

H. G. ADAMS RANCH PROSPECT

Meade County, Kansas

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H. G. ADAMS RANCH PROSPECT

Section 6-35S-29W, Meade County, Kansas - 1600 acres

POTENTIAL PAY ZONES

This prospect is based on structural closure and stratigraphic thinning over the prospect area. Multiple pay zone possibilities exist in the area. The primary zones of interest and their approximate depths are: St. Louis Limestone, 6400 feet; Marmaton Limestones, 5200 to 5400 feet; Lower Kansas City Group Limestones, 5050 feet; Upper Kansas City Group Limestones, 4800 feet; Upper Lansing Group Limestones, 4500 feet. All of these zones can reasonably be expected to be productive if a structural feature of sufficient magnitude is present under the proposed drill site location.

Other potential pay zones which are largely dependent upon stratigraphic conditions to be productive are: Basal Chester Sands and Sandy Limestones, 6150 feet; Upper Chester Limestones, 5900 feet; Upper and Lower Morrow Sandstones, 5780 and 5860 feet; Toronto Limestones and Sandstones, 4400 feet; and Council Grove Group Limestones and Dolomites, 2950 to 3200 feet.

The potential producing zone of greatest economic importance on this prospect is the Mississippian St. Louis Limestone "B" Zone. This is the primary producing zone in the Adams Ranch Mississippi Pool located in Sections 2 and 3, Twp. 35 South,

insert #1

Southwest
Rge. 30 West, 3 miles ~~west~~ of this prospect, and also in the Kismet Field located approximately ⁴~~3~~ miles northwest in Twp. 33 South, Rge. 31 West, Seward County, Kansas. St. Louis "A" and "C" Zones are also productive in these fields, and are potential on this prospect, but in general are not as consistent or persistent as is the "B" Zone.

The two oldest wells in the Adams Ranch Mississippi Pool, the Colorado Oil and Gas Corporation #1-A and #2-A Fox wells located SW NE and NE SE Sec. 3-35S-30W, sold 117,000 BO in approximately the first 18 months of production up to June, 1967. These two wells are presently selling approximately 170 BO per day. The Fox #1-A is limited in its physical producing capacity because of relatively small down hole pump equipment necessitated by this well being deepened to the St. Louis through 4 1/2 inch casing. This well was originally completed as a gas well from Morrow Sand and Toronto Limestone.

Insert #2
The Kismet Field has produced ^{over}~~approximately~~ 5,000,000 BO in ^{7 1/2}~~seven~~ years from roughly 48 wells. Probably 60 to 70% of this oil has been recovered from the St. Louis limestone from approximately 44 of the wells in the field. The remaining 30 to 40% of the above stated total has been recovered from various Toronto, Lansing, Kansas City, Morrow and Ste. Genevieve producing zones.

Approximately 37 of the Kismet Field wells were completed as dual or triple zone producers.

GEOLOGY

All St. Louis oil production developed in the general Southwest Kansas area is associated with structural closure as reflected by the Ste. Genevieve. The Ste. Genevieve is

mapped in this area because more wells penetrated this horizon than the deeper St. Louis. ~~Correlation of the St. Louis top from well to well also is much less reliable than correlations of the Ste. Genevieve.~~

Development of reservoir beds is also essential for the establishment of production from the St. Louis.

It will be noted that the structurally highest hole in the Adams Ranch Mississippi Pool, located NE SW Sec. 3-35S-30W, is a dry hole. This hole did not have reservoir conditions developed in the St. Louis.

Excellent reservoir conditions exist in the St. Louis in a belt extending diagonally northwest-southeast through the Kismet Field in Twp. 33S, Rge. 31W, across Twp. 34S, Rge. 30W, Twp. 35S, Rge. 29W and into Twp. 6N, Rge. 24ECM, Beaver County, Oklahoma. The approximate position of a portion of the west edge of this belt of good porosity is shown on the Ste. Genevieve map. The position of the east limit of this belt of porosity can not be established because of the lack of wells deep enough to have penetrated the St. Louis.

S.E. Kismet
The ~~H. G. Adams~~ prospect is located in this belt of good St. Louis porosity. The nearby holes which were deep enough to reach the St. Louis "B" Zone had good porosity developed which had shows of oil with water. These holes are in *SE NW* Sec. *21*

21 ~~35-34S-30W~~ *and NW NE* Section *20 - 34S-* ~~1 and 12-35S-30W.~~

The well in Section 36-34S-30W encountered the top of the St. Louis "B" Zone at 6410 feet and was drilled to a total depth of 6423 feet as shown by the Schlumberger log of the hole. Casing was set at 6400 feet and an open hole completion attempted

in the St. Louis. After drilling out to a total depth of 6428 feet, the well was acidized. On a bailing test, 18 gallons of oil per hour and 320 gallons of water per hour were recovered. Following this, the hole was drilled deeper to 6434 with an increase of water production. Not all of the "B" Zone was penetrated, but at least 24 feet of "B" Zone porosity is present at this location. Because of the development of good zone porosity at this location, immediately northwest of the prospect acreage, it is felt there is little doubt that good porosity is developed in the St. Louis under the proposed prospect.

Attention is called to the similarity of the isopach configuration in the area of this prospect to that of the Adams Ranch Mississippi Pool. This map reveals that at the end of the Morrowian time, the crest of the Ste. Genevieve structural feature was southeast of its present-day position. Subsequent southeast basinward subsidence has moved the crest of the Ste. Genevieve-St. Louis features northwest to its present position. The isopach thinning in the wells in Sec. 6, 7 and 8-35S-29W over the well in Sec. 36-34S-30W, gives credence to the structural contour interpretation showing structural reversal and closure southeast of the well in Sec. 36.

As shown by all of the accompanying maps, it is believed that a separating structural low exists between the well in the southeast corner of Sec. 36-34S-30W and the dry hole in NE NW Sec. 6-35S-29W. The position of the lowest closing contour or spill point of the St. Louis structural trap is believed to be approximately represented by the -3780 contour on the Ste. Genevieve map. Approximately 100 feet of structural relief

above this spill point elevation is anticipated at the proposed location in NE SE Sec. 6-35S-29W.

Because electric log correlations of the Chester and Ste. Genevieve intervals are quite difficult in this area, particularly by anyone not intimately familiar with the area, two cross sections are presented which show the stratigraphic relationships of the Ste. Genevieve, Chester and Morrow beds in the wells in the prospect area.

The first section is constructed using a Lower Chester Limestone as the reference datum. This section shows that a significant amount of stratigraphic thinning and structural/topographic relief existed on the Ste. Genevieve at the end of Lower Chester Limestone deposition. Thinning of the Basal Chester Varicolored Shale section immediately above the Ste. Genevieve/Chester unconformity is particularly noticeable.

Log No. 6 of the well in Sec. 21-6N-24ECM, Beaver County, Oklahoma has been included in the cross sections to show that this thinning in the Lower Chester interval is a local occurrence and not due to regional thinning.

The second cross section is constructed using the top of the Morrow Shale as the reference datum. Continued growth of the Ste. Genevieve/St. Louis structural feature is shown by this section.

It can be seen from the cross sections that the dry hole in Sec. 6-35S-29W did not reach the top of the Ste. Genevieve. Since the top of Basal Chester Varicolored Shale was penetrated and is recognizable at 6228 feet in this hole, the estimated position of the Ste. Genevieve top is believed to be quite reliable.

Presented herewith are contour maps depicting the structural attitude of two Marmaton Limestones:

The Novinger Reef Zone is in the middle of the Marmaton Group and where present is the third limestone body from the top of the group. Porosity development in this zone occurs as a reefoid body of clastic oolitic, oolitic and fossil-fragmental limestone.

Thirty-four wells completed from this zone in the Novinger Field, 8 miles north and 3 miles west of this prospect, have produced approximately 4,700,000 barrels of oil from this zone.

Five wells in Sections 24 and 25-34S-30W have produced approximately 275,000 barrels of oil from the Novinger Reef Zone to date.

Porosity thickness of the Novinger Zone is shown on the accompanying structure map. Rapid build of porosity in the zone will be noted in Section 25-34S-30W. Deposition of this reef-like body appears to occur over southeastward plunging structural/topographic noses. The increased zone thickness causes structural contours drawn to represent the attitude of the top of the zone to assume a northeast-southwest configuration which is at right angles to the usual trend of local structural features in this area. The development of porosity in the Novinger Zone in the holes in Sections 5, 6 and 7-35S-30W gives reason to believe that a significant buildup of the zone may be present at the proposed drillsite location. The lack of shows of oil in the three wells cited above is not particularly alarming. Shows of oil and a producible oil column are always limited to the crest of the reefoid body with a large portion of the reservoir being water bearing.

ductive in numerous wells throughout the Meade-Seward County area where porosity is developed in the zone on structural features. The wells in Sections 5 and 6-35S-29W each have 6 feet of porosity in this zone while the wells in Sections 6 and 7 have 16 and 15 feet respectively. If sufficient structural advantage is gained at the proposed location, this zone can reasonably be expected to produce.

The Toronto, approximately 100 feet above the top of the Lansing, the Dewey Lime at 4880 and the Hodges Lime at 5090 in the dry hole in Section 6 are also potential producing zones if sufficient structural closure is developed. No maps depicting the structure on these zones are presented, but the structure on these zones is quite similar to that on the Lansing and Marmaton beds.

RECOMMENDATIONS

It is proposed that a test well be drilled at ~~NE SE~~ ^{SW SW} Section ~~21-34S-30W~~ ^{21-34S-30W} 6-35S-29W to test the potential zones mentioned above. Depending upon surface elevation, the maximum required depth to test the St. Louis "C" Zone should be no more than ⁴⁵⁰⁰ ~~6500~~ feet.

To help evaluate all of the potential producing zones, a gas detecting unit should be in operation by approximately ²⁹⁰⁰ ~~2850~~ feet.

~~As an alternative to drilling a new hole or as a subsequent development well, the dry hole in NE NW section 6-35S-29W could be washed down and deepened with a small completion type rig. Because of the potential mechanical hazards involved in this, as well as eliminating all but the St. Louis as potential producing zones, this is not recommended for the first test well.~~

Although considerable savings could be made if the 5 1/2 inch casing, which was set at 5314 feet and later shot off at 4410 feet, could be re-entered and cleaned out, small 2 7/8 inch casing would be necessary to set through it for a completion in the St. Louis. This could possibly limit the well's ability to produce its allowable.

ALLOWABLES

Wells drilled on eighty acre spacing in Kansas are granted a daily basic allowable of 1 1/4 barrels per 100 feet of depth to the producing zone. A well producing from a depth of 6400 feet would thus have a basic allowable of 80 BOPD. A discovery bonus allowable of 1 1/2 times the basic allowable for 18 months or until the eleventh well is drilled would be granted for St. Louis wells on this prospect. In addition to the basic and bonus allowables, 80 acre spaced wells are presently being granted an additional 30 BOPD bonus. The full daily allowable would thus be 150 BOPD for St. Louis wells producing from 6400 feet.

RESERVES

In calculating reserves on this prospect, ²⁰ an average thickness of effective porosity of ~~20~~ feet has been used. ^{effected from the St. Louis B zone} This is ~~a very conservative estimate, as some wells in the area average almost twice that amount.~~ Recovery of 150 barrels of oil per acre foot has been used. This is based on other St. Louis producing wells in the area. Under this formula and spacing of 80 acres per well, the per well recovery should total ^{240,000} ~~216,000~~ barrels of oil.

GEORGE W. BREWER JR.

OIL PROPERTIES

INVESTMENTS

DRAWER 1177

LIBERAL, KANSAS 67901

H. G. ADAMS RANCH PROSPECT

Section 6 35S-29W, Meade County

ACREAGE

New two year commercial oil and gas leases are owned on the S/2 of Section 31, Twonship 34 South, Range 29 West; the NW/4 of Section 5, all of Section 6(except the S/2 NW/4), and the NE/4 of Section 7, Township 35 South, Range 29 West. The acreage in Section 31 and 5 is covered by a base lease and the acreage described in Sections 6 and 7 is on a second base lease. These leases total 1200 acres. The S/2 NW/4 of Section 6 is a Federal Lease which expires, if not producing, on June 1, 1968.

An optional acreage farmout has been negotiated with Phillips Petroleum Co., owner and operator of a Chester Gas Producing Unit covering S/2 of Section 5 and the N/2 of Section 8, Township 35 South, Range 29 West. Under this agreement, a 60 day option period following completion of the proposed well in Section 6 will be granted in which to commence operations for the drilling of a St. Louis test in SW SW Section 5 to earn the checkerboard spread of 80 acre tracts of leases shown on the accompanying map in the S/2 of Section 5 and the N/2 of Section 8. In the event of finding gas in the above location, Phillips will elect at casing point to join and pay their 50% of costs or will farmout their gas rights except on the producing zone in their well in Section 8.

DIVISION OF INTEREST

S/2 of Section 31-34S-29W; NW/4 of Section 5; E/2 & SW/4 & N/2 NW/4 of Section 6; the NE/4 of Section 7-35S-29W, Meade County, Kansas

Oil-Production

Royalty Interest	.1250000
ORR Interest	.0546875 - $\frac{1}{16}$ of $\frac{7}{8}$
Working Interest	.8203125
Total	1.0000000

Gas Production

Royalty Interest	.1250000
ORR Interest	.0625000 - $\frac{1}{16}$ of $\frac{7}{8}$
Working Interest	.8125000
Total	1.0000000

S/2NW/4 of Section 6 (Government Lease)

Oil and Gas Production

Royalty Interest	.1250000
ORR Interest	.0500000
Working Interest	.8250000
Total	1.0000000

Phillips Farmout Acreage:

W/2 SW/4 & W/2 SE/4 of Section 5; E/2 NW/4 & E/2 NE/4 of Section 8.

Oil Production

Royalty Interest	.1250000
ORR Interest	.0546875
Working Interest	.8203125
Total	1.0000000

Phillips Acreage as Gas Unit:

S/2 of Section 5; N/2 of Section 8.

Phillips Election to Join at 50%

Gas Production

Royalty Interest	.1250000
ORR Interest	.0312500 - $\frac{1}{16}$ of $\frac{8}{8}$ net.
Phillips W.I.	.4375000
Operators W.I.	.4062500
Total	1.0000000

Phillips Election to Farmout Their 50%

Gas Production

Royalty Interest	.1250000
Phillips ORR Interest	.0546875 - $\frac{1}{16}$ of $\frac{7}{8}$ net
Other ORR Interest	.0312500 - $\frac{1}{32}$ of $\frac{8}{8}$ net
Operators W.I.	.7890625
Total	1.0000000

NEW WELL COST

Drilling Costs

Location-damages-roads etc.	\$ 1,000.00
Drilling Rig @3.65	24,375.00
Day Work	2,000.00
Surface Casing & Cement	6,000.00
Mud and Oil	5,000.00
Logs	2,500.00
Drill Stem Tests	1,200.00
Blow Out Preventor	200.00
Water	1,000.00
Well Site Geology	<u>1,000.00</u>

Total Drilling Costs \$44,275.00

Completion Costs

Completion Rig	\$ 2,500.00
Casing:	
Production String 4 1/2"	9,000.00
Tubing 2 3/8"	4,200.00
Flow Lines	750.00
Cement & Cementing	700.00
Well Head	650.00
Perforating	600.00
Acidizing & Fracturing	3,500.00
Engineer	800.00
Tank Battery-heater-treater	4,560.00
*Pumping Equipment *(if necessary)	<u>6,500.00</u>

Total Completion Costs \$33,110.00

Total Cost \$77,385.00

WASHDOWN COST

Drilling Costs

Location- damages-roads etc.	\$ 1,000.00
Workover Rig	5,000.00
Mud	1,500.00
Logs	2,000.00
Power Swivel & other rental equip.	4,000.00
Engineering	800.00
Misc.	500.00
Total Drilling	<u>\$14,800.00</u>

Completion Costs

Completion Rig	\$ 2,000.00
Casing:	
Production string 2 7/8"	4,300.00
Tubing 1 1/2"	3,250.00
Flow Lines	750.00
Cement & Cementing	1,400.00
Well Head	650.00
Perforating	600.00
Acidizing & Fracturing	3,500.00
Tank Battery-heater-treater	4,560.00
Pumping Equipment(if necessary)	6,500.00
Total Completion	<u>\$27,510.00</u>
Total Cost	<u><u>\$42,310.00</u></u>

ECONOMICS

Gross Oil Sales (\$2.80 per bbl after trucking)
216,000 bbls.

Total Gross Income	\$604,800.00
Less Royalty & ORR	<u>-108,000.00</u>

Net to W.I. -before operating exp. \$496,800.00

Monthly Income (Based on discovery allowable & 80 acre space)
Oil Sales 4500 bbls @2.80

Gross Income	\$ 12,600.00
Less Royalty & ORR	<u>- 2,264.00</u>
	10,336.00
Less Operator Expense	<u>- 250.00</u>
Net Income	\$ 10,086.00

Cost on Successful Workover (as pumping well)
Land Acquisition Cost

	\$ 42,310.00
	<u>19,200.00</u>
Total Cost	\$ 61,510.00
Payout Period	- <u>6 Months</u>

Cost on Complete New Well (as pumping well)
Land Acquisition Cost

	\$ 77,385.00
	<u>19,200.00</u>
Total Cost	\$ 96,585.00
Payout Period	- <u>9 1/2 Months</u>

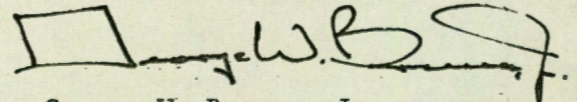
* Gas production has not been considered, however, if present, sells
at 17¢ per thousand cubic feet.

TERMS

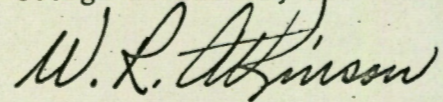
The oil and gas leases on the S/2 of Section 31, Township 34 South, Range 29 West; the Northwest 1/4 of Section 5, all of Section 6, and the Northeast 1/4 of Section 7, Township 35 South, Range 29 West, and totaling 1280 acres, are offered at \$15.00 per acre plus a 1/16th of 7/8ths override on oil and 1/16th of 8/8ths override on gas. The Federal Lease on the S/2 NW/4 of Section 6 carries a maximum overried of 5% on all production.

In the event the option to earn the Phillips acreage is exercised, a consideration of \$4,800.00, plus a 1/16th of 7/8ths override on oil and a 1/16th of 8/8ths override on gas will be due.

Complete title opinions and related work will be furnished at no additional cost to the operator. This prospect is, of course, subject to prior acceptance.



George W. Brewer, Jr.



W. R. Atkinson