

071206060000

ORIGINAL

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

Operator: License # 31155

Name: Axem Resources Incorporated

Address 7800 E. Union Avenue

Suiter1100

City/State/Zip Denver, CO 80237

Purchaser: Oil - Marathon

Operator Contact Person: Terry Hoffman

Phone (303) 740-9000

Contractor: Name: Murfin Drilling Company

License: 30606

Wellsite Geologist: Scott Banks

Designate Type of Completion

New Well Re-Entry Workover

Oil SWD SIOW Temp. Abd.
 Gas ENHR SIGW
 Dry Other (Core, VSW, 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 Inj/SWD
_____ Plug Back _____ PSTD
_____ Commingled _____ Docket No. _____
_____ Dual Completion _____ Docket No. _____
_____ Other (SWD or Inj?) _____ Docket No. _____

8/23/93 9/1/93 9/20/93
Spud Date Date Reached TD Completion Date

API NO. 15- 071206060000

County Greeley

SW CNE NE Sec. 11 Twp. 18S Rge. 43 X V

780 Feet from S (circle one) Line of Section

800' Feet from E/V (circle one) Line of Section

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

Lease Name Norma Well # 3-11

Field Name Moore-Johnson

Producing Formation Morrow

Elevation: Ground 3,903' KS 3,912

Total Depth 5,294' PSTD 5,250'

Amount of Surface Pipe Set and Cemented at 307 Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set 2,017' Feet

If Alternate II completion, cement circulated from 2,017'

feet depth to Surface v/ 410 sz cat.

Drilling Fluid Management Plan ALT 1 2/ 3-31-94
(Data must be collected from the Reserve Pit)

Chloride content 36 ppm Fluid volume 3,500 bbls

Dewatering method used Evaporation

Location of fluid disposal if hauled offsite: _____

Operator Name _____

Lease Name _____ License No. _____

Quarter Sec. _____ Twp. _____ Rng. _____ E/V

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 CERTIFICATES 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 Terry L. Hoffman

Title Senior Drilling Technician Date 11/18/93

Subscribed and sworn to before me this 18th day of November, 19 93.

Notary Public Ronnie L. Alder

Date Commission Expires June 30, 1995

K.C.C. OFFICE USE ONLY RECEIVED
Letter of Confidentiality Received
Wireline Log Received
Geologist Report Received
DEC 06 1993
Distribution 12-6-93
KCC SWD CONSERVATION DIVISION
KCS Plug Wichita, Kansas
(Specify)

Operator Name Axem Resources Incorporated

Lease Name Norma

Well # 3-11

Sec. 11 Top. 18S Rge. 43 East

County Greeley

West

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:

Acoustic
DIL/SP/GR
Z Density/Neutron/GR

Log Formation (Top), Depth and Datum Sample

Name	Top	Datum
Morrow	5,045'	(-1,142')
T/Blackbird Sd.	5,136'	(-1,224')
B/Blackbird Sd.	5,148'	(-1,236')
Norma Sand	5,160'	(-1,248')
B/Norma Sand	5,182'	(-1,270')
Lower Morrow	5,182'	(-1,270')

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	307'	60/40 Poz	20	2% gel-3%cc
Production	7-7/8"	5 1/2"	15.5	5,294'	Class A	200	10% Salt, .3% FL-50, 2% CD-31

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	5,172-5,176'		
4	5,166-5,172'		
4	5,158-5,162'		

TUBING RECORD Size 2-7/8" Set At 5,231' Packer At AC @ 5,053' Liner Run Yes No

Date of First, Resumed Production, SWD or Inj. 9/20/93 Producing Method Flowing Pumping Gas Lift Other (Explain)

Estimated Production Per 24 Hours	Oil Sbls.	Gas Mcf	Water Sbls.	Gas-Oil Ratio	Gravity
	102	169	0	1.65	36.13

Disposition of Gas:

METHOD OF COMPLETION

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

Open Hole Perf. Dually Comp. Commingled
 Other (Specify) _____

Production Interval

5,166-5,176'
5,158-5,162'

Phone 913-483-2627, Russell, Kansas
 Phone 316-793-5861, Great Bend, Kansas

Phone Plainville 913-434-2812
 Phone Ness City 913-798-3843

ORIGINAL

ALLIED CEMENTING CO., INC.

Home Office P. O. Box 31

Russell, Kansas 67665

5220

NEW

Date	7-23-93	Sec.	11	fwp.	185	Range	450	Called Out	1:30 PM	On Location	4:00 PM	Job Start	1:30 PM	Finish	7:00 PM
Lease	NORMG	Well No.	3-11	Location	Site 1 mile N. of N. 1/2 Sec. 11, T. 18S, R. 45W				County	Wichita	State	K.			
Contractor	Mortin Oil #24					Owner	Mortin Oil								
Type Job	5-1-1-1-1-1					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 listed.									
Hole Size	12 1/4	T.D.	307												
Csg.	1 1/2 2 1/2	Depth	200												
Tbg. Size		Depth													
Drill Pipe		Depth													
Tool		Depth													
Cement Left in Csg.		Shoe Joint													
Press Max.		Minimum													
Meas Line		Displace	12 1/2 cu ft												
Perf.															
EQUIPMENT															
No.	Cementer														
Pumptrk	Helper														
No.	Cementer														
Pumptrk	Helper														
	Driver														
Bulktrk															
Bulktrk	Driver														
DEPTH of Job															
Reference:	Pumptruck	430 ⁰⁰													
	225 per mile	225 ⁰⁰													
		42 ⁰⁰													
	Sub Total														
	Tax														
	Total	697 ⁰⁰													
Remarks:	... did ...														

Charge To	Mortin Oil
Street	250 N. Water Suite 300
City	Wichita State Kansas
The above was done to satisfaction and supervision of owner agent or contractor.	
Purchase Order No.	
X	Mortin Oil
CEMENT	
Amount Ordered	200 SKS 2,400 lbs
Consisting of	
Common	120 SKS @ 6.75 = 810 ⁰⁰
Poz. Mix	80 SKS @ 3.00 = 240 ⁰⁰
Gel.	4 SKS @ 7.00 = 28 ⁰⁰
Chloride	6 SKS @ 25.00 = 150 ⁰⁰
Quickset	

Handling	1.00 per SK	200 ⁰⁰
Mileage	44 per SK miles	800 ⁰⁰
	100 miles	
	Sub Total	2,212 ⁰⁰
	Total	

Floating Equipment	

J-2627, Russell, Kansas
 6-793-5861, Great Bend, Kansas

ORIGINAL

Phone Plainville 913-434-2812
 Phone Ness City 913-798-3843

ALLIED CEMENTING CO., INC.

Home Office P. O. Box 31

Russell, Kansas 67665

5100

Date <u>4-2-73</u>	Sec. <u>11</u>	Twp. <u>12S</u>	Range <u>13W</u>	Called Out <u>11:20 AM</u>	On Location <u>11:20 AM</u>	Job Start <u>11:20 AM</u>	Finish <u>2:45 PM</u>
Lease <u>600,000</u>	Well No. <u>3-11</u>	Location <u>11-13-15</u>			County <u>...</u>	State <u>...</u>	

Contractor <u>...</u>	
Type Job <u>...</u>	
Hole Size <u>7 7/8</u>	T.D. <u>5215</u>
Csg. <u>...</u>	Depth <u>5214</u>
Tbg. Size	Depth
Drill Pipe	Depth
Tool- <u>...</u>	Depth <u>5017</u>
Cement Left in Csg. <u>1.571 FT.</u>	Shoe Joint <u>45.71 FT.</u>
Press Max.	Minimum
Meas Line	Displace <u>...</u>
Perf.	

Owner ...
 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 listed.

Charge To ...
 Street ...
 City ... State ...

The above was done to satisfaction and supervision of owner agent or contractor.

Purchase Order No. ...
 X

EQUIPMENT

No.	Cementer	Rate
Pumptrk	Helper	...
No.	Cementer	Rate
Pumptrk	Helper	...
Bulktrk	Driver	...
Bulktrk	Driver	...

CEMENT
 Amount Ordered ...

Consisting of	Rate	Total
Common	1.85	1370.00
Poz-Mix	2.17	1207.52
Gel.	4.25	161.50
Chloride	5.25	126.00
Quickset	1.30	400.00

Handling <u>...</u>	200.00
Mileage <u>100 miles</u>	500.00
Sub Total	<u>4,315.02</u>
Total	<u>4,315.02</u>

DEPTH of Job

Reference:	Rate	Total
Pump truck	1.170	1170.00
725	2.50	1812.50
...	4.50	2025.00
Sub Total		
Tax		
Total		<u>1,440.00</u>

Floating Equipment

1 - ...	125.00
1 - ...	129.00
3 - ...	448.00
2 - ...	204.00
1 - ...	170.00
17 - ...	646.00

Remarks: ...

Total = 3,447.00

FIELD MOJO Norma 3-11 SEC 11 TWP. 18S RNG. 43N COUNTY GREELEY STATE KS

FORMATION NAME MORROW TYPE _____
 FORMATION THICKNESS _____ FROM _____ TO _____
 INITIAL PROD. OIL _____ BPD. WATER _____ BPD. GAS _____ MCFD
 PRESENT PROD. OIL _____ BPD. WATER _____ BPD. GAS _____ MCFD
 COMPLETION DATE _____ MUD TYPE _____ MUD WT. _____
 PACKER TYPE _____ SET AT _____
 BOTTOM HOLE TEMP. _____ PRESSURE _____
 MISC. DATA BRIDGE PLUG TOTAL DEPTH 4570

	NEW USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING	N	15.5	5 1/2	GL.		
LINER						
TUBING	U	65	2 1/8	GL	2821	KB
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

JOB DATA

DATE	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE <u>9/15/93</u>	DATE <u>9/15/93</u>	DATE <u>9/15/93</u>	DATE <u>9/15/93</u>
TIME <u>0920</u>	TIME <u>1420</u>	TIME <u>1710</u>	TIME <u>1910</u>

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALIZERS		
BOTTOM PLUG		
TOP PLUG		
HEAD <u>2 1/8 x 5 1/2</u>	<u>1</u>	<u>HINDERUTER</u>
PACKER <u>300 POSITIONER</u>	<u>1</u>	<u>BAKER</u>
OTHER		

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
<u>RANDY PALMER</u>	<u>2592 RCM</u>	<u>LAMAR</u>
<u>RON VAN BUEKIRK</u>	<u>4037-9151</u>	"
<u>DON KRIEGER</u>	<u>55609 HLC CMT</u>	"
<u>MIKE HARLEY</u>	<u>4149-5070 HLC CMT</u>	"
<u>REID WILSON</u>	<u>38239 PRONCO</u>	"

MATERIALS

TREAT. FLUID _____ DENSITY _____ LB./GAL. °API
 DISPL. FLUID H₂O DENSITY _____ LB./GAL. °API
 PROP. TYPE _____ SIZE _____ LB.
 PROP. TYPE _____ SIZE _____ LB.
 ACID TYPE _____ GAL. _____ %
 ACID TYPE _____ GAL. _____ %
 ACID TYPE _____ GAL. _____ %
 SURFACTANT TYPE LO SURF 300 GAL. 3 1/2 IN 83 PBL
 NE AGENT TYPE _____ GAL. _____ IN
 FLUID LOSS ADD. TYPE _____ GAL.-LB. _____ IN
 GELLING AGENT TYPE _____ GAL.-LB. _____ IN
 FRIC. RED. AGENT TYPE _____ GAL.-LB. _____ IN
 BREAKER TYPE _____ GAL.-LB. _____ IN
 BLOCKING AGENT TYPE _____ GAL.-LB. _____ IN
 PERFRAC BALLS TYPE _____ QTY. _____
 OTHER MUD FLUSH - 1000 GAL
 OTHER _____

DEPARTMENT CEMENT PSL
 DESCRIPTION OF JOB CEMENT UPPER STAGE IN 5 1/2" PRODUCTION CASING THROUGH KOTO STAGE TOOL

JOB DONE THRU: TUBING CASING ANNULUS TBG./ANN.
 CUSTOMER REPRESENTATIVE [Signature]
 HALLIBURTON OPERATOR REID WILSON COPIES REQUESTED _____

CEMENT DATA

STAGE	NUMBER OF SACKS	CEMENT	BRAND	BULK BACKED	ADDITIVES	YIELD CU.FT./GK.	MIXED LBS./GAL.
<u>LEAD</u>	<u>360</u>	<u>HLC STANDARD</u>	<u>B</u>	<u>1/4 LB/SK FLOCELE</u>		<u>1.69</u>	<u>13.1</u>
<u>TAIL</u>	<u>50</u>	<u>STANDARD</u>	<u>A</u>	<u>1/4 LB/SK FLOCELE, 2% CaCl₂</u>		<u>1.18</u>	<u>15.6</u>

PRESSURES IN PSI
 CIRCULATING -1000 DISPLACEMENT -1000
 BREAKDOWN _____ MAXIMUM _____
 AVERAGE _____ FRACTURE GRADIENT _____
 SHUT-IN: INSTANT _____ 5-MIN _____ 15-MIN _____
 HYDRAULIC HORSEPOWER _____
 ORDERED _____ AVAILABLE _____ USED _____
 AVERAGE RATES IN BPM _____
 TREATING _____ DISPL. _____ OVERALL _____
 CEMENT LEFT IN PIPE _____
 FEET _____ REASON _____

SUMMARY

PRESLUSH: BBL.-GAL. 83 VOLUMES - LO SURF
 LOAD & BKDN: BBL.-GAL. 29 PAD: BBL.-GAL. _____
 TREATMENT: BBL.-GAL. _____ DISP. BBL.-GAL. 11 PBL
 CEMENT SLURRY: BBL.-GAL. 112 LEAD 11 Tail
 TOTAL VOLUME: BBL.-GAL. _____

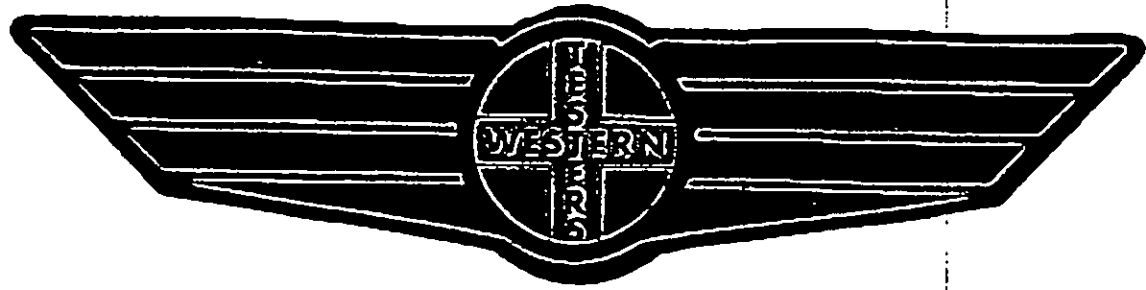
REMARKS
5 PBL CMT RETURNS
1/2 PBL REVERSED OUA

CUSTOMER AXEM RESOURCES
 LEASE NORMA
 WELL NO. 3-11
 JOB TYPE Top Production
 DATE 9/15/93

API#15-671-20606-0000

ORIGINAL

FORMATION TEST REPORT



Home Office: Wichita, Kansas 67201
P.O. Box 1599 Phone 1-80-688-7021

RECEIVED
STATE CORPORATION COMMISSION

DEC 06 1993

CONSERVATION DIVISION
Wichita, Kansas

COMPANY MURKIN DRILLING COMPANY INCREASE & WELL NO. #3-11 NORMA SEC. 11 TWP. 18S RGE. 40W TEST NO. 1 DATE 8/31/93

ORIGINAL

DST REPORT

GENERAL INFORMATION

DATE : 8-31-93	TICKET : 18515
CUSTOMER : MURFIN DRILLING CO., INC.	LEASE : NORMA
WELL : 3-11 TEST: 1	GEOLOGIST: SCOTT B.
ELEVATION: 3907 K.B.	FORMATION: MORROW
SECTION : 11	TOWNSHIP : 18S
RANGE : 43W	STATE : KS
COUNTY: GREELEY	CLOCK : 12
GAUGE SN#: 13760	RANGE : 3950

WELL INFORMATION

PERFORATION INTERVAL FROM: 5030.00 ft TO: 5185.00 ft TVD:- 5185.0 ft
 DEPTH OF SELECTIVE ZONE: TEST TYPE: GAS
 DEPTH OF RECORDERS: 5053.0 ft 5056.0 ft
 TEMPERATURE: 144.0

DRILL COLLAR LENGTH: 409.0 ft	I.D.:	2.200 in
WEIGHT PIPE LENGTH : 0.0 ft	I.D.:	0.000 in
DRILL PIPE LENGTH : 4589.0 ft	I.D.:	3.800 in
TEST TOOL LENGTH : 32.0 ft	TOOL SIZE :	5.500 in
ANCHOR LENGTH : 155.0 ft	ANCHOR SIZE:	5.500 in
SURFACE CHOKE SIZE : 0.750 in	BOTTOM CHOKE SIZE:	0.750 in
MAIN HOLE SIZE : 7.875 in	TOOL JOINT SIZE :	4.5XH
PACKER DEPTH: 5025.0 ft	SIZE:	6.750 in
PACKER DEPTH: 5030.0 ft	SIZE:	6.750 in
PACKER DEPTH: 0.0 ft	SIZE:	0.000 in
PACKER DEPTH: 0.0 ft	SIZE:	0.000 in

MUD INFORMATION

DRILLING CON. : MURFIN #24	VISCOSITY :	50.00 cp
MUD TYPE : CHEMICAL	WATER LOSS:	7.800 cc
WEIGHT : 9.400 ppg	SERIAL NUMBER: 415	
CHLORIDES : 6600 ppm	REVERSED OUT?: NO	
JARS-MAKE : WTC		
DID WELL FLOW?: NO		

COMMENTS

Comment

STRONG BLOW BOTTOM OFF BOTTOM OF BUCKET IN 1 MIN.
 ON INITIAL FLOW PERIOD. GAS TO SURFACE IN 15 MIN
 ON INITIAL FLOW PERIOD. GAS TO SURFACE ON FINAL

ORIGINAL

IS:071-20606-0000

DST REPORT (CONTINUED)

COMMENTS (CONTINUED)

Comment

FLOW PERIOD. AFTER 30 MIN. GAS WAS CARRYING TO MUCH MUD TO SURFACE TO READ GAS GAUGE. GAS WOULD NOT BURN.

FLUID RECOVERY

Feet of Fluid	% Oil	% Gas	% Water	% Mud	Comments
180.0	0.0	0.0	0.0	100.0	MUD
0.0	0.0	0.0	0.0	0.0	5005' GAS ABOVE FLUID.
0.0	0.0	0.0	0.0	0.0	CHLORIDES 6000 PPM

RATE INFORMATION

OIL VOLUME:	0.0000	STB	TOTAL FLOW TIME:	135.0000	min.
GAS VOLUME:	0.0000	SCF	AVERAGE OIL RATE:	0.0000	STB/D
MUD VOLUME:	0.8462	STB	AVERAGE WATER RATE:	0.0000	STB/D
WATER VOLUME:	0.0000	STB			
TOTAL FLUID :	0.8462	STB			

FIELD TIME & PRESSURE INFORMATION

INITIAL HYDROSTATIC PRESSURE: 2503.00

Description	Duration	p1	p End
INITIAL FLOW	45.00	877.00	877.00
INITIAL SHUT-IN	60.00		964.00
FINAL FLOW	90.00	896.00	896.00
FINAL SHUT-IN	180.00		964.00

FINAL HYDROSTATIC PRESSURE: 2414.00

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DST REPORT (CONTINUED)

OFFICE TIME & PRESSURE INFORMATION

INITIAL HYDROSTATIC PRESSURE: 2428.00

Description	Duration	p1	p End
INITIAL FLOW	45.00	887.00	892.00
INITIAL SHUT-IN	60.00		963.00
FINAL FLOW	90.00	903.00	903.00
FINAL SHUT-IN	180.00		953.00
FINAL HYDROSTATIC PRESSURE:	2410.00		

ORIGINAL

GAS FLOW REPORT

GENERAL INFORMATION

DATE : 8-31-93	TICKET : 18515
CUSTOMER : MURFIN DRILLING CO., INC.	LEASE : NORMA
WELL : 3-11 TEST: 1	GEOLOGIST: SCOTT B.
ELEVATION: 3907 K.B.	FORMATION: MORROW
SECTION : 11	TOWNSHIP : 18S
RANGE : 43W COUNTY: GREELEY	STATE : KS
GAUGE SN#: 13760 RANGE : 3950	CLOCK : 12

PRE FLOW

Time Guage (min)	Tester Type	Orifice Size	Pressure	Flow Desc.
15 MIN.		0.000	GAS TO SURF.	0 SCF/D
25 MIN.	MERLA	1.000	85 PSIG	2139000 SCF/D
35 MIN.	MERLA	1.000	88 PSIG	2204000 SCF/D

SECOND FLOW

Time Guage (min)	Tester Type	Orifice Size	Pressure	Flow Desc.

ORIGINAL

PRESSURE TRANSIENT REPORT

GENERAL INFORMATION

DATE	: 8-31-93	TICKET	: 18515
CUSTOMER	: MURFIN DRILLING CO., INC.	LEASE	: NORMA
WELL	: 3-11 TEST: 1	GEOLOGIST	: SCOTT B.
ELEVATION	: 3907 K.B.	FORMATION	: MORROW
SECTION	: 11	TOWNSHIP	: 18S
RANGE	: 43W COUNTY: GREELEY	STATE	: KS
GAUGE SN#	: 13760 RANGE : 3950	CLOCK	: 12

INITIAL FLOW

Time (min)	Pressure	Delta P
0.00	887.00	887.00
5.00	876.00	-11.00
10.00	877.00	1.00
15.00	881.00	4.00
20.00	883.00	2.00
25.00	886.00	3.00
30.00	889.00	3.00
35.00	890.00	1.00
40.00	891.00	1.00
45.00	892.00	1.00

INITIAL SHUT IN

Time (min)	Pressure	Delta P	Horner T
3.00	892.00	892.00	0.00
6.00	944.00	52.00	0.00
9.00	951.00	7.00	0.00
12.00	952.00	1.00	0.00
15.00	953.00	1.00	0.00
18.00	954.00	1.00	0.00
21.00	955.00	1.00	0.00
24.00	956.00	1.00	0.00
27.00	957.00	1.00	0.00
30.00	958.00	1.00	0.00
33.00	959.00	1.00	0.00
36.00	960.00	1.00	0.00
39.00	961.00	1.00	0.00
42.00	961.00	0.00	0.00
45.00	962.00	1.00	0.00
48.00	962.00	0.00	0.00

ORIGINAL

PRESSURE TRANSIENT REPORT (CONTINUED)

INITIAL SHUT IN (CONTINUED)

<u>Time (min)</u>	<u>Pressure</u>	<u>Delta P</u>	<u>Horner T</u>
51.00	962.00	0.00	0.00
54.00	963.00	1.00	0.00
57.00	963.00	0.00	0.00
60.00	963.00	0.00	0.00

FINAL FLOW

<u>Time (min)</u>	<u>Pressure</u>	<u>Delta P</u>
0.00	903.00	903.00
5.00	903.00	0.00
10.00	903.00	0.00
15.00	903.00	0.00
20.00	903.00	0.00
25.00	903.00	0.00
30.00	903.00	0.00
35.00	903.00	0.00
40.00	903.00	0.00
45.00	903.00	0.00
50.00	903.00	0.00
55.00	903.00	0.00
60.00	903.00	0.00
65.00	903.00	0.00
70.00	903.00	0.00
75.00	903.00	0.00
80.00	903.00	0.00
85.00	903.00	0.00
90.00	903.00	0.00

FINAL SHUT IN

<u>Time (min)</u>	<u>Pressure</u>	<u>Delta P</u>	<u>Horner T</u>
3.00	903.00	903.00	0.00
6.00	942.00	39.00	0.00
9.00	946.00	4.00	0.00
12.00	946.00	0.00	0.00
15.00	946.00	0.00	0.00
18.00	946.00	0.00	0.00
21.00	946.00	0.00	0.00

ORIGINAL

PRESSURE TRANSIENT REPORT (CONTINUED)

FINAL SHUT IN (CONTINUED)

<u>Time (min)</u>	<u>Pressure</u>	<u>Delta P</u>	<u>Horner T</u>
24.00	947.00	1.00	0.00
27.00	947.00	0.00	0.00
30.00	947.00	0.00	0.00
33.00	947.00	0.00	0.00
36.00	947.00	0.00	0.00
39.00	947.00	0.00	0.00
42.00	948.00	1.00	0.00
45.00	948.00	0.00	0.00
48.00	948.00	0.00	0.00
51.00	948.00	0.00	0.00
54.00	948.00	0.00	0.00
57.00	948.00	0.00	0.00
60.00	949.00	1.00	0.00
63.00	949.00	0.00	0.00
66.00	949.00	0.00	0.00
69.00	949.00	0.00	0.00
72.00	949.00	0.00	0.00
75.00	949.00	0.00	0.00
78.00	949.00	0.00	0.00
81.00	950.00	1.00	0.00
84.00	950.00	0.00	0.00
87.00	950.00	0.00	0.00
90.00	950.00	0.00	0.00
93.00	950.00	0.00	0.00
96.00	950.00	0.00	0.00
99.00	950.00	0.00	0.00
102.00	950.00	0.00	0.00
105.00	951.00	1.00	0.00
108.00	951.00	0.00	0.00
111.00	951.00	0.00	0.00
114.00	951.00	0.00	0.00
117.00	951.00	0.00	0.00
120.00	951.00	0.00	0.00
123.00	951.00	0.00	0.00
126.00	951.00	0.00	0.00
129.00	951.00	0.00	0.00
132.00	952.00	1.00	0.00
135.00	952.00	0.00	0.00
138.00	952.00	0.00	0.00
141.00	952.00	0.00	0.00
144.00	952.00	0.00	0.00
147.00	952.00	0.00	0.00
150.00	952.00	0.00	0.00
153.00	952.00	0.00	0.00
156.00	953.00	1.00	0.00
159.00	953.00	0.00	0.00

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PRESSURE TRANSIENT REPORT (CONTINUED)

FINAL SHUT IN (CONTINUED)

<u>Time (min)</u>	<u>Pressure</u>	<u>Delta P</u>	<u>Horner T</u>
162.00	953.00	0.00	0.00
165.00	953.00	0.00	0.00
168.00	953.00	0.00	0.00
171.00	953.00	0.00	0.00
174.00	953.00	0.00	0.00
177.00	953.00	0.00	0.00
180.00	953.00	0.00	0.00

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FLUID SAMPLE REPORT

GENERAL INFORMATION

DATE	: 8-31-93	TICKET	: 18515		
CUSTOMER	: MURFIN DRILLING CO., INC.	LEASE	: NORMA		
WELL	: 3-11	TEST: 1	GEOLOGIST: SCOTT B.		
ELEVATION	: 3907 K.B.	FORMATION	: MORROW		
SECTION	: 11	TOWNSHIP	: 18S		
RANGE	: 43W	COUNTY: GREELEY	STATE	: KS	
GAUGE SN#	: 13760	RANGE	: 3950	CLOCK	: 12

SAMPLE INFORMATION

PRESSURE IN SAMPLER:	400.00 PSIG	BHT:	144.0 DEG F
TOTAL VOLUME OF SAMPLER:	3150.00 cc		
TOTAL VOLUME OF SAMPLE:	200.00 cc		
OIL:	0.00 cc		
WATER:	0.00 cc		
MUD:	200.00 cc		
GAS:	16.10 cc		
OTHER:	0.00 cc		

RESISTIVITY

DRILLING MUD:	CHLORIDE CONTENT:	0.00 ppm
MUD PIT SAMPLE:	CHLORIDE CONTENT:	0.00 ppm
GAS/OIL RATIO:	GRAVITY:	
WHERE WAS SAMPLE DRAINED: RIG		
REMARKS:		



Petroleum Technology Center

ORIGINAL

P.O. Box 269
Littleton, Colorado 80160-0269
Telephone 303/794-2601

September 7, 1993

Mr. Mark W. Owen
Senior Reservoir Engineer
Axem Resources Incorporated
7800 East Union Avenue
Suite 1100
Denver, CO 80237-2757

Dear Mark:

Attached are the results of core plug analyses conducted on samples from the Norma 3-11 well, Section 11, T 18 S, R 43 W, Greeley County, Kansas. Samples were taken in three orientations: horizontal (H) normal to the slabbed core face, at 90° to the slabbed face (N), and vertical (V). Samples were obtained from apparent reservoir intervals over the depth range 5135-5178 ft.

The sample dimensions were determined by caliper measurements and the clean, dry samples were then weighed. Core properties including absolute permeability and porosity were then determined at net confining stresses of 800 and 4500 psi. Results of these measurements are presented in the attached tables and plots. Most of the data included in the table are self-explanatory. Some others are described below.

Klinkenberg and air permeability: The Klinkenberg permeability value is the absolute permeability of the sample to a non-reactive fluid. It is equivalent to the absolute permeability to gas extrapolated to infinite mean flowing pressure. The accompanying air permeability is representative of the routine core analysis permeability measured at one atmosphere mean flowing pressure.

Klinkenberg Slip Factor, b: The slip factor defines the sensitivity of permeability to mean flowing pressure. High values indicate relatively more tortuosity, typically seen in lower permeability samples.

Forchheimer "Turbulence" Factor, β : This factor represents the non-Darcy pressure drop component in the Forchheimer equation. In this expression total

pressure gradient is related to a linear function of fluid velocity (the Darcy equation) and a quadratic function of velocity ($\beta \rho v^2$). Non-Darcy flow effects can be significant in high deliverability wells where in-situ fluid velocities are high.

Reservoir pore volume compressibility, C_f : The pore volume compressibility is calculated from the equation

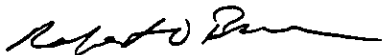
$$C_f = \frac{1}{V_p} \frac{dV_p}{dP}$$

ORIGINAL

where V_p is the measured pore volume at some net confining stress, P . Data obtained at 800 and 4500 psi net stress were used in these calculations.

This completes the planned routine core analysis for this core. The plug samples used will be retained in case further special core analysis is requested. If no further work is required please notify me regarding disposition of the samples.

Sincerely yours,



Dr. R. D. Barree

Norma 3-11 Core Plug Analysis

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Sample	Dir	B Vol.	Stress	Pore Vol.	Porosity	Klinkenberg	Air Perm.	b (He)	Beta	Grain D	Cf
#		cm ³	psi	cc	%	md	md	psi	1/ft	g/cc	1/psi
5135.5	H	27.370	800			<0.01					
5135.5	N	25.222	800			<0.01					
5135.5	V	10.410	800			<0.01					
5136.6	H	26.750	800	3.852	14.4	82.65	95.00	6.17	4E+08	2.672	
5136.6	H	26.598	4500	3.700	13.8	75.20	86.31	6.10	5E+08		1.1E-05
5136.6	N	26.699	800	3.818	14.3	138.06	158.74	6.02	3E+08	2.647	
5136.6	N	26.571	4500	3.690	13.8	129.85	149.11	5.96	3E+08		9.2E-06
5136.6	V	13.020	800	1.953	15.0	90.30	108.20	8.15	3E+08	2.683	
5136.6	V	12.905	4500	1.838	14.1	84.34	100.80	8.02	4E+08		1.6E-05
5137.5	H	22.575	800	3.770	16.7	277.56	335.96	8.16	1E+08	2.658	
5137.5	H	22.493	4500	3.668	16.2	240.75	296.96	9.06	1E+08		7.4E-06
5137.5	N	36.492	800	6.605	18.1	654.07	796.25	8.12	4E+07	2.643	
5137.5	N	36.248	4500	6.361	17.4	593.50	723.79	8.20	5E+07		1.0E-05
5137.5	V	31.845	800	4.522	14.2	30.79	37.95	10.19	2E+09	2.648	
5137.5	V	31.641	4500	4.318	13.6	25.56	31.60	10.34	5E+09		1.2E-05
5139.0	H	27.891	800	4.853	17.4	395.28	457.09	5.97	7E+07	2.648	
5139.0	H	27.720	4500	4.682	16.8	360.56	418.46	6.13	9E+07		9.7E-06
5139.0	N	24.545	800	4.099	16.7	347.69	416.29	7.57	9E+07	2.683	
5139.0	N	24.380	4500	3.934	16.0	306.09	375.50	8.70	1E+08		1.1E-05
5139.0	V	29.389	800	4.761	16.2	116.09	143.37	9.53	3E+08	2.639	
5139.0	V	29.177	4500	4.579	15.6	81.90	106.67	12.26	5E+08		1.1E-05
5140.0	H	26.827	800	5.580	20.8	3011.26	3172.26	1.90	7E+06	2.6	
5140.0	H	26.631	4500	5.384	20.1	2737.33	2906.69	2.19	8E+06		9.7E-06
5140.0	N	23.698	800	4.787	20.2	2223.11	2516.74	4.72	1E+07	2.61	
5140.0	N	23.567	4500	4.656	19.7	1946.68	2246.70	5.51	1E+07		7.5E-06
5140.0	V	15.804	800	3.303	20.9	233.78	336.56	17.20	9E+07	2.636	
5140.0	V	15.505	4500	3.004	19.0	194.12	286.77	18.67	1E+08		2.6E-05
5141.3	H	27.319	800	5.655	20.7	2944.33	3109.00	1.98	1E+07	2.582	
5141.3	H	27.178	4500	5.514	20.2	2644.25	2827.56	2.46	1E+07		6.8E-06
5141.3	N	25.967	800	5.453	21.0	3212.92	3460.47	2.73	1E+07	2.568	
5141.3	N	25.808	4500	5.294	20.4	2837.27	3115.99	3.48	1E+07		8.0E-06
5141.3	V	13.188	800	3.086	23.4	755.40	927.58	8.46	3E+07	2.631	
5141.3	V	12.929	4500	2.827	21.4	606.51	783.57	10.84	3E+07		2.4E-05
5142.5	H	26.221	800	5.454	20.8	3109.12	3364.78	2.91	7E+06	2.662	
5142.5	H	25.978	4500	5.211	19.8	2818.01	3078.84	3.28	8E+06		1.2E-05

ORIGINAL

Norma 3-11 Core Plug Analysis

Sample	Dir	B Vol.	Stress	Pore Vol.	Porosity	Klinkenberg	Air Perm.	b (He)	Beta	Grain D	Cf
#		cm ³	psi	cc	%	md	md	psi	1/ft	g/cc	1/psi
5142.5	N	26.414	800	5.679	21.5	1419.73	1696.48	7.07	2E+07	2.609	
5142.5	N	26.062	4500	5.327	20.1	1296.36	1551.19	7.13	2E+07		1.7E-05
5142.5	V	21.750	800	4.263	19.6	1390.13	1594.31	5.33	2E+07	2.623	
5142.5	V	21.568	4500	4.081	18.7	1284.15	1469.93	5.25	3E+07		1.2E-05
5143.5	H	25.424	800	0.839	3.3	0.46	0.54	9.37	8E+12	2.74	
5143.5	H	25.307	4500	0.722	2.8	0.36	0.41	7.85	1E+13		4.1E-05
5143.5	N	28.818	800	0.951	3.3	0.40	0.48	11.12	6E+12	2.757	
5143.5	N	28.710	4500	0.843	2.9	0.30	0.34	7.22	1E+13		3.3E-05
5143.5	V	29.543	800	1.034	3.5	0.02	0.03	49.17	3E+14	2.713	
5157.6	H	14.793	800	3.062	20.7	2238.55	2733.64	7.91	1E+07	2.616	
5157.6	H	14.510	4500	2.779	18.8	2191.37	2604.02	6.73	1E+07		2.6E-05
5157.6	N	25.608	800	3.662	14.3	610.31	671.11	3.73	4E+07	2.644	
5157.6	N	25.420	4500	3.474	13.5	562.67	618.64	3.72	5E+07		1.4E-05
5157.6	V	24.762	800	2.462	9.9	2.73	4.30	29.38	3E+11	2.752	
5157.6	V	24.704	4500	2.297	9.3	3.06	4.05	16.63	7E+11		1.9E-05
5158.7	H	24.041	800	4.063	16.9	260.26	340.46	11.99	1E+08	2.61	
5158.7	H	23.859	4500	3.881	16.1	238.10	314.06	12.41	2E+08		1.2E-05
5158.7	N	25.318	800	4.456	17.6	1330.99	1900.08	15.54	2E+07	2.596	
5158.7	N	25.066	4500	4.204	16.6	1450.03	1852.15	10.08	3E+07		1.6E-05
5158.7	V	11.211	800	2.074	18.5	381.96	471.35	8.94	7E+07	2.619	
5158.7	V	10.968	4500	1.831	16.3	355.48	434.70	8.52	8E+07		3.4E-05
5160.7	H	28.158	800	5.350	19.0	2977.60	3508.57	6.32	8E+06	2.594	
5160.7	H	27.873	4500	5.065	18.0	2822.75	3280.70	5.75	9E+06		1.5E-05
5160.7	V	14.661	800	1.730	11.8	34.53	47.81	16.71	3E+09	2.686	
5160.7	V	14.459	4500	1.528	10.4	32.62	44.37	15.65	4E+09		3.4E-05
5162.0	H	19.503	800	3.296	16.9	1856.29	2012.62	3.03	1E+07	2.642	
5162.0	H	19.297	4500	3.090	15.9	1744.61	1889.62	2.99	1E+07		1.7E-05
5162.0	N	27.876	800	4.739	17.0	1538.01	1726.08	4.42	2E+07	2.63	
5162.0	N	27.658	4500	4.521	16.2	1475.70	1654.01	4.37	2E+07		1.3E-05
5162.0	V	26.613	800	4.125	15.5	722.96	886.70	8.42	4E+07	2.616	
5162.0	V	26.389	4500	3.901	14.7	675.47	824.51	8.21	5E+07		1.5E-05
5163.2	H	13.119	800	2.309	17.6	545.67	595.09	3.41	4E+07	2.673	
5163.2	H	12.889	4500	2.079	15.9	510.64	560.56	3.68	5E+07		2.8E-05
5163.2	V	13.913	800	1.433	10.3	13.16	18.04	17.11	1E+10	2.703	
5163.2	V	13.749	4500	1.269	9.2	9.95	13.73	17.48	2E+10		3.3E-05

ORIGINAL

Norma 3-11 Core Plug Analysis

Sample	Dir	B Vol.	Stress	Pore Vol.	Porosity	Klinkenberg	Air Perm.	b (He)	Beta	Grain D	Cf
#		cm ³	psi	cc	%	md	md	psi	1/ft	g/cc	1/psi
5164.8	H	25.947	800	3.944	15.2	128.56	154.03	7.97	3E+08	2.616	
5164.8	H	25.761	4500	3.758	14.5	119.53	142.41	7.70	4E+08		1.3E-05
5164.8	N	18.969	800	3.016	15.9	30.30	42.31	17.32	1E+09	2.639	
5164.8	N	18.832	4500	2.879	15.1	27.48	38.42	17.40	2E+09		1.3E-05
5164.8	V	22.725	800	3.386	14.9	149.94	195.18	12.04	3E+08	2.624	
5164.8	V	22.590	4500	3.251	14.3	142.33	184.24	11.75	4E+08		1.1E-05
5166.5	H	27.236	800	4.385	16.1	261.46	300.57	5.80	1E+08	2.612	
5166.5	H	27.055	4500	4.204	15.4	243.05	277.69	5.53	1E+08		1.1E-05
5166.5	N	28.026	800	4.260	15.2	538.57	614.93	5.32	5E+07	2.649	
5166.5	N	27.796	4500	4.030	14.4	478.71	546.34	5.30	6E+07		1.5E-05
5166.5	V	24.297	800	4.179	17.2	267.61	321.73	7.84	1E+08	2.615	
5166.5	V	24.124	4500	4.006	16.4	251.19	299.68	7.48	2E+08		1.1E-05
5167.5	H	18.780	800	3.587	19.1	919.08	990.21	2.84	2E+07	2.634	
5167.5	H	18.562	4500	3.369	17.9	861.50	924.78	2.70	3E+07		1.7E-05
5167.5	N	24.162	800	4.325	17.9	647.70	700.35	3.03	4E+07	2.603	
5167.5	N	23.991	4500	4.154	17.2	606.48	654.67	2.96	5E+07		1.1E-05
5167.5	V	16.371	800	2.783	17.0	353.94	489.98	14.70	1E+08	2.635	
5167.5	V	16.214	4500	2.626	16.0	329.08	456.41	14.80	1E+08		1.6E-05
5168.8	H	15.337	800	2.776	18.1	1010.67	1196.89	6.75	2E+07	2.628	
5168.8	H	15.191	4500	2.630	17.2	946.32	1118.45	6.66	2E+07		1.5E-05
5168.8	N	26.662	800	4.026	15.1	192.59	229.30	7.51	2E+08	2.631	
5168.8	N	26.484	4500	3.848	14.4	181.24	214.16	7.15	2E+08		1.2E-05
5168.8	V	19.465	800	3.348	17.2	235.28	288.27	8.78	1E+08	2.613	
5168.8	V	19.322	4500	3.205	16.5	216.54	264.65	8.66	1E+08		1.2E-05
5170.4	H	20.221	800	4.024	19.9	1096.11	1296.34	6.67	2E+07	2.635	
5170.4	H	19.984	4500	3.787	18.7	950.55	1144.83	7.46	2E+07		1.6E-05
5172.1	H	23.957	800	4.480	18.7	1351.85	1633.57	7.55	2E+07	2.589	
5172.1	H	23.732	4500	4.255	17.8	1264.66	1515.03	7.17	2E+07		1.4E-05
5172.1	N	22.094	800	3.535	16.0	552.48	663.89	7.56	7E+07	2.663	
5172.1	N	21.879	4500	3.320	15.0	527.06	627.05	7.11	8E+07		1.7E-05
5172.1	V	25.722	800	4.630	18.0	663.74	739.12	4.23	3E+07	2.604	
5172.1	V	25.473	4500	4.381	17.1	609.97	681.98	4.39	4E+07		1.5E-05
5173.2	H	21.853	800	3.868	17.7	596.81	662.95	4.14	5E+07	2.62	
5173.2	H	21.671	4500	3.686	16.8	559.38	619.00	3.98	5E+07		1.3E-05
5173.2	N	27.239	800	4.440	16.3	287.93	344.03	7.56	1E+08	2.61	

OR. 3-11

Norma 3-11 Core Plug Analysis

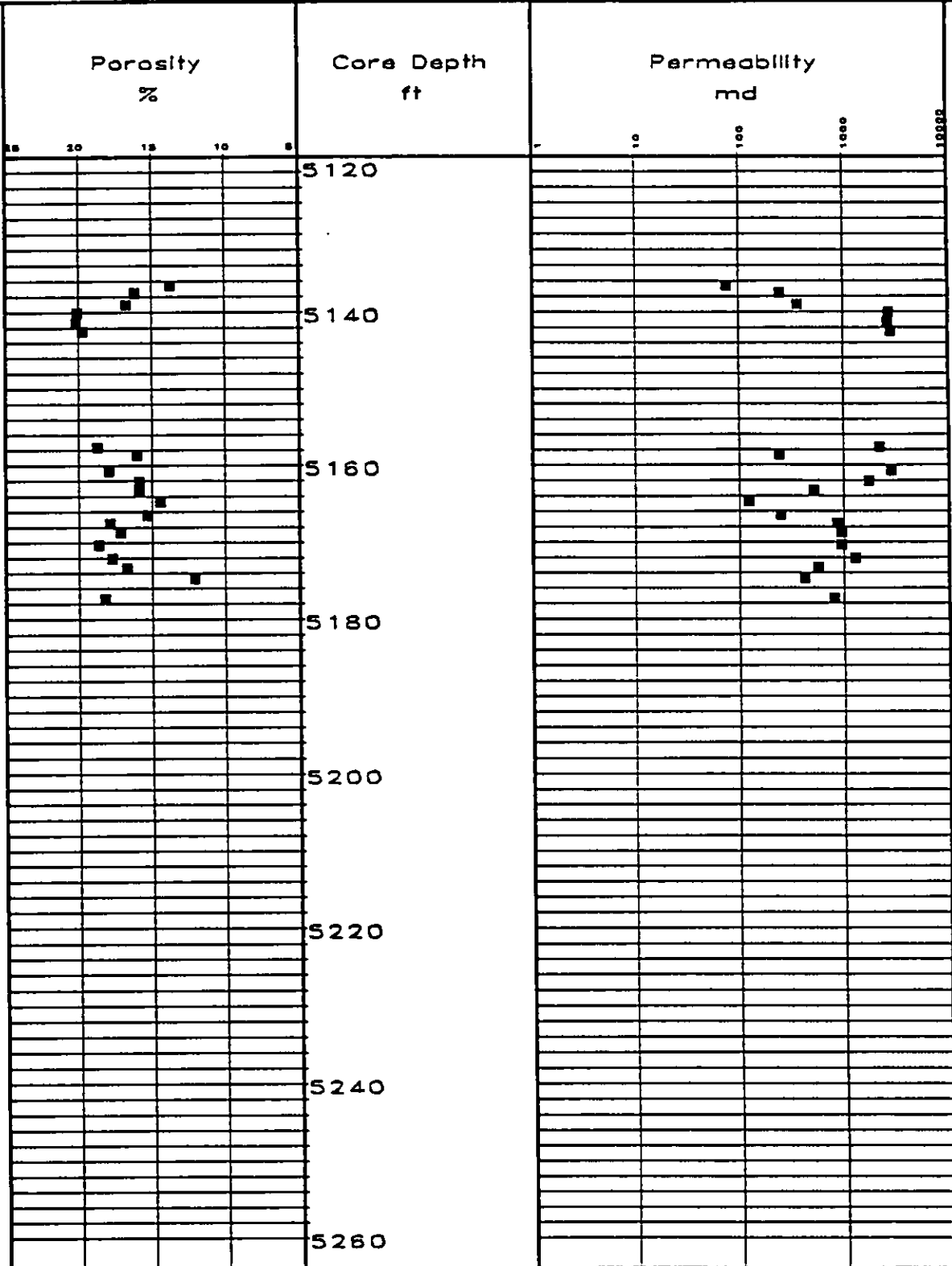
Sample #	Dir	B Vol. cm ³	Stress psi	Pore Vol. cc	Porosity %	Klinkenberg md	Air Perm. md	b (He) psi	Beta 1/ft	Grain D g/cc	Cf 1/psi
5173.2	N	27.061	4500	4.262	15.7	268.94	322.77	7.77	1E+08		1.1E-05
5173.2	V	26.045	800	4.011	15.4	398.28	524.85	12.15	7E+07	2.62	
5173.2	V	25.842	4500	3.808	14.6	370.53	489.15	12.24	8E+07		1.4E-05
5174.7	H	20.357	800	2.626	12.9	438.14	486.44	4.20	8E+07	2.661	
5174.7	H	20.208	4500	2.477	12.2	414.48	457.44	3.95	9E+07		1.6E-05
5174.7	V	26.450	800	3.941	14.9	186.29	278.20	19.56	2E+08	2.615	
5174.7	V	26.250	4500	3.741	14.2	175.97	258.78	18.65	3E+08		1.4E-05
5177.4	H	15.970	800	3.146	19.7	879.98	1074.28	8.17	2E+07	2.618	
5177.4	H	15.759	4500	2.935	18.3	808.98	987.79	8.18	3E+07		1.9E-05
5177.4	V	18.550	800	2.968	16.0	576.04	673.37	6.36	6E+07	2.622	
5177.4	V	18.363	4500	2.781	14.9	545.63	634.55	6.13	6E+07		1.8E-05

ORIGINAL

Norma 3-11

Merfin Drilling, Sec 11, T18S, R43W, Greeley Co, Kansas

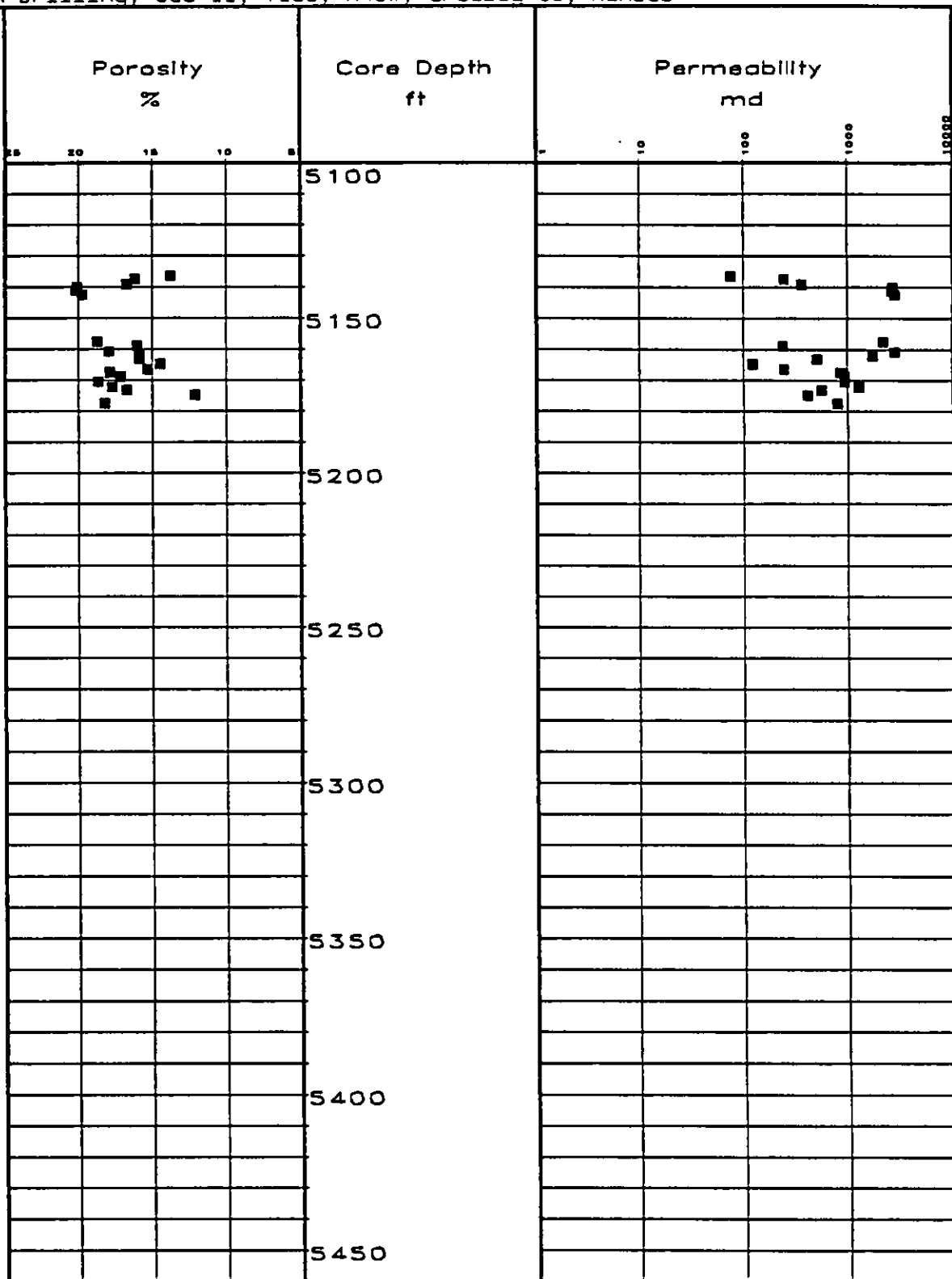
Scale 1:240



Norma 3-11

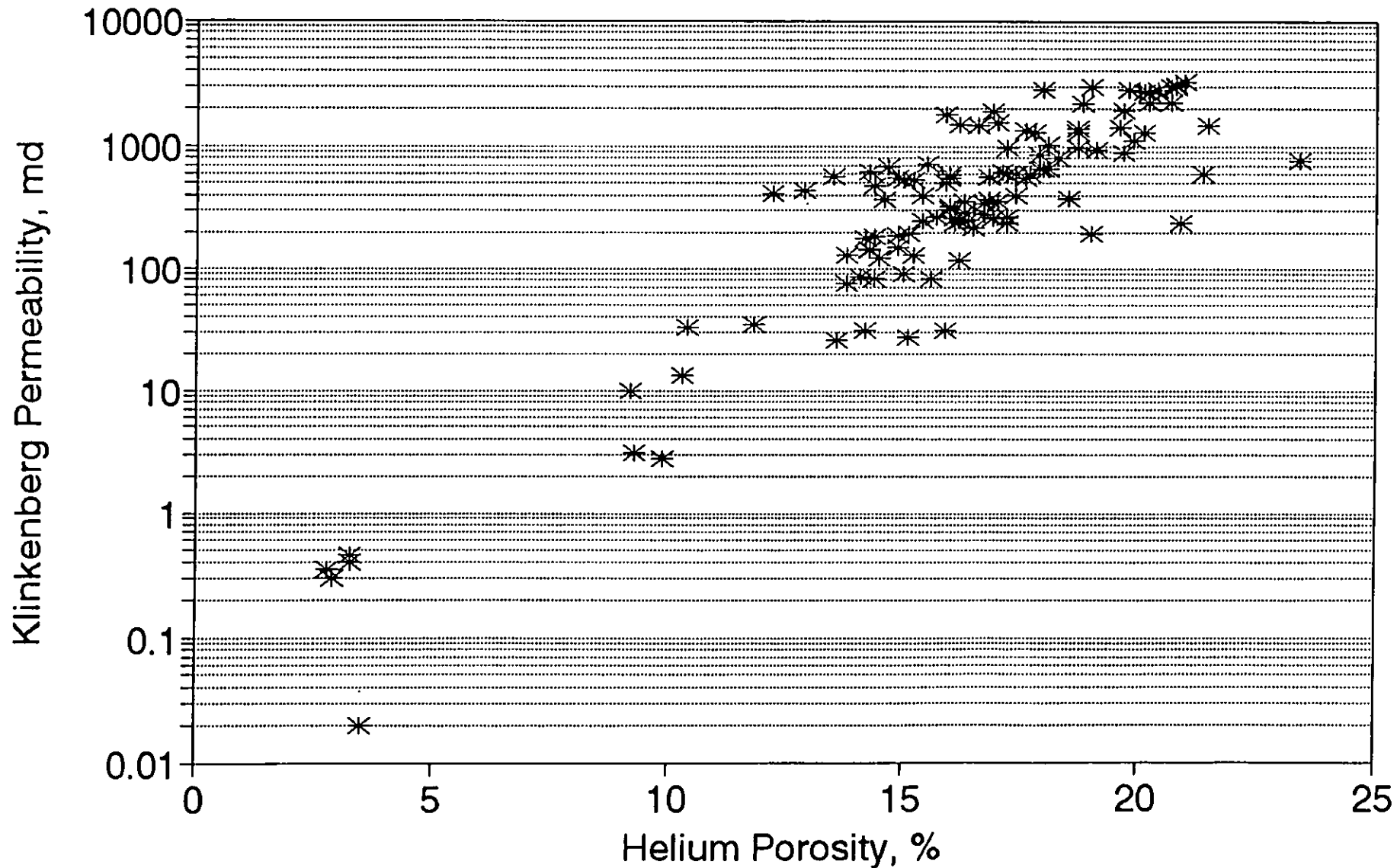
Merfin Drilling, Sec 11, T18S, R43W, Greeleu Co, Kansas

Scale 1:400



Norma 3-11 Core Plug Analysis

All data (H, V, N) included



ORIGINAL