

WHITEHALL EXPLORATION ASSOCIATES

87 De France Way
Golden, Colorado 80401
(303) 279-6894

Computer Inventoryed

GEOLOGICAL REPORT

**DCF Exploration
Long Ranch No. A-1
C-NW-NW-NE
Section 14 - Township 2 South, Range 27 West
DeCatur County, Kansas**

June 12, 1987

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GENERAL INFORMATION

Elevation: G.L. 2638' K.B. 2643
(All measurements are from K.B.)

Contractor: Murfin Drilling Company
Rig No. 2

Surface Casing: 7 jts. of 8 5/8" set @ 292'

Total Depth: R.T.D. 3930' L.T.D. 3929'

Drilling Time: 3200' to 3930'

Samples Saved: 3200' to 3930'

Samples Examined: 3200' to 3930'

DST Company: Formation Testing Services, Inc.

Number of Tests: 4 tests

Mud Company - Mud Type: Morgan Mud Company - Drispac

Electric Log Company: Great Guns - RA Guard Log

Samples: Mailed to Kansas Geological Society

Well Status: Dry and Abandoned

Date Spudded: Saturday, June 6, 1987 - MIRT, RU,
Spud 5:00 p.m., drill 292', set 7
jts. of 8 5/8" surface casing @ 292',
WOC.
Sunday, June 7, 1987 - T.D. 292',
(12:00 a.m.), drill out surface
casing 3:02 a.m., drill to 2337',
bit trip @ 2337'.
Monday, June 8, 1987 - T.D. 2339'
(12:00 a.m.), mud up @ 3200', drill
to 3305'.
Tuesday, June 9, 1987 - T.D. 3305',
(12:00 a.m.), drill to 3520'-CFS,
short trip 21 stands, Run DST #1
3505'-3520'; drill to 3549'-CFS,
drill to 3561'-CFS, trip in with DST
#2 3527'-3561'.
Wednesday, June 10, 1987 - T.D.
3561', (12:00 a.m.), finish DST #2;
drill to 3603'-CFS, run DST #3 3565'-
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Thursday, June 11, 1987 - T.D. 3682',
(12:00 a.m.), drill to 3930'-RTD, run
Great Guns RA Guard Log, run DST #4,
Straddle Test.

Date Completed:

Friday, June 12, 1987 - T.D. 3930'
RTD, finish DST #4, plug hole as D&A.

REFERENCE WELL

A. Stoepplewerth Drilling

#1 Shirley
C-SW-SW
Section 12 - Township 2 South, Range 27 West
DeCatur County, Kansas
K.B. 2639'

B. F & M Oil Company

#1 "A" Long
C-SW-NW
Section 14 - Township 2 South, Range 27 West
DeCatur County, Kansas
K.B. 2614'

FORMATION TOPS

<u>Formation</u>	<u>Sample Tops</u>	<u>Electric Log Tops</u>	<u>Datum (Log)</u>	<u>Reference Well</u>		<u>Test Well Difference To Reference Well</u>	
				<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>
Anhydrite	2166	2164	+479	+497	+473	-18	+6
B/Anhydrite	2199	2196	+447	--	+440	--	+7
Topeka	3348	3346	-703	--	-718	--	+15
Oread	3452	3451	-808	-793	-820	-15	+12
Heebner	3472	3467	-829	-809	-838	-20	+9
Toronto	3503	3498	-855	-841	-867	-14	+12
Lansing "A"	3515	3511	-868	-852	-880	-16	+12
Lansing "B"	--	3527	-884	--	-900	--	+16
Lansing "C"	--	3537	-894	-878	-908	-16	+14
Lansing "D"	--	3548	-905	-889	-922	-16	+17
Lansing "E"	--	3562	-919	-903	-934	-16	+15
Lansing "G"	--	3578	-935	-924	-954	-11	+19
KS City "H"	--	3607	-964	-951	-988	-13	+24
KS City "J"	--	3651	-1008	-993	-1025	-15	+17
Stark Shale	--	3658	-1015	-1002	-1033	-13	+18
KS City "K"	--	3671	-1028	-1017	-1044	-11	+16
KS City "L"	--	3698	-1055	-1040	-1070	-15	--
B/Kansas City	3709	3707	-1064	-1051	1080	-13	+16
Arbuckle	3869	3872	-1229	missing	-1231	--	+2

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DRILL STEM TESTS

DST #1

Open Hole Test
Lansing "A"
3505'-3520'
15-30-15-15
Initial Open: Weak surface blow - died in 15"
Final Open: No return blow
Fluid Recovery: Total - 1 foot
1 foot mud - no show
IHP 1749 P.S.I.
IFP 40-49 P.S.I.
ISIP 97 P.S.I.
FFP 49-49 P.S.I.
FSIP 58 P.S.I.
FHP 1709 P.S.I.
Temperature 104 F

DST #2

Open Hole Test
Lansing "C-D"
3527'-3561'
15-30-60-75
Initial Open: Weak blow with slight build to 3/4"
Final Open: Weak blow with slight build to 1 1/2"
Fluid Recovery: Total 115 feet
50' thin mud with scum of oil
65' muddy water with few spots of oil
IHP 1759 P.S.I.
IFP 49-58 P.S.I.
ISIP 1150 P.S.I.
FFP 68-78 P.S.I.
FSIP 1150 P.S.I.
FHP 1749 P.S.I.
Temperature 105 F
Chlorides: Mud - 1750 P.P.M.
Fluid Recovery - 34,000 P.P.M.

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DST #3

Open Hole Test
Lansing "E-G"
3565'-3603'
15-30-15-15
Initial Open: Weak surface blow, died in 10 minutes
Final Open: No return blow
Fluid Recovery: Total - 1 foot
1 foot mud, no show
IHP 1874 P.S.I.
IFP 48-48 P.S.I.
ISIP 58 P.S.I.
FFP 48-48 P.S.I.
FSIP 48 P.S.I.
FHP 1844 P.S.I.
Temperature: 106° F

DST #4

Straddle Test
Toronto Limestone
3475'-3520'
15-30-15
Initial Open: Weak 1/2" blow increasing to 3/4"
Fluid Recovery: Total - 15 feet
15' mud, no show
IHP 1835 P.S.I.
IFP 87-87 P.S.I.
ISIP 1058 P.S.I.
FFP 97-97 P.S.I.
FSIP ---
FHP 1805 P.S.I.
Temperature: 110° F

DIRECTIONAL SURVEYS

292'	3/4°
2337'	3/4°
3520'	1°

ZONES OF INTEREST

<u>Log Depth</u>	<u>Formation</u>	<u>Lithology, Description, Comments</u>
3460'-3465'	Oread	Limestone, light grey, fine crystalline, dense, ropy , black stain (30%), fauna show oil

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excellent yellow fluorescence, excellent streaming cut, no odor. Limestone, buff, fine crystalline, brown stain (20%), fair show free oil, excellent yellow fluorescence, fair-excellent streaming cut, no odor, microfossils, poor pin point porosity, tight. Great Guns calculates a 10.5-13% porosity and 50-64% water saturation over this zone.

3498'-3502' Toronto
3511'-3515' Lansing "A"

Limestone, off-white, buff, fine crystalline, grainstone, good show free oil, good odor, excellent yellow fluorescence, excellent streaming cut, free brown oil, vuggy, fair-good vuggy porosity, good intercrystalline porosity. Limestone, off-white, very fine crystalline, dense, 30% brown-black stain, good show free oil, good odor, oolitic, vuggy, fair inter-oolitic porosity. (These oil shows may have come from the Toronto Limestone as well as the Lansing "A" Zone). DST #1 covered this zone and recovered 1 foot mud. Great Guns Electric Log calculates: Toronto: 14% porosity and 28% water saturation (RW = .06)
Lansing "A": 13% porosity and 30% water saturation (RW = .06)

3536'-3540' Lansing "C"

Limestone, off-white, oolitic, fine crystalline, excellent even stain (60-90%), excellent show free oil, bleeding black oil, excellent interoolitic porosity. Limestone, off-white, mostly fine crystalline, partly oolitic, excellent even stain (95%), excellent show free oil, excellent fluorescence and streaming cut, slightly chalky, minor glauconite, excellent odor, fair intercrystalline and slightly vuggy porosity. Great Guns calculates 11% porosity and water saturation of 33%. DST #2 covered

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this interval along with the Lansing "D" zone.

3552'-3556' Lansing "D"

Limestone, light grey-green, very fine crystalline, good black stain (0-30%), good show free oil, no fluorescence, excellent streaming cut, poor-fair intercrystalline porosity. This interval is included in DST #2. Great Guns calculates a porosity of 9.5% and a water saturation of 36%.

3562'-3569' Lansing "E"

Limestone, tan, semi-pelletal, mottled, mostly even stain (80%), slight odor, fair-good show free oil, fair fluorescence, fair-good cut, poor pin point porosity. Limestone, off-white, slightly cherty, very heavy, tarry oil show, tight, vuggy, no visual porosity. Limestone, off-white, fine-medium crystalline, slightly chalky, even stain (80-100%), good show free oil, fair fluorescence, good streaming cut. This interval is covered in DST #3. Electric logs show this zone to be tight.

3578'-3592' Lansing "G"

Limestone, buff, fine crystalline, slightly oolitic, uneven stain (35%), some vuggy, excellent free oil shows, high gravity oil, good fluorescence and streaming cuts, good intercrystalline and inter-oolitic porosity. Limestone, light-medium grey, semi-pelletal, some cuttings light green with spotty uneven stain, no show free oil, fair intercrystalline porosity. DST #3 covered this interval. Electric logs show this zone to be tight and/or shaley.

3607'-3618' Kansas City "H"

Limestone, light medium grey, fine crystalline, mostly even stain, fair show free oil, no fluorescence, no odor, fair cut, fair vuggy and intercrystalline

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porosity. Limestone, buff, very fine crystalline, spotty stain (15%), dense, fair show free oil, cherty, no visual porosity. Electric log shows this zone to be shaley. The top two feet of the "H" zone calculates 12% porosity and 40% water saturation.

3651'-3655' Kansas City "J"

Limestone, light green, medium crystalline, nodular, mostly even brown stain in matrix, fair-good show free oil, poor fluorescence, good cut, no odor, fair-good intercrystalline porosity. Electric logs show this zone to be tight.

3671'-3682' Kansas City "K"

Limestone, fine crystalline, light grey, spotty brown-black stain, fair show free oil, goo fluorescence, good cut, fair streaming cut, slightly chalky, fair intercrystalline porosity. Limestone, light green-grey, fine crystalline, dense, slightly peletal, uneven stain (20%), fair show free oil, fair fluorescence, good streaming cut, fair pin point porosity. Gamma Ray curve shows this zone to be shaley and wet.

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SUMMARY

The Long Ranch No. A-1 test well encountered favorable structural gain in relation to Reference Well - B, however, quality reservoir development was lacking throughout the Lansing/Kansas City Formation.

The test well ran 11-20 feet low structurally throughout the well to Reference Well - A and ran 2-24 feet high throughout the well to Reference Well - B. The test well was 16 feet low to Reference Well - A and 12 feet high to Reference Well - B on the Lansing. However, the test well thinned (1347) to both Reference Well A and B (1349 and 1353 respectively) between the Anhydrite and Lansing.

The test well encountered many free oil shows in the samples including every zone in the Lansing ("A" through "G"), and in the Kansas City "H", "J" and "K". Only the Kansas City "L" zone lacked an oil show. Free oil shows were also found in the Oread, and possibly the Toronto where some of the Lansing "A" zone samples may have been Toronto. Although many zones encountered oil shows, permeability was lacking in all of them.

Of the zones that warranted a drill stem test, all tested tight with a lack of reservoir quality permeability.

Electric logs indicated good porosity development in the Toronto, Lansing "A", "C" and "D" zones, however, the drill stem test results condemned the zones as commercial producers of hydrocarbons.

The Arbuckle Formation held no potential as no oil shows or reservoir quality rock were encountered. The Reagan Sandstone was not penetrated.

Due to the poor fluid recoveries, and pressures resulting from the four drill stem tests, it was recommended that the Long Ranch No. A-1 test well be plugged and abandoned as a thoroughly condemned dry hole.

Respectively submitted,

Richard J. Hall

Richard J. Hall
Whitehall Exploration Associates

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