

ORIGINAL

SIDE ONE

STATE CORPORATION COMMISSION OF KANSAS
OIL & GAS CONSERVATION DIVISION
WELL COMPLETION FORM
ACD-1 WELL HISTORY
DESCRIPTION OF WELL AND LEASE

Operator: License # 6926

Name: Advantage Resources, Inc.

Address 1775 Sherman Street - Suite 1900

City/State/Zip Denver Colorado 80203-4316

Purchaser: KGS, COMCO

Operator Contact Person: Lou Bortz

Phone (303) 831-1912

Contractor: Name: Duke Drilling Co., Inc.

License: 5929

Wellsite Geologist: Jerry Jespersion

Designate Type of Completion
 New Well Re-Entry Workover

Oil SWD SIGW Temp. Abd.
 Gas EXHR SIGW
 Dry Other (Core, WSV, Expl., Cathodic, etc)

If Workover/Re-Entry: old well info as follows:

Operator: ---

Well Name: ---

Comp. Date --- Old Total Depth ---

Deepening Re-perf. Conv. to In./SWD
 Plug Back PSTD
 Commingled Docket No. ---
 Dual Completion Docket No. ---
 Other (SWD or In?) Docket No. ---

09-26-97 10-05-97 ~~K080697~~
11-17-97
Spud Date Date Reached TD Completion Date

API NO. 15- 097-21426 0000

County Kiowa County, Kansas

C-NE Sec. 20 Twp. 28 Rgs. 17 XX^E

1320 Feet from SE (circle one) Line of Section

1320 Feet from E/W (circle one) Line of Section

Footages Calculated from Nearest Outside Section Corner:
NE, SE, NW or SW (circle one)

Lease Name Hal Ross Well # 2

Field Name Hardy

Producing Formation Miss. Chat (Osage)

Elevation: Ground 2211' KB 2222'

Total Depth 4943' PSTD ~~4950'~~ 4906

Amount of Surface Pipe Set and Cemented at 443 Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set --- Feet

If Alternate II completion, cement circulated from 443

feet depth to surface w/ 275 sz cat.

Drilling Fluid Management Plan A.H. 1, 4-21-98 U.C.
(Data must be collected from the Reserve Pit)

Chloride content 13,600 ppm Fluid volume 600 bbls

Dewatering method used Evaporation

Location of fluid disposal if hauled offsite: ---

Operator Name Road 11-26-97

Lease Name --- License No. ---

Quarter --- Sec. --- Twp. --- S Rng. --- E/W ---

County --- Docket No. ---

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 200 Colorado Derby Building, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature Louis C. Bortz
Title Louis C. Bortz, Vice President Date 11-20-97

Subscribed and sworn to before me this 20th day of November 19 97.

Notary Public Christine K. Pettenger
Date Commission Expires 9-9-98

K.C.C. OFFICE USE ONLY
F Letter of Confidentiality Attached
C Wireline Log Received
C Geologist Report Received
Distribution
 KCC SWD/Rep KGPA
 KGS Plug Other (Specify)

Operator Name Advantage Resources, Inc.Lease Name Hal RossWell # 2Sec. 20 Twp. 28 Rge. 17 East WestCounty Kiowa County, Kansas

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra sheet if more space is needed. Attach copy of log.

Drill Stem Tests Taken (Attach Additional Sheets.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Anhydrite	1124	+1098
Electric Log Run (Submit Copy.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Howard	3656	-1434
List All E.Logs Run:		Heebner	4084	-1862
Dual Induction		Brown Lime	4232	-2010
Density/Neutron Porosity		Lansing	4250	-2038
		Stark Shale	4543	-2321
		B/Kansas City	4630	-2408
		Cherokee	4771	-2549
		Mississippian	4818	-2596
		Kinderhook	4890	-2678
		Total Depth	4941	-2719

CASING RECORD

 New Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (in O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12-1/4"	8-5/8"	24#	443'	60/40 Poz	275	3%cc 2%gel
Production	7-7/8"	4-1/2"	10.5#	4940'	ASC	175	5#/sk gilsonite

ADDITIONAL CEMENTING/SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type		Acid, Fracture, Shot, Cement Squeeze Record	
	Specify Footage of Each Interval Perforated		(Amount and Kind of Material Used)	Depth
2	4830-4844		1000 gal 7.5% MCA	4830-4844
			Frac'd w/ 21,000# snd	4830-4844

TUBING RECORD		Size	Set At	Packer At	Liner Run		
		2-3/8	4825.98	-		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Date of First, Resumed Production, SWD or Inj.			Producing Method				
11-9-97			<input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain)				
Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls.	Gas-Oil Ratio
	6.68		230		0		Gravity 34 ^b

Disposition of Gas:

 Vented Sold Used on Lease
(If vented, submit ACO-18.)

METHOD OF COMPLETION

 Open Hole Perf. Dually Comp. Commingled
 Other (Specify) _____
Production Interval
4830-4844

Advantage Resources Inc.
#2 Hal Ross

ORIGINAL

15-097-21426

DRILL STEM TESTS

(Trilobite)

NO	INTERVAL	IFP	ISIP	FFP	FSIP	IHP/EHP
1	4256-4270 Recovery:	89-78/15 Trace of gas in pipe 35' Oil & gas cut muddy water (6%O, 70%W, 24%M)	1272/45	111-89/45	1217/60	2148-2049
2	4807-4834 Recovery:	51-30/30 GTS in 13 min. - IFP Gauge: 13.4 MCF - 5 min., 12.9 MCF - 10 min., 12.9 MCF 15 thru 30 min., 12.9 MCF FFP Gauge: 31.4 MCF - 5 min., 16.7 MCF - 10 min. thru 25 min., 11.3 MC 30 min., 10.7 MCF - 40 min., 10.1 MCF - 50 min., 6.33 MCF - 60 min., 5.86 MCF 45' Slightly oil cut muddy water (6%O, 24%W, 70%M)	1256/60	41-20/60	1246/90	2278-2258
3	4835-4861 Recovery:	89-56/30 1430' Gas in pipe 30' Mud cut oil (58%O, 30%M, 42%W) 30' Free Oil (34 deg. API) 30' Mud cut oil (66%O, 34%M)	1327/60	111-78/15	NA	2478-2258

Advantage Resources Inc.
#2 Hal Ross

COPY

15-097-21426

DRILL STEM TESTS

(Trilobite)

NO	INTERVAL	IFP	ISIP	FFP	FSIP	IHP/FHP
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15-097-21426
NOV 26 1963
AMERICAN OIL & GAS COMPANY

TELEPHONE

AREA CODE 913 483-2627
AREA CODE 913 483-3887

ALLIED CEMENTING COMPANY, INC.

P. O. BOX 31

RUSSELL, KANSAS 67665

Federal Tax I.D.# 48-0727860

Advantage Resources

to: Advantage Resources, Inc.

OCT 15 1997 INVOICE NO. 76141

1775 Sherman St., #1375

PURCHASE ORDER NO. _____

Denver, CO 80203-4316

ORIGINAL

LEASE NAME Hal Ross #2

DATE 10-6-97

SERVICE AND MATERIALS AS FOLLOWS:

Common 15 sks @\$6.35	10350	\$ 95.25
Pozmix 10 sks @\$3.25	71375	32.50
Gel 1 sk @\$9.50		9.50
ASC 175 sks @\$8.20	22000-17	1,435.00
Mud Sweep 500 gal @\$1.80		900.00
Kol Seal 875 @\$.38¢	OCT 15 1997	332.50

\$2,804.75

Handling 200 sks @\$1.05		210.00
Mileage (30) @\$.04¢ per sk per mi		240.00
Production		1,214.00
Mi @2.85 pmp trk chg		85.50
1 plgu		38.00

1,787.50

If Account CURRENT a
Discount of \$ 800.74
will be Allowed ONLY if
Paid Within 30 Days from
Date of Invoice.

1 Guide Shoe-----	\$140.00
1 Insert-----	235.00
7 Centralizers-----	371.00

746.00

Total

\$5,338.25

Thank You!

4537.51

All Prices Are Net, Payable 30 Days Following Date of Invoice. 1½% Charged Thereafter.



CEMENTING LOG

STAGE NO.

Date: 9-24-97 District: Mad. Lodge Ticket No. 6338
 Company: ADVANTAGE OIL CO. Rig: Duke Rig 5
 Lease: HAY ROSS Well No. 2
 County: KIRWA State: KS
 Location: DeWanna Elevator Field: 20-28S-17W
18, 19, 20

CEMENT DATA:
 Spacer Type: Fresh water 5-BBLS
 Amt. _____ Skys Yield _____ ft³/sk Density _____ PPG

ORIGINAL

CASING DATA: PTA Squeeze
 Surface Intermediate Production Liner
 Size 8 1/2 Type _____ Weight 24.7 Collar _____

LEAD: Pump Time _____ hrs. Type 60:40:3 1/2 2 gel
 Amt. 275 Skys Yield 1.24 ft³/sk Density 14.8 PPG
 TAIL: Pump Time _____ hrs. Type _____
 Excess _____

Casing Depths: Tcp KB Bottom 443.83

WATER: Lead 5.6 gals/sk Tail _____ gals/sk Total 36 Bbls.

Pump Trucks Used 255-265 Stone Winsor
 Bulk Equip. 240-250 James Holt

Drill Pipe: Size _____ Weight _____ Collars _____
 Open Hole: Size 12 1/4 T.D. _____ ft. P.B. to _____ ft.

CAPACITY FACTORS:
 Casing: Bbls/Lin. ft. 0.639 Lin. ft./Bbl. 15.90
 Open Holes: Bbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Drill Pipe: Bbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Annulus: Bbls/Lin. ft. 0.935 Lin. ft./Bbl. 13.60
 Bbls/Lin. ft. _____ Lin. ft./Bbl. _____
 Perforations: From _____ ft. to _____ ft. Amt. _____

Float Equip: Manufacturer _____
 Shoe: Type _____ Depth _____
 Float: Type _____ Depth _____
 Centralizers: Quantity _____ Plugs Top wooden Btm. _____
 Stage Collars _____
 Special Equip. _____
 Disp. Fluid Type Fresh water Amt. 27 Bbls. Weight 8.34 PPG
 Mud Type _____ Weight _____ PPG

COMPANY REPRESENTATIVE Joe Livingston

CEMENTER Carl Balding

TIME	PRESSURES PSI		FLUID PUMPED DATA			REMARKS
	DRILL PIPE CASING	ANNULUS	TOTAL FLUID	Pumped Per Time Period	RATE Bbls Min.	
<u>10:30 pm</u>						<u>On location + Rig up</u>
						<u>Pipe on Break circulation w/Rig</u>
<u>2:25</u>	<u>100</u>		<u>5</u>	<u>5</u>	<u>4</u>	<u>start Pad</u>
	<u>300</u>		<u>65</u>	<u>60</u>	<u>5.5</u>	<u>sum 275 x 60:40:3+2</u>
						<u>cement in stop pumps</u>
						<u>switch valves + Release plug</u>
					<u>4</u>	<u>start Displacement</u>
<u>2:50</u>	<u>100</u>		<u>92</u>	<u>27</u>		<u>Displacement 7.4 stop pumps</u>
						<u>cement did circulate</u>
						<u>(45.5x)</u>

FINAL DISP. PRESS: 100 PSI BUMP PLUG TO _____ PSI BLEEDBACK _____ BBLs. THANK YOU

ALLIED CEMENTING CO., INC. 6338

ORIGINAL

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:

Medicine Lodge

DATE 9-27-97	SEC. 20	TWP. 28S	RANGE 17W	CALLED OUT 8:00 PM	ON LOCATION 10:30 PM	JOB START 8:25 AM	JOB FINISH 3:00 AM
HA. ROSS LEASE	WELL # 2	LOCATION: Benham Elevator 1/2, 1/5, w/s		COUNTY Kiowa	STATE Kansas		

OLD OR NEW (Circle one)

CONTRACTOR Duke Rigs
 TYPE OF JOB Surface
 HOLE SIZE 12 1/4 T.D.
 CASING SIZE 8 3/8 x 24 DEPTH 443
 TUBING SIZE _____ DEPTH _____
 DRILL PIPE _____ DEPTH _____
 TOOL _____ DEPTH _____
 PRES. MAX 300 MINIMUM 100
 MEAS. LINE _____ SHOE JOINT _____
 CEMENT LEFT IN CSG. 15 feet
 PERFS. _____

OWNER Advantage Oil Co.
CEMENT

AMOUNT ORDERED 295sx 60:40 3/4cc + 22 gal

COMMON _____ @ _____
 POZMIX _____ @ _____
 GEL _____ @ _____
 CHLORIDE _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 HANDLING _____ @ _____
 MILEAGE _____ @ _____

EQUIPMENT

PUMP TRUCK CEMENTER Carl Balding
 #255-265 HELPER Stane Winsor
 BULK TRUCK
 #240-250 DRIVER James Holt
 BULK TRUCK
 # _____ DRIVER _____

TOTAL _____

REMARKS:

SERVICE

Break Circulation with Pump 295sx 10:40:34 - 1/2 waster
 Displace with 27 BBLs freshwater
 leave 15 feet cement in casing
~~Concrete did not circulate, shut in~~

DEPTH OF JOB 443.00
 PUMP TRUCK CHARGE _____
 EXTRA FOOTAGE _____ @ _____
 MILEAGE _____ @ _____
 PLUG wooden _____ @ _____
 _____ @ _____
 _____ @ _____

TOTAL _____

CHARGE TO: Duke Drilling Co.
~~Advantage Oil Co.~~
 STREET _____
 CITY _____ STATE _____ ZIP _____

FLOAT EQUIPMENT

_____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____
 _____ @ _____

TOTAL _____

TAX _____

TOTAL CHARGE _____

DISCOUNT _____ IF PAID IN 30 DAYS

To Allied Cementing Co., Inc.
 You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read & understand the "TERMS AND CONDITIONS" listed on the reverse side.

SIGNATURE [Signature]

BJC

J.E. Jespersen
Petroleum Geologist
BIG J CONSULTANTS
P.O. Box 16418
Wichita, KS 67216

ORIGINAL

Geological Report

15-097-21426

Advantage Resources, Inc.
#2 HAL ROSS
Center NE/4
Section 20-T28S-R17W
Kiowa County, Kansas

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15-097-21426
20-T28S-R17W
NE/4
Section 20
T28S
R17W
Kiowa County
Kansas

ORIGINAL

October 15, 1997

**#2 HAL ROSS
Center NE/4
Section 20-T28S-R17W
Kiowa County, Kansas**

Field:
Elevations: 2222 Kelly Bushing
2219 Derrick Floor
2211 Ground Level

Wellsite Geologist: J.E. Jespersen
Contractor: Duke Drilling Inc. -Rig #5
Commenced: September 26, 1997
Completed: October 5, 1997
Rotary Total Depth: 4943 feet
Log Total Depth: 4941 feet
Surface Casing: 8 5/8" @ 433 feet with 275 sacks
Production Casing: 4 1/2" @ 4940 feet with 175 sacks
Electrical Surveys: ELI Wireline: Dual Induction, Compensated Density/Neutron
Hole Size: 12 1/4" from surface to 445 feet
7 7/8" from 445 to 4943 feet

General Information: Samples saved from 3600 feet to 4943 feet (RTD).
Drilling time kept from 3600 to 4943 feet (RTD).
Samples examined from 3600 to 4943 feet (RTD).
Drilling supervised from 4000 feet to RTD. Mud up
at 3600 feet. Mud type, chemical.

FORMATION	LOG		SAMPLE		STRUCT COMP.
	TOP	DATUM	TOP	DATUM	
Anhydrite	1124	+1098			1' High
Howard	3656	- 1434	3656	- 1434	2' High
Heebner	4084	- 1862	4085	- 1863	2' Low
Brown Lime	4232	- 2010	4235	- 2013	4' High
Lansing	4250	- 2038	4253	- 2031	6' Low
Stark Shale	4543	- 2321	4549	- 2327	3' High
B/Kansas City	4630	- 2408	4639	- 2417	Flat
Cherokee	4771	- 2549	4774	- 2552	5' High
Mississippian	4818	- 2596	4821	- 2599	6' High
Kinderhook	4890	- 2678	4896	- 2674	8' Low
Total Depth	4941	- 2719	4943	- 2721	

Reference Well/Structural Comparison: Advantage Res., Inc. #1 Hal Ross, NE/4 SE/4, 20-28S-17W, Kiowa County, Kansas

NOTE: Pipe strap at 4270 feet was 5.91 feet short to the board.

DAILY PENETRATION

<u>DATE</u>	<u>DEPTH</u>	<u>REMARKS</u>
9/26/97	- 0 -	Spud 7:15 pm Set 8 5/8" @ 443' with 275 sx Plug down 2:45 am 9/27/97 - WOC
9/27	445'	Drilled plug 10:45 am 9/27/97
9/28	1488'	Drilling
9/29	2650'	Drilling
9/30	3325'	Drilling
10/1	3980'	<u>DST #1</u> <u>4256-4270</u>
10/2	4270'	Drilling
10/3	4740'	<u>DST #2</u> <u>4807-4834</u>
10/4	4834'	<u>DST #3</u> <u>4835-4851</u>
10/5	4943'	RTD @ 6:45 am ELI Log 4 1/2" csg set @ 4940 'w/175 sx

BIT RECORD

NO.	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS
S	12 1/4	Smith	RR	445	445	2 1/2
1	7 7/8	W/Mc	42 CF	4943	4498	97 1/4

MUD RECORD

Dombar Mud Inc.

CHK	DEPTH	WT	VIS	FIL	PH	PV	YP	GELS	CHLORIDES	SOL
1	1873	-	-	-	-	-	-	-	-	-
2	3574	8.6	37	17.2	11.0	14	8	6/10	8,500	1.7%
3	4173	9.0	32	12.0	10.5	17	14	8/20	5,200	4.7%
4	4270	9.1	48	16.0	10.0	16	12	8/20	6,500	5.3%
5	4796	9.3	48	12.8	10.0	17	14	8/22	5,600	6.8%
6	4851	9.3	46	12.8	10.0	17	14	10/22	8,200	6.7%

DRILL STEM TESTS

(Trilobite)

NO	INTERVAL	IFP	ISIP	FFP	FSIP	IHP/FHP
1	4256-4270 Recovery:	89-78/15 Trace of gas in pipe 35' Oil & gas cut muddy water (6%O, 70%W, 24%M)	1272/45	111-89/45	1217/60	2148-2049
2	4807-4834 Recovery:	51-30/30 GTS in 13 min. - IFP Gauge: 13.4 MCF - 5 min., 12.9 MCF - 10 min., 12.9 MCF 15 thru 30 min., 12.9 MCF FFP Gauge: 31.4 MCF - 5 min., 16.7 MCF - 10 min. thru 25 min., 11.3 MC 30 min., 10.7 MCF - 40 min., 10.1 MCF - 50 min., 6.33 MCF - 60 min., 5.86 MCF 45' Slightly oil cut muddy water (6%O, 24%W, 70%M)	1256/60	41-20/60	1246/90	2278-2258
3	4835-4861 Recovery:	89-56/30 1430' Gas in pipe 30' Mud cut oil (58%O, 30%M, 42%W) 30' Free Oil (34 deg. API) 30' Mud cut oil (66%O, 34%M)	1327/60	111-78/15	NA	2478-2258

Geological Formations and Porosity Zones

A detailed lithological log was maintained from **3600 feet to 4943 feet** (RTD). The following are formation tops, recoveries of drillstem tests, descriptions of reservoirs containing shows of oil and descriptions of reservoirs felt pertinent to the accumulation of hydrocarbons in the area. The depths are interpolated from drillers measurements and measured from the kelly bushing.

Anhydrite	Sample	Not called
	E-Log	1124 +1098

B/Anhydrite	Sample	Not called
	E-Log	1144 +1078

Howard	Sample	3656 -1434
	E-Log	3656 -1434

SL 3658-3677
EL 3658-3671

Limestone, white to light buff, fine crystalline, fossiliferous, slightly chalky. Fair to good intergranular porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.

Topoka	Sample	3685 -1463
	E-Log	3681 -1459

SL 3709-3718
EL 3706-3710

Limestone, white to light grey, fine crystalline, fossiliferous. Fair to good interfossiliferous porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.

SL 3736-3746
EL 3736-3742

Limestone, white to light grey, fine crystalline, fossiliferous. Fair to good interfossiliferous porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.

SL 3777-3785
EL 3776-3780

Limestone, white to light grey, very fine crystalline, fossiliferous, chalky. Good intergranular porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.

Geological Formations and Porosity Zones

- SL 3794-3830 Limestone, light buff, fine crystalline, sucrosic. Good
EL 3814-3828 intercrystalline porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.
- SL 3834-3858 Limestone, light buff, fine crystalline, sucrosic. Good
EL 3842-3854 intercrystalline porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.
- SL 3887-3894 Limestone, light buff, fine crystalline, fossiliferous. Fair to good
EL 3885-3890 interfossiliferous and vugular porosity. No shows; no
fluorescence.
Judged this zone to be of no commercial value.
- SL 3933-3949 Limestone, white to light grey, fine crystalline, fossiliferous,
EL 3930-3946 w chert, fresh, fossiliferous. Fair intercrystalline porosity. No
shows; no fluorescence.
Judged this zone to be of no commercial value.
- SL 3993-4018 Limestone, white to light buff, fine crystalline, fossiliferous, cherty.
EL 3995-4004 Fair intercrystalline and vugular porosity. No shows; no
fluorescence.
Judged this zone to be of no commercial value.
- SL 4050-4071 Limestone, white to light grey, fine crystalline, chalky. Fair to
EL 4050-4070 good intercrystalline and intergranular porosity. No shows; no
fluorescence.
Judged this zone to be of no commercial value.

Heebner	Sample	4085 -1863
	E-Log	4084 -1862
Toronto	Sample	4102 -1880
	E-Log	4102 -1880

Geological Formations and Porosity Zones

SL 4102-4109

Limestone, light grey to light buff, very fine to fine crystalline, fossiliferous, cherty. Fair intercrystalline porosity. No shows; no fluorescence.
Judged this zone to be of no commercial value.

Douglas Shale	Sample	4138 -1916
	E-Log	4144 -1922

Brown Lime	Sample	4235 -2013
	E-Log	4232 -2010

Lansing	Sample	4253 -2031
	E-Log	4250 -2028

SL 4257-4261
EL 4253-4258
Limestone, buff, medium crystalline, oolitic. Good interoolitic and oolitic porosity. **No free oil.** Good fluorescence; very faint odor. **50-unit gas kick on hot wire.** Tested this zone. (See DST #1) Due to the test results, judged this zone to be of no commercial value.

Drillstem Test #1

4256-4270

Weak to fair blow during IFP
Fair blow throughout FFP
Recovered:

Trace of gas in pipe
35' O&GC Mdy SlWtr
(6%O, 70%W, 24%M)

Initial Flow Pressures:	89# to 78# / 15 min.
Initial Shut-In Pressure:	1272# / 45 min.
Final Flow Pressures:	111# to 89# / 45 min.
Final Shut-In Pressure:	1217# / 60 min.
Initial Hydrostatic Pressure:	2148#
Final Hydrostatic Pressure:	2049#
Bottomhole Temperature:	141 degrees

Geological Formations and Porosity Zones

- SL 4280-4294 Limestone, white to light grey, fine crystalline, fossiliferous, chalky,
EL 4280-4290 intercrystalline and intergranular porosity. No shows; no
fluorescence. No odor.
Judged this zone to be of no commercial value
- SL 4306-4314 Limestone, white, fine to medium crystalline, fossiliferous, oolitic.
EL 4302-4308 Fair to good intercrystalline and oolitic porosity. No shows.
No fluorescence. No odor.
Judged this zone to be of no commercial value.
- SL 4345-4355 Limestone, white to cream, very fine crystalline, oolitic, sucrosic.
EL 4342-4352 Good oolitic and intergranular porosity. No shows. No
fluorescence; no odor.
Judged this zone to be of no commercial value.
- SL 4368-4383 Limestone, light buff, fine crystalline, sucrosic, chalky. Fair to
EL 4366-4382 good intercrystalline and intergranular porosity. No shows; no
fluorescence; no odor.
Judged this zone to be of no commercial value.
- SL 4413-4420 Limestone, white to light buff, fine crystalline, fossiliferous. Good
EL 4410-4416 intercrystalline and vugular porosity. No shows; no fluorescence;
no odor.
Judged this zone to be of no commercial value.
- SL 4432-4436 Limestone, white, very fine crystalline, cherty, chalky. Fair
EL 4429-4432 intergranular porosity. No shows; no fluorescence; no odor.
Judged this zone to be of no commercial value.
- SL 4460-4465 Limestone, light buff, fine crystalline, fossiliferous. Fair
EL 4456-4462 interfossiliferous porosity. No shows; no fluorescence; no odor.
Judged this zone to be of no commercial value.
- SL 4470-4480 Limestone, light buff, fine crystalline, sucrosic. Fair to good
EL 4470-4476 intercrystalline porosity. No shows; no fluorescence; no odor.
Judged this zone to be of no commercial value.

Geological Formations and Porosity Zones

SL 4486-4494 Limestone, light grey, fine crystalline, fossiliferous. Fair to good
EL 4483-4490 interfossiliferous and intercrystalline porosity. No shows; no
fluorescence; no odor
Judged this zone to be of no commercial value.

SL 4504-4515 Limestone, light buff, fine crystalline, sucrosic. Fair to good
EL 4499-4511 intercrystalline porosity. No shows; no fluorescence; no odor.
Judged this zone to be of no commercial value.

Stark Shale Sample 4549 -2327
E-Log 4543 -2321

SL 4570-4576 Limestone, light grey to light buff, fine crystalline, dense,
EL 4560-4564 translucent. No visible porosity. No shows; no fluorescence; no
odor.
Judged this zone to be of no commercial value.

Hushpuckney Shale Sample 4597 -2375
E-Log 4590 -2368

SL 4605-4639 Limestone, light grey, dense. No visible porosity. No shows. No
EL 4600-4630 fluorescence; no odor.
Judged this zone to be of no commercial value.

Base Kansas City Sample 4639 -2417
E-Log 4630 -2408

Altamont Sample 4695 -2473
E-Log 4690 -2468

SL 4706-4730 Limestone, light buff, very fine crystalline, cherty, dense. Poor
EL 4700-4704 intercrystalline porosity. No shows; no fluorescence; no odor.
Judged this zone to be of no commercial value.

Pawnee Sample 4736 -2514
E-Log 4732 -2510

Geological Formations and Porosity Zones

SL 4736-4742 Limestone, light grey, fine crystalline, fossiliferous, slightly shaley.
EL 4732-4736 Poor interfossiliferous and intercrystalline porosity. No shows; no
fluorescence; no odor.
Judged this zone to be of no commercial value.

Cherokee Shale Sample 4774 -2552
E-Log 4771 -2549

Base Cherokee Lime Sample 4810 -2588
E-Log 4804 -2582

Mississippian Sample 4821 -2599
E-Log 4818 -2596

SL 4821-4834 Chert, white, amber, fresh, some tripolitic, fossiliferous. **Trace of**
EL 4820-4826 **black inert oil stain**; little or poor fluorescence; No odor.
18-unit gas kick on hot wire. Tested this zone. (See DST #2)
Due to test results, recommend this zone be perforated and
further tested.

Geological Formations and Porosity Zones

Drillstem Test #2 4807-4834

Gas to surface 13 min. into IFP

Gauged 13.4 mcf after 5 min. to 30 min. of IFP

Gas gauged 12.9 mcf

FFP - Gas gauged 31.4 mcf

5 min. 16.7 mcf

10 min. 15.1 "

15 min. 11.3 "

20 min. 11.3 "

25 min. 11.3 "

30 min. 10.7 "

40 min. 10.1 "

50 min. 6.33 "

60 min. 5.86"

Recovered:

45' Slightly oil cut muddy saltwater
(6%O, 24%W, 70%M)

Initial Flow Pressures:

51# to 30# / 30 min.

Initial Shut-In Pressure:

1256# / 60 min.

Final Flow Pressures:

41# to 20# / 60 min.

Final Shut-In Pressure:

1246# / 90 min.

Initial Hydrostatic Pressure:

2278#

Final Hydrostatic Pressure:

2258#

Bottomhole Temperature:

151 degrees

SL 4834-4842
EL 4830-4834

Chert, white, milky, amber, fresh, fossiliferous, fractured. **No free oil. Spotted dark oil stain on fractured edges.** No fluorescence; no odor. **Good gas kick on hot wire (18 units).** Tested this zone. (See DST #3) Due to the recovery of the test, recommend this zone be perforated and further tested.

Geological Formations and Porosity Zones

Drillstem Test #3

4835-4861

Good blow throughout IFP
Off bottom bucket in 2 min.
Good blow throughout FFP
Recovered:

1430' Gas in pipe
30' Mud cut oily water
(58%O, 38%M, 4%W)
30' Free oil (34 deg. API)
30' Mud cut oil
(66%O, 34%M)
Initial Flow Pressures: 89# to 56# / 30 min.
Initial Shut-In Pressure: 1327# / 60 min.
Final Flow Pressures: 111 to 78# / 15 min.
Final Shut-In Pressure: Not taken
Initial Hydrostatic Pressure: 2478#
Final Hydrostatic Pressure: 2258#

Kinderhook

Sample 4896 -2674
E-Log 4890 -2668

SL 4939-4940
Not Logged

Sandstone, white, quartitic, fine grained, friable. Good intergranular porosity. No shows; no fluorescence; no odor. Judged this zone to be of no commercial value.

Rotary Total Depth 4943 -2721

Electric Log Total Depth 4941 -2719

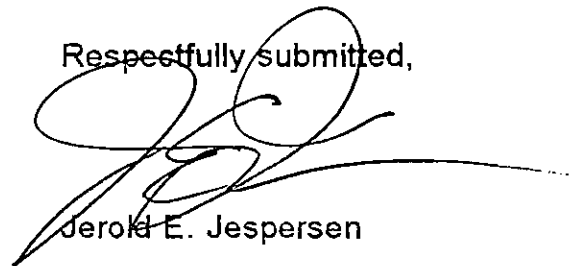
Ran ELI Wireline: Dual Induction, Comp Density/Neutron Logs

4 1/2" casing set @ 4940' with 175 sacks

REMARKS and RECOMMENDATIONS

Recommend running 4 1/2" casing to be set @ 4940 feet to further evaluate the **Mississippian** formation through **perforations** (using electric log depths) **4830-4833 and 4818-4822.**

Respectfully submitted,



Jerold E. Jespersen

JEJ

9/26/97-10/05/97:10/15/97