REPORT ON THE HUAPACHE MONOCLINE AREA

EDDY COUNTY, NEW MEXICO

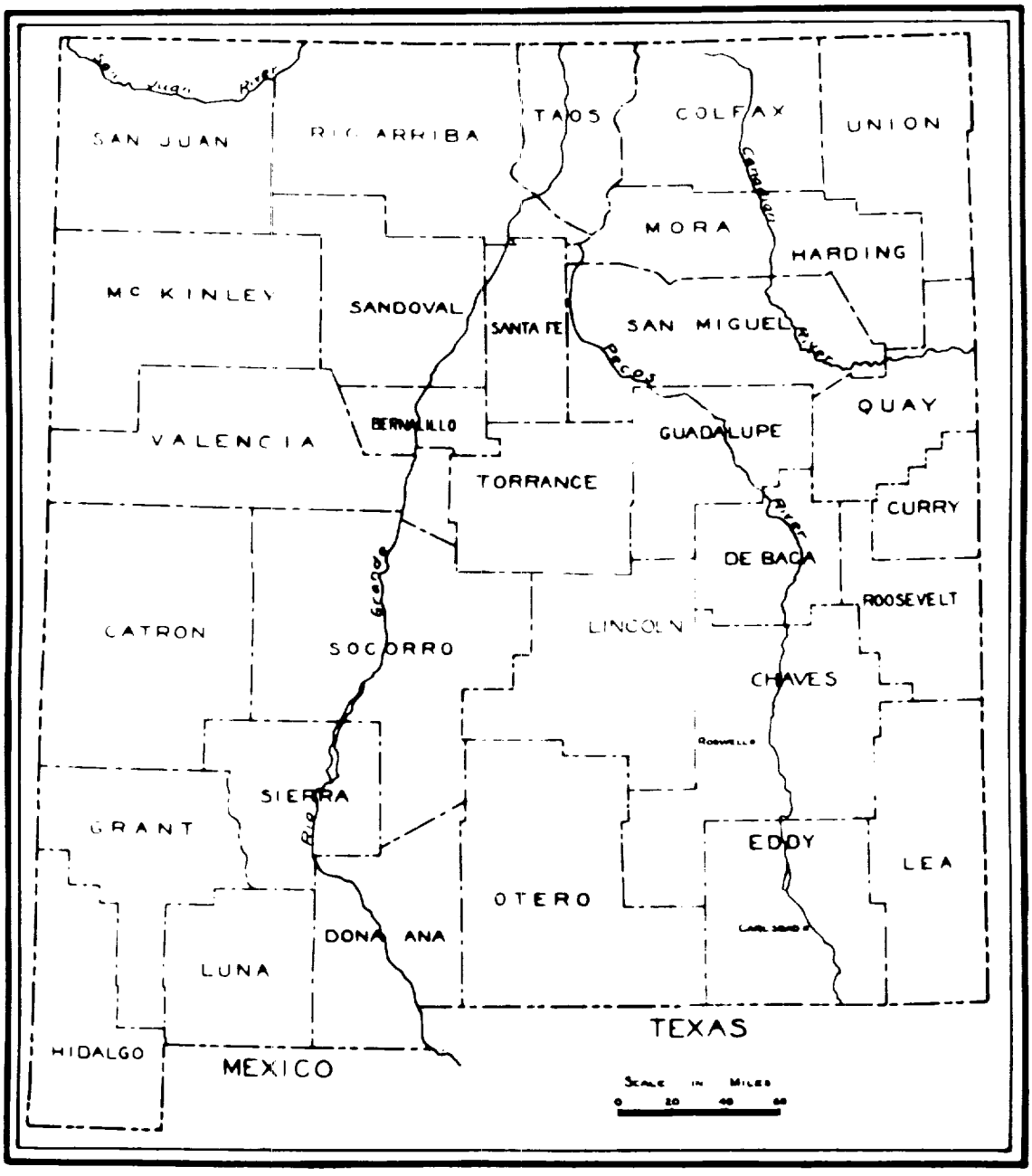


Figure 1 – Index Map of New Mexico

Showing the approximate location of the proposed Huapache Unit.

REPORT ON THE HUAPACHE MONOCLINE AREA

EDDY COUNTY, NEW MEXICO

INTRODUCTION

The Huapache Monocline is a major structural and physiographic feature located in central west Eddy County. The structure is approximately twenty miles long, with a northwest-southeast strike and dips 8 to 12% to the northeast. The "Monocline" appears to terminate to the southeast in the Capitan reef of the Carlsbad Caverns National Park in the south part of T. 24 S., R. 23 E. To the north this feature appears to die out in T. 21 S., R. 20 E. The approximate width of the dip surface is from one and one-half to two miles.

The Huapache Unit as defined by this structure is approximately five to six miles wide and about 14 miles long with the axis parallel to the "Monocline". It is bounded on the north end by the Continental Oil Company's "East Texas Hill" unit and on the south end by the Carlsbad Caverns National Park.

SUBSURFACE STRATIGRAPHY

The stratigraphy of the area of the Huapache Monocline can best be described as found in two wells, the Continental No. 1 Bass and the Magnolia No. 1 State "W". The No. 1 Bass is structurally located about one mile west and on the updip side of the "Monocline" in Sec. 5, T. 22 S., R. 21 E., while the Magnolia State "W" is located on the down-dip or basinward side of the "Monocline" in Sec. 16, T. 21 S., R. 22 E.

The No. 1 Bass from total depth at 5,889' to surface at 5,511' above sea level showed the following section:

Ellenburger - 799' thick (base not penetrated); cream, tan, and brown dolomite. Lower 150' shows some red dolomite. Upper 100' contains small amounts of chert. Crystallinity, fine to medium.

Montoya - 380' thick; cream, tan, and brown dolomite with traces of cream to tan limestone. Crystallinity, fine to medium.

Siluro-Devonian - 610' thick; white, cream, and tan dolomite; white and cream limestone; medium crystalline; limestone probably occurs as thin beds.

Mississippian - 10' Woodford gray-brown shale and 280' tan and brown limestone; upper 70' very siliceous or cherty. Crystallinity, very fine to dense.

Hueco - 80' tan and brown finely crystalline limestone and dolomite, shaley near base.

Abo - 870' thick; tan and brown dolomite with a few thin beds of green and gray shale.

Tubb - 520' thick; lower 300' tan to brown finely crystalline dolomite; upper 220' sandy with some massive sand beds near the top.

San Angelo - 1,155' thick; cream, tan, and brown finely crystalline dolomite; thin sand beds throughout section; thin beds of gypsum near top.

San Andres - 1,185' thick; cream and tan finely crystalline dolomite. Small amounts of chert are found in the dolomite, and thin beds of gypsum are found in the upper 300' of the dolomite. It is estimated that 200' of San Andres has been removed by erosion.

Magnolia No. 1 State "W" from a total depth of 11,313' to the surface at 4,464' showed the following section:

Pre-Cambrian - 75' of igneous rock believed to be pre-Cambrian.

Cambrian - 235' thick; 25' Bliss sandstone at base; 70' of sand and sandy dolomite above Bliss; 140' of cream tan and pink medium crystalline dolomite.

Ellenburger - 410' thick; cream and light tan fine to medium crystalline dolomite.

Montoya - 340' thick; cream tan and brown finely crystalline to finely granular limestone.

Siluro-Devonian - 580' thick; white to light cream crystalline to coarsely crystalline dolomite; thin chert beds in the upper 50'.

Mississippian - 425' thick; 270' of tan and brown cherty siliceous limestone; 155' of brown shaley lime interbedded with thin sand stringers.

Bend - 405' thick; predominantly sand with some thick gray shale beds near the base, and brown oolitic beds near the top.

Strawn - 670' thick; mostly tan and brown limestone, dense and shaley. Many thin sand and shale beds.

Canyon - 1,450' thick; tan and brown shaley limestone with thin beds of sand and shale beds in lower 1,000'. Upper 450' predominantly sand with thin shale and limestone beds.

Cisco - 880' thick; lower 300' sand with some shale. Upper 580' cream, tan, and brown dense limestone with thin sand and gray shale stringers.

Permian Wolfcamp - 840', tan and brown limestone and shale with small amounts of brown limestone near the top.

Abo - 1,200' thick; pale cream to tan finely crystalline to granular limestone.

Tubb - 630' thick; 500' of tan and brown crystalline and granular dolomite; and 130' of fine dolomitic sand near top.

San Angelo - 1,680' thick; cream and tan crystalline limestone with few scattered sand beds. Upper 300' sandy and anhydritic.

San Andres - 1,335' thick; cream and tan finely crystalline to dense dolomite; some beds cherty.

Whitehorse - 255' thick; cream finely crystalline dolomite with some sand beds.

The most important fact regarding the stratigraphy of the two example wells is that the Continental No. 1 Bass has no Pennsylvanian sediments while the Magnolia No. 1 State "W" has 3,405' of rocks identified as Pennsylvanian. It is also of interest that the Hueco in the Bass was only 80' thick and the Hueco in the State "W" was 840' thick. A total of 4,990 feet of sediments are missing in the Continental No. 1 Bass that are present in the Magnolia No. 1 State "W" in the geologic interval from the top of the Permian San Angelo to the top of the Mississippian.

SUBSURFACE STRUCTURE

The surface features of the "Monocline" were briefly described in the introduction. An attempt will be made to outline the subsurface possibilities or the probable structure at depth even though subsurface control is sparse.

It can be determined from subsurface data that the age of the predominant initial movement was late Mississippian or early Pennsylvanian. This is indicated by the absence of Pennsylvanian rocks in the Continental No. 1 Bass. The very thin section of Wolfcamp rocks indicates that the effect of orogeny was present in Wolfcamp time. The Permian sediments are thinner on top of the "Monocline" than on the Basin side. This could indicate some downwarping of the Basin in the middle and late Permian or might indicate draping with thicker and faster sedimentation on the Basin side.

The Permian age "Monocline" is believed to be the draping and downwarping of a pre-Permian (down to the basin normal) fault. This would be the most reasonable explanation of this tremendous feature.

ECONOMIC SIGNIFICANCE

The economic possibilities of the Huapache Monocline in relation to the accumulation of oil are many.

(1) The geologic section as found in the Huapache Monocline produces oil in the Permian Basin from many horizons; notably the San Andres, San Angelo, Tubb, Abo, Wolfcamp, Pennsylvanian, Siluro-Devonian, and Ellenburger.

(2) The reservoirs related to this type of structure can be many and varied.

(a) Stratigraphic traps in the pre-Pennsylvanian against a fault plane.

(b) Pinch out of sands or porous limes in the Pennsylvanian.

(c) Shoestring sands or off-shore bars (even Pennsylvanian beach dune sands might be productive).

(d) The possibility of barrier reefs lying off a Pennsylvanian shore line are very good.

(e) There is some possibility of small structural reversal causing reservoirs near the top of the "Monocline".

The above features relating to the "Monocline" can only be explored and developed by great cost and tremendous effort. This can be done by only one method, an approved Federal Unit.

PROPOSED DEVELOPMENT

If the Huapache Unit is approved, and unitization progresses to completion, Humble Oil & Refining Company will drill a test well to 11,000 feet or to granite and thoroughly test all oil and gas shows encountered. Tentatively, the location for this test has been selected to be near the southwest corner of Section 23, Township 23 South, Range 22 East. In the event the initial test is dry, Humble will continue with additional exploratory work, using information derived from the first well. This work will consist of further geological studies and/or geophysical surveying, and if the results of these studies indicate it is justified, an additional exploratory well or wells will be drilled.

Daugherty
Shoger
Traylor

Drawer 1857
Roswell, New Mexico 88201

July 29, 1968

749

Humble Oil & Refining Company
P. O. Box 1600
Midland, Texas 79701

Attention: Mr. John S. Cron

Gentlemen:

Termination of the Humpache unit agreement, Eddy County, New Mexico, was approved on July 29, 1968, effective as of July 23, 1966, pursuant to the last paragraph of Section 21 thereof.

Copies of the approval are being distributed to the appropriate Federal offices and one copy is returned herewith. You are requested to furnish notice of this approval to each party in interest.

Sincerely yours,

(ORIG. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil & Gas Supervisor

cc:
Washington (w/cy. appln.)
BLM - Santa Fe (w/cy. appln.)
Artesia (w/cy. appln.)
Mineral Classification

'68 JUL 31 AM 8

BJShoger:bm:7-29-68

Copy to N.M.O.C.C.
" " Comm. of Pub. Lands

NOTED
JUL 30 1968
STAUFFER

TO: DIRECTOR, UNITED STATES GEOLOGICAL SURVEY,
WASHINGTON, D. C.

FROM: HUMBLE OIL & REFINING COMPANY, EXPLORATION DEPARTMENT,
ROSWELL, NEW MEXICO

SUBJECT: REPORT ON THE GEOLOGY OF THE HUAPACHE MONOCLINE,
EDDY COUNTY, NEW MEXICO

PURPOSE: THIS REPORT IS SUBMITTED TO SHOW THE SURFACE AND POSTULATED SUBSURFACE GEOLOGY OF THE HUAPACHE MONOCLINE AND TO DEMONSTRATE THE NEED OF FORMING A FEDERAL EXPLORATION UNIT TO TEST THE AREA. IT IS BELIEVED THAT THE GEOLOGIC CONDITIONS ARE SUCH THAT THE ONLY REASONABLE METHOD OF EXPLORATION AND DEVELOPMENT IS BY MEANS OF AN APPROVED FEDERAL UNIT.

DATE: AUGUST 20, 1953

Copy

July 19, 1968

In re: Termination of Huapache Unit
No. 14-08-001-1668
Eddy County, New Mexico

Commissioner of Public Lands
State Land Office
P. O. Box 1148
Santa Fe, New Mexico

ATTENTION: Mr. Ray D. Graham
Assistant Director
Oil & Gas Department

Gentlemen:

We are enclosing herewith for your approval one executed copy and two Xerox copies of termination instrument covering the Huapache Unit, Eddy County, New Mexico.

Said instrument has been executed by the following:

Working Interest Owners	Approx. Acreage	Percentage of Unit
Humble Oil & Refining Company	37,923.01	85.08%
Union Oil Company of California	654.82	1.48
Pan American Petroleum Corporation	280.00	.64
Monsanto Company	120.00	.27
Beard Oil Company	43.36	.09
Delbasin Corporation	1,249.56	2.80
John H. Trigg Company	958.60	2.16
Clarence E. Manion	82.42	.18
Emmett D. White	40.00	.06
Arthur E. Spiegel	161.05	.37
F. C. Stromberg	40.00	.08
William B. Barnhill	28.20	.06
Lynn V. Waggoner	40.00	.08
Hoover H. Wright	40.00	.08
Total	41,661.08	93.45%
Unleased Acreage	2,396.51	5.36%

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

July 23, 1968

Humble Oil & Refining Company
P. O. Box 1600
Midland, Texas 79701

Attention: Mr. John S. Gron

Re: Huapache Unit
Termination
Eddy County, New Mexico

Gentlemen:

The New Mexico Oil Conservation Commission has this date approved the termination of the Huapache Unit, Eddy County, New Mexico, effective upon approval of the United States Geological Survey.

Please furnish the Oil Conservation Commission a copy of the fully executed Certificate of Approval.

Seven copies of the Certificate of Approval are being returned to the Commissioner of Public Lands.

Very truly yours,

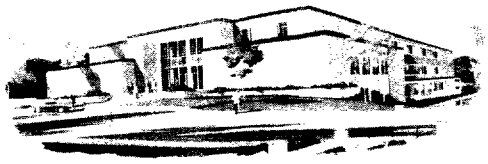
A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/esr

cc: Commissioner of Public Lands
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

State of New Mexico



Commissioner of Public Lands

GUYTON B. HAYS
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO

July 23, 1968

Humble Oil & Refining Company
P. O. Box 1600
Midland, Texas 79701

Re: Huapache Unit
TERMINATION
Eddy County, New Mexico

ATTENTION: Mr. John S. Cron

Gentlemen:

The Commissioner of Public Lands has received the ballots of approximately 75% per cent of the Working Interest Owners requesting the termination of the Huapache Unit, Eddy County, New Mexico as provided for under Section 21 of the Unit Agreement, and does hereby approve the termination effective as of the United States Geological Survey's approval.

Please furnish us the date of approval of termination by the United States Geological Survey.

We have this date acquired the Oil Conservation Commission approval and we are forwarding five (5) Certificates of Termination with the approval of the Commissioner and the Commission to the United States Geological Survey as stated in your letter. We have left the effective date blank on the Certificates and is to be filled in when the United States Geological Survey approves.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
Ted Bilberry, Director
Oil and Gas Department

GBH/TB/s
encls.
cc: USGS-Roswell, New Mexico
OCC- Santa Fe, New Mexico

In regard to the shut-in gas well being the Huapache Unit Well No. 10, a recent flow test performed by Coleman Engineering, Hobbs, New Mexico, on July 15 & 16, 1968, indicates tubing pressure drawn down measures (with dead weight tester) from 2948 psig to 678 psig during a 21 hrs. flow test at an average rate of 2,147 MCF/D and 87.5 BW/D. The associated bottom hole pressure drawn down was from 3717 to 1537 psig. This performance does not justify the installation of approximately 53,000 feet of gathering line or compression facility which would be required almost immediately to delivery into a 800 psi system. In view of this, the well is now considered as being non-commercial.

If you find the enclosed instrument in order, we would sincerely appreciate your securing the Commissioner's approval of same and then, to expedite matters and as a favor to us (as discussed with you in our recent telephone conversation), please secure the Conservation Commission's approval of the termination.

When approved, please forward five copies of your Certificate of Approval (or you may use the certificates attached to the termination instruments) to the United States Geological Survey. The executed copy and one Xerox copy are for the completion of your files and the other Xerox copy is for the Commission. With a copy of this letter to the United States Geological Survey, we are forwarding five executed copies of the termination instrument for their approval.

If at all possible, we would like for the termination to be effective in July, 1968. If agreeable with you, the Survey will use an effective date corresponding with the day such termination instrument is filed in their office; therefore, if you will omit the effective date from the certificate, the Unites States Geological Survey will insert same upon their approval and we will notify you accordingly.

If you should have any questions in regard to this matter, please let us know. Thank you very much for your cooperation in this matter.

Yours very truly,

HUMBLE OIL & REFINING COMPANY

John S. Cron

JSC:cpt
Encls.
REGISTERED MAIL

cc: Director, Oil Conservation Commission
P.O. Box 2088, Santa Fe, New Mexico 87501

United States Geological Survey w/ five excuted
copies of termination instrument
P. O. Drawer 1857, Roswell, New Mexico 88201
Attention: Mr. John Anderson
Regional Supervisor

EXHIBIT "C"

Second Geological Report on the
Huapache Area
Eddy County, New Mexico

Introduction and History

The Huapache Federal Exploratory Unit is located in southwestern Eddy County, New Mexico, and was approved April 1, 1954. Since approval, ten exploratory wells have been drilled within the unit with one well being drilled just outside the unit area. The latest well, the No. 10 Huapache, has resulted in a Pennsylvanian gas discovery from the Morrow formation.

The Huapache Unit No. 10 (located 1980' from the north and west lines, Section 10, T-23-S, R-22-E), drilled to a total depth of 10,150', in Mississippian shale. The well was completed as a gas discovery from a 12-foot Morrowan sand zone between 9932-42 feet and potentialed for 5.7 MMCF gas per day + 6 BW.

Exhibits accompanying this geologic report are:

(1) A structure map contoured on top of the producing Morrow sand (designated "Y" zone).

(2) A "Y" zone isolith map.

(3) An overlay of the "Y" zone porosity.

(4) A stratigraphic cross section showing "Y" zone relationship from the Indian Basin area to the Huapache area.

(5) A stratigraphic cross section of the Nos. 10 and 2 Huapache wells showing Wolfcampian zones that yielded gas on three DST's in the No. 10 well.

(6) A multi-point back pressure test for the No. 10 Huapache well.

(7) Form 9-330, a log of the No. 10 Huapache giving production and supplemental information such as DST's, etc.

(8) A gas analysis report.

Lithology of Pennsylvanian Morrowan Gas Zone

The Morrow sand pay ("Y" zone) has a thickness of from 10 to 50 feet (see cross section attached) and consists predominately of fine grained, tight quartzitic sandstone interbedded with gray-black silty shale and some silty limestone. This zone exhibits blanket characteristics over most of Eddy County. Porosity development, however, is confined to certain trends which indicate the lenticular nature of the sand. The No. 10 Huapache had a 12-foot porous section while the No. 2 well, located 2 1/4 miles southeast, had a 25-foot sand interval with zero feet of porosity. Porosity calculations for the pay zone are around 5-8%.

Structure in the Huapache Area

Out of the ten wells drilled in the unit, only two, the Nos. 10 and 2, have been drilled on the downthrown side of the Huapache fault. Our geologic interpretation, confirmed by the dipmeter, indicates that both wells are on a structural ridge that parallels the fault. The discovery well is 34 feet high structurally to the No. 2 well, 2 1/4 miles to the southeast. As can be seen from the sand isopach and porosity overlay, the productive limits of the reservoir seem to be confined to a local area, possibly over a small structure. This could account for the thinning in the "Y" zone that occurs between the two wells. It is believed that the zone that produces in our well is the same one that produces in the prolific Indian Basin field, ten miles northeast.

Other Significant Gas Shows

Aside from the Pennsylvanian gas, three zones in the Permian Wolfcamp were encountered which yielded fair amounts of gas on drillstem tests. These zones appear to be highly erratic and were difficult to correlate with the No. 2 well. The test results on these zones are:

DST #5 (10' sandstone stringer)	Gas to surface 5" FARO 1200 MCFGD SIP 3252-3048
DST #6 (12' porous ls)	Gas to surface 3" FARO 556.6 MCFGD SIP 3010-2862
DST #7 (10' porous ls)	Gas to surface 4" FARO 1000 MCFGD SIP 2835-1596

Because of the thinness of these zones and as there are no nearby gas wells producing from these intervals, the economic importance of these shows cannot be evaluated at this time.

Economics

Our No. 10 well was perforated (9932-42) after reaching a TD of 10,150' in the Mississippian shale. After an acid-frac treatment the well potentialed CAOF for 5.7 MMCFGPD + 6 BW. By using the highest porosity value arrived at from the sonic log (8%) and 12' of net pay (indicated by micro-log) 3.7 billion cubic feet of recoverable gas per 640 acres was calculated. At the rate of 15¢ per thousand cubic feet, one well on 640-acre spacing could gross $555,000. The cost of our initial well is approximately $270,000.

Conclusions

Humble Oil & Refining Company requests the approval of a one-section participating area as defined in Exhibit "A" for the following reasons:

(1) Present geological information covering the area does not definitely indicate the probable limits of the gas accumulation or productive area, but it is believed to be sufficient that the proposed one-section participating area is reasonably proven productive of gas in paying quantities and that the existing well will drain the proposed 640-acre area.

(2) As shown herein above, the calculated reserves constitute the existing well as a well capable of producing gas in paying quantities.

(3) There is at present no available market for gas. However, when a market is found and after the discovery well has a short production history, more reservoir data will be obtained which will enable us to give a more comprehensive evaluation for future development in the area.

It is our belief that the approval of said participating area will be in the interest of conservation and will lead to a scientific and orderly development of the producing area.

Respectfully submitted,

HUMBLE OIL & REFINING COMPANY

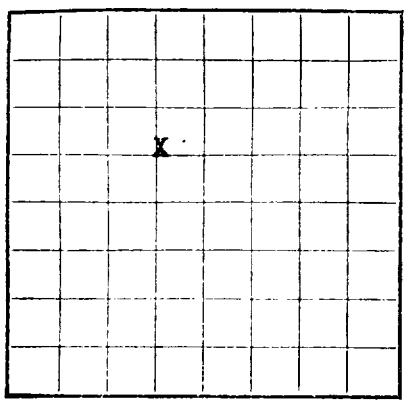
By: C L Robinson
C. L. Robinson

CLR/dlm

Form 9-330

Budget Bureau No. 42-R355.4.
Approval expires 12-31-60.

U. S. LAND OFFICE Las Cruces
SERIAL NUMBER 066097
LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company HUMBLE OIL & REFINING COMPANY Address Box 2347, Hobbs, New Mexico
Lessor or Tract Huapache Unit Field Huapache Area W/C State New Mexico
Well No. 10 Sec. 10 T. 23-S R. 22-E Meridian NMPM County Eddy
Location 1980 ft. [S.] of North Line and 1980 ft. [E.] of West Line of Section 10 Elevation 4528
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed ORIGINAL SIGNED ARVIN D. EADY

Date May 23, 1963 Title Agent

The summary on this page is for the condition of the well at above date.

Commenced drilling January 27, 19 63 Finished drilling April 21, 19 63

Distance from RDB to csghead Flange 18.00. Date Well Completed: 5-21-63
T.D. 10,150. PBD 10,110. Top of RDB 1.00.

OIL OR GAS SANDS OR ZONES
(Denote gas by G)

No. 1, from 9932 to 9942 No. 4, from — to —
No. 2, from — to — No. 5, from — to —
No. 3, from — to — No. 6, from — to —

IMPORTANT WATER SANDS

No. 1, from — to — No. 3, from — to —
No. 2, from — to — No. 4, from — to —

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
10-3/4	40.5	8rd	Unk	933	HOWCO	—	—	—	Surface
4-1/2	11.6	8rd	CFI	10,132	HOWCO	—	9932	9942	Oil String
2-3/8"	4.70	X line & 8rd	Unk	9,738	—	—	—	—	Tubing

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	~~Amount of mud used~~
10-3/4	954	700	Pumped	—	Top of cmt. by T.S. or calculated. Cmt. circulated.
4-1/2	10,150	700	Pumped	—	6,000 by temp. survey.

MARK

FOLD

PLUGS AND ADAPTERS

Heaving plug—Material — Length — Depth set —
Adapters—Material — Size —

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out
—	—					

TOOLS USED

Rotary tools were used from 0 feet to 10,150 feet, and from — feet to — feet
Cable tools were used from — feet to — feet, and from — feet to — feet

DATES

May 23, 19 63 Put to producing May 18, 19 63 Completed as a gas well shut in—no market.

The production for the first 24 hours was — barrels of fluid of which —% was oil; —% emulsion; —% water; and —% sediment. Gravity, °Bé. —

If gas well, cu. ft. per 24 hours Absolute open flow potential 5.7 MMCF/D Gallons gasoline per 1,000 cu. ft. of gas No condensate, 6 bbls. water.

Rock pressure, lbs. per sq. in. —

EMPLOYEES

Wayne Mize, Driller C. L. Hearington, Driller
James Biles, Driller —, Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
0	2200	2200	Lime
2200	2931	731	Dolomite and Sand
2931	3471	540	Lime
3471	3998	527	Lime and Chert
3998	4539	541	Lime
4539	5162	623	Lime and Shale
5162	5529	367	Lime
5529	5715	186	Lime and Sand
5715	5850	135	Dolomite
5850	8232	2382	Lime and Shale
8232	8446	214	Lime
8446	9565	1119	Lime and Shale
9565	10,150 T.D.	585	Lime, Shale and Sand

Formation Tops:

Cherry Canyon	595
Bone Spring	1178
Dean SS. equiv.	5429
Wolfcamp	5671
Penn. Cisco	7150
Canyon	7410
Strawn	8192
Bend	9206
Morrow	9572
Chester	10088

[OVER]

16—43064-4

SUPPLEMENTAL WELL INFORMATION

NAME OF WELL AND NUMBER Huapache Unit Well No. 10

POOL COMPLETED IN Morrow Sand.

PERFORATED INTERVAL 9932-9942; 1 shot per foot by McCullough.

STIMULATIONS: Acidized perforations 9932-9942 with 500 gallons of regular 15% N.E. acid with an average injection rate of 2 BPM. Acidized by Halliburton on 5-1-63. Frac perforations 9932-9942 with 10,000 gallons slick jelled 5% acid with friction reducing agent and 10,000# sand with an average injection rate of 9.1 BPM. Treatment by Western on 5-9-63.

POTENTIAL TEST

DATE	CHOKE SIZE	HOURS TESTED	BBLS/DAY FLUID	BBLS/DAY OIL	% OF BS&W	GAS MCF /DAY	Cond. GOR	TBG PR OR S P M	CSG PR OR L. STROKE	CORRECTED GRAVITY
5-4-63	Absolute	Open Flow Potential			-	2,500	None	-	-	-
5-18-63	Absolute	Open Flow Potential			-	5,700	None	-	-	-

*Shut in pressure did not reach static reservoir pressure.

DRILL STEM TESTS

NO.	RESERVOIR	INTERVAL TESTED FROM	INTERVAL TESTED TO	PRESSURES I. SI.	PRESSURES F. FLOW.	PRESSURES F. SI.	RECOVERY - FEET	RUN BY
1	Bone Spring	1602	1664	350	350	350	750' of fresh water	Johnston
2	Bone Spring	2040	2074	23	13	13	5' of drilling fluid	Cook
3	Bone Spring	2080	2200	*127	67	*95	5' of drilling mud	Johnston
4	Wolfcamp	6109	6150	91	39	75	15' of drilling fluid	Cook
5	Wolfcamp	6697	6710	3253	Unknown	3048	2' of distillate	Unknown
6	Wolfcamp	6785	6863	3029	111	2873	124' of heavy gas cut mud	Cook
7	Wolfcamp	6914	6970	2835	Unknown	1596	90' gas cut drilling mud	Johnston
8	Canyon ?	7770	7826	2941	492	2837	780' Sulphur wtr, 330' drlg mud	Cook

CORES: Core #1 from 6710 to 6761.

LOGS: Gamma Ray Sonic-Schlumberger-from surface to 10,150 on 4-22-63.
Dipmeter-Schlumberger-from 5700 to 10,150 on 4-22-63.
Dual Induction-Laterolog-Schlumberger-from 954 to 10,150 on 4-22-63.
Micro-Proximity with Caliper-Schlumberger-from 954 to 10,150 on 4-22-63.

UNSUCCESSFUL COMPLETION ATTEMPTS: FROM None TO None
(SEE DAILY DRILLERS REPORTS FOR SQUEEZES OR BRIDGES.)

DRILL STEM TESTS (CONTINUED)

9	Canyon	8012	8090	3008	618	2784	180' Drlg mud, 960' Sulphur wtr.	Cook
10	Strawn ?	8462	8520	253	Unknown	375	150' Slightly GC drlg mud	Unknown
11	Bend	9688	9732	*602	72	*1005	20' Slightly GC mud	Johnston
12	Morrow	9920	10,150	-	-	-	Packer failed	-
13	Morrow	9885	10,150	3799	1214	3749	390' heavy gas cut mud	Cook