

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

Operator: License # 32283  
 Name: Western Operating Co.  
 Address 518 - 17th St., Suite 1680  
 City/State/Zip Denver CO 80202  
 Purchaser: \_\_\_\_\_  
 Operator Contact Person: Steven D. James  
 Phone (303) 893-2438  
 Contractor: Name: Murfin Drilling Co.  
 License: 30606  
 Wellsite Geologist: Richard J. Hall

Designate Type of Completion  
 New Well  Re-Entry  Workover  
 Oil  SWD  SLOW  Temp. Abd.  
 Gas  ENHR  SIGW  
 Dry  Other (Core, WSW, Expl., Cathodic, etc)

If Workover:  
 Operator: \_\_\_\_\_  
 Well Name: \_\_\_\_\_  
 Comp. Date \_\_\_\_\_ Old Total Depth \_\_\_\_\_  
 Deepening  Re-perf.  Conv. to Inj/SWD  
 Plug Back  PBDT  
 Commingled  Docket No. \_\_\_\_\_  
 Dual Completion  Docket No. \_\_\_\_\_  
 Other (SWD or Inj?)  Docket No. \_\_\_\_\_  
3/30/98 4/8/98 4/24/98  
 Spud Date Date Reached TD Completion Date

API NO. 15- 071-206870000  
 County Greeley  
 - N/2 ENW Sec. 11 Twp. 19S Rge. 43 EW  
500' Feet from SW (circle one) Line of Section ROAD  
3900' Feet from EW (circle one) Line of Section 06-12-98  
 Footages Calculated from Nearest Outside Section Corner:  
 NE, SE, NW or SW (circle one)  
 Lease Name Koehn Well # 1  
 Field Name Wildcat  
 Producing Formation Morrow  
 Elevation: Ground 3866 KB 3875  
 Total Depth 5,240' PBDT \_\_\_\_\_  
 Amount of Surface Pipe Set and Cemented at 610 Feet  
 Multiple Stage Cementing Collar Used?  Yes  No  
 If yes, show depth set 2594 Feet  
 If Alternate II completion, cement circulated from 2596  
 feet depth to surface w/ 295 sx cmt.  
 Drilling Fluid Management Plan AH-2, 6-29-98 U.C.  
 (Data must be collected from the Reserve Bit)  
 Chloride content 62,000 ppm Fluid volume 2,000 bbls  
 Dewatering method used \_\_\_\_\_  
 Location of fluid disposal if hauled offsite: \_\_\_\_\_  
 Operator Name Western Operating Company  
 Lease Name Koehn License No. 32282  
NW Quarter Sec. 11 Twp. 19 S Rng. 43 EW  
 County Greeley Docket No. \_\_\_\_\_

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, 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 [Signature]  
 Title Vice President Date 6/10/98  
 Subscribed and sworn to before me this 10th day of June  
 19 98.  
 Notary Public [Signature]  
 Date Commission Expires July 16, 2001

K.C.C. OFFICE USE ONLY		
F	<input type="checkbox"/>	Letter of Confidentiality Attached
C	<input checked="" type="checkbox"/>	Wireline Log Received
C	<input type="checkbox"/>	Geologist Report Received
Distribution		
<input checked="" type="checkbox"/>	KCC	<input type="checkbox"/> SWD/Rep
<input type="checkbox"/>	KGS	<input type="checkbox"/> Plug
<input type="checkbox"/>		<input type="checkbox"/> NGPA
		<input type="checkbox"/> Other
		(Specify)

SIDE TWO

**JANUARY**  
Koehn

Operator Name Western Operating Company Lease Name Koehn Well # 1

Sec. 11 Twp. 19S Rge. 43  East  West  
County Greeley

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  Yes  No  
(Attach Additional Sheets.)

Samples Sent to Geological Survey  Yes  No

Cores Taken  Yes  No

Electric Log Run  Yes  No  
(Submit Copy.)

List All E.Logs Run:  
Compensated Neutron/Density  
Sonic  
Array Induction

<input checked="" type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Name	Top	Datum
Dakota	1032	2843
Blaine Salt	1854	2021
Topeka	3755	120
Lansing	4040	- 165
Marmaton	4530	- 665
Cherokee Shale	4652	- 1777
Morrow Shale	5010	- 1135
Mississippian	5176	- 1301

CASING RECORD <input type="checkbox"/> New <input checked="" type="checkbox"/> 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
Sfc Csg	12 1/4	8-5/8	24#	610	Lite	325	3% CC 1/2# Floceal
Prod Csg	7-7/8	5-1/2	14&15.5#	5236	Class C	135	.5% BA-10 .15% CD-32
2nd Stage				2586	Class C	295	.2% CALL2

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 Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4 SPF	5117-5121' - 32 holes		
4 SPF	5102-5111' - 37 holes		

TUBING RECORD		Size	Set At	Packer At	Liner Run
		2-7/8"	5076.10'		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Date of First, Resumed Production, SMD or Inj.		Producing Method <input checked="" type="checkbox"/> Flowing <input 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 Gravity
	0		1,000		

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: 5102-5121'



# CEMENT JOB REPORT

*long string*

PAGE 1 of 2

CUSTOMER <b>Western Operating</b>	DATE <b>4/8/98</b>	PRJ <b>L 051356</b>	SERV. SUPV. <b>Klosterman</b>
LEASE & WELL NAME-OCSG <b>Koehn #1</b>	LOCATION <b>Sec 11-195-43 W</b>	COUNTY-STATE-PLGOK <b>Greeley</b>	
DISTRICT <b>Brighton</b>	DRILLING CONTRACTOR <b>MurFin 25</b>	TYPE OF JOB <b>2-Stage LIS</b>	

SIZE & TYPE OF PLUGS	LIST CSG-HARDWARE	PHYSICAL SLURRY PROPERTIES					
TOP <b>Stage Plugs</b>	<b>Float shoe Float collar</b>	SLURRY WGT PPG	SLURRY YLD FT <sup>3</sup>	WATER OPS	PUMP TIME HR:MIN	Bbl SLURRY	Bbl MIX WATER
BTM <b>N/A</b>	<b>Stage tool cent. Baskets</b>						

MATERIALS FURNISHED BY BJ

1st Stage							
135 SXS "C" t. 5% BA-10 t. 15% CD-32	13.4	1.69	9.0		41	29	

ORIGINAL

2nd stage							
10 BBLs H2O							
295 SXS "C" t. 2% Collet	12.0	2.37	14.0		125	98	
Available Mix Water <b>N/A</b> Bbl	Available Displ. Fluid <b>N/A</b> Bbl		TOTAL		166	127	

HOLE			ZBO-CSG-DR				ZBC-CSG-DR			COLLAR DEPTHS			
SIZE	% EXCESS	DEPTH	SIZE	WGT.	TYPE	DEPTH	SIZE	WGT.	TYPE	DEPTH	SHOE	FLOAT	STAGE
7 7/8	N/A	5240	5.5	14 #	N/A	5.5	15.5 #	N/A		5240	5215	2586	

LAST CASING				PKR-CMT RET-OR PL-LINER		PERF. DEPTH		TOP CONN		WELL FLUID		
SIZE	WGT.	TYPE	DEPTH	BRAND & TYPE		DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT.
8 5/8	24 #	N/A	597	N/A		N/A	N/A	N/A	5.5	8 id	Mud	9.3

CAL. DISPL. VOL.-Bbl.				CAL. PSI		CAL. MAX PSI		OP. MAX		MAX TGB PSI		MAX CSG PSI		DISPL. FLUID		WATER SOURCE	
TGB.	CSG.	CSG.	TOTAL	BUMP PLUG	TO REV.	TO REV.	TO REV.	TO REV.	RATED	OP.	RATED	OP.	RATED	OP.	TYPE	WGT.	SOURCE
N/A	1st	2nd		1st 400											H2O	8.34	rig
N/A	124	62	186	2nd 500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mud	9.3	rig

EXPLANATION: TROUBLE SETTING TOOL. RUNNING CSG, ETC. PRIOR TO CEMENTING.

PRESSURE / RATE DETAIL						EXPLANATION	
TIME HR:MIN.	PRESSURE-PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input type="checkbox"/>	
	PIPE	ANNULUS				TEST LINES	PSI
5:00							3500
6:00	200	N/A	4	N/A	N/A		
6:02	200	N/A	4	5	H2O		
6:15	200	N/A	N/A	41	cmf		
6:20	200	N/A	5	15	H2O		
6:32	200-500	N/A	6-3	60	H2O		
6:45	1000	N/A	3	64	Mud		
6:50							
6:51							
7:05							
7:10							

BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	Bbl. CMT RETURNS/ REVERSED	TOTAL Bbl. PUMPED	PSI LEFT ON CSG	EPOT TOP CEMENT	SERV. SUPV.
(C)"	500	(C)"	5	367	N/A	Suber	<i>Charles Klosterman</i>

**ALLIED CEMENTING CO., INC.**  
 P.O. BOX 31  
 RUSSELL, KS 67685  
 PH (785) 483-3887  
 FAX (785) 483-5588

.....  
**INVOICE**  
 .....

Invoice Number: 077303

Invoice Date: 03/31/98

Sold Western Operating  
 To: 518 17th, #1180  
 Denver, CO  
 80202

ORIGINAL

Cust I.D.....: WestOp  
 P.O. Number...: Koehn #1  
 P.O. Date.....: 03/31/98

*Surface*

Due Date.: 04/30/98  
 Terms.....: Net 30

Item I.D./Desc.	Qty. Used	Unit	Price	Net	TX
Common	150.00	SKS	7.5500	1132.50	E
Chloride	11.00	SKS	28.0000	308.00	E
Lite	175.00	SKS	7.0500	1233.75	E
FloSeal	44.00	LBS	1.1500	50.60	E
Handling	325.00	SKS	1.0500	341.25	E
Mileage (100)	100.00	MILE	13.0000	1300.00	E
2					
Surface	1.00	JOB	470.0000	470.00	E
Extra Footage	308.00	PER	0.4300	132.44	E
Mileage pmp trk	100.00	MILE	2.8500	285.00	E
Surface plug	1.00	EACH	45.0000	45.00	E
Guide Shoe	1.00	EACH	286.0000	286.00	E
Baffle Plate	1.00	EACH	135.0000	135.00	E

All Prices Are Net, Payable 30 Days Following  
 Date of Invoice. 1 1/2% Charged Thereafter.  
 If Account CURRENT take Discount of \$ 857.93  
 ONLY if paid within 30 days from Invoice Date

Subtotal: 5719.54  
 Tax.....: 0.00  
 Payments: 0.00  
 Total....: 5719.54

Number # 5789  
4/98  
4/24/98



# CEMENT JOB REPORT

CUSTOMER <b>Western Operating</b>			DATE <b>4/8/98</b>			F.R.# <b>L 051356</b>			SERV. SUPV. <b>Klosterman</b>									
LEASE & WELL NAME-OCSSG <b>Koehn #1</b>			LOCATION <b>Sec 11N-19S-43W S48 COR R. Greeley</b>			COUNTY-PARISH-BLOCK												
DISTRICT <b>Brighton</b>			DRILLING CONTRACTOR RIG# <b>Mur Fin 25</b>			TYPE OF JOB <b>2-Stage LIS</b>												
SIZE & TYPE OF PLUGS			LIST-CSG-HARDWARE			PHYSICAL SLURRY PROPERTIES												
TOP	<b>Stage Plugs</b>		<b>Float shoe Float collar</b>			SLURRY WGT PPG	SLURRY YLD FT <sup>3</sup>	WATER GPS	PUMP TIME HR:MIN	Bbl SLURRY	Bbl MIX WATER							
BTM	<b>N/A</b>		<b>Stage tool cent. Baskets</b>															
MATERIALS FURNISHED BY BJ																		
<b>1st Stage</b>																		
<b>135 SXS "C" + .5% BR-10 + .15% CD-32</b>						<b>13.4</b>	<b>1.69</b>	<b>9.0</b>		<b>41</b>	<b>29</b>							
<b>2nd Stage</b>																		
<b>10 BBLS H2O</b>						<b>ORIGINAL</b>												
<b>295 SXS "C" + 2% CaCl<sub>2</sub></b>						<b>12.0</b>	<b>2.37</b>	<b>14.0</b>		<b>125</b>	<b>98</b>							
Available Mix Water <b>N/A</b> Bbl.			Available Displ. Fluid <b>N/A</b> Bbl.			TOTAL			<b>166</b>	<b>127</b>								
HOLE			TBG-CSG-DR			TBG-CSG-DR			COLLAR DEPTHS									
SIZE	% EXCESS	DEPTH	SIZE	WGT.	TYPE	DEPTH	SIZE	WGT.	TYPE	DEPTH	SHOE	FLOAT	STAGE					
<b>7 7/8</b>	<b>N/A</b>	<b>5240</b>	<b>5.5</b>	<b>14 #</b>	<b>N/A</b>		<b>5.5</b>	<b>15.5 #</b>	<b>N/A</b>		<b>5240</b>	<b>5215</b>	<b>2586</b>					
LAST CASING			PKR-CMT RET-BR PL-LINER			PERF. DEPTH			TOP CONN		WELL FLUID							
SIZE	WGT.	TYPE	DEPTH	BRAND & TYPE		DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT.						
<b>8 5/8</b>	<b>24 #</b>	<b>N/A</b>	<b>597</b>	<b>N/A</b>		<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.5</b>	<b>8 id</b>	<b>Mud</b>	<b>9.3</b>						
CAL. DISPL. VOL-Bbl.			CAL. PSI			CAL. MAX PSI			OP. MAX			MAX TBG PSI		MAX CSG PSI		DISPL. FLUID		WATER SOURCE
TBG.	CSG.	CSG.	TOTAL	BUMP PLUG	TO REV.	SO. PSI	RATED	OP.	RATED	OP.	TYPE	WGT.						
	<b>1st</b>	<b>2nd</b>		<b>1st 400</b>							<b>H2O</b>	<b>8.34</b>					<b>rig</b>	
	<b>N/A</b>	<b>124</b>	<b>62</b>	<b>186</b>	<b>2nd 500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>Mud</b>	<b>9.3</b>					<b>rig</b>	
EXPLANATION: TROUBLE SETTING TOOL, RUNNING CSG, ETC. PRIOR TO CEMENTING.																		
PRESSURE / RATE DETAIL										EXPLANATION								
TIME HR:MIN.	PRESSURE-PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input type="checkbox"/>												
	PIPE	ANNULUS				TEST LINES PSI <b>3500</b>												
<b>5:00</b>						CIRCULATING WELL-RIG <input checked="" type="checkbox"/> BJ <input type="checkbox"/>												
<b>6:00</b>	<b>200</b>	<b>N/A</b>	<b>4</b>	<b>N/A</b>	<b>N/A</b>	<b>Start H2O</b>												
<b>6:02</b>	<b>200</b>	<b>N/A</b>	<b>4</b>	<b>5</b>	<b>H2O</b>	<b>Start Cement (Batch up &amp; weigh)</b>												
<b>6:15</b>	<b>200</b>	<b>N/A</b>	<b>N/A</b>	<b>41</b>	<b>cmf</b>	<b>Shut down / wash Pump lines / Drop Fix Plug</b>												
<b>6:20</b>	<b>200</b>	<b>N/A</b>	<b>5</b>	<b>15</b>	<b>H2O</b>	<b>Start H2O Displacement</b>												
<b>6:32</b>	<b>200-500</b>	<b>N/A</b>	<b>6-3</b>	<b>60</b>	<b>H2O</b>	<b>Start Mud Displacement</b>												
<b>6:45</b>	<b>1000</b>	<b>N/A</b>	<b>3</b>	<b>64</b>	<b>Mud</b>	<b>Bump Plug</b>												
<b>6:50</b>						<b>Check Float</b>												
<b>6:51</b>						<b>Drop Bomb</b>												
<b>7:05</b>						<b>Open tool w/ RI Pump</b>												
<b>7:10</b>						<b>Circulate w/ rig Pump</b>												
BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	Bbl. CMT RETURNS/ REVERSED	TOTAL Bbl. PUMPED	PSI LEFT ON CSG	SPOT TOP CEMENT	SERV. SUPV.											
<b>0"</b>	<b>500</b>	<b>0"</b>	<b>5</b>	<b>367</b>	<b>N/A</b>	<b>5000</b>	<b>Charles Klosterman</b>											



100-2012 A 15 41

**ORIGINAL**

**WELL NAME:**

Koehn #1

**COMPANY:**

Western Operating Company

**LOCATION:**

11-19S-43W

Greeley County, Kansas

**DATE:**

4/8/98

15-071-20687-00-00

TRILOBITE TESTING L.L.C.

OPERATOR : Western Operating Co.  
 WELL NAME: Koehn #1  
 LOCATION : 11-19S-43W Greeley KS.  
 INTERVAL : 4995.00 To 5129.00 ft

DATE 4-7-98  
 KB 3866.00 ft  
 GR 3876.00 ft  
 TD 5129.00 ft  
 TICKET NO: 11242 DST #1  
 FORMATION: Lower Morrow  
 TEST TYPE: CONVENTIONAL

RECORDER DATA

Mins	Field	1	2	3	4	TIME DATA-----
PF 20 Rec.	13339	13339	3024			PF Fr. 0310 to 0340 hr
SI 60 Range (Psi )	4025.0	4025.0	4995.0	0.0	0.0	IS Fr. 0340 to 0440 hr
SF 45 Clock (hrs)	12 HR	12	ALP			SF Fr. 0440 to 0525 hr
FS 90 Depth (ft )	5124.0	5124.0	5000.0	0.0	0.0	FS Fr. 0525 to 0655 hr

	Field	1	2	3	4	
A. Init Hydro	2523.0	2503.0	2490.0	0.0	0.0	T STARTED 0040 hr
B. First Flow	639.0	645.0	756.0	0.0	0.0	T ON BOTM 0308 hr
B1. Final Flow	919.0	944.0	914.0	0.0	0.0	T OPEN 0310 hr
C. In Shut-in	1020.0	1026.0	1012.0	0.0	0.0	T PULLED 0655 hr
D. Init Flow	989.0	998.0	925.0	0.0	0.0	T OUT 0930 hr
E. Final Flow	989.0	995.0	948.0	0.0	0.0	
F. Fl Shut-in	1020.0	1016.0	1009.0	0.0	0.0	
G. Final Hydro	2433.0	2446.0	2361.0	0.0	0.0	
Inside/Outside	0	0	I			

RECOVERY

Tot Fluid 240.00 ft of 240.00 ft in DC and 0.00 ft in DP  
 240.00 ft of Slight gas cut mud 10%gas 90%mud  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 SALINITY 0.00 P.P.M. A.P.I. Gravity 0.00

TOOL DATA-----

Tool Wt. 2000.00 lbs  
 Wt Set On Packer 30000.00 lbs  
 Wt Pulled Loose 130000.00 lb  
 Initial Str Wt 96000.00 lbs  
 Unseated Str Wt 100000.00 lb  
 Bot Choke 0.75 in  
 Hole Size 8.88 in  
 D Col. ID 2.25 in  
 D. Pipe ID 3.80 in  
 D.C. Length 560.00 ft  
 D.P. Length 4442.00 ft

MUD DATA-----

Mud Type Chemical  
 Weight 9.00 lb/  
 Vis. 52.00 S/L  
 W.L. 7.20 in3  
 F.C. 0.00 in  
 Mud Drop N

BLOW DESCRIPTION

Initial Flow:  
 Strong blow off bottom in 1 min  
 GTS at 3 mins.  
 Initial-Shut-in:  
 Bled off blow - no return  
 Final Flow  
 Strong return w/spray of mud thru  
 est. 100 psi on 1 1/2" orifice =  
 6737 mcf/day  
 Final Shut-in:  
 Bled off blow - no return

Amt. of fill 0.00 ft  
 Btm. H. Temp. 141.00 F  
 Hole Condition Good  
 % Porosity 0.00  
 Packer Size 6.75 in  
 No. of Packers 2  
 Cushion Amt. 0.00  
 Cushion Type  
 Reversed Out N  
 Tool Chased N  
 Tester Rod Steinbrink  
 Co. Rep. Rich Hall  
 Contr. Murfin  
 Rig # 25  
 Unit #  
 Pump T.

SAMPLES: Gas Bottle  
 SENT TO: Caraway

Test Successful: Y





# TEST HISTORY

11242 DST #1 Koehn #1 Western Operating Co.

Flag Points

t (Min.)	P (PSig)
A:	0.00 2498.23
B:	0.00 756.99
C:	18.00 914.31
D:	60.00 1012.50
E:	0.00 925.56
F:	43.00 948.03
G:	92.00 1009.65
Q:	0.00 2361.86

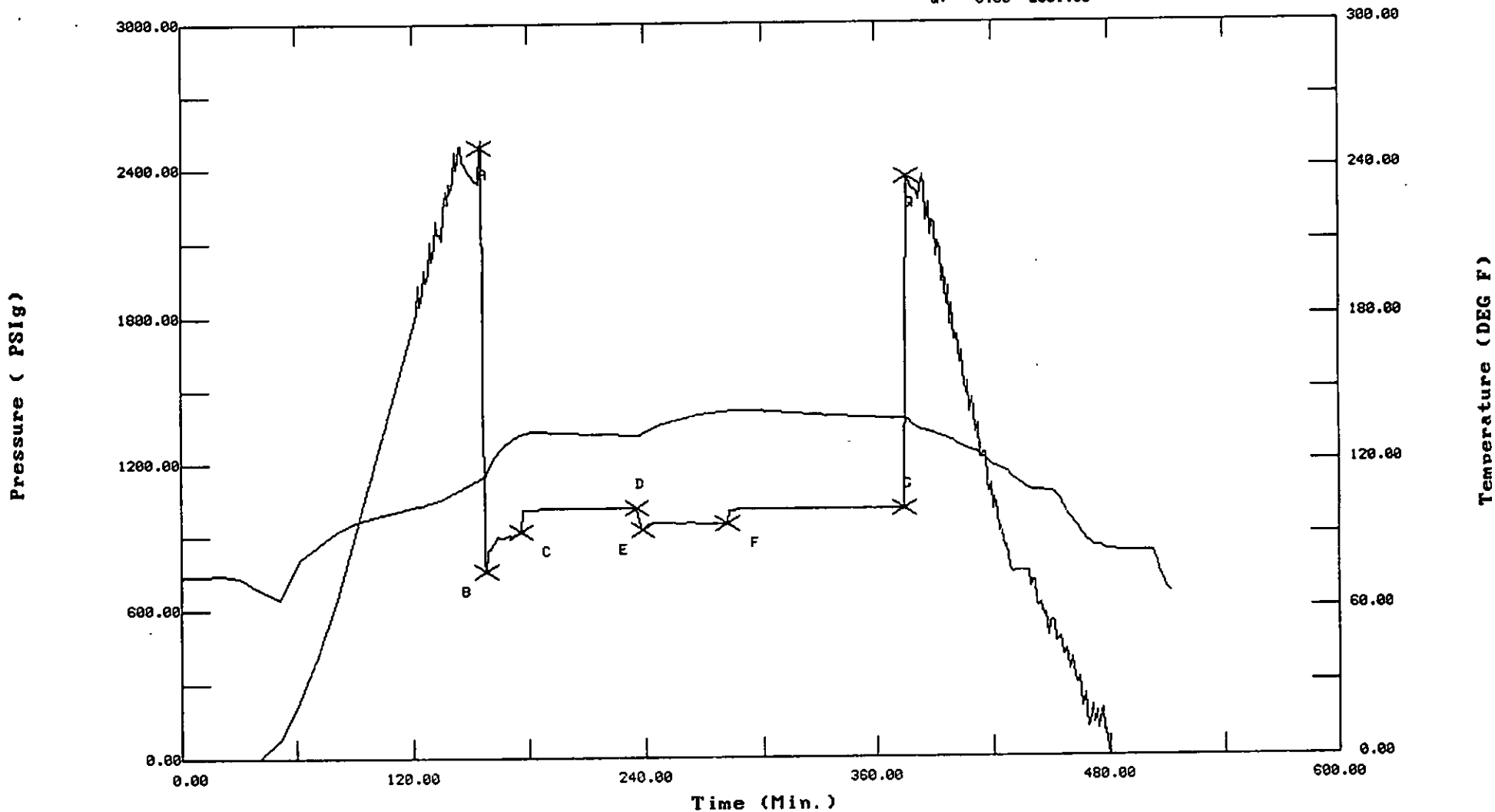
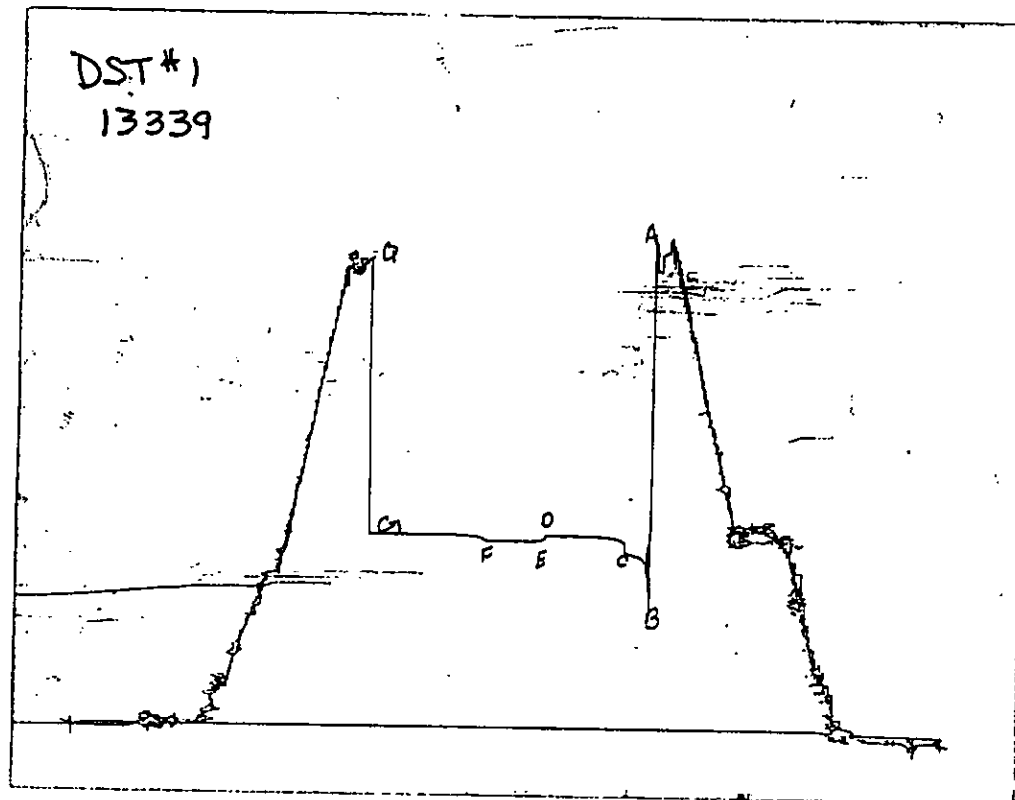


CHART PAGE



This is a photocopy of the actual AK-1 recorder chart

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: 11242 DST #1 Koehn #1 Western Operating Co.

DATE: 04/06/98 TIME: 23:40:20

	Time	Pressure PSig	delta P PSig	Temp. DEG F	(T+dT)/dT	P^2/10^6
***** Initial Hydro.	155.00	2490.2	0.0	113.66		
***** Start Flow 1	0.00	757.0	0.0	115.58		
	1.00	840.7	83.7	117.35		
	2.00	846.7	89.7	119.20		
	3.00	862.5	105.5	120.88		
	4.00	869.2	112.2	122.28		
	5.00	893.1	136.1	123.47		
	6.00	896.1	139.1	124.55		
	7.00	893.5	136.5	125.50		
	8.00	894.6	137.6	126.38		
	9.00	895.4	138.4	127.14		
	10.00	895.3	138.3	127.83		
	11.00	896.2	139.2	128.45		
	12.00	903.0	146.0	129.02		
	13.00	900.5	143.5	129.54		
	14.00	898.1	141.1	130.02		
	15.00	904.0	147.0	130.48		
	16.00	905.9	148.9	130.90		
	17.00	911.4	154.4	131.31		
***** End Flow 1	18.00	914.3	157.3	131.67		
***** Start Shutin 1	0.00	914.3	0.0	131.67	0.0000	0.836
	1.00	1007.4	93.1	132.03	19.0000	1.015
	2.00	1008.1	93.8	132.38	10.0000	1.016
	3.00	1008.5	94.2	132.64	7.0000	1.017
	4.00	1008.7	94.4	132.81	5.5000	1.018
	5.00	1009.0	94.6	132.92	4.6000	1.018
	6.00	1009.2	94.9	132.98	4.0000	1.018
	7.00	1009.5	95.1	133.01	3.5714	1.019
	8.00	1009.7	95.4	133.02	3.2500	1.019
	9.00	1009.9	95.6	133.02	3.0000	1.020
	10.00	1010.1	95.8	132.99	2.8000	1.020
	11.00	1010.2	95.9	132.97	2.6364	1.021
	12.00	1010.4	96.1	132.94	2.5000	1.021
	13.00	1010.5	96.2	132.92	2.3846	1.021
	14.00	1010.6	96.3	132.88	2.2857	1.021
	15.00	1010.7	96.4	132.83	2.2000	1.022
	16.00	1010.8	96.5	132.80	2.1250	1.022
	17.00	1010.9	96.6	132.76	2.0588	1.022
	18.00	1011.0	96.7	132.71	2.0000	1.022
	19.00	1011.0	96.7	132.67	1.9474	1.022
	20.00	1011.1	96.8	132.64	1.9000	1.022
	21.00	1011.2	96.9	132.60	1.8571	1.022
	22.00	1011.2	96.9	132.55	1.8182	1.023
	23.00	1011.3	97.0	132.52	1.7826	1.023
	24.00	1011.4	97.1	132.49	1.7500	1.023
	25.00	1011.4	97.1	132.43	1.7200	1.023
	26.00	1011.5	97.2	132.41	1.6923	1.023
	27.00	1011.5	97.2	132.36	1.6667	1.023
	28.00	1011.6	97.3	132.32	1.6429	1.023
	29.00	1011.6	97.3	132.29	1.6207	1.023
	30.00	1011.6	97.3	132.25	1.6000	1.023

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: 11242 DST #1 Koehn #1 Western Operating Co.

DATE: 04/06/98 TIME: 23:40:20

	Time	Pressure PSig	delta P PSig	Temp. DEG F	(T+dT)/dT	P <sup>2</sup> /10 <sup>6</sup>
	31.00	1011.7	97.4	132.21	1.5806	1.024
	32.00	1011.7	97.4	132.17	1.5625	1.024
	33.00	1011.8	97.5	132.14	1.5455	1.024
	34.00	1011.8	97.5	132.11	1.5294	1.024
	35.00	1011.9	97.6	132.07	1.5143	1.024
	36.00	1011.9	97.6	132.02	1.5000	1.024
	37.00	1011.9	97.6	132.00	1.4865	1.024
	38.00	1012.0	97.7	131.96	1.4737	1.024
	39.00	1012.0	97.7	131.93	1.4615	1.024
	40.00	1012.0	97.7	131.91	1.4500	1.024
	41.00	1012.1	97.8	131.87	1.4390	1.024
	42.00	1012.1	97.8	131.84	1.4286	1.024
	43.00	1012.1	97.8	131.81	1.4186	1.024
	44.00	1012.1	97.8	131.79	1.4091	1.024
	45.00	1012.1	97.8	131.76	1.4000	1.024
	46.00	1012.2	97.9	131.74	1.3913	1.024
	47.00	1012.2	97.9	131.70	1.3830	1.025
	48.00	1012.2	97.9	131.68	1.3750	1.025
	49.00	1012.2	97.9	131.66	1.3673	1.025
	50.00	1012.3	98.0	131.64	1.3600	1.025
	51.00	1012.3	98.0	131.62	1.3529	1.025
	52.00	1012.3	98.0	131.60	1.3462	1.025
	53.00	1012.4	98.1	131.59	1.3396	1.025
	54.00	1012.4	98.1	131.58	1.3333	1.025
	55.00	1012.4	98.1	131.55	1.3273	1.025
	56.00	1012.4	98.1	131.54	1.3214	1.025
	57.00	1012.4	98.1	131.51	1.3158	1.025
	58.00	1012.5	98.2	131.49	1.3103	1.025
	59.00	1012.5	98.2	131.47	1.3051	1.025
***** End Shut-in 1	60.00	1012.5	98.2	131.46	1.3000	1.025
***** Start Flow 2	0.00	925.6	0.0	131.99		
	1.00	936.4	10.8	132.45		
	2.00	938.0	12.4	132.91		
	3.00	946.3	20.7	133.37		
	4.00	945.9	20.4	133.81		
	5.00	950.3	24.8	134.22		
	6.00	952.6	27.0	134.59		
	7.00	953.7	28.1	134.96		
	8.00	952.1	26.5	135.29		
	9.00	951.9	26.3	135.60		
	10.00	951.9	26.3	135.88		
	11.00	953.6	28.1	136.14		
	12.00	953.9	28.4	136.40		
	13.00	953.7	28.2	136.64		
	14.00	952.5	27.0	136.88		
	15.00	952.7	27.1	137.10		
	16.00	952.1	26.5	137.33		
	17.00	949.3	23.8	137.57		
	18.00	947.9	22.4	137.80		
	19.00	947.6	22.0	137.99		
	20.00	947.8	22.3	138.19		

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 ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: 11242 DST #1 Koehn #1 Western Operating Co.

DATE: 04/06/98 TIME: 23:40:20  
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Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
21.00	948.1	22.6	138.38		
22.00	945.9	20.3	138.57		
23.00	953.2	27.7	138.74		
24.00	953.2	27.7	138.93		
25.00	950.2	24.6	139.14		
26.00	951.4	25.9	139.34		
27.00	949.2	23.7	139.52		
28.00	948.9	23.3	139.67		
29.00	948.9	23.4	139.80		
30.00	947.7	22.2	139.91		
31.00	947.5	21.9	139.98		
32.00	948.0	22.4	140.06		
33.00	947.4	21.8	140.15		
34.00	948.3	22.7	140.22		
35.00	947.8	22.3	140.33		
36.00	948.2	22.7	140.43		
37.00	947.4	21.9	140.54		
38.00	949.0	23.4	140.66		
39.00	948.1	22.5	140.78		
40.00	948.2	22.6	140.88		
41.00	947.9	22.3	140.98		
42.00	948.1	22.5	141.07		
43.00	948.0	22.5	141.17		

\*\*\*\*\* End Flow 2

\*\*\*\*\* Start Shutin 2

0.00	948.0	0.0	141.17	0.0000	0.899
1.00	999.7	51.7	141.28	62.0000	0.999
2.00	1001.5	53.5	141.40	31.5000	1.003
3.00	1002.6	54.6	141.49	21.3333	1.005
4.00	1003.4	55.4	141.56	16.2500	1.007
5.00	1004.0	56.0	141.59	13.2000	1.008
6.00	1004.5	56.4	141.61	11.1667	1.009
7.00	1004.9	56.8	141.61	9.7143	1.010
8.00	1005.2	57.1	141.60	8.6250	1.010
9.00	1005.5	57.4	141.59	7.7778	1.011
10.00	1005.7	57.7	141.57	7.1000	1.011
11.00	1005.9	57.9	141.55	6.5455	1.012
12.00	1006.1	58.1	141.51	6.0833	1.012
13.00	1006.3	58.3	141.48	5.6923	1.013
14.00	1006.5	58.4	141.45	5.3571	1.013
15.00	1006.6	58.6	141.41	5.0667	1.013
16.00	1006.8	58.7	141.37	4.8125	1.014
17.00	1006.9	58.9	141.32	4.5882	1.014
18.00	1007.0	59.0	141.27	4.3889	1.014
19.00	1007.1	59.1	141.21	4.2105	1.014
20.00	1007.3	59.2	141.17	4.0500	1.015
21.00	1007.3	59.3	141.11	3.9048	1.015
22.00	1007.4	59.4	141.06	3.7727	1.015
23.00	1007.5	59.5	140.99	3.6522	1.015
24.00	1007.6	59.5	140.94	3.5417	1.015
25.00	1007.7	59.6	140.87	3.4400	1.015
26.00	1007.7	59.7	140.82	3.3462	1.016
27.00	1007.8	59.8	140.76	3.2593	1.016

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 ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: 11242 DST #1 Koehn #1 Western Operating Co.

DATE: 04/06/98

TIME: 23:40:20  
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Time	Pressure PSig	delta P PSig	Temp. DEG F	(T+dT)/dT	P <sup>2</sup> /10 <sup>6</sup>
28.00	1007.9	59.9	140.70	3.1786	1.016
29.00	1008.0	59.9	140.64	3.1034	1.016
30.00	1008.0	60.0	140.59	3.0333	1.016
31.00	1008.1	60.0	140.53	2.9677	1.016
32.00	1008.1	60.1	140.46	2.9062	1.016
33.00	1008.2	60.1	140.40	2.8485	1.016
34.00	1008.2	60.2	140.34	2.7941	1.016
35.00	1008.3	60.2	140.28	2.7429	1.017
36.00	1008.3	60.3	140.23	2.6944	1.017
37.00	1008.4	60.3	140.17	2.6486	1.017
38.00	1008.4	60.4	140.11	2.6053	1.017
39.00	1008.5	60.4	140.05	2.5641	1.017
40.00	1008.5	60.5	139.99	2.5250	1.017
41.00	1008.5	60.5	139.93	2.4878	1.017
42.00	1008.6	60.5	139.86	2.4524	1.017
43.00	1008.6	60.6	139.81	2.4186	1.017
44.00	1008.7	60.6	139.75	2.3864	1.017
45.00	1008.7	60.6	139.71	2.3556	1.017
46.00	1008.7	60.7	139.65	2.3261	1.018
47.00	1008.7	60.7	139.59	2.2979	1.018
48.00	1008.8	60.7	139.53	2.2708	1.018
49.00	1008.8	60.8	139.49	2.2449	1.018
50.00	1008.8	60.8	139.43	2.2200	1.018
51.00	1008.8	60.8	139.37	2.1961	1.018
52.00	1008.9	60.9	139.32	2.1731	1.018
53.00	1008.9	60.9	139.26	2.1509	1.018
54.00	1008.9	60.9	139.21	2.1296	1.018
55.00	1009.0	61.0	139.17	2.1091	1.018
56.00	1009.0	61.0	139.13	2.0893	1.018
57.00	1009.0	61.0	139.07	2.0702	1.018
58.00	1009.0	61.0	139.03	2.0517	1.018
59.00	1009.1	61.0	138.98	2.0339	1.018
60.00	1009.1	61.1	138.94	2.0167	1.018
61.00	1009.1	61.1	138.89	2.0000	1.018
62.00	1009.1	61.1	138.85	1.9839	1.018
63.00	1009.2	61.1	138.81	1.9683	1.018
64.00	1009.2	61.1	138.77	1.9531	1.018
65.00	1009.2	61.2	138.71	1.9385	1.019
66.00	1009.2	61.2	138.68	1.9242	1.019
67.00	1009.2	61.2	138.64	1.9104	1.019
68.00	1009.3	61.2	138.60	1.8971	1.019
69.00	1009.3	61.3	138.57	1.8841	1.019
70.00	1009.3	61.3	138.52	1.8714	1.019
71.00	1009.3	61.3	138.49	1.8592	1.019
72.00	1009.3	61.3	138.45	1.8472	1.019
73.00	1009.4	61.3	138.41	1.8356	1.019
74.00	1009.4	61.4	138.37	1.8243	1.019
75.00	1009.4	61.4	138.33	1.8133	1.019
76.00	1009.4	61.4	138.30	1.8026	1.019
77.00	1009.4	61.4	138.26	1.7922	1.019
78.00	1009.5	61.4	138.23	1.7821	1.019

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 ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: 11242 DST #1 Koehn #1 Western Operating Co.

DATE: 04/06/98

TIME: 23:40:20  
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	Time	Pressure PSig	delta P PSig	P DEG F	Temp. DEG F	(T+dT)/dT	P^2/10^6
	79.00	1009.5	61.4	138.21	138.21	1.7722	1.019
	80.00	1009.5	61.5	138.17	138.17	1.7625	1.019
	81.00	1009.5	61.5	138.14	138.14	1.7531	1.019
	82.00	1009.5	61.5	138.10	138.10	1.7439	1.019
	83.00	1009.5	61.5	138.07	138.07	1.7349	1.019
	84.00	1009.5	61.5	138.04	138.04	1.7262	1.019
	85.00	1009.6	61.5	138.01	138.01	1.7176	1.019
	86.00	1009.6	61.5	137.98	137.98	1.7093	1.019
	87.00	1009.6	61.5	137.96	137.96	1.7011	1.019
	88.00	1009.6	61.5	137.93	137.93	1.6932	1.019
	89.00	1009.6	61.6	137.90	137.90	1.6854	1.019
	90.00	1009.6	61.6	137.87	137.87	1.6778	1.019
	91.00	1009.6	61.6	137.84	137.84	1.6703	1.019
***** End Shut-in 2	92.00	1009.6	61.6	137.81	137.81	1.6630	1.019
***** Final Hydro.	376.00	2361.9	0.0	137.30	137.30		



# TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

## Test Ticket

No 11242

Well Name & No. <u>Koehn #1</u>	Test No. <u>1</u>	Date <u>4-7-98</u>
Company <u>Western Operating Company</u>	Zone Tested <u>Lower Morrow</u>	
Address <u>518 - 17<sup>th</sup> St. Ste 1680 Denver CO. 80202</u>		Elevation <u>3876</u> KB <u>3866</u> GL
Co. Rep / Geo. <u>Rich Hall</u>	Cont. <u>Murfin #25</u>	Est. Ft. of Pay <u>    </u> Por. <u>    </u> %
Location: Sec. <u>11</u>	Twp. <u>19<sup>S</sup></u>	Rge. <u>43<sup>W</sup></u> Co. <u>Greeley</u> State <u>KS.</u>
No. of Copies <u>    </u>	Distribution Sheet (Y, N) <u>N</u>	Turnkey (Y, N) <u>N</u> Evaluation (Y, N) <u>    </u>

Interval Tested <u>4995 - 5129</u>	Initial Str Wt./Lbs. <u>96,000</u> Unseated Str Wt./Lbs. <u>100,000</u>
Anchor Length <u>134'</u>	Wt. Set Lbs. <u>30,000</u> Wt. Pulled Loose/Lbs. <u>130,000</u>
Top Packer Depth <u>4990</u>	Tool Weight <u>2,000</u>
Bottom Packer Depth <u>4995</u>	Hole Size — 7 7/8" <u>    </u> Rubber Size — 6 3/4" <u>    </u>
Total Depth <u>5129</u>	Wt. Pipe Run <u>    </u> Drill Collar Run <u>4" H-90 560' (6)</u>
Mud Wt. <u>9.0</u> LCM <u>4*/bbl</u> Vis. <u>52</u> WL <u>7.2</u>	Drill Pipe Size <u>4 1/2" XH</u> Ft. Run <u>4442'</u>
Blow Description <u>IF: Strong blow off bttm 1 min GTS @ 3 mins.</u>	
<u>ISI: Bled off blow - no return.</u>	
<u>FF: Strong return - spray of mud throughout (est. 100 psi on</u>	
<u>FSI: Bled off blow - no return. 6737 mcf/day 1 1/2" chok</u>	

Recovery — Total Feet <u>240'</u>	GIP <u>GTS</u>	Ft. in DC <u>240'</u>	Ft. in DP <u>    </u>
Rec. <u>    </u> Feet Of <u>    </u>	%gas <u>    </u> %oil <u>    </u> %water <u>    </u> %mud <u>    </u>		
Rec. <u>240'</u> Feet Of <u>SGM</u>	10 %gas <u>    </u> %oil <u>    </u> %water <u>90</u> %mud <u>    </u>		
Rec. <u>    </u> Feet Of <u>    </u>	%gas <u>    </u> %oil <u>    </u> %water <u>    </u> %mud <u>    </u>		
Rec. <u>    </u> Feet Of <u>    </u>	%gas <u>    </u> %oil <u>    </u> %water <u>    </u> %mud <u>    </u>		
Rec. <u>    </u> Feet Of <u>    </u>	%gas <u>    </u> %oil <u>    </u> %water <u>    </u> %mud <u>    </u>		

BHT 141° °F Gravity      °API D@      °F Corrected Gravity      °API

RW      @      °F Chlorides      ppm Recovery Chlorides 3,500 ppm System

(A) Initial Hydrostatic Mud <u>2523</u>   <u>2490</u> PSI	Recorder No. <u>13339</u>	T-Started <u>0040 (edt)</u>
(B) First Initial Flow Pressure <u>639</u>   <u>756</u> PSI	(depth) <u>5124</u>	T-Open <u>0320</u>
(C) First Final Flow Pressure <u>919</u>   <u>914</u> PSI	Recorder No. <u>3024</u>	T-Pulled <u>0655</u>
(D) Initial Shut-in Pressure <u>1020</u>   <u>1012</u> PSI	(depth) <u>5000</u>	T-Out <u>0930</u>
(E) Second Initial Flow Pressure <u>989</u>   <u>925</u> PSI	Recorder No. <u>    </u>	
(F) Second Final Flow Pressure <u>989</u>   <u>948</u> PSI	(depth) <u>    </u>	
(G) Final Shut-in Pressure <u>1020</u>   <u>1009</u> PSI	Initial Opening <u>30</u>	Test <u>    </u>
(H) Final Hydrostatic Mud <u>2433</u>   <u>2361</u> PSI	Initial Shut-in <u>60</u>	Jars <u>X</u>

AK-1 Mech. Alp. Elec.

Final Flow 45 Safety Joint X

Final Shut-in 90 Straddle     

on loc. 2230 Circ. Sub X N/C

off loc. 1030 Sampler     

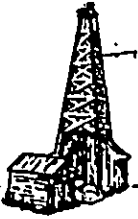
Extra Packer     

Elect. Rec. X

Other     

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By *Rich Hall*



WHITEHALL EXPLORATION

RECEIVED  
KANSAS CORP CO.

1999 JUN 12 A 11:41

Wellsite Geological Consulting / Complete Well Logging

ORIGINAL

GEOLOGICAL ANALYSIS & WELL REPORT

Western Operating Company

Koehn No. 1

NE-NW  
500' FNL & 3,900' FEL  
Section 11-Township 19 South-Range 43 West  
Greeley County, Kansas

15-071-20687-00-00

April 10, 1998

Richard J. Hall  
CPG No. 4749

ORIGINAL

RECEIVED  
KANSAS CORP COMM

GENERAL WELL INFORMATION

Elevation: K.B. 3,875.1998 JUN 12 A 11:11  
(All measurements are from K.B.)

Contractor: Murfin Drilling Co. - Wichita, KS

Rig: No. 25

Casing: Surface: 8 5/8" set at 609'  
Production: 5 1/2" set @ 5,236'

Total Depth: RTD 5,240' LTD 5,240'

Drilling Time: 4,500' to 5,240' RTD

Samples Saved: 4,000' to 5,240' RTD

Samples Examined: 4,500' to 5,240' RTD

Wellsite Geologist: Richard J. Hall  
Certified Petroleum Geologist No. 4749  
Wellsite Geological Consultant  
Whitehall Exploration

Company Man: None

Mudlogging Unit: None

Mudlogging Geologist: None

DST Company/Tester: Trilobite Testing LLC. / Rod Steinbrink

Number of Tests: One

Mud Company/Engineer: Service Mud, Inc. / Reid Atkins

Mud Type: Chemical

Electric Logging Company: BPB Wireline Services

Type Logs: -Array Induction Shallow Focused Log  
-Compensated Neutron Compensated Photo-Density Log  
-Sonic Integrated Transit Time Log

Total Depth Formation: Mississippian

Samples: Dry cut saved over show zones

Well Status: 5 1/2" production casing set to further test the Lower Morrow Sandstone

DAILY DRILLING CHRONOLOGY

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1998 JUN 12 AM 11:42

<u>1998</u> <u>DATE</u>	<u>7:00 A.M.</u> <u>DEPTH</u>	<u>24 HOUR</u> <u>FOOTAGE</u>	<u>7:00 A.M. OPERATION; 24 HOUR ACTIVITY</u>
3/27	0	0	Move in, rained out.
3/30	0	0	MIRU; spud @ 2:00 P.M., drilling, run survey, drilling, circ, wiper trip, circ., trip out, rig up & run 14 jts @ 5/8" @ 609', cement w/ 175 xx, plug down @ 5:30 A.M., WOC.
3/31	610'	610'	WOC; trip in hole, drill cement, drilling, run survey, drilling, run survey, drilling.
4/01	1,675'	1,065'	Run survey; drilling, run survey, drilling.
4/02	2,920'	1,245'	Run survey; drilling, run survey, drilling.
4/03	3,645'	725'	Drilling ahead; displace mud @ 3,676' - 3,695', drop dev. survey, trip for bit, break circ-none, drilling, rig repair, drilling.
4/04	4,090'	445'	Drilling ahead; run survey, drilling.
4/05	4,565'	475'	Drilling ahead; drilling, run survey, drilling.
4/06	4,975'	410'	Drilling ahead; CFS @ 5,107', drilling, CFS @ 5,129', short trip, circ 90", trip out w/bit, rig up test tool, run DST #1, trip out w/ DST.
4/07	5,129'	154'	Tripping out w/ DST No. 1, lay down tool, trip in w/bit, drilling, reach RTD, circ. & cond. hole, trip out w/bit; rig up & run e. logs, trip in hole, lay down drill pipe.
4/08	5,240'	111'	Lay down drill pipe; rig up and run production casing.

REFERENCE WELLS

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Reference Well "A":

AMOCO Production Co.  
Schmidt No. 1-2  
330' FSL and 700' FEL  
Section 2-T19S-R43W  
Greeley County, Colorado  
RTD: 5,271'  
Elevation: 3,866' KB  
Date Drilled: October, 1990  
TD Formation: Mississippian  
Status: Dry and Abandoned

Reference Well "B":

AMOCO Production Co.  
Schmidt No. 2-12  
NW-NW-NW  
Section 12-T19S-R43W  
Greeley County, Colorado  
RTD: 5,275'  
Elevation: 3,866' KB  
Date Drilled: December 1990  
TD Formation: Lower Morrow Sandstone  
Status: Dry and Abandoned

DEVIATION RECORD

<u>Survey Depth</u>	<u>Deviation (Degrees)</u>	<u>Method</u>
292'	1/4	wireline
610'	1/2	drop
1,139'	misrun	wireline
1,169'	1/2	wireline
1,701'	1/2	wireline
2,329'	3/4	wireline
2,924'	1/4	wireline
3,425'	1/2	wireline
3,780'	1/8	drop
4,298'	3/4	wireline
4,825'	1/4	wireline
5,129'	1 1/2	drop
5,240'	1 1/2	drop

CORES

None

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FORMATION TOPS 1998 JUN 12 A 11:42

FORMATION	Koehn No. 1			Schmidt 1-2 REFERENCE WELL "A"	Schmidt/12 REFERENCE WELL "B"	DIFFERENCE TO REFERENCE WELL	
	SAMPLE TOPS	ELECTRIC LOG TOPS	DATUM			"A"	"B"
CRETACEOUS Dakota	**	1032	2843	NA	NA	NA	NA
PERMIAN Blaine Salt	**	1854	2021	NA	NA	NA	NA
Base / Anhydrite	**	2512	1363	1356	NA	7	NA
Neva	**	3291	584	NA	NA	NA	NA
PENNSYLVANIAN Topeka	**	3755	120	NA	NA	NA	NA
Lansing	**	4040	-165	NA	NA	NA	NA
Marmaton	4521	4530	-655	-636	NA	-19	NA
Cherokee Shale	4653	4652	-777	-784	-796	7	19
Atoka	4861	4862	-987	-986	-1000	-1	13
Morrow Shale	5009	5010	-1135	-1139	-1149	4	14
Lower Morrow Sd	5108	5100	-1225	Absent	-1237	NA	12
Lower Morrow Ls	5128	5144	-1269	-1255	-1269	-14	FLAT
Morrow Sh to Lo. Mo. Ls Isopach		134		116	120	18	14
MISSISSIPPIAN Mississippian	5182	5176	-1301	-1294	-1300	-7	-1

\*\* Formation Tops not called - Geologic Supervision started at 4,500'

NDE=Not Deep Enough

NA = Not Available

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ZONES OF INTEREST

<u>Formation</u>	<u>Log Depth</u>	<u>Lithologic &amp; Show Descriptions? Remarks</u>
Marmaton	4,600' - 4,610'	<p>Limestone, light tan, fine crystalline, granular texture in part, firm-hard, very chalky, scattered calcite inclusions, fair intercrystalline porosity; FAIR SHOW: fair to good spotty yellow fluorescence, no show of oil, trace of oil staining, extremely slow slightly streaming cut, good fast pale yellow cut when broken grading to good yellow live cut, very good bright yellow dried residual cut.</p> <p>This zone drilled at 2-3 minutes per foot. Electric logs show this interval has poor reservoir development and is tight.</p>
MORROW FORMATION:		
Lower Morrow Sandstone	5,100' - 5,104'	<p>Sandstone, 1% of sample, light to dark gray clusters, subfriable-hard, mostly very fine grained, predominately subrounded to subangular, clear-frosted individual grains, very well sorted, good silica cementing, very glauconitic, moderately shaley in part, moderate kaolinite white clay filling in part, grading to very shaley/silty clusters, less glauconitic, poor visual intergranular porosity, NO SHOW: no fluorescence, no live or dried cut.</p> <p>This sandstone drilled at 3 minutes per foot.</p> <p>Electric logs show this sandstone has neutron/density crossover gas effect, good cross plot porosity ranging from approximately 12-17 percent, slight-fair SP development, fair mud cake development, and deep induction resistivity up to from 17 ohms.</p>
Shale	5,104' - 5,106'	<p>Shale, green, medium gray, splintery-subblockly, moderately waxy, soft, fissile.</p>
Sandstone	5,106' - 5,112'	<p>Sandstone clusters and medium-coarse-very coarse individual unconsolidated grains, 3% of sample, predominately clear clean individual grains with occasional yellow and orange tinted grains, some subhedral grains, friable, subrounded-angular, fair sorting, poor-fair silica cementing, rare pyrite inclusions, moderate-very white</p>

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kaolinite clay filled in part, very good  
intergranular porosity;  
grading to predominately medium grained  
clusters, firm to hard, (not as friable),  
subrounded to subangular, fair-moderate  
silica cementing, minor-fair clay filling  
(less kaolinite than coarse grained  
clusters), very good intergranular  
porosity; SLIGHT SHOW: no fluorescence, no  
show oil, no live cut, occasional slight  
to rare fair dull yellow/blue dried  
residual cut.

A drilling break of 1-3 minutes per foot  
from a background penetration rate of 2-4  
minutes per foot was recorded over this  
interval.

This section is the best developed  
reservoir of the Lower Morrow Sandstone  
with electric logs exhibiting gas effect,  
density porosities exceeding 30 percent,  
fair SP and slight mudcake development.

Sandstone 5,114'-5,122'

Sandstone, fine grained clusters, 3-4% of  
sample, friable to firm, subrounded-  
subangular, very well sorted, fair-medium  
silica cementing, vitreous when clusters  
broken, fair-moderately clay filled, fair  
intergranular porosity; very rare very  
slight show as above; occasional slight  
dull yellow/blue dried residual cut.

This interval recorded a penetration  
rate of 2-2 1/2 minutes per foot.

Electric logs show this sandstone has  
gas effect, maximum density porosity of  
22%, moderate SP development and good  
mudcake development/permeability.

Drill stem test No. 1 covered the entire  
Lower Morrow Sandstone and recovered gas  
to surface in 3 minutes with an estimated  
stabilized flow of over 6737 MCFG per day  
(See Drill Stem Test No. 1 results).

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TRILOBITE TESTING L.I.C.

OPERATOR : West Operating Co.  
 WELL NAME: Koeh. #1  
 LOCATION : 11-19S-43W Greeley KS.  
 INTERVAL : 4995.00 To 5129.00 ft

DATE 4-1  
 KB 3866.00 ft  
 GR 3876.00 ft  
 TD 5129.00 ft

TICKET NO: 11242 DST #1  
 FORMATION: Lower Morrow  
 TEST TYPE: CONVENTIONAL

RECORDER DATA

Mins	Field	1	2	3	4
PF 20 Rec.	13339		3024		
SI 60 Range(Psi)	4025.0	0.0	4995.0	0.0	
SF 45 Clock(hrs)	12 HR		ALP		
FS 90 Depth(ft)	5124.0	0.0	5000.0	0.0	

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 PF Fr. 0310 to 0340 hr  
 IS Fr. 0340 to 0440 hr  
 SF Fr. 0440 to 0525 hr  
 FS Fr. 0525 to 0655 hr

	Field	1	2	3	4
A. Init Hydro	2523.0	0.0	2490.0	0.0	0.0
B. First Flow	639.0	0.0	756.0	0.0	0.0
Bl. Final Flow	919.0	0.0	914.0	0.0	0.0
C. In Shut-in	1020.0	0.0	1012.0	0.0	0.0
D. Init Flow	989.0	0.0	925.0	0.0	0.0
E. Final Flow	989.0	0.0	948.0	0.0	0.0
F. Fl Shut-in	1020.0	0.0	1009.0	0.0	0.0
G. Final Hydro	2433.0	0.0	2361.0	0.0	0.0
Inside/Outside	0		I		

T STARTED 0040 hr  
 T ON BOTM 0308 hr  
 T OPEN 0310 hr  
 T PULLED 0655 hr  
 T OUT 0930 hr

TOOL DATA-----  
 Tool Wt. 2000.00 lbs  
 Wt Set On Packer 30000.00 lbs  
 Wt Pulled Loose 130000.00 lbs  
 Initial Str Wt 96000.00 lbs  
 Unseated Str Wt 100000.00 lbs  
 Bot Choke 0.75 in  
 Hole Size 8.88 in  
 D Col. ID 2.25 in  
 D. Pipe ID 3.80 in  
 D.C. Length 560.00 ft  
 D.P. Length 4442.00 ft

RECOVERY

Tot Fluid 240.00 ft of 240.00 ft in DC and 0.00 ft in DP  
 240.00 ft of SCG 10%gas 90% mud  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 0.00 ft of  
 SALINITY 0.00 P.P.M. A.P.I. Gravity 0.00

BLOW DESCRIPTION

IF; Strong blow off bttm in 1 min  
 GTS @ 3 mins.  
 ISI; Bled off blow - no return  
 FF: Strong return w/spray of mud thru  
 est. 100 psi on 1 1/2" orifice =  
 6737 mcf/day  
 FSI; Bled off blow - no return

MUD DATA-----  
 Mud Type Chemical  
 Weight 9.00 lb/cf  
 Vis. 52.00 S/L  
 W.L. 7.20 in3  
 F.C. 0.00 in  
 Mud Drop N

Amt. of fill 0.00 ft  
 Btm. H. Temp. 141.00 F  
 Hole Condition Good  
 % Porosity 0.00  
 Packer Size 6.75 in  
 No. of Packers 2  
 Cushion Amt. 0.00  
 Cushion Type Reversed Out N  
 Tool Chased N  
 Tester Rod Steinbrink  
 Co. Rep. Rich Hall  
 Contr. Murfin  
 Rig # 25  
 Unit #  
 Pump T.

SAMPLES: Gas Bottle  
 SENT TO: Caraway

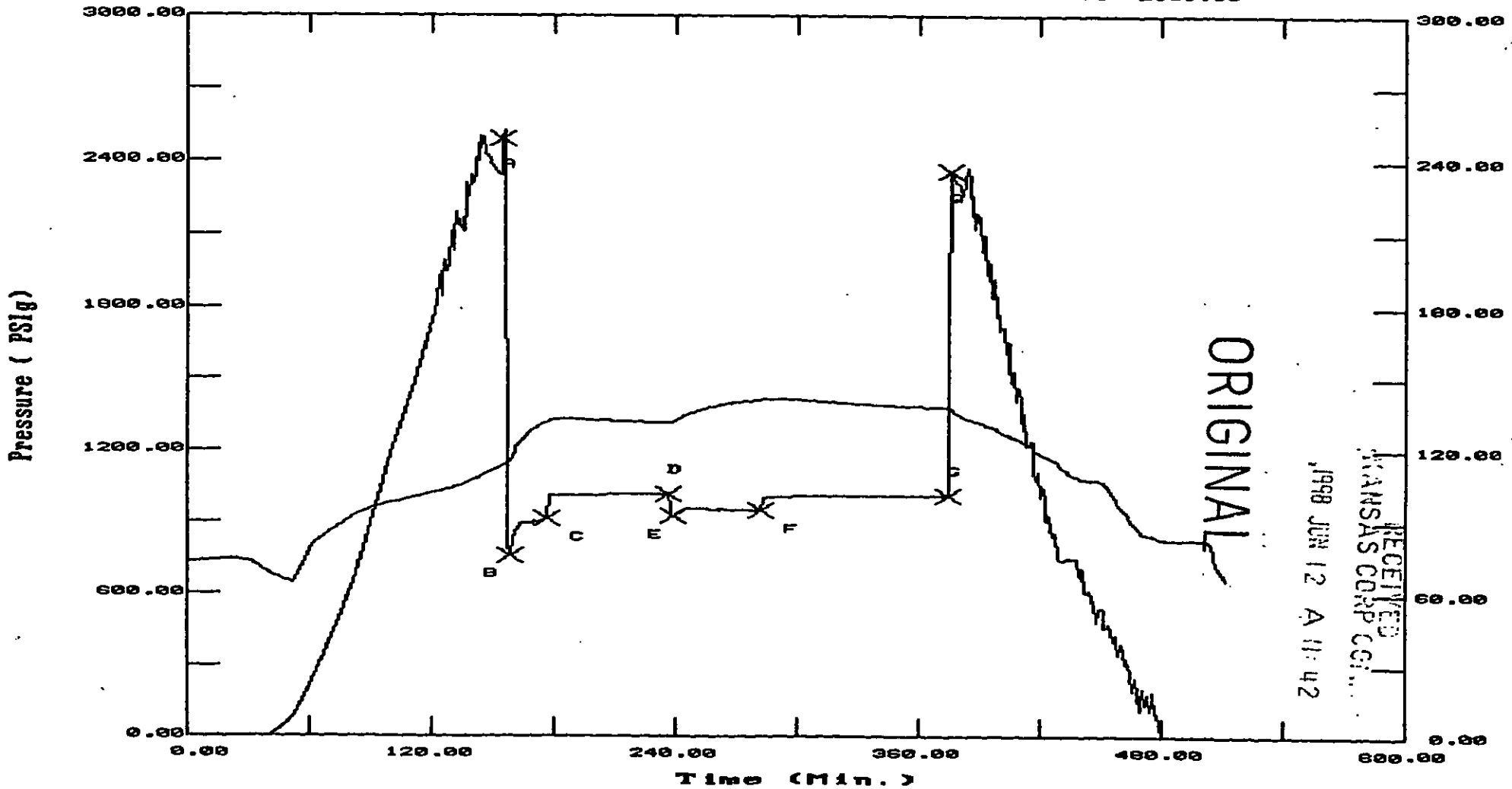
Test Successful: Y

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# TEST HISTORY

11242 DST #1 Koehn #1 Western Operating Co.

	t (Min.)	Px (PSig)
A1	0.00	2490.23
B1	0.00	756.99
C1	18.00	914.31
D1	60.00	1012.50
E1	0.00	925.56
F1	43.00	948.00
G1	92.00	1009.63
Q1	0.00	2361.66



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WELL AND GEOLOGIC SUMMARY

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General

The Koehn No. 1 was drilled as a wildcat prospect and was defined through seismic data and subsurface geology in an attempt to find a southern extension of the Moore-Johnson Field channel system and new fluvial Morrow Sandstone reservoirs.

This prospect is located 4.5 miles directly south of the Morrow Sandstone producing Moore-Johnson Field. The Koehn No. 1 is located just east of the Colorado stateline and 16 miles west and 3 miles south of the town of Tribune, Kansas.

The primary objective in this test well was the Lower Morrow Sandstone(s) known locally in the Moore-Johnson/Jace Field area as the Stockholm Sandstone. A 22 foot gross, 18 foot net, thick Lower Morrow Sandstone was encountered from 5,100' to 5,122' and rests directly on top of a basal channel limestone.

Murfin Drilling Company's Rig No. 25 spudded the Koehn No. 1 on March 30, 1998 and RTD was reached at 4:45 P.M. on April 7, 1998. Production casing was set on April 8, 1998. Ten foot drilling samples were caught from 4,000 to 5,240 feet RTD with 5' samples over the Morrow Formation from 5,020-5,150 feet.

No lost circulation was encountered during the drilling of this well. One (1) open hole drill stem test was preformed before logs were run over thw Morrow Formation.

Hydrocarbon Shows

A fair qulaity hydrocarbon show was observed in the samples in the Marmaton Formation (4,600'-4,610') consisting of fair-good spotty fluorescence, trace of oil staining, extremely slow slightly streaming cut, good cut when broken grading to good yellow live cut, very good bright yellow dried cut.

A slight show was observed in the Lower Morrow Sandstone drilling sample sandstone clusters consisting of a slight to rare fair dull yellow/blue dried residual cut.

Structure

The Koehn No. 1 ran structurally mixed compared to the Reference Wells used for correlation for this report. The Morrow shale datum is 5,010 feet (-1,135 feet) which is +4 and +14 feet high compared to Reference Wells "A" and "B" respectively. The Morrow Limestone datum is 5,144 feet (-1,269 feet) and is -14 feet and flat relative to Reference Wells "A" and "B". The Koehn No. 1 encountered a 134 foot thick Upper Morrow Interval which is 18 feet thicker than Reference Well "A", which hAs no Morrow Sandstone development and 14 feet thicker than Reference Well "B" which has a poorly developed Lower Morrow Sandstone in a valley-fill sequence.

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Summary

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The seismic acquired over this prospect appears to have correctly identified the Morrow Channel System with significant valley fill sandstone development as the Koehn No. 1 encountered its primary objective, a 22 foot thick (gross) Lower Morrow Sandstone which tested gas at the rate of over 6.7 MMCF/GPD on Drill Stem Test No. 1. The Lower two-thirds of this Morrow Sandstone exhibited a coarsening upward fluviatile sandstone development with excellent reservoir development (very good intergranular porosity and permeability). The Drill Stem test confirmed virgin reservoir pressures and water free gas was recovered (no show of oil).

Therefore, based on the excellent reservoir quality Lower Morrow Sandstone development, the high volume gas recovery on Drill Stem Test No. 1, the favorable structure position of the Morrow Formation, and the confirming electric logs, production casing (5 1/2 inch) was set to further test the Morrow Lower Sandstone.

Based on the lease position of this prospect, considerable development potential exists to further develop the Lower Morrow Sandstone reservoir and channel limits of this discovery and possibly an oil leg of the Lower Morrow sandstone reservoir.

Respectively Submitted,



Richard J. Hall  
Certified Petroleum Geologist No. 4749  
Consulting Wellsite Geologist  
Whitehall Exploration