Missouri Oil and Gas Council — Form OGC-3I

INJECTION WELL PERMIT APPLICATION: to drill, deepen, plug back, or convert an existing well

CORRECTION
APPLICATION TO DRILL ☐ DEEPEN ☐ PLUG BACK ☐ CORRECTION CONVERSION ☒

NAME OF COMPANY OR OPERATOR Prairie Energy Corporation DATE 1-18-85

7800 West 110th Street, Suite 122 (Address) Overland Park, (City) Kansas 66210 (State)

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
MacLaughlin	2K	1059

WELL LOCATION (give footage from section lines)
1576 ft. from (N) (S) sec line 2356 ft. from (E) (W) sec line

WELL LOCATION Section 4 Township 46N Range 33W — COUNTY Cass

Nearest distance from proposed location to property or lease line 550 feet
Distance from proposed location to nearest drilling, completed or applied – for well on the same lease 300 feet

Proposed depth	Rotary or Cable tools	Drilling Contractor, name and address	Approx. date work will start
627	Rotary	Layne-Western	12-20-84

Number of acres in lease: 264
Number of wells on lease, including this well, completed in or drilling to this reservoir: 14
Number of abandoned wells on lease: 0

If lease purchased with one or more wells drilled, from whom purchased?
Name _____
Address _____

No of Wells: producing _____ injection _____ inactive _____ abandoned _____

Status of Bond
Single Well ☐ Amt. _____ Blanket Bond ☒ Amt. $20,000 ☒ ON FILE ☐ ATTACHED

Outline Proposed Stimulation Program: Injection will be started at the rate of 5 barrels per day and increased 1 barrel per day, per month. Injection will be started aproximately 60 days after well has been produced. Injection fluid will be led by 27.5 gallons of chemical cleaner, and 1 gallon of detergent per 100 bbl.

Proposed casing program amt.	size	wt/ft	cem.	Approved casing – To be filled in by State Geologist amt.	size	wt/ft	cem.
21'	7"	15.5#	5	21'	7"	15.5#	5
600.5'	2 7/8"	6.7#	95	600.5	2 7/8	6.7#	95

I, the undersigned, state that I am the Secretary-Tresurer of the Prairie Energy Corp. (company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Robert A Dutt

Permit Number # 20483
Approved Date 2-6-85
Approved by Wallace B. Hunt KD

☒ SAMPLES REQUIRED ☐ SAMPLES NOT REQUIRED
WATER SAMPLES REQUIRED @ _____

Note: This Permit not transferable to any other person or to any other location

Remit two copies to: Missouri Oil and Gas Council, P.O. Box 250, Rolla, MO 65401
One will be returned for driller's signature

RECEIVED JAN 28 1985 MO. OIL & GAS COUNCIL

Approval of this permit by the Oil and Gas Council does not constitute endorsement of the geologic merits of the proposed well nor endorsement of the qualifications of the permittee.

3/12/82

I _____ of the _____

Company confirm that an approved drilling permit has been obtained by the owner of this well. Council approval of this permit will be shown on this form by presence of a permit number and signature of authorized Council representative.

Driller's signature _____

Date _____

Proposed Operations Data

Proposed average daily injection, pressure 200 psig, rate 10 bpd/~~gpm~~, volume 10 bbl/~~gal~~

Approved average daily injection, (to be filled in by State Geologist). pressure 200 psig, rate 10 bpd/gpm, volume 10 bbl/gal

Proposed maximum daily injection, pressure 400 psig, rate 100 bpd/~~gpm~~, volume 100 bbl/~~gal~~

Approved maximum daily injection, (to be filled in by State Geologist). pressure 400 psig, rate 100 bpd/gpm, volume 100 bbl/gal

Estimated fracture pressure/gradient of injection zone (527.5-544.7)-17.9, (547.1-570.7)-37.7 psi/foot

Describe the source of the injection fluid Produced brine from other wells in same formation

Submit an appropriate analysis of the injection fluid. (Submit on separate sheet).

Describe the compatibility of the proposed injected fluid with that of the receiving formations, including total dissolved solids comparisons.

Same, except for additives of IS 565, detergent and acid to lower the Ph of the injection fluid to below 7.0 and increase lubrication of the fluid through the producing formation.

Give an accurate description of the injection zone including lithologic descriptions, geologic name, thickness, depth, porosity, and permeablity.

See attached report

Give an accurate description of the confining zones including lithologic description, geologic name, thickness, depth, porosity, and permeability.

See attached report

Submit all available logging and testing data on the well.

Give a detailed description of any well needing corrective action which penetrates the injection zone in the area of review (½ mile radius around well). Include the reason for and proposed corrective action.

None

Missouri Oil and Gas Council — Form OGC-3

~~INJECTION~~ WELL PERMIT APPLICATION: to drill, deepen, plug back, or convert an existing well

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐ CONVERSION ☐

NAME OF COMPANY OR OPERATOR Prairie Energy Corporation DATE 12-14-84

7800 W. 110th St., Suite 122 (Address) Overland Park (City) Kansas (State)

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
MacLaughlin	2K	1059

WELL LOCATION (give footage from section lines)
1576 ft. from (~~N~~) (S) sec line 2356 ft. from (~~E~~) (W) sec line

WELL LOCATION Section 4 Township 46 Range 33 W — COUNTY Cass

Nearest distance from proposed location to property or lease line 550 feet
Distance from proposed location to nearest drilling, completed or applied – for well on the same lease 300 feet

Proposed depth	Rotary or Cable tools	Drilling Contractor, name and address	Approx. date work will start
680	Rotary	Layne-Western	12-20-84

Number of acres in lease: 264
Number of wells on lease, including this well, completed in or drilling to this reservoir: 14
Number of abandoned wells on lease: 0

If lease purchased with one or more wells drilled, from whom purchased?
Name
Address

No of Wells: producing ____ injection ____ inactive ____ abandoned ____

Status of Bond
Single Well ☐ Amt. ____ Blanket Bond ☒ Amt. 20,000 ☒ ON FILE ☐ ATTACHED

Outline Proposed Stimulation Program
this well is approved as a production well & will later be converted to an injection well.
BWN

Proposed casing program

amt.	size	wt/ft	cem.
20	7"	15.5	5 sacks
650	2 7/8"	6.7	110 sacks

Approved casing – To be filled in by State Geologist

amt.	size	wt/ft	cem.

DEC 17 1984
~~MO. OIL~~ & GAS COUNCIL

I, the undersigned, state that I am the Secretary-Tresurer of the Prairie Energy Corp. (company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Robert A White

Permit Number 20483
Approved Date 12/19/84
Approved by Wallace B. Kline BWN

☐ SAMPLES REQUIRED ☒ SAMPLES NOT REQUIRED
WATER SAMPLES REQUIRED @ ____

Note: This Permit not transferable to any other person or to any other location

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250, Rolla, MO 65401
One will be returned for driller's signature

Approval of this permit by the Oil and Gas Council does not constitute endorsement of the geologic merits of the proposed well nor endorsement of the qualifications of the permittee.

3/12/82

Missouri Oil and Gas Council — Form OGC-5

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

New Well [X] Workover [ ] Deepen [ ] Plug Back [ ] Injection [X] Same Reservoir [ ] Different Reservoir [ ] Oil [ ] Gas [ ] Dry [ ]

Owner: Prairie Energy Corporation	Address: 7800 West 110th St., Suite 122, Overland Park,KS 66210
Lease Name: MacLaughlin	Well Number: 2K
Location: 1576.0 FSL 2356.0 FWL	Sec., Twp., and Range or Block and Survey: Sec. 4, Twp 46, Rng. 33E
County: Cass	Permit number (OGC 3 or OGC 31): 20483

Date spudded	Date total depth reached	Date completed, ready to produce or inject	Elevation (DF, RKB, RT, or Gr.) feet	Elevation of casing hd. flange feet
	1-3-85		1059 Gr	1059.5

Total depth	P B T D
629	611

Producing or injection interval(s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
Squirrel	From 0 to TD; Drilling Fluid used Air/Mud	From ____ to ____

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	No	No	

Type of electrical or other logs run (list logs filed with the State Geologist): Gamma Ray, Neutron, Electric, CCL, Perforate — Date filed:

CASING RECORD

Casing (report all strings set in well - conductor, surface, intermediate, producing, etc.)

Purpose	Size hole drilled	Size casing set	Weight (lb. ft.)	Depth set	Sacks cement	Amt. pulled
Surface	10"	7"	15.5	21'	5	0
Casing	5 5/8"	2 7/8"	6.7	611		0

TUBING RECORD

Size	Depth set	Packer set at
in.	ft.	ft.

LINER RECORD

Size	Top	Bottom	Sacks cement	Screen (ft.)
in.	ft.	ft.		

PERFORATION RECORD

Number per ft	Size & type	Depth Interval
1/ft	2 1/8 Alu	530.5-540.0

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Amount and kind of material used	Depth Interval

INITIAL PRODUCTION

Date of first production or injection: — Producing method (indicate if flowing, gas lift, or pumping - if pumping, show size and type of pump): pumping - 60 days 4x1 1/2" pump---- injection

Date of test	Hrs. tested	Choke size	Oil produced during test	Gas produced during test	Water produced during test	Oil gravity
3-19-85	24		1.5 bbls.	trace MCF	5 bbls.	24.2 API (Corr.)

Tubing pressure	Casing pressure	Cal'ted rate of Production per 24 hours	Oil	Gas	Water	Gas - oil ratio
			1.5 bbls.	MCF	5 bbls.	

Disposition of gas (state whether vented, used for fuel or sold): vented

Method of disposal of mud pit contents: burried

CERTIFICATE: I, the undersigned, state that I am the Secretary-Tresurer of the Prairie Energy Corp. (company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

(Injection to begin Aproximately 6/1/85)

Robert A White
Signature

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MAR 26 1985
MO. OIL & GAS COUNCIL

3/12/1982

RECEIVED
APR 24 2013
Mo Oil & Gas Council

FORM OGC-7

STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM

PLUGGING RECORD

OWNER'S NAME	ADDRESS
Kansas Resource Exploration & Development, LLC	9393 W 110th Street, Ste. 500

NAME OF LEASE	WELL NUMBER	PERMIT NUMBER (OGC-3 OR OGC-31 NUMBER
MacLaughlin	2-K	037-20483

LOCATION OF WELL — SEC TWN RNG OR BLOCK AND SURVEY	LATITUDE	LONGITUDE	COUNTY
Sec. 4 Township 46 North Range 33 ☐ East ☑ West	N38 50' 10.52"	W94 34' 33.09"	Cass

APPLICATION TO DRILL THIS WELL WAS FILED IN NAME OF:	HAS THIS WELL EVER PRODUCED OIL OR GAS?	CHARACTER OF WELL AT COMPLETION (INITIAL PRODUCTION) OIL (BBLS/DAY)	GAS (MCF/DAY)	DRY?
Prairie Energy Corporation	☐ Yes ☑ No	0	0	☐ Yes ☑ No

DATE OF ABANDONMENT	TOTAL DEPTH	AMOUNT WELL PRODUCING PRIOR TO ABANDONMENT OIL (BBLS/DAY)	GAS (MCF/DAY)	WATER (BBLS/DAY)
04/01/2013	629'	N/A	N/A	N/A - injection well

Name of each formation containing oil or gas. Indicate which formation open to well bore at time of abandonment	Fluid content of each formation	Depth interval of each formation	Size, kind, and depth of plugs used, giving amount of cement.
Squirrel Sandstone	Oil and Water	530.5'-540'	Squeezed 45 sks of Portland from surface
			to 611', topped off the well with 5 additional
			sks of Portland, shut in with 2" valve

SIZE PIPE	PUT IN WELL (FT)	PULLED OUT (FT)	LEFT IN WELL (FT)	GIVE DEPTH AND METHOD OF PARTING CASING (SHOT, RIPPED, ETC.)	PACKERS AND SHOES
2 7/8"	611'	0	611'	N/A	None
7"	21'	0	21'	N/A	None

WAS WELL FILLED WITH MUD-LADEN FLUID?	INDICATE DEEPEST FORMATION CONTAINING FRESH WATER
☐ Yes ☑ No	None

NAME AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

NAME	ADDRESS	DIRECTION FROM THIS WELL
Maclaughlin, J.R. and A	1103 W47th, Apt B Kansas City, MO 64112	North
Byram, Joyce & John	16601 S. Holmes Rd., Belton, MO 64012	South
Cass Property Energy, LLC	311 E. 135th St, Kansas City, MO 64148	East
LL North, LLC	PO Box 14146, Parkville, MO 64152	West

METHOD OF DISPOSAL OF MUD PIT CONTENTS	There was no pit used in this process, cement was squeezed directly down the well

NOTE FILE THIS FORM IN DUPLICATE WITH: (USE REVERSE SIDE FOR ADDITIONAL DETAIL)

CERTIFICATE I, the undersigned, state that I am the Chief Operating Officer of the Kansas Resource Exploration and Development, LLC (Company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

SIGNATURE	DATE
	04/11/2013

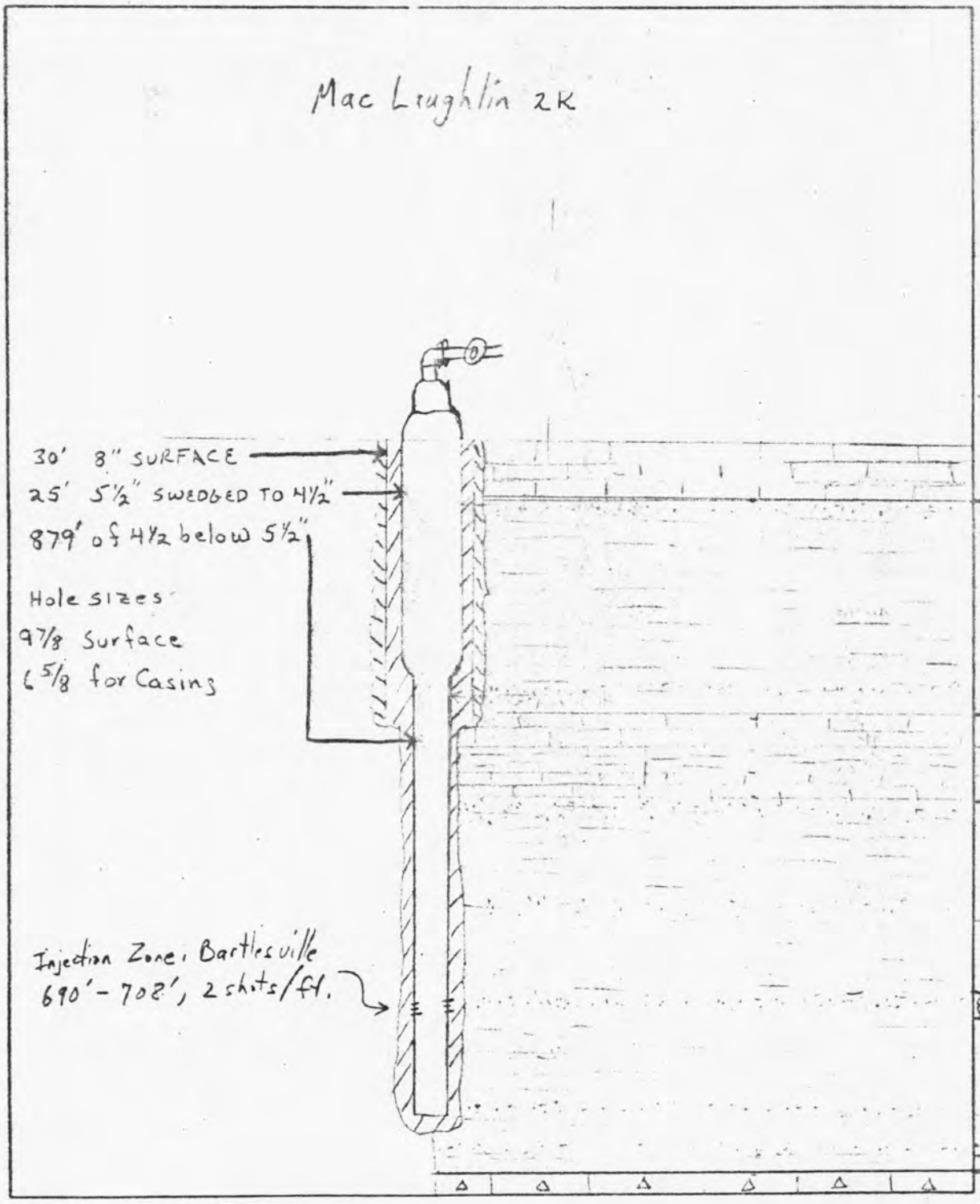
MO 780-0217 (6-06)

REMIT TWO (2) COPIES TO: GEOLOGICAL SURVEY PROGRAM, PO BOX 250, ROLLA, MO 65402 573/ 368-2143.
ONE (1) COPY WILL BE RETURNED.

County Cass Permit # _____ Operator Prairie Energy Well # 2K

Missouri Oil and Gas Council
INJECTION WELL SCHEMATIC

Form OGC-11



Instructions

On the above space draw a neat accurate schematic diagram of the applicant injection well including the following: configuration of well head, total depth or plug back total depth, depth of all injection or disposal intervals, and their formation names, lithology of all formations penetrated, depths of the tops and bottoms of all casing and tubing, size and grade of all casing and tubing, and the type and depth of packer, depth, location, and type of all cement, depth of all perforations and squeeze jobs, and geologic name and depth to bottom of all underground sources of drinking water which may be affected by the injection. Use back if additional space is needed, or attach sheet.

3/12/82

TEST BORING LOG

Project Prairie Resources — Boring No. MacLaughlin 2-K — Sheet 1 of 5

MacLaughlin Lease — Surface Elevation _____ — Offset _____

Address 155th & Holmes Road — Date Started 12-21-84 — Completed 1-15-85

City & State Cass County, Missouri — Driller V. Campbell — Rig D-15

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
0.0	4.0	RB				Brown clay
4.0	28.0	RB				Gray lime
28.0	55.0	RB				Gray shale
55.0	65.0	RB				Gray lime
65.0	82.0	RB				Gray shale
82.0	85.0	RB				Red shale
85.0	90.0	RB				Gray shale
90.0	94.0	RB				Red shale
94.0	96.0	RB				Gray lime
96.0	130.0	RB				Gray shale
130.0	131.0	RB				Brown lime
131.0	142.0	RB				Gray shale
142.0	143.0	RB				Gray lime
143.0	155.0	RB				Gray shale
155.0	180.0	RB				Gray lime
180.0	183.0	RB				Black shale

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MAR 26 1985
MO. OIL & GAS COUNCIL

REMARKS: (Casing, Water Loss, Etc.) — Water Level — Time — Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

Layne-Western Company, Inc.

TEST BORING LOG

Project: Prairie Resources
MacLaughlin Lease
Address: 155th & Holmes Road
City & State: Cass County, Missouri

Boring No.: MacLaughlin 2-K Sheet: 2 of 5
Surface Elevation: _____ Offset: _____
Date Started: 12-21-84 Completed: 1-15-85
Driller: V. Campbell Rig: D-15

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETRO-METER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
183.0	187.0	RB				Gray shale
187.0	210.0	RB				Gray lime
210.0	213.0	RB				Black shale
213.0	216.0	RB				Gray lime
216.0	217.0	RB				Gray shale
217.0	225.0	RB				Gray lime
225.0	335.0	RB				Gray sandy shale
335.0	345.0	RB				Gray sandstone
345.0	350.0	RB				Gray sandy shale
350.0	351.0	RB				Red shale
351.0	380.0	RB				Gray sandy shale
380.0	405.0	RB				Gray shale
405.0	410.0	RB				Gray lime
410.0	413.0	RB				Black shale
413.0	416.0	RB				Gray lime
416.0	418.0	RB				Gray shale

REMARKS: (Casing, Water Loss, Etc.)

Water Level	Time	Date	
			(Completion)

Layne-Western Company, Inc.

TEST BORING LOG

Project Prairie Resources — Boring No. MacLaughlin 2-K — Sheet 3 of 5

MacLaughlin Lease — Surface Elevation _____ Offset _____

Address 155th & Holmes Road — Date Started 12-21-84 Completed 1-15-85

City & State Cass County, Missouri — Driller V. Campbell Rig D-15

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
418.0	419.0	RB				Black shale
419.0	424.0	RB				Gray shale
424.0	433.0	RB				Gray lime
433.0	440.0	RB				Gray sandstone
440.0	445.0	RB				Dark gray shale
445.0	455.0	RB				Gray shale
455.0	458.0	RB				Brown lime
458.0	462.0	RB				Black shale
462.0	464.0	RB				Gray shale
464.0	470.0	RB				Gray sandstone
470.0	480.0	RB				Gray sandy shale
480.0	482.0	RB				Black shale
482.0	490.0	RB				Gray shale
490.0	491.0	RB				Black shale
491.0	495.0	RB				Gray sandy shale
495.0	500.0	RB				Gray sandstone

REMARKS: (Casing, Water Loss, Etc.) — Water Level — Time — Date

_____ (Completion)

_____

Layne-Western Company, Inc.

LW-50A

TEST BORING LOG

Project Prairie Resources — Boring No. MacLaughlin 2-K — Sheet 4 of 5

MacLaughlin Lease — Surface Elevation _____ Offset _____

Address 155th & Holmes Road — Date Started 12-21-84 Completed 1-15-85

City & State Cass County, Missouri — Driller V. Campbell Rig D-15

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
500.0	501.167	RB				Brown sandstone, gas, trace oil
501.167	502.0	CW	R-1			Gray lime
502.0	511.167		R-1		10'	Gray sandy shale with oil seams
511.167	520.50	CW	R-2		9' 4"	Gray sandy shale
520.50	528.0	CW	R-3			Gray sandy shale
528.0	530.50		R-3		10'	Brown sandstone, oil
530.50	540.50	CW	R-4		10'	Brown sandstone, oil
540.50	545.50	CW	R-5			Brown sandstone, oil
545.50	547.50		R-5			Gray lime
547.50	550.50		R-5		10'	Brown sandstone, oil
550.50	558.50	CW	R-6		8'	Brown sandstone, oil
558.50	565.0		R-7			Gray lime
565.0	568.50		R-7		10'	Brown sandstone, oil
568.50	571.50		R-8			Brown sandstone, oil
571.50	578.50		R-8		10'	Gray sandy shale
578.50	622.0	RB				Gray sandy shale

REMARKS: (Casing, Water Loss, Etc.) — Water Level — Time — Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

Layne-Western Company, Inc.

LW-50A

TEST BORING LOG

Project Prairie Resources — Boring No. MacLaughlin 2-K — Sheet 5 of 5

MacLaughlin Lease — Surface Elevation _____ Offset _____

Address 155th & Holmes Road — Date Started 12-21-84 Completed 1-15-85

City & State Cass County, Missouri — Driller V. Campbell Rig D-15

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
622.0	624.0	RB				Black shale
624.0	629.0	RB				Gray shale
629.0	Total Depth					

REMARKS: (Casing, Water Loss, Etc.)

Water Level | Time | Date

Cemented in 20' of 7" surface casing in 9-7/8" hole; drilled 5-5/8" hole to total depth; cemented in 600' of 2-7/8" pipe. (Completion)

Layne-Western Company, Inc.

LW-59A

MECHANICAL INTEGRITY TEST REPORT

Test Date: 6-11-97

Operator: Colt Energy
Contact Person: Dennis Kershner
Address: P.O. Box 388 304 N. Jefferson Iola, KS 66749
Phone: 316-365-3111

Lease MacLaughlin Well # 2-K
County Cass Permit # 20483

TEST INFORMATION:

Type MIT: Pressure ✓ Radioactive Tracer Survey ___ Temperature Survey ___

	Run #1	Run #2	Run #3
Start Time:	12:35		
End Time:	2:10		
Length of Test: (Start Time minus End Time)	1:35		
Initial Pressure (PSI):	280		
Ending Pressure (PSI):	190		
Pressure Change: (Initial Pressure minus Ending Pressure)	90 PSI		

Fluid used for test (water, nitrogen, CO2, ect.): Air

Comments about test: PI = 530-540. Wat level estimated at 120'. Measured at 112'. Calculated pressure 181 PSI.

The bottom of the tested zone is shut in with _____ at a depth of _____ ft. In signing the form below, it is certified that the above indicated well was tested for mechanical integrity on the date shown at the top of this page.

Signed: Steve Windisch Contractor
Operator Contact Person or Approved Agent — Title

DO NOT WRITE BELOW THIS LINE

Results were: Satisfactory ✓ Not Satisfactory ___
State Agent: eal Witnessed: Yes ✓ No ___
REMARKS: _____
Computer Update ✓ FILE WITH PERMIT!

OGC Misc Form 1

MECHANICAL INTEGRITY TEST REPORT

RECEIVED JUL 1 2 2002

Test Date: 7/8/02

Operator: D.E. Exploration
Contact Person: Doug Evans
Address: P.O. Box 128 Wellsville, Kansas 66092
Phone: 785-883-4057

Lease Maclaughlin Well # 2K
County Cass Permit # 20483

TEST INFORMATION:

Type MIT: Pressure XX Radioactive Tracer Survey___ Temperature Survey___

	Run #1	Run #2	Run #3
Start Time:	11:45 AM		
End Time:	12:50 PM		
Length of Test: (Start Time minus End Time)	1:05		
Initial Pressure (PSI):	70		
Ending Pressure (PSI):	65		
Pressure Change: (Initial Pressure minus Ending Pressure)	5		

Fluid used for test (water, nitrogen, CO2, ect.): Air

Comments about test: Perfs: 530 - 540 Fluid Level was 409' from surface.
530 - 409 = 121 X .43 = 52

The bottom of the tested zone is shut in with _____ at a depth of _____ ft. In signing the form below, it is certified that the above indicated well was tested for mechanical integrity on the date shown at the top of this page.

Signed: Gary Windisch — Operator Contact Person or Approved Agent

Contractor — Title

DO NOT WRITE BELOW THIS LINE

Results were: Satisfactory XX Not Satisfactory___
State Agent: Theodore R Finley Witnessed: Yes X No___
REMARKS:
Computer Update ✓ FILE WITH PERMIT!

MR 8/2/02

OGC Misc Form 1

MISSOURI
Mechanical Integrity Test

Test Date: 6/12/2007

Operator: D.E. Exploration
Address: P.O. Box 128
Wellsville, Kansas 66092
Contact: Doug Evans
Phone: 785-883-4057

Lease: Maclaughlin **Well No.:** 2K
County: Cass **Permit No.:** 20483

TEST INFORMATION

Pressure [X] Radioactive Tracer Survey [ ] Temperature Survey [ ]

	Run #1	Run #2	Run #3	Run #4
Start Time:	2:40			
End Time:	3:25			
Length of Test:	45 min			
Initial Pressure (PSI):	200			
Ending Pressure (PSI):	200			
Pressure Change:	0 #			

Fluid Used For Test (water, nitrogen, CO2, etc.): Air

Perforations: 530 - 540

Comments: 530 - 81 = 449 X 433 = 193
Fluid Level was 81' from Surface

The bottom of the tested zone is shut in with Fluid Depression at a depth of 530 feet. In signing the form below, it is certified that the above indicated well was tested for mechanical integrity on the test date shown above.

Signature Gary Windisch
Operator, Contact Person or Approved Agent

Contractor
Title

FOR INTERNAL USE ONLY

Results were: Satisfactory X Not Satisfactory ____ Computer Update: X
Remarks:
State Agent: ____ Witnessed: Yes ____ No X
!! FILE WITH PERMIT !!

OGC Misc Form F

RECEIVED
JUN 15 2007
Mo Oil & Gas Council

MISSOURI DEPARTMENT OF NATURAL RESOURCES
P.O. Box 250 Rolla, Missouri 65401 (314) 364-1752

February 6, 1985

Mr. Robert A. White
Prairie Energy Corporation
7800 West 110th Street, Suite 122
Overland Park, KS 66210

Dear Bob:

Enclosed is the approved injection well permit for injection well MacLaughlin 2K Lease. The well passed the mechanical integrity test and is approved to inject.

Sincerely,

Kenneth L. Deason, Geologist
Economic Geology Section

KLD:lm

Enclosure

John D. Ashcroft Governor
Fred A. Lafser Director

Division of Geology and Land Survey
Wallace B. Howe Director

PRAIRIE ENERGY CORPORATION
8600 WEST 110TH STREET
SUITE 202
OVERLAND PARK, KANSAS 66210
(913) 381-3807

Missouri Oil and Gas Council
P. O. Box 250
Rolla, Missouri 65401
Attention: Bruce Netzler

Dear Bruce:

Per my phone conversation with you in November, concerning MacLaughlin 2K, I am attaching this letter to the injection intent, stating Prairie Energy Corporation's intention to pump 2K before using the well for injection purposes.

It is Prairie Energy's proposal to presure test the casing before the well is perforated into the Squirrel formation, to prove casing integrity. At this point, Prairie Energy will perforate, fracture, and produce this well for aproximately 60 days, producing the flush off the well, before using the well for injection purposes.

Because of this, I am attaching a copy of this letter to each form "OGC-3I", Injection Well Permit Application, submitted, in order to clarify the intent for both production and injection.

I will also attach a copy of this letter to the completion form, OGC-5, for MacLaughlin 2K, such that there will be complete understanding of Prairie Energy's intent.

Although production of the well will begin after the well has been completed, perforated, and fractured, no injection will comence until all criterion for injection have been met, and I have received permission from your office for injection at this well.

Thank you for your consideration in this matter.

Sincerely,

Robert A. White

Robert A. White
Secretary-Tresurer

RECEIVED
JAN 28 1985
MO. OIL & GAS COUNCIL

AFFIDAVIT OF PUBLICATION

Jim Ries of the City of Kansas City, Missouri, of lawful age, being duly sworn, says that he is Manager-Classified Advertising of THE KANSAS CITY STAR COMPANY, publishers of THE KANSAS CITY STAR and THE KANSAS CITY TIMES, a newspaper published daily in the city of Kansas City, Jackson County, Missouri, and that the

Public Notice of PRAIRIE ENERGY CORPORATION

a true copy of which is hereto attached, was duly published in the Sunday

editions of said newspaper for the period of One (1) Issue

commencing December 23 19 84 and ending December 23 19 84

on the following dates (STAR) December 23

(TIMES)

the same being published in Nos. (STAR) #82

(TIMES)

Prairie Energy Corporation 7800 W. 110th St. Suite 122, Overland Park, KS. 66210, has applied to convert a production well to injection at an approximate depth of 590 feet. At a location 1576 feet from south line and 2356 feet from the west line of section 4 Township 46 N., range 33 W., in Cass County. Written comments or requests for additional information regarding this well should be directed within fifteen (15) days of this notice to: State Geologist, Missouri Oil and Gas Council, P.O. Box 250, Rolla, Missouri 65401

of Volume { TIMES / STAR 105 } of Said Newspaper

Jim Ries

Subscribed and sworn to before me, this 15th day of January 19 85, and I certify that I was duly qualified as a Notary Public.

My commission expires February 15 19 86

Mark Rauch

Notary Public, Jackson County, Missouri.

RECEIVED
JAN 28 1985
MO. OIL & GAS COUNCIL

PETROCHEM CORPORATION

Chemicals and Equipment for the Petroleum Industry

4455 West 51st Street / P.O. Box 9860 / Tulsa, OK 74107

918/446-4596

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DEC 17 1984
MO. OIL & GAS COUNCIL

WATER ANALYSIS REPORT

Date August 30 1983

Company Prairie Energy Corporation

Address 8600 w 110th St
Overland Park, Kansas 66210 ZIP

Attention: Bob White

Lease or Project MacLaughlin Lease

County Cass County, Mo.

Source of Sample Salt Water Tank-Outlet

Formation Squirrel Sand

Date Sampled 8/25/83

Physical and Gaseous Properties

pH	Hydrogen Sulfide (mg/1)	Carbon Dioxide (ppm)	Dissolved Oxygen (ppm)	Specific Gravity 60° F	Temperature °F
8.03				1.006	

Mineral Content

	mg/L		mg/L
Sodium (Na^+)	6,092	Chlorides (Cl^-)	9,600
Calcium (Ca^{++})	200	Bicarbonate (HCO_3^-)	878
Magnesium (Mg^{++})	122	Alkalinity Carbonate (CO_3^{--})	
Barium (Ba^{++})	0	Sulfates (SO_4^{--})	0
Total Hardness	1,000	Nitrates (NO_3^-)	
Total Iron (Fe)	7.80	Total Dissolved Solids	16,892

Corrosive ☐ Mild ☐ Moderate ☐ Severe

Scaling Tendency ☒ Mild to ☒ Moderate ☐ Severe

Conclusions and Recommendations:

1. Analysis reveals that the produced water carries a "mild-to-Moderate" scaling tendency due to the very high pH and Alkalinity levels. The Iron level is also high.

2. Advise that the produced water for disposal be treated with 1 qt/ 100 bbl of water each day. Treat by pouring into the top of the Salt Water Tank. Exercise extreme care during treating as this chemical is a strong acid (quite corrosive to eyes, skin, etc.)

Dwayne Edwards

OILFIELD RESEARCH LABORATORIES

P. O. BOX 647 - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

January 11, 1985

Prairie Energy Corporation
7800 West 110th Street, Suite 122
Overland Park, Kansas 66210

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the MacLaughlin Lease, Well No. 2-K, located in Cass County, Missouri and submitted to our laboratory on December 28, 1984.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Alan M. Dunning

Alan M. Dunning

AMD/rmc

5 c to Overland Park, Kansas

RECEIVED
JAN 28 1985
MO. OIL & GAS COUNCIL

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Location

Section 4 Twp. 46N Rge. 33W County Cass State Missouri

Elevation, Feet	
Name of Sand	Squirrel
Top of Core	521.1
Bottom of Core	577.8
Top of Sand	527.5
Bottom of Sand	570.7
Total Feet of Permeable Sand	31.2
Total Feet of Floodable Sand	28.5

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	0.0	0.0
5 - 15	3.0	3.0
15 - 30	2.5	5.5
30 - 45	10.5	16.0
45 - 60	3.8	19.8
60 - 75	2.8	22.6
75 - 115	3.8	26.4
125 - 170	2.0	28.4
215 - 375	2.8	31.2

Average Permeability Millidarcys	72.6
Average Percent Porosity	23.2
Average Percent Oil Saturation	38.0
Average Percent Water Saturation	42.0
Average Oil Content, Bbls./A. Ft.	686.
Total Oil Content, Bbls./Acre	21,403.
Average Percent Oil Recovery by Laboratory Flooding Tests	10.7
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	197.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	5,624.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section

The core was sampled and the samples sealed in plastic by a representative of the client. Salt water mud was used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
521.1 - 527.5	Shale, gray, slightly sandy.
527.5 - 528.0	Sandstone, brown.
528.0 - 528.6	Sandstone, grayish brown, very shaly.
528.6 - 529.4	Sandstone, brown.
529.4 - 529.5	Shale, gray.
529.5 - 531.0	Sandstone, brown.
531.0 - 531.2	Shale, gray.
531.2 - 533.5	Sandstone, brown.
533.5 - 534.0	Shale, gray.
534.0 - 534.5	Limestone, gray.
534.5 - 535.7	Sandstone, brown, with gray shale and mica partings.
535.7 - 537.7	Sandstone, brown.
537.7 - 538.0	Shale, gray.
538.0 - 539.1	Sandstone, light brown.
539.1 - 539.8	Shale, gray, slightly sandy.
539.8 - 544.0	Sandstone, light brown.
544.0 - 544.7	Sandstone, brown, with scatttered carbonaceous inclusions.
544.7 - 547.1	Limestone, gray, sandy.
547.1 - 548.0	Sandstone, light brown, with scattered carbonaceous partings and inclusions.

Continued

Depth Interval, Feet	Description
548.0 - 548.7	Limestone, gray, sandy, with scattered coal partings and inclusions.
548.7 - 550.5	Sandstone, light brown.
550.5 - 553.0	Sandstone, brown, with scattered coal inclusions.
553.0 - 558.0	Sandstone, brown.
558.0 - 561.3	Limestone, gray.
561.3 - 564.0	Limestone, gray, shaly, with coal inclusions.
564.0 - 570.7	Sandstone, brown, with scattered coal inclusions.
570.7 - 577.8	Shale, gray, slightly sandy.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 5,624 barrels of oil per acre was obtained from 28.5 feet of sand. The weighted average percent oil saturation was reduced from 39.2 to 28.5, or represents an average recovery of 10.7 percent. The weighted average effective permeability of the samples is 4.68 millidarcys, while the average initial fluid production pressure is 25.9 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 35 samples tested, 32 produced water and oil, and 3 produced water only. This indicates that approximately 91 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 8,960 barrels of oil per acre. This is an average recovery of 314 barrels per acre foot from 28.5 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	30.0
Average porosity, percent	23.2
Oil saturation after flooding, percent	28.5
Performance factor, percent, estimated	45.0
Net floodable sand, feet	28.5

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	527.8	25.5	45	31	76	890	127.	0.5	0.5	445	63.50
2	528.7	26.2	33	38	71	671	145.	0.8	1.3	537	116.00
3	529.9	27.3	36	33	69	762	371.	0.8	2.1	610	296.80
4	530.8	27.5	47	26	73	1003	216.	0.7	2.8	702	151.20
5	531.7	24.6	51	33	84	973	72.	0.8	3.6	778	57.60
6	532.5	25.1	42	34	76	818	84.	0.8	4.4	654	67.20
7	533.3	25.8	44	30	74	881	113.	0.7	5.1	617	79.10
8	534.8	23.1	43	39	82	771	31.	1.2	6.3	925	37.20
9	536.2	27.0	46	26	72	964	241.	0.7	7.0	675	168.70
10	536.8	25.6	43	32	75	854	259.	0.6	7.6	512	155.40
11	537.6	25.0	42	34	76	815	169.	0.7	8.3	571	118.30
12	538.6	23.6	32	44	76	586	31.	1.1	9.4	645	34.10
13	539.9	19.5	39	51	90	590	14.	0.6	10.0	354	8.40
14	540.5	23.0	46	38	84	821	58.	0.6	10.6	493	34.80
15	541.1	21.6	30	49	79	503	21.	1.0	11.6	503	21.00
16	542.4	21.1	35	49	84	573	11.	1.0	12.6	573	11.00
17	543.2	21.9	41	48	89	697	17.	1.0	13.6	697	17.00
18	544.1	21.5	29	53	82	484	9.9	0.4	14.0	194	3.96
19	544.6	24.9	40	42	82	773	76.	0.3	14.3	232	22.80
20	547.5	21.5	35	41	76	584	31.	0.9	15.2	526	27.90
21	548.9	22.2	31	44	75	534	31.	0.8	16.0	427	24.80
22	549.8	23.1	35	41	76	627	87.	1.0	17.0	627	87.00
23	551.3	22.5	31	48	79	541	42.	1.0	18.0	541	42.00
24	552.3	21.4	24	53	77	399	35.	1.0	19.0	399	35.00
25	552.6	19.0	36	60	96	531	26.	0.5	19.5	266	13.00

Continued

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Prairie Energy Corporation **Lease** MacLaughlin **Well No.** 2-K

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
26	553.8	22.4	36	45	81	626	49.	1.5	21.0	939	73.50
27	555.4	20.1	50	43	93	780	60.	1.0	22.0	780	60.00
28	556.3	23.8	35	37	72	646	47.	1.0	23.0	646	47.00
29	557.3	20.2	38	46	84	596	39.	1.5	24.5	894	58.50
30	564.1	18.4	36	56	92	514	6.3	1.0	25.5	514	6.30
31	565.4	20.0	43	55	98	667	42.	1.5	27.0	1001	63.00
32	567.3	28.4	47	34	81	1036	40.	1.5	28.5	1554	60.00
33	568.4	23.9	34	43	77	630	60.	1.0	29.5	630	60.00
34	569.4	24.1	35	48	83	654	105.	1.0	30.5	654	105.00
35	570.6	26.5	20	49	69	411	56.	0.7	31.2	288	39.20

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
527.5 - 544.7	14.3	102.4	1464.06
547.1 - 570.7	16.9	47.5	802.20
527.5 - 570.7	31.2	72.6	2266.26

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
527.5 - 544.7	14.3	24.0	39.9	37.4	749	10,717
547.1 - 570.7	16.9	22.4	36.3	45.9	632	10,686
527.5 - 570.7	31.2	23.2	38.0	42.0	686	21,403

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	527.8	25.0	45	873	23	446	22	72	427	448	6.86	10
2	528.7	26.6	33	681	10	206	23	63	475	286	7.70	15
3	529.9	27.2	36	760	11	232	25	60	528	328	15.73	10
4	530.8	27.8	47	1014	16	345	31	56	669	312	21.10	10
5	531.7	24.9	51	985	25	483	26	60	502	274	6.93	10
6	532.5	24.8	42	808	18	346	24	69	462	286	7.06	10
7	533.3	25.4	44	867	20	394	24	65	473	348	5.86	10
8	534.8	23.6	43	787	18	330	25	65	457	126	2.53	20
9	536.2	26.6	46	949	19	392	27	56	557	344	24.43	10
10	536.8	25.1	43	837	16	312	27	63	525	188	13.99	10
11	537.6	24.7	42	805	16	307	26	70	498	404	6.40	10
12	538.6	23.9	32	593	7	130	25	68	463	70	1.40	20
13	539.9	20.0	39	605	10	155	29	64	450	8	0.13	45
14	540.5	22.5	46	803	14	244	32	59	559	14	0.20	40
15	541.1	21.3	30	496	4	66	26	67	430	12	0.20	45
16	542.4	20.6	35	559	8	128	27	71	431	38	0.60	30
17	543.2	22.1	41	703	11	189	30	72	514	254	11.33	15
18	544.1	21.9	29	493	4	68	25	60	425	88	1.60	10
19	544.6	25.0	40	776	8	155	32	56	621	166	16.53	10
20	547.5	21.1	35	573	7	115	28	62	458	4	0.27	50
21	548.9	21.7	31	522	6	101	25	66	421	60	1.13	35
22	549.8	23.6	35	641	3	55	32	63	586	242	3.60	25
23	551.3	23.0	31	553	0	0	31	54	553	46	0.87	45
24	552.3	21.8	24	406	0	0	24	69	406	72	1.40	30
25	552.6	19.4	36	542	10	151	26	71	391	108	2.00	30

Continued

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
26	553.8	21.9	36	612	7	119	29	61	493	18	0.33	40
27	555.4	20.5	50	795	19	302	31	63	493	186	3.47	30
28	556.3	23.6	35	641	5	92	30	68	549	26	0.40	35
29	557.3	20.2	38	596	4	63	34	60	533	10	0.13	45
30	564.1	18.9	36	528	8	117	28	66	411	86	1.66	35
31	565.4	20.1	43	671	9	140	34	65	531	110	2.00	35
32	567.3	28.0	47	1021	17	369	30	62	652	160	4.00	50
33	568.4	23.7	34	625	3	55	31	53	570	6	0.20	50
34	569.4	24.3	35	660	2	38	33	59	622	244	7.46	30
35	570.6	26.1	20	405	0	0	20	67	405	40	0.60	35

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

Oilfield Research Laboratories

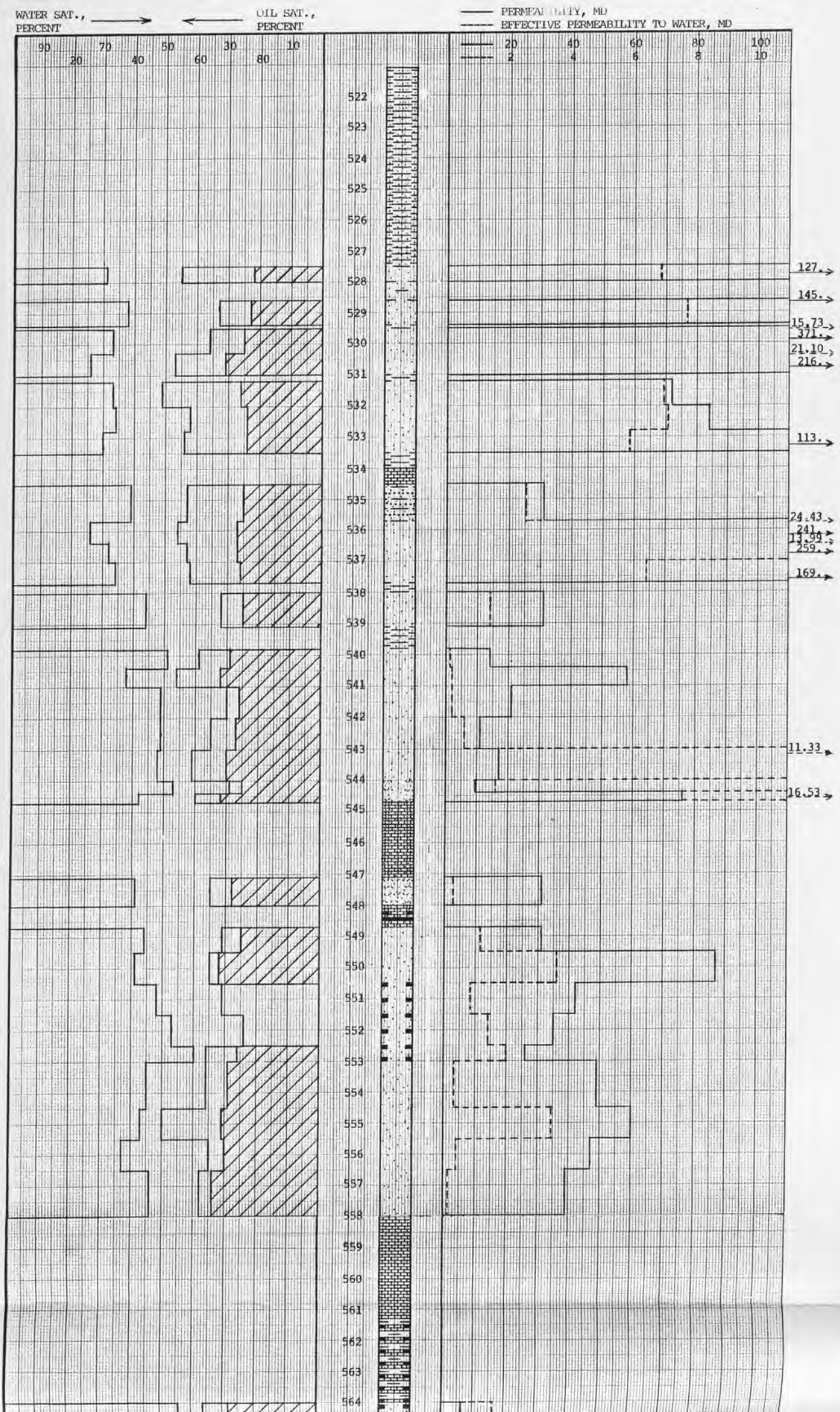
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Prairie Energy Corporation Lease MacLaughlin Well No. 2-K

Depth Interval, Feet	527.5 - 544.7	547.1 - 570.7	527.5 - 570.7
Feet of Core Analyzed	14.3	14.2	28.5
Average Percent Porosity	24.1	22.3	23.2
Average Percent Original Oil Saturation	39.9	38.4	39.2
Average Percent Oil Recovery	13.5	7.9	10.7
Average Percent Residual Oil Saturation	26.4	30.5	28.5
Average Percent Residual Water Saturation	64.7	62.5	63.6
Average Percent Total Residual Fluid Saturation	91.1	93.0	92.1
Average Original Oil Content, Bbls./A. Ft.	748.	666.	707.
Average Oil Recovery, Bbls./A. Ft.	256.	138.	197.
Average Residual Oil Content, Bbls./A. Ft.	492.	528.	510.
Total Original Oil Content, Bbls./Acre	10,700.	9,449.	20,149.
Total Oil Recovery, Bbls./Acre	3,666.	1,958.	5,624.
Total Residual Oil Content, Bbls./Acre	7,034.	7,491.	14,525.
Average Effective Permeability, Millidarcys	7.32	2.02	4.68
Average Initial Fluid Production Pressure, p.s.i.	17.9	37.7	25.9

NOTE: Only those samples which recovered oil were used in calculating the above averages.


WATER SAT., PERCENT
OIL SAT., PERCENT
PERMEABILITY, MD
EFFECTIVE PERMEABILITY TO WATER, MD
90 70 50 30 10
20 40 60 80
20 40 60 80 100
2 4 6 8 10
522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564
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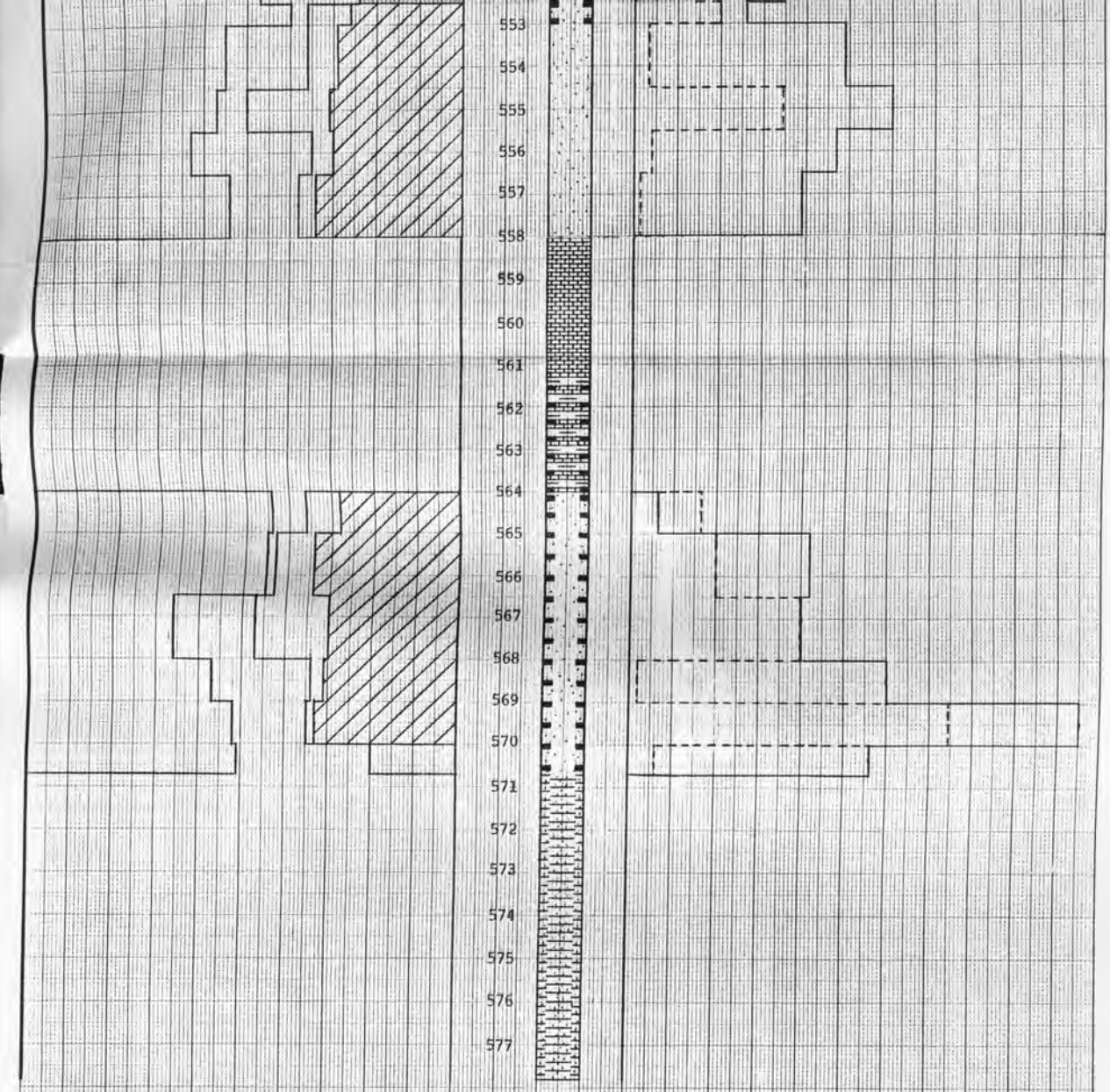
259.
169.
11.33
16.53



KEY:

- SHALE, SANDY
- SANDSTONE
- SANDSTONE, SHALY
- SHALE
- LIMESTONE
- SANDSTONE WITH SHALE AND MICA PARTINGS
- FLOODPOT RESIDUAL OIL SATURATION
- SANDSTONE WITH CARBONACEOUS INCLUSIONS
- LIMESTONE, SANDY
- SANDSTONE WITH CARBONACEOUS PARTINGS AND INCLUSIONS
- LIMESTONE WITH COAL PARTINGS AND INCLUSIONS
- SANDSTONE WITH COAL INCLUSIONS
- LIMESTONE, SHALY, WITH COAL INCLUSIONS

PRAIRIE ENERGY CORPORATION

MacLAUGHLIN LEASE — WELL NO. 2-K

CASS COUNTY, MISSOURI

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLS. / ACRE
527.5 - 544.7	14.3	24.0	39.9	37.4	102.4	
547.1 - 570.7	16.9	22.4	36.3	45.9	47.5	
527.5 - 570.7	31.2	23.2	38.0	42.0	72.6	8960 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1985 RAL