobbs City Map. None of the wells produce above 140' and all produce good quality water. Well #13 near the Dowell has been watched very closely for two years for signs of water contamination, but none has appeared as yet. For the last two months this well has been used for emergency pumping only.

Mr. Dunlavy, Supt. for Skelly Oil, stated that water in the area of Getty's McKinley has been contaminated for 10-12 years, but no definite proof can be found.

Well records on the Grimes, State "B" and Hardin leases have been reviewed and we find that 3 casing repair jobs have been performed, however, one of these wells has since been abandoned. These wells and description of work performed is listed below:

Grimes #2:

- 11-1-46 Found holes in 7" @ 1530 to 2960'. Ran 5-1/2" and set @ 3350' w/ 100 sks. Perforated 3270-72' and squeezed w/ 50 sks.. Perforated 3086-88 and squeezed with 100 sks. Perforated 3148-3255' in Bowers sand for production.
7-6-51 Well abandoned.

Grimes #3:

- 1-1-46 Ran Baker Packer and found holes in 7" casing at 368-373 & 398-403. Squeezed with 120 sks. cement. Drilled out cement. Tested casing w/ 1000# before and after drilling plug. Held okay.

Boone Hardin #3

- 1-12-43 Perforated 7" casing @ 2710 and cemented with 450 sks. Cement circulated between 7" & 9-5/8" cgs. Tested with 1200# before and after drilling plug. Held okay.

In the later part of 1956, a casing leak survey was conducted by the OCC on the three leases and no casing leaks were found.

The data on Hobbs City water wells was obtained from a member of the City Water Board and we were informed that the Water Board was not consulted before action was taken by the City Commission. Some people believe the action to be a "head-line seeking" adventure. This member of the Water Board informed us that for over two years, they had been aware of the problem and had met with the State Water Engineer to discuss financing of water wells away from the city, if and when the present Hobbs supply was contaminated. New Mexico State Engineer, Mr. Bliss, informed them at the time that lateral movement of fresh water was not over 2-1/2 ft. per year.

Should you need additional information or desire that Mr. Melvin Neal receive a copy of this letter, please advise.


H. P. Shackelford

RMM:bb

TABLE I

OSBORN WATER WELL

FORMATION RECORD

0 - 30	Caliche
30 - 40	Dry Sand
40 - 60	Sand
60 - 65	Lime
65 - 70	Dry Sand
70 - 100	Water Sand
100 - 105	Lime (Set 12-1/2" csg.)
105 - 130	Sand
130 - 135	Shale
135 - 160	Water Sand
	TOTAL DEPTH

MARDIN WATER WELL

FORMATION RECORD

0 - 2	Soil
2 - 30	Caliche
30 - 35	Dry Sand
35 - 50	Water Sand
50 - 60	Lime
60 - 90	Sand
90 - 95	Lime
95 - 130	Water Sand
130 - 135	Shale
135 - 180	Water Sand

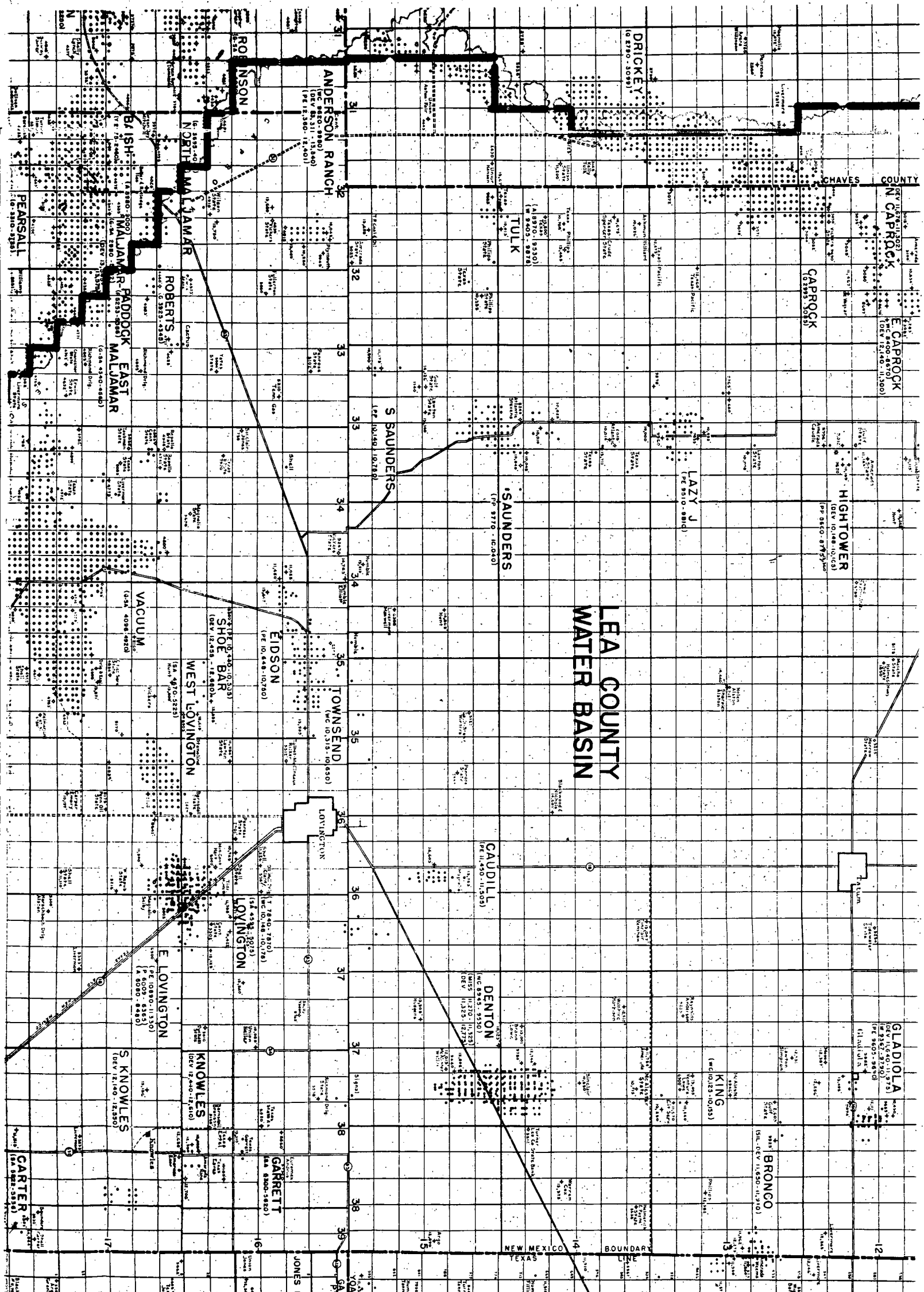
Perforated two joints on bottom
no shoe 12-1/2" set at 145'.

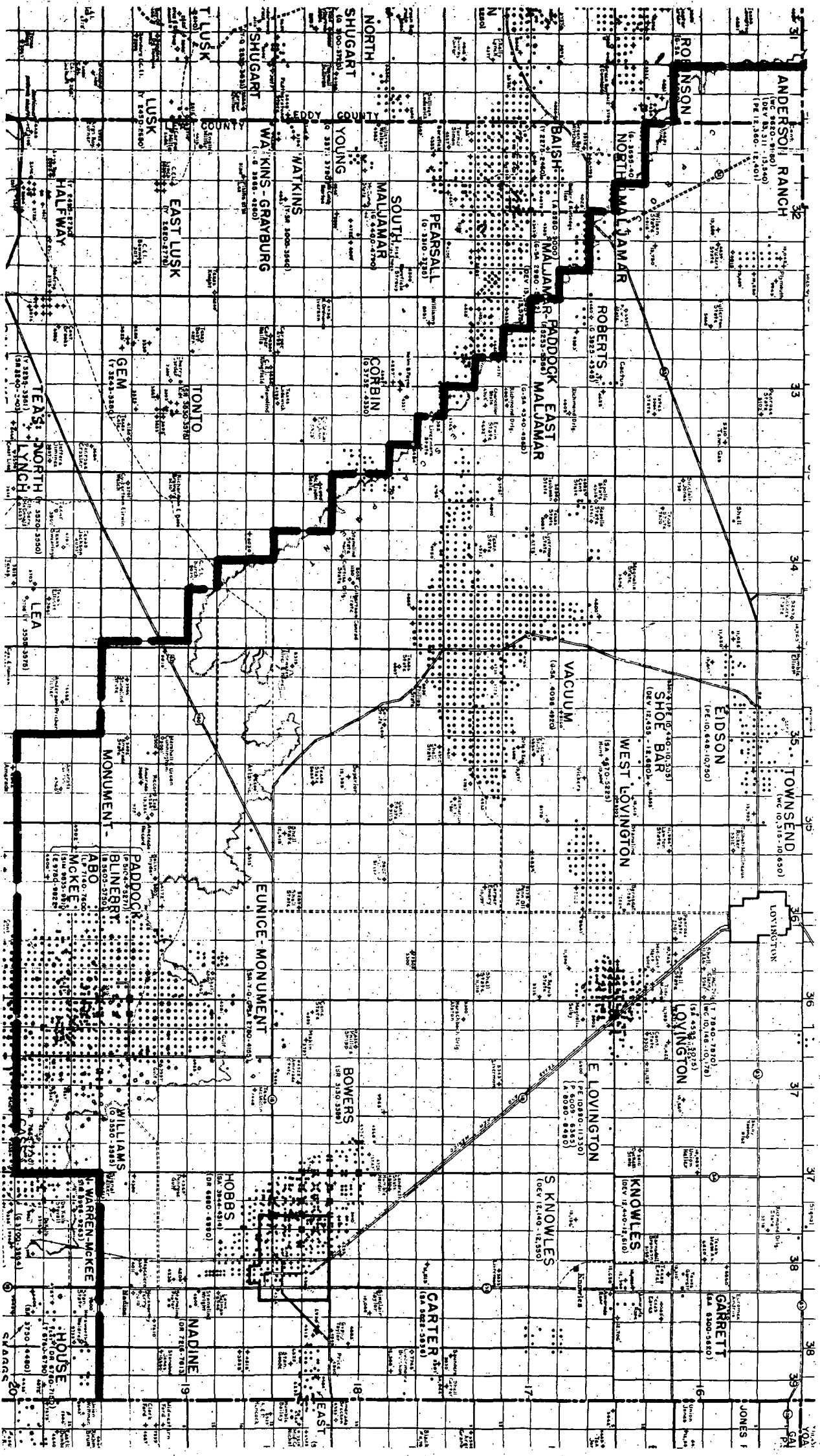
TABLE II

MOBES CITY WATER WELLS

<u>WELL NO.</u>	<u>LOCATION</u>	<u>DEPTH</u>	<u>REMARKS</u>
1	Scharbeaur & Shipp	168	Emergency Pumping Only
2	"	168	Abandoned
3	"	168	"
4	"	168	Emergency Pumping Only
5	"	168	Abandoned
6	Midwest & First	No Record	"
7	Leech & Royanna	"	"
8	Fernian & Fowler	"	"
9	City Park	194	
10	"	194	
11	"	194	
12	"	194	
13	Kingalev Drive & Acoma	210	Emergency Pumping Only
14	Cain & Ave. A	196	
15	Rose Lane & Penaseo	200	
16	Leso & Crayson	200	
17	NW corner Sec. 36, 18, 38	200	

LEA COUNTY
WATER BASIN





N.M. OIL & GAS ENGINEERING COMMITTEE
BOX 127
HOBBS, NEW MEXICO

*Outline of the Limits of
Ogallala Water Sands
Ogallala Zone runs from Base of
Caliche to top of the Red Beds*

File - in McKinley
Folder

New Mexico Oil & Gas Commission

Mr. Wendel Haugh - Tulsa

Production

Hobbs

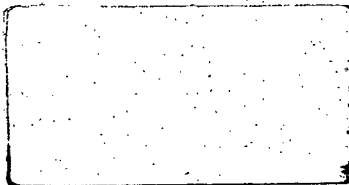
Mr. H. G. Wesberry - Midland

June 24, 1957

Attached are two copies of a memorandum from New Mexico Oil & Gas Commission. I believe an attorney should be present at this hearing.


H. P. Shackelford

HPS:bh
Attachment



NEW MEXICO
OIL CONSERVATION COMMISSION
P. O. BOX 871
Santa Fe, New Mexico

MEMORANDUM:

TO: All Operators in the Hobbs, Bowers, and Byers-Queen Pools.
FROM: A. L. Porter, Jr., Secretary-Director
SUBJECT: Protection of Fresh Water Resources.

The Oil Conservation Commission has received a letter from the City Commission of Hobbs, New Mexico, expressing concern over the danger of contamination of the Hobbs municipal water supply as a result of leakage from oil and gas wells in the area.

The City Commission requested this office to call a meeting of all operators in the Hobbs, Bowers, and Byers-Queen Pools for the purpose of determining the most feasible method of protecting the fresh water from contamination.

All operators in the above-named pools are therefore directed to appear at the Office of the Oil Conservation Commission in Hobbs, New Mexico at 10:00 o'clock a.m. on July 9, 1957. Each operator should have at least one representative present who is authorized to speak the policy of his company. Members of the field offices who are familiar with the problem should also be present.

A representative of the State Engineer's Office as well as the members of the Oil Conservation Commission expect to attend the meeting.

All inquiries concerning the meeting should be directed to the Oil Conservation Commission Office in Santa Fe, New Mexico.

June 21, 1957
ir/

Damages - Getty Oil Company's
McKinley Lease

Mr. W. J. Haugh - Tulsa

Production


Hobbs

Mr. H. G. Wesberry - Midland

June 20, 1957

This office received two letters from
Attorney Joseph O. Walton today. Two copies
of each letter are attached.

Please advise.


H. P. Shackelford

HPS:bh

JOSEPH O. WALTON

ATTORNEY AT LAW

HOBBS, NEW MEXICO

June 19, 1957

Tidewater Oil Company,
Hobbs, New Mexico.

Attention: Mr. H. P. Shakelford.

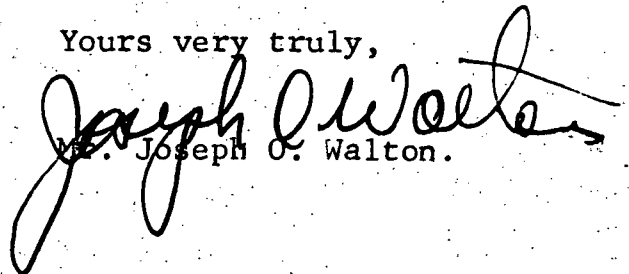
IN RE: NE $\frac{1}{4}$ Sec. 30, T. 18S, R.38E.
Getty McKinley Lease.

Gentlemen:

Mr. W. H. Ellison owns the surface and water rights to a portion of the above described land, and has on several occasions attempted to drill for water for domestic and irrigation purposes. These wells have been found to be contaminated with oil and gas and in an effort to determine whether or not he would be able to obtain uncontaminated water, he has drilled some fourteen wells and has concluded that all of the water underlying his land is contaminated and that this is the result of your operation of the above lease. Demand is hereby made for full compensation of all damages suffered by Mr. Ellison, which we estimate to be approximately \$25,000.00.

I will be very glad to talk with you or your attorney concerning this matter but I have been instructed to take legal action unless some satisfactory agreement can be reached on or before Friday, June 28, 1957.

Yours very truly,


Mr. Joseph O. Walton.

JW/mm

JOSEPH O. WALTON
ATTORNEY AT LAW
HOBBS, NEW MEXICO

June 19, 1957

Tidewater Oil Company
Hobbs, New Mexico.

Attention: Mr. H. P. Shakelford

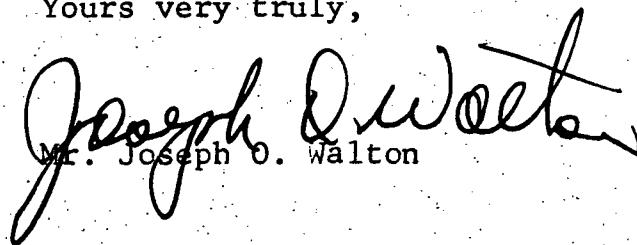
IN RE: NE $\frac{1}{4}$ Sec. 30, T.18S, R.38E.
Getty McKinley Lease.

Gentlemen:

Mr. G. W. Goins owns the surface and water rights to a portion of the above described land, and has on several occasions attempted to drill for water for domestic and irrigation purposes. These wells have been found to be contaminated with oil and gas and in an effort to determine whether or not he would be able to obtain uncontaminated water, he has drilled some fourteen wells and has concluded that all of the water underlying his land is contaminated and that this is the result of your operation of the above lease. Demand is hereby made for full compensation of all damages suffered by Mr. Goins, which we estimate to be approximately \$45,000.00.

I will be very glad to talk with you or your attorney concerning this matter but I have been instructed to take legal action unless some satisfactory agreement can be reached on or before Friday, June 28, 1957.

Yours very truly,


Mr. Joseph O. Walton

JW/mm

Water Contamination

Mr. H. E. Berg - Tulsa

Production

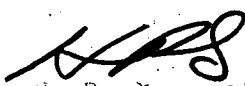
Hobbs

Mr. H. G. Wesberry - Midland

June 19, 1957

Attached is the first section of the Hobbs
Daily News-Sun for June 18, 1957.

I take this to be step No. 1, "the arousing
of public sentiment against oil companies."


H. P. Shackelford

HPS:bh

Attachment

Possible Future Water Pollution

Mr. Jack Jones

Production - Hobbs, N. Mex.

Messrs: S. E. Cavanaugh
Wendell Haugh
H. G. Mesberry

July 11, 1957

Attached are two copies of Hobbs Daily News Sun for July 10,
1957.

This issue carried report of New Mexico Oil and Gas Commission
hearing held in Hobbs, New Mexico July 9, 1957, at request of City
Council, on possible future contamination of city water supply.


H. P. Shackelford

HPS:WG

w/encl.

SANTA FE—The Democratic situation is drifting toward a freeze-out in the governor's race in favor of three or four who got an early start, and not one of them a demonstrated strong man.

The pair of J. B.'s, John Borahs of Portales and Joe Burroughs of Santa Fe, have gone rather than most realize in lining up support for next spring's election for the Democratic nomination.

Corporation Commissioner even Foot Pickett has stand-by support that makes him a dangerous contender in any race of free or more.

And Carlsbad Sen. Gene Lusk teetering on the edge of the pool with certainty of a field of support, if he gets in.

**ARLY STARTS
HOUSE OTHERS**

The situation is such as to encourage others of perhaps later stature or wider appeal from making the plunge.

Bursey at this point is getting more notice than the other two.

He knows almost every "democratic politician" in New Mexico after 20 years in the statehouse and party headquarters and many others he contacted through the tourist bureau which he ran most of the time since 1936. He was never in a position in which he had to make decisions and thus incurred few "blows" over the period.

Bursey, while being the best known in the "future group," looks like the most vulnerable in a main event with a career behind him of 22 years on the state and party payrolls.

That is not fatal peruse, John (Lusk), a life-long politician, made a governor's office in 1938. Thinking has changed somewhat since that time and the chances are that Bursey would run under heavy barrage of criticism.

**ORTALES MAN
NOT KNOWN**

John Borroughs of Portales, who has qualities that have been popular with voters in recent actions, is having a bad time attaining himself well enough to run around the state to qualify as gubernatorial material.

He is also suffering from geographical affliction that troubles eastern New Mexico aspirants for big offices. The east has not accepted the Portales neighbor.

Lusk, better known than Burroughs around the state, would probably encounter the same outside trouble if he got in, and could pick up some other opposition due to his controversial position.

Shop with
Your Local
Merchants

City to Request Water Hearing For Protecting Water Supply.

Supreme Court Draws Fire on New Decisions

WASHINGTON (AP)—Two new Supreme Court decisions in the field of communism today set off congressional criticism of recent rulings of the high court.

Rep. Howard W. Smith (D-Va.) said the 1940 anti-subversive law which bars his name is "perfectly clear" in its intent. He suggested there is no use trying to amend the statute so long as the law turns into "whatever the present court interprets it to be."

Sen. Jenner (R-Ind.) said he is afraid the court has "put us back where we were 20 years ago" in the "legal battle against Communists."

Probers Flay Court Ruling

SAN FRANCISCO (AP)—The House Un-American Activities subcommittee opens hearings today, assertedly undeterred by the suicide of a witness and by three Supreme Court decisions which may affect congressional investigations.

"Not a bit of it," said Chairman Walter (D-Pa.) when asked by newsmen if his conduct of yesterday's U.S. Supreme Court decisions, including one which cleared a labor organizer of contempt charges for refusing to name Communist associates.

Did he think the decisions might be a warning to go slow in his probing? "Not a bit of it," repeated Wal-

About 50 witnesses have been (Continued on Page 9)

Cigaret Price Goes Higher

Chief Justice Warren said the question under subcommittee inquiry was "obscure" and was not adequately revealed to Watkins when he had to decide at his peril whether or not to answer.

Police Rescue Child Missing From Lubbock

SWEETWATER, Tex. (AP)—A woman and an 18-month-old Lubbock boy who had been missing for 12 hours were picked up by police today at a bus station here.

The boy, Lowell Russell McDonald, wandered away from his mother yesterday while she shopped in a Lubbock variety store, setting off a 12-hour search.

Patrolman Charlie Henderson said the boy was identified by his father, L. R. McDonald, who came here with two FBI agents.

The woman, identified herself to police as Mrs. Eulia Wilson of 2308 9th St., Lubbock but declined to make any further statement. She was returned to Lubbock.

Sweetwater police identified her as a divorcee, 33 who had worked in the Lubbock store until recently.

Henderson said the boy and his father were returning to Lubbock with the FBI agents and the woman.

No charges had been filed.

Police checked the bus station after being notified from Lubbock that the boy was missing and a woman and boy had been seen boarding a bus in Station 18 miles southeast of Lubbock, late yesterday.

"I saw her sitting on a bench in the station. The boy was beside her and was asleep," said Police Sgt. H. H. Rushon.

Rushon said the woman first told officers it was her own child, but later said she picked up the baby in the Lubbock store when she saw it crying. She said she told the boy she would help him find his mother, officers reported.

Cars Hit Children

Two small children were struck by automobiles in separate accidents here yesterday. One child was admitted to Lea General Hospital and the other was released after emergency treatment.

Estelle Moss Is Dead at 46

No citations were issued in either incident, police reported.

The first mishap occurred at 5 p.m., when Gloria Gail Jackson, 4-year-old daughter of Mrs. Grace Wilburn, dashed into the front of a passing automobile in front of her home at 904 East Humble. The child was taken to Lea General where she was admitted for treatment of cuts on her face and scalp. Her condition today was described as "good."

Driver of the vehicle, a 1957 Chrysler station wagon, according to a police report of the incident, was Mrs. Tom Mason of 301 Yucca Drive.

The second accident involving a pedestrian occurred at 6:48 p.m., when 7-year-old Larry Fisher, son of Mr. and Mrs. F. Fisher, 320 West Palace, attempted to cross Palace, while a heavy rain shower was falling.

Mrs. Jones Rathes, 303 West Cattle, driver of a 1949 Plymouth, told police she was unable to see the youth as he dashed in front of the car.

He was taken to Lea General where he received emergency treatment for abrasions on his legs.

No citations were issued in either incident, police reported.

Sketchy Rain Dumps Heavy Fall on Tatum

Gypsy-hearted rain skipped across Lea County yesterday with up to 2½ inches in some sections, and the flirtatious showers held promise of coming back this afternoon.

The wandering thundershowers dumped their heaviest concentrations in the Tatum area, skipped Lovington almost completely, left substantial moisture at Hobbs and faded again as they moved south to Eunice and Jal. Eunice got a shower, Jal a bare trace.

Moderate to high wind and some hail accompanied the rains but no extensive damage from either was reported.

Downtown Hobbs recorded 33 inch, the Civil Aeronautics Administration station at Lea County Airport 5.5. Cloudy skies were forecast here throughout the day, and possible thundershowers were in the offing.

An even inch of rain fell in Tatum, said Mrs. E. J. Fox, with heavier amounts in the surrounding areas. Falling mostly in slow and moderate fashion, the rain left 1½ inches at the Russ Anderson ranch southeast of Tatum, an inch at the Byron Fort ranch to the northwest, 2½ inches at the Roy Feeler ranch to the southwest, and ½ inch at the W. D. Baum ranch south of Tatum.

Small hailstones fell in the Tatum area but, Mrs. Fox said, they caused no heavy damage.

Oil Center recorded 5.2 inch.

At Lovington, weather observer E. W. Myers said, "about three shower amounted," to about three

Lawyer Displays Samples Showing Pollution by Oil

By VIC JAMESON

Fear that leakage from oilwells may be penetrating this area's water-bearing sands and threatening Hobbs' \$2 million water system last night prompted city officials to seek state corrective action.

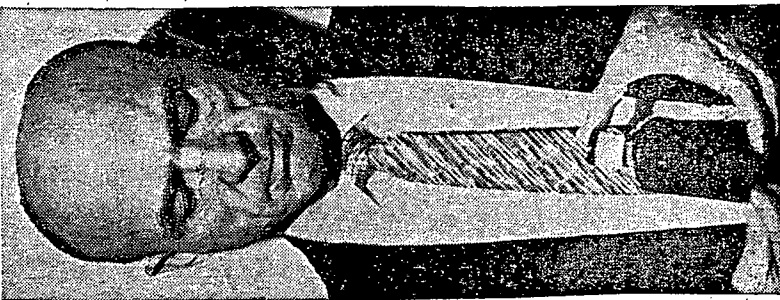
City commissioners agreed to apply to the Oil Conservation Commission for a hearing in the case. Their decision came after the presentation of evidence by attorneys W. D. Girard and J. O. Walton, indicating that some private wells already contain a heavy concentration of oil.

The problem was brought up by Girard, who appeared before the commissioners in an otherwise routine mid-month meeting.

Cited in his discussion was an area about a mile and one-half west of Turner where it intersects with Bender Blvd., on property owned by W. H. Ellison.

A number of tests were made there, an oilwell that several years ago was found to have a leaky casing, Girard said. Thirteen water wells were drilled around the oilwell, and those south and east of the oil installation were found to have oil in the water, he added.

Girard displayed two bottles of fluid, which he explained came from 80 and 35 foot wells in the area concerned. Both contained liquid that appeared to



Estelle Moss Is Dead at 46

No citations were issued in either incident, police reported.

Published in second class mail matter at the post office at Tulsa, Okla., under post office number 100-100. Second class postage paid at Tulsa, Okla., and at additional mailing offices. Postmaster: Please direct all correspondence to the publisher, Hobbs Daily News-Sun, P.O. Box 100, Tulsa, Okla. 74101. The Associated Press is authorized to use the name of this newspaper in its news dispatches. Copyright, 1957, by Hobbs Daily News-Sun. All rights reserved. Printed in the United States of America. Price: 10 cents. Single copies 5 cents. Subscriptions: 1 year, \$10.00; 6 months, \$5.00; 3 months, \$2.50. Payment in advance. Advertising rates on application. Represented in National Advertising Field by The Associated Press, 111 Fifth Avenue, New York 17, N.Y. Phone: MU 2-1200. Chicago office: 440-440. Wrigley Bldg.

Published in second class mail matter at the post office at Tulsa, Okla., under post office number 100-100. Second class postage paid at Tulsa, Okla., and at additional mailing offices. Postmaster: Please direct all correspondence to the publisher, Hobbs Daily News-Sun, P.O. Box 100, Tulsa, Okla. 74101. The Associated Press is authorized to use the name of this newspaper in its news dispatches. Copyright, 1957, by Hobbs Daily News-Sun. All rights reserved. Printed in the United States of America. Price: 10 cents. Single copies 5 cents. Subscriptions: 1 year, \$10.00; 6 months, \$5.00; 3 months, \$2.50. Payment in advance. Advertising rates on application. Represented in National Advertising Field by The Associated Press, 111 Fifth Avenue, New York 17, N.Y. Phone: MU 2-1200. Chicago office: 440-440. Wrigley Bldg.

Tuesday, June 18, 1957

Page 5

OIL IMPORTS

Crude oil imports into the United States are expected to reach 1,165,000 barrels a day in the third quarter of this year. This would be an increase of 12 percent over the corresponding period in 1956, and more than 400,000 barrels daily above the 1954 relationship to domestic production.

President Eisenhower has been represented as advocating some curb on crude oil imports, but so far he has done nothing to reduce them or even hold them at their present level.

In fact, since a Cabinet committee recommended three years ago that imports be held to their 1954 ratio to domestic production, foreign oil shipments into this country have doubled.

Lea County has a large stake in this matter, for the rising flood of foreign oil can ultimately result in production cuts for Lea and the rest of the Permian Basin.

STRONG WORDS

Rep. Gordon H. Scherer, Ohio Republican, is exceedingly dissatisfied with the surprising U. S. Supreme Court decision yesterday which set free five convicted Communists and ordered new trials for nine others.

In an astonishing ruling, the court reversed the verdicts of two lower courts which after long hearings had found the 14 Reds guilty of conspiring to advocate the violent overthrow of the U. S. government. There was no question that the 14 were given fair trials, but the Supreme Court turned five loose and ordered new hearings which very well could result in the freeing of the other nine.

Like many another American, Representative Scherer was upset. If the Supreme Court decision stands — and there's no reason to believe it won't — then the FBI and congressional investigating committees might as well close up shop, says Scherer.

In a bold criticism of the highest court of the land, Scherer added: "We have just turned the country back to the Communists with these decisions."

Communists will rejoice, but Americans will not be happy at this newest strange decision by the U. S. Supreme Court.

WEIGHTY MATTER

Roderick the Roughneck says his wife weighs a hundred pounds.

House Passes Civil Rights

WASHINGTON (AP)—The House today passed President Eisenhower's civil rights bill. The House passed the bill 297-133. The bill is the House version of the bill passed by the Senate last week. The bill is the House version of the bill passed by the Senate last week. The bill is the House version of the bill passed by the Senate last week.

Danny Wise

(Continued from Page 1) had best the university. Inflation of Europe by about two weeks. Also to our great disappointment we found about five female students and over 40 male students. Anyway, we enjoy reading.

We also enjoy talking, but I felt very out of place in some of the conversations. There were psychology students from Princeton, philosophy students from Yale, a French student going to the Sorbonne in Paris, physics majors from Texas, and medical students from Toronto. Although some of them were quite intelligent, the conversationalist, Phil and I liked best was an intelligent, though sparsely educated, Englishman we knew simply as Johnny. Johnny had a pronounced Cockney accent. He is a muscular well-built man of 26 who has not yet acquired the "civilized" adversity to heavy labor. He could nearly always be found on deck and on being drawn into a conversation, he would speak quietly and fondly about nature, people, and his family—the usual things. Yet he spoke with an intelligent love and devotion for those things so that he demanded our greatest respect.

One night as we stood on deck in the same spot 12 years ago, instead of serenely enjoying the sea, we would be existing in the eternity of eerie moon, enemy subs, and exaggerated sounds. It seemed very strange, in that beautiful setting, that men could kill on another. It seemed strange still when I thought of the German crew and Italian sailors on our ship. And now, because it happened to come 10 years later than some of you I can give them a friendly slap on the back instead of a deadly bullet in the head. And the world has buried her dead and said, "Thank God we're civilized!"

If we weren't talking or playing cards we were eating food or listening to the ship's band. Both were quite a treat but both got too old too soon. The band seemed to play constantly in one of the three bars or in the drawing room. They made a stab at everything, but they could play Hungarian folk songs and classical music.

It would not be fair to say that we did not like the food. We just got tired of eating. The room steward woke us up every morning just in time to go to lunch. Getting through lunch was a major victory, not because the food was poor but because it took a certain amount of skill and finesse to get through a four-course meal on a pitching ship. Not only the big social event of the day, but it also took on an atmosphere of a great sporting event. Bu tea time, 4 o'clock the only digestion that had taken place was done by the ship's

Communists can go where they want to go and do what they want to do. It seems a go signal for teaching in our schools and to stage a comeback among labor unions.

Rep. Willis (D-La.), a member of the House Judiciary and Un-American Activities committees, said the ruling appears to throw more future roadblocks in carrying out the intent of Congress as expressed in the Smith Act.

Sen. Mundt (R-S.D.), a one-time member of the Un-American Activities Committee, said he is completely out of sympathy with the whole trend of recent Supreme Court decisions.

Lawyer Displays

(Continued from Page 1) but we have no way of knowing how much oil polluted the water sands before they were corrected.

"Oil that leaks into water-bearing sands could eventually be pulled into the city's water system, the officials theorized. If they said, could foul the entire system which now represents an investment of about \$2 million. Further evidence in the situation was presented by Walton, who said oil in a water supply has "ruined three lawns" for W. Goins, who lives in the same area.

City Attorney Donald Hallam was instructed to seek a hearing on the OGC in the case. Routine business took up the remainder of the meeting. The approved payment of \$12,186.66 in regular bills and \$23,739.22 in water department bills. Olayed refunds totaling \$101,266 for overcharges in paving projects.

Discussed methods of payment for occupational taxes; Heard a report from Commissioner Walter Linam on improper drainage at the south end of South Third Street, and was told that this and similar faults will be corrected after the completion of surveys now under way.

Approved a resolution asking approval from the state board of finance for the purchase of three adding machines; Okeyed a bid by Lembeck, Clough and King Construction Co., for building foundations for an elevated water tank at a cost

Bomb Testers Flee Fallout

ATOMIC TEST SITE, Nev. (AP)—Atomic scientists fled the fourth shot in the current atomic test series at 4:45 a. m. today. Then they fled.

The Atomic Energy Commission said "light fallout" from the blast forced evacuation of the test site control point.

The device—detonated from a balloon hung 500 feet above the desert floor—lit up the blowing mushroom cloud. Hitting almost six miles, began to sit radioactive contamination toward the control point.

The order to evacuate was given 15 30 minutes after the point was empty. It is about eight miles from the test site.

An AEC spokesman said the upper part of the cloud headed north of due east at 30,000 feet. The stem drifted north of due west at 20,000 feet.

More than 50 diagnostic tests were conducted as a part of this morning's test. Live pigs and mice—with recording instruments on their bodies—were used in studies of radiation.

The blast today was estimated by 10 observers as the same size as the 10 kiloton shot which launched the test series earlier this month. A kiloton is the equivalent of 1,000 tons of TNT.

The last two shots were much smaller—perhaps two kilotons. No troops took part in today's test, although more than 30 military planes support missions and nearby on-suppress missions and indoctrination flights.

Los Angeles reported today's shot—clearly visible—appeared as a brief, blue flash. In Las Vegas it seemed very bright but of briefer duration than some previous major detonations. Observers on Angel's Peak, closest spot newsmen were allowed to the test area, said that from 55 miles away it appeared that the explosion kicked up dust on the floor of the desert.

Hospital Notes

Patient admitted Monday to Lea General Hospital.

Albert Clark Masterson, 1307 South Selman. Emma Novella Choide, 1008 East Humble. Naomi L. Lee, 2603 North St.

Ernest Tipton, Hobbs. Anita Cortez Hilaria, 145 Elm Blvd. Winifred Maxine Reynolds, 210 East Jackson, Lovington. Mary Ann Parker, 104 West Texas.

Bobbie Sue Young, 500 East Dunham. Glory Gail Jackson, 904 East Humble. Virginia Ann Johnson, 107 East Monroe, Lovington. George Ellis Bush, 505 East Park.

Reda Dossey, Ethnic. Venora Johnson, 1807 East Humble. Earl Dean Selman, Seminole, Texas. Patients discharged Monday: Raleigh Roscoe Sims, Eunice. Margaret Maxine Swartwood, Eunice.

Mary R. Moreno, 412 South Fourth. Ida Muriel Russell, 206 West Roxana. Yvonne E. Turner, 619 East Marland. Earl Windel Maybure, 1508 Marland Drive. Mary Navaro, Hobbs. Thomas John Duffie, Hobbs. Emergencies treated: Frank Burleson, 318 East Mid-west. Larry Fisher, 320 West Palace. L. R. Gaultney, 318 North Dal Paso.

June 15th Here Will Be Quiet One

Tomorrow—June 15—Emancipation Day for America's Negroes but no celebration of the occasion is planned here, it was revealed today.

A spokesman here said that the holiday—often called "Juneteenth"—nowadays is observed "rarely outside of Texas, where it still is a popular time for celebration. The date marks the signing of the Proclamation of Emancipation by President Lincoln (it really was signed Jan. 1, 1863) which declared all slaves in the states then in rebellion to be "then, and forever free." A preliminary proclamation had been issued earlier on Sept. 22, 1862. Said one Negro here today: "Outside of Texas, few Negroes recognize or observe Emancipation Day now. Most of them would

Eastern U.S. Swelters for Another Day

Most of the nation's east half awoke to another torrid day today after sizzling temperatures that set records yesterday.

At the edge of the swelter, where hot and cold air clash there were severe thunderstorms and some tornado activity. The Weather Bureau in Chicago said the mercury would register the 90s for another day of hot humid weather.

It was because of the temperatures yesterday that Chicago and New York suffered power shortages. This occurred in rush for air-conditioning relief.

Record temperatures were for June 17 at Philadelphia, where it reached 98. Newark, N.J., a Chicago's 96 equaled the high of the date, established in 1887.

The hottest spot in the nation was Presidio, Tex., where a high of 108 was reported. Forecasters said temperatures in the 90s would be repeated the eastern half of the country.

The demarcation line of warm air in the central and northwestern parts of the country was pepped with thundershowers which curved from the Texas Panhandle northeastward through the Ohio plains and the upper Mississippi Valley.

Swollen rivers and creeks, spilling from banks and gushing into great walls of surging water, were fed by torrential rains over weekend. Southwestern Minnesota and eastern South Dakota count at least five deaths due to flooding. Communities in the strict areas braced for further outpourings as tributaries poured water into the Redwood River.

Further south in Maryland, Akron, Iowa, farmers warned to move stock from lands onto higher ground. In Nebraska, fresh rain flooded the Blue River, watershed of the river was rising at the rate of 2 to 3 inches an hour between Seward and Beatrice.

Funnel clouds were sighted central Iowa late yesterday touched ground at Marshalltown where it caused damage estimated at \$10,000. There were no injuries reported.

Highway Markin To Require Year

SANTA FE (AP)—A. K. Rofhe State Highway Department, said it will take at least a year to just the state's highway system the new speed limit law.

Drew Pearson

Washington Merry-Go-Round

WASHINGTON—By an ironic twist which the general public doesn't realize, George Humphrey is stepping out as secretary of the treasury just as the treasury is in one of the worst messes in recent history.

To quote the Wall Street Journal: "The government of the United States is in a fiscal mess. The treasury of the richest nation on earth is short of money. At one point this spring it had hardly enough cash to pay a week's worth of bills."

Yet Mr. Humphrey has been hailed as the strong man of the cabinet and one of the greatest secretaries of the treasury in history.

The fact is, however, that victory bonds have been selling at \$86, the same panic levels at which millions of people sold and took their losses on liberty bonds after World War I. In addition, the treasury's interest rate for long-term bonds is at the highest point in history, despite which the bonds can't be sold to the public.

The recent \$4,200,000,000 bond offering at a 5 7/8 percent for 37 months was a complete bust. The investing public just wouldn't buy. On top of this the treasury has to raise \$55 billion to cover maturing bonds in the next 12 months. Yet it has now given up all hope of raising money through long-term bonds and gone back to short-term notes.

One of the big campaign issues of the Eisenhower administration was to get away from short-term, hand-to-mouth financing. To accomplish this one of the leading businessmen of the nation, George Humphrey, was made secretary of the treasury, while the actual job of revising fiscal policy was put under Randolph Burgess of the National City Bank, a strong critic of the government's past bond policy under Henry Morgenthau.

Burgess is married to a great-great-granddaughter of Alexander Hamilton, first secretary of the treasury and the father of American fiscal policy.

One of the first things Burgess did was announce that he would take \$170 billion of the government's debt and put it away in long-term bonds for 20 or 30 years.

To please the bankers, he also jacked up interest rates. This was his worst mistake. After he had hiked interest rates on one bond issue, he couldn't go back to low-

George W. Becker to fill a vacancy as controller.

George also is city clerk, deputy director of accounts and finances, and special tax officer. His combined annual income is \$6,090.

ordered by the Navy. When they are delivered, they'll have no place to go except Elizabeth City—unless new hangers are built, which certainly be no economy.

If you ask anyone at the Navy about this, all you get are smiles. However, it certainly looks as if Congressman Bonner is getting slapped and slapped hard.

NOTE—The cost to Elizabeth City will be a \$3,000,000 a year Navy payroll. Other areas around the U.S.A. are beginning to learn what budget-pruning means, as other military facilities are closed down.

AFL-CIO President George Meany told only half the story when he accused General Electric of mishandling its workers' welfare fund. Company spokesmen John Callahan admitted in a sworn statement that General Electric pockets as much as \$6,500,000 a year in dividends from the welfare fund. Yet half the money was contributed by the employees, who get General Electric turns over its entire insurance business to Metropolitan Life Insurance without consulting the workers or calling for bids. G. E. Chairman Philip Reed, who handles all the company's finances, also happens to be a director of Metropolitan Life.

The White House claims like retired presidential yacht, Williamsburg, to save the taxpayers' money. Yet the Defense Department is still operating another yacht, the Sequoia, for top Pentagon officials. It makes a dozen cruises a month down the Potomac, loaded with partying officials. Cost to the taxpayers: \$23,529 a year, not counting salaries of the 24-man Navy crew.

Though yachtless, Ike is still keeping up the presidential launch, the Marjorie, which he has renamed the Susie E. . . . Gen. Joe Smith, military air transport commander, appropriated the officers' club at Andrews Air Force Base the other evening for his own private party. However, he invited most of the base officers to the party.

Justice Harlan, writing for the majority, said "breaching abstractly" the forcible overthrow of the government is "no crime under the Smith Act."

"The essential distinction," he said, "is that those to whom the advocacy is addressed must be urged to do something, now or in the future, rather than merely believe in something."

for so why not have tea? Dinner was served at 6:30. After the second day the empty chairs became more apparent. Those who would not admit defeat, yet, were subjected to another bombardment of food, supplemented with little encouraging remarks by our large waiters.

The only breakfast we got in on was Sunday morning (June 10) at 6 o'clock. It was a fine time. Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.

Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

Jenner, senior Republican member of the Senate Internal Security subcommittee, said: "It seems to me that the opinion means the

for a city auditor by Darwin Sprague, subject to approval of life state comptroller.

And asked Harlan for an opinion on the legality of a move made by the library board. The board had asked that Mrs. Letha Mae Atkins, acting librarian, be moved into a part-time job while she completes nine months of college training to qualify as a full time librarian.

Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.

Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

for a city auditor by Darwin Sprague, subject to approval of life state comptroller.

And asked Harlan for an opinion on the legality of a move made by the library board. The board had asked that Mrs. Letha Mae Atkins, acting librarian, be moved into a part-time job while she completes nine months of college training to qualify as a full time librarian.

Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.

Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

for a city auditor by Darwin Sprague, subject to approval of life state comptroller.

And asked Harlan for an opinion on the legality of a move made by the library board. The board had asked that Mrs. Letha Mae Atkins, acting librarian, be moved into a part-time job while she completes nine months of college training to qualify as a full time librarian.

Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.

Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

for a city auditor by Darwin Sprague, subject to approval of life state comptroller.

And asked Harlan for an opinion on the legality of a move made by the library board. The board had asked that Mrs. Letha Mae Atkins, acting librarian, be moved into a part-time job while she completes nine months of college training to qualify as a full time librarian.

Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.

Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

for a city auditor by Darwin Sprague, subject to approval of life state comptroller.

And asked Harlan for an opinion on the legality of a move made by the library board. The board had asked that Mrs. Letha Mae Atkins, acting librarian, be moved into a part-time job while she completes nine months of college training to qualify as a full time librarian.

Mrs. Atkins would receive \$150 a month for extending a record-keeping work while taking the college courses.

The short and efficiently conducted meeting closed at 9:30.

It seems the court leaned over backwards to make it more difficult for our committee to perform the duty imposed upon it by Congress," said Walter.

He and committee member Rep. Gordon H. S. (R-Ohio) agreed that if the high court decision stands, "the FBI and investigating committees may as well close up shop."

"We have just turned the column back over to the Communists with these decisions," charged Scherer.


Chairman Walter vehemently denied that his subcommittee was in any way responsible for the suicide of a Monterey research scientist, William K. Sherwood, 41, who left a note saying he would be "assassinated by publicity" as a witness before the subcommittee.

However, Ernest Besig, executive secretary of the American Civil Liberties Union of northern California, called on the subcommittee to cancel its hearing "before they do further damage."

He charged the subcommittee with following a policy of harassing people and punishing them, rather than making mistakes. "Is there no redemption for these people?" he asked.

Work to Start on 4-Lane Highway

INSIDE
the capital



Hobbs Daily News-Sun

Shop with
Your Local
Merchants

VOL. 30—NO. 50 HOBBS, NEW MEXICO WEDNESDAY, JULY 10, 1957 DAILY 5 CENTS — SUNDAY 10 CENTS

Crash Near Tatum Kills Youth.

Victim Was Son Of Portales City Official

Traffic death claimed its 14th Lea County victim of the year today when a speeding car hurtled off the highway north of Tatum, overturned five times and threw the driver more than 40 feet away.

Eighteen-year-old John Miller of Portales died in a Hobbs hospital from injuries he suffered in the accident. He had been returning from a visit with his girl friend in Portales.

Investigators said Miller's 1948 Ford was traveling at an excessive speed and did not negotiate a curve, causing the 3 a.m. crash. The scene was 10 miles north of Tatum, on State Road 18, where the north-south highway bends to a northwest-southeast turn for a short distance. Deputy Sheriff P. Y. Tidwell and State Policeman O. D. Standro said Miller, driving alone, was going toward Tatum when he lost control of his car.

The vehicle went off the road-way for 285 feet, then angled back across the pavement for 232 feet more before it started to spin. The driver's body was thrown 42 feet from the point where the car stopped.

Portales sources said the youth had started home late from his visit in the Roosevelt County city, 110 miles from Hobbs. He was "very tired when he arrived (in Portales) and slept for two hours before leaving," they said. Brought to the hospital here in a Tatum ambulance, he died about 15 minutes after being admitted, hospital officials reported.

Touchy Rescue By Air

KING'S CANYON NATIONAL PARK, Calif. (AP)—The life of a critically injured mountaineer depends today on the ability of a helicopter pilot to land and take off on rugged 14,000-foot Palisade Peak.

A furious Sierra thunderstorm last night—and the usual vagaries of the air currents at that altitude—posed formidable odds.

"It's his only chance," said Dr. Henry Jakes in a terse radio report describing the condition of 23-year-old John Findley Scott, University of California student who suffered internal and other injuries in a 40-foot fall Sunday. He could never live through being packed out. He needs immediate hospitalization.

The doctor and park ranger James Barton arrived at the crude base camp on Upper Palisade Lake last night.

Scott was taken to the camp after his removal from a lofty ledge by six mountaineers Monday. The last portion of the trail to the camp was so steep the doctor and ranger had to leave their horses behind.

Work to Begin On Four-Lane North of City

Preliminary work on a new 9.29-mile highway construction job to convert State Road 18 to a four-lane thoroughfare is scheduled to begin immediately. It was revealed today.

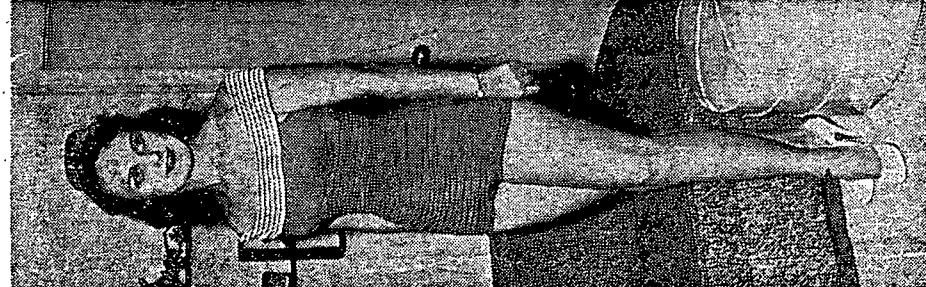
When completed the new four-lane highway will begin at the northern edge of Hobbs where Bender Blvd. now enters State Road 18, and continue northwest toward Lovington.

Officials of Miller, Smith & Jones, an Albuquerque road construction firm which was awarded the \$689,460 contract, yesterday said that the firm has set up an office approximately five miles north of Hobbs.

Said P. D. Miller, one of the partners: "We expect to hire between 50 and 100 men to work on the project within the next three weeks. We hope to hire much of our help locally."

Miller said that Fred Merritt has been named superintendent of the project for his firm.

The first phase in construction operations will be the setting up of a caliche crushing plant north of the city, Miller asserted. The next step will be erection of a blacktop hot mix plant.



BEAUTY QUEEN candidate representing Hobbs in a contest for the most attractive Ground Observer Corps member in the El Paso Air Defense Filter Center is Miss Barbara Billingsley. She

Water Pollution Problem Referred to Committee

Selection of the committee came after a morning tour and an afternoon discussion session had failed to turn up suggested solutions for the contamination of water wells by oil.

Two jobs at newspapers for their publicizing of the situation and a disagreement between representatives of two city agencies were other high spots of the hearing.

But it was the afternoon session, moved to the high school little theater, that produced the brief flurries of criticism and conflict. A summary of the morning tour and of the overall pollution picture had just ended when Lloyd Calhoun, member of the city water board, took the floor.

The nearest major city well is about two miles from an area of contamination, he said, adding that "we do not feel the Hobbs water system is in jeopardy — speaking of the Hobbs city system only."

He deplored the "premature publicity" given the problem by newspapers, then struck a spark by suggesting that the city withdraw from consideration of the problem and leave settlement of it to industry and state officials.

Asked later by Porter if Calhoun's statement changed the position of the city in the case, City Attorney Donald Hallam said "the city's position remains the same."

Porter also chided newspapers saying that "I have had an awful time with the newspaper reporters convincing them that the city of Hobbs water supply was contaminated. They seem to be hung on that."

Ike's Mind 'Open' On Civil Rights

WASHINGTON (AP)—Sen. Russell (D-Ga.) said after a conference with President Eisenhower today that Eisenhower's "mind is not closed to amendments which would clarify" the administration's civil rights bill.

Russell, quartermastering Southern forces opposed to the legislation in the Senate, told newsmen Eisenhower is against enactment of any "punitive" measure.

Eisenhower and Russell talked over the bill for about 50 minutes at the White House.

Although Russell said Eisenhower has an open mind with respect to the possibility of clarifying amendments, he sensed "where the administration will back such amendments."

The President's mind is open, Russell said. It is not closed to amendments which the Legislative Finance Committee held last week.

Audit Critical Of AG Office

SANTA FE (AP)—Operation of the state adjutant general's department has been criticized in a recent audit released by the state comptroller's office.

The audit mentions several points brought out in a two-day hearing which the Legislative Finance Committee held last week.

For no other reason the "Violence in Lincoln County 1891-1893" is important in Billy the Kid in true perspective. Kelleher shows him and him to have been but an "evil" character in the big And that without strain-

NITA FE — Will Kelleher, turned lawyer and now again, has produced another New Mexico item. The item is 390 pages, digest of years of reading, digesting, sifting, and assembling a mass of material into a first complete and authentic account of the Lincoln County

BEYOND HONOR?

"Honor" is the fourth significant New Mexico historical published by Kelleher, an Albuquerque lawyer, to tell that he "used to be a newspaper man" and in "books" is "only returning love."

Books, each of which cost considerably more than he in sales, have won for Kelleher to Phi Beta Kappa old school, Washington and an honorary degree from the University of New Mexico.

It was the UNM press blashed "Violence," could be some further ion of assembling these New Mexico history that are been lost forever.

last book on the 1869-81 treats Bob McKinney, publisher of the Santa Fe County shooting, wrote "County Opera," on the County unpleasantness as ready for production away when "War II" in next objective: Another New Mexico 1881-96.

NOTICE

Gatty Oil Company's
McKinley Lease

Mr. H. G. Wesberry - Midland

Production

Hobbs

Mr. H. E. Berg - Tulsa

May 31, 1957

Mr. C. J. Callamore - Tulsa

A Bradenhead survey by the Oil & Gas Commission in 1956, showed pressure between the 5-1/2" & 8-5/8" casing in well #6.

Well was worked on the first part of September, 1956. There were no holes in 5-1/2" csg, as we were unable to break circulation between 8-5/8" and 5-1/2" csg. The pressure was probably caused by Yates gas.

The reason they are checking the water bearing formation (37' Horizon) around this well is because they think we repaired a leak in the surface casing, and if they can show the water bearing formations are contaminated, that this well was the one that did the damage. They found some oil in most of the water wells drilled.

There is more behind this than just the particular surface owner mentioned in my letter of May 27th. I believe some rather influential people are backing this person. They are contemplating, I believe, a suit and the reason for the suit is that a rancher in the Slaughter pool in Texas sued Gulf Oil Company in a similiar case, and won.

They tell me the shallow water formations in this area have been contaminated for 15 plus years. I do not know of a thing we can do about this matter.

- 2 -

I think it is an explosive situation and they will eventually sue. It could be an expensive thing.


E. P. Shackelford

HPS:bh

Cetty Oil Company's
McKinley Lease

Mr. H. G. Wesberry - Midland

Production Hobbs

Mr. H. E. Berg - Tulsa

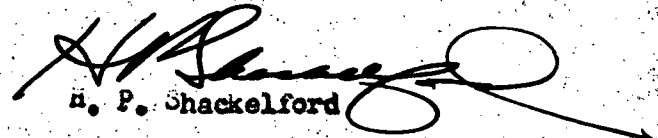
May 27, 1957

Mr. C. D. Callamore - Tulsa

Mr. J. O. Walton, attorney, representing a Mr. Ellison, called me Friday, May 24, 1957 at approximately 5:00 PM. He told me that Mr. Ellison, his client, who owns the surface rights surrounding the No. 6 well on the McKinley lease, was drilling some water wells surrounding this oil well and wondered if we would like to check the water in the drilled wells. When he called, two wells had been drilled to a depth of approximately 37'. The well about 150' north of #6 had good water and the well drilled approximately 150' south of #6 had some oil with the water.

After talking to you, I checked with Mr. C. M. Neal, attorney representing the company. He advised us to stay away, which we did.

Attached is copy of a letter I received from Mr. Neal.


H. P. Shackelford

HPS:bbh

Attachment

File

C. MELVIN NEAL
J. W. NEAL

NEAL & NEAL
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONE:
EXPRESS 3-5171
P. O. BOX 278

May 25, 1957

Tidewater Oil Company,
Post Office Box 547,
Hobbs, New Mexico.


Attention: Mr. H. P. Shackelford.

Gentlemen:

It is my understanding from you that Mr. J. O. Walton, an attorney of this city who represents Mr. Ellison, advised you that Mr. Ellison had drilled some water wells in the vicinity of your McKinley No. 6, and had found contaminated water. He advised you that they intended to make some tests and that if Tidewater desired to have a representative present at the taking of these tests this morning, they were free to do so.

As I advised you over the telephone, it is my opinion that we should not attend the making of these tests. We must assume the position we have in the past that the contamination, if any, which exists in the area is not the responsibility of Tidewater.

Very truly yours,



C. M. NEAL

N/ls
(In Duplicate)

NEAL & NEAL

May 25, 1957

Tidewater Oil Company,
Post Office Box 547,
Hobbs, New Mexico.

Attention: Mr. H. P. Shackelford.

Gentlemen:

It is my understanding from you that Mr. J. O. Walton, an attorney of this city, who represents Mr. Ellison, advised you that Mr. Ellison had drilled some water wells in the vicinity of your McKinley No. 6, and had found contaminated water. He advised you that they intended to make some tests and that if Tidewater desired to have a representative present at the taking of these this morning, they were free to do so.

As I advised you over the telephone, it is my opinion that we should not attend the making of these tests. We must assume the position we have in the past that the contamination, if any, which exists in the area is not the responsibility of Tidewater.

Very truly yours,

/s/ C. M. Neal

C. M. NEAL

N/Is
(In Duplicate)

"GO" - H. D. McKinley Lease

Mr. H. E. Berg - Tulsa

Producing Hobbs

Mr. H. G. Wesberry - Midland
Mr. C. D. Gallamore - Tulsa

March 4, 1957

Mr. R. H. Coe on his recent trip to Hobbs, advised that the company was ready to turn loose the 180' x 200' tract west of tank battery on subject lease. He also, advised that I send in the name of the person who purchased the land surrounding the battery.

Mr. Gail Boman, Star Route "B", Hobbs, New Mexico, purchased the land and is the person desiring the water well located on the 180' x 200' tract. Mr. Boman agreed to sign an agreement whereby the company would not be liable for any future condition of the water.

I think the company should also state, in the agreement, that the tract, if desired for house or if needed in future operations of this lease, that owner would return same.


H. P. Shackelford

HPS:bh

"GO" - H. D. McKinley Lease

Mr. H. E. Berg - Tulsa

Producing Hobbs

Mr. H. G. Wesberry - Midland

February 20, 1957

Mr. C. D. Gallamore - Tulsa

All wells and the tank battery on Getty Oil Company's - H. D. McKinley lease have been fenced.

There is an area west of the tank battery that was not fenced with the 6' cyclone fence. This area was previously fenced with three strand barbed wire.

The area is 180' x 200'. There are five old water wells and two old tanks that are junk, located in this space. We do not need the space for our operations. The person who is sub-dividing the area wants to put a road across the space. The person who purchased the surrounding land would like to have the water well. (The other four wells should be plugged.) He will sign an agreement relieving us of any future responsibility.

I recommend we abandon this area and turn the water well over to the person who purchased the land.

Please advise.


H. P. Shackelford

HPS:bh

ASSOCIATED OIL FIELD RENTALS

FOR RENT - DRILL PIPE - DRILL COLLARS
KELLYS - BLOWOUT PREVENTERS - PIPE HANDLING TOOLS
MAIN OFFICE: 3701 HOLMES ROAD - P. O. BOX 1888, HOUSTON 1, TEXAS
PHONE REPUBLIC 4-2511



Shuck-

This is all casing leak
surveys on M^{rs} Kinley lease.
You can destroy the copies
of Reider's now on file
as they are duplicated
in the attached group

Bob

CALL ONE OF 11 CONVENIENTLY LOCATED RENTAL YARDS:

MA
CITY
585

NEW MEXICO
HOBBS
EXpress 3-2017

TEXAS
ALICE
MO 4-4301

ODESSA
FE 7-1561
HOUSTON
RE 4-2511
SNYDER
3-5822

WYOMING
CASPER
2-4561
LOUISIANA
HARVEY
Fillmore 1-8591

LAFAYETTE
CE 4-51P

MORGAN
50.
5072

OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Getty Oil Co.
 Lease Name M. V. Lindsey Pool _____
 Well Number 1 Location 30-18-38

OBSERVED DATA

Test Date: 2/15/57 and Time 2:56 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	_____	_____	_____	0	_____
INTERMEDIATE	_____	_____	_____	0	_____
PRODUCTION	_____	_____	_____	press.	_____
TUBING	_____	_____	_____	500	_____

REMARKS: Flowing well - OK

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks
_____	_____	_____
_____	_____	_____
_____	_____	_____

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
OIL CONSERVATION COMMISSION

by _____

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASING -- BRADENHEAD TEST

Operator Pacific Western - Tidewater

Lease Name H.D. McKinley Pool Hobbs

Well Number #1 Location S4 2 1/4 NW 1/4 30 18 38

OBSERVED DATA

Test Date: August 6 1956 and Time 9:00 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>12 1/4</u>	<u>245'</u>	<u>7002X</u>	<u>No check</u>	<u>Cement above head</u>
INTERMEDIATE	<u>9 5/8</u>	<u>2758'</u>	<u>6002X</u>	<u>No check</u>	<u>Cement above head</u>
PRODUCTION	<u>7"</u>	<u>3756'</u>	<u>7502X</u>		
TUBING					

REMARKS: Well was WO to repair leaks, 5" line set @ 4185'
and was cemented -

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: no means available to check, the
well must be assumed OK.

Witnessed
OIL CONSERVATION COMMISSION

by C. M. Linder

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

Following is a report on the work done and the results obtained under the heading noted above at the

Pacific Western
(Company or Operator)

McKinley
(Locality)

Well No. *1*

in the *SW 1/4 NE 1/4* of Sec. *30*

(Contractor)

Pool

County

18, R. 38, NMPM.

The Dates of this work were as follows:

Notice of intention to do the work (was) (was not) submitted on Form C-102 on: (Cross out incorrect words)

and approval of the proposed plan (was) (was not) obtained.

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

*Leak
out
oil
by*

*In Aug -53 - squeezed
then leak oil string 400-500
Pry 2800' & squeezed & cure
all strings of pipe including
surf - Ran 5 1/2" string
& cemented to surf*

Witnessed by

(Name)

(Company)

(Title)

Approved

OIL CONSERVATION COMMISSION

(Name)

I hereby certify that the information given above is true and complete to the best of my knowledge.

Name

Position

Representing

Address

(Title)

(Date)

Operator Little Oil Co
 Lease Name The Kinder Pool Baker
 Well Number 2 Location 30-18-38

OBSERVED DATA

Test Date: 2/15/57 and Time 3:08 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>12 1/2</u>	<u>257</u>		<u>0</u>	
INTERMEDIATE	<u>7 5/8</u>	<u>275</u>		<u>0</u>	<u>325 sec</u>
PRODUCTION	<u>7</u>	<u>385</u>		<u>0</u>	
TUBING	<u>5</u>	<u>shot in</u>		<u>0</u>	
	<u>by</u>			<u>from</u>	

REMARKS: Pumping - on
Leak repaired previously see C-173

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
OIL CONSERVATION COMMISSION

by _____

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Pacific Western - Tidewater
Lease Name H. D. McKinley Pool Kibbs
Well Number 2 Location SW 1/4 SE 1/4 NE 1/4 30 18 3R

OBSERVED DATA

Test Date: August 6, 1956 and Time

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>17 1/2"</u>	<u>251</u>	<u>100</u>	<u>0#</u>	<u>sl blow - 1 sec</u>
INTERMEDIATE	<u>7 1/2"</u>	<u>2765</u>	<u>600</u>	<u>100#</u>	<u>BD 10 sec. (1.1 sec)</u>
PRODUCTION	<u>7"</u>	<u>3858</u>	<u>250</u>	<u>70#</u>	<u>BD 10 sec</u>
TUBING	<u>5"</u>	<u></u>	<u></u>	<u></u>	<u></u>

REMARKS: Well was WO to correct leaks - right blow
continued on 9 5/8" x 7"

RETEST

Retest Date: August 7, 1956 and Time: 8:45 PM

Casing Annulus	Pressure	Remarks
<u>9 5/8" x 9 5/8"</u>	<u>0#</u>	<u></u>
<u>9 5/8" x 7"</u>	<u>700#</u>	<u>BD - 7 sec. Continued lt blow</u>
<u>7" x 5"</u>	<u>40#</u>	<u>BD - 7 sec</u>

REMARKS: Last survey found 900# and oil flow on 9 5/8" x 7"
well was WO to correct

RECOMMENDATIONS: Study the workover procedure and
check bradenhead pressure at any early
date

see records Tidewater same from 10.3
the report OK Repaired the C-103

Witnessed
OIL CONSERVATION COMMISSION
by C. M. Lucky
Title

MISCELLANEOUS REPORTS ON WELLS

This report in TRIPLICATE to the District Office Oil Conservation Commission, within 10 days after the work specified herein is signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging, well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)

Date:

(Place)

I am submitting a report on the work done and the results obtained under the heading noted above at the

Pacific Petroleum
(Company or Operator)

M. G. Kimley
(Lease)

Well No.

2

in the

SE

NE

1/4

30

(Contractor)

Pool

County

Dates of this work were as follows:

Approval of attention to do the work (was) (was not) submitted on Form C-102 on

(Cross out incorrect words)

Approval of the proposed plan (was) (was not) obtained

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

*Surf 900 lbs - flowed out
out dropped 300 lbs/30 min
moving in very*

Witnessed by

(Name)

(Company)

(Title)

Approved by

OIL CONSERVATION COMMISSION

(Name)

I hereby certify that the information given above is true and correct to the best of my knowledge

Name

Position

Representing

Address

(Title)

(Date)

Operator Hettley Oil Co (Tidewater)
Lease Name M^e Kinley Pool _____
Well Number 5 Location 30-18-38

OBSERVED DATA

Test Date: 2/15/57 and Time 2:50 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>13</u>	<u>220</u>	<u>?</u>	<u>0</u>	
INTERMEDIATE	<u>9 5/8</u>	<u>2155</u>	<u>600</u>	<u>0</u>	
PRODUCTION	<u>7</u>	<u>3150</u>	<u>100</u>	<u>20</u>	
TUBING					

REMARKS: Pump set - down
OK

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
OIL CONSERVATION COMMISSION

by _____

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Pacific Western - Tidewater
Lease Name H. D. McKinley Pool Bowers
Well Number #3 Location SE 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time: —

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	13"	270	?	0*	
INTERMEDIATE	9 5/8"	2755	600	0*	
PRODUCTION	7"	3150	100		
TUBING					

REMARKS: _____

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks
_____	_____	_____
_____	_____	_____
_____	_____	_____

REMARKS: Last survey found no pressures

RECOMMENDATIONS: OK

Witnessed
OIL CONSERVATION COMMISSION
by C. M. Kuder
Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

(Date)

(Place)

Following is a report on the work done and the results obtained under the heading noted above at the

Pacific Western Oil Corp
(Company or Operator)

M. K. Keating
(Lease)

(Contractor)

Well No. *3* in the *SE* $\frac{1}{4}$ *NE* $\frac{1}{4}$ of Sec. *30*

18 R. *38* NMPM

Pool

County

Dates of this work were as follows:

Notice of intention to do the work (was) (was not) submitted on Form C-102 on

(Cross out incorrect words)

and approval of the proposed plan (was) (was not) obtained:

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Brown's Well

*Surf
S. 1/4*

[Signature]

Witnessed by

(Name)

(Company)

(Title)

Approved

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and correct to the best of my knowledge.

Name

Position

Representing

Address

(Title)

(Date)

OIL CONSERVATION COMMISSION
CASPING - BRADENHEAD TEST

Operator: Berry Oil Co
 Lease Name: McC Kinsley Pool: _____
 Well Number: 4 Location: 30-18-38

OBSERVED DATA

Test Date: 2/15/57 and Time: 3:00 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>12 1/2"</u>	_____	_____	<u>0</u>	<u>casts 300 sec</u>
INTERMEDIATE	<u>9 5/8"</u>	_____	_____	<u>0</u>	_____
PRODUCTION	<u>7"</u>	_____	_____	<u>375</u>	_____
TUBING	_____	_____	_____	<u>240</u>	<u>flowing</u>

REMARKS: Flowing well -
Repacked Sept. 56
OK now

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks
_____	_____	_____
_____	_____	_____
_____	_____	_____

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
OIL CONSERVATION COMMISSION

by _____

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASINO - BRADENHEAD TEST

Operator Pacific Western Tidewater
Lease Name H. D. McKinley Pool Nobles
Well Number 4 Location NW 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>13 3/8</u>	<u>245'</u>	<u>200</u>	<u>100*</u> <u>375#</u>	<u>has salt water</u>
INTERMEDIATE	<u>9 5/8</u>	<u>2753'</u>	<u>600</u>		
PRODUCTION	<u>7"</u>	<u>3998'</u>	<u>250</u>		
TUBING	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

REMARKS: This well has authorization for immediate
WO to repair leaks -

RETEST

Retest Date: Previous Survey and Time: by S.J.S.

Casing Annulus	Pressure	Remarks
<u>13 3/8 x 9 5/8</u>	<u>200* E.P.</u>	<u>BD 5 min</u>
<u>9 5/8 x 7"</u>	<u>350*</u>	<u>BD made no chg on cas annulus 7 min</u>

REMARKS: Leak indicated on last survey as above

RECOMMENDATIONS: Immediate WO on plug

Witnessed

OIL CONSERVATION COMMISSION

by C. M. Kelly

Title

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. This report should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, well-repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional regulations in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below			
REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION	
		REPORT ON REPAIRING WELL	
		REPORT ON (Other)	

Following is a report on the work done and the results obtained under the heading noted above at the _____ (Date) _____ (Place)

Pacific Eastern Oil Corp (Company or Operator) Well No. *4* in the *NW 1/4* of Sec. *36* County _____

(Contractor)

18 R. *38* NMPM

The Dates of this work were as follows: _____

Notice of intention to do the work (was) (was not) submitted on Form C-102 on _____ (Cross out incorrect date)

and approval of the proposed plan (was) (was not) obtained _____

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Shut > 0
drill > 200 Esten - Blow down 5 min
oil > 315 lbs
flow > No chg on cap press

Witnessed by _____ (Name) _____ (Company)

Approved _____ (Name) _____ (Title)

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and correct to the best of my knowledge.

Name _____
Position _____
Representing _____
Address _____

KICO OIL CONSERVATION CO.
CASING - BRADENHEAD TEST

Operator Doty Oil Co.
 Lease Name M^{rs} Keady Pool Hobbs
 Well Number 5 Location 30-18-38

OBSERVED DATA

Test Date: 2/15/57 and Time 3:11 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>12 1/2"</u>	<u>247</u>	<u>250 yd</u>	<u>0</u>	
INTERMEDIATE	<u>9 5/8"</u>	<u>2756</u>	<u>600 yd</u>	<u>75</u>	
PRODUCTION	<u>6 5/8"</u>	<u>4042</u>	<u>200 yd</u>	<u>410</u>	
TUBING	<u>6 1/2"</u>			<u>40</u>	<u>SI</u>

REMARKS: Flowing well - OK - No leak

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
 OIL CONSERVATION COMMISSION
 by _____
 Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Pacific Western - Tidewater
Lease Name H. D. McKinley Pool Hobbs
Well Number #5 Location NE 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time 10:30 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	12 1/4"	247'	250	0*	very sl. blow
INTERMEDIATE	9 5/8"	2756'	600	80*	BD 4 min - Good blow H. cap
PRODUCTION	6 5/8"	4047'	250	600*	
TUBING					

REMARKS: 9 5/8 x 6 5/8" maintained good flow of gas
after 4 min BD - observed blow for 4 min - steady

RETEST

Retest Date: August 7, 1956 and Time: 8:55 AM

Casing Annulus	Pressure	Remarks
12 1/4 x 9 5/8"	0*	
9 5/8 x 6 5/8"	70*	BD sweet gas (Boulders or Byers)

REMARKS: Test Surveys by S.T.S. the above heads
had no pressure

RECOMMENDATIONS: Gas pressure upon 9 5/8" x 6 5/8" represent
potential danger - regular observations should
be made of this condition

Witnessed
OIL CONSERVATION COMMISSION
by C. M. Kuchel
Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

(Date)

(Place)

Following is a report on the work done and the results obtained under the heading noted above at the

Pacific Western
(Company or Operator)

McC Kenley
(Lessee)

(Contractor)

Well No. *5*

in the

1/4

of Sec.

T. R. NMPM

Pool

County

The Dates of this work were as follows:

Notice of intention to do the work (was) (was not) submitted on Form C-102 on

(Cross out incorrect words)

and approval of the proposed plan (was) (was not) obtained

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

*Large
but
Oil
by 810*

Witnessed by

(Name)

(Company)

(Title)

Approved

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Name

Position

Representative

Address

(Title)

(Date)

OIL CONSERVATION COMMISSION
CASINGS - BRADENHEAD TEST

Operator Betty Od
 Lease Name M. C. Kinley Pool Bowers
 Well Number 6 Location 30-18-38

OBSERVED DATA

Test Date: 7/15/57 and Time 2:50 PM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE				0	
INTERMEDIATE				0	
PRODUCTION				0	
TUBING				press.	

REMARKS: Running
Repaired Sept. 1956 (Perf. to deep press
if surface not used)

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
 OIL CONSERVATION COMMISSION
 by _____
 Title _____

NEW MEXICO OIL CONSERVATION COMMISSION
CASING -- BRADENHEAD TEST

Operator Pacific Western - Tidewater
Lease Name H. D. McKinley Pool Bowers
Well Number #6 Location SW 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time 9:28 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>8 5/8"</u>	<u>1474'</u>	<u>400 SK</u>	<u>440*</u>	<u>BD - 30' in *</u>
INTERMEDIATE	<u>None</u>				
PRODUCTION	<u>5 1/2"</u>	<u>3160</u>	<u>700 SK</u>		
TUBING					

REMARKS: * flow muddy salt water - steady stream after 6 min

RETEST

Retest Date: August 7, 1956 and Time: 8:25 AM

Casing Annulus	Pressure	Remarks
<u>8 5/8" & 5 1/2"</u>	<u>440*</u>	

REMARKS: this does not appear to be casing leak but rather communication behind pipe and above cement. Last survey by SJS indicated no pressure on Bradenhead.

RECOMMENDATIONS: The gas pressure and salt water on the surface pipe presents a considerable danger. This condition must be eliminated as soon as possible

Witnessed
OIL CONSERVATION COMMISSION

by

C. M. Linder

Title

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, results of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

(Date)

(Place)

Following is a report on the work done and the results obtained under the heading noted above at the

Pacific Teleterm

(Company or Operator)

M. E. Kinkley

(Lease)

Well No. *6*in the *SW 1/4 NE 1/4* of Sec. *30*

(Contractor)

18 R. 38

NMPM

Pool

Count

The Dates of this work were as follows:

Notice of intention to do the work (was) (was not) submitted on Form C-102 on

(Cross out incorrect words)

and approval of the proposed plan (was) (was not) obtained.

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

*Bowers Well**Surf
oil 70*

Witnessed by

(Name)

(Company)

(Title)

Approved

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Name

Position

Representing

Address

(Title)

(Date)

NE MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Tideco
Lease Name M. Kinley Pool Bowers
Well Number 7 Location B 30-18-38

Test Date: 6/11/57 OBSERVED DATA and Time 11:00 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	8 3/4				Blows down immediately
INTERMEDIATE				10	
PRODUCTION	5 1/2				no change here
TUBING				25	25 p.s.i.

REMARKS: Pump - Down 3 hrs prior to test
no leak

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks

REMARKS: _____

RECOMMENDATIONS: _____

Witnessed
OIL CONSERVATION COMMISSION

by _____

Title _____

CASTING - BRADENHEAD TEST

Operator

Pool

Location

OBSERVED DATA

and Time

Size

Set at

Cemented

Pressure

Remarks

100

1952

425

630 #

Right

INTERMEDIATE

PRODUCTION

TUBING

REMARKS

REYES T.

Retest Date:

and Time:

Casing Annulus

Pressure

Remarks

REMARKS:

RECOMMENDATIONS:

Witnessed

OTOL CONSERVATION COMMISSION

b

Title

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. See additional instructions in the Rules and Regulations of the Commission.

Indicate Nature of Report by Checking Below

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

(Date)

(Place)

Following is a report on the work done and the results obtained under the heading noted above at the

Pacific Western Oil Corp M. E. Lindsey
(Company or Operator) (Lease)

(Contractor)

Well No. *7* in the *NW 1/4 NE 1/4* of Sec *30*

T. *18*, R. *38*, NMPM, Pool, County

The Dates of this work were as follows:

Notice of intention to do the work (was) (was not) submitted on Form C-102 on

(Cross out incorrect words)

and approval of the proposed plan (was) (was not) obtained.

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Surf > 0

Bowers oil =

[Signature]

Witnessed by (Name) (Company) (Title)

Approved: OIL CONSERVATION COMMISSION

(Name)

(Title)

(Date)

I hereby certify that the information given above is true and complete to the best of my knowledge.

Name

Position

Representing

Address

Casing Leak Survey
McKinley Lease
Hobbs Pool

Mr. R. H. Coe - Midland

Production Hobbs

Mr. H. E. Wendt - Midland

August 7, 1956

Mr. H. B. Berg - Tulsa

Mr. A. H. Mouser - Tulsa

Due to complaints of several land owners in the area of the McKinley Lease regarding the contamination of fresh water wells, the Oil Conservation Commission scheduled a casing leak survey for all wells within a one-half mile radius of the McKinley lease. Casing pressures on the McKinley lease were checked by Mr. Rieder, OCC Engineer, on August 6th. The pressures were bled off and read again on August 7th after 24 hours shut-in.

The McKinley #1 and #3 had no pressures on any outlet and were considered safe from causing contamination.

The McKinley #2 recorded no pressures between the 5" and 7" or 12 1/2" and 9 5/8", but had 200 psi between the 9 5/8" and 7". This pressure bled to a very slight continuous blow of gas. After a shut-in of 24 hours the pressure was again 200 psi. Shelly repaired a casing leak on this well in 1954 and supposedly circulated cement to the surface between the 9 5/8" and 7" casings. Evidently there is a channel of gas from the Yates formation. Mr. Rieder was not concerned for this well and does not feel it is causing contamination since there is no pressure build up between surface and intermediate.

From the Commission's last survey it was evident that there was a casing leak in McKinley #4. I told Mr. Rieder that we had authorization to repair this leak and work would commence in the very near future. He insisted that we take immediate action.

McKinley Wells #6 and #7, Powers sand producers, have 8 5/8" casing set at approximately 1500' and 5 1/2" casing set at approximately 3180'. The volume of cement used on the 5 1/2" casing strings was not sufficient to tie in the 8 5/8" strings. These wells recorded pressures between the 5 1/2" and 8 5/8" casings of 440 psi and 600 psi respectively. Both wells flowed salt water and sweet gas for approximately 10 minutes without weakening. The 24 hour build up pressures were 440 psi and 560 psi respectively. Mr. Rieder does not know at this time how these wells should be treated. In their present state they are not likely to be causing contamination, but if a leak occurred in the 8 5/8" casing, Mr. Rieder feels that damage could occur immediately. He feels that after the survey is complete the operators and Commission should have a meeting to discuss what, if any, action should be taken for these wells.

The McKinley #5 had no pressure between the 12 1/2" and 9 5/8" casings but had 80 psi between the 9 5/8" and 6 5/8" casings. In bleeding off there was a strong blow for four minutes and then a fair steady blow for ten minutes. The gas was definitely sweet and there is little doubt that its origin is the Yates or Seven-Rivers. Since there is surface casing and no build up between it and the 9 5/8" casing there does not appear to be any danger of contamination from this well. The build up between the 9 5/8" and 7" casings after a 24 hour shut-in was 20 psi. The well was bled again and after five minutes had a very slight blow of sweet gas.

Casting Leak Survey

Page #3

Should Mr. C. Marvin Neal receive a copy of this letter?

HPS
H. P. Shackelford

WEL:bh

GO-McKinley Lease

Mr. R. H. Coe - Midland

Producing Hobbs

Mr. H. E. Berg - Tulsa

August 6, 1956

I had a short talk with Mr. C. Melvin Neal
last week in regards to our trouble on the
GO-McKinley Lease.

Attached is a copy of a letter I received
from Mr. Neal.


H. P. Shackelford

HPS:hh

Enclosure

C. MELVIN NEAL
W. D. GIRAND, JR.
J. W. NEAL

NEAL & GIRAND
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONE:
EXPRESS 3-5171
P. O. BOX 278

August 3, 1956

Mr. H. P. Shackelford,
Tidewater Oil Company,
Hobbs, New Mexico.

Dear Sir:

We have given some consideration to the problem of underground water contamination in the area of the Getty lease about which we had a conversation a few days ago.

It is our opinion at this time that the company should sit tight and take no steps one way or the other in connection with this matter. I am advised that the Conservation Commission is going to make a braden head test of the adjoining wells and unless there is some sub-surface leaking from these wells, there would appear to be no corrective measures to be taken at this time.

Very truly yours,

NEAL & GIRAND,

BY: 

N/ls

COAS ENG - BRADENHEAD TEST

Well Number 21 Location Site 14 N 1/4 30 18

OBSERVED DATA

Test Date: August 6, 1956 and Time 9:00 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
---------------	------	--------	----------	----------	---------

SURFACE 12" 245 2023 1 1 1 1

INTERMEDIATE 4-8 2758

PRODUCTION 7 38 56 750

TUBING

REMARKS: Well was WO to repair lake 5 power in

RETEST

Retest Date: _____ and Time: _____

Casing Annulus	Pressure	Remarks
----------------	----------	---------

REMARKS:

RECOMMENDATIONS: *No means available to check the*

Witnessed
OIL CONSERVATION COMMISSION

by 10/11/11

Title _____

NEW MEXICO OIL CONSERVATION COMMISSION

CASING - BRADENHEAD TEST

Operator

Pacific Western - Tidewater

Lease Name

H. D. McKinley

Pool

Kebbs

Well Number

2

Location

SW 1/4 SE 1/4 NE 1/4 30 18 3B

OBSERVED DATA

Test Date:

August 6, 1956

and Time

Casing String

Size

Set at

Cemented

Pressure

Remarks

SURFACE

17 1/2"2512000#sl flow 4/5 sec

INTERMEDIATE

9 5/8"2165600700#BD 20 sec. Cont. lt. flow

PRODUCTION

7"385825070#BD 10 sec

TUBING

5"

REMARKS:

Well was WD to correct leaks - oylt flow continued on 9 5/8" x 7"

RETEST

Retest Date:

August 7, 1956

and Time:

8:45 AM

Casing Annulus

Pressure

Remarks

17 1/2 x 9 5/8"0#9 5/8 x 7"700#BD 7 sec. Cont. lt. flow7" x 5"40#BD 7 sec

REMARKS:

Last survey found 900# and O.S. flow on 9 5/8" well was WD to correct

RECOMMENDATIONS:

Study the workover procedure and check Bradenhead process at any early date

Witnessed:

OIL CONSERVATION COMMISSION

by

C. M. Lundy

Title

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Pacific Western Tidewater
Lease Name H. D. McKinley Pool Bowers
Well Number #3 Location SE 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>13"</u>	<u>270</u>	<u>?</u>	<u>0+</u>	
INTERMEDIATE	<u>9 5/8"</u>	<u>2755</u>	<u>600</u>	<u>0+</u>	
PRODUCTION	<u>7"</u>	<u>3150</u>	<u>100</u>		
TUBING					

REMARKS:

RETEST

Retest Date: and Time:

Casing Annulus	Pressure	Remarks

REMARKS: Last survey found no pressures

RECOMMENDATIONS: OK

Witnessed by C. M. Kuder
OIL CONSERVATION COMMISSION
Title

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Pacific Western Tidewater
Lease Name H. D. McKinley Pool Nobles
Well Number 4 Location N 1/4 NW 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	13 3/4"	245'	700	100*	has water
INTERMEDIATE	9 3/4"	2753'	600	375"	
PRODUCTION	7"	3098"	750		
TUBING					

REMARKS: This well has authorization for immediate
WO to repair leaks

RETEST

Retest Date: Previous Survey and Time: by SJS

Casing Annulus	Pressure	Remarks
13 3/4" x 9 5/8"	700*Ed	BD 5 min
9 5/8" x 7"	350*	BD made no chg on cas annulus

REMARKS: Leak indicated on last survey as above

RECOMMENDATIONS: Immediate WO or Plug

Witnessed
OIL CONSERVATION COMMISSION

by C. M. Leedy

Title

Operator The Geo. Western Ind. Water
 Lease Name H. D. McKinley Pool Hobbs
 Well Number #5 Location NE 1/4 NE 1/4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time 10:30 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>12 1/4</u>	<u>247'</u>	<u>250</u>	<u>0#</u>	<u>no sl blow</u>
INTERMEDIATE	<u>9 5/8</u>	<u>2756</u>	<u>600</u>	<u>80#</u>	<u>BD 4min - Good blow - Hereafter</u>
PRODUCTION	<u>6 5/8</u>	<u>4042'</u>	<u>250</u>	<u>600#</u>	
TUBING					

REMARKS: 9 5/8 x 6 5/8" maintained good flow of gas
after 4min BD - observed blow for 4min - steady

RETEST

Retest Date: August 7, 1956 and Time: 8:55 AM

Casing Annulus	Pressure	Remarks
<u>15 1/4 x 9 5/8</u>	<u>0#</u>	
<u>9 5/8 x 6 5/8</u>	<u>70#</u>	<u>B.D. sweet gas (Bowels or Byers)</u>

REMARKS: Last survey by S.T.S. the above heads
had no pressure

RECOMMENDATIONS: Gas Pressure upon 9 5/8" x 6 5/8" represent
potential danger - regular observations should
be made of this condition

Witnessed

OIL CONSERVATION COMMISSION

by

Title

Operator: Phillip Whitcomb, IndependentLease Name: N. D. McKenneyPool: BowersWell Number: #6Location: SW 1/4 NE 1/4 30 12 32

OBSERVED DATA

Test Date: August 6, 1956and Time: 9:18 AM

Casing String

Size

Set at

Cemented

Pressure

Remarks

SURFACE

2 1/2"1424'4000'440"SD-3000'

INTERMEDIATE

None

PRODUCTION

5 1/4"31607000'

TUBING

REMARKS: * flow muddy salt water - stdy 2" stream after 6 min

RETEST

Retest Date: August 7, 1956and Time: 8:25 AM

Casing Annulus

Pressure

Remarks

2 1/2" x 5 1/4"440"REMARKS: this does not appear to be casing leak but rather communication behind pipe and above cement. Last survey by SDS indicated no pressure on bradenhead.RECOMMENDATIONS: The ^{gas} pressure and salt water on the surface pipe presents a considerable danger. This condition must be eliminated as soon as possible

Witnessed

OIL CONSERVATION COMMISSION

by

Title

NEW MEXICO OIL CONSERVATION COMMISSION
CASING - BRADENHEAD TEST

Operator Frank Witter Tidewater
Lease Name N. D. M. Co. Pool Browers
Well Number #7 Location N. 4 N. 4 NE 4 30 18 38

OBSERVED DATA

Test Date: August 6, 1956 and Time 8:30 AM

Casing String	Size	Set at	Cemented	Pressure	Remarks
SURFACE	<u>8 5/8"</u>	<u>1503'</u>	<u>40-50'</u>	<u>600#</u>	<u>BD to 1" stream salt water</u>
INTERMEDIATE	<u>none</u>				
PRODUCTION	<u>5 1/2"</u>	<u>3175'</u>	<u>100-200'</u>		
TUBING					

REMARKS: 8 5/8 x 5 1/2" annulus BD to 1" stream of salt water - water
5 man / no sign of weakening - apparently due
to communication behind pipe rather than
a casing leak

RETEST

Retest Date: August 7, 1956 and Time: 8:05 AM

Casing Annulus	Pressure	Remarks
<u>8 5/8 x 5 1/2"</u>	<u>560"</u>	

REMARKS: Communication behind pipe
Test survey by SJS no pressure on surface
pipe

RECOMMENDATIONS: The gas pressure especially in the presence
of salt water provides a continual danger to
the water sands - corrective action must
be taken to eliminate this condition as
soon as possible

Witnessed
OIL CONSERVATION COMMISSION
by C. M. Keeler
Title _____

INTER-OFFICE CORRESPONDENCE

TIDE WATER ASSOCIATED OIL COMPANY

TIDAL PIPE LINE COMPANY

SUBJECT: Getty Oil Company's
McKinley Lease

Our File No.

Your File No.

TO: Mr. R. H. Coe - Midland

FROM: Production - Tulsa

COPIES: ✓ Mr. H. P. Shackelford

DATE: July 26, 1956

Please find attached a copy of a letter from Mr. Page regarding the situation on the subject lease with respect to rights of surface owners. Undoubtedly we will be faced with many problems as additional houses are built on this lease and, as Mr. Page suggests, we should keep very close check on the location of any future buildings as related to oil and gas lines.

As you have previously been informed, we have made arrangements with the law firm of Neal & Girard at Hobbs to represent us locally. If Mr. Shackelford has any problems that need "on the ground" attention, he is free to call this firm. We, of course, should be kept advised of any new developments.

I would suggest that a request for AFE be submitted covering the fencing of our wells and tank battery which we will pass on to the Getty Oil Company for their consideration.



H. E. Berg

HEB:hm
Attach.

Tulsa, Oklahoma
July 23, 1956

MR. H. E. BERG
TULSA

Re: GETTY OIL COMPANY McKINLEY LEASE
LEA COUNTY, NEW MEXICO

I have reviewed Mr. Shackelford's letter of July 17. The pollution claim of Mertaugh, now based on salt water pollution, is a fact question. If the pollution complained of occurred prior to the acquisition of title by Mertaugh, we could probably defend Mertaugh's claim, unless he took an assignment of the right of action of the prior owner. However, since Getty is apparently disposing of salt water in open pits Mertaugh could probably establish that additional pollution has occurred since he acquired title. I do not believe the claim can be defended on the failure of the surface owner to case his well.

The map shows that the two water wells adjacent to the tank battery are abandoned water wells. If these wells were abandoned by Getty they would revert to the surface owner, and consequently the surface owner would be entitled to dispose of the wells. I do not suggest that we should settle this claim for pollution, but I do believe that the oil companies have enjoyed freedom from claims in the past due principally to the worthless character of the surface, which is now becoming valuable for subdivision purposes. Operators can expect to be required to meet a higher standard of operation than was formerly necessary. I do not believe that the operators can establish prescriptive rights to pollute the surface or water reservoirs. On the facts, salt water from McKinley #5 well may not have been the basis of the pollution complained of. That will depend upon what kind of a case can be established by the claimant and what evidence Getty can obtain to rebut it.

As the lessee Getty has the right to use as much of the surface as is reasonably necessary for oil and gas exploration and development, but that right does not mean that Getty has the right to use earthen pits for salt water disposal if the result is pollution of fresh water reservoirs.

I concur with Mr. Shackelford's recommendation to fence well locations and tank battery locations with 6' of Cyclone

Mr. H. E. Berg - #2

fencing and two strands of barbed wire on top. Getty does not own the surface rights and cannot prevent the surface from being subdivided and used for home sites. The fact that this results in increased diligence on Getty's part to prevent damage or injury to surface occupants would not justify Getty's failure to conduct its lease operations in a prudent manner. Generally speaking, the lessee is not required to fence locations to prevent injury to livestock. However, pump jacks and tanks have been considered an attractive nuisance and can result in claims for personal injury to children. Here again, what measures Getty is required to take depends upon the facts of the particular case. From Mr. Shackelford's statement, it would not appear to me that the present fences would be considered adequate.

The surface owners have the right to construct new roads and make such use of the surface as they wish, so long as the oil and gas lessee is afforded the right to use as much of the surface as is reasonably necessary for the purposes of his lease. This does not mean the right to the use of the surface exclusively, nor to prevent inconvenience resulting from the surface owner's use. Getty cannot be denied the right to ingress and egress to the wells and battery, but it does not necessarily mean that Getty can require the maintenance of particular lease roads if reasonable access is provided.

From the map furnished, it does not appear that any improvements are constructed over oil or gas lines on this lease, and therefore there is no action to be taken on Getty's part at this time. However, the lease superintendent should retain a copy of this map and note all future surface locations which may be made over oil or gas lines, and promptly notify the surface owner not to construct any improvements over oil or gas lines. If in any case a surface owner proceeds contrary to such notice, the matter should be referred to us for further action.

Original Signed
HARRY D. PAGE

HDP:LB

HARRY D. PAGE

File attached.

Water Well - McKinley Lease

Mr. H.E. Berg - Tulsa

Producing

Hobbs

Mr. R. H. Coe

July 17, 1956

In my letter of July 12, 1956 I stated that Mr. Mertaugh told me that his water well was being damaged due to the intrusion of gas. The letter written by his attorney claims the water well is damaged due to salt water seepage from Getty Oil Company's - McKinley Well #5.

At the present time, the State Water Board has asked the Oil Conservation Commission to request all oil companies to start making plans for the disposal of salt water by injecting same in a formation below all known fresh water sands and to eliminate the use of open pits. Because the contamination of water wells by salt water intrusion will probably be grounds for a lot of law suits in the future, I think the attorney changed from gas to water.

A few years back one major company had a well in this area that flowed about 40 BOPH out the Bradenhead. Several water wells were contaminated with gas at that time. The casing on the well was repaired and no permanent damage was done to the adjacent water wells.

Most of the water wells on the Getty Oil Company's - McKinley lease, and there are several of them, were drilled to one or two of the top water sands (60' to 80' Deep). About 10' of casing were set in these wells. With this amount of casing in the well, I can see how they could be contaminated by any surface pits. In this case, I do not believe water well is contaminated with salt water from the No. 5 well on the McKinley lease nor the salt water pit, however, I cannot prove that it isn't.

I understand some acreage was sold adjacent to the tank battery location where Getty Oil Company has two water wells, with the understanding that one or both of the water wells went with the acreage.

I talked to Mr. Coe about getting samples from the water wells. He thought an attorney should be consulted and advise us whether or not we should get the samples.

I talked to Mr. Dunlavey, with Skelly, and he said that they had similiar troubles but never paid any damages. I think several people threatened to sue Skelly and he invited them to sue, but none of them accepted. Skelly has two of the best lawyers in Hobbs to handle their complaints.

I do not think the company should assume any liability in this matter. After talking to Mr. Dunlavey, it seems that most of the upper fresh water sands are known to be contaminated in this area. If the company paid for one water well, they would eventually have to settle with all water well owners in the immediate area.

The seven wells on this lease are fenced. Most of the well fences are 160' by 200'. Where a separator is at the well, the fenced area may be as much as 160' x 275'. The fence consists of three strands of barb wire. In the near future, all well locations and tank battery location should be fenced with 6' of Cyclone fencing, with 2 strands of barb wire on top. The cost of fencing the wells and tank battery location will be approximately \$13,000. This seems rather high, but it might be cheap if it prevented a child from being hurt.

They are cutting new roads, making passage over the old lease roads difficult to the wells and battery.

I think this is a serious matter and that an attorney should investigate and advise us as to our rights.

H. P. Shackelford
H. P. Shackelford

HPS:bh

File

INTER-OFFICE CORRESPONDENCE

TIDE WATER ASSOCIATED OIL COMPANY
TIDAL PIPE LINE COMPANYSUBJECT: Water Well - McKinley Lease

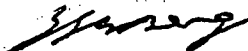
Our File No. _____

Your File No. _____

TO: Mr. H. P. Shackelford - HobbsFROM: Production - Tulsa
(Dep't.) (Location)COPIES: Mr. R. H. CoeDATE: July 13, 1956

This has reference to your memorandum of July 12, 1956, regarding the damage claim of Mr. Mertaugh's water well on the Getty Oil Company-McKinley lease. It is impossible for us to make any decision in this matter with what information we have available.

In your letter of June 25, to which you referred, the claim appeared to be that the well was being damaged due to the intrusion of gas. The present claim is for salt water seepage. Please advise whether or not you feel this seepage of salt water is caused from any of our producing wells or by possible seepage of surface salt water pits. If you feel, as indicated in your letter of June 25, that we are not at fault in this matter, we will, of course, deny all liability. However, if there is any possibility that the damage has been caused by our operations, we would, of course, like to make a settlement out of court.



H. E. Berg

HEB:hm

Water Well

Mr. H. E. Berg - Tulsa

Producing Hobbs

Mr. R. H. Coe - Midland

July 12, 1956

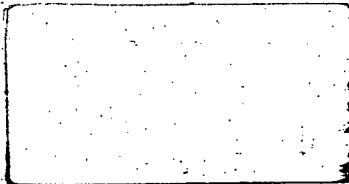
Mr. C. D. Gallamore - Tulsa

Attached is the letter received this date in regards to water well on the
H. D. McKinley Lease.

Please refer to my letter of June 25th addressed to Mr. Coe. I talked to
Mr. Coe and he advised me to send the letter on to you.

HPS:bb


H. P. Shackelford



Water Well

Mr. R. H. Coe

Producing Hobbs

Mr. H.E. Berg

June 25, 1956

Mr. C. D. Callamore

Mr. Jack Mertaugh, Hobbs, New Mexico, recently purchased a small tract of land on Getty Oil Company's - McKinley Lease. This tract of land has a water well, approximately 75' deep, with about 10' of 7" casing in the top, the remaining 65' being uncased. He states that the water produced from the well contains gas. He also said the well was about 2 years old and had always been that way.

He said that he talked to the District Attorney and he advised him to see the Oil Company. I know Mr. Mertaugh and he came by the house last week and talked to me about the well. I told him that the well was in bad shape when he bought the place, which he admitted. The hole was not cased and it has always been a bad well. I also told him that we had tested the surface casing on all the wells and the Commission had approved these tests. I also told him that we could not do anything for him because if we did, then we would be admitting that we were at fault, which we are not.

It seems that the shallow water sands in this area are gassy, however, the main water sand, around 100', is not gassy.

I thought this information should be passed on to you.


H. P. Shackelford

HPS:bh



July 11, 1956

Tidewater Oil Company
Hobbs, New Mexico

Gentlemen:

I represent Mr. Jack E. Mergaugh, who owns a small tract of land in the East Half of the Northeast Quarter of Section 30, Township 18 South, Range 38 East.

Mr. Mergaugh has a water well on his tract which has been ruined by a salt water seepage. Your company operates an oil well known as the H. D. McKinley Well No. 5, located approximately 300' East of my client's water well. It is our contention that salt water from this oil well is polluting the water sand.

We believe that for a nominal cost the water well could be cleaned out and cased and the salt water shut out of it.

Please advise whether or not your company is willing to take care of this matter without necessity of a lawsuit.

Very truly yours,

Kermit Nash

KN/c

File

INTER-OFFICE CORRESPONDENCE

TIDE WATER ASSOCIATED OIL COMPANY
TIDAL PIPE LINE COMPANY

Our File No. _____

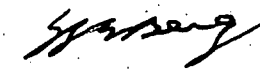
SUBJECT: Pacific Western - McKinley Lease

Your File No. _____

TO: Mr. H. P. Shackelford - HobbsFROM: Production - Tulsa
(Dep't.) (Location)COPIES: Mr. R. H. CoeDATE: January 24, 1956

From your memorandum of January 14, 1956, regarding the Pacific Western's McKinley No. 4, you apparently feel that some remedial work to repair the casing leak should be done in the not too distant future. I would suggest that you prepare an AFE to cover the job and we will pass it on to Pacific Western for their approval. It might be that they will want to wait but if the job has to be done it would seem we might as well get it over with before the condition gets any worse.

Since No. 7 is a Bowers sand well, I am wondering if you could anticipate sufficient production from the well to warrant a work-over job. If you can find from past history that the well is a fairly good producer and you feel the rework is justified, please submit a blue sheet and we will also pass it on to Pacific Western.



H. E. Berg

HEB:hm

Pacific Western Wells #4 & 7,
McKinley Lease

Mr. H.E. Berg - Tulsa

Production - Hobbs

Mr. R.H. Coe - Midland

January 14, 1956

The Pacific Western's, McKinley Well #4 was recently checked. Pressure between 12 $\frac{1}{2}$ " and 9-5/8" casing was 110#. Pressure between 9-5/8" casing and 7" casing was 690#. Casing pressure on the 7" casing was 690#. This indicated a definite leak in the 7" casing. I would say there is no leak in the 9-5/8" casing at the present time. I do not believe immediate remedial work is necessary, however, this condition should not be allowed to exist too long.

This well has a cellar approximately 18' deep. The cellar walls are in very poor condition, and should be repaired immediately. The cost of repairing the cellar would be around \$600.00.

Well No. 7 has stuck tubing. It is a Bowers well and is producing no oil at the present time. The tubing string has a joint of tubing, bull plugged, below the perforations. We believe sand has accumulated around the anchor and stuck the tubing. This condition should be remedied.


H.P. Shackelford

HPS/jc



INTER-OFFICE CORRESPONDENCE

TIDE WATER ASSOCIATED OIL COMPANY

TIDAL PIPE LINE COMPANY

Our File No.

SUBJECT: Pacific Western Well No. 4 McKinley

Your File No.

TO: Mr. R. H. Coe - Midland


FROM: Production - Tulsa

COPIES: ✓ Mr. H. P. Shackelford - Hobbs

DATE: December 28, 1955

Attached please find a copy of a letter from Mr. J. N. Dunlavy to Mr. J. S. Freeman of the Skelly Oil Company in which certain recommendations are made to repair apparent casing leaks in the subject well. You will recall this was discussed briefly with Mr. Dunlavy at our meeting in Hobbs.

I would suggest that Mr. Shackelford investigate the condition of this well as soon as possible after January 1st and if an immediate remedial job appears necessary, we should have your recommendations to cover.


H. E. BergHEB:hm
Attach.

C
O
P
Y

SKELLY OIL COMPANY
Box 38, Hobbs, New Mexico

December 8, 1955

Re: PW-McKinley Lease No. PW-458
Well No. 4

Mr. J. S. Freeman
Skelly Oil Company
Tulsa, Oklahoma

Dear Sir:

The above well was completed in August, 1930, at a TD of 4219' for an IP of 14,061 BOPD based on a one hour test of 595 bbls. oil flowing. The well is producing from the San Andres formation of the Hobbs Pool and is presently flowing top allowable of 40 bbls. oil and 5 bbls. water per day.

This well has been flowing for 25 years in a highly corrosive area in which several wells have recently reported casing leaks. Indications are now present that this well has now developed casing leaks. There is sour gas present between the 7" and 9 5/8" casing strings which indicates a leak in the 7" string. Between the 9 5/8" and the 12 1/2" surface casing, there can be detected sweet gas which would indicate possible leaks in the 9 5/8" string. There are also indications that water is coming up outside the 12 1/2" surface casing. Since this well is in an area which is being closely watched by the New Mexico Oil Conservation Commission for casing leaks and possible fresh water pollution, it is recommended that the well be repaired and brought up to Commission standards.

It is, therefore, recommended that the following work be done on this well:

1. Locate 7" casing leaks and repair by circulating cement behind the 7" casing.
2. Run a Spinner survey to locate the point of water entry.
3. Run a string of 5" OD casing to TD and circulate cement to the surface.
4. Run a Gamma Ray-Neutron log to TD.
5. Perforate and squeeze the water zone.
6. Perforate and treat the oil zones for production.

December 8, 1955

This type of recompletion has proven very successful on the PW-McKinley No. 1 and No. 2, in which similar situations were encountered. We expect this well to flow for many years and this job will not only bring the well up to Commission standards but will also put the well in a condition to operate safely over the rest of its expected producing life.

Yours very truly,

/s/ J. N. Dunlavey

J. N. Dunlavey

JND/JR/e

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Lease No. 632233-4

Unit

S. A. Bowers - Federal
a/s 1

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REPAIR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	

INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA

Hubbs, New Mexico September 2 1953

Well No. 2 is located 2335 ft. from S line and 2310 ft. from E line of sec. 30

1/4 of Sec. 30
(1/4 Sec. and Sec. No.)

13-3
(Twp.)

34-5
(Range)

11-1
(Meridian)

Hubbs

(Field)

Lea

(County or Subdivision)

New Mexico

(State or Territory)

The elevation of the derrick floor above sea level is ft.

DETAILS OF WORK

State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work

The purpose of this workover was to locate and eliminate the fluid flow into the cellar.

On August 2, 1953, temperature survey and delta log were run by the Worth Well Co. with temperature anomalies found at 12', 215', and 3676'. Halliburton pump truck rigged up and pressured up between tubing and 5-1/2 casing and between 5-1/2 and 7-inch casing with no signs of leaks. A pressure of 1300 psi between 7 and 9-5/8 inch casing blew the packing from the bradenhead between 7 and 9-5/8 inch casing. The cellar was dug to approximately 12 feet and fluid was found entering through an open 1/2 inch valve on the surface casing. The well was flowed to pits at the rate of 13 to 20 barrels per hour. A total of 2468 barrels of water was pumped through the casing into the formation with no increase in flow from surface casing and no water in the fluid coming from the surface casing.

(Continued)

Understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Humble Oil & Refining Company

Address Box 2347, Hubbs, N. M.

By

Title District Chief Clerk

September 7, 1953

Land Office _____

Mobile Oil & Refining Co.

Lease No. 012202-1

Details of Work (Continued)

B. A. Sowers - Federal A/C 1

1. P. (Bld) Subsurface workover rig was rigged up on August 6, 1953. After pulling the 2-inch tubing a 4-3/4 inch bit was run on the tubing, a Baker production packer was run from 3750 to 4030 feet, and the packer was drilled. A Baker GI retainer was run on P. G. A. wire line, set at 4000 feet, and casing perforated at 3776 feet with 4 jet shots. With a Baker P & T tool set on the tubing at 3815 feet, the perforations at 3776 feet were pumped into, initial pressure of 3000 pounds broke to 2100 pounds at rate of 1/4 barrel minute, with no effect on flow from surface casing. Worth Well Company Temperature Survey, Delta Log, and Potential Survey were run. Delta Log indicated gas movement at 3878 feet. A Baker bridging plug was set at 3795 feet, 5-1/2 inch casing perforated 3677-3678 feet with 4 Walax jet shots per foot, Baker P & T tool set on 2 inch tubing at 3610 feet, and 900 barrels of water was injected into the formation with no effect on production from surface casing. The perforations 3677-3678 feet were cased in three stages of 50, 100 and 100 sacks; 70 sacks of the last 100 were circulated out. The perforations at 3776 feet were squeezed with 40 sacks of cement, 37 sacks of which were reversed out. A Baker Model "B" production packer was set at 4000 feet on wire line and 4158 feet of 2 inch tubing was set at 4298 feet. One barrel of oil kicked the well off and the rig was released.

The flow gradually declined from day to day and on September 8, 1953 the amount produced from the surface casing was 29.71 barrels oil.

Total cumulative oil produced through surface casing through September 8, 1953 is 442.58 barrels oil.

COPY

HUMBLE OIL & REFINING COMPANY

HOUSTON 1, TEXAS

P. O. Box 1600

August 12, 1953

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier
Secretary & Director

Gentlemen:

On August 2, 1953, we discovered a leak in the cellar of Federal-Bowers "A" No. 2 located on our Federal Bowers lease in the Hobbs Field, Lea County, New Mexico. Flow into the cellar was estimated at one barrel per hour. The cellar was dug out and the annulus between 12-1/2-inch and 9-5/8-inch casing was found to be flowing oil through a 1/2-inch valve on the 12-1/2-inch bradenhead. Flow was estimated at 2.5 barrels per hour.

Federal Bowers A-2 was originally completed in September, 1930, in open hole from the 7-inch casing set at 3960 feet to 4213 feet. The well was re-entered in September, 1947, and holes were located in the 7-inch oil string at 490 and 375 feet. These holes were repaired by perforating the 7-inch oil string at 1500 feet and circulating cement to the surface between the 7-inch and 9-5/8-inch casing. The hole was deepened to 4238 feet and a string of 5-1/2-inch casing was run inside the 7-inch casing set on bottom and cemented with 30 sacks. The 5-1/2-inch casing was perforated from 4010 to 4205 feet. A Baker production packer was set at 3940 feet and the well returned to production. A well completion diagram is attached.

After the cellar was cleaned out, the 5-1/2-inch oil string was tested with 1000 pounds pressure and found to hold pressure satisfactorily. A similar test was also made on the annulus between the 5-1/2-inch and 7-inch casing. This annular space was tested with 1000 pounds and was found to hold pressure satisfactorily.

COP.

HUMBLE OIL & REFINING COMPANY

HOUSTON 1, TEXAS

- 2 -

On August 5, 1953, a total of 1685 barrels of water was pumped into the producing interval from 4010 to 4205 feet. Injection pressures ranged from 900 to 1600 pounds. The flow on the 1/2-inch valve on the 12-1/2-inch bradenhead had increased to 15.5 barrels of oil per hour. On August 6 after pumping an additional 455 barrels of water into the producing interval, the Baker production packer at 3940 feet was drilled out and a retainer set at 4000 feet. The 5-1/2-inch oil string was perforated at 3976 feet with four shots and a Baker P & T tool was set at 3916 feet. A total of 300 barrels of water was pumped through the perforations at 3976 feet in ten hours. The average injection pressure was 2100 pounds. A temperature survey, Delta log and potential survey were run. A bridge plug was set at 3795 feet and the 5-1/2-inch casing perforated from 3677 to 3678 feet with four shots. A total of 900 barrels of water was injected through perforations from 3677 to 3678 feet. Injection rates ranged from 16 to 60 barrels per hour and injection pressures from 2700 to 3800 pounds. As of August 8, 1953, the oil flow on the bradenhead had increased to 13.5 barrels per hour.

The results of these tests indicate that the oil flow on the 12-1/2-inch bradenhead of Humble Federal Bowers A-2 is not the direct result of a casing leak in Bowers A-2. Humble is now in the process of conducting temperature surveys in its other wells in the area in an effort to locate any possible casing leaks which might serve as a source for the oil flow noted in the bradenhead at Federal Bowers A-2. The characteristics of the oil being produced from the 12-1/2-inch bradenhead at Bowers A-2 indicate that the San Andres is the source of this oil. Humble has contacted offset operators and advised them of the situation at Bowers A-2.

We request that we be issued such tenders as are necessary, covering the oil produced from the bradenhead on this well during the period that it continues to flow; in the meanwhile, Humble will continue diligently its efforts to locate and control the source of the oil now being produced from the 12-1/2-inch bradenhead of the Federal Bowers A-2 well.

Yours very truly,

HUMBLE OIL & REFINING COMPANY

By

J. W. House

DES:WDM:ls

cc: Mr. A. L. Porter
P. O. Box 2045
Hobbs, New Mexico

Mr. R. S. Dewey-Bldg.
Mr. M. M. Rogers-Hobbs

Roswell, New Mexico
September 24, 1957

MEMORANDUM

TO: New Mexico Oil 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, Member, 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 companies 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
R. J. Francis
Joe Anderson

Continental Oil Company
Continental Oil Company
Continental Oil Company
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.

J. W. Brown
Acting Chairman

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 contamination in the Hobbs Pool area and make recommendations to the New Mexico Oil Conservation Commission, as to:

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

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

Pen 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 area, 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 sand 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 Ogallala 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 Ogallala 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 recharge 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 southeasterly 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:

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Gibbins	SW SE NE 4-19-38	Slight Taste Gas
Easton	SW SE NE 4-19-38	Slight Taste Gas
Gackle	SE SE NE 4-19-38	Strong Taste Gas
Security Supply	NW NE NE 5-19-38	Slight Taste Gas
Ohio Oil	SE SE SE 32-18-38	Strong Taste Gas
Baker Tool	SW SE SW 32-18-38	Slight Taste Gas
Harwell	NW NE NE 28-18-38	Strong Taste Gas
Dowell	NE NE NE 28-18-38	Will Burn
Humble Oil	SW NE SW 30-18-38	Moderate Taste Gas
Bensing	NE NW NE 30-18-38	Very Slight Taste Gas

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Amerada Pet.	C N/2 29-18-38	19.4 feet
Ellison L-2230 # 1	SW NE NE 30-18-38	6.3 feet
" # 2	SE NW NE 30-18-38	0.5 feet
" # 3	SE SW NE 30-18-38	0.5 feet
" # 4	SE SW NE 30-18-38	0.8 feet
" # 5	NE SW NE 30-18-38	0.6 feet
" #11	SE NW NE 30-18-38	Trace Oil
" #12	SE SW NE 30-18-38	2.4 feet
" #13	SE SW NE 30-18-38	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 surface and not from the fresh water aquifer.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Jackson	NE NW NW 20-18-38	Unknown
Phillips	NE NW NW 4-19-38	Unknown
Pacific Pump	NW NE NE 5-19-38	Trace

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.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
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 Eliminating 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.

(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 flushing 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 oil 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 contamination (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.

(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 sub-surface 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, and 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 area 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 contamination 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:

Oil 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 986 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 there 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.

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 anomalies 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) Electrical 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 overshoot 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. 2ANALYSIS OF 42 SELECTED WATER WELLS IN HOBBS POOL AREA

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

<u>Name and Source</u>	<u>Location</u>	<u>Date Obtained</u>	<u>Chloride mg/l</u>
BLACKBURN, Tap at well	SW SE SW 32-18-38	8-14-57	56
CONTINENTAL, Abd. Hole	NE SW 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 NE 5-19-38	8-14-57	96
OHIO OIL CO. NO. 2, Tap by Storage Tank	NW SE SE 32-18-38	8-14-57	48
YATES SHELL STATE, Abd. Well	NW SE SE 23-18-37	8-14-57	80
HOBBS IRON & METAL, Tap	NW SE NW 3-19-38	8-14-57	80
ROBERT OWINGS, Tap	NW NE NE 31-18-38	8-13-57	80
BRIANT, From well	NE SW NE 30-18-38	8-13-57	56
R. D. MOOR, Well	NE NE 30-18-38	8-13-57	72
RYBANT, Tap	NE NE NE 30-18-38	8-13-57	48
HOBBS GAS CO., Tap	NW NE NE 28-18-38	8-13-57	112
C. MYERS, Tap	SE SE NE 4-19-38	8-14-57	48
SIMON, Tap	SE SE SE 32-19-38	8-14-57	64
PHILLIPS NO. 3, Well Tap	NW NE NW 4-19-38	8-14-57	104
PHILLIPS NO. 2, Pump Tap	NW NE NW 4-19-38	8-14-57	88
BROWN WELL SERVICE, Tap	NE NW NE 5-19-18	8-14-57	112
Water from Phillips Gasoline Plant from ditch to W-most pond	NW SE NW 4-19-38	8-12-57	749
PHILLIPS NO. 6, Tap at Well	NW NE NW 4-19-38	8-13-57	327
HUMBLE OIL, Tap at Well	SW NE SE 30-18-38	8-13-57	72
JACKSON, Sample from earth ditch 10 yds. S. of pump	NE NW NW 20-19-38	8-13-57	494
STEELE, Tap sample	SE NE SW 4-19-38	8-12-57	96
CAZEE, Tap	SW NE NE 30-18-38	8-13-57	64
PACIFIC PUMPS, Tap Sample	NW NE NE 5-19-38	8-12-57	64
SECURITY, Tap Sample	NE NW NE 5-19-38	8-12-57	80
H. EASTON, Tap Sample (S.House)	SW SE NE 4-19-38	8-14-57	64
GIBBONS, Tap Sample (N.House)	SW SE NE 4-19-38	8-12-57	40
BAKER TOOL, Tap Sample	SE SE SW 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 NE 30-18-38	8-13-57	80
ROBERT BENSING, Tap Sample	NE NW NE 30-18-38	8-13-57	80
JESS HARVELL	NW NE NE 28-18-38	8-13-57	104
DOWELL, INC., Tap Sample	NE NE NE 28-18-38	8-13-57	56
MAYFIELD, Tap Sample	NE SE NE 30-18-38	8-13-57	72
GOINS, Tap Sample	SW NE NE 30-18-38	8-13-57	343
W. E. MOON, Tap Sample	NW NE NE 30-18-38	8-13-57	104
MERTAUGH, Tap at new well	NW NE NE 30-18-38	8-13-57	56
BLAKLEY, Tap	NE SE NE 30-18-38	8-13-57	80
L. DEVERS, Tap Sample	SW SE NE 30-18-38	8-13-57	64
P. L. RIEVE, Tap Sample	SW SE NE 30-18-38	8-13-57	104
COX, Well Sample	NE SE NE 30-18-38	8-13-57	48
*DOWELL, Gas in line and spurting as sample was taken	NE SE NE 30-18-38	8-22-57	80

*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.

EXHIBIT NO. 3

ANALYSIS OF SAMPLE
FROM ELLISON WELL
AUGUST, 1956

Air and Water	95.37%
Methane	2.30%
Ethane	0.15%
Propane	0.49%
CO ₂	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.

EXHIBIT NO. 4

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

NAME	LOCATION	DATE	Na	Ca	Mg	SO ₄	Cl	CO ₃	HCO ₃
Pan American	NE SW NW 33-18-38	9-1950	35	74	18	77	50	0	226
		7-1951	54	57	16	82	53	0	202
		7-1952	32	80	21	82	57	0	232
		8-1957	9	103	21	89	60	12	201
Pan American	SE NE SE 4-19-38	9-1950	51	133	25	56	181	0	256
		7-1951	45	128	29	53	195	0	256
		7-1952	56	137	27	30	227	0	268
		8-1953	32	139	25	72	163	0	262
		6-1956	63	80	12	63	78	0	256
		10-1950	67	89	18	109	82	0	262
Pan American	NW NE NE 9-19-38	7-1951	52	79	21	93	67	0	250
		7-1952	52	86	21	96	71	0	262
		8-1953	31	124	19	114	85	12	238
		8-1955	58	80	17	103	78	0	218
		5-1956	66	86	17	113	71	0	256
Humble									
Federal Bowers No. 3		7-1957		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	81	14	98	53	0	227
Gulf Oil Corp.									
West Grimes		9-1952	36	70	7	48	31	0	229
		7-1953	50	59	7	44	33	0	235
		7-1954	50	62	5	45	32	0	235
		7-1955	46	65	6	45	31	0	238
		7-1956	65	96	19	119	92	0	250
East Grimes		7-1953	78	93	12	130	82	0	244
		7-1954	60	92	12	102	74	0	244
		7-1955	53	94	14	99	74	0	244

EXHIBIT NO. 5

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 Agar Test, indicating they were free of fecal contamination.

They contained organic matter, 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.

EXHIBIT NO. 6

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
Orthophosphate = 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

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

Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>Tap or Discharge Pipe</u>	<u>From Thief or Trip Sampler</u> By		
NE SW 13-18-37	x		x	Abandoned	Sampled 8/14/57
NW SW SE 13-18-37	x	x		Stock	Windmill
NW SE SE 23-18-37	x		x	Abandoned	Sampled 8/14/57
SE SE SE 24-18-37		x		Domestic	Windmill
SW NE SE 17-18-38	?	?	?		Not checked
SE SE SW 18	?	?	?		Not checked
SW SW SW 19	x		x	Abandoned	
NE NW NW 20		x		Irrigation	Sampled 8/13/57
SE/4 21	?	?	?		Many wells. Not checked
NW NW 27	?	?	?	Standby	City Well #13
SW SW SE 27	?	?		Municipal	City Well
N/2 28	?	?	?		Many wells. Not checked.
NW SW NE 29	x		x	Abandoned	Contained oil 8/14/57
SW NE SE 29	x		x	Abandoned	N ^o most of two wells

Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>From</u>	<u>By</u>		
		<u>Tap or Discharge Pipe</u>	<u>Thief or Trip Sampler</u>		
SW NE NW 30	x	x		Domestic	
NE/4 30	x	x	x	Domestic, Irrig. Many Wells, Contaminated area.	
NE NE SW 30	x		x	Abandoned	
SW NE SW 30-18-38	x		x	Abandoned	
SE SE SW 30	x	x		Domestic	Windmill
SW NE SE 30	?	x		Domestic	Three wells present. sample from contaminated well.
NE NE SW 31	x		x		
SE SW SE 31	x	?			Not checked
NE NE NE 32	x		x	Abandoned	
NE SW NE 32	x		x	Abandoned	Plugged with timber
NE NE NE 32	x		x	Abandoned	Plugged with bull plug
S/2 32	?		?		Many wells. Not checked.
NE/4 33	?	?			Many wells. Not checked.
SW SE SW 33	x			Domestic	

Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>From</u>	<u>By</u> <u>Thief or Trip Sampler</u>		
NE SW SW 34	X		x	Domestic	
SW SW SW 34	x		x	Abandoned	
NW SE SW 34		x			
N/2 34	?	?			Many wells. Not checked
S/2 3-19-38	?	?			Many wells. Not checked
N/2 4	?	?			Many wells. Not checked
SW SW SW 4-19-38	x		x	Abandoned	
SE NE SE 4	?	x		Domestic	Sampled 8/12/57
N/2 5	X	X			Many wells. Not checked
NE NE SE 6	x		x	Abandoned	Timber plug
SW NE NE 6	?	x		Stock	Windmill
NE/4 9-19-38	?	?			4 wells here. None checked.
SW NE SE 10	?	x		Domestic	Windmill
SE SW SE 10	x		x	Abandoned	

Roswell, New Mexico
September 24, 1957

MEMORANDUM

TO: New Mexico Oil 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, Member, 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 companies 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	Continental Oil Company
E. V. Boynton	Continental Oil Company
R. J. Francis	Continental Oil Company
Joe Anderson	Continental Oil Company
Eric Engbrecht	New Mexico Oil Conservation Commission
J. W. Runyan	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.

J. W. Brown
Acting Chairman

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 contamination in the Hobbs Pool area and make recommendations to the New Mexico Oil Conservation Commission, as to:

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

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

Pen 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 area, 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 sand 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 Ogallala 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 Ogallala 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 recharge 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 southeasterly 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 effect 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:

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Gibbins	SW SE NE 4-19-38	Slight Taste Gas
Easton	SW SE NE 4-19-38	Slight Taste Gas
Gackle	SE SE NE 4-19-38	Strong Taste Gas
Security Supply	NW NE NE 5-19-38	Slight Taste Gas
Ohio Oil	SE SE SE 32-18-38	Strong Taste Gas
Baker Tool	SW SE SW 32-18-38	Slight Taste Gas
Harwell	NW NE NE 28-18-38	Strong Taste Gas
Dowell	NE NE NE 28-18-38	Will Burn
Humble Oil	SW NE SW 30-18-38	Moderate Taste Gas
Bensing	NE NW NE 30-18-38	Very Slight Taste Gas

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Amerada Pet.	C N/2 29-18-38	19.4 feet
Ellison L-2230 # 1	SW NE NE 30-18-38	6.3 feet
" # 2	SE NW NE 30-18-38	0.5 feet
" # 3	SE SW NE 30-18-38	0.5 feet
" # 4	SE SW NE 30-18-38	0.8 feet
" # 5	NE SW NE 30-18-38	0.6 feet
" #11	SE NW NE 30-18-38	Trace Oil
" #12	SE SW NE 30-18-38	2.4 feet
" #13	SE SW NE 30-18-38	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 surface and not from the fresh water aquifer.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
Jackson	NE NW NW 20-18-38	Unknown
Phillips	NE NW NW 4-19-38	Unknown
Pacific Pump	NW NE NE 5-19-38	Trace

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.

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

<u>Name</u>	<u>Location</u>	<u>Degree of Contamination</u>
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 Eliminating 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.

(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 flushing 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 oil 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 contamination (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.

(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 sub-surface 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, and 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 area 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 contamination 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:

Oil 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 there 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.

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 anomalies 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) Electrical 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.

<u>Name and Source</u>	<u>Location</u>	<u>Date Obtained</u>	<u>Chloride mg/l</u>
BLACKBURN, Tap at well	SW SE SW 32-18-38	8-14-57	56
CONTINENTAL, Abd. Hole	NE SW 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 NE 5-19-38	8-14-57	96
OHIO OIL CO. NO. 2, Tap by Storage Tank	NW SE SE 32-18-38	8-14-57	48
YATES SHELL STATE, Abd. Well	NW SE SE 23-18-37	8-14-57	80
HOBBS IRON & METAL, Tap	NW SE NW 3-19-38	8-14-57	80
ROBERT OWINGS, Tap	NW NE NE 31-18-38	8-13-57	80
BRIANT, From well	NE SW NE 30-18-38	8-13-57	56
R. D. MOOR, Well	NE NE 30-18-38	8-13-57	72
RYBANT, Tap	NE NE NE 30-18-38	8-13-57	48
HOBBS GAS CO., Tap	NW NE NE 28-18-38	8-13-57	112
C. MYERS, Tap	SE SE NE 4-19-38	8-14-57	48
SIMON, Tap	SE SE SE 32-19-38	8-14-57	64
PHILLIPS NO. 3, Well Tap	NW NE NW 4-19-38	8-14-57	104
PHILLIPS NO. 2, Pump Tap	NW NE NW 4-19-38	8-14-57	88
BROWN WELL SERVICE, Tap	NE NW NE 5-19-18	8-14-57	112
Water from Phillips Gasoline Plant from ditch to W-most pond	NW SE NW 4-19-38	8-12-57	749
PHILLIPS NO. 6, Tap at Well	NW NE NW 4-19-38	8-13-57	327
HUMBLE OIL, Tap at Well	SW NE SE 30-18-38	8-13-57	72
JACKSON, Sample from earth ditch 10 yds. S. of pump	NE NW NW 20-19-38	8-13-57	494
STEELE, Tap sample	SE NE SW 4-19-38	8-12-57	96
CAZEE, Tap	SW NE NE 30-18-38	8-13-57	64
PACIFIC PUMPS, Tap Sample	NW NE NE 5-19-38	8-12-57	64
SECURITY, Tap Sample	NE NW NE 5-19-38	8-12-57	80
H. EASTON, Tap Sample (S.House)	SW SE NE 4-19-38	8-14-57	64
GIBBONS, Tap Sample (N.House)	SW SE NE 4-19-38	8-12-57	40
BAKER TOOL, Tap Sample	SE SE SW 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 NE 30-18-38	8-13-57	80
ROBERT BENSING, Tap Sample	NE NW NE 30-18-38	8-13-57	80
JESS HARVELL	NW NE NE 28-18-38	8-13-57	104
DOWELL, INC., Tap Sample	NE NE NE 28-18-38	8-13-57	56
MAYFIELD, Tap Sample	NE SE NE 30-18-38	8-13-57	72
GOINS, Tap Sample	SW NE NE 30-18-38	8-13-57	343
W. E. MOON, Tap Sample	NW NE NE 30-18-38	8-13-57	104
MERTAUGH, Tap at new well	NW NE NE 30-18-38	8-13-57	56
BLAKLEY, Tap	NE SE NE 30-18-38	8-13-57	80
L. DEVERS, Tap Sample	SW SE NE 30-18-38	8-13-57	64
P. L. RIEVE, Tap Sample	SW SE NE 30-18-38	8-13-57	104
COX, Well Sample	NE SE NE 30-18-38	8-13-57	48
*DOWELL, Gas in line and spurting as sample was taken	NE SE NE 30-18-38	8-22-57	80

*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.

EXHIBIT NO. 3

ANALYSIS OF SAMPLE
FROM ELLISON WELL
AUGUST, 1956

Air and Water	95.37%
Methane	2.30%
Ethane	0.15%
Propane	0.49%
CO ₂	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.

EXHIBIT NO. 4

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

NAME	LOCATION	DATE	Na	Ca	Mg	SO ₄	Cl	CO ₃	HCO ₃	
Pan American	NE SW NW	33-18-38	9-1950	35	74	18	77	50	0	226
		7-1951	54	57	16	82	53	0	0	202
		7-1952	32	80	21	82	57	0	0	232
		8-1957	9	103	21	89	60	12	0	201
Pan American	SE NE SE	4-19-38	9-1950	51	123	25	56	181	0	256
		7-1951	45	128	29	53	195	0	0	256
		7-1952	56	137	27	30	227	0	0	268
		8-1953	32	139	25	72	163	0	0	262
		6-1956	63	80	12	63	78	0	0	256
Pan American	NW NE NE	9-19-38	10-1950	67	89	18	109	82	0	262
		7-1951	52	79	21	93	67	0	0	250
		7-1952	52	86	21	96	71	0	0	262
		8-1953	31	124	19	114	85	12	0	238
		8-1955	58	80	17	103	78	0	0	218
		5-1956	66	86	17	113	71	0	0	256
Humble										
Federal Bowers No. 3		7-1957		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	81	14	98	53	0	227
Gulf Oil Corp.										
West Grimes		9-1952	36	70	7	48	31	0	0	229
		7-1953	50	59	7	44	33	0	0	235
		7-1954	50	62	5	45	32	0	0	235
		7-1955	46	65	6	45	31	0	0	238
		7-1956	65	96	19	119	92	0	0	250
East Grimes		7-1953	78	93	12	130	82	0	0	244
		7-1954	60	92	12	102	74	0	0	244
		7-1955	53	94	14	99	74	0	0	244

EXHIBIT NO. 5

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 Agar Test, indicating they were free of fecal contamination. They contained organic matter, 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.

EXHIBIT NO. 6

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
Orthophosphate = 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

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

<u>Accessibility of Well</u>				
<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Remarks</u>
		<u>Tap or Discharge Pipe</u>	<u>From Thief or Trip Sampler</u>	
NE SW 13-18-37	x		x	Abandoned Sampled 8/14/57
NW SW SE 13-18-37	x	x		Stock Windmill
NW SE SE 23-18-37	x		x	Abandoned Sampled 8/14/57
SE SE SE 24-18-37		x		Domestic Windmill
SW NE SE 17-18-38	?	?	?	Not checked
SE SE SW 18	?	?	?	Not checked
SW SW SW 19	x		x	Abandoned
NE NW NW 20		x		Irrigation Sampled 8/13/57
SE/4 21	?	?	?	Many wells. Not checked
NW NW 27	?	?	?	Standby City Well #13
SW SW SE 27	?	?	?	Municipal City Well
N/2 28	?	?	?	Many wells. Not checked.
NW SW NE 29	x		x	Abandoned Contained oil 8/14/57
SW NE SE 29	x		x	Abandoned N' most of two wells

EXHIBIT NO. 7Accessibility of Well

<u>Well Location</u>	<u>For Measurement Of Water Level</u>	<u>For Collection of Water Sample</u>		<u>Present Use</u>	<u>Remarks</u>
		<u>Tap or Discharge Pipe</u>	<u>Thief or Trip Sampler</u>		
SW NE NW 30	x	x		Domestic	
NE/4 30	x	x	x	Domestic, Irrig. Many Wells, Contaminated area.	
NE NE SW 30	x		x	Abandoned	
SW NE SW 30-18-38	x		x	Abandoned	
SE SE SW 30	x	x		Domestic	Windmill
SW NE SE 30	?	x		Domestic	Three wells present. Sample from contaminated well.
NE NE SW 31	x		x		Not checked
SE SW SE 31	x	?			
NE NE NE 32	x		x	Abandoned	
NE SW NE 32	x		x	Abandoned	Plugged with timber
NE NE NE 32	x		x	Abandoned	Plugged with bull plug
S/2 32	?		?		Many wells. Not checked.
NE/4 33	?	?			Many wells. Not checked.
SW SE SW 33	x			Domestic	

EXHIBIT NO. 7

Accessibility of Well					
Well Location	For Measurement Of Water Level	For Collection of Water Sample		Present Use	Remarks
		From Tap or Discharge Pipe	By Thief or Trip Sampler		
NE 5/4 SW 34	X		X	Domestic	
SW 5/4 SW 34	X		X	Abandoned	
NW SE SW 34		X			
N/2 34	?	?			Many wells. Not checked
S/2 3-19-38	?	?			Many wells. Not checked
N/2 4	?	?			Many wells. Not checked
SW 5/4 SW 4-19-38	X		X	Abandoned	
SE NE SE 4	?	X		Domestic	Sampled 8/12/57
N/2 5	X	X			Many wells. Not checked
NE NE SE 6	X		X	Abandoned	Timber plug
SW NE NE 6	?	X		Stock	Windmill
NE/4 9-19-38	?	?			4 wells here. Hore checked.
SW NE SE 10	?	X		Domestic	Windmill
SE SW SE 10	X		X	Abandoned	