

Permit #: 20034

Date Issued: 4/25/77

County: Cass

Date Cancelled:

CONFIDENTIAL UNTIL:

Date Plugged:

COMMENTS:

Stripped 5/14/84
Lemco 10/93 (Re-later)
shut in gas well
discovery well

OCC FORMS	Date Received
1	
2	
3	4/25/77
3i	
4	4/25/77
4i	
5	12/29/78
6	
7	
8	
11	
12	
Misc. Form 2	

	TYPE	ID #	Date Received
Logs	Test Borings Log		6/8/77
	Drillers Log		
Samples	chip		
	core		
Analyses	water		
	core		
Additional Submitted Data:			

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL DEEPEN PLUG BACK

NAME OF COMPANY OR OPERATOR Ke-La-Da Enterprises, Inc. DATE 4/21/77

Box 197 Archie Missouri
Address City State

DESCRIPTION OF WELL AND LEASE

Name of lease <u>Ke-La-Da Enterprises, Inc.</u>	Well number <u>4</u>	Elevation (ground) <u>870'</u>
--	-------------------------	-----------------------------------

WELL LOCATION (give footage from section lines)
1350 ft. from (N) (S) sec. line 20 ft. from (E) (W) sec. line

WELL LOCATION Section <u>34</u> Township <u>43</u> Range <u>32</u>	County <u>Cass</u>
---	-----------------------

Nearest distance from proposed location to property or lease line: <u>680</u> feet	Distance from proposed location to nearest drilling, completed or applied - for well on the same lease: <u>1825</u> feet
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Proposed depth: <u>550</u>	Rotary or Cable tools <u>Rotary</u>	Approx. date work will start <u>4/21/77</u>
-------------------------------	--	--

Number of acres in lease: <u>307</u>	Number of wells on lease, including this well, completed in or drilling to this reservoir: <u>8</u>
	Number of abandoned wells on lease: <u>none</u>

If lease, purchased with one or more wells drilled, from whom purchased: Name _____ Address _____
No. of Wells: producing _____ inactive _____ abandoned _____

Status of Bond
Single Well Amt. _____ Blanket Bond Amt. 10,000.00
 ON FILE ATTACHED

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) use back of form if needed.

Proposed casing program:				Approved casing - To be filled in by State Geologist			
amt.	size	wt./ft.	cem.	amt.	size	wt./ft.	cem.
<u>550'</u>	<u>4"</u>	<u>steel</u>	<u>pressure grout</u>				
			<u>total depth</u>				

I, the undersigned, state that I am the Vice-President & Treas. Ke-La-Da Enter., Inc. (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 Therese L. Leiper

Permit Number: 20034
Approval Date: 25 April 1977
Approved By: Wallace B. Hurr

SAMPLES REQUIRED
 SAMPLES NOT REQUIRED

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

RECEIVED
APR 25 1977
MO. OIL & GAS COUNCIL

WATER SAMPLES REQUIRED @:

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250 Rolla, Mo. 65401
One will be returned.

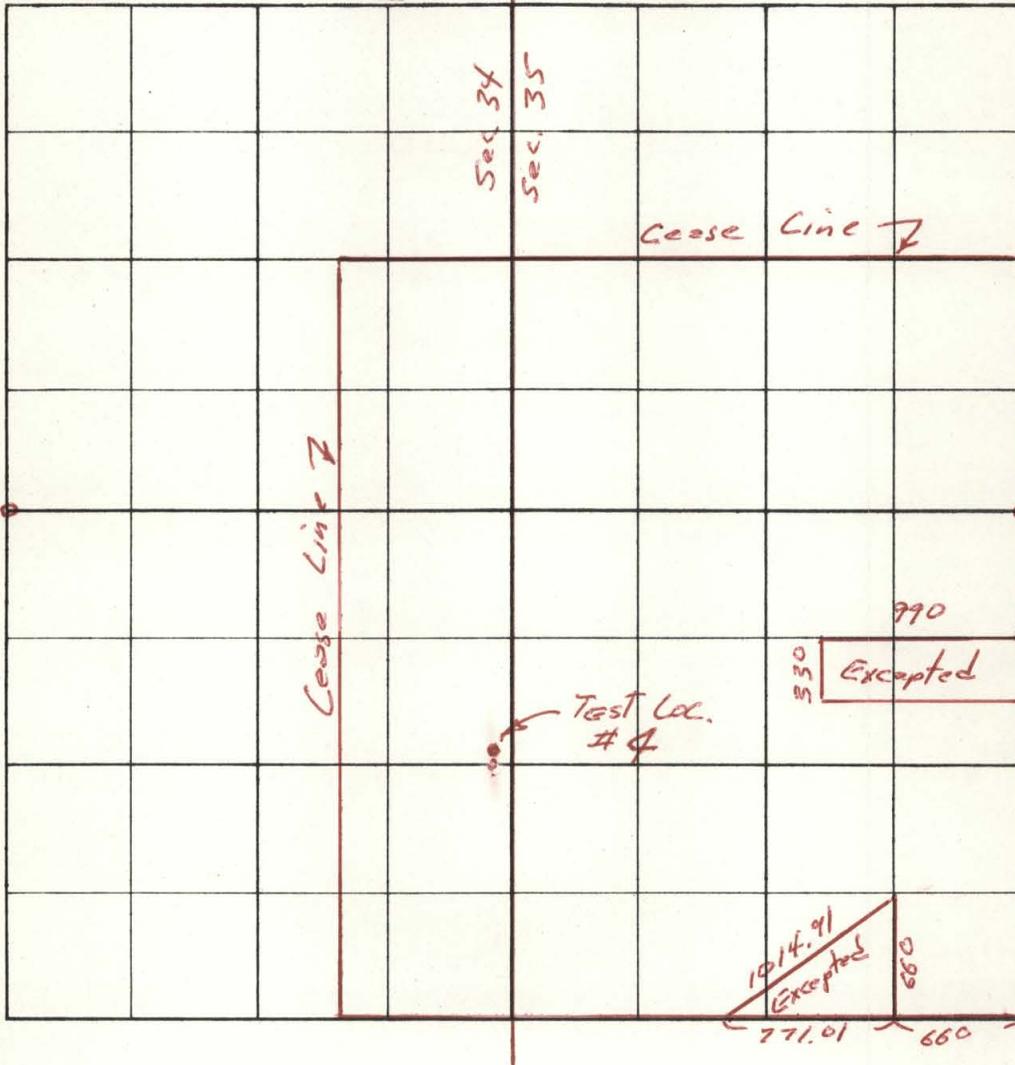
MISSOURI OIL AND GAS COUNCIL
WELL LOCATION PLAT

Form OGC - 4

Owner: Ke-La-Da Enterprises, Inc.

Lease Name: Ke-La-Da Enterprises, Inc. County, Cass

1350 feet from (N) - (S) line and 20' feet from (E) - (W) line of Sec. 34 Twp. 43 Range 32



CTR. SEC.
34-43-32

SCALE
1" = 1000'

CTR. SEC.
35-43-32

REMARKS: _____

INSTRUCTIONS

On the above plat, show distance of the proposed well from the two nearest lease and section lines, and from the nearest well on the same lease completed in or drilling to the same reservoir. If the location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well. Do not confuse survey lines with lease lines. See rule 7 - 3 (b) for survey requirements.

(SEAL)

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250 Rolla, Mo. 65401
One will be returned.

RECEIVED
APR 25 1977
MO. OIL & GAS COUNCIL Registered Land Surveyor

MISSOURI OIL AND GAS COUNCIL

Form OGC-5

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

New Well Work-Over Deepen Plug Back Same Reservoir Different Reservoir Oil Gas Dry

Owner: *The Terra Enterprises Inc* Address: *Box 197 Archie, Mo 64725*
 Lease Name: *Fer* Well Number: *4* *34-43-32*
 Location: *1350 F-9 - 20FE Sec Line* Sec. -- TWP-Range or Block & Survey
 County: *Cass* Permit number (OGC3 number): *20034*
 Date spudded: *4-30-77* Date total depth reached: *5-8-77* Date completed, ready to produce: *5-18-77* Elevation (DF, RKB, RT or Gr.) feet: *870* Elevation of casing hd. flange feet: *871*
 Total depth: *520* P. B. T. D.: *280.5'*
 Producing interval (s) for this completion: *185 to 216* Rotary tools used (interval): From *0* to *520* Cable tools used (interval): From _____ to _____
 Was this well directionally drilled? *no* Was directional survey made? *no* Was copy of directional survey filed? _____ Date filed: _____
 Type of electrical or other logs run (list logs filed with the State Geologist): *Gamma Ray Neutron* Date filed: *12-28-78*

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
<i>Perforating</i>	<i>6 1/2</i>	<i>4"</i>	<i>9#</i>	<i>280.5</i>	<i>40</i>	<i>none</i>

TUBING RECORD

LINER RECORD

Size	Depth set	Packer set at	Size	Top	Bottom	Sacks cement	Screen (ft.)
<i>2 in.</i>	<i>250 ft.</i>	<i>None ft.</i>	<i>in.</i>	<i>ft.</i>	<i>ft.</i>		

PERFORATION RECORD

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Number per ft.	Size & type	Depth Interval	Amt. & kind of material used	Depth Interval
<i>1</i>	<i>Wire Line</i>	<i>185 to 216</i>	<i>Oil Sand 121 bbls 27° crude 5,000 Sand</i>	<i>185-216</i>

INITIAL PRODUCTION

Date of first production: *5-20-77* Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)

Date of test	Hrs. tested	Choke size	Oil prod. during test	Gas prod. during test	Water prod. during test	Oil gravity
<i>5-30-77</i>	<i>24</i>		<i>Trace</i> bbls.	<i>10,000</i> MCF	<i>1</i> bbls.	API (Corr.)
Tubing pressure	Casing pressure	Cal'ed rate of production per 24 hrs.	Oil	Gas	Water	Gas-oil ratio
<i>1025</i>	<i>1044</i>		<i>Trace</i> bbls.	<i>10,000</i> MCF	<i>1</i> bbls.	

Disposition of gas (state whether vented, used for fuel or sold): *vent for test well shut in 2/10/78*

Method of disposal of mud pit contents: *Back fill*

CERTIFICATE: I, the undersigned, state that I am the *Manager* of the *The Terra Enterprises Inc* (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.

Kenneth H. Pappas
Signature

RECEIVED
DEC 29 1978
MO. OIL & GAS COUNCIL

Remit two copies: one will be returned



STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM
PLUGGING RECORD

FORM OGC-7

OWNER'S NAME David Arnold		ADDRESS Route 2 Box 73, Drexel, MO. 64742	
NAME OF LEASE Fee		WELL NUMBER Fee # 4	PERMIT NUMBER (OGC-3 OR OGC-31 NUMBER) 20034
LOCATION OF WELL SEC TWN RNG OR BLOCK AND SURVEY Sec. 34 Township 43 North Range 32 <input type="checkbox"/> East <input checked="" type="checkbox"/> West		LATITUDE W94 26'13.0"	LONGITUDE N38 28'39.0" COUNTY Cass
APPLICATION TO DRILL THIS WELL WAS FILED IN NAME OF: Ka-La-Da Enterprises Inc.		HAS THIS WELL EVER PRODUCED OIL OR GAS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CHARACTER OF WELL AT COMPLETION (INITIAL PRODUCTION) OIL (BBLS/DAY) Trace GAS (MCF/DAY) 10,000 DRY? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
DATE OF ABANDONMENT 06/11/2012	TOTAL DEPTH 260'	AMOUNT WELL PRODUCING PRIOR TO ABANDONMENT OIL (BBLS/DAY) unknown GAS (MCF/DAY) 0	WATER (BBLS/DAY) 1

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	unknown	185'-216'	21 bags for 1 yard of neat cement

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
4"	260'	3'	257'	cutting torch	N/A

WAS WELL FILLED WITH MUD-LADEN FLUID? Yes No

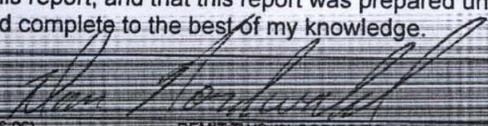
INDICATE DEEPEST FORMATION CONTAINING FRESH WATER
Unknown

NAME AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE		
NAME	ADDRESS	DIRECTION FROM THIS WELL
N/A		

METHOD OF DISPOSAL OF MUD PIT CONTENTS
N/A

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

CERTIFICATE I, the undersigned, state that I am the T-IV of the DNR (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
06/21/2012

DETAIL OF FORMATIONS PENETRATED

FORMATION	TOP	BOTTOM	DESCRIPTION (SEE * BELOW)
0-260'			<p>The well was grouted by reverse tremie method. Approximately 150 gallons of water was contained and deposited of by T & T energy using a vacuum truck. The well was filled from the bottom to 3' below the surface with neat cement. From 3' to 2' below surface was filled with 3 bags of hydrated bentonite chips, using 5 gallons/bag. The remaining 2' to surface was filled with native soil.</p>

NOTE

* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open flowing and shut-in pressures, and recoveries.

INSTRUCTIONS

Attach drillers log or other acceptable log of well if available.
 This Well Completion or Recompletion report and well log shall be filed with the Missouri State Geologist not later than 30 days after project completion.

Temporary No. _____

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES, ROLLA, MISSOURI

COUNTY Cass
 COMPANY OR OWNER Ke-Ia-Da Enterprises, Inc.
 FARM Fee WELL NO. 4
 LOCATION 1350' FSL, 20' FEL SEC 34 T 43 R 32
 CONTRACTOR/DRILLER _____
 COMMENCED 04-30-77 COMPLETED 05-16-77
 PRODUCTION Gas - 10,000 MCF
 CASING RECORD _____
 WATER RECORD _____
 SOURCE OF LOG _____
 REMARKS OGC #20034

MGS LOG NO. Driller's

+	-	+	-
-	+	-	+
+	-	+	-
-	+	-	+
+	-	+	-
-	+	-	+
+	-	+	-
-	+	-	+

NO. SAMPLES _____ SAMPLES RECEIVED _____

ELEV. 870'
 TOTAL DEPTH 520'
 SWL _____

FORMATION	FROM (ft)	TO (to)	FORMATION	FROM (ft)	TO (to)
Clay, brown, tan	0.0'	22.0'	Gray shaly limestone,	130.0'	140.0'
Brown sandstone	22.0'	25.0'	Gray limestone, 1.0' black shale	140.0'	150.0'
Brown sandstone, clay seams	25.0'	32.0'	Gray black shaly limestone	150.0'	160.0'
Shale gray	32.0'	34.0'	Gray black fractured shale	160.0'	170.0'
Limestone, gray, hard	34.0'	38.0'	Gray shale	170.0'	180.0'
Shale, gray, soft	38.0'	40.0'	Gray shale, siltstone	180.0'	190.0'
Sandstone, fine, gray	40.0'	50.0'	Gray shale sandstone	190.0'	200.0'
Sandstone, gray	50.0'	60.0'	Gray silty sandstone, shale	200.0'	210.0'
Limestone & Shale seams, gray	60.0'	65.0'	Green gray siltstone	210.0'	230.0'
Limestone to black shale	65.0'	70.0'	Green gray siltstone/ gray limestone	230.0'	240.0'
Shale, dark gray	70.0'	76.0'	Gray limestone (2ft) gray shale (6ft)	240.0'	250.0'
Limestone, gray	76.0'	80.0'	Gray green limestone, shale	250.0'	260.0'
Limestone, shale seams, gray	80.0'	90.0'	Gray shale	260.0'	270.0'
Shale, dark gray	90.0'	100.0'	Shale, broken, soft, gray	270.0'	280.0'
Shale, gray	100.0'	102.5'	Shale limestone, sandstone to shale, broken and soft, gray	280.0'	290.0'
Limestone, gray	102.5'	106.5'	Gray shale to black shale (7.5ft) coal (0.5ft)	290.0'	300.0'
Coal black	106.5'	107.5'	Gray silstone (4.0ft) Black shale (5.0ft)	300.0'	310.0'
Shale gray	107.5'	110.0'	Coal (1.0ft)	310.0'	320.0'
Shale gray	110.0'	114.0'	Shale soft, clay seams, gray		
Coal black	114.0'	115.0'			
Shale, sandy, gray	115.0'	120.0'			
Black gray shale, 3" coal	120.0'	130.0'			

Temporary No. _____

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES, ROLLA, MISSOURI

COUNTY Cass
 COMPANY OR OWNER Ke-Ia-Da Enterprises, Inc.
 FARM Fee WELL NO. 4
 LOCATION 1350' FSL, 20' FEL SEC 34 T 43 R 32
 CONTRACTOR/DRILLER _____
 COMMENCED 04-30-77 COMPLETED 05-16-77
 PRODUCTION Gas - 10,000 MCF
 CASING RECORD _____
 WATER RECORD _____
 SOURCE OF LOG _____
 REMARKS OGC #20034

MGS LOG NO. Driller's

- + -	- + -	- + -	- + -
- + -	- + -	- + -	- + -
- + -	- + -	- + -	- + -
- + -	- + -	- + -	- + -

NO. SAMPLES _____ SAMPLES RECEIVED _____

ELEV. 870'
 TOTAL DEPTH 520'
 SWL _____

FORMATION	FROM (ft)	TO (to)	FORMATION	FROM (ft)	TO (to)
Gray black shale	320.0'	330.0'			
Gray black shale to coal (1.0' seam)	330.0'	340.0'			
Black Shale (2.5' seam) coal-black shale	340.0'	350.0'			
Gray shaly sandstone	350.0'	370.0'			
Sandstone shale, 1.0' black coal, gray	370.0'	380.0'			
Gray shale limestone	380.0'	390.0'			
Black shale	390.0'	430.0'			
Black shale (8ft) cherty shale (2ft)	430.0'	440.0'			
Limestone, black, shale, gray	440.0'	450.0'			
Shaly limestone, gray, coal seam of 4"	450.0'	460.0'			
Shale limestone, to coal seam 1.5' coal	460.0'	470.0'			
Shaly limestone, hard	470.0'	490.0'			
Shaly limestone, very hard	490.0'	500.0'			
Shale, black	500.0'	502.5'			
Coal, black	502.5'	503.5'			
Limestone, chert	503.5'	510.0'			
Chert, red, brown, green	510.0'	515.5'			
Limestone, gray	515.5'	520.0'			
Total Depth	520.0'				

TEST BORING LOG

Project Ke-La-Da
Sec-35-T43W-R-32-W
 Address Cass County
 City & State Archie, Missouri

Boring No. 4 Sheet 1 of 7
 Surface Elevation _____ Offset _____
 Date Started 4/21/77 Completed 5/3/77
 Driller J. Wright Rig CME 750

DISCOVERY Well

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

DEPTH		METHOD	PENETRATION RECORD		Drill Time Per 5.0'	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY	
FROM	TO		POCKET PENETRO METER	NO. OF BLOWS			
0.0'	5.0'	4 7/8 RB	5.0	4 min.		Mud pit filled from pond	
5.0'	10.0'	4 7/8 RB	5.0	4 min.		Clay, brown, tan	
10.0'	15.0'	4 7/8 RB	5.0	3 min.		Same	
15.0'	20.0'	4 7/8 RB	5.0	4 min.		Same	
20.0'	22.0'	4 7/8 RB	2.0	1 min.		Same	
22.0'	25.0'	4 7/8 RB	3.0	2 min.		Brown sandstone	
25.0'	30.0'	4 7/8 RB	5.0	3 min.		Brown sandstone, clay seams	
30.0'	32.0'	4 7/8 RB	2.0	1 min.		Same	
32.0'	34.0'	4 7/8 RB	2.0	3 min.		Shale gray	
34.0'	38.0'	4 7/8 RB	4.0	6 min.		Limestone, gray, hard	
38.0'	40.0'	4 7/8 RB	2.0	2 min.		Shale, gray, soft	
40.0'	Total Depth at end of shift						

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 JUN 08 1977
 MO. OIL & GAS COUNCIL

REMARKS: (Casing, Water Loss, Etc.) _____ Water Level _____ Time _____ Date _____
Set 40.0' of 4.5 casing _____ (Completion)

TEST BORING LOG

Project Ke-La-Da

Boring No. 4 Sheet 2 of 7

Surface Elevation _____ Offset _____

Address Cass County

Date Started 4/22/77 Completed _____

City & State Archie, Missouri

Driller J. Wright Rig CME 750

Bit No. 75-07563
 NXC3 Wire line

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

DEPTH		METHOD	PENETRATION RECORD		CORE RECOVERY	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY
FROM	TO		POCKET PENETRO-METER	Drill Time Per 5.0'		
40.0'	45.0'	3 7/8 RB		7 min.		Sandstone, fine, gray
45.0'	50.0'	3 7/8 RB		5 min.		Same
50.0'	55.0'	3 7/8 RB		5 min.		Sandstone, gray
55.0'	60.0'	3 7/8 RB		5 min.		Same
60.0'	65.0'	3 7/8 RB		5 min.		Limestone and shale seams, gray
65.0'	70.0'	3 7/8 RB		6 min.		Limestone to black shale
				Drill Time		
70.0'	76.0'	1 7/8 CW		25 min.	6.0'	Shale dark gray
76.0'	80.0'	1 7/8 CW		10 min.	4.0'	Limestone, gray
80.0'	90.0'	1 7/8 CW		30 min.	10.0'	Limestone, shale seams, gray
90.0'	100.0'	1 7/8 CW		20 min.	10.0'	Shale dark gray
100.0'	102.5'	1 7/8 CW		11 min.	2.5'	Shale, gray
102.5'	106.5'	1 7/8 CW		11 min.	4.0'	Limestone, gray
106.5'	107.5'	1 7/8 CW		11 min.	1.0'	Coal Black

REMARKS: (Casing, Water Loss, Etc.) _____ Water Level _____ Time _____ Date _____
 37.0' of 4.5" flush joint casing _____ (Completion)

TEST BORING LOG

Project Ke-La-Da
 Address Cass County
 City & State Archie, Missouri

Boring No. 4 Sheet 3 of 7
 Surface Elevation _____ Offset _____
 Date Started 4/22/77 Completed _____
 Driller J. Wright Rig CME 750

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

DEPTH		METHOD	PENETRATION RECORD		CORE RECOVERY	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY	
FROM	TO		POCKET PENETROMETER	Drill Time			
107.5'	110.0'	1 7/8 CW		11 min.	2.5'	Shale gray	
110.0'	114.0'	1 7/8 CW		10 min.	4.0'	Shale, gray	
114.0'	115.0'	CW		10 min.	1.0'	Coal black	
115.0'	120.0'	CW		10 min.	5.0'	Shale sandy, gray	
120.0'	Total Depth at end of shift						
				Drill Time			
4/25/77							
120.0'	130.0'	CW		35 min.	10.0'	Black gray shale, 3 inches coal	
130.0'	140.0'	CW		20 min.	10.0'	Gray shaly limestone, 100 gallons water	
140.0'	150.0'	CW		16 min.	9.0'	Gray limestone, 1.0' black shale	
150.0'	160.0'	CW		20 min.	10.0'	Gray black shaly limestone	
160.0'	170.0'	CW		20 min.	7.0'	Gray black fractured shale	
170.0'	180.0'	CW		35 min.	9.0'	Gray shale	
180.0'	190.0'	CW		40 min.	10.0'	Gray shale, siltstone	
190.0'	200.0'	CW		15 min.	10.0'	Gray shaly sandstone	
200.0'	Total Depth at end of shift						

EMARKS: (Casing, Water Loss, Etc.)

Water Level

Time

Date

33 seconds per quart

(Completion)

TEST BORING LOG

Project Ke-La-Da
 Address Cass County
 City & State Archie, Missouri

Boring No. 4 Sheet 4 of 7
 Surface Elevation _____ Offset _____
 Date Started 4/26/77 Completed _____
 Driller J. Wright Rig CME 750

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

DEPTH		METHOD	PENETRATION RECORD		CORE RECOVERY	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY (600 psi on bit)	
FROM	TO		POCKET PENETRO-METER				
200.0'	210.0'	CW		30 min.	10.0'	Gray silty sandstone, shale	
210.0'	220.0'	CW		30 min.	10.0'	Green gray siltstone	
220.0'	230.0'	CW		25 min.	10.0'	Same	
230.0'	240.0'	CW		7 min.	10.0'	Green gray siltstone, gray limestone (3.5)	
240.0'	250.0'	CW		30 min.	8.0'	2.0' gray limestone, 6.0' gray shale	
250.0'	260.0'	CW		28 min.	10.0'	Gray green siltstone, shale	
260.0'	270.0'	CW		30 min.	9.9'	Gray shale	
270.0'	Total Depth at end of shift						
270.0'	280.0'	CW		35 min.	5.0'	Shale, broken, soft, gray	
280.0'	290.0'	CW		40 min.	10.0'	Shale limestone, sandstone to shale, broken and soft, gray	
290.0'	300.0'	CW		40 min.	8.0'	7.5' gray shale to black shale, 0.5' coal	
300.0'	310.0'	CW		45 min.	10.0'	4.0' gray siltstone, 5.0' black shale, 1.0 coal	
310.0'	320.0'	CW		40 min.	10.0'	Shale soft, clay seams, gray	
320.0'	Total Depth at end of shift						

REMARKS: (Casing, Water Loss, Etc.) _____ Water Level _____ Time _____ Date _____
 Water viscosity 34 seconds per quart _____ (Completion)

TEST BORING LOG

Project Ke-La-Da
 Address Cass County
 City & State Archie, Missouri

Boring No. 4 Sheet 5 of 7
 Surface Elevation _____ Offset _____
 Date Started _____ Completed _____
 Driller J. Wright Rig CME 750

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

DEPTH		METHOD	PENETRATION RECORD		CORE RECOVERY	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY	
FROM	TO		POCKET PENETRO-METER	Drill Time			
320.0'	330.0'	CW		50 min.	10.0'	Gray black shale	
330.0'	340.0'	CW		50 min.	10.0'	Gray black shale to coal, 1.0' seam	
340.0'	350.0'	CW		45 min.	10.0'	2.5 black shale , coal- black shale	
350.0'	360.0'	CW		28 min.	10.0'	Gray shaly sandstone	
360.0'	370.0'	CW		25 min.	10.0'	Gray shaly sandstone	
370.0'	380.0'	CW		14 min.	10.0'	Sandstone shale, 1.0' black coal, gray	
380.0'	Total Depth at end of shift						
380.0'	390.0'	CW		45 min.	9.0'	Gray shaly siltstone	
390.0'	400.0'	CW		50 min.	10.0'	Black shale	
400.0'	410.0'	CW		35 min.	10.0'	Same	
410.0'	420.0'	CW		35 min.	10.0'	Same	
420.0'	430.0'	CW		30 min.	10.0'	Black shale	
430.0'	440.0'	CW		35 min.	10.0'	8.0' black shale, 2.0' cherty shale	
440.0'	Total Depth at end of shift						

EMARKS: (Casing, Water Loss, Etc.)

Water Level

Time

Date

33 seconds per quart

(Completion)

TEST BORING LOG

Project Ke-La-Da
 Address Cass County
 City & State Archie, Missouri

Boring No. 4 Sheet 6 of 7
 Surface Elevation _____ Offset _____
 Date Started 5/2/77 Completed _____
 Driller J. Wright Rig CME 750

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DEPTH		METHOD	PENETRATION RECORD		CORE RECOVERY	SAMPLE DESCRIPTION COLOR-MATERIAL-MOISTURE-CLAY CONSISTENCY SAND DENSITY	
FROM	TO		POCKET PENETROMETER	Drill Time			
440.0'	450.0'	CW		40 min.	10.0'	Limestone, shale, black, gray	
450.0'	460.0'	CW		37 min.	10.0'	Shaly limestone, gray, coal seam 4 "	
460.0'	470.0'	CW		22 min.	10.0'	Shaly limestone to coal seam, 1.5' coal	
470.0'	480.0'	CW		45 min.	10.0'	Shaly limestone, hard	
480.0'	490.0'	CW		45 min.	10.0'	Same	
490.0'	500.0'	CW		1 hour	10.0'	Shaly limestone, very hard	
500.0'	Total Depth at end of shift						
						Added one bag of drill mud as directed by	
						Jerry Monk, inspector.	
						Total depth on core bit at this time 430.0'	

REMARKS: (Casing, Water Loss, Etc.) _____ Water Level _____ Time _____ Date _____
 33 seconds per 1 quart on test of drilling fluid _____ (Completion)

