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GEOLOGICAL WELL HISTORY

Hughes-Kelly Trust

No. 1 Vavroch

C SW/4NE/4 Section 34, T. 3 S, R. 28 W.
Decatur County, Kansas

RECEIVED
STATE CORPORATION COMMISSION

APR 14 1975

CONSERVATION DIVISION
Wichita, Kansas

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STATISTICAL INFORMATION

OPERATOR: Hughes-Kelly Trust

WELL NO.: No. 1 Vavroch

LOCATION: C SW/4NE/4 Section 34, T 3 S, R 28 W,
Decatur County, Kansas

FIELD: Wildcat

SPUD: September 6, 1974

CEASED DRILLING: September 18, 1974

STATUS: P & A on September 19, 1974

CASING: 8-5/8" at 200' w/175 sacks cement

DRILL STEM TESTS: No. 1: 3746 - 3812'
No. 2: 3708 - 3758' (corrected to Log Depth)
No. 3: 3770 - 3781' (packer failed)
No. 4: 4400 - 4424' (stradder test)

LOG PROGRAM: Run No. 1: 4064 - Surface; Great Guns R.A. Guard Log w/caliper
4064 - 3400'; Great Guns Sonic Log
Run No. 2: 4493 - 2380'; Great Guns R.A. Guard Log w/caliper

CONTRACTOR: Indigo Drilling Co., Oberlin, Kansas

TOOL PUSHER: Keith Gallatine

CORES: None

SAMPLES: Kansas Geological Society Log Library, Wichita, Kansas

DAILY DRILLING REPORT

9/6/74: RURT
9/7/74: WOC; Set 8-5/8" @ 200' w/175 sacks
9/8/74: Drilling @ 2069', Shale
9/9/74: Drilling @ 2645', Shale
9/10/74: Drilling @ 3040', Shale, mudded up at 2894'.
9/11/74: Drilling @ 3483', Sand and shale
9/12/74: P.T.D. 3812', Prep. to DST
9/13/74: Drilling @ 3930', lime and shale
9/14/74: P.T.D. 4064'; Ran logs
9/15/74: P.T.D. 4064'; Running DST; Geologist on location
9/16/74: Drilling @ 4250', lime and shale
9/17/74: Tripping @ 4399'
9/18/74: P.T.D. 4491': Prep. to DST; Ran Logs to T.D.
9/19/74: P & A

BIT RECORD

<u>Bit No.</u>	<u>Size</u>	<u>Make</u>	<u>Type</u>	<u>Depth Out</u>	<u>Feet</u>	<u>Hours</u>
1	12½	HTC	--	225'	--	3
2	7-7/8	HTC	OSC3-J	2087'	1862'	20½
3	7-7/8	HTC	OSC3-J	2616'	529'	26
4	7-7/8	HTC	J-22	3812'	1196'	103
5	7-7/8	HTC	OW4	4064'	252'	23
6	7-7/8	HTC	OW4	4399'	335'	37½
7	7-7/8	HTC	OW4	4491'	92'	9½

PLUGGING DATA

50-50 Posmix, 6% gel:

1. 70 sacks (110 ft.³) @ 1425'.
2. 20 sacks (30 ft.³) @ 245'.
3. 10 sacks (10+ ft.³) on top of sack of hulls @ 35' as per Mr. Bill Nichols.

FORMATION TOPS AND DATUMS

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>	<u>Structural Relationship to Halliburton No. 3 Vavroch SW/4SW/4, Section 33</u>
Cimmaron Anhydrite	2406'	+ 296	-30
Topeka	3594'	- 892	-42
Heebner	3710'	-1008	-42
Toronto	3741'	-1039	-43
Lansing-Kansas City	3754'	-1052	-38
Conglomerate	4136'	-1434	-34
Arbuckle	4254'	-1552	-25
Reagan	4400'	-1698	-126
Granite Wash	4420'	-1728	-134
Weathered Granite	4486'	-1784	N.A.
Granite (sample)	4492'	-1790	-150
T.D.	4493' Log - 4491' Driller		

DRILL STEM TESTS

(Geologist on location for DST No. 4 only)

DST No. 1: 3746 - 3812'; (Walker); Open 30", S.I. 30", Open 30", S.I. 30";
Recovered 510' slightly oil specked salt water.

F.P. 320 - 340#
S.I.P. 1440 - 1380#
(H.P. - not available)

DST No. 2: 3708 - 3758' (Walker), corrected to log depth. Open 30', S.I. 45",
Open 30", S.I. 45"; Recovered 1860' slightly gas cut muddy salt
water.

F.P. 600 - 870#
S.I.P. 1330 - 1350#
H.P. 200 - 1940#

DST No. 3: 3770 - 3781'; packer failed.

DST No. 4: 4400 - 4424' (Straddle Test, Halliburton); Open 30", S.I. 45";
Open 30", S.I. 45"; Recovered 2610' salt water, top six stands
mud-cut; no shows.

IHP 2502#
IFP 178 - 912#
ISIP 1420
FFP 912 - 1190#
FSIP 1280#
FHP 2475#

GEOLOGICAL SUMMARY

The Hughes-Kelly Trust No. 1 Vavroch was plugged and abandoned on September 19, 1974, as a dry hole. The well ran structurally low to producing wells and other dry holes approximately one mile southwest. The well bottomed in the Precambrian. (See Formation Tops and Datums, Page 3, for structural comparison).

Good oil shows were present in the "A" zone of the Lansing-Kansas City, but two drill stem tests of that zone each recovered salt water. It is felt that both tests covered the "A" zone porosity and that the water recovery was primarily from that zone. Poor reservoir was present in other sections of the test intervals and they probably gave up little fluid. A third DST in the "B" zone failed. Log analysis indicated poor reservoir.

The oil shows in the Lansing were quite "tarry" and are commonly found down-dip from producing areas. A minor oil show was present in the Toronto. Samples and log evaluation did not indicate that a test was warranted.

The well ran only 38' low to the Halliburton No. 3 Vavroch, on top of the Lansing-Kansas City, but on the top of the Granite Wash, the well was 134' low to the No. 3 Vavroch. This was due to thickening in the Arbuckle-Granite Wash interval. This interval in the No. 3 Vavroch well was 67' thick compared to 166' thick in the Hughes-Kelly Trust well. Thick Arbuckle sections are generally preserved in structurally low areas. Only fair porosity was present in the upper 30' of Arbuckle. Log calculations indicated 90-100% water saturation.

Approximately six feet of porous Reagan sand was present overlying the Granite Wash. This interval plus four feet of Granite Wash was tested recovering 2610 feet of salt water. No shows were noted in samples or on DST recovery.

Due to the low structural position, salt water recovery from zones containing oil shows, and high water saturations on log analyses, it was recommended that this well be plugged and abandoned.

SAMPLE DESCRIPTION

- 2270' Shale, red orange, silty, sandy, soft; some soft green shale; anhydrite and gray shale cavings; no shows.
- 2302' Mostly cavings; appears to be red orange shale, green shale, as above; some brown silty shale and red orange sandstone, fine grained, no shows.
- 2330' Cavings; black shale.
- 2360' Shale, red orange, green as above; some anhydrite inclusions in red shale; black shale cavings; no shows.
- 2370' Shale, red orange, sandy, silty, as above; many cavings.
- 2390' Same as 2370'; no shows.
- 2420' Same as 2370; no shows.
- 2450' Shale, brown, silty, w/thin green shale beds and green shale variegation; thin brown argillaceous limestone, hard, tite; no shows.
- 2500' Anhydrite; white, very finely crystalline, opaque to translucent, some with pale pink mottling; no shows.
- 2520' Anhydrite, as above.
- 2530' Anhydrite, as above; many cavings.
- 2607' Shale, green, some maroon; trace white sandstone, very fine grained, clay filled; predominantly cavings.
- 2616' Interbedded tan limey shale, thin glassy sandstone, pale green shale; free pyrite; thin brown argillaceous limestone; no shows.
- 2639' Predominantly cavings; considerable free pyrite, anhydrite; trace sandstone as above; no shows.
- 2670' Interbedded shale, red orange, anhydritic, and green, soft; some tan, limey shale w/carbonaceous inclusions; no shows.
- 2770' Appears to be red-orange shale, some green; much black and gray cavings; no shows.

30' Samples 2800 - 2980':

- 2800 - 2920' Interbedded red orange shale and siltstone w/tan and cream limestone, argillaceous, chalky, microcrystalline, no reservoir characteristics, no shows.
- 2920 - 2980' Unscreened samples; cavings.
- 2980 - 3100' No samples.

- 3100 - 3150' Unscreened samples, red siltstone, shale and sandstone; some tan limestone, no visible P & P, no shows.
- 3150 - 3180' Limestone, tan, microxln, some clear anhydrite inclusions, no visible P & P, no shows; some dirty gray mottled limestone.
- 3180 - 3210' Cavings, unscreened.
- 3210 - 3240' Limestone, as above; much mineral fluorescence; no shows.
- 3240 - 3280' No samples.
- 3280 - 3400' Limestone, tan, cream, sandy, poor P & P, microxlyn, tight, no shows; interbedded gray, black shale and dirty shaley limestone.
- 3400 - 3430' Limestone, as above; interbedded shale as above; some red orange shale (Cavings?).
- 3430 - 3507' No samples.
- 3507' Limestone, tan, cream, argillaceous to chalky; no shows.
- 3507 - 3539' As above; interbedded shale, varicolored.
- 3539 - 3570' Limestone, cream, very finely crystalline, microxly, sandy in part, argillaceous to chalky, trace pinpoint porosity in few pieces; no shows; scattered red orange shale stringers.
- 3570 - 3601' As above.
- 3601 - 3630' No samples.
- 3630 - 3660' Limestone, as above.
- 3660 - 3700' Limestone, cream, very finely crystalline, poor P & P, occasional anhydritic inclusions; no shows.
- 10' Samples at 3700':
- 3700 - 3710' Limestone, cream, as above.
- 3710 - 3730' Limestone, gray, brown gray, argillaceous; interbedded limestone, as above.
- 3730 - 3750' Limestone, cream, very finely crystalline, sandy in part, some poor to fair low perm porosity; no shows.
- 3750 - 3760' Limestone, as above; occasional fragment has black heavy free oil in pinpoint vugs, fracture surface; oil does not fluoresce but gives good streaming cut; shows are present in less than 1% of cuttings.
- 3760 - 3775' Limestone, as above; no shows.

5' Samples 3770 - 3810':

- 3775 - 3780' Limestone, cream, as above; poor to fair interxln and traces of pinpoint vuggy porosity; good black heavy oil show; appears to be somewhat "tarry" but gives excellent streaming cut and pale yellow fluorescence; does not stain well on drying.
- 3780 - 3785' Limestone, as above; only few pieces w/staining.
- 3785 - 3795' Limestone, cream, hard, dense; trace heavy oil stain. (may be cavings)
- 3795 - 3800' Limestone, light gray, hard, dense, some interbedded gray shale, limey.
- 3800 - 3812' Limestone, cream, hard, dense.
- 3812' Circ. spls: Limestone, as above; couple pieces w/trace black oil (cavings?).
- 3812 - 3830' Poor samples after DST.
- 3830 - 3840' Limestone, white, chalky to dense, hard.
- 3840 - 3850' Mostly red brown shale; trace dolomite, medium brown, very finely sucrosic, no visible P & P, no show; trace limestone, cream, shite, slight show of oil in one piece.
- 3850 - 3870' Limestone, cream, white, hard, dense; tract spotty stain, no visible P & P.
- 3870 - 3880' No sample.
- 3880 - 3890' Poor sample - appears to be mostly cavings.
- 3890 - 3920' Limestone, cream, white, hard, dense; trace oolitic cream limestone; no shows; interbedded red brown shale.
- 3920 - 3950' Interbedded limestone & shale, as above.
- 3950 - 3990' Shale, red brown, brown, some gray, ochre variegation.
- 3990 - 4030' Shale, as above.
- 4030 - 4040' Limestone, cream, anhydritic, hard, dense; shale, as above.
Ran logs at 4045' Driller, 4064' Log. Drilled deeper; Made 19' down hole correction on geolograph.
- 4064 - 4100' Shale, red brown, gray-maroon, green variegation.
- 4100 - 4150' Shale, as above; few thin cream dense limestone beds.
- 4150 - 4160' Shale, brick red-red brown, thin beds of variegated gray and maroon.

- 4160' Shale, as above; trace loose coarse sand, clear, quartzose, subangular-subround; no shows.
- 4170 - 4180' Conglomeratic sand, medium-coarse, sub-angular-round; no shows; interbedded thin red brown shale.
- 4180 - 4190' Shale, as above; interbedded loose conglomeratic sand as above.
- 4190 - 4200' Conglomeratic sand, as above.
- 4200 - 4210' Shale and conglomeratic sand, as above.
- 4210 - 4250' Conglomeratic sand, some shale, as above, possible some interbedded soft green shale (cavings?).
- 4250 - 4260' Some white dolomitic sand, very fine grained, well sorted, well cemented, no shows.
- 4260 - 4300' Dolomitic, cream, sucrosic, fair porosity, appears to be low perm.
- 4300 - 4310' Predominantly shale, red brown; some dolomite as above and some pale maroon w/dark maroon flecks; trace white glassy sandstone, no shows.
- 4310 - 4320' Dolomite, cream, white, pale maroon mottling, very finely sucrosic, fair porosity; no shows.
- 4320 - 4340' Dolomite, as above, increased maroon mottling and speckling; limestone, white, very finely crystalline, poor P & P, occasional speck of glaucomite; no shows.
- 4340 - 4360' Limestone and dolomite, white, cream, many fragments glaucomitic, poor to fair P & P, very finely sucrosic; occasionally sandy; interbedded maroon speckled dolomite, glaucomitic; no shows.
- 4360 - 4390' Limestone, as above; increased white, cream, glaucomitic limestone and dolomite, poor perm, fair porosity, becomes sandy dolomite and limestone toward base; no shows.
- 4390 - 4400' Dolomitic sandstone, white, very fine-fine grained, sub-angular, well cemented, glaucomitic, poor P & P, no shows.
- 4400 - 4410' Sandstone, white, very fine grained, well sorted, glassy, clean friable, porous, no shows; drilling break @ 4403 - 4408', 3 - 5 mpf. Trace angular, subround loose quartz fragments, clear; some pieces with minute black specks (possible dead oil or gilsonite) no fluorescence or cut.
- 4410 - 4420' Sandstone, as above; much coarse angular quartz; probably quartz pebble conglomerate; trace orange feldspar and quartz (granite wash); no shows.

- 4420 - 4470' Granite wash; orange feldspar and quartz grains,
coarse, angular, some clear quartz; no shows.
- 4470 - 4490' Granite wash, as above; trace biotite, weathered granite,
- 4491' Mostly granite wash and weathered granite; few pieces of
granite, many flakes of fresh biotite.

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