



**SUNDY NOTICES AND REPORTS ON WELLS - FORM 4**

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)

Well File No. 11920

**PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.**

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>December 10, 2018</b>	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Return to Production</b>

**Well Name and Number  
Corps of Engineers 31-10**

### Footages

Footages	660 F	N	L	2305 F	E	L	Qtr-Qtr	Section	Township	Range	
								10	153 N	101 W	
Field						Pool	County				
Baker						Duperow	McKenzie				

**Name of Contractor(s)**

24-HOUR PRODUCTION RATE			
Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

**Address**

**City**

**State**

**Zip Code**

### **DETAILS OF WORK**

The Corps of Engineers 31-10 was shut in due to Missouri River flooding (well site is in flood plain). Facility repairs have been extensive, but expect repairs to be completed by next week and production resuming by 12/10/18.

Company <b>RIM Operating, Inc</b>		Telephone Number <b>303-799-9828</b>
Address <b>5 Inverness Drive East</b>		
City <b>Englewood</b>		State <b>CO</b>
		Zip Code <b>80112</b>
Signature 		Printed Name <b>Jason Rouse</b>
Title <b>VP, Operations</b>		Date <b>November 29, 2018</b>
Email Address <b>jrouse@rimop.com</b>		

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date	12-12-18
By	DAVE TABOR
Title	Field Supervisor



# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5698 (03-2000)

Received

MAR 7 2016

Well File No.	11920
NDIC CTB No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

*ND Oil & Gas Division*

Well Name and Number <b>Corps of Engineers 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>
Operator <b>RIM Operating, Inc</b>	Telephone Number <b>303-799-9828</b>		Field <b>Baker</b>		
Address <b>5 Inverness Drive East</b>	City <b>Englewood</b>		State <b>CO</b>	Zip Code <b>80112</b>	

Name of First Purchaser <b>Mercuria Energy Trading, Inc.</b>	Telephone Number <b>832-209-2400</b>	% Purchased <b>100%</b>	Date Effective <b>March 1, 2016</b>
Principal Place of Business <b>20 Greenway Plaza, Suite 650</b>	City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77046</b>
Field Address	City	State	Zip Code
Name of Transporter <b>Rocky Mountain Crude Oil LLC</b>	Telephone Number <b>877-651-9351</b>	% Transported <b>100</b>	Date Effective <b>March 1, 2016</b>
Address <b>490 North 31st Street #2010</b>	City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59101</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date <b>March 3, 2016</b>
Signature 	Printed Name <b>Liz Ortiz</b>
	Title <b>Engineering Technician</b>

Above Signature Witnessed By	
Witness Signature 	Witness Printed Name <b>Ken Kundrik</b>
	Witness Title <b>A&amp;D Manager</b>

FOR STATE USE ONLY	
Date Approved <b>MAR 17 2016</b>	
By 	
Title <b>Oil &amp; Gas Production Analyst</b>	

Industrial Commission of North Dakota  
Oil and Gas Division  
Spill / Incident Report

Date/Time Reported : Dec 8 2014 / 14:08

State Agency person :

Responsible Party : RIM OPERATING, INC.

Well Operator : RIM OPERATING, INC.

Date/Time of Incident : 12/7/2014 12:00:00 AM

NDIC File Number : 11920

Facility Number :

Well or Facility Name : CORPS OF ENGINEERS 31-10

Type of Incident : Valve/Piping Connection Leak

Field Name : BAKER

County : MCKENZIE

Section : 10

Township : 153

Range : 101

Quarter-Quarter :

Quarter :

Distance to nearest residence :

Distance to nearest water well :

Release Oil : 25 Barrels

Release Brine : 50 Barrels

Release Other :

Recovered Oil : 24 Barrels

Recovered Brine : 45 Barrels

Recovered Other :

Has/Will the incident be reported to the NRC? : No

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation : Not Applicable

Followup Report Requested Y/N : Y



# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5698 (03-2000)



Well File No.	11920
NDIC CTE No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>Corps of Engineers 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>
Operator <b>RIM Operating, Inc</b>	Telephone Number <b>303-799-9828</b>	Field <b>Baker</b>			
Address <b>5 Inverness Drive East</b>	City <b>Englewood</b>		State <b>CO</b>	Zip Code <b>80112</b>	

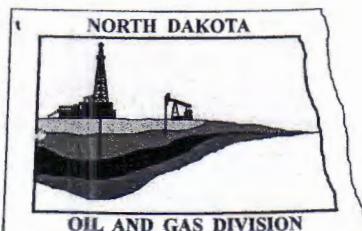
Name of First Purchaser <b>PetroChina International America, Inc.</b>	Telephone Number <b>832-325-5317</b>	% Purchased <b>100</b>	Date Effective <b>September 1, 2015</b>
Principal Place of Business <b>2000 W Sam Houston Parkway South</b>	City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77042</b>
Field Address	City	State	Zip Code
Name of Transporter <b>Badlands Tank Lines, LLC</b>	Telephone Number <b>402-281-0646</b>	% Transported <b>100</b>	Date Effective <b>September 1, 2015</b>
Address <b>2211 South 156th Circle #2B</b>	City <b>Omaha</b>	State <b>NE</b>	Zip Code <b>68116</b>
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.			

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date <b>August 18, 2015</b>
Signature 	Printed Name <b>Liz Ortiz</b>
Title <b>Engineering Technician</b>	

Above Signature Witnessed By	Witness Signature 	Witness Printed Name <b>Ken Kundrik</b>	Witness Title <b>A&amp;D Manager</b>
------------------------------	-----------------------	--	---

FOR STATE USE ONLY	
Date Approved <b>AUG 24 2015</b>	
By	
Title 	
Oil & Gas Production Analyst	



# Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

## Department of Mineral Resources

Lynn D. Helms - Director

## North Dakota Industrial Commission

[www.dmr.nd.gov/oilgas/](http://www.dmr.nd.gov/oilgas/)

11920

May 13, 2014

Mr. Jason Rouse  
General Representative  
Rim Operating, Inc.  
5 Inverness Drive East  
Englewood, CO 80112

RE: Basic Game And Fish 34-3 SW SW 2-153N-101W State File No. 11745*	Corps Of Engineers 31-10 NW NE 10-153N-101W State File No. 11920*	Lewis And Clark 2-4H SE NE 4-153N-101W State File No. 15358*
Pederson 5-24 NW SW 24-153N-102W State File No. 11137*	Skurdal 2-24HR NE NW 24-153N-102W State File No. 10681	Skurdal 6-24 SW SE 24-153N-102W State File No. 13428*
Coulter 1-19 SW NW 19-153N-101W State File No. 11238		

\*location impacted by 2014 ice jam flooding

Dear Jason,

Our conversation on May 2, 2014 discussed flood preparations for wells that your company operates near Williston, North Dakota. The Missouri River continues to rise and the possibility of additional flooding from the spring melt and recent rains in the near future exists. I urge you to closely monitor these sites and take the necessary preventative actions to eliminate or mitigate environmental damage if these sites become deluged with flood waters. The following e-mail from Allen Schlag of the National Weather Service also addresses the current situation of the Missouri River in the Williston area:

**From:** Allen Schlag [mailto:[allen.schlag@noaa.gov](mailto:allen.schlag@noaa.gov)]  
**Sent:** Monday, May 12, 2014 1:47 PM  
**To:** WILLIAMS; Samuelson, Jerry O.; MCKENZIE; Anton, Amy J.; Ackerman, Laura C.; Engelhardt, Bruce W.; Travnicek, Andrea J.; Johnson, Sean M.  
**Subject:** Missouri River

Greetings everyone

Just a quick note on the Missouri River near Williston forecast site and the prospects for problems as we go forward into latter half of May and early June (by default this also includes the Yellowstone in ND as well). As you may have noticed already, the Missouri River near Williston crossed over into Forecast Issuance Stage this past weekend before falling back below 20 ft. This, is temporary. While the Corps released a statement last week tempering their runoff expectations for the Missouri River overall, the attached graphic of mountain snowpack suggests we still have a pretty strong runoff into the Yellowstone and Missouri Rivers ahead of us.

We will most likely cross over above flood stage as measured at the Lewis and Clark Bridge west of Williston at some point in the next couple of weeks.

What exactly lies in store for the area with respect to eventual river stages is still quite unclear as the overall environment for the melt of the mountain snowpack is too far out. However...there has been a fairly wet pattern in the plains of Montana already this spring, with a mixed bag in the upper elevations of central MT. The region remains well above normal with respect to mountain snowpack, but is also well below where 1997 and 2011 were at this point in time (see the second attached pdf).

If I had to take a wild guess this far in advance, something around the 22.5 to 24.5 ft range is reasonable, with any added big rains this could be expanded quite easily to the 25-26 ft range.

How exactly this will compare to this spring's ice jams and high water is a really good question, which I don't have any easy answers to either. Suffice to say, I think there's a pretty decent chance that we will see water roughly 4-6 ft higher than is currently in northwestern ND along both the Yellowstone and Missouri Rivers with the timing of near the last week of May to about the third week of June. Historically, I know there have been some access issues with oil well sites in the Trenton area with water levels in the 22 ft range at the Lewis and Clark Bridge. How much of this has been mitigated by ring dikes or road raises, again...very good question to which I have no answer.

Of course, if you have any questions or just want to chat about this in greater detail, always feel free to give me a call.

Allen

p.s. And as always, feel free to disseminate as you feel is appropriate.

Allen J. Schlag Service Hydrologist  
WFO-Bismarck  
National Weather Service  
2301 Univ. Drive, Bldg 27  
Bismarck, ND 58504 ph. 701-250-4495

If you have question in regards to flood preparation and prevention activities, please feel free to contact me at your convenience. You can reach me at (701) 770-3554 or e-mail at [rsdunn@nd.gov](mailto:rsdunn@nd.gov). Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink that reads "Richard S. Dunn / FIP".

Richard S. Dunn  
Field Inspector



# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFSN 5698 (03-2000)

Well File No.
11920
NDIC CTB No.
111920



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>106</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>MCKENZIE</b>
Operator <b>RIM OPERATING, INC.</b>	Telephone Number <b>303-799-9828</b>		Field <b>BAKER</b>		
Address <b>5 INVERNESS DRIVE EAST</b>	City <b>ENGLEWOOD</b>		State <b>CO</b>	Zip Code <b>80112</b>	

Name of First Purchaser <b>PLAINS MARKETING LP</b>	Telephone Number <b>713-646-4100</b>	% Purchased <b>100</b>	Date Effective <b>May 16, 2013</b>
Principal Place of Business <b>PO BOX 4648</b>	City <b>HOUSTON</b>	State <b>TX</b>	Zip Code <b>77210</b>
Field Address <b>303 6TH AVE NE</b>	City <b>BELFIELD</b>	State <b>ND</b>	Zip Code <b>58622</b>
Name of Transporter <b>PLAINS MARKETING LP</b>	Telephone Number <b>701-575-4349</b>	% Transported <b>100</b>	Date Effective <b>May 16, 2013</b>
Address <b>303 6TH AVE NE</b>	City <b>BELFIELD</b>	State <b>ND</b>	Zip Code <b>58622</b>
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.			

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date <b>May 23, 2013</b>	
Signature 	Printed Name <b>KEN KUNDRIK</b>	Title <b>OPERATIONS MANAGER</b>

Above Signature Witnessed By	Witness Signature 	Witness Printed Name <b>KIM NEABUHR</b>	Witness Title <b>REVENUE ACCOUNTANT</b>
------------------------------	-----------------------	--	--

FOR STATE USE ONLY		
Date Approved	<b>MAY 28 2013</b>	
By		
Title	<b>Oil &amp; Gas Production Analyst</b>	



# Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

**Department of Mineral Resources**

Lynn D. Helms - Director

**North Dakota Industrial Commission**

[www.dmr.nd.gov/oilgas](http://www.dmr.nd.gov/oilgas)

11920

May 24, 2013

Rene Morin  
Rim Operating, Inc.  
5 Inverness Drive East  
Englewood, CO 80112-5519

RE: CHANGE OF OPERATOR FROM SM ENERGY COMPANY  
TO RIM OPERATING, INC.  
15 WELLS

Dear Rene Morin:

Please find enclosed a copy of the approved Form 15, Notice of Transfer of Oil and Gas Wells, in regard to the above-referenced matter. This transfer has now been approved and subject wells are now covered by Bond No. RLB0013610, RLI Insurance Company as Surety.

If you should have any questions, please feel free to contact this office.

Sincerely,

Jeanette Bean  
Administrative Assistant

Enclosure

cc: Mark Mueller  
SM Energy Company  
PO Box 7168  
Billings, MT 59103



# NOTICE OF TRANSFER OF OIL AND GAS WELLS



FOR STATE USE ONLY

NDIC Bond Number

R 312

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5762 (03-2000)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM. PLEASE SUBMIT THE ORIGINAL AND 5 COPIES.  
THIS NOTICE ALONG WITH A FEE OF \$25.00 PER WELL SHALL BE FILED AT LEAST THIRTY DAYS BEFORE THE CLOSING DATE OF TRANSFER.

## TRANSFERRING OPERATOR

Name of Operator Representative

**Mark Mueller**

Operator Transferring Oil and/or Gas Wells

**SM Energy Company**Address  
**P.O. Box 7168**City  
**Billings**

Telephone Number

**406-245-6248**State  
**MT** Zip Code  
**59103**

I, the above named representative, acknowledge the transfer of the oil and/or gas wells named below for the purpose of ownership and/or operation to the company named below.

Signature

Title (Must be an officer or power of attorney must be attached)

**Sr VP/Regional Manager**

Date

**5/3/2013**

Well File Number	Requested Official Well Name and Number	Location (Qtr-Qtr, S-T-R)	Assignment Date

## RECEIVING OPERATOR

Name of Operator Representative

**Rene Morin**

Operator Receiving Oil and/or Gas Wells

**Rim Operating, Inc.**Address  
**5 Inverness Drive East**City  
**Englewood**

Telephone Number

**303-799-9828**State  
**CO** Zip Code  
**80112-5519**

I, the above named representative, have read the foregoing statement and accept such transfer, also the responsibility of ownership and/or operation of said well or wells, under the said company bond, said bond being tendered to or on file with the Industrial Commission of North Dakota.

Signature

Title (Must be an officer or power of attorney must be attached)

**Vice President**

Date

**5-15-13**

## SURETY COMPANY

Surety <b>RLI Insurance Company</b>	Telephone Number <b>713-961-1300</b>	Amount of Bond <b>\$ 100,000.00</b>	
Address <b>8 Greenway Plaza, Ste.400</b>	City <b>Houston</b>	State <b>TX</b> Zip Code <b>77046</b>	Bond Number <b>RLB0013610</b>

The above named SURETY agrees that such bond shall extend to compliance with Chapter 38-08 of North Dakota Century Code and amendments and the rules and regulations of the Industrial Commission of North Dakota prescribed to govern the production of oil and gas on government and private lands within the State of North Dakota, in relation to the above stated transfer; it being further agreed and understood that the bond sum or amount is not to be considered increased because of such extension.

Signature

Title (Must be an officer or power of attorney must be attached)

**Attorney-in-Fact**

Date

**05-22-13**

Printed Name

**Robbie Duxbury**

FOR STATE USE ONLY

Date Approved	<b>May 24, 2013</b>
By	<b>Bruce E. Luchs</b>
Title	<b>Assistant Director</b>

Well File No.	Well Name	Gross Acres	Field	County	SI	Quarter	Section	Township	Range
14792	BOSS 12-17	160	STOCKYARD CREEK	WILLIAMS	ND	SWNW	17	154N	99W
14716	BOSS 41-17	160	STOCKYARD CREEK	WILLIAMS	ND	NENE	17	154N	99W
13556	CHURCH 1-2X ST	320	NAMELESS	MCKENZIE	ND	NENW	2	150N	102W
15358	LEWIS & CLARK 2-4H	604.3	BAKER	MCKENZIE	ND	SENE	4	153N	101W
745	BASIC GAME & FISH 34-3H	320	BAKER	MCKENZIE	ND	SWSW	2	153N	101W
.920	CORPS OF ENGINEERS 31-10	320	BAKER	MCKENZIE	ND	NWNE	10	153N	101W
11137	PEDERSON 5-24 (DUP)	160	HARDSCRABBLE	WILLIAMS	ND	NWSW	24	153N	102W
11238	COULTER 1-19	156	INDIAN HILL	WILLIAMS	ND	SWNW	19	153N	101W
11490	CURRAN 1-1	160	DUBLIN	WILLIAMS	ND	NENW	1	157N	100W
9102	CHURCH 1-2S	160	NAMELESS	MCKENZIE	ND	NWNW	2	150N	102W
10681	SKURDAL 2-24HR	640	HARDSCRABBLE	WILLIAMS	ND	NENW	24	153N	102W
8322	LINK 34-1S	160	NAMELESS	MCKENZIE	ND	NESW	34	151N	102W
5856	YELLOWSTONE STATE 1-36	320	YELLOWSTONE	MCKENZIE	ND	NENW	36	150N	104W
13428	SKURDAL 6-24 RR	320	HARDSCRABBLE	WILLIAMS	ND	SWSE	24	153N	102W
9481	LINDECKER 1-35 SWD		UNKNOWN	MCKENZIE	ND	NWSW	35	151N	102W



SUNDRY NOTICES AND REPORTS ON WELLS - FORM A

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)

Well File No.  
**11920**

**PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.**

<input type="checkbox"/> Notice of Intent	Approximate Start Date
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed <b>July 20, 2012</b>
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date

<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
<input checked="" type="checkbox"/> Other	<b><u>Return to Production</u></b>

**Well Name and Number**

Corps of Engineers 31-10

Footages		Qtr-Qtr	Section	Township	Range
660 F N L	2305 F E L	NWNE	10	153 N	101 W
Field	Pool	County			
Baker	Duperow	McKenzie			

24-HOUR PRODUCTION RATE			
Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

**Name of Contractor(s)**

Address

City

Stata

30

## DETAILS OF WORK

The Corps of Engineers 31-10 was returned to production on 7/20/12 after being SI due to flooding in Baker Field.

Company <b>SM Energy Company</b>	Telephone Number <b>(406) 245-6248</b>
Address <b>P.O. Box 7168</b>	
City <b>Billings</b>	
State <b>MT</b>	Zip Code <b>59103</b>
Signature 	Printed Name <b>Cris Rogers</b>
Title <b>Operations Engineer</b>	Date <b>July 27, 2012</b>
Email Address <b>crogers@sm-energy.com</b>	

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date	September 7, 2012
By	
Title	PETROLEUM ENGINEER

Industrial Commission of North Dakota  
Oil and Gas Division  
Spill / Incident Report

Date/Time Reported : Dec 3 2010 / 14:20

State Agency person :

Responsible Party :

Well Operator : SM ENERGY COMPANY

Date/Time of Incident : 12/1/2010 12:00:00 AM

NDIC File Number : 11920

Facility Number :

Well or Facility Name : CORPS OF ENGINEERS 31-10

Field Name : BAKER

County : MCKENZIE

Section : 10

Township : 153

Range : 101

Quarter-Quarter : NW

Quarter : NE

Distance to nearest residence : 1 Miles

Distance to nearest water well : 25 Feet

Release Oil : 60 barrels

Release Brine : 0 barrels

Release Other : 0 barrels

Recovered Oil : 50 barrels

Recovered Brine : 0 barrels

Recovered Other : 0 barrels

Has/Will the incident be reported to the NRC? : Unknown

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation : None.

Followup Report Requested Y/N : N

Industrial Commission of North Dakota  
Oil and Gas Division  
Spill / Incident Report

Date/Time Reported : Aug 12 2009 / 11:52

State Agency person :

Responsible Party :

Well Operator : ST MARY LAND & EXPLORATION COMPANY

Date/Time of Incident : 8/11/2009 12:00:00 AM

NDIC File Number : 11920

Facility Number :

Well or Facility Name : CORPS OF ENGINEERS 31-10

Field Name : BAKER

County : MCKENZIE

Section : 10

Township : 153

Range : 101

Quarter-Quarter : NW

Quarter : NE

Distance to nearest residence : 1 Miles

Distance to nearest water well : 0.25 Miles

Release Oil : 8 barrels

Release Brine : 0 barrels

Release Other : 0 barrels

Recovered Oil : 5 barrels

Recovered Brine : 0 barrels

Recovered Other : 0 barrels

Has/Will the incident be reported to the NRC? : No

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation : None.

Followup Report Requested Y/N : N

Industrial Commission of North Dakota  
Oil and Gas Division  
Spill / Incident Report

Date/Time Reported : Oct 16 2006 / 10:29

State Agency person :

Responsible Party :

Well Operator : NANCE PETROLEUM CORPORATION

Date/Time of Incident : 10/15/2006 12:00:00 AM

NDIC File Number : 11920

Facility Number :

Well or Facility Name : Corp. of Engineers 31-10

Field Name : BAKER

County : McKenzie

Section : 10

Township : 153

Range : 101

Quarter-Quarter : NW

Quarter : NE

Distance to nearest residence : 5 Miles

Distance to nearest water well : 0.25 Miles

Release Oil : 1 barrels

Release Brine : 0 barrels

Release Other : 0 barrels

Recovered Oil : 0 barrels

Recovered Brine : 0 barrels

Recovered Other : 0 barrels

Has/Will the incident be reported to the NRC? : No

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation :



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)



Well File No.  
**11920**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
Approximate Start Date		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Shut In Well</b>

Well Name and Number  
**Corp of Engineers 31-10**

Footages <b>660 F N L</b>	<b>2305 F E L</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>
Field <b>Baker</b>	Pool <b>Duperow</b>	County <b>McKenzie</b>			

## 24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code
---------	------	-------	----------

## DETAILS OF WORK

**Due to ice jams the above captioned well has been shut in.**

**Verbal approval to transport oil was given by John Axtman on February 3, 2012.**

Company <b>SM Energy</b>	Telephone Number	
Address <b>P O Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103</b>
Signature <i>Lorena Griggs</i>	Printed Name <b>Lorena Griggs</b>	
Title <b>Regulatory &amp; Safety Assistant</b>	Date <b>February 3, 2012</b>	
Email Address <b>rgriggs@sm-energy.com</b>		

## FOR STATE USE ONLY

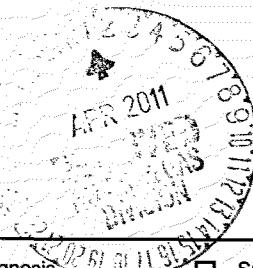
<input type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <i>February 22, 2012</i>	
By <i>John M. Luke</i>	
Title <b>PETROLEUM ENGINEER</b>	



## SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)

Well File No.  
**11920**



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
Approximate Start Date		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Shut In Well</b>

Well Name and Number  
**Corp of Engineers 31-10**

Footages	660 F N L	Qtr-Qtr	Section	Township	Range
	2305 F E L	NWNE	10	153 N	101 W
Field	Pool		County		
Baker	Duperow		McKenzie		

### 24-HOUR PRODUCTION RATE

	Before		After
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address

City

State

Zip Code

### DETAILS OF WORK

**3/29/2011 Temporarily Shut In due to Missouri River Flooding.**

Company <b>SM Energy</b>	Telephone Number	
Address <b>P O Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103</b>
Signature 	Printed Name <b>Luke Studer</b>	
Title <b>Regulatory and Safety Comp. Spec.</b>	Date <b>March 29, 2011</b>	
Email Address		

### FOR STATE USE ONLY

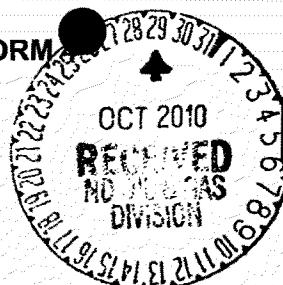
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 	
By 	
Title	

**PETROLEUM ENGINEER**



# SUNDRY NOTICE AND REPORTS ON WELLS - FORM

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed <b>October 25, 2010</b>	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Wells Flaring Gas</b>

Well Name and Number  
**See Attached List**

Footages	F	L	Qtr-Qtr	Section	Township	Range
Field	F	L			N	W
			Pool		County	

## 24-HOUR PRODUCTION RATE

Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address

City

State

Zip Code

## DETAILS OF WORK

Due to facility work on BearPaw Pipeline infrastructure the attached list of wells were flaring produced gas during October 16th, through October 25th.

Company <b>SM Energy</b>	Telephone Number <b>(406) 245-6248</b>
Address <b>P O Box 7168</b>	
City <b>Billings</b>	State <b>MT</b>
Signature 	Printed Name <b>Luke Studer</b>
Title <b>Regulatory and Safety Comp. Spec.</b>	Date <b>October 27, 2010</b>
Email Address <b>lstudler@sm-energy.com</b>	

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>10-29-10</b>	
By <b>Original Signed By</b>	
<b>GLENN L. WOLLAN</b>	
Field Supervisor	

<u>Pool</u>	<u>Well Name/NO</u>	<u>Field</u>	<u>NDIC No.</u>	<u>Fed Lease No.</u>	<u>Sec.</u>	<u>Township</u>	<u>Range</u>	<u>County</u>
Bakken	Klamm 13-10H	Dimmick Lake	17952		10	150	97	Mckenzie
Bakken	Johnson 16-34	Siverston	18805		34	150	98	Mckenzie
Duperow	BA Green	Sioux Field	11700		5	151	101	Mckenzie
Ratcliff	Willow 1-4	Indian Hill	8957		4	152	101	Mckenzie
Madison	Eckert 2-5HR	Indian Hill	10089		5	152	101	Mckenzie
Ratcliff	Eckert 4-5-3A	Indian Hill	10812		5	152	101	Mckenzie
Mission Canyon	Eckert 5-5-2A	Indian Hill	11070		5	152	101	Mckenzie
Madison	Eckert 5-12-R	Indian Hill	11009		5	152	101	Mckenzie
Madison	Eckert 2-6-2D	Indian Hill	10088		5	152	101	Mckenzie
Madison	Lindvig #10	Camp	11316		10	152	101	Mckenzie
Mission Canyon	Anderson 32-10	Camp	11059		10	152	101	Mckenzie
Madison	M&G 14-2	Baker	11751	NDM82193	2	153	101	Mckenzie
Red River	French Pinney 24-3	Baker	12129	NDM82195	3	153	101	Mckenzie
Madison	Basic Game & Fish 34-3	Baker	11745	NDM82193	3	153	101	Mckenzie
Madison	Lewis & Clark 2-4H	Baker	15358		4	153	101	Mckenzie
Duperow	Corp of Engineers 31-10	Baker	11920	NDM82191	10	153	101	Mckenzie
Red River	Rosebud 22-11	Baker	11549	NDM82190	11	153	101	Mckenzie
Madison	Lindvig 1-11HR	Baker	9309		11	153	101	Mckenzie
Madison	Fredrickson 33-33	Indian Hill	11345		33	153	101	Mckenzie
Madison	Powers 33-23	Indian Hill	11523		33	153	101	Mckenzie
Madison	Canterra St of ND F-1	Indian Hill	11492		33	153	101	Mckenzie
Red River	Rehab 4-33	Indian Hill	15344		33	153	101	Mckenzie
Madison	Canterra St of ND F-2	Indian Hill	11575		34	153	101	Mckenzie
Red River	Barnes 1-2	Indian Hill	15170	NDM88450	2	152	102	Mckenzie
Madison	Boss 12-17	Stockyard Crk	14792		17	154	99	Williams
Madison	Boss 14-17	Stockyard Crk	14716		17	154	99	Williams
Madison	Coulter 1-19	Indian Hill	11238		19	153	101	Williams
Madison	Skurdal 2-24HR	Hardscrabble	10681		24	153	102	Williams
Duperow	Skurdal 3-24-3B	Hardscrabble	11136		24	153	102	Williams
Duperow/BirdBear	Pederson 5-24-4C	Hardscrabble	11137		24	153	102	Williams
Red River/Stnwall	Skurdal 6-24	Hardscrabble	13428		24	153	102	Williams
Madison	Turmoil 10-4	Ft Buford	13457		4	153	102	Williams
Madison	Marley State 1-36	Ft Buford	7503		36	153	104	Williams



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5749 (09-2006)



Well File No.  
**11920**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Notice of Intent

Approximate Start Date

Report of Work Done

Date Work Completed

Notice of Intent to Begin a Workover Project that may Qualify  
for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.

Approximate Start Date

Drilling Prognosis

Spill Report

Redrilling or Repair

Shooting

Casing or Liner

Acidizing

Plug Well

Fracture Treatment

Supplemental History

Change Production Method

Temporarily Abandon

Reclamation

Other

**Shut In Well**

Well Name and Number  
**Corp of Engineers 31-10**

Footages	660 F N L	2305 F E L	Qtr-Qtr NWNE	Section 10	Township 153 N	Range 101 W
Field	Pool <b>Duperow</b>		County <b>McKenzie</b>			

## 24-HOUR PRODUCTION RATE

	Before	After
Oil	Bbls	Oil
Water	Bbls	Water
Gas	MCF	Gas

Name of Contractor(s)

Address

City

State

Zip Code

## DETAILS OF WORK

**6/30/2010 Temporarily Shut In due to Missouri River Flooding.**

Company  
**SM Energy**

Telephone Number

Address  
**P O Box 7168**

City  
**Billings**

State  
**MT**

Zip Code  
**59103**

Signature

Printed Name  
**Luke Studer**

Title  
**Regulatory and Safety Comp. Spec.**

Date  
**July 19, 2010**

Email Address

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>7-28-10</b>	
By	
Title <b>GLENN L. WOLLAN</b>	

**GLENN L. WOLLAN**

Field Supervisor

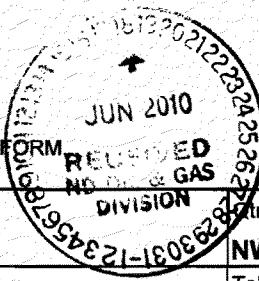
**AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8**  
 INDUSTRIAL COMMISSION OF NORTH DAKOTA

OIL AND GAS DIVISION

600 EAST BOULEVARD DEPT 405  
 BISMARCK, ND 58505-0840  
 SFN 5698 (03-2000)

Well File No.	11920
NDIC CTB No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM  
 PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.



Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Tr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>MCKENZIE</b>
Operator <b>SM ENERGY COMPANY</b>	Telephone # <b>406-245-6248</b>				Field <b>BAKER</b>
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Nexen Marketing USA Inc</b>	Telephone # <b>303-850-4284</b>	% Purchased <b>100</b>	Date Effective <b>June 1, 2010</b>
Principal Place of Business <b>5660 Greenwood Plaza Blvd., #230</b>	City <b>Greenwood Village</b>	State <b>CO</b>	Zip Code <b>80111</b>
Field Address <b>PO Box 567</b>	City <b>Plentywood</b>	State <b>MT</b>	Zip Code <b>59254</b>
Name of Transporter <b>Diamond B Trucking Inc. (TR)</b>	Telephone Number <b>701-245-6423</b>	% Transported <b>100</b>	Date Effective <b>June 1, 2010</b>
Address <b>PO Box 445</b>	City <b>Westhope</b>	State <b>ND</b>	Zip Code <b>58793</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

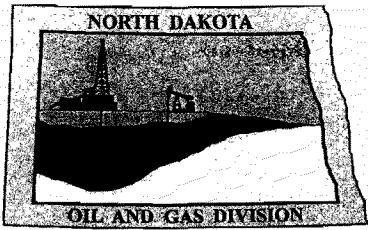
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments <b>St. Mary Land &amp; Exploration Company name change to SM Energy Company effective 6/1/2010</b>		

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>June 10, 2010</b>
---	------------------------------

Signature 	Printed Name <b>Sherry Karst</b>	Title <b>Production Technician</b>
---------------	-------------------------------------	---------------------------------------

Above Signature Witnessed By	Witness Signature 	Witness Printed Name <b>Brenda Young</b>	Witness Title <b>Production Technician</b>
------------------------------	-----------------------	---	---

FOR STATE USE ONLY	
Date Approved <b>JUL 01 2010</b>	By 
Title <b>Amherst Tidger Oil &amp; Gas Production Analyst</b>	



# **Oil and Gas Division**

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

## **Department of Mineral Resources**

Lynn D. Helms - Director

## **North Dakota Industrial Commission**

[www.dmr.nd.gov/oilgas](http://www.dmr.nd.gov/oilgas)

June 28, 2010

SM Energy Company  
Ronald B. Santi  
PO Box 7168  
Billings, MT 59101

**RE: PRINCIPAL NAME CHANGE FROM  
ST MARY LAND & EXPLORATION COMPANY TO  
SM ENERGY COMPANY  
BOND NOS. 6367113, 6456716, 6041871, 6160846, 6160847, 6160842, AND  
6314472  
SAFECO INSURANCE COMPANY OF AMERICA  
267 WELLS**

Dear Mr. Ronald B. Santi:

This office is in receipt of your request to change the principal name of St. Mary Land & Exploration Company to SM Energy Company.

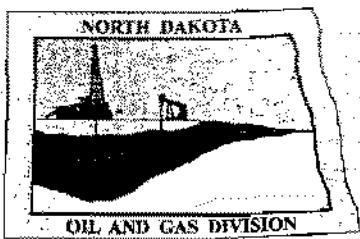
This letter will verify the principal name change effective June 28, 2010.

Please feel free to contact this office if you should have any questions.

Sincerely,

Evie Roberson  
Administrative Assistant

# **Oil and Gas Division**



Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

## **Department of Mineral Resources**

Lynn D. Helms - Director

## **North Dakota Industrial Commission**

[www.dmr.nd.gov/oilgas](http://www.dmr.nd.gov/oilgas)

February 4, 2009

Ms. Maggie Vogl  
St Mary Land & Exploration Company  
550 North 31<sup>st</sup> Street  
Billings, MT 59101

**RE: Corps of Engineers #31-10  
NWNE Sec. 10, T.153N., R.101W.  
McKenzie County, North Dakota  
Baker Field  
Well File No. 11920  
STRIPPER WELL DETERMINATION**

Dear Ms. Vogl:

St Mary Land & Exploration Company (St Mary) filed with the North Dakota Industrial Commission – Oil and Gas Division (Commission) on February 2, 2009 an application for a Stripper Well Property Determination for the above captioned well.

Information contained in the application indicates that the above mentioned well is a property pursuant to statute and rule, and St Mary has elected to designate said well as a separate property for stripper well purposes. The well produced from a well depth greater than 10000 feet. During the qualifying period, October 1, 2007 through September 30, 2008 the well produced at a maximum efficient rate and the average daily production from the well was 28.4 barrels of oil per day during this period.

It is therefore determined that the above captioned well qualifies as a "Stripper Well Property" pursuant to Section 57-51.1-01 of the North Dakota Century Code. This determination is applicable only to the Duperow Pool in and under said property.

The Commission shall have continuing jurisdiction, and shall have the authority to review the matter, and to amend or rescind the determination if such action is supported by additional or newly discovered information. If you have any questions, do not hesitate to contact me.

Sincerely,

David J. McCusker  
Petroleum Engineer

Cc: ND Tax Department

# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA

OIL AND GAS DIVISION

600 EAST BOULEVARD DEPT 405

BISMARCK, ND 58505-0840

SFN 5698 (03-2000)

Well File No.

**11920**

NDIC CTB No.

**111920**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES

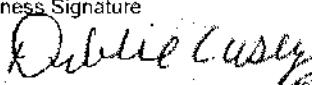
Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr-Otr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>MCKENZIE</b>
Operator <b>ST MARY LAND &amp; EXPLORATION COMPANY</b>	Telephone # <b>406-245-6248</b>				
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Nexen Marketing USA Inc</b>	Telephone # <b>303-850-4284</b>	% Purchased <b>100</b>	Date Effective <b>December 1, 2007</b>
Principal Place of Business <b>5660 Greenwood Plaza Blvd., #230</b>	City <b>Greenwood Village</b>	State <b>CO</b>	Zip Code <b>80111</b>
Field Address <b>PO Box 567</b>	City <b>Plentywood</b>	State <b>MT</b>	Zip Code <b>59254</b>
Name of Transporter <b>Diamond B Trucking Inc. (TR)</b>	Telephone Number <b>701-245-6423</b>	% Transported <b>100</b>	Date Effective <b>December 1, 2007</b>
Address <b>PO Box 445</b>	City <b>Westhope</b>	State <b>ND</b>	Zip Code <b>58793</b>

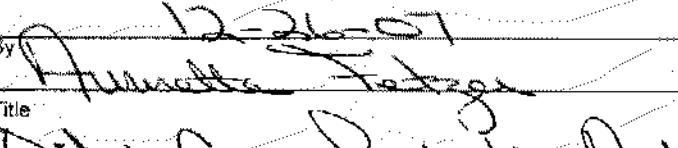
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

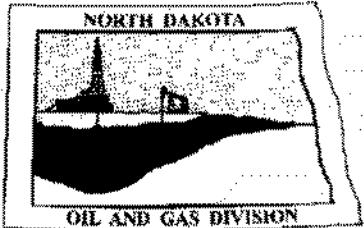
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments	0	

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records	Date <b>December 17, 2007</b>
--	----------------------------------

Signature 	Printed Name <b>Kari Wheeler</b>	Title <b>Production Assistant</b>
Above Signature Witnessed By		
Witness Signature 	Witness Printed Name <b>Debbie Casey</b>	Witness Title <b>Production Supervisor</b>

FOR STATE USE ONLY

Date Approved By  Title <b>Oil &amp; Gas Production Analyst</b>
---



# **Oil and Gas Division**

Lynn D. Helms - Director      Bruce E. Hicks - Assistant Director

## **Department of Mineral Resources**

Lynn D. Helms - Director

## **North Dakota Industrial Commission**

[www.oilgas.nd.gov](http://www.oilgas.nd.gov)

December 26, 2007

Karin M. Writer  
St Mary Land & Exploration Company  
1776 Lincoln St Ste 700  
Denver CO 80203

**RE: PRINCIPAL NAME CHANGE FROM  
NANCE PETROLEUM CORPORATION TO  
ST MARY LAND & EXPLORATION COMPANY  
7 BONDS**

Dear Ms. Writer:

This office is in receipt of the riders changing the principal name from Nance Petroleum Corporation to St Mary Land & Exploration Company.

This letter will verify the principal name change from Nance Petroleum Corporation to St Mary Land & Exploration Company effective December 26, 2007.

Please feel free to contact this office if you should have any questions.

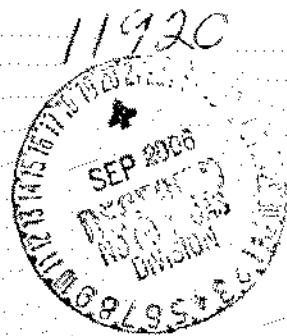
Sincerely,

Marge Rixen  
Legal Assistant

/mr

Nance Petroleum Corporation  
Spill Prevention Measures for Pipelines

File Number: 11920 Corps of Engineers 31-10



Schematic on a map showing the location and route of the pipelines:

See attached Site Diagram, indicating the location of the pipelines. At this facility, the "pipelines" are buried flowlines which connect the wellhead to the production facilities (heater treater and storage tanks). All flowlines are located within the boundaries of the well pad. The entire well pad is surrounded by a dike, and the treater and storage tanks are surrounded by their own dike (see "Dikes and their capacities").

Pipeline Information:

Flow line - (Buried) 2" steel threaded line pipe (Schedule 40)  
WP - 2,650 psi

Oil Fill line - (Buried) 3" SDR 11 poly  
WP - 160 psi

Salt water fill line - (Buried) 3" SDR 11 poly  
WP - 160 psi

Recycle line - (Buried) 3" SDR 11 poly  
WP - 160 psi

Fresh Water line - (Above ground) 1" steel threaded line pipe (Schedule 40)  
WP - 2,500 psi

Age: 20 years (completed 11/17/86)

Monitoring Systems installed: None

Surveillance Programs in place: None

Inspection and Maintenance Programs in place:

This is a single wellsite facility. Oil and produced water flow from the well, into and out of pressure vessels and to bulk storage by interconnecting piping. The piping may be either above or below ground, but does not extend past the outer boundaries of the wellsite. Production operations personnel perform routine operational (visual) examinations on above ground interconnecting piping for indication of leaks, abnormalities, or equipment malfunctions during their daily visit to the facility. Below ground flowlines are walked and a visual examination is performed for indications of a leak if a production shortage shows the need. Records of daily checks are recorded on gauge sheets. Periodic, comprehensive flowline inspections are performed by Nance

Nance Petroleum Corporation  
Spill Prevention Measures for Pipelines

File Number: 11920 Corps of Engineers 31-10 - continued

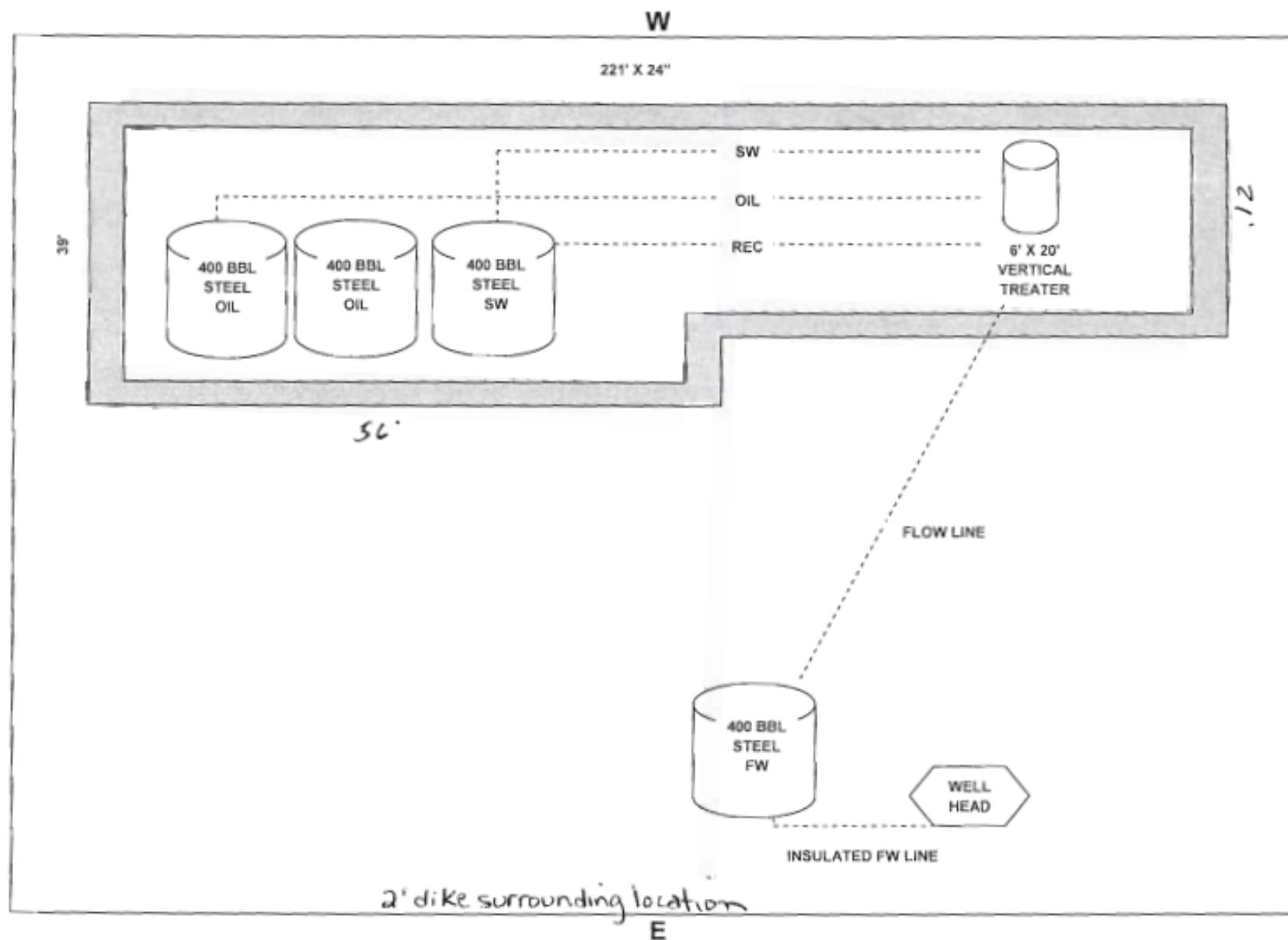
Petroleum personnel and recorded on a well inspection report. These records are maintained at the Nance Petroleum Williston, ND and Billings, MT offices.

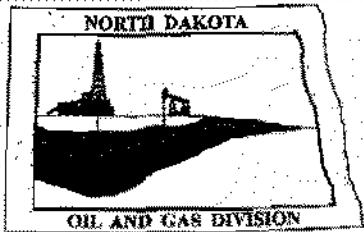
Integrity Test Results: None

Dikes and their capacities:

Tank battery dike capacity: 2,012 barrels

Location dike capacity: 42,742 barrels (based on 400' x 300' x 2')





# Oil and Gas Division

Lynn D. Helms - Director      Bruce E. Hicks - Assistant Director

## Department of Mineral Resources

Lynn D. Helms - Director

## North Dakota Industrial Commission

[www.oilgas.nd.gov](http://www.oilgas.nd.gov)

11/9/06

July 25, 2006

Mr. Mike Mungas  
Nance Petroleum Corp.  
PO Box 7168  
Billings, MT 59103-7168

RE: Spill Prevention Measures for Pipelines (See Attachment)

Dear Mr. Mungas:

The NDIC Oil and Gas Division is requesting information on spill prevention measures in place for the above referenced facilities. Please provide us with the following:

A schematic on a map showing the location and route of the pipelines.

Information available about the pipelines such as construction material, size, operating pressure rating and age of the pipelines.

A description of any monitoring systems installed, surveillance programs, and inspection and maintenance programs in place.

Results of any integrity tests done on the pipelines.

Dikes and their capacities.

Please contact Mark Bohrer or Glenn Wollan at (701) 328-8020 in our Bismarck office if you have questions.

Sincerely,

*John Axtman/kkl*

John Axtman  
Williston District Supervisor

JSA/kkl

ATTACHMENT  
July 25, 2006

## SPILL POTENTIAL WELLS OR FACILITIES

### FILE NO.

9102	CHURCH	1-2
9362	BURNING MINE BUTTE	9-21
9481	LINDECKER	1-35-4A
11130	FLYNN	1
11214	NORTH BRANCH	22-35
11549	ROSEBUD	22-11
11745	BASIC GAME AND FISH	34-3
11751	M AND G	14-2
11920	CORPS OF ENGINEERS	31-10
12129	FRENCH-PINNEY	24-3
12566	ELLETSON	33-1
13373	PIERRE CREEK NELSON	44-23HR
13556	CHURCH	1-2X
13681	BRESE	22-32HR
13771	DANIELSON	32-32
14046	PIERRE CREEK NELSON	42-23
14794	STENSRUD	43-14
15344	REHAB	4-33
15358	LEWIS AND CLARK	2-4H
90095	MOORE FEDERAL	3-28 SWD

**AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8**

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
 OIL AND GAS DIVISION  
 600 EAST BOULEVARD DEPT 405  
 BISMARCK, ND 58505-0840  
 SFN 5698 (03-2000)



Well File No.	11920
NDIC CTB No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
 PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKENZIE</b>
Operator <b>NANCE PETROLEUM CORPORATION</b>	Telephone # <b>406-245-6248</b>				Field <b>BAKER</b>
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Nexen Marketing USA Inc</b>	Telephone # <b>303-850-4284</b>	% Purchased <b>100</b>	Date Effective <b>October 1, 2005</b>
Principal Place of Business <b>5660 Greenwood Plaza Blvd., #230</b>	City <b>Greenwood Village</b>	State <b>CO</b>	Zip Code <b>80111</b>
Field Address <b>PO Box 567</b>	City <b>Plentywood</b>	State <b>MT</b>	Zip Code <b>59254</b>
Name of Transporter <b>Diamond B Trucking Inc. (TR)</b>	Telephone Number <b>701-245-6423</b>	% Transported <b>100</b>	Date Effective <b>October 1, 2005</b>
Address <b>PO Box 445</b>	City <b>Westhope</b>	State <b>ND</b>	Zip Code <b>58793</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments <b>CHANGE OF PURCHASER EFFECTIVE 10/1/2005</b>		

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>October 5, 2005</b>
---	--------------------------------

Signature 	Printed Name <b>Amanda Rambur</b>	Title <b>Marketing Representative</b>
---------------	--------------------------------------	--

Above Signature Witnessed By

Witness Signature 	Witness Printed Name <b>Terry Holzwarth</b>	Witness Title <b>VP - Business Development</b>
-----------------------	--	---

FOR STATE USE ONLY	
Date Approved By 	<i>10-5-05</i>
Title <i>Oil &amp; Gas Production Analyst</i>	

**AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8**

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFSN 5698 (03-2000)



Well File No.	11920
NDIC CTB No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKENZIE</b>
Operator <b>NANCE PETROLEUM CORPORATION</b>	Telephone # <b>406-245-6248</b>				Field <b>BAKER</b>
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Eighty-Eight Oil LLC</b>	Telephone # <b>307-266-0264</b>	% Purchased <b>100</b>	Date Effective <b>April 1, 2005</b>
Principal Place of Business <b>P O Drawer 2360</b>	City <b>Casper</b>	State <b>WY</b>	Zip Code <b>82602</b>
Field Address <b>P O Drawer 2360</b>	City <b>Casper</b>	State <b>WY</b>	Zip Code <b>82602</b>
Name of Transporter <b>Black Hills Trucking</b>	Telephone Number <b>307-266-0264</b>	% Transported <b>100</b>	Date Effective <b>April 1, 2005</b>
Address <b>P.O. Drawer 2360</b>	City <b>Casper</b>	State <b>WY</b>	Zip Code <b>82602</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments	0	

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>March 30, 2005</b>
---	-------------------------------

Signature 	Printed Name <b>Amanda Rambur</b>	Title <b>Marketing Representative</b>
---------------	--------------------------------------	--

Above Signature Witnessed By 	Witness Signature 	Witness Printed Name <b>Terry Holzwarth</b>	Witness Title <b>VP - Business Development</b>
----------------------------------	-----------------------	--	---

FOR STATE USE ONLY	
Date Approved <i>4-6-05</i>	By 
Title <i>Dil - Gas Production Analyst</i>	

**AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8**

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5698 (03-2000)



Well File No.	11920
NDIC CTB No.	11920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr-Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKENZIE</b>
Operator <b>NANCE PETROLEUM CORPORATION</b>	Telephone # <b>406-245-6248</b>				Field <b>BAKER</b>
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Tesoro Refining &amp; Marketing Company</b>	Telephone # <b>403-699-4059</b>	% Purchased <b>100</b>	Date Effective <b>April 1, 2004</b>
Principal Place of Business <b>1225 17th St., Ste. 1800</b>	City <b>Denver</b>	State <b>CO</b>	Zip Code <b>80202</b>
Field Address <b>HC 56 Box 605 1A</b>	City <b>Sidney</b>	State <b>MT</b>	Zip Code <b>59270</b>
Name of Transporter <b>Tesoro Refining &amp; Marketing Company (TR)</b>	Telephone Number <b>720-258-0611</b>	% Transported <b>100</b>	Date Effective <b>April 1, 2004</b>
Address <b>1225 17th St., Ste 1800</b>	City <b>Denver</b>	State <b>CO</b>	Zip Code <b>80202</b>
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.			

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments	0	

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>March 24, 2004</b>
Signature <i>Amanda Rambur</i>	Printed Name <b>Amanda Rambur</b>
Title <b>Marketing Representative</b>	

Above Signature Witnessed By	Witness Signature <i>Terry Holzwarth</i>	Witness Printed Name <b>Terry Holzwarth</b>	Witness Title <b>VP - Acquisitions</b>
------------------------------	---	--	---

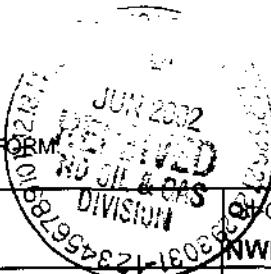
FOR STATE USE ONLY	
Date Approved <b>3/31/04</b>	By <i>Annette Faboy</i>
Title <i>Oil + Gas Prod. Analyst</i>	

# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFSN 5698 (03-2000)

Well File No.	11920
NDIC CTB No.	111920

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM  
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.



Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	CH Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>MCKENZIE</b>
Operator <b>NANCE PETROLEUM CORPORATION</b>	Telephone # <b>406-245-6248</b>				Field <b>BAKER</b>
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Nexen Marketing USA Inc.</b>	Telephone # <b>403-699-4059</b>	% Purchased <b>100</b>	Date Effective <b>July 1, 2002</b>
Principal Place of Business <b>1700 801 7th Ave SW 5660 Greenwood Plaza Blvd</b>	City <b>Calgary AB Village</b>	State <b>Canada</b>	Zip Code <b>T2P 3P7 S0111</b>
Field Address <b>PO Box 567</b>	City <b>Plentywood</b>	State <b>MT</b>	Zip Code <b>59254</b>
Name of Transporter <b>Diamond B Oilfield Trucking (TR)</b>	Telephone Number <b>406-765-1376</b>	% Transported <b>100</b>	Date Effective <b>July 1, 2002</b>
Address <b>PO Box 567</b>	City <b>Westmore</b>	State <b>MTND</b>	Zip Code <b>58793 59254</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments	0	

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>June 14, 2002</b>
---	------------------------------

Signature 	Printed Name <b>Gary L. Evertz</b>	Title <b>VP Operations</b>
Above Signature Witnessed By		
Witness Signature 	Witness Printed Name <b>Valeri Kaae</b>	Witness Title <b>Operations Assistant</b>

FOR STATE USE ONLY	
Date Approved <b>JUL 2 2002</b>	By <b>Sheila Murphy</b>
Title <b>Oil Field Analyst</b>	

# AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA

OIL AND GAS DIVISION

600 EAST BOULEVARD DEPT 405

BISMARCK, ND 58505-0840

SFN 5698 (03-2000)

Well File No.

**11920**

NDIC CTB No.

**111920**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>CORPS OF ENGINEERS 31-10</b>	Qtr Qtr <b>NWNE</b>	Section <b>10</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKENZIE</b>
Operator <b>NANCE PETROLEUM CORPORATION</b>	Telephone # <b>406-245-6248</b>		Field <b>BAKER</b>		
Address <b>P O BOX 7168</b>	City <b>BILLINGS</b>		State <b>MT</b>	Zip Code <b>59103-7168</b>	

Name of First Purchaser <b>Tesoro Refining &amp; Marketing Company</b>	Telephone # <b>720-744-9315</b>	% Purchased <b>100</b>	Date Effective <b>February 1, 2002</b>
Principal Place of Business <b>1225 17th St., Ste 1800</b>	City <b>Denver</b>	State <b>CO</b>	Zip Code <b>80202</b>
Field Address <b>HC 56 Box 605 1A</b>	City <b>Sidney</b>	State <b>MT</b>	Zip Code <b>59270</b>
Name of Transporter <i>Great Plains Pipeline Co.</i> <b>Tesoro Refining &amp; Marketing Company (TR)</b>	Telephone Number <b>406-482-4841</b>	% Transported <b>100</b>	Date Effective <b>February 1, 2002</b>
Address <b>HC 56 Box 605 1A 1225 17th St Ste 1800</b>	City <b>Sidney</b>	State <b>MT</b>	Zip Code <b>80202</b>

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments <b>BP AMOCO sold to Tesoro Refining &amp; Marketing Company</b>		

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.	Date <b>February 1, 2002</b>
---	---------------------------------

Signature <i>Gary L. Evertz</i>	Printed Name <b>Gary L. Evertz</b>	Title <b>VP Operations</b>
------------------------------------	---------------------------------------	-------------------------------

Above Signature Witnessed By <i>Jeanette Magstadt</i>	Witness Signature <i>Jeanette Magstadt</i>	Witness Printed Name <b>Jeanette Magstadt</b>	Witness Title <b>Operations Assistant</b>
--	---	--	--

<b>FOR STATE USE ONLY</b>	
Date Approved <b>FEB 8, 2002</b>	By <i>Chile O'Laughnessy</i> Title <i>Oil Prod. Analyst</i>



**PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM 8**  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5698 (2-92)

: Well File Number

11920

: NDIC CTB Number

11920

**INSTRUCTIONS**

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E.  
Boulevard Avenue, Bismarck, ND 58505

WELL	31-10	CORPS OF ENGINEERS (Q/Q)	NWNE	(SEC.)	10 (TWP.)	153N	(RGE.)	101W	COUNTY	MCKENZIE
PROD/CER:	Nance Petroleum Corporation			FIELD	BAKER		POOL	RED RIVER DUPERROW		

ADDRESS CORRESPONDENCE TO: GARY L. EVERTZ, Nance Petroleum Corporation  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser	AMOCO PRODUCTION COMPANY	% Purchased :	Date Effective
Principal Place of Business	1670 Broadway, Ste 1104, Denver, CO 80201 <i>P.O. Box 41378 Tulsa OK 74121</i>	100	May 1, 2000

Field Address	1670 Broadway, Ste 1104, Denver, CO 80201	% Transported :	Date Effective
Name of Transporter	BP AMOCO PRODUCTION COMPANY	100	May 1, 2000

Address	1670 Broadway, Ste 1104, Denver, CO 80201 <i>4302 E 41st St Tulsa OK 74135</i>	% Transported :	Date Effective
---------	---	-----------------	----------------

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease	% Transported :	Date Effective
---	-----------------	----------------

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
---	-------------	----------------

Remarks

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

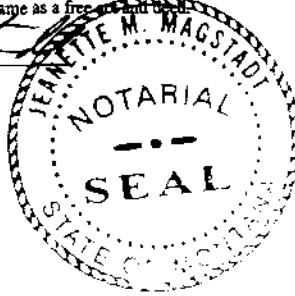
Signature	<i>Gary L. Evertz</i>	Title	Date
		Engineer	April 24, 2000

State of Montana		
County of Yellowstone		

On April 24, 2000, Gary L. Evertz, known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free and voluntary act.

Notary Public	My Commission Expires	AUGUST 21, 2000
---------------	-----------------------	-----------------

<i>Jeanette M. Magstadt</i>	NOTARIAL	SEAL
-----------------------------	----------	------



APPROVED BY: *Sherly O'Shaughnessy* Date: JUN 19 2000  
Oil Prod. Analyst



**WELL COMPLETION OR RECOMPLETION**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
SFN 2468 (2-92)

REPORT FORM 6  
RECEIVED  
ND OIL & GAS  
DIVISION

Industrial Commission of N.D.  
Oil and Gas Division  
600 East Boulevard  
Bismarck, ND 58505

Designate Type of Completion

Oil Well     Gas Well     Other \_\_\_\_\_  
 Work Over     Deepened     Plug Back

Operator

Nance Petroleum Corporation

Phone Number

(406)245-6248

Address

P. O. Box 7163

City

Billings

State

MT

Zip Code

59103

**LOCATIONS (Show footages, quarter-quarter, section, township and range)**

At Surface				County	
NWNE Sec 10-T153N-R101W (660' FNL & 2304' FEL)				McKenzie	
At Top Prod. Interval, Reported Below					
NWNE Sec 10-T153N-R101W (844' FNL & 1909' FEL)					
At Total Depth				Welder's Verification No.	
NWNE Sec 10-T153N-R101W (841' FNL & 1926' FEL)					
Date Spudded	Date TD Reached	Drilling Contractor & Rig. No.	Elevation (KB)	Total Depth (MD & TVD)	Plug Back TD (MD & TVD) (see back) 11,191'
5/20/86			1872'	13,430'	
Producing Interval(s), This Completion, Top, Bottom, Name (MD & TVD) Duperow 10,965-11,115'				No. of DST's Run (see back)	Date Directional Survey Submitted
Type of Electric and Other Logs Run (See Instructions)				Was Well Cored?	
				<input type="checkbox"/> No <input type="checkbox"/> Yes - List intervals:	

**CASING RECORD (Report all strings set in well)**

Casing Size	Depth Set (MD)	Hole Size	Weight (Lbs./Ft.)	Sacks Cement	Top of Cement
9-5/8"	2954		36, 40#	1220	Surface
5-1/2, 5-5/8"	13480	8-3/4	17, 20, 23, 26	2932	5130'

**LINER RECORD**

Size	Top (MD)	Bottom (MD)	Sacks Cement	Size	Depth Set (MD)	Anchor Set (MD)	Packer Set (MD)
				2-7/8"	11,174		6581

**PERFORATION RECORD**

Interval (MD)	Holes Per Ft.	Potential (O&W)	Purpose	Acid, Frac, Sqz, etc.	Amount & Kind of Material Used
10,965-969	4	0	Production	Acid	7000 gal. gelled 15%
11,100-11,115	4	0	Production	Acid	
13,255-330	4		Production		Abandoned

**PRODUCTION**

Date of First Production Through Permanent Wellhead		Producing Method (Flowing, gas lift, pumping - size & type of pump)			Well Status (Prod. or shut-in)		
10/7/99		Pumping			Producing		
Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls.)	Gas (Mcf.)	Water (Bbls.)	Oil Gravity - API (Corr.)
	240	--		1040	873	2280	37.1
Flowing Tubing Pressure		Casing Pressure	Calculated 24 hour rate	Oil (Bbls.)	Gas (Mcf.)	Water (Bbls.)	Gas-Oil Ratio
--		--		104	87.3	228	839
Disposition of Oil & Gas (Purchaser & Transporter)						Test Witnessed By	
Sold - Oil-FOTT, Gas-Bear Paw						Brian Boots	

List of Attachments/Comments

Wellbore schematic

**DRILL STEM TEST DATA**

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.

Signature	Randy M. Reits	Title	Operations Manager	Date	11/3/99
-----------	----------------	-------	--------------------	------	---------

STATE OF Montana)  
COUNTY OF Yellowstone)

Notary  
Seal

On November 3, 1999, Gary E. Evertz, known to me to be the person described in and who

executed the foregoing instrument, personally appeared before me and acknowledged that (S)he executed the same as a free act and deed.

Notary Public / Steven D. Hart

My Commission Expires 6-28-2000

## **INSTRUCTIONS**

1. Within thirty (30) days after the completion of a well, or recompletion of a well in a different pool, the original and three copies of this report must be filed with the Industrial Commission of North Dakota, Oil and Gas Division.
  2. Immediately after the completion of a well in a pool or reservoir not then covered by an order of the commission, the original and three copies of this report must be filed with the Industrial Commission of North Dakota, Oil and Gas Division.
  3. The owner or operator shall file with the Oil and Gas Division two copies of all logs run and three copies of the following: drill stem test reports and charts, formation water analysis and noninterpretive lithologic logs or sample descriptions if compiled.

## NANCE PETROLEUM CORPORATION

DIRECTIONAL WELL!!!!

WELL: CORPS OF ENGINEERS 31-10 FIELD: BAKER

LOCATION: NWNE SEC 10 153N 101W, MCKENZIE CO, ND  
SURF:680' FNL & 2304' FEL  
BHL:841' FNL & 1926' FEL STATUS: PUMPING OIL WELL  
ACCTG NO.: 60103  
ELEVATION: GL - 1851' KB - 1872' ST FILE NO: 11920  
SPUD DATE: 6/20/86 COMP DATE: 11/24/86  
ROTARY TD: 13480' PBTD: 13344'  
SURF CSG: 9 5/8" 36,40# K-55 SET @ 2954'. CMT W/ 1220 SX.  
PROD CSG: 5 1/2" 17,20,26# L-80,SS95 SET @ 13344'.CMT W/ 1850 SX "G",  
1082 SX LITE

DEV BACK TO 1 DEG.

TUBING & BHA

BONS & PLUMB

216 JTS 2 7/8" L-80 TBG	1" X 8', 6', 4' & 2' PONY RODS
AC W/ 20M # - 8681'	96 - 1" NOR97 PLAIN (2400')
2 JTS 2 7/8" L-80 TBG	52 - 7/8" NOR97RODS (1300')
3 - 3 11/16" BLAST JTS 6643 - 6704'	55-7/8" NOR97 4 STELTH/ROD (1375')
42 JTS 2 7/8" L-80 TBG	11 - 7/8" NOR97 3 PADROD (275')
MSN @ 7980'	70-3/4" NOR97 4 STEALTH/ROD (1750')
105JTS 2 7/8" L-80 TBG	16-3/4" NOR97 DBLPLUS (400')
PINNED COLLAR @ 11174'	18-1" CLASS D 4 PAD/ROD (450')
	2 1/2" X 1 3/4" X 24.5" RHEM PAMPA

DUPEROW

- PERFS

EOT

TOP OF CMT PLUG

<u>SALT</u>	<u>DEPTH</u>	<u>20# L-80</u>	<u>21</u>
DUNHAM	6654-6710	5 58# 26# SS95	57
PINE	7022-7070	20# L-80	3855
CHARLES	8252-8950	17# L-80	6439
PRAIRIE	11594-11790	23# SS95	6944
		17# L-80	8046
		23# SS95	8877
		20# L-80	11389
		5 58# 26# SS95	11703
		20# L-80	13344

SL - 144" SPM - 6

WELLHEAD: TBGHD CW.F.1" 3000 PSI X 7 1/16"

PUMP UNIT: LUFKIN MII 640-365-144 W/ AJAX E-42 ENG.PU SH-33", ENG SH-14".  
GR=28.61

PERFS: DUPEROW 10965' - 969', 11100' - 115', 4 SPF

ABANDONED BELOW CEMENT PLUG

RED RIVER "B" 13255-265, 4 SPF.

RED RIVER "C" 13296-303, 13308-312, 13322-330 4 SPF.

DIRICTIONAL WELL TMO - 13480' KOP @ 4354°, MAX DEV. 12.75 DEG @ 5145', BACK TO 1 DEG @ 7455'

PREPARED BY: GARY L. REED

DATE: 10/06/99  
CORR3110.xls



**SUNDY NOTICES AND REPORTS ON WELLS - FORM 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
SFN 5749 (2-92)

Well File Number  
11920

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent

Approximate Start Date \_\_\_\_\_

Report of Work Done

Date Work Completed \_\_\_\_\_

- Drilling Diagnosis
- Redrilling or Repair
- Casing or Liner
- Plug Well
- Supplemental History
- Temporarily Abandon

Spill Report

Shooting

Acidizing

Fracture Treatment

Change Producing Method

Reclamation

Other \_\_\_\_\_

Well Name and Number

Corps of Engineers 31-10

Footages 660' FNL 2305' FEL	Qtr-Qtr NW NE	Section 10	Township 153N	Range 10 TN
Field Baker	Pool Red River		County McKenzie	

24 HOUR PRODUCTION RATE

BEFORE	AFTER
Oil	Oil
Water	Water
Gas	Gas

Name of Contractor

Address	City	State	Zip Code
---------	------	-------	----------

DETAILS OF WORK

Nance Petroleum request permission to permanently abandon the Red River and production test the Duperow. A previous workover in May and June 1999 attempted to stimulate the Red River, but failed due to collapsed casing in the Prairie Salt and Dunham formations. Communication was lost with the producing zone during the workover due to salt plugs in the various fish left in the well. See the attached wellbore schematic. Approximately \$156,000 was spent trying to re-establish production from the Red River. The well has salted off again and is not productive. We propose to spot 30 sx Class 'G' cement on top of the Model 'D' packer to permanently abandon the Red River. Due to the tight casing in the Dunham, 6661', we can not get a retainer in the well, and with out communication with the perfs, we can not get a squeeze. We request a verbal approval as we intend to start this work this week due to lease expirations

Company NANCE PETROLEUM CORPORATION		
Address P. O. Box 7168		
City Billings	State MT	Zip Code 59103-7168
By <i>Glenn L. Wollan</i>	Date 9/21/99	
Title Operations Manager	Telephone Number 406-245-6248	

406-245-9106 Fax

FOR OFFICE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 9-24-99	
By <i>Glenn L. Wollan</i>	Title ORIGINAL SIGNED BY

GLENN L. WOLLAN  
RECLAMATION SUPERVISOR

# NANCE PETROLEUM CORPORATION

CORP OF ENGINEERS 31-10

NWNE Sec 10 T153N R101W

Baker Field – McKenzie County, ND

GL - 1851' KB - 1872' (21' KB)

ACCOUNTING CODE # 60103

## WORKOVER PROCEDURE TO RECOMPLETE TO DUPEROW WELL BORE DIAGRAM ATTACHED AFE # 87

### Current Condition

Red River shut-in unable to produce due to salt from casing split at Prairie Salt.

### Proposed Procedure

1. MI RU rig. Unseat pump and hot oil rods to remove paraffin. POOH with rods and pump. ND wellhead and NU BOPE. POOH with tubing. Pressure casing w/ 1000 psi to confirm perfs salted off.
2. TIH w/ tubing open ended. Hydrotest tubing to 7000 psi. Tag Model D packer and spot end of tubing right above packer. Spot balanced plug of 30 sx Class 'G' cement w/ silica flour. POOH to 11200' and reverse out. POOH. SION.
3. PT casing and cement plug to 1000 psi.
4. RU WL truck and **perforate Duperow** using a 3 3/8" expendable carrier gun loaded w/ the largest shot possible, phased 90°:

FDC/CNL depth, 8/18/86

10,965' – 10969'	4'
11,100' – 11,115'	15'

CBL depth

10965' – 10969'
11,100' – 11,115'

5. TIH w/ SN, 143 jts of tubing, full bore packer and rest of tubing. Set EOT @ 10925'±, and packer @ 6610'±. Swab test perfs.
6. RU pump truck. **Acidize Duperow perfs with 2000 gal. 15% HCl using 1.1 Sp. Gr. balls for diversion.** Flow and swab back immediately until well is cleaned up. POOH with tubing.
7. TIH w/ pinned collar, 3 jts 2 7/8" tbg, Mech SN, 148 jts 2 7/8" tbg, AC and rest of tbg. Set EOT @ 11206±, SN @ 11115' AC @ 6610'±. Run rods, laying down 225' or 9 – plain 7/8" rods. Pump size and rod string design to be determined from swab rates. Put well through production facility.
9. RD & release rig.

GLE

9/20/99

CORP3110WO87A.doc





**SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SFN 5749 (2-92)**

Well File Number  
11920

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent  
Approximate Start Date \_\_\_\_\_

Report of Work Done  
Date Work Completed \_\_\_\_\_

- |   |  |
|---|--|
| <input type="checkbox"/> Drilling Prognosis   | <input type="checkbox"/> Spill Report            |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting                |
| <input type="checkbox"/> Casing or Liner      | <input type="checkbox"/> Acidizing               |
| <input type="checkbox"/> Plug Well            | <input type="checkbox"/> Fracture Treatment      |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Producing Method |
| <input type="checkbox"/> Temporarily Abandon  | <input type="checkbox"/> Reclamation             |
| <input type="checkbox"/> Other _____          |  |

Well Name and Number

**Corps of Engineers 31-10**

Footage	Qtr-Qtr	Section	Township	Range
660' FNL 2305' FEL	NW NE	10	153N	101W
Field Baker	Pool Red River	County McKenzie		

**24 HOUR PRODUCTION RATE**

BEFORE	AFTER
Oil	Oil
Water	Water
Gas	Gas

Name of Contractor

Address	City	State	Zip Code
---------	------	-------	----------

**DETAILS OF WORK**

Nance Petroleum request permission to permanently abandon the Red River and production test the Duperow. A previous workover in May and June 1999 attempted to stimulate the Red River, but failed due to collapsed casing in the Prairie Salt and Dunham formations. Communication was lost with the producing zone during the workover due to salt plugs in the various fish left in the well. See the attached wellbore schematic. Approximately \$156,000 was spent trying to re-establish production from the Red River. The well has salted off again and is not productive. We propose to spot 30 sx Class 'G' cement on top of the Model 'D' packer to permanently abandon the Red River. Due to the tight casing in the Dunham, 6661', we can not get a retainer in the well, and with out communication with the perfs, we can not get a squeeze. We request a verbal approval as we intend to start this work this week due to lease expirations

Company <b>NANCE PETROLEUM CORPORATION</b>		
Address <b>P. O. Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103-7168</b>
By <i>Glenn L. Wollan</i>	Date <b>9/21/99</b>	Telephone Number <b>406-245-6248</b>
Title <b>Operations Manager</b>		

FOR OFFICE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>9-22-99</b>	
By <i>Glenn L. Wollan</i>	
Title <b>ORIGINAL SIGNED BY</b>	
<b>GLENN L. WOLLAN</b>	
RECLAMATION SUPERVISOR	

**NANCE PETROLEUM CORPORATION**CORP OF ENGINEERS 31-10

NWNE Sec 10 T153N R101W

Baker Field - McKenzie County, ND

GL - 1851' KB - 1872' (21' KB)

ACCOUNTING CODE # 60103

WORKOVER PROCEDURE TO RECOMPLETE TO DUPEROW  
WELL BORE DIAGRAM ATTACHED  
AFE # 87Current Condition

Red River shut-in unable to produce due to salt from casing split at Prairie Salt.

Proposed Procedure

1. MI RU rig. Unseat pump and hot oil rods to remove paraffin. POOH with rods and pump. ND wellhead and NU BOPE. POOH with tubing. Pressure casing w/ 1000 psi to confirm perfs salted off.
2. TIH w/ tubing open ended. Hydrotest tubing to 7000 psi. Tag Model D packer and spot end of tubing right above packer. Spot balanced plug of 30 sx Class 'G' cement w/ silica flour. POOH to 11200' and reverse out. POOH. SION.
3. PT casing and cement plug to 1000 psi.
4. RU WL truck and perforate Duperow using a 3 3/8" expendable carrier gun loaded w/ the largest shot possible, phased 90°:

FDC/CNL depth, 8/18/86

10,965' -- 10969'	4'
11,100' -- 11,115'	15'

CBL depth

10965' -- 10969'
11,100' -- 11,115'

5. TIH w/ SN, 143 jts of tubing, full bore packer and rest of tubing. Set EOT @ 10925'±, and packer @ 6610'±. Swab test perfs.
6. RU pump truck. Acidize Duperow perfs with 2000 gal. 15% HCl using 1.1 Sp. Gr. balls for diversion. Flow and swab back immediately until well is cleaned up. POOH with tubing.
8. TIH w/ pinned collar, 3 jts 2 7/8" tbg, Mech SN, 148 jts 2 7/8" tbg, AC and rest of tbg. Set EOT @ 11206'±, SN @ 11115'AC @ 6610'±. Run rods, laying down 225' or 9 - plain 7/8" rods. Pump size and rod string design to be determined from swab rates. Put well through production facility.
9. RD & release rig.

## NANCE PETROLEUM CORPORATION

DIRECTIONAL WELL!!!				WELL:	CORPS OF ENGINEERS 31-10	FIELD: BAKER
2954'			9 5/8"	LOCATION:	NWNE SEC 10 153N 101W, MCKENZIE CO, ND SURF:680' FNL & 2304' FEL BHL:841' FNL & 1926' FEL	STATUS: PUMPING OIL WELL
				ACCTG NO.:	60103	ST FILE NO: 11820
				ELEVATION:	GL - 1851' KB - 1872'	API #:33-053-02148
				SPUD DATE:	8/20/86	COMP DATE: 11/24/86
4354'			KOP	ROTARY TD:	13480'	PBTD: 13344'
5130'			CMT TOP	SURF CSG:	9 5/8" 36,40# K-55 SET @ 2954'. CMT W/ 1220 SX.	
5145'			MAX DEV 12.75 DEG	PROD CSG:	5 1/2" 17,20,26# L-80,SS95 SET @ 13344'. CMT W/ 1850 SX "G",	
5777-783' H	H	H	CASING PATCH		1082 SX LITE.	
6609'	<<<	>>>	AC	TUBING & BHA		RODS & PUMP
6681'			TIGHT CSG! < 4 1/4" ID	217 JTS 2 7/8" L-80 TBG AC W/ 20M # - 6609'	1" X 6,5, 4" & 2" PONY RODS	
				156 JTS 2 7/8" L-80 TBG	96 - 1" NOR97 PLAIN (2400')	
				MSN W/ 20" X 1 1/4"	52 - 7/8" NOR97 RODS (1300')	
				DIP TUBE - 11358'	150 7/8" (3750) - { 55-7/8" NOR97 4 STELTH/ROD (1375')	
8833-37			DV COLLAR	4" PERFOR SUB	43-7/8" NOR97 3 PAD/ROD (1075)	
				2 JTS 2 7/8" L-80 TBG	70-3/4" NOR97 4 STEALTH/ROD (1750')	
				BULL PLUG - 11419'	188 3/4" (4725) - { 119-3/4" NOR97 DBLPLUS (2975')	
					18-1" CLASS D 4 PAD/ROD (450')	
					2 1/2" x 1 1/4" x 24.5" RHBM PAMPA	
11358'			MECH SN-DIPTUBE 4" PERFOR SUB			
11419'			BULL PLUG			
11498'	>>>	>>>	MODEL D PKR			
11600-612'			TIGHT CSG	SALT	DEPTH	
			FISH-MILL	DUNHAM	6654-8710	3 1/2"
				PINE	7022-7070	20# L-80
			SQZ PERFS	CHARLES	8252-8950	55# SS95
11840-842'				PRAIRIE	11594-11790	57
						3855
						6439
						8944
						8046
						8877
						11389
						11703
						13344
NOTE: FISH OR PERFS ARE SALTED OFF, AND WELL WILL NOT PRODUCE. THERE IS NO COMMUNICATION WITH RED RIVER PERFS.						
13100'			SQZ PERFS	SL - 144" SPM - 8		
13120-122'			MODEL R-3 PKR			
13243'	<<<	>>>	8 5 JTS TBG			
13255-265'	=	=	RED RIVER B			
13296-303'	=	=		WELLHEAD: TBGHD CIW,F,1" 3000 PSI X 7 1/16"		
13308-312'	=	= >	RED RIVER C			
13322-330'	=	= /		PUMP UNIT: LUFKIN MII 640-365-144 W/ AJAX E-42 ENG,PU SH-33", ENG SH-14". GR=28.6:1.		
13344'	<<<  *** >>>		CMT RET			
13400-402'	***** *** =		SQZ	PERFS: RED RIVER "B" 13255-265, 4 SPF.		
13440-442'	***** =		PERFS	RED RIVER "C" 13296-303', 13308-312', 13322-330' 4 SPF.		
13438'	*****		FLOAT COLLAR			
13480'	*****		5 1/2"	PREPARED BY: GARY L EVERETZ	DATE: 08/25/99	
					CORP3110.XLS	

DIRECTIONAL WELL TMD - 13480', KOP @ 4364', MAX DEV. 12.75 DEG @ 5145'. BACK TO 1 DEG @ 7455'.

# NORTH DAKOTA INDUSTRIAL CO. MISSION

## OIL AND GAS DIVISION

11920

Lynn D. Helms  
DIRECTOR

<http://explorer.ndic.state.nd.us>

Bruce E. Hicks  
ASSISTANT DIRECTOR

August 2, 1999

Jan Magstadt  
Nance Petroleum Corp.  
P.O. Box 7168  
Billings, MT 59103-7168

RE: PRINCIPAL NAME CHANGE FROM PANTERRA PETROLEUM TO  
NANCE PETROLEUM CORPORATION  
\$100,000 Bond; Bond No. B01936  
Underwriters Indemnity Co.

Dear Jan:

This office is in receipt of your request to change the principal name of Panterra Petroleum to Nance Petroleum Corporation.

This office is also in receipt of the rider for the above-captioned bond accepting liability of the five (5) wells covered by bond no. B01314.

This letter will verify the principal name change from Panterra Petroleum to Nance Petroleum Corporation, the transfer of the five (5) wells from bond no. B01314 to bond no. B01936 and termination of Nance Petroleum Corp. \$50,000 Bond; Bond No. B01314, Underwriters Indemnity Co. effective this date.

Please feel free to contact this office if you should have any questions.

Sincerely,

*Marge*

Marge Rixen  
Legal Assistant

/mr

cc: Underwriters Indemnity Co.  
8 Greenway Plaza, Ste. 400  
Houston, TX 77046



PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE **FORM 8**  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5698 (2-92)



Well File Number : 11920  
NDIC CTB Number : 111920

INSTRUCTIONS

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E.  
Boulevard Avenue, Bismarck, ND 58505

WELL	31-10 CORPS OF ENGINEERS (Q/Q)	NWNE (SEC.)	10 (TWP.) 153N	(RGE.)	101W	COUNTY	MCKENZIE
PRODUCER:	Nance Petroleum Corporation			FIELD	BAKER	POOL	RED RIVER

ADDRESS CORRESPONDENCE TO: GARY L. EVERTZ, Nance Petroleum Corporation  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser	EOTT ENERGY OPERATING LIMITED PARTNERSH	% Purchased :	Date Effective
Principal Place of Business	P O BOX 4666, HOUSTON, TX 77210-4666	: 100	June 1, 1999
Field Address	P O BOX 4666, HOUSTON, TX 77210-4666		
Name of Transporter	EOTT ENERGY OPERATING LIMITED PARTNERSH	% Transported :	Date Effective
Address	P O BOX 4666, HOUSTON, TX 77210-4666	: 100	June 1, 1999

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease	% Transported :	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective

Remarks  
Name change Panterra Petroleum to NANCE PETROLEUM CORPORATION

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

Signature

Title  
Engineer

Date

June 30, 1999

State of Montana  
County of Yellowstone

On June 30, 1999 Gary L. Evertz, known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

Notary Public

My Commission Expires

AUGUST 21, 2000

APPROVED BY:

Date:

AUG 2 1999





**SUNDY NOTICES AND REPORTS ON WELLS - FORM 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SFN 5749 (2-92)**

Well File Number  
**11920**

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent

Approximate Start Date 5/4/99

Report of Work Done

Date Work Completed 5/4/99

- Drilling Prognosis
- Redrilling or Repair
- Casing or Liner
- Plug Well
- Supplemental History
- Temporarily Abandon

Spill Report

- Shooting
- Acidizing
- Fracture Treatment
- Change Producing Method
- Reclamation
- Other \_\_\_\_\_

Well Name and Number

**Corps of Engineers 31-10**

Footages

660' FNL 2305' FEL

Qtr-Qtr  
NW NE

Section  
10

Township  
153N

Range  
10TW

Field

Baker

Pool

Red River

County

McKenzie

**24 HOUR PRODUCTION RATE**

BEFORE	AFTER
Oil	Oil
Water	Water
Gas	Gas

Name of Contractor

Address

City

State

Zip Code

**DETAILS OF WORK**

Panterra Petroleum requests permission to acid stimulate the Red River perfs. See the attached procedure and wellbore schematic.

Company

**Panterra Petroleum**

Address

P. O. Box 7168

City

Billings

State

MT

Zip Code

59103-7168

By

*Bonny Evertz*

Date

Telephone Number

406-245-6248

Title

Operations Manager

**FOR OFFICE USE ONLY**

Received

Approved

Date

**MAY 6 1999**

By

*Jeff Williamson*

Title

**Assistant Director**

406-245-9106 Fax

# PANTERRA PETROLEUM

**CORP OF ENGINEERS 31-10**

NWNE Sec 10 T153N R101W

Baker Field – McKenzie County, Nd

GL - 1851' KB - 1872' (21' KB)

ACCOUNTING CODE # 60103

## WORKOVER PROCEDURE TO DO FOAM ACID JOB OF RED RIVER WELL BORE DIAGRAM ATTACHED AFE # 31

### Current Condition

Pumping 24 BOPD, 332 MCFD and 6 BWPD.

### Proposed Procedure

1. MI RU rig. Unseat pump and hot oil rods to remove paraffin. POOH with rods and pump. ND wellhead and NU BOPE. Unsting from Baker Model D packer. POOH with tubing. LD both perfed subs and bull plug.
2. Redress seal assembly and TIH w/ tubing. Hydrotest tubing to 7000 psi. Sting into Model D packer and PT csg to 500 psi.
3. RU pump truck. Run And stake down steel flowline to test tank. **Acidize Red River "B" and "C" perfs with 600 gal. foamed FW , 2500 gal. gelled 28% HCl foamed w/ Nitrogen then 600 gal. foamed FW overdisplacement.** Flow and swab back immediately until well is cleaned up. POOH with tubing.
4. Run same production BHA. Run rods and pump. Put well through production facility.
5. RD & release rig.

GLE

4/29/99

CORP3110WO31.doc

PANTERRA PETROLEUM

WELL: CORPS OF ENGINEERS 31-10 FIELD: BAKER  
 LOCATION: NWNE SEC 10 153N 101W, MCKENZIE CO, ND  
 SURF: 660' FNL & 2304' FEL  
 BHL: 841' FNL & 1926' FEL STATUS: FLOWING OIL WELL  
 ACCTG NO.: 618  
 ELEVATION: GL - 1851' KB - 1872' ST FILE NO: 11920  
 SPUD DATE: 8/20/86 API #: 33-053-02148  
 ROTARY TD: 13480' COMP DATE: 11/24/86  
 SURF CSG: 9 5/8" 36,40# K-55 SET @ 2954'. CMT W/ 1220 SX.  
 PROD CSG: 5 1/2" 17,20,26# L-80,SS95 SET @ 13344'.CMT W/ 1850 SX "G",  
 1082 SX LITE.

TUBING & BHA		RODS & PUMP	
328 JTS 2 7/8" L-80 TBG		1" X 8', 6', & 4' PONY RODS	
MECH SN W/ 12' X 1 1/4" DIP TUBE-10015		96 - 1" NOR97 PLAIN (2400')	
4' PERFORED SUB		56 - 7/8" NOR97 RODS (1400')	
48 JTS 2 7/8" L-80 TBG		28-7/8" NOR97 6 PAD/ROD (700')	
BULL PLUG		15-7/8" NOR97 3 PAD/ROD (375')	
4' PERFORED SUB		63-3/4" NOR97 3 PAD/ROD (1575')	
BAKER 40-26 MOD E-22 SEAL ASSY		68-3/4" NOR97 PLAIN (1700')	
BAKER MOD D PERM. PKR. - 11498'		56-3/4" NOR97 4 PAD/ROD (1400')	
		16-1" CLASS D 4 PAD/ROD (400')	
		2 1/2" x 1 1/4" x 24' RHBM 2 STAGE	

SALT	DEPTH	5 1/2"	SET @
DUNHAM	6654-6710	20# L-80	21
PINE	7022-7070	26# SS95	57
CHARLES	8252-8950	20# L-80	3855
PRAIRIE	11594-11790	17# L-80	6439
		23# SS95	6944
		17# L-80	8046
		23# SS95	8877
		20# L-80	11389
		26# SS95	11703
		20# L-80	13344

SL - 144" SPM - 5.5

WELLHEAD: TBGHD C/W,F, 1" 3000 PSI X 7 1/16"  
 PUMP UNIT: LUFKIN MII 640-365-144 W/ AJAX E-42 ENG,PU SH-33", ENG SH-14".  
 GR=28.6:1.  
 PERFS: RED RIVER "B" 13255-265, 4 SPF.  
 RED RIVER "C" 13296-303, 13308-312, 13322-330 4 SPF.  
 PREPARED BY: GARY L EVERETZ DATE: 04/13/99  
 04/13/99  
 CORP2112.V1.5

DIRECTIONAL WELL TMD - 13480'



**SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SEN 5749 (2-92)**

Well File Number 11920
---------------------------

PLEASE READ INSTRUCTIONS ON BACK OF FORM

 Notice of IntentApproximate Start Date 5/4/99 Report of Work DoneDate Work Completed [REDACTED]

- Drilling Prognosis
- Redrilling or Repair
- Casing or Liner
- Plug Well
- Supplemental History
- Temporarily Abandon

- Spill Report
- Shooting
- Acidizing
- Fracture Treatment
- Change Producing Method
- Reclamation
- Other \_\_\_\_\_

## Well Name and Number

Corps of Engineers 31-10

Footages  
660' FNL 2305' FEL

Sec-Cor	NW NE	Section 10	Township 153N	Range 10 TW
---------	-------	---------------	------------------	----------------

Field  
BakerPool  
Red RiverCounty  
McKenzie

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil	Oil
Water	Water
Gas	Gas

## Name of Contractor

Address

City

State

Zip Code

## DETAILS OF WORK

Panterra Petroleum requests permission to acid stimulate the Red River perfs. See the attached procedure and wellbore schematic.

Company <u>Panterra Petroleum</u>			
Address <u>P. O. Box 7168</u>			
City <u>Billings</u>	State <u>MT</u>	Zip Code <u>59103-7168</u>	
By <u>Barry S. Every</u>	Date		
Title <u>Operations Manager</u>	Telephone Number <u>406-245-6248</u>		

406-245-9106 Fax

FOR OFFICE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <u>4 May 99</u>	
By <u>F.E. Williamson</u>	
Title <u>Assistant Director</u>	

**PANTERRA PETROLEUM****CORP OF ENGINEERS 31-10**

NWNE Sec 10 T153N R101W

Baker Field - McKenzie County, Nd

GL - 1851' KB - 1872' (21' KB)

ACCOUNTING CODE # 60103

**WORKOVER PROCEDURE TO DO FOAM ACID JOB OF RED RIVER**  
**WELL BORE DIAGRAM ATTACHED**  
**AFE # 31****Current Condition**

Pumping 24 BOPD, 332 MCFD and 6 BWPD.

**Proposed Procedure**

1. MI RU rig. Unseat pump and hot oil rods to remove paraffin. POOH with rods and pump. ND wellhead and NU BOPE. Unsting from Baker Model D packer. POOH with tubing. LD both perfed subs and bull plug.
2. Redress seal assembly and TIH w/ tubing. Hydrotest tubing to 7000 psi. Sting into Model D packer and PT csg to 500 psi.
3. RU pump truck. Run And stake down steel flowline to test tank. Acidize Red River "B" and "C" perfs with 600 gal. foamed FW , 2500 gal. gelled 28% HCl foamed w/ Nitrogen then 600 gal. foamed FW overdisplacement. Flow and swab back immediately until well is cleaned up. POOH with tubing.
4. Run same production BHA. Run rods and pump. Put well through production facility.
5. RD & release rig.

GLE

4/28/99

CORP3110WO31.doc

**PANTERRA PETROLEUM**

WELL:	<b>CORPS OF ENGINEERS 31-10</b>	FIELD:	<b>BAKER</b>
LOCATION:	NWNE SEC 10 153N 101W, MCKENZIE CO, ND SURF:660' FNL & 2304' FEL BHL:841' FNL & 1926' FEL		
ACCTG NO.:	618	STATUS:	FLOWING OIL WELL
ELEVATION:	GL - 1851' KB - 1872'	ST FILE NO:	11920
SPUD DATE:	6/20/86	API #:	33-053-02148
		COMP DATE:	11/24/86
5130'	CMT TOP	ROTARY TD:	13480'
5777-783'	H Casing Patch	SURF CSG:	9 5/8" 36,408 K-55 SET @ 2954'. CMT W/ 1220 SX.
8681'	TIGHT CSG < 4 3/8" ID	PROD CSG:	5 1/2" 17,20,26# L-80,SS95 SET @ 13344'.CMT W/ 1850 SX "G". 1082 SX LITE.

**TUBING & BHA**

32B JTS 2 7/8" L-80 TBG  
MECH SN W/ 12" X 1 1/4" DIP TUBE-10015'  
4' PERFORATED SUB  
48 JTS 2 7/8" L-80 TBG  
BULL PLUG  
4' PERFORATED SUB  
BAKER 40-26 MOD E-22 SEAL ASSY  
BAKER MOD D PERM. PKR. - 11498'

**RODS & PUMP**

1" X 8', 5', & 4' PONY RODS  
96 - 1" NOR97 PLAIN (2400')  
56 - 7/8" NOR97 RODS (1400')  
28-7/8" NOR97 6 PAD/ROD (700')  
15-7/8" NOR97 3 PAD/ROD (375')  
63-3/4" NOR97 3 PAD/ROD (1575')  
68-3/4" NOR97 PLAIN (1700')  
58-3/4" NOR97 4 PAD/ROD (1400')  
16-1" CLASS D 4 PAD/ROD (400')  
2 1/2" X 1 1/4" X 24' RHB M 2 STAGE

DV COLLAR  
MECH SN-DIPTUBE  
4' PERFORATED SUB

BULL PLUG  
PERFORATED SUB

MODEL D PKR

SALT	DEPTH
DUNHAM	6654-6710
PINE	7022-7070
CHARLES	8252-8950
PRAIRIE	11594-11790

<u>5 1/2"</u>	<u>SET @</u>
20# L-80	21
26# SS95	57
20# L-80	3855
17# L-80	6439
23# SS95	6944
17# L-80	8046
23# SS95	8877
20# L-80	11389
26# SS95	11703
20# L-80	13344

SQZ PERFS SL - 144" SPM - 5.5

WELLHEAD: TBGHD CIW,F,1" 3000 PSI X 7 1/16"

PUMP UNIT: LUFKIN MII 640-385-144 W/ AJAX E-42 ENG,PU SH-33", ENG SH-14".  
GR=26.6;1.

PERFS: RED RIVER "B" 13255-265', 4 SPF.

RED RIVER "C" 13298-303', 13308-312', 13322-330' 4 SPF.

PREPARED BY: GARY L EVERETZ

DATE: 04/13/99  
CORP3110.XLS

DIRICTIONAL WELL TMD - 13480'



**PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
SFN 5698 (7-92)

**INSTRUCTIONS**

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 1/2 1st Avenue N., Bismarck, ND 58505.

Well Name and Number <b>CORP OF ENGINEERS 31-10</b>	Qtr-Qtr	Section	Township	Range	County <b>MC KENZIE</b>
Company Name <b>PANTERRA PETROLEUM</b>	Field				<b>BAKER</b>
Address <b>P.O. BOX 7168</b>	City		State		Zip Code <b>59103</b>

Name of First Purchaser <b>EOTT ENERGY OPERATING LIMITED PARTNERSHIP</b>	% Purchased <b>100%</b>	Date Effective <b>12/1/98</b>	
Principal Place of Business <b>P O Box 4666</b>	City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77210 - 4666</b>
Field Address	City	State	Zip Code
Name of Transporter <b>EOTT ENERGY OPERATING LIMITED PARTNERSHIP</b>	% Transported <b>100.00</b>	Date Effective <b>12/01/98</b>	
Address <b>P O BOX 4666</b>	City <b>HOUSTON</b>	State <b>TX</b>	Zip Code <b>77210-4666</b>
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.			
Other Transporters Transporting From This Lease	% Transported	Date Effective	
Other Transporters Transporting From This Lease	% Transported	Date Effective	
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective	
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective	
Remarks			
Sale of certain oil marketing, transportation and pipeline gathering assets: Koch Oil Company to EOTT Energy Operating Limited Partnership.			

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the \_\_\_\_\_.

Signature <i>Terry Holzwarth</i>	Title <b>Engineer</b>	Date <b>DEC</b>
-------------------------------------	--------------------------	--------------------

STATE OF Montana) Notary  
COUNTY OF Yellowstone) Seal  
) ss

On 12/11, 1998, Terry S. Holzwarth, known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

*Terry S. Holzwarth*  
Notary Public Billings, MT My commission expires 8/21/00

**FOR OFFICE USE ONLY**

Approved By <i>Charles A. Koch</i>	Title <b>Buy-Sell</b>	Date <b>12/21/98</b>
---------------------------------------	--------------------------	-------------------------

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE  
(Other instructions on reverse side)

11920  
Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

3. LEASE DESIGNATION AND SERIAL NO.

4. IF INDIAN, ALLOTTEE OR TRIBE NAME

5. UNIT AGREEMENT NAME

NDM82191

6. FARM OR LEASE NAME

Corp of Engineers

7. WELL NO.

31-10

8. FIELD AND POOL, OR WILDCAT

Baker - Red River

9. SEC. T., R. M., OR SEC. AND

SURVEY OR AREA

10-153N-101W

11. COUNTY OR PARISH: 12. STATE

McKenzie

ND

1. OIL  
WELL  GAS  
WELL  OTHERS

2. NAME OF OPERATOR

PANTERRA PETROLEUM

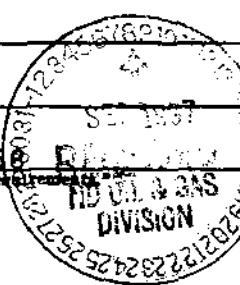
3. ADDRESS OF OPERATOR

P. O. Box 7168, Billings, MT 59103-7168

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.  
See also space 17 below.)  
At surface

660 FNL, 2305 FEL

NWNE 10-153-101



14. PERMIT NO.

11920

15. ELEVATIONS (Show whether SF, FT, OR M.)

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) Spill

REPAIRING WELL

ALTERING CASING

ABANDONMENT

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent data, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

See Attached Spill History Report.

18. I hereby certify that the foregoing is true and correct

SIGNED Kerry E. Egan

TITLE Operations Manager

DATE 9/5/97

(This space for Federal or State offices use)

Reed

APPROVED BY Mark Bohner

CONDITIONS OF APPROVAL, IF ANY:

TITLE

PETROLEUM ENGINEER

DATE September 8, 1997

\*See Instructions on Reverse Side

SPCC PLAN, ATTACHMENT #1  
SPILL HISTORY

Complete this form for any reportable spill (s).

Well Name: Corps of Engineers 31-10 Location: NWNE Sec 10, T153N, R101W  
Operator: Panterra Petroleum McKenzie County, ND

1. Date of Occurrence: 09/05/97 Reported by: Kevin Grindeland  
Surface Ownership: Corps of Engineers  
Agencies & Dates Notified: NDIC 9/5/97, BLM 9/5/97,  
Corps of Engineers 9/5/97

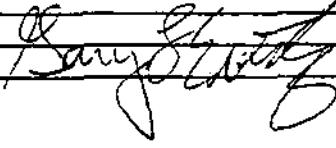
Volume & Type of Fluid Spilled: 30 BSW, all in dike

Volume Recovered: 28 bbls

Cause of Event: SW line leak.

Corrective Action Taken, Damage Description: Isolate line.

Plans for Preventing Recurrence: Replace line.

Signature: 

2. Date of Occurrence: \_\_\_\_\_ Reported by: \_\_\_\_\_  
Surface Ownership: \_\_\_\_\_  
Agencies & Dates Notified: \_\_\_\_\_

Volume & Type of Fluid Spilled: \_\_\_\_\_

Volume Recovered: \_\_\_\_\_

Cause of Event: \_\_\_\_\_

Corrective Action Taken, Damage Description: \_\_\_\_\_

Plans for Preventing Recurrence: \_\_\_\_\_

Signature: \_\_\_\_\_

(Attachment #1, SPCC Plan)



PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM 8  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5698 (2-92)



JUL 1997

FORM 8

Well File Number :

11920

NDIC CTB Number :

111920

INSTRUCTIONS

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E.  
Boulevard Avenue, Bismarck, ND 58505

31-10

WELL	CORPS OF ENGINEERS (Q/Q) NAME	(SEC.)	10 (TWP.) 153N	(RGE.)	101W	COUNTY	MCKENZIE
------	-------------------------------	--------	----------------	--------	------	--------	----------

PRODUCER:	PANTERRA PETROLEUM	FIELD BAKER	POOL	RED RIVER
-----------	--------------------	-------------	------	-----------

ADDRESS CORRESPONDENCE TO: GARY L. EVERTZ, PANTERRA PETROLEUM  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser KOCH OIL COMPANY : % Purchased : Date Effective  
100 08/01/97

Principal Place of Business 1625 Broadway, Ste 1570, Denver, CO 80202

Field Address Box 92B, Williston, ND 58801

Name of Transporter KOCH OIL COMPANY P/L : % Transported : Date Effective  
Address Box 92B, Williston, ND 58801 100 08/01/97

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease : % Transported : Date Effective  
: : :

Other First Purchasers Purchasing From This Lease : % Purchased : Date Effective  
: : :

Remarks

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

Signature

Terry Holzwarth

Title  
Engineer

Date

07/11/97

State of Montana

County of Yellowstone

Terry S. Holzwarth

On 07/11/97 , known to me to be the person described in and who executed the foregoing instrument personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

Notary Public

My Commission Expires

AUGUST 21, 2000

APPROVED BY:

Charles A. York

Date:

7/14/97



**PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM 5  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION**



: Well File Number :  
: 11920 :  
: ----- :  
: NDIC CTB Number :  
: 111920 :  
: ----- :

**INSTRUCTIONS**

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E. Boulevard Avenue, Bismarck, ND 58505

31-10  
WELL CORPS OF ENGINEERS (D/Q) MUNIC (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY MCKENZIE

**PRODUCER:** PANTERRA PETROLEUM      **FIELD BAKER**      **POOL**      **RED RIVER**

550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser : AMOCO PRODUCTION COMPANY : 100 06/01/97

**Principal Place of Business** 1670 Broadway, Ste 715, Denver CO 80201

**Field Address** 1670 Broadway, Ste 715, Denver CO 80201

**AMOCO PRODUCTION COMPANY**

Name of Transporter      AMOCO PRODUCTION COMPANY      % Transported      : Date Effective  
Address      1670 Broadway, Ste 715      Truck      100      06/01/97

..... Denver, CO 80201 .....  
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

**Other Transporters Transporting From This Lease** : % Transported : Date Effective  
: : :

**Remarks**

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

**Signature**

Title  
Engineer

Date

05/28/97

State of Montana  
County of Yellowstone

On 05/28/97, Gary L Evertz, known to me to be the person described in and who executed the foregoing instrument personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

Janetter Nagel  
Notary Public

My Commission Expires

AUGUST 21 2000

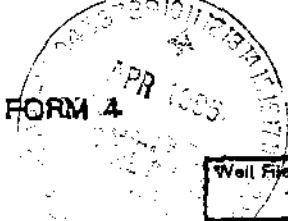
APPROVED BY:

Charles A. York

Date: 6/3/97



SUNDAY NOTICES AND REPORTS ON WELLS - FORM 4  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5749 (2-92)



Well File Number  
11920

PLEASE READ INSTRUCTIONS ON BACK OF FORM

<input type="checkbox"/> Notice of Intent	Approximate Start Date _____
<input checked="" type="checkbox"/> Report of Work Done	
Date Work Completed <u>03/15/96</u>	

- |  |  |
|--|--|
| <input type="checkbox"/> Drilling Prognosis                  | <input type="checkbox"/> Spill Report            |
| <input type="checkbox"/> Redrilling or Repair                | <input type="checkbox"/> Shooting                |
| <input type="checkbox"/> Casing or Liner                     | <input checked="" type="checkbox"/> Acidizing    |
| <input type="checkbox"/> Plug Well                           | <input type="checkbox"/> Fracture Treatment      |
| <input type="checkbox"/> Supplemental History                | <input type="checkbox"/> Change Producing Method |
| <input type="checkbox"/> Temporarily Abandon                 | <input type="checkbox"/> Reclamation             |
| <input checked="" type="checkbox"/> Other <u>Put on Pump</u> |  |

Well Name and Number <b>Corps of Engineers 31-10</b>					
Footages	Qtr-Qtr	Section	Township	Range	
660' FNL 2305' FEL	NW NE	10	153N	10TW	
Field Baker	Pool Red River	County	McKenzie		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil 34	Oil 105
Water 10	Water 24
Gas 190	Gas 587 est.

Name of Contractor			
Address	City	State	Zip Code

DETAILS OF WORK

1/23/96 MI RIG FL-6300'. SWAB TO 9500' W/ NO ENTRY.PUMP 140 BFW.SD DUE,  
TO COLD WEATHER.,  
2/5/96 COULD NOT REL F/ PKR.CUT TBG ABOVE SEAL ASSY.POOF.FOUND TBG HOLE,  
@ 9472'.RUN O/S SEVERAL TIMES & GOT SEAL ASSY RELEASED.RIH &  
STING INTO PKR.SWB 2 DAYS FINAL ENTRY 4 BOPH,2.5 BWPH.RD MO RIG,  
DUE TO FLOODING.,  
3/4/96 MI RIG & SWB.ACDZ RED RIVER W/ 1500 GAL FOAMED 28 HCL SWIC.4.6,  
BPM, 5579 PSI.FLOW BACK.GOT VERY!!! DIRTY FLUID FOR 3 DAYS SWBG,  
AND FLOWING.LAST RATE 6.7 BPH.DROP SV & PERF TBG ABOVE SV &  
PICKLE TBG & CSG IN TWO JOBS OF 2000 GAL 15% HCL.PULL TBG & RIH,  
W/ PROD BHA.RUN NEW NOR97 RODS & 1 1/4 2 STAGE PUMP.START PUMPING 3/15/96.

Company <b>Panterra Petroleum</b>		
Address <b>P. O. Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103-7168</b>
By <i>Jerry L. Entz</i>	Date <b>April 9, 1996</b>	
Title <b>Engineer</b>	Telephone Number <b>406-245-6248</b>	
	406-245-9106 Fax	

FOR OFFICE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>APR 12 1996</b>	
By <i>FE Williams</i>	
Title <b>Assistant Director</b>	

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

11920

Wesley D. Norton  
DIRECTOR

F. E. Wilborn  
ASSISTANT DIRECTOR

March 8, 1996

Ms. Jan Magstadt  
Panterra Petroleum  
P. O. Box 7168  
Billings, MT 59103-7168

Dear Ms. Magstadt:

Panterra Petroleum filed with the Industrial Commission on March 7, 1996 an application for a Stripper Well Property Determination for its Corps of Engineers #31-10 well (Well File #11920, API #33-053-02148) located in the NW NE 10-153N-101W, McKenzie County, North Dakota.

Information contained in the application indicates that the above mentioned well is a property pursuant to statute and rule, and Panterra Petroleum has elected to designate said well as a separate property for stripper well purposes. Also, the well produces from a well depth of more than 10,000 feet. During the twelve consecutive months qualifying period January 1995 thru December 1995, the well produced at a maximum efficient rate, and the average daily production from the well was 27.9 barrels of oil per day.

It is therefore determined that the above mentioned well qualifies as a "Stripper Well Property" pursuant to Section 57-51.1-01 NDCC.

This determination is applicable only to the Red River Pool in and under said property.

The Commission shall have continuing jurisdiction, and shall have the authority to review the matter. The determination may be amended or rescinded by the Commission for good cause.

Sincerely,

  
James R. Legerski  
Senior Petroleum Engineer

cc: Tax Dept.



**SUNDY NOTICES AND REPORTS ON  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION**

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent  
Approximate Start Date 1/22/96

Report of Work Done  
Date Work Completed \_\_\_\_\_

<input type="checkbox"/> Drilling Prognosis	<input checked="" type="checkbox"/> Spill Report
<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Sheeting
<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Producing Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
X Place on Rod Pump	<input checked="" type="checkbox"/> Other <u>NO Exemption - Tax</u>

Well Name and Number <b>Corps of Engineers 31-10</b>				
Footages 660' FNL 2305' FEL	Cir-Qtr NWNE	Section 10	Township 153N	Range 101W
Field Baker	Pool Red River	County McKenzie		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil 34	Oil
Water 10	Water
Gas 204	Gas

Name of Contractor			
Address	City	State	Zip Code

#### **DETAILS OF WORK**

PANTERRA PETROLEUM plans to place well on rod pump. Currently it will only flow intermittently .

PANTERRA PETROLEUM hereby applies for workover exemption - notice of intention to begin a workover project, which may be exempt from taxation pursuant to subsection (4) of North Dakota century Code section 57-51.1-03, for work outlined above. Approximate cost: \$99,500.00.

Company	Pantrerra Petroleum		
Address	P. O. Box 7168		
City	Billings	State	Zip Code
By	<i>Bang Sherry</i>	Date	1/18/96
Title	Manager Operations	Telephone Number	406-245-6248

FOR OFFICE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date	1-22-94
By	Karen L. Huf
Title	Par Encl.

## PANTERRA PETROLEUM

## PROPOSED WELL BORE SCHEMATIC!!

		I : I	I : I	WELL: CORPS OF ENGINEERS 31-10	FIELD: BAKER
		I : I	I : I	LOCATION: NWNE SEC 10 153N 101W, MCKENZIE CO, ND	
		I : I	I : I	SURF:660' FNL & 2304' FEL	
2954'	I : I	I : I	9 5/8"	BHL:841' FNL & 1926' FEL	STATUS: FLOWING OIL WELL
	I : I	I : I		ELEVATION: GL - 1851' KB - 1822'	ST FILE NO: 11920
4643'	I : I	I : I	KICKOFF OFF PT	SPUD DATE: 6/20/86	API #:33-053-02148
5130'	I : I	I : I	CMT TOP	ROTARY TD: 13480'	COMP DATE: 11/24/86
	I : I	I : I		PBTDI: 13344'	
	I : I	I : I			
5737-783'	H	I : I	H	CASING PATCH	SURF CSG: 9 5/8" 36,40# K-55 SET @ 2954'. CMT W/ 1220 SX.
	I : I	I : I			
	\	I : I	/	TIGHT CSG!	PROD CSG: 5 1/2" 17,20,26# L-80,SS95 SET @ 13344'.CMT W/ 1850 SX "G",
6661'	/	I : I	\	< 4 3/8" ID	1082 SX LITE.
	I : I	I : I			
	I : I	I : I		PROPOSED TUBING & BHA	PROPOSED RODS & PUMP
8933-37'	I	I o l l	I	DU COLLAR	
	I	I l l	I	2 7/8" L-80 TBG	98 - 1" 2450' NOR97 PLAIN
10000'	>	I o l <	I	SN W/ DIPTUBE	56 - 7/8" 1400' NOR97 PLAIN
	I o l o l	I	4' PERFOR SUB	28 - 7/8" 700' NOR97 6 CENT./ROD	
	I	I	I	47 JTS 2 7/8" L-80 TBG	15 - 7/8" 375' NOR97 3 CENT./ROD
	I	I	I	PLUGGED OFF TBG COLLAR	63 - 3/4" 1575' NOR97 3 CENT./ROD
	I	I	I	4' PERFOR SUB	68 - 3/4" 1700' NOR97 PLAIN
	I	I	I	BAKER 40-26 MOD G-22 SEAL ASSY	56 - 3/4" 1400' NOR97 4 CENT./ROD
	I --- I	I	I	TBG COLLAR PLUG BAKER MOD D PERM. PKR. - 11498'	16 - 1" 400' D INSP. 4 CENT./ROD
	I o o o l	I	4' PERFOR SUB		2 1/2" X 1 1/4" PUMP
	\	/	I	SEAL DIVIDER	
11498'		D>>>	MODEL D PKR	SALT DEPTH	5 1/2",5 5/8" LTC SET 8
				DUNHAM	20# L-80 21
11800-612'	\	I I	/	PINE	26# SS95 57
	/	I I	I \	FISH-MILL	20# L-80 3855
				CHARLES	17# L-80 6439
11840-842'	=	=	=	PRAIRIE	23# SS95 6944
					17# L-80 8046
13100'	I	I	I	TOP OF FISH	23# SS95 8877
13120-122'	=	I	I	SQZ PERFS	20# L-80 11387
	I	I	I	MODEL R-3 PKR	WELLHEAD: TBGHD CIW,F,1" 3000 PSI X 7 1/16" 26# SS95 11703
13243'	I<<<I	I>>>	I	8 5 JTS TBG	20# L-80 13344
13255-265'	=	=	=	RED RIVER B	PUMP UNIT: LUFKIN MII 640-365-144 W/ AJAX E-42 ENG.
13296-303'	=	=	=		AJAX SHEAVE-11", PU SHEAVE-33", GR-20.611
13308-312'	=	=	=	RED RIVER C	
13322-330'	=	=	=	PERFS:	RED RIVER 'B' 13255-265', 4 SFF.
					RED RIVER 'C' 13296-303', 13308-312', 13322-330' 4 SFF.
13344'	!<<<I***I>>>	I	CMT RET		
13400-402'	=*****	*****=	SQZ	PRODUCTION:	
13440-442'	=*****	*****=	PERFS		
13438'	*****	*****	FLOAT COLLAR	PREPARED BY: GARY L EVERETZ	DATE: 01/15/96
13480'	*****	*****	5 1/2"		CORPPMP.WK3
DIRECTIONAL WELL TMD - 13490' MAX ANGLE 3/4 @ 5145'					

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on reverse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

11920

5. LEASE DESIGNATION AND SERIAL NO.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

NDM82191

8. FARM OR LEASE NAME

Corp of Engineers

9. WELL NO.

31-10

10. FIELD AND POOL, OR WILDCAT

Baker

11. SEC., T., R., M., OR BLK. AND  
SURVEY OR AREA

10-153N-101W

12. COUNTY OR PARISH 13. STATE

McKenzie

ND

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

PANTERRA PETROLEUM

3. ADDRESS OF OPERATOR

P. O. Box 7168, Billings, MT 59103-7168

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
See also space 17 below.  
At surface

14. PERMIT NO.

11920

15. ELEVATIONS (Show whether DEP, RT, GR, etc.)

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

PELLE OR ALTER CASING

FRACTURE TREAT

MULTIPLE COMPLETE

SUBSEQUENT REPORT OF:

SHOOT OR ACIDIZE

ABANDON\*

WATER SHUT-OFF

REPAIRING WELL

REPAIR WELL

CHANGE PLANS

FRACTURE TREATMENT

ALTERING CASING

(Other)

SHOOTING OR ACIDIZING

ABANDONMENT\*

(Other) \_\_\_\_\_

(NOTE: Report results of multiple completion on Well  
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) \*

Well was returned to production September 8, 1995, after flood waters receded from Lake Sakakawea

18. I hereby certify that the foregoing is true and correct

SIGNED

(This space for Federal or State office use)

TITLE

DATE

9-11-95

APPROVED BY

CONDITIONS OF APPROVAL IF ANY:

TITLE

DATE

9-14-95

\*See Instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIP ALONE  
(Other instructions on reverse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

11920  
5. LEASE DESIGNATION AND SERIAL NO.

SUNDY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

6. IF INDIAN, ALLOTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

NDM82191

8. FARM OR LEASE NAME

Corp of Engineers

9. WELL NO.

31-10

10. FIELD AND POOL, OR WILDCAT

Baker

11. SEC., T. R. M., OR SECTION SURVEY OR AREA

10-153N-101W

12. COUNTY OR PARISH; 13. STATE

McKenzie

ND

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

PANTERRA PETROLEUM

3. ADDRESS OF OPERATOR

P. O. Box 7168, Billings, MT 59103-7168

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.  
See also space 17 below.)  
At surface

AUG 1995

14. PERMIT NO.

11920

15. ELEVATIONS (Show whether DP, FT, GM, etc.)

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

ROLL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETION

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON\*

SHOOTING OR ACIDIZING

ABANDONMENT

REPAIR WELL

CHANGE PLANS

(Other)

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

SUBSEQUENT REPORT OF:

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and other pertinent to this work.)

Well was temporarily shut-in July 15, 1995, due to flood waters in Lake Sakakawea.

18. I hereby certify that the foregoing is true and correct

SIGNED

*Barry Evert*

TITLE Operations Manager

DATE 8/24/95

(This space for Federal or State office use)

APPROVED BY

*Bill Choughney*

TITLE

*Oil Prod. Auditor*

DATE 8-28-95

CONDITIONS OF APPROVAL, IF ANY

\*See Instructions on Reverse Side



PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM JUL 1995  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5888 (2-92)



File Number : 11920 :  
ND OIL & GAS :  
DIVISION : NDIC CTB Number : 111920 :  
67891011121314151617181920212223

INSTRUCTIONS

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E. Boulevard Avenue, Bismarck, ND 58505

31-10  
WELL CORPS OF ENGINEERS (Q/Q) NWNE (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY MCKENZIE

PRODUCER: PANTERRA PETROLEUM FIELD BAKER POOL RED RIVER

ADDRESS CORRESPONDENCE TO: GARY L. EVERTZ, PANTERRA PETROLEUM  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser AMOCO PRODUCTION COMPANY : % Purchased : Date Effective  
Principal Place of Business 1670 Broadway, Ste 715, Denver CO 80201 : 100 : 08/01/95  
Field Address 1670 Broadway, Ste 715, Denver CO 80201  
Name of Transporter SCURLOCK PERMIAN CORP. - TRUCK : % Transported : Date Effective  
Address P. O. BOX 2358, WILLISTON, ND 58801 : 100 : 08/01/95

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease : % Transported : Date Effective  
: : :

Other First Purchasers Purchasing From This Lease : % Purchased : Date Effective  
: : :

Remarks

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

Signature

Title  
Engineer

Date

07/14/95

State of Montana

County of Yellowstone

On 07/14/95, Gary L. Evertz, known to me to be the person described in and who executed the foregoing instrument personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

My Commission Expires

AUGUST 21, 1996

APPROVED BY:

Charles A. Koch Date: 7/17/95



**PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM 8**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SFN 5698 (2-92)**

: Well File Number :  
: 11920 :  
: -----:  
: WDIC CTB Number :  
: 111920 :  
: -----:

## **INSTRUCTIONS**

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E. Boulevard Avenue, Bismarck, ND 58505.

31-10  
WELL CORPS OF ENGINEERS (9/9) NWNE (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY MCKENZIE

PRODUCER: PANTERRA PETROLEUM FIELD BAKER POOL RED RIVER

ADDRESS CORRESPONDENCE TO: GARY L. EVERETT, PANTERRA PETROLEUM  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

: : % Purchased : Date Effective

Name of First Purchaser SCURLOCK PERMIAN CORP. : 100 1/1/95

Principal Place of Business P. O. BOX 4648, HOUSTON, TX 77210-4648

Field Address P. O. BOX 2358, WILLISTON, ND 58801

: : % Transported : Date Effective

Name of Transporter SCURLOCK PERMIAN CORP. - TRUCK : 100 1/1/95

Address P. O. BOX 2358, WILLISTON, ND 58801

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease : % Transported : Date Effective

: : :

Other First Purchasers Purchasing From This Lease : % Purchased Date Effective

: : :

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

Signature		Title	Engineer	Date	12/9/94
State of Montana					
County of Yellowstone					

On 12/9/94, Gary L. Evertz, known to me to be the person described in and who executed the foregoing instrument personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

Penelope Maytsoot My Commission Expires AUGUST 21, 1996  
Notary Public

APPROVED BY: Charles A. Borch Date: 12/13/94

# NORTH DAKOTA INDUSTRIAL COMMISSION

## OIL AND GAS DIVISION

11920

Wesley D. Norton  
DIRECTOR

Charles Koch  
ENGINEERING DEPT

F. E. Wilborn  
ASSISTANT DIRECTOR

Doren Dannewitz  
FIELD SUPERVISOR

Clarence G. Carlson  
GEOLOGIST

Glenn Wollan  
RECLAMATION SUP.

September 10, 1994

Mr. Gary Evertz  
Operations Manager  
Panterra Petroleum  
P.O. Box 7168  
Billings, MT 59103-7168

Workover Project Determination  
Corps of Engineers #31-10  
NWNE 10-153N-101W  
McKenzie County, ND  
Well File No. 11920

Dear Mr. Evertz:

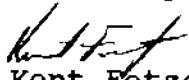
On June 13, 1994, Panterra Petroleum filed a notice of intent to begin a workover project on the above listed well with the North Dakota Industrial Commission. The workover project was completed on June 20, 1994 and meets the requirements set forth in North Dakota Century Code Section 57-51.1-03.

The workover project was performed from June 13, 1994 to June 20, 1994. The total cost of the project was \$39,239. The average daily production from the well prior to commencement of the workover project from December 1993 through May 1994 was 24.53 barrels of oil per day. The average daily production from the well during the first sixty days after completion of the project was 72.37 barrels of oil per day.

Therefore, it is determined the above listed well qualifies as a workover project for tax exemption purposes.

The Commission shall have continuing jurisdiction, and shall have the authority to review the matter. The determination may be amended or rescinded by the Commission for good cause.

Sincerely,

  
Kent Fetzer  
Petroleum Engineer

cc: Tax Dept



**SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
SFN 5749 (2-92)

Well File Number  
11920

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent

Approximate Start Date \_\_\_\_\_

Report of Work Done

Date Work Completed \_\_\_\_\_

- Drilling Prognosis
- Redrilling or Repair
- Casing or Liner
- Plug Well
- Supplemental History
- Temporarily Abandon

Spill Report

Shooting

Acidizing

Fracture Treatment

Change Producing Method

Reclamation

Other Workover Exemption

Well Name and Number

**Corps of Engineers 31-10**

Footages	Qtr-Qtr	Section	Township	Range
660' FNL 2305' FEL	NW NE	10	153N	10 TW
Field Baker	Pool Red River	County McKenzie		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil 22.92	Oil 72.37
Water	Water
Gas	Gas

Name of Contractor

Address

City

State

Zip Code

**DETAILS OF WORK**

**APPLICATION FOR WORKOVER PROJECT DETERMINATION (43-02-09-04)**

1. Enclosed: \$100.00
2. PANTERRA PETROLEUM, P. O. Box 7168, Billings, MT 59103-7168
3. Well name and legal - as above.
4. Dates workover project performed: June 7, 1994 to June 20, 1994.
5. AFE cost detail attached. Final cost: \$70,015.63.
6. Detail of all work done: see attached Sundry Notice - Form 4.
7. Average daily oil production first 60 days: 72.37 BOPD Before 22.92 BOPD  
See average before and after attached.
8. Gauge tickets of oil produced during the first two months after completion of the workover and volume of oil stored on the well premises prior to workover (attached).

Company	Pantrerra Petroleum		
Address	P. O. Box 7168		
City	Billings	State	Zip Code
	MT	59103-7168	
By	Janette Mayall		
Title	Operations Assistant		
Date	Sept 1, 1994		
Telephone Number	406-245-6248		
406-245-9106 Fax			

FOR OFFICE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <u>9-6-94</u>	
By <u>Karl E. F.</u>	
Title <u>Terence</u>	

5.)

DATE: 8/31/94 060263  
 TIME: 14:51:36

AFE SPECIAL REPORT  
 TERRA ENERGY CORPORATION  
 PANterra PETROLEUM  
 REPL TRG, LOWER LARGER  
 PUMP, ACID/STIM RED RIVER  
 FROM 00/00 THRU 00/00

CORP # 2  
 A/C # 1  
 AFE # 46  
 ENTITY # W 00618 CORP OF ENGINEERS 31-10  
 & 8THS REPORT

PAGE 1

MAJOR MINOR DESCRIPTION	ORIGINAL BUDGET	SUPPLEMENTAL BUDGET	TOTAL BUDGET	ACTUAL	VARIANCE (OVER)/UNDER	% VARIANCE (OVER)/UNDER
<b>INTANG. DRILLING COSTS</b>						
<b>TOTAL INT. DRILLING COSTS</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>.00%</b>
<b>INTANG. REMEDIAL/CONST.-COMPL.</b>						
1660 0100 LOCATION, ROADS, PERMITS	\$ 0.00 *	\$ 0.00 *	\$ 0.00 *	\$4807.30 *	\$4807.30 *	100.00%
1660 0200 COMPLETION UNIT	\$14500.00 *	\$ 0.00 *	\$14500.00 *	\$3729.95 *	\$10770.05 *	74.27%
1660 0300 WATER SOURCE, HAULING	\$3000.00 *	\$ 0.00 *	\$3000.00 *	\$2532.62 *	\$467.38 *	15.57%
1660 0440 PERF, LDG, WIRELINE SERVICE	\$2200.00 *	\$ 0.00 *	\$2200.00 *	\$3638.60 *	\$1438.60 *	65.39%
1660 0450 STIMULATION FRAC/ACID	\$15000.00 *	\$ 0.00 *	\$15000.00 *	\$18821.82 *	\$3821.82 *	25.47%
1660 0500 RENTAL EQUIPMENT	\$2000.00 *	\$ 0.00 *	\$2000.00 *	\$15849.03 *	\$3849.03 *	100.00%
1660 0510 TRUCKING	\$ 0.00 *	\$ 0.00 *	\$ 0.00 *	\$1517.00 *	\$1517.00 *	100.00%
1660 0610 LABOR - CONTRACT	\$500.00 *	\$ 0.00 *	\$500.00 *	\$4479.24 *	\$3979.24 *	100.00%
1660 0650 SUPERVISION - CONTRACT	\$3500.00 *	\$ 0.00 *	\$3500.00 *	\$6125.50 *	\$2625.50 *	75.01%
1660 0700 OTHER COSTS	\$4000.00 *	\$ 0.00 *	\$4000.00 *	\$7556.06 *	\$3556.06 *	88.90%
1660 0800 ADMINISTRATIVE OVERHEAD	\$2000.00 *	\$ 0.00 *	\$2000.00 *	\$2235.15 *	\$235.15 *	11.75%
<b>TOTAL INT. REM./CONSTR.-COMPL.</b>	<b>\$46700.00</b>	<b>\$ 0.00</b>	<b>\$46700.00</b>	<b>\$61292.27</b>	<b>\$14592.27 OR</b>	<b>31.24%</b>
<b>TANGIBLE WELL &amp; LEASE EQUIPMENT</b>						
1700 0905 TUBING	\$2000.00 *	\$ 0.00 *	\$2000.00 *	\$ 0.00 *	\$2000.00 *	100.00%
1700 0910 RODS	\$3000.00 *	\$ 0.00 *	\$3000.00 *	\$1028.58 *	\$1971.42 *	65.71%
1700 0915 WELL HEAD EQUIPMENT	\$ 0.00 *	\$ 0.00 *	\$ 0.00 *	\$1212.38 *	\$1212.38 *	100.00%
1700 0920 PUMPING UNIT	\$35000.00 *	\$ 0.00 *	\$35000.00 *	\$4407.82 *	\$30592.18 *	87.40%
1700 0925 PRIME MOVER	\$7000.00 *	\$ 0.00 *	\$7000.00 *	\$2074.58 *	\$4925.42 *	70.36%
<b>TOTAL TANG. WELL/LEASE EQUIP.</b>	<b>\$47000.00</b>	<b>\$ 0.00</b>	<b>\$47000.00</b>	<b>\$8723.36</b>	<b>\$38276.64</b>	<b>81.43%</b>

DATE: 8/31/94 060263  
TIME: 14:51:36

AFE SPECIAL REPORT  
TERRA ENERGY CORPORATION  
PANTERRA PETROLEUM  
REPL. TBC, LOWER LARGER  
PUMP, ACID/STIM RED RIVER  
FROM 00/00 THRU 00/00

CORP # 2  
A/C # 1  
AFE # 46  
ENTITY # M 00618 CORP OF ENGINEERS 31-10  
8/8THS REPORT

PAGE 2

MAJOR MINOR DESCRIPTION	ORIGINAL BUDGET	SUPPLEMENTAL BUDGET	TOTAL BUDGET	ACTUAL	VARIANCE (OVER)/UNDER	% VARIANCE (OVER)/UNDER
TOTAL WELL COST ESTIMATE	\$93700.00	\$0.00	\$93700.00	\$70015.63	\$23684.37	25.27%
** AFE TOTALS **	<u>\$93700.00</u>	<u>\$0.00</u>	<u>\$93700.00</u>	<u>\$70015.63</u>	<u>\$23684.37</u>	<u>25.27%</u>



**SUNDAY NOTICE AND REPORTS ON WELLS - FO. 4**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SRN 5749 (2-92)**

Well File Number  
11920

PLEASE READ INSTRUCTIONS ON BACK OF FORM

<input type="checkbox"/> Notice of Intent	Approximate Start Date _____
<input type="checkbox"/> Report of Work Done	Date Work Completed <u>6/20/94</u>

- |   |  |
|---|--|
| <input type="checkbox"/> Drilling Prognosis   | <input type="checkbox"/> Spill Report            |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting                |
| <input type="checkbox"/> Casing or Liner      | <input type="checkbox"/> Acidizing               |
| <input type="checkbox"/> Plug Well            | <input type="checkbox"/> Fracture Treatment      |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Producing Method |
| <input type="checkbox"/> Temporarily Abandon  | <input type="checkbox"/> Reclamation             |
| <input type="checkbox"/> Other _____          |  |

Well Name and Number <b>Corps of Engineers 31-10</b>					
Footages	Ctr-Ctr	Section	Township	Range	
660' FNL 2305' FEL	NW NE	10	153N	10 TW	
Field Baker	Pool Red River	County	McKenzie		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil 20	Oil 82
Water 20	Water 13
Gas 70	Gas 350

Name of Contractor			
Address	City	State	Zip Code

**DETAILS OF WORK**

06-09-94 Pull rods and tbg. Run tbg in hole. Ran tbg caliper and LD 19 jts rod cut tbg. Pickle tbg w/ 1100 gal 15%. Attempt to acidize Red River and had down hole leak. Pull tbg and hydrotest in hole. LD 1 jt. Acidize w/ 2000 gal foamed 15% HCl. Flow back load and well continued flowing w/ 350 psi FTP on a 14/48" choke.

See attached daily reports and wellbore schematic.

Company <b>Panterra Petroleum</b>		
Address <b>P. O. Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103-7168</b>
By <i>Ben E. Wilborn</i>	Date <b>7/1/94</b>	Telephone Number <b>406-245-6248</b>
Tide	406-245-9106 Fax	

FOR OFFICE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>7-14-94</b>	
By <b>ORIGINAL SIGNED BY</b>	
Tide <b>F.E. WILBORN</b>	Assistant Director

PANTERRA PETROLEUM

					WELL:	CORPS OF ENGINEERS 31-10	FIELD:	BAKER	
					LOCATION:	NWNE SEC 10 153N 101W, MCKENZIE CO, ND			
					SURF:	660' FNL & 2304' FEL			
2954'	I	I	I	9 5/8"	BHL:	841' FNL & 1926' FEL	STATUS:	FLOWING OIL WELL	
					ELEVATION:	GL - 1851' KB - 1872'	ST FILE NO:	11920	
							API #:	33-053-02148	
5130'	I	I	I	CMT TOP	SPUD DATE:	6/20/86	COMP DATE:	11/24/86	
					ROTARY TD:	13480'	PBTD:	13344'	
5777-283'	H	I	I	H	CASING PATCH	SURF CSG: 9 5/8" 36,40# K-55 SET @ 2954', CMT W/ 1220 SX.			
	I	I	I		TIGHT CSG!	PROD CSG: 5 1/2" 17,20,26# L-80,SS95 SET @ 13344', CMT W/ 1850 SX "G",			
6661'	/	I	I	\	< 4 3/8" ID	1082 SX LITE.			
					TUBING & BHA		RODS & PUMP		
8933-37'	I	I	I	DV COLLAR	1 JT 2 7/8" L-80 TBG				
	I	I	I		1 - 2 7/8" X 4" TBG SUB				
10200'	I	I	I	CUP SN	377 JTS 2 7/8" L-80 TBG				
	I	I	I	PERF SUB	CUP SN - 11497'				
11497'	I	D	I	I	CUP SN	BAKER 40-26 MOD G-22 SEAL ASSY			
	I	I	I			BAKER MOD D PERM. PKR. - 11498'			
11498'	====	I	I	====	MODEL D PKR				
11600-612'	\	I	I	\	TIGHT CSG	SALT	DEPTH		
	/	I	I	\	FISH-MILL				
					DUNHAM	6654-6710		21	
11840-842'	=			=	SQZ PERFS	PINE	7022-7070	26# SS95	57
					CHARLES	8252-8950		20# L-80	3855
13100'	I	I	I	I		PRAIRIE	11594-11790	17# L-80	6439
13120-122'	=	I	I	=	SQZ PERFS			23# SS95	6944
		I	I	I	MODEL R-3 PKR			17# L-80	8046
13243'	====	I	D	====	8 5 JTS TBG	SL-	SPH-	23# SS95	8877
13255-265'	=			=	RED RIVER B			20# L-80	11389
					WELLHEAD:	TBGHD CIW,F,1" 3000 PSI X 7 1/16"		26# SS95	11703
13296-303'	=			=	RED RIVER C	PUMP UNIT: LUFKIN MII 640-365-144 W/ AJAX E-42 ENG.		20# L-80	13344
13308-312'	=			=					
13322-330'	=			=		PERFS:	RED RIVER "B" 13255-265', 4 SPF.		
13344'	=====	I	I	=====	CMT RET				
13400-402'	*****			*****	SQZ			RED RIVER "C" 13296-303', 13308-312', 13322-330' 4 SPF.	
13440-442'	*****			*****	PERFS				
					PRODUCTION:	82 BD, 350 MCF, 13 BPPD			
13438'	*****			*****	FLOAT COLLAR				
13480'	*****			*****	5 1/2"	PREPARED BY: GARY L EVERETZ		DATE: 07/01/94	

Corps Of Engineers 31-10  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

AFE #46

- 06-16-94 FL @ 8500' (3000' of fluid entry - 16 hrs). Swabbed well to SN @ 11,496' in 3 runs. Rec 100' of oil on 1st run. TF - 15 BLW rec. 180 BLWTR. RU HES to do foamed acid job. Fill csg w/ 38 BSW & test to 2000# - held OK. Had hot oil truck maintain csg psi during job. Installed 5000# master valve on tbg. Pumped 200 gal 28% HCl acid ahead of 50,000 SCF of N<sub>2</sub>, 400 gal foamed FW & additives, 1800 gal 28% SGA-HT foamed acid. Flushed to perfs w/ N<sub>2</sub>. Max press - 6590#, Avg press - 5950#, Avg inj rate - 2.7 BPM. ISIP - 5822#. LWTR - 60 bbls tbg, 38 bbls csg, 180 bbls before job = 278 BLWTR. RD HES. Install choke @ tbg & hook flowline to test tank. Flow back 72 BLW in 4 1/2 hrs & well died. RU swab. Made 2 swab runs f/ SN, very gassy from N<sub>2</sub> & acid gas. Rec 16 BLW. Had 5% oil on last run. Rec 88 BLW, 190 BLWTR. SDFN. DC \$12072 CC \$53033
- 06-17-94 SITP - 1475#, SICP - 100#. Bled gas off well thru 16/64" choke & treater. 2 hr FTP @ 135#. Well started flowing oil. Well flowed 8.4 bbls of 98% oil on 16/64" choke in 2 hrs & started gassing only. Opened on 1" choke. Well unloaded 3 BO, 7 BLW in 1 hr & died. Made 1 swab run f/ 3500'. Well started flowing. Made 1 swab run/hr, next 2 hrs, one f/ 3500' & one f/ 6000'. Well continued flowing. In 10 1/2 hrs swabbed & flowed 46.7 BO (53%), 41.1 BLW, TF 87.8 bbls. Volumes are calculated on avg wellhead cuts. Had choke settings f/ 16/64" - 1". TP varied f/ 40# - 300#. Had to repair SW dump valve & float on treater. Turned well thru treater @ 9:00 p.m., CDT & left flowing on 20/64" choke w/ 280# FTP. DC \$2657 CC \$55690
- 06-18-94 Flowed 33 BO, 17 BLW, TP - 50-280#, 20/64" choke in 10 hrs.
- 06-19-94 Flowed 92 BO, 52 BLW, TP - 50-350#, 24/64" choke in 24 hrs, 36% wtr.
- 06-20-94 Flowed 85 BO, 20 BLW, TP - 50-350#, 24/64" choke in 24 hrs, 24% wtr.

Well has made 257 bbls oil and 130 bbls LW = 387 BTF since acid job. 60 BLW TR (prob. in csg annulus) put well on 18/64 choke. Laid all rods from derrick on ground in triples. SK&S roustabouts moved out American 456-256-120 PU w/ cement port-a-base to yard. They moved in and set Lufkin Mark II - M640 D-365-144 D Serial #21835. Mounted 8-1/2" x 10" Ajax engine to PU. Engine sheave = 14"; PU sheave = 33" gear box ratio = 28.6:1; new D grove 482 belts.

From 7 a.m. to 4:30 p.m. (9 hr - well SI 1/2 hr). Well flowed 40.6 bbls oil, 6.9 bbls SW, 475 BTF, 85% oil. 4.5 bbls oil / hr on 18/64" choke. Making ±400 mcf/day of gas to sales. Put Wellpro BOP and hand slips on 1/2 cost rental of \$70/day. ERC choke and master valve - \$20/day. RD and Release Rig. DC \$2414 CC 58104

Corps Of Engineers 31-10  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

AEE #46

- 06-11-94 Fished 2" SV w/ sandline. RU HES for foamed acid job. Install 2 7/8" EUE, 5000# master valve on tbg. Test csg to 1540# - OK. Test lines to 5460#. Pump 50,000 SCF N. down tbg, followed by 400 gal foamed FW w/ 10 GPM Pen-88HT, 20 GPM Sperse-All & 50,000 SCF N., TP - 5500#, CP - 1006#. AIR @ .35 BPM. Pumped 500 gal 28% SGA w/ Inhibitor, Pen-88HT, SWIC & Sperse-All w/ 75,000 SCF N. down tbg @ 5900 psi. CP immed came up to 3008#. SD. Bled csg down to 2000#. RU choke & hardline to test tank. Bled well off to tank. Rec acid in tank. Flushed csg w/ 24 BFW. Drop 2" SV in tbg, wait 30 min. Pump 66 BSW down tbg. Had circulation out csg. Shut csg & PT to 1500#, pkr - OK, csg - OK. Possible leak in tbg or circ valve. RD HES. Rotate out of Model "D" w/ latch. POOH w/ 378 jts 2 7/8" tbg & top connection of circ valve was broken @ base of threads on top pin of valve. Left circ valve, SN & seal assy in hole. SDFN. DC \$13272 CC \$27410
- 06-12-94 TIH w/ Bowen 4 3/8" OD Overshot w/ cut lip guide, dressed w/ 3 1/2" basket grapple, Bowen oil jars, & 218 jts 2 7/8" tbg. Hit tight spot in csg @ 6661' K.B. Set down 30,000# SW. Had to set jars off 3 times to pull out. Set down 10,000# - would not go. Had to pull 10,000# over string weight to get free. POOH w/ tbg & BHA. Cut lip guide was egg shaped (4 1/4" x 4 1/2"). TIH w/ 4" OD x 2.25' long undressed shoe f/ guide to go over fish & 378 jts. Took 5000# SW to go past 6661' K.B. Set down @ 11,498' K.B. RIH w/ sandline & OS to fish SV. POOH - did not have it. Made 2nd attempt & successfully fished SV out of circ valve. SDFN. DC \$3366 CC \$30776
- 06-13-94 POOH w/ tbg & guide. TIH w/ max OD 3 3/4" taper tap, Bowen oil jars, & 378 jts 2 7/8" tbg. Tagged fish @ 11,494' K.B. Engaged fish. Torqued tbg 5 rounds. Pull 15,000# over string weight & set down 15,000#, worked string. Attempted to release latch-in seal assy. POOH. No recovery of fish. Could see marks on taper tap where it had been inside 2" mandrel on circ valve. SDFN. DC \$3078 CC \$33854
- 06-14-94 TIH w/ 3 3/4" max O.D. taper tap, bumper sub, Bowen oil jars & 378 jts 2 7/8" tbg. Engage fish @ 11,494' K.B. Release latch-in seal assy. POOH w/ 378 jts tbg & BHA. Rec all of fish (circ valve, SN & latch-in assy). RU Basin Tubing Testers. TIH w/ Baker 40-26 model G-22 latch-in type seal assy w/ 2 seal units, 2 7/8" cup type SN, 378 jts 2 7/8" tbg & 1 - 2 7/8" x 4' tbg sub. Hydrotested tbg to 7000#. Found thread leak @ 3 jts above SN @ 1000#. Replaced bad jt. Stung into model "D" pkr @ 11,498' w/ 22,000# compression. SDFN. DC \$5133 CC \$38987
- 06-15-94 RU to swab. FL @ 2800'. Swabbed 5 BO, 60 BSW. Total of 65 BF in 12 runs in 8 hrs. All oil was on 1st run. Then swabbed 60 BLW. 195 BLWTR. Swab f/ pkr after 7th run. Made 1 run/hr last 4 hrs. FL @ 10,900' (600' above pkr) last 4 runs. Rec 1.7 BLW/hr last 2 hrs. SDFN. DC \$1974 CC \$40961

Corps Of Engineers 31-10  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

03-06-94 Shut-in @ 4:00 p.m. due to flooding.

03-22-94 Well put back on production around 2:00 p.m.

---

AFE #46

06-07-94 MI H&L Well Service rig. Too windy to rig up.

06-08-94 RU H&L rig. Pump 70 BSW down tbg - on vacuum. Jar on pump, would not unseat. Backed off rods. POOH w/ 1 - 1"x 2' & 1 - 1"x 6' pony rods, 94 - 1" plain rods & 53 - 7/8" plain rods. RU f/ tbg. Install BOP. Tbg was set w/ 40,000# compression. Pull out of Model "D" pkr. Strap OOH w/ 122 jts 2 7/8" tbg to rods. Continue stripping rods & tbg OOH. Found rod cut split jt 219 f/ top (6650'+). RU swab. Swab fluid f/ tbg to tank battery. Pull tbg to fluid, well started flowing oil f/ tbg. Hooked tbg & csg to flowline & left open to T.B. overnight. Have 265 jts tbg (7880'+) & 330 rods (8250'+). DC \$3145

06-09-94 Well flowed 1/2" (.84 BO) into tank overnight, was dead in a.m. Finished stripping rods & tbg to pump. Had to swab tbg down after pulling rods. Pump was stuck in btm jt above SN. Cut tbg to recover pump & found pump was stuck in salt. Sent pump in for repairs. Recovered rods: 94 - 1" plain, 60 - 7/8" plain, 38 - 7/8" w/ scrapers, 189 - 3/4" w/ scrapers, & 16 - 1" w/ scrapers (these scrapers were very worn). 329 jts of tbg above SN. POOH w/ 49 jts 2 7/8" tailpipe, 2 cup type SN, 2 - 2 7/8" x 4' perf subs, & locator seal assy w/ 4 seal units f/ Baker Model "D" pkr. TIH open-ended w/ 377 jts 2 7/8" tbg to 11,453' K.B. RU Dialog. Ran Tubing Profile Caliper Log. Tool would not go down past 2200' due to paraffin. Hot oil tbg w/ 35 bbls prod oil. Ran Profile Log f/ EOT to surface. Found 19 its over 35% wear (to be replaced). Most bad jts were in the 1500' of tbg above SN. Left well open to T.B. overnight. DC \$4671 CC \$7816

06-10-94 POOH w/ 377 jts 2 7/8" L-80 tbg. LD 19 jts that were over 35% wall thickness worn off. TIH w/ Baker 40-26 mod. G-22 Latch-in type Seal Assy w/ 2 seal units & 40,000# shear ring, 2 3/8" cup type SN, Basin circ valve, 378 jts 2 7/8" L-80 tbg, & 1 - 2 7/8" x 6' tbg sub. Replaced worn tbg w/ 21 jts of inspected tbg. Latch into Model "D" pkr @ 11,498'. Open circ valve. Set tbg in compression. RU HES & pump 20 BSW cushion in tbg. Drop 2" SV, wait for it to drop. Pickle tbg w/ 1200 gal 15% HCl acid w/ inhibitor & Sperse-All @ 1 BPM. Displaced into csg annulus thru circ valve. Let set 15 min. Reverse acid out of tbg to test tank, cycle tbg & close circ valve. PT csg & valve to 500# - OK. SDFN. DC \$6322 CC \$14138

1.)

Corp of Engineers - Well File Number 11920  
Average Oil Production - First Sixty (60) days after Workover.

## OIL PRODUCTION

JUNE 1994

20	88.53
21	21.72
22	86.83
23	80.99
24	83.52
25	76.00
26	75.16
27	76.84
28	86.44
29	81.82
30	70.58

JULY, 1994

1	79.76
2	70.15
3	77.73
4	78.48
5	74.75
6	-21.79
7	237.28
8	8.45
9	60.10
10	89.37
11	81.85
12	86.86
13	75.16
14	90.18
15	81.01
16	85.19
17	75.99
18	78.48
19	78.50
20	80.18
21	-64.19
22	0.00
23	0.00
24	202.52
25	90.21
26	83.63
27	85.19
28	77.65
29	77.27
30	78.49
31	77.25

AUGUST, 1994

1	76.49
2	76.84
3	77.65
4	77.69
5	73.47
6	71.83
7	76.95
8	68.49
9	70.98
10	68.95
11	63.45
12	50.11
13	55.12
14	80.30
15	78.51
16	65.14
17	68.95
18	63.45
19	63.47
20	55.26 total days

TOTAL 4487.23 62

average

72.37

7.)

CORP OF ENGINEERS - WELL FILE NUMBER 11920  
OIL PRODUCTION HISTORY - LATEST SIX MONTHS

1993 BOPM	# DAYS
12	856
	31
1994	
1	760
2	654
3	250
4	500
5	529
TOTAL BBLS/DAYS	3529
AVERAGE	154

23.53 BOPD

$$\begin{aligned} & \text{9-93 TO 2-94} \\ & 4476 \text{ BBL / } 182.4 \text{ DAYS} \\ & = 24.53 \text{ B/D} \end{aligned}$$



**Change and Production Report Pipeline Connection: SCURLOCK PERMIT  
Pasterri Petroleum Inc.**

County: MCKENZIE  
State: NORTH DAKOTA

~~eeese: CORPS ENG 31-10~~

Date: 8/16/94

**Stroke Length:**

**\$PM : 0.0**

~~Time Check~~ — Form

8/11/94 Spec. Gravity - 1.125 PH - 190.045

8/12/94 Spec. Gray (E= 1, 125) PPN-100-940

111/14 Start Speed 1-190 220 101 453

8/11/94 cut paraffin: B-300' - band 300'-1100'

11/17/2014 2014-01-01: 0-300 ~ 1000. 300 - 1100 = 800t, tan 8000 .

THE VERSO OF THE TITLES IS IN ENGLISH

van's Production Service

111-111



~~CONFIDENTIAL - VERSION BY: TRAVIS BAKER~~  
Baker's Production Service  
Milwaukee, WI



Gauge and Production Report		Pipeline Connection: SCURLOCK-BERMAN				County: MCKENZIE		Lease: CORPS-ENG 31-10		From: 7/10/94		To: 7/17/94															
Panterra Petroleum Inc.						State: NORTH DAKOTA		Field: BAKER																			
Producing Well Nos. & Status	Tank	Date: 7/10/94		Date: 7/11/94		Date: 7/12/94		Date: 7/13/94		Date: 7/14/94		Date: 7/15/94		Date: 7/16/94													
	Number	Size	Ft	Inch	Barrels	Ft	Inch	Barrels	Ft	Inch	Barrels	Ft	Inch	Barrels	Ft	Inch	Barrels										
	58412	400	15	10.50	318.39	15	10.50	318.39	15	10.50	318.39	6	6.00	130.49	11	0.00	220.67	15	0.50	301.68	15	0.50	301.68	3	2.00	63.09	
	58413	400	7	3.00	345.51	11	4.00	227.40	15	8.00	314.26	17	0.25	341.49	4	11.00	98.78	4	11.00	98.78	9	2.00	183.97	1	3.50	25.99	
		4	3	5.00	8.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	
		0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	
		0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	
		0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	
	Saltwater		13			13			15			10			5			10			17			8		\$1	265
	Freshwater		0		0	0		0	0		0	0		0		0		0		0	0		0		0	0	0
	Tubing		320			320			320			300			320			310			320			300		320	200
	Casing																										
	Choke Size		20/48			20/48			20/48			20/48			20/48			20/48			20/48			20/48		20/48	20/48
	Stock Today		483.94			545.79			632.65			471.89			319.43			400.44			481.63			481.63			481.63
	Runs Yesterday		0.00			0.00			0.00			235.92			242.52			250.00			8.00			471.00			471.00
	Total:		483.94			545.79			632.65			707.81			562.87			400.44			485.63			567.44			567.44
	Stock Yesterday		374.57			483.94			545.79			632.65			471.89			319.43			400.46			485.63			485.63
	Prod. Yesterday		89.37			81.85			86.85			75.16			86.18			81.01			85.13			75.99			75.99
Date	Ticket #	Tank	6	Ft	Inch	Ft	Inch	Barrels	GVL	Imp	Imp	Date	Imp	PSAV	Temp												
7/12/94	0280425	58412		15	10.50	4	11.25	235.92	51.00	94	7/13/94	01300000	00														
7/13/94	0060413	58413		11	0.25	0	11.00	242.52	40.00	90	7/14/94	02000000	00														
7/16/94	9050437	58412		15	0.50	3	1.75	238.41	52.00	104	7/17/94	0.0500000	108														
7/17/94	9040456	58413		12	11.25	1	3.50	233.55	50.20	50	7/17/94	0.1000000	98														
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		1		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000000	0												
				0	0.00	0	0.00	0.00	0.00	0		0		0.0000													

#### **Stroke Length**

卷之三

#### Effect of Cladding

7/13/94 Cut paraffin: 0-200' = hard, 200'-1100' = soft, can to 3000'.

Computer Version by: Travis Bear  
Tom's Production Service  
Weston, MD



**Stroke Length:**

SPN : 6.66

Time Clock . . . flowing

6/29/14 Cut paraffin: 0-600° - hard, 600° - 1300° - soft, ran to 3000°.

**Stroke Length:**

**SPX** : 4.00

7/1/14 - Flooded 10-1/2 box. Removed 10-1/2 box. Replaced 10-1/2 box to 11-1/4.

1/14/04 Flowed 30.57 acres from 100' to 100' on P-1 - Average slope to 1.7%.

4/21/94 11:39:32 AM 14 14 14 14 14 14 14 14

6/21/94 through 6/24/94.

Tom's Production Service

100-10 - 7

卷之三

—  
—  
—  
—  
—

www.ijerpi.org

Digitized by srujanika@gmail.com

8.

209.09  
Stock on Hand.

6-7-94

Volume Oil Stove

*L.H. Miller*  
DIRECTOR OF THE TRUST

Travis Bauer  
Dan's Production Service  
W7711 State Rd. #B

2/22/54 Down 24 hrs. Well shot in. Waiting for rig.  
2/23/54 Down 24 hrs. Waiting for rig.  
2/24/54 Down 24 hrs. Waiting for rig.  
2/25/54 Down 24 hrs. Waiting for rig.  
2/26/54 Down 24 hrs. Waiting for rig.  
2/27/54 Down 24 hrs. Waiting for rig.  
2/28/54 Down 24 hrs. Rigged ab on well teatet.  
2/29/54 Down 24 hrs. Working on well. Stripping out



**SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4**  
 INDUSTRIAL COMMISSION OF NORTH DAKOTA  
 OIL AND GAS DIVISION  
 SFN 5749 (2-92)

Well File Number  
**11920**

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent  
 Approximate Start Date \_\_\_\_\_

Report of Work Done  
 Date Work Completed 6/20/94

- |   |  |
|---|--|
| <input type="checkbox"/> Drilling Prognosis   | <input type="checkbox"/> Spill Report            |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting                |
| <input type="checkbox"/> Casing or Liner      | <input type="checkbox"/> Acidizing               |
| <input type="checkbox"/> Plug Well            | <input type="checkbox"/> Fracture Treatment      |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Producing Method |
| <input type="checkbox"/> Temporarily Abandon  | <input type="checkbox"/> Reclamation             |
| <input type="checkbox"/> Other _____          |  |

Well Name and Number

**Corps of Engineers 31-10**

Footages	Qtr-Qtr	Section	Township	Range
660' FNL 2305' FEL	NW NE	10	153N	10T W
Field Baker	Pool Red River	County McKenzie		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil 20	Oil 82
Water 20	Water 13
Gas <u>70</u>	Gas 350

Name of Contractor

Address	City	State	Zip Code
---------	------	-------	----------

**DETAILS OF WORK**

06-09-94 Pull rods and tbg. Run tbg in hole. Ran tbg caliper and LD 19 jts rod cut tbg. Pickle tbg w/1100 gal 15%. Attempt to acidize Red River and had down hole leak. Pull tbg and hydrotest in hole. LD 1 jt. Acidize w/ 2000 gal foamed 15% HCl. Flow back load and well continued flowing w/ 350 psi FTP on a 14/48" choke.

See attached daily reports and wellbore schematic.

Company <b>Panterra Petroleum</b>			
Address <b>P. O. Box 7168</b>			
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103-7168</b>	
By <i>Barry Sweet</i>	Date <b>7/1/94</b>		
Title	Telephone Number <b>406-245-6248</b>		

FOR OFFICE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>7-6-94</b>	
By <i>F. E. Williams</i>	
Title <b>Assistant Director</b>	

PANTERRA PETROLEUM

		I	I	I	I	WELL:	CORPS OF ENGINEERS 31-10	FIELD:	BAKER
		I	I	I	I	LOCATION:	NWNE SEC 10 153N 101W, MCKENZIE CO, ND		
		I	I	I	I	SURF:	660' FNL & 2304' FEL		
2954'		I	I	I	I	BHL:	841' FNL & 1926' FEL	STATUS:	FLOWING OIL WELL
		I	I	I	I	ELEVATION:	GL - 1851' KB - 1872'	ST FILE NO:	11920
		I	I	I	I	SPUD DATE:	6/20/86	API #:	33-053-02148
5130'		I	I	I	I	ROTARY TD:	13480'	COMP DATE:	11/24/86
		I	I	I	I	PBTD:	13344'		
5777-783'	H	I	I	H	CASING PATCH	SURF CSG:	9 5/8" 36,40# K-55 SET @ 2954', CMT W/ 1220 SX,		
	I	I	I	I	TIGHT CSG!	PROD CSG:	5 1/2" 17,20,26# L-80,SS95 SET @ 13344', CMT W/ 1850 SX "6",		
6681'	/	I	I	\	< 4 3/8" ID		10B2 SX LITE.		
	I	I	I	I		TUBING & BHA		RODS & PUMP	
8933-37'	I	I	I	I	IV COLLAR				
	I	I	I	I		1 JT 2 7/8" L-BO TBG			
10200'	I	I	I	I	CUP SN	1 - 2 7/8" X 4" TBG SUB			
	I	I	I	I	PERF SUB	377 JTS 2 7/8" L-BO TBG			
	I	I	I	I		CUP SN - 11497'			
11497'	I	I	I	I	CUP SN	BAKER 40-26 MOD G-22 SEAL ASSY			
	I	I	I	I		BAKER MOD D PERM. PKR. - 11498'			
	\	/	\	\					
11498'	>>>I	I	>>>		MODEL D PKR				
	I	I	I	I					
	-I	I	-I	-I					
11600-612'	\	I	I	/\	TIGHT CSG	SALT	DEPTH	5 1/2" LTC	SET #
	/\	I	I	\	FISH-MILL				
						DUNHAM	6654-6710	20# L-80	21
11840-842'	=		=	=	SOZ PERFS	PIHE	7022-7070	26# SS95	57
						CHARLES	8252-8950	20# L-80	3855
13100'	I	I	I	I		PRAIRIE	11594-11790	17# L-80	6439
13120-122'	=	I	I	=	SOZ PERFS			23# SS95	6944
	I	I	I	I	MODEL R-3 PKR			17# L-80	8046
13243'	<<<I	I	>>>I		8 5 JTS TBG	SL-	SPM-	23# SS95	8877
13255-265'	=		=	=	RED RIVER B			20# L-80	11389
						WELLHEAD:	TBGHD CIW,F,1" 3000 PSI X 7 1/16"	26# SS95	11703
13296-303'	=		=	=	RED RIVER C			20# L-80	13344
13308-312'	=		=	=		PUMP UNIT:	LUFKIN MII 640-365-144 W/ AJAX E-42 ENG.		
13322-330'	=		=	=		PERFS:	RED RIVER "B" 13255-265', 4 SPF.		
13344'	<<<I***I>>>I				CMT RET				
13400-402'	*****	*****	*****	*****	SOZ			RED RIVER "C" 13296-303', 13308-312', 13322-330' 4 SPF.	
13440-442'	*****	*****	*****	*****	PERFS				
	I	I	I	I		PRODUCTION:	82 BO, 350 MCF, 13 BWPD		
13438'	*****	*****	*****	*****	FLOAT COLLAR				
13480'	*****	*****	*****	*****	5 1/2"	PREPARED BY:	GARY L EVERETZ	DATE:	07/01/94

DIRECTIONAL WELL THD ~ 13480'

Corps Of Engineers 31-16  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

AFE #46

- 06-16-94 FL @ 8500' (3000' of fluid entry - 16 hrs). Swabbed well to SN @ 11,496' in 3 runs. Rec 100' of oil on 1st run. TF - 15 BLW rec. 180 BLWTR. RU HES to do foamed acid job. Fill csg w/ 38 BSW & test to 2000# - held OK. Had hot oil truck maintain csg psi during job. Installed 5000# master valve on tbg. Pumped 200 gal 28% HCl acid ahead of 50,000 SCF of N<sub>2</sub>, 400 gal foamed FW & additives, 1800 gal 28% SGA-HT foamed acid. Flushed to perfs w/ N<sub>2</sub>. Max press - 6590#, Avg press - 5950#, Avg inj rate - 2.7 BPM. ISIP - 5822#. LWTR - 60 bbls tbg, 38 bbls csg, 180 bbls before job = 278 BLWTR. RD HES. Install choke @ tbg & hook flowline to test tank. Flow back 72 BLW in 4 1/2 hrs & well died. RU swab. Made 2 swab runs f/ SN, very gassy from N<sub>2</sub> & acid gas. Rec 16 BLW. Had 5% oil on last run. Rec 88 BLW, 190 BLWTR. SDFN. DC \$12072 CC \$53033
- 06-17-94 SITP - 1475#, SICP - 100#. Bled gas off well thru 16/64" choke & treater. 2 hr FTP @ 135#. Well started flowing oil. Well flowed 8.4 bbls of 98% oil on 16/64" choke in 2 hrs & started gassing only. Opened on 1" choke. Well unloaded 3 BO, 7 BLW in 1 hr & died. Made 1 swab run f/ 3500'. Well started flowing. Made 1 swab run/hr, next 2 hrs, one f/ 3500' & one f/ 6000'. Well continued flowing. In 10 1/2 hrs swabbed & flowed 46.7 BO (53%), 41.1 BLW, TF 87.8 bbls. Volumes are calculated on avg wellhead cuts. Had choke settings f/ 16/64" - 1". TP varied f/ 40# - 300#. Had to repair SW dump valve & float on treater. Turned well thru treater @ 9:00 p.m., CDT & left flowing on 20/64" choke w/ 280# FTP. DC \$2657 CC \$55690
- 06-18-94 Flowed 33 BO, 17 BLW, TP - 50-280#, 20/64" choke in 10 hrs.
- 06-19-94 Flowed 92 BO, 52 BLW, TP - 50-350#, 24/64" choke in 24 hrs, 36% wtr.
- 06-20-94 Flowed 85 BO, 20 BLW, TP - 50-350#, 24/64" choke in 24 hrs, 24% wtr.

Well has made 257 bbls oil and 130 bbls LW = 387 BTF since acid job. 60 BLW TR (prob. in csg annulus) put well on 18/64 choke. Laid all rods from derrick on ground in triples. SK&S roustabouts moved out American 456-256-120 PU w/ cement port-a-base to yard. They moved in and set Lufkin Mark II - M640 D-365-144 PU Serial #21835. Mounted 8-1/2" x 10" Ajax engine to PU. Engine sheave = 14"; PU sheave = 33" gear box ratio = 28.6:1; new D grove 482 belts.

From 7 a.m. to 4:30 p.m. (9 hr - well SI 1/2 hr). Well flowed 40.6 bbls oil, 6.9 bbls SW, 475 BTF, 85% oil. 4.5 bbls oil / hr on 18/64" choke. Making ±400 mcf/day of gas to sales. Put Wellpro BOP and hand slips on 1/2 cost rental of \$70/day. ERC choke and master valve - \$20/day. RD and Release Rig. DC \$2414 CC 58104

Corps Of Engineers 31-10  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

AFE #46

- 06-11-94 Fished 2" SV w/ sandline. RU HES for foamed acid job. Install 2 7/8" EUE, 5000# master valve on tbg. Test csg to 1540# - OK. Test lines to 5460#. Pump 50,000 SCF N<sub>2</sub> down tbg, followed by 400 gal foamed FW w/ 10 GPM Pen-88HT, 20 GPM Sperse-All & 50,000 SCF N<sub>2</sub>. TP - 5500#, CP - 1006#. AIR @ .35 BPM. Pumped 500 gal 28% SGA w/ Inhibitor, Pen-88HT, SWIC & Sperse-All w/ 75,000 SCF N<sub>2</sub> down tbg @ 5900 psi. CP immed came up to 3008#. SD. Bled csg down to 2000#. RU choke & hardline to test tank. Bled well off to tank. Rec acid in tank. Flushed csg w/ 24 BFW. Drop 2" SV in tbg, wait 30 min. Pump 66 BSW down tbg. Had circulation out csg. Shut csg & PT to 1500#, pkr - OK, csg - OK. Possible leak in tbg or circ valve. RD HES. Rotate out of Model "D" w/ latch. POOH w/ 378 jts 2 7/8" tbg & top connection of circ valve was broken @ base of threads on top pin of valve. Left circ valve, SN & seal assy in hole. SDFN. DC \$13272 CC \$27410
- 06-12-94 TIH w/ Bowen 4 3/8" OD Overshot w/ cut lip guide, dressed w/ 3 1/2" basket grapple, Bowen oil jars, & 218 jts 2 7/8" tbg. Hit tight spot in csg @ 6661' K.B. Set down 30,000# SW. Had to set jars off 3 times to pull out. Set down 10,000# - would not go. Had to pull 10,000# over string weight to get free. POOH w/ tbg & BHA. Cut lip guide was egg shaped (4 1/4" x 4 1/2"). TIH w/ 4" OD x 2.25' long undressed shoe f/ guide to go over fish & 378 jts. Took 5000# SW to go past 6661' K.B. Set down @ 11,498' K.B. RIH w/ sandline & OS to fish SV. POOH - did not have it. Made 2nd attempt & successfully fished SV out of circ valve. SDFN. DC \$3366 CC \$30776
- 06-13-94 POOH w/ tbg & guide. TIH w/ max OD 3 3/4" taper tap, Bowen oil jars, & 378 jts 2 7/8" tbg. Tagged fish @ 11,494' K.B. Engaged fish. Torqued tbg 5 rounds. Pull 15,000# over string weight & set down 15,000#, worked string. Attempted to release latch-in seal assy. POOH. No recovery of fish. Could see marks on taper tap where it had been inside 2" mandrel on circ valve. SDFN. DC \$3078 CC \$33854
- 06-14-94 TIH w/ 3 3/4" max O.D. taper tap, bumper sub, Bowen oil jars & 378 jts 2 7/8" tbg. Engage fish @ 11,494' K.B. Release latch-in seal assy. POOH w/ 378 jts tbg & BHA. Rec all of fish (circ valve, SN & latch-in assy). RU Basin Tubing Testers. TIH w/ Baker 40-26 model G-22 latch-in type seal assy w/ 2 seal units, 2 7/8" cup type SN, 378 jts 2 7/8" tbg & 1 - 2 7/8" x 4' tbg sub. Hydrotested tbg to 7000#. Found thread leak @ 3 jts above SN @ 1000#. Replaced bad jt. Stung into model "D" pkr @ 11,498' w/ 22,000# compression. SDFN. DC \$5133 CC \$38987
- 06-15-94 RU to swab. FL @ 2800'. Swabbed 5 BO, 60 BSW. Total of 65 BF in 12 runs in 8 hrs. All oil was on 1st run. Then swabbed 60 BLW. 195 BLWTR. Swab f/ pkr after 7th run. Made 1 run/hr last 4 hrs. FL @ 10,900' (600' above pkr) last 4 runs. Rec 1.7 BLW/hr last 2 hrs. SDFN. DC \$1974 CC \$40961

Corps Of Engineers 31-10  
PANTERRA PETROLEUM  
NWNE 10 - T153N, R101W  
Baker Field  
McKenzie County, ND

03-06-94 Shut-in @ 4:00 p.m. due to flooding.

03-22-94 Well put back on production around 2:00 p.m.

---

AFE #46

06-07-94 MI H&L Well Service rig. Too windy to rig up.

06-08-94 RU H&L rig. Pump 70 BSW down tbg - on vacuum. Jar on pump, would not unseat. Backed off rods. POOH w/ 1 - 1"x 2' & 1 - 1"x 6' pony rods, 94 - 1" plain rods & 53 - 7/8" plain rods. RU f/ tbg. Install BOP. Tbg was set w/ 40,000# compression. Pull out of Model "D" pkr. Strap OOH w/ 122 jts 2 7/8" tbg to rods. Continue stripping rods & tbg OOH. Found rod cut split jt 219 f/ top (6650'+). RU swab. Swab fluid f/ tbg to tank battery. Pull tbg to fluid, well started flowing oil f/ tbg. Hooked tbg & csg to flowline & left open to T.B. overnight. Have 265 jts tbg (7880'±) & 330 rods (8250'±). DC \$3145

06-09-94 Well flowed 1/2" (.84 BO) into tank overnight, was dead in a.m. Finished stripping rods & tbg to pump. Had to swab tbg down after pulling rods. Pump was stuck in btm jt above SN. Cut tbg to recover pump & found pump was stuck in salt. Sent pump in for repairs. Recovered rods: 94 - 1" plain, 60 - 7/8" plain, 38 - 7/8" w/ scrapers, 189 - 3/4" w/ scrapers, & 16 - 1" w/ scrapers (these scrapers were very worn). 329 jts of tbg above SN. POOH w/ 49 jts 2 7/8" tailpipe, 2 cup type SN, 2 - 2 7/8" x 4' perf subs, & locator seal assy w/ 4 seal units f/ Baker Model "D" pkr. TIH open-ended w/ 377 jts 2 7/8" tbg to 11,453' K.B. RU Dialog. Ran Tubing Profile Caliper Log. Tool would not go down past 2200' due to paraffin. Hot oil tbg w/ 35 bbls prod oil. Ran Profile Log f/ EOT to surface. Found 19 jts over 35% wear (to be replaced). Most bad jts were in the 1500' of tbg above SN. Left well open to T.B. overnight. DC \$4671 CC \$7816

06-10-94 POOH w/ 377 jts 2 7/8" L-80 tbg. LD 19 jts that were over 35% wall thickness worn off. TIH w/ Baker 40-26 mod. G-22 Latch-in type Seal Assy w/ 2 seal units & 40,000# shear ring, 2 3/8" cup type SN, Basin circ valve, 378 jts 2 7/8" L-80 tbg, & 1 - 2 7/8" x 6' tbg sub. Replaced worn tbg w/ 21 jts of inspected tbg. Latch into Model "D" pkr @ 11,498'. Open circ valve. Set tbg in compression. RU HES & pump 20 BSW cushion in tbg. Drop 2" SV, wait for it to drop. Pickle tbg w/ 1200 gal 15% HCl acid w/ inhibitor & Sperse-All @ 1 BPM. Displaced into csg annulus thru circ valve. Let set 15 min. Reverse acid out of tbg to test tank, cycle tbg & close circ valve. PT csg & valve to 500# - OK. SDFN. DC \$6322 CC \$14138



**SUNDY NOTICES AND REPORTS ON WELLS**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SPN 5749 (2-92)**

PLEASE READ INSTRUCTIONS ON BACK OF FORM

Notice of Intent  
 Approximate Start Date 6/8/94

Report of Work Done  
 Date Work Completed \_\_\_\_\_

- |  |  |
|--|--|
| <input type="checkbox"/> Drilling Prognosis                  | <input type="checkbox"/> Spill Report            |
| <input type="checkbox"/> Redrilling or Repair                | <input type="checkbox"/> Shooting                |
| <input type="checkbox"/> Casing or Liner                     | <input checked="" type="checkbox"/> Acidizing    |
| <input type="checkbox"/> Plug Well                           | <input type="checkbox"/> Fracture Treatment      |
| <input type="checkbox"/> Supplemental History                | <input type="checkbox"/> Change Producing Method |
| <input type="checkbox"/> Temporarily Abandon                 | <input type="checkbox"/> Reclamation             |
| <input type="checkbox"/> Other <u>Workover Tax Exemption</u> |  |

Well Name and Number <b>Corps of Engineers 31-10</b>					
Footages <b>660' FNL 2305' FEL</b>	Qtr-Qtr <b>NW NE</b>	Section <b>10</b>	Township <b>153N</b>	Range <b>10TW</b>	
Field <b>Baker</b>	Pool <b>Red River</b>	County <b>McKenzie</b>			

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil <b>20</b>	Oil
Water	Water
Gas	Gas

Name of Contractor

Address	City	State	Zip Code
---------	------	-------	----------

#### DETAILS OF WORK

On June 2, 1994, the well developed a tubing leak and a rig was moved on June 8, 1994. While pulling the rods and pump, scale was noted and it was decided that work in addition to repair of tubing leak should be done. Panterra proposes to replace rod cut tbg, lower pump, and acid stimulate the Red River. Replaceing the 456 pumping unit with a larger unit will be required when the pump is lowered.

PANTERRA PETROLEUM hereby applies for workover exemption - notice of intention to begin a workover project, which may be exempt from taxation pursuant to subsection (4) of North Dakota century Code section 57-51.1-03, for work outlined above. Approximate cost: \$93,700.00. Cost through June 10, 1994 is \$14,138.00.

Company <b>Panterra Petroleum</b>		
Address <b>P. O. Box 7168</b>		
City <b>Billings</b>	State <b>MT</b>	Zip Code <b>59103-7168</b>
By <i>Larry Holsworth</i>	Date <b>6/13/94</b>	
Title <b>Petroleum Engineer</b>	Telephone Number <b>406-245-6248</b>	

406-245-9106 Fax

FOR OFFICE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>6-15-94</b>	
By <i>Kurt F</i>	
Tide <b>TST END</b>	

**CORPS OF ENGINEERS 31-10**

NWNE Sec. 10, T153N-R101W

Baker Field

McKenzie County, North Dakota

**WORKOVER PROCEDURE**

**Proposed Red River Acid Job AFE #46**

**Current Status:**

Production: 20 BOPD, 60 MCFPD, 20 BWPD. Well currently being worked on due to tubing leak. Pump @ 10,200'.

**Proposed Procedure**

1. Rig on location. Rods and tbg were stripped out due to pump stuck in bottom jt of tbg. Found rod cut split at 7450'.
2. 10 perfed subs. TIH w/ tbg. RU Dialog. Run tbg Caliper inspecting tbg for rod cut problems. LD all tbg with wall loss over 35%.
3. TIH w/ seal divider with latch down assembly added, SN, and circulating valve and rest of tbg. Sting into Model D pkr at 11,498'.
4. RU pump truck. Drop SV. Pickle tbg w/ 1200 gal 15% HCl. Acidize Red River perfs w/ 2000 gal 28% foamed acid. Pump nitrogen pad ahead of acid and displace acid w/ nitrogen. Flow back as soon as possible.
5. Flow and swab back well until cleaned up. POOH w/ tbg.
6. Run prod BHA: Seal divider w/ latch down assemble, 1 jt 2-3/8" tbg w/ 30' x 1-1/4" dip tube, Mech SN, rest of tbg. Latch into Model D pkr and land tbg in tension.
7. Run 2-1/2" x 1-1/4" pump.  
Rod design:  
111 - 1" (2775')  
112 - 7/8" (2800')  
220 - 3/4" (5500')  
16 - 1" (400')
8. Move American 456 PU to SK&S yard. Move Lufkin M640-365-144 to well. Retro fit Ajax motor for 640 unit or tie in 3-phase power to well.

GLE-6/10/94



PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5698 (2-92)



INSTRUCTIONS

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E.  
Boulevard Avenue, Bismarck, ND 58505

31-10  
WELL CORPS OF ENGINEERS (Q/Q) NAME (SEC.) 10 (TWP.) 153W (RGE.) 101W COUNTY MCKENZIE

PRODUCER: PANTERRA PETROLEUM FIELD BAKER POOL RED RIVER

ADDRESS CORRESPONDENCE TO: GARY L. EVERTZ, PANTERRA PETROLEUM  
550 N. 31ST STREET, SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser AMOCO PRODUCTION COMPANY : % Purchased : Date Effective  
: 100 : 6/1/94

Principal Place of Business 1670 BROADWAY, STE 715, DENVER, CO 80201

Field Address 1670 BROADWAY, STE 715, DENVER, CO 80201

Name of Transporter SCURLOCK PERMIAN CORP. - TRUCK : % Transported : Date Effective  
Address 650 S. CHERRY ST., STE 210, DENVER, CO : 100 : 6/1/94

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other Transporters Transporting From This Lease : % Transported : Date Effective  
: : :

Other First Purchasers Purchasing From This Lease : % Purchased : Date Effective  
: : :

Remarks

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

Signature

Title  
Engineer

Date

6/8/94

State of Montana  
County of Yellowstone

On 6/8/94, Gary L. Evertz, known to me to be the person described in and who executed the foregoing instrument personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

My Commission Expires

AUGUST 21, 1996

APPROVED BY:

Date:

6/13/94



**PRODUCERS CERTIFICATE OF COMPLIANCE AND  
AUTHORIZATION TO TRANSPORT OIL FROM LEASE - FORM 8**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
**SFN 5698 (2-92)**

: Well File Number :  
: 11920 :  
: -----:  
: NIDC CTB Number :  
: 111920 :  
: -----:

## **INSTRUCTIONS**

The original and four copies of this form must be submitted to the OIL AND GAS DIVISION, 600 E. Boulevard Avenue, Bismarck, ND 58505

31-10  
WELL CORPS OF ENGINEERS (Q/Q) MWNE (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY MCKENZIE

ADDRESS CORRESPONDENCE TO: GARY L. EVERZ, PANTERRA PETROLEUM  
550 N. 31ST STREET SUITE 500, P. O. BOX 7168, BILLINGS, MT 59103

Name of First Purchaser	SCURLOCK PERMIAN CORP.	: % Purchased	: Date Effective
Principal Place of Business	650 S. CHERRY ST., STE 210, DENVER, CO 80222-1804	100	2/1/94
Field Address	650 S. CHERRY ST., STE 210, DENVER, CO 80222-1804		
Name of Transporter	SCURLOCK PERMIAN CORP. - TRUCK	: % Transported	: Date Effective
Address	650 S. CHERRY ST., STE 210, DENVER, CO	100	2/1/94

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

**Other First Purchasers Purchasing From This Lease** : % Purchased Date Effective  
: : :

Remarks  
WELLS PURCHASED FROM JOHN L. COX. OPERATORSHIP EFFECTIVE 2-1-94

I certify that the above information is a true and correct report of the transporters and purchasers of oil produced from the above described property. This authorization will be valid until further notice to the transporters and purchasers named until cancelled by the OPERATOR.

**Signature**

Sam F. Evert

Title  
Engineer

Date

2/1/94

State of Montana  
County of Yellow

On 2/1/94, Gary L. Evertz, known to me to be the person described in and who executed personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

**My Commission Expires**

AUGUST 21, 1996

Mayberry Public

APPROVED BY:

Charles A. Koch

Date: \_\_\_\_\_

2/22/94

# NORTH DAKOTA INDUSTRIAL COMMISSION

## OIL AND GAS DIVISION N

11920

Wesley D. Norton  
DIRECTOR

Charles Koch  
ENGINEERING DEPT.

F. E. Wilborn  
ASSISTANT DIRECTOR

Doren Dannewitz  
FIELD SUPERVISOR

Clarence G. Carlson  
GEOLOGIST

Glenn Wollan  
RECLAMATION SUP.

February 8, 1994

Jan Magstadt  
Panterra Petroleum  
P.O. Box 7168  
Billings, MT 59103-7168

**RE: CHANGE OF OPERATOR FROM JOHN L. COX TO  
PANTERRA PETROLEUM  
7 WELLS**

Dear Ms. Magstadt:

Please find enclosed a copy of the approved Form 15, Notice of Transfer of Oil and Gas Wells, in regard to the above-referenced matter. These transfers have now been approved and subject wells are now covered by Panterra Petroleum Bond No. B01936 , Underwriters Indemnity Co. , as Surety.

If you should have any questions, please feel free to contact this office.

Sincerely,

*F. E. Wilborn/mr*

F. E. Wilborn  
Assistant Director

FEW/mr

Enclosure

cc: John L. Cox  
PO Box 2217  
Midland, TX 79702



NOTICE OF TRANSFER OF OIL AND GAS WELLS - FORM 15  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5762 (3-92)

BOND NO. B01936

The original and one copy of this form must be submitted to the Industrial Commission of North Dakota, Oil and Gas Division, 600 E. Boulevard Avenue, Bismarck, North Dakota 58505-0840.

TRANSFERRING COMPANY

Name and Address of Representative

JOHN L. COX BOX 2217 MIDLAND, TX 79702

Name of Company Transferring Oil and/or Gas Wells

JOHN L. COX

I, the above named representative, acknowledge the transfer of the oil and/or gas wells named below for the purpose of ownership and/or operation to the company named below.

Signature

January 31, 1994

Date

Operator

Title

(Must be an officer or power of attorney must be attached)

File Number	Requested Official Well Name and Number	Location (Qtr-Qtr, Sec, Twp, Rge)
	Please see attached.	

RECEIVING COMPANY

Name and Address of Representative

Panterra Petroleum  
Robert L. Nance P. O. Box 7168, Billings, MT 59103-7168

Name of Company Transferring Oil and/or Gas Wells

John L. Cox

I, the above named representative, have read the foregoing statement and accept such transfer, also the responsibility of ownership and/or operation of said well or wells, under the said company bond, said bond being tendered to or on file with the Industrial Commission.

Panterra Petroleum, a Montana General Partnership, Nance Petroleum Corporation, Managing Partner

January 31, 1994

President

Partner

Date

Title

(Must be an officer or power of attorney must be attached)

Robert L. Nance

Principal	Amount of Bond
	\$ 100,000.00

Name and Address of Surety

Underwriters Indemnity Company 8 Greenway Plaza, Suite 400, Houston, TX 77046

We, the above named PRINCIPAL and SURETY, agree that such bond shall extend to compliance with Chapter 38-08 of North Dakota Century Code and amendments and the rules and regulations of the Industrial Commission of the State of North Dakota prescribed to govern the Production of oil and gas on government and private lands within the State of North Dakota, in relation to the above stated transfer; it being further agreed and understood that the bond sum or amount is not to be considered increased because of such extension.

Signature

February 3, 1994

Roy C. Die, Attorney-in-Fact

Title

(Must be an officer or power of attorney must be attached)

FOR OFFICE USE ONLY

Approved By	Title	Date
		FEB 6 1994

ATTACHED TO AND MADE A PART OF THAT CERTAIN FORM 15

RECEIVING COMPANY: PANTERRA PETROLEUM, A MONTANA GENERAL PARTNERSHIP  
NANCE PETROLEUM CORPORATION, MANAGING PARTNER

LEASE/WELL	DESCRIPTION	FIELD NAME	COUNTY	STATE	FILE #
Basic Game & Fish 34-3	SWSW 3-153-101W	BAKER	McKENZIE	ND	11745
CORPS OF ENGINEERS 31-10	NWNE 10-153N-101W	BAKER	McKENZIE	ND	11920
FRENCH PINNEY 24-3	SESW 3-153N-101W	BAKER	McKENZIE	ND	12129
ROSEBUD 22-11	SENW 11-153N-101W	BAKER	McKENZIE	ND	11549
M & G 14-2	SWSW 2-153N-101W	BAKER	McKENZIE	ND	11751
USA 2-12	SWSSE 12-141N-101W	TR	BILLINGS	ND	9262
USA 3-12	NWNE 12-141N-101W	TR	BILLINGS	ND	7014

FILE# 11920 CURRENT OPERATOR: JOHN L. COX  
LEASE: BASIC CORPS OF ENGINEERS #31-10 X  
SURFACE LOC: NW NE 10-153-101 FOOTAGE: 0660' FNL 2305' FEL BHL: BHL  
POOL 1: NEAREST N-S LINE: 0.00 NEAREST E-W LINE: 0.00  
MD: 12570 N+ S- -176.67 E+ W- 383.13  
12980 -180.59 378.28 843 F N L 1930 F E L  
13225 -182.93 375.38 \*  
POOL 2:  
MD: 0 N+ S- 0.00 E+ W- 0.00  
0 0.00 0.00 0 F L 0 F L  
0 0.00 0.00  
POOL 3:  
MD: 0 N+ S- 0.00 E+ W- 0.00  
0 0.00 0.00 0 F L 0 F L  
0 0.00 0.00  
POOL 4:  
MD: 0 N+ S- 0.00 E+ W- 0.00  
0 0.00 0.00 0 F L 0 F L  
0 0.00 0.00  
TOTAL DEPTH:  
MD: 12570 N+ S- -176.67 E+ W- 383.13  
12980 -180.59 378.28 845 F N L 1933 F E L  
13480 -185.37 372.37 \*

FILE# 11920 CURRENT OPERATOR: JOHN L. COX  
 LEASE: BASIC CORPS OF ENGINEERS #31-10  
 SURFACE LOC: NW NE 10-153-101 FOOTAGE: 0660' FNL 2305' FEL BHL: BHL  
 POOL 1:  
 MD: 12570 N+ S- -176.67S E+ W- 383.13E NEAREST  
12980 -180.55S 378.28E N-S LINE NEAREST  
13225 \_\_\_\_\_ + \_\_\_\_\_ E-W LINE  
 POOL 2:  
 MD: \_\_\_\_\_ N+ S- \_\_\_\_\_ E+ W- \_\_\_\_\_ + \_\_\_\_\_  
 \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ = \_\_\_\_\_  
 POOL 3:  
 MD: \_\_\_\_\_ N+ S- \_\_\_\_\_ E+ W- \_\_\_\_\_  
 \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_  
 POOL 4:  
 MD: \_\_\_\_\_ N+ S- \_\_\_\_\_ E+ W- \_\_\_\_\_  
 \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_  
 TOTAL DEPTH:  
 MD: 12570 N+ S- -176.61S E+ W- 383.13E  
12980 -180.55S 378.28E  
13480 \_\_\_\_\_

North Dakota State Industrial Commission  
Oil and Gas Division  
900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA 58501



### SUNDRY NOTICES AND REPORTS ON WELLS

- |  |  |
|--|--|
| 1. Notice of Intention to Drill or Redrill | 7. Report of Casing  |
| 2. Notice of Intention to Change Plans     | 8. Report of Redrilling or Repair                            |
| 3. Notice of Intention to Pull Casing      | 9. Supplementary History <input checked="" type="checkbox"/> |
| 4. Notice of Intention to Abandon Well     | 10. Well Potential Test                                      |
| 5. Report of Water Shut-Off                | 11. Drilling Prognosis                                       |
| 6. Report of Shooting or Acidizing         | 12.  |

NAME OF LEASE Corp. of Engineers Date January 22, 1990  
 WELL NO. 31-10 is located 840.59 ft. from (N) (S) line and 1926.72 ft. from the (E) (W) line  
 of Section 10 Township 153-N Range 101-W in McKenzie  
 County, Baker Field Red River Pool. The elevation of the Ground  
 is 1851 feet above sea level.

Name and Address of Contractor, or Company which will do work is:

Sun Well Service, Inc., P. O. Box 2356, Williston, North Dakota 58801

#### (DETAILS OF WORK)

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing,  
indicate mud weights, cementing points, and all other details of work)

11/27/89- (RU to pull well. Pkr stuck. Look for freepoint. Work Tbg. WIH cut 2-7/8" tbg. @13,100',  
11-28-89 (Left 5 jts. 2-7/8" tbg and Model R Pkr @13,243' & 2 jts tail pipe.

11/29/89- (Run in hole with flat mill to tight spot in csg, started milling. Tbg parted, lost  
12/1/89 (4-1/2" flat bottom mill. Could not fish. WIH with Overshot, jar on tbg., rig up  
(Wireline, free tbg. Lay down tbg.

12/2/89- (PU Mill/Overshot combination; mill on fish.

12/6/89- { Start jarring. Could not fish 4-1/2" flat bottom mill, washover. Washover jars.  
(Total 12.22 feet. Top @11,600', Mill @11,612'.

12/9/89- (Ran Model "D" Pkr (Baker 42-26) - set @11,498' (Permanent Packer), 378 jts 2-7/8"  
(L-80 tbg., 1-10' sub, 1-6' sub, 1-4' sub.

12/10/89- (Swab well.

12/12/89- { Swab well.

Continue to Shut In 2-3 days, then swab. Well is not on normal production as of  
1-19-90.

Company JOHN L. COX

Do not write in this space

Address Box 2217, Midland, TX 79702

Rec'd  
Answered

JAN 25 1990

19

By Martha Wittenbach

By

F. Elliffen

Title Martha Wittenbach, Prod'n. Mgr.

Title

Deputy Enforcement Officer

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

11920

Wesley D. Norton  
CHIEF ENFORCEMENT OFFICER

F. E. Wilborn  
DEPUTY ENFORCEMENT OFFICER

Clarence G. Carlson  
GEOLOGIST

Charles Koch  
ENGINEERING DEPT.

Doren Dannewitz  
FIELD SUPERVISOR

Glenn Wollan  
RECLAMATION SUP.

January 9, 1990

Ms. Martha Wittenbach  
John L. Cox  
P.O. Box 2217  
Midland, TX 79702

RE: Basic Corps #31-10  
NW NE Sec. 10-153N-101W  
Well File No. 11920

Dear Ms. Wittenbach:

Please submit a Sundry Notice (Form 4) detailing work done on the above captioned well in November/December 1989, during changeover to permanent packer.

If you have any questions, feel free to contact our office.

Sincerely,

*Thomas K. Delling* /  
Thomas K. Delling  
Field Inspector

TKD/kl

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

11920

WESLEY D. NORTON  
Chief Enforcement Officer

F. E. WILBORN  
Deputy Enforcement Officer

CLARENCE G. CARLSON  
Geologist

CHARLES KOCH  
Engineering Dept.

DOREN DANNEWITZ  
Field Supervisor

KEN KALLESTAD  
Reclamation Sup.

February 12, 1987

Ms. Martha Wittenbach  
Production Accounting Manager  
John L. Cox  
P. O. Box 2217  
Midland, TX 79702

RE: Change of Operators  
#11549 - Rosebud 22-11  
#11745 - Basic Game & Fish 34-3  
#11920 - Basic Corps of Eng. 31-10

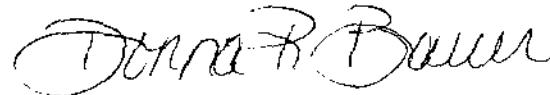
Dear Ms. Wittenbach:

Enclosed are approved copies of the Form 2, 8, and 15 for the Change of Operator, for the above captioned wells, located in McKenzie County, North Dakota.

The former operator of the wells was Basic Earth Science Systems, Inc.

If you have any questions, please do not hesitate to contact this office.

Sincerely yours,



Donna R. Bauer  
Permit/Bond Secretary

/drb

Enclosures

cc: Basic Earth Science Systems, Inc.  
P. O. Box 3088  
Englewood, CO 80155

North Dakota State Industrial Commission  
Oil and Gas Division  
900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA - 58505



## NOTICE OF TRANSFER OF OIL &amp; GAS WELLS

I, Jeffery E. Jones, of Basic Earth Science Systems, Inc. (Company)  
do hereby acknowledge the transfer for the purpose of ownership and/or operation of the following oil and/or gas wells to  
John L. Cox (Company)

## OFFICIAL WELL NAME

BASIC CORPS OF ENGINEERS #31-10

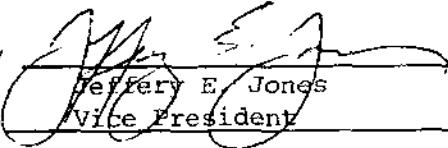
11920

## LOCATION

Surface: 660' FNL & 2305' FEL  
BHL: 840.59' FNL & 1926.72' FEL  
Section 10, T153N, R101W  
McKenzie County, North Dakota

By

Its

  
Jeffery E. Jones  
Vice President

I, Martha Wittenbach, of John L. Cox (Company)  
have read the foregoing statement and accept such transfer, also, the responsibility of ownership and/or operation of said well or wells.

By

Its

  
Martha Wittenbach,  
Production Acctg. Mgr.

John L. Cox, as Principal, and National Surety Corporation as Surety, on a drilling bond in the penalty of \$50,000.00, (amount of bond) executed on November 4, 1985 in favor of the State of North Dakota, hereby agree that such bond shall extend to compliance with Chapter 38-08 of N.D. Century Code and amendments thereto and the rules and regulation of the Industrial Commission of the State of North Dakota prescribed to govern the Production of oil and gas on state and private lands within the State of North Dakota, in relation to the above stated transfer; it being further agreed and understood that the bond sum or amount is not to be considered increased because of such extension.

John L. Cox

By: Martha Wittenbach (Principal)  
Martha Wittenbach, Prod'n. Acctg. Mgr.  
National Surety Corporation (Surety)

By: Linda F. Hughes

Do not write in this space. Linda F. Hughes, Attorney-in-Fact

2-10-87

Approved FEB 12 1987 19 87

By \_\_\_\_\_

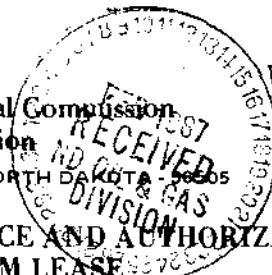
Title FE Wilson

Deputy Enforcement Officer

## North Dakota State Industrial Commission

## Oil and Gas Division

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA 58505

PRODUCERS CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO  
TRANSPORT OIL FROM LEASE

BASIC CORP. OF ENGINEERS

WELL 31-10 (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY McKenziePRODUCER JOHN L. COX FIELD Baker POOL Red RiverADDRESS CORRESPONDENCE TO JOHN L. COX, Attn: Martha WittenbachSTREET 400 West Wall Box 2217 CITY Midland STATE Texas ZIP 79702THE ABOVE NAMED PRODUCER HEREBY AUTHORIZES THE PERMIAN CORPORATION

(Name of Purchaser)

WHOSE PRINCIPAL PLACE OF BUSINESS IS Box 1183, Houston, Texas 77251-1183

(Street) (City) (State)

AND WHOSE FIELD ADDRESS IS Williston, North DakotaTO TRANSPORT 100 % OF THE OIL PRODUCED FROM THE LEASE DESIGNATED ABOVE UNTIL  
FURTHER NOTICETHE OIL WILL BE TRANSPORTED BY THE PERMIAN CORPORATION - Trucks

(Name of Transporter)

OTHER PURCHASERS TRANSPORTING OIL FROM THIS LEASE ARE:

N/A%N/A%

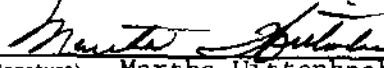
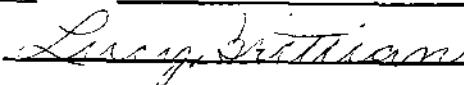
(Name of Purchasers)

(Name of Purchasers)

REMARKS: JOHN L. COX ASSUMED OPERATION OF THIS PROPERTY FEBRUARY 1, 1987.

The undersigned certifies that the rules and regulations of the State Industrial Commission have been complied with except as noted above and that the purchaser is authorized to transport the above percentage of oil produced from the above described property and that this authorization will be valid until further notice to the purchaser named herein until canceled by the OperatorExecuted this 5th day of February, 1987 JOHN L. COX

(Company or Operator)

STATE OF Texas)
 Prodn/Acctng/Mgr.  
 (Signature) Martha Wittenbach (Title)
COUNTY OF Midland)Before me the undersigned authority, on this day personally appeared MARTHA WITTENBACH known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states that he is authorized to make this report and has knowledge of the facts stated herein and that said report is true and correct.Subscribed and sworn to before me this the 5th day of February, 1987.

My Commission expires 7-16-88 Notary Public in and for Midland County, Texas

FEB 12 1987

Approved by: 

(Deputy Enforcement Officer)

(Date)

**North Dakota State Industrial Commission  
Oil and Gas Division**

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA - 58505

**SUNDRY NOTICES AND REPORTS ON WELLS**

- |  |                                   |
|--|-----------------------------------|
| 1. Notice of Intention to Drill or Redrill | 7. Report of Casing               |
| 2. Notice of Intention to Change Plans     | 8. Report of Redrilling or Repair |
| 3. Notice of Intention to Pull Casing      | 9. Supplementary History          |
| 4. Notice of Intention to Abandon Well     | 10. Well Potential Test           |
| 5. Report of Water Shut-Off                | 11. Drilling Prognosis            |
| 6. Report of Shooting or Acidizing         | 12. Report of API gravity.        |

NAME OF LEASE Basic Corps of Engineers Date January 30, 1987

WELL NO. 31-10 Bottom-hole is located 840.59 ft. from (N) (S) line and 1926.72 ft. from the (E) (W) line

of Section 10 Township 153N Range 101W in McKenzie

County, Baker Field Red River Pool. The elevation of the ground

is 1851 feet above sea level.

Name and Address of Contractor, or Company which will do work is:

**(DETAILS OF WORK)**

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing,  
indicate mud weights, cementing points, and all other details of work)

**"TIGHT HOLE"**

In response to your request for the Oil Gravity API which was inadvertently omitted from the Completion Report (Form 6).

Oil Gravity 51.0

Company Basic Earth Science Systems, Inc.

Do not write in this space

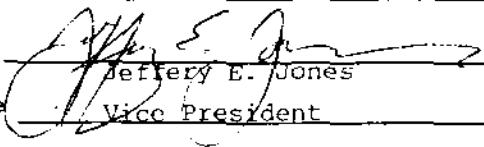
Address P.O. Box 3088, Englewood CO 80155

Approved

FEB 06 1987

19

By



Jeffrey E. Jones  
Vice President

By



Kelley L. Johnson

Title

Deputy Enforcement Officer



Earth Science Systems, Inc.

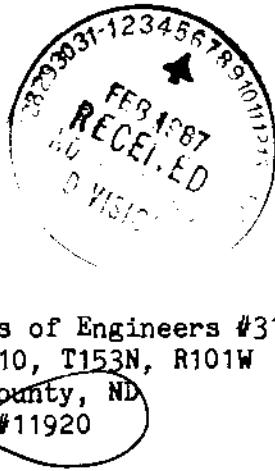
11920

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

February 4, 1987

North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Attn: Ms. Lyn S. Entzi



Re: Basic Corps of Engineers #31-10  
NWNE Sec. 10, T153N, R101W  
McKenzie County, ND  
Well File #11920

Dear Ms. Entzi:

Enclosed please find the following, as requested in your letter of January 21st, for the above referenced well:

- ✓ Sundry Notice (Form 4) reporting the Oil Gravity
- ✓ Copy of previously submitted Form 8
- ✓ 3 copies each of DST numbers 1, 2 and 3
- ✓ 3 copies each of the Cyberlook, CNL and CBL logs

Please do not hesitate to contact me if you need anything further.

Sincerely,

Basic Earth Science Systems, Inc.

*April Kreis*  
April Kreis  
Production Technician

ak

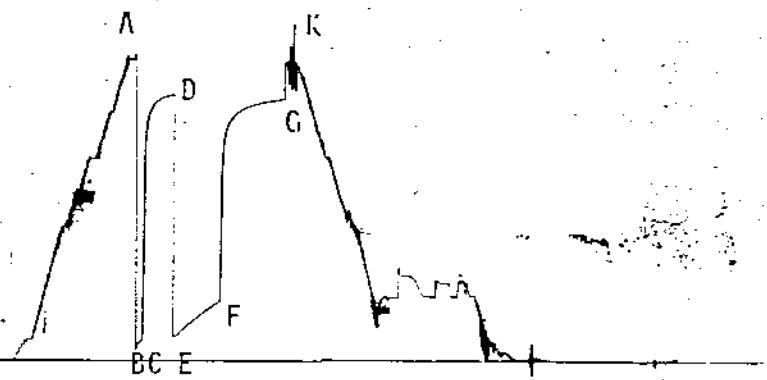
Enclosures

11970  
CEI FD  
1987

TECHNICAL SERVICES, Security Life Bldg. • Suite 1350 • 1616 Glenarm • Denver, Colorado 80202 • Phone. (303) 573-8027

Contractor	Shelby Drilling	Top Choke	$\frac{1}{4}$ "	Flow No. 1	15	Mm.
Rig No.	52	Bottom Choke	$\frac{3}{4}$ "	Shut-in No. 1	60	Min.
Spot	NW/NE	Size Hole	$8 \frac{3}{4}$ "	Flow No. 2	90	Min.
Sec.	10	Size Rat Hole	$8 \frac{3}{4}$ "	Shut-in No. 2	120	Min.
Twp.	153N	Size & Wt. D. P.	$4 \frac{1}{2}$ " XH 16.60#	Flow No. 3	--	Min.
Rng.	101W	Size Wt. Pipe	--	Shut-in No. 3	--	Min.
Field	Skunk Hollow	I. D. of D. C.	$2 \frac{3}{4}$ "			
County	McKenzie	Length of D. C.	655 ft.			
State	North Dakota	Total Depth	11132 ft.			
Elevation	1872 ft.	Interval Tested	11087-11132 ft.			
Formation	Lower Duperow	Type of Test	Bottom Hole Conventional			

Tool opened @ 5:45 a.m.



#### Outside Recorder

PRD Make Kuster K-3  
No 22462 Cap. 9475 @ 11127'

Press	Corrected
Initial Hydrostatic	A 6143
Final Hydrostatic	K 6107
Initial Flow	B 232
Final Initial Flow	C 409
Initial Shut-in	D 5412
Second Initial Flow	E 487
Second Final Flow	F 1199
Second Shut-in	G 5324
Third Initial Flow	H --
Third Final Flow	I --
Third Shut-in	J --

Lynes Dist.: Williston, ND

Our Tester: Keith Hammer

Witnessed By: Tom Hopkin

Did Well Flow - Gas Yes Oil No Water No  
RECOVERY IN PIPE:

Test was reverse-circulated.

2415 ft. Total Recovery	= 29.77 Bbls
1050 ft. Highly gas, slightly oil-cut mud	= 14.91 Bbls
450 ft. Slightly oil & gas-cut muddy salt water	= 6.39 Bbls
915 ft. Salt water with trace of oil	= 8.47 Bbls

#### Blow Description:

1st Flow: Tool opened with a  $\frac{1}{2}$ " blow, increasing to an  $8\frac{1}{2}$ " blow at the end of the flow.

2nd Flow: Tool opened with a 1" blow and increased to a 3 psi blow in 80 minutes, decreasing slightly to a 2 psi reading at the end of the flow. Gas to surface during final shut-in.

Comments: The test results indicate a mechanically successful test. The flow and shut-in curves suggest relatively low permeability within the zone tested.

Operator Basic Earth Science Systems Inc.  
P.O. Box 3088  
Englewood, CO 80155  
Well Name and No. Corps #31-10  
Ticket No. 04034  
Date 7-30-86

Location: SEC. 10 T153N R101W  
 Test Type: BOTTOM HOLE CONVENTIONAL  
 Formation: LOWER DUPEROW

Recorder Number: 22462  
 Recorder Depth: 11127 ft.

#### TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	PRESSURE ABSCISSA	PRESSURE SQUARED psi^2/10^6
A INITIAL HYDROSTATIC		0.00		6143.0		
B START OF 1st FLOW		0.00		232.0		
C END OF 1st FLOW		15.00		409.0		
1st SHUTIN PERIOD		0.00	0.0	409.0	0.0000	
		5.00	4051.0	4460.0	4.0000	
		10.00	4519.0	4928.0	2.5000	
		15.00	4679.0	5088.0	2.0000	
		20.00	4779.0	5188.0	1.7500	
		25.00	4851.0	5260.0	1.6000	
		30.00	4887.0	5296.0	1.5000	
		35.00	4919.0	5328.0	1.4286	
		40.00	4943.0	5352.0	1.3750	
		45.00	4963.0	5372.0	1.3333	
		50.00	4979.0	5388.0	1.3000	
		55.00	4995.0	5404.0	1.2727	
D END OF 1st SHUTIN		60.00	5003.0	5412.0	1.2500	
E START OF 2nd FLOW		0.00		487.0		
F END OF 2nd FLOW		90.00		1199.0		
2nd SHUTIN PERIOD		0.00	0.0	1199.0	0.0000	
		5.00	3039.0	4238.0	22.0000	
		10.00	3433.0	4632.0	11.5000	
		15.00	3589.0	4788.0	8.0000	
		20.00	3689.0	4888.0	6.2500	
		25.00	3765.0	4964.0	5.2000	
		30.00	3821.0	5020.0	4.5000	
		35.00	3861.0	5060.0	4.0000	
		40.00	3897.0	5096.0	3.6250	
		45.00	3925.0	5124.0	3.3333	
		50.00	3953.0	5152.0	3.1000	
		55.00	3973.0	5172.0	2.9091	
		60.00	3993.0	5192.0	2.7500	
		65.00	4013.0	5212.0	2.6154	
		70.00	4029.0	5228.0	2.5000	
		75.00	4045.0	5244.0	2.4000	
		80.00	4057.0	5256.0	2.3125	
		85.00	4065.0	5264.0	2.2353	
		90.00	4073.0	5272.0	2.1667	

SIC EARTH SCIENCE SYSTEMS CO.  
DO T# : 3  
CORPS #31-10  
11087 - 11132ft.

Page 2

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: LOWER DUPEROW

Recorder Number: 22462  
Recorder Depth: 11127 ft.

#### TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	ABSCISSA	PRESSURE SQUARED psi <sup>2</sup> /10 <sup>6</sup>
		95.00	4085.0	5284.0	2.1053	
		100.00	4093.0	5292.0	2.0500	
		105.00	4105.0	5304.0	2.0000*	
		110.00	4113.0	5312.0	1.9545*	
		115.00	4121.0	5320.0	1.9130*	
G END OF 2nd SHUTIN		120.00	4125.0	5324.0	1.8750*	
Q FINAL HYDROSTATIC		0.00		6107.0		

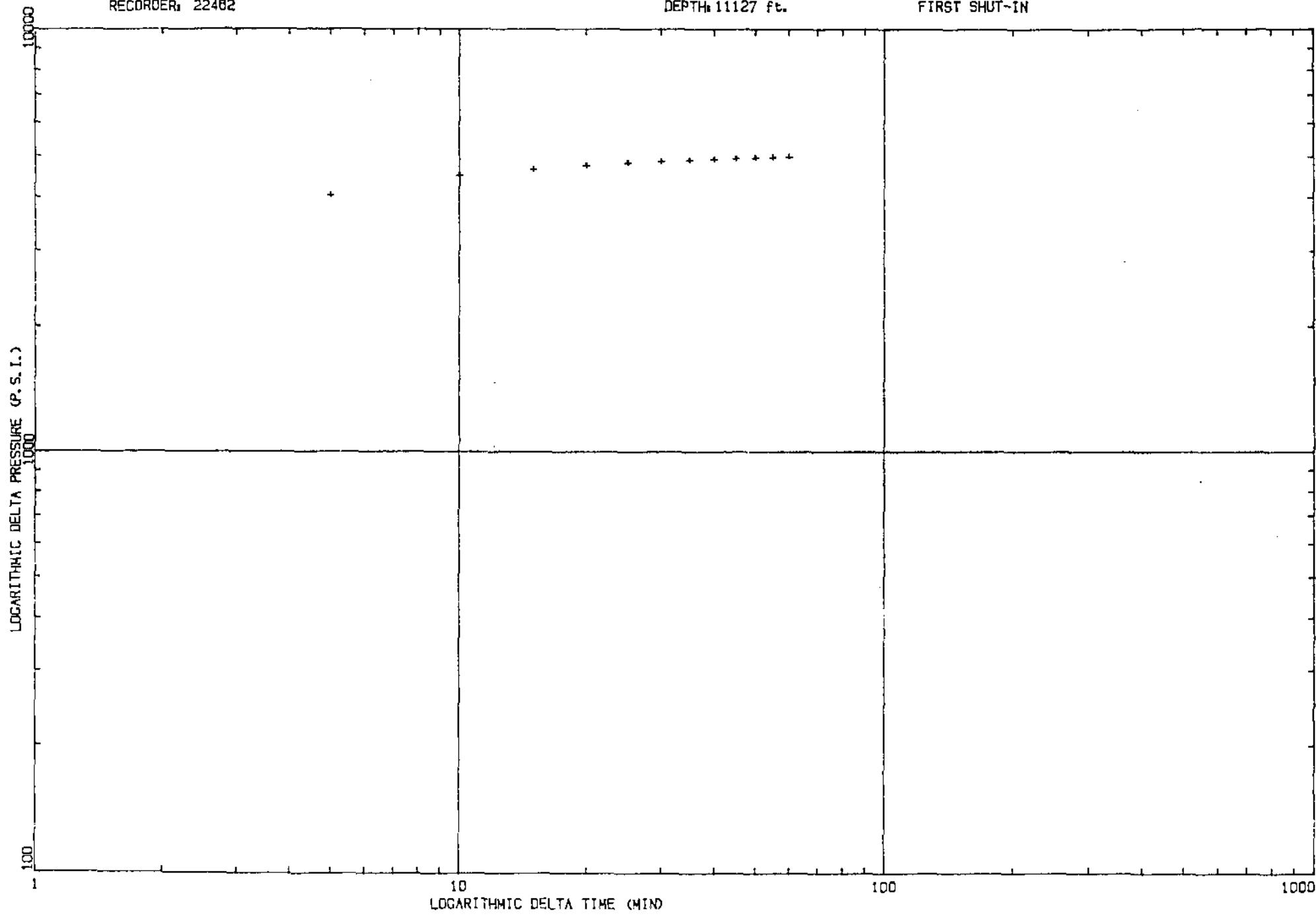
\* VALUES USED FOR EXTRAPOLATIONS

2nd SHUT-IN  
HORNER EXTRAPOLATION 5527.63 PSI  
HORNER SLOPE 741.61 psi/cycle

OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 1G T153N R101W  
RECORDER: 22462

WELL NAME: CORPS #31-10  
DST #: 3  
DEPTH: 11127 ft.

FIRST SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.

WELL NAME: CORPS #31-1D

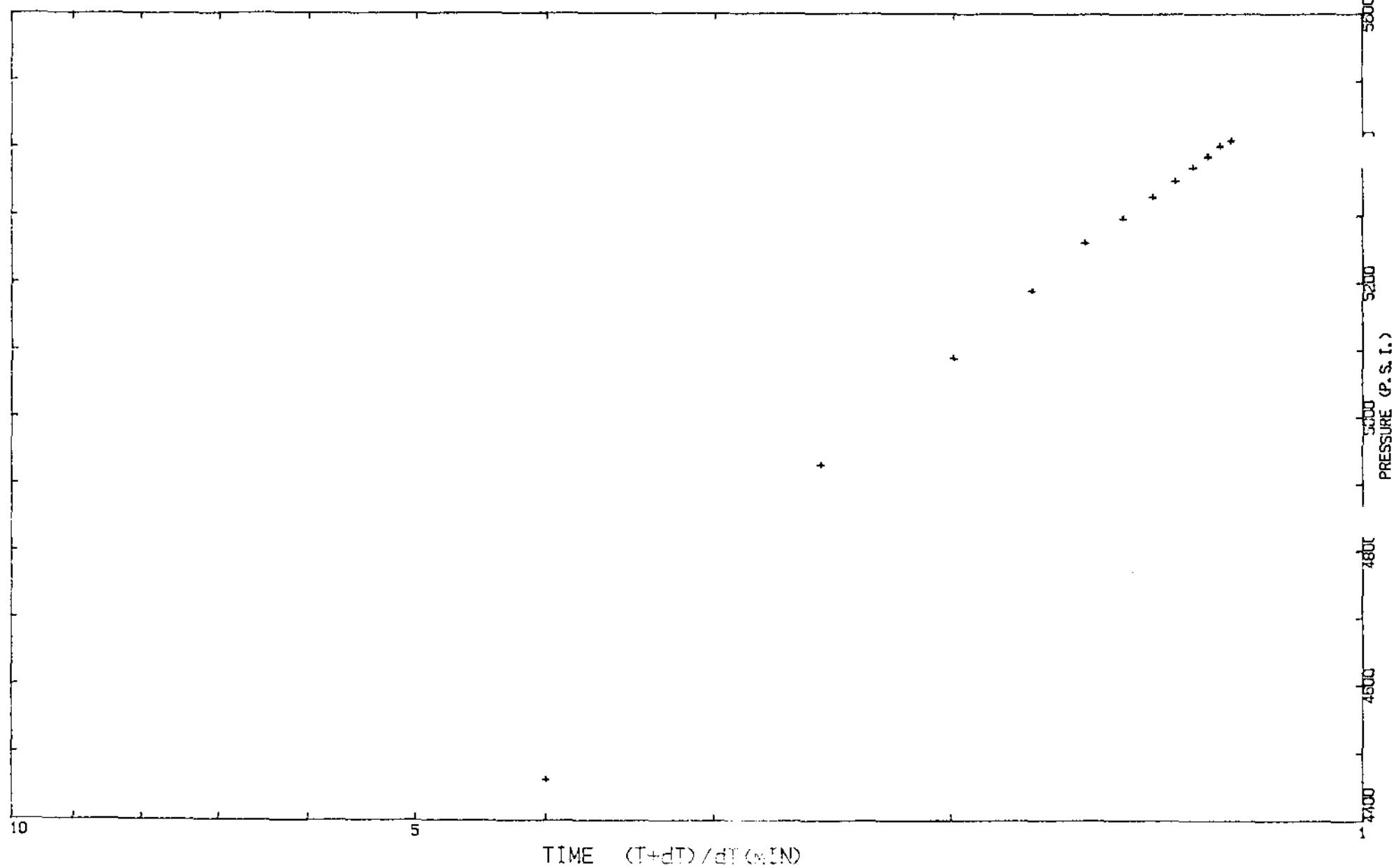
LOCATION: SEC. 10 T153N R101W

DST #: 3

FIRST SHUT-IN

RECORDER: 22462

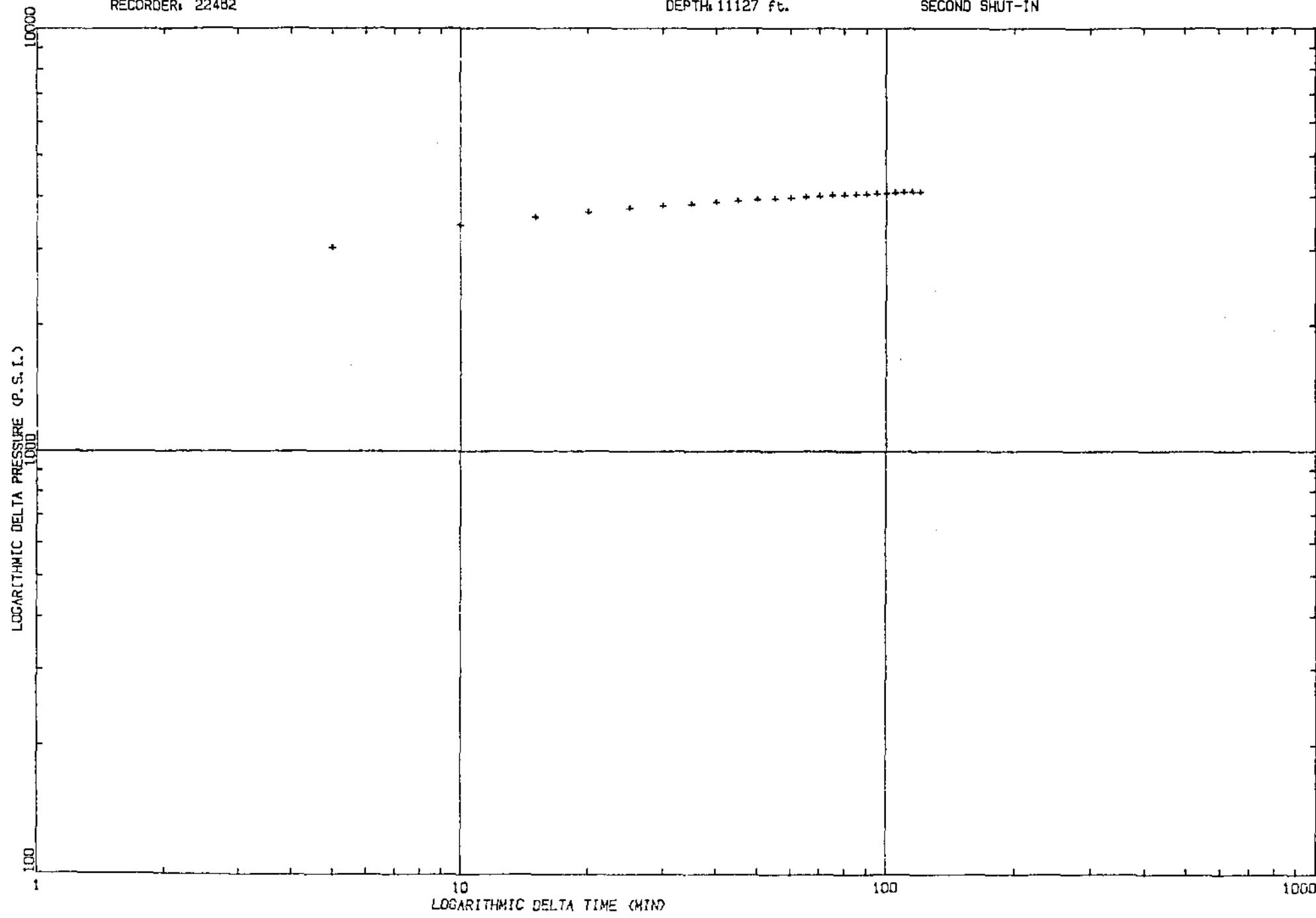
DEPTH: 11127 ft.



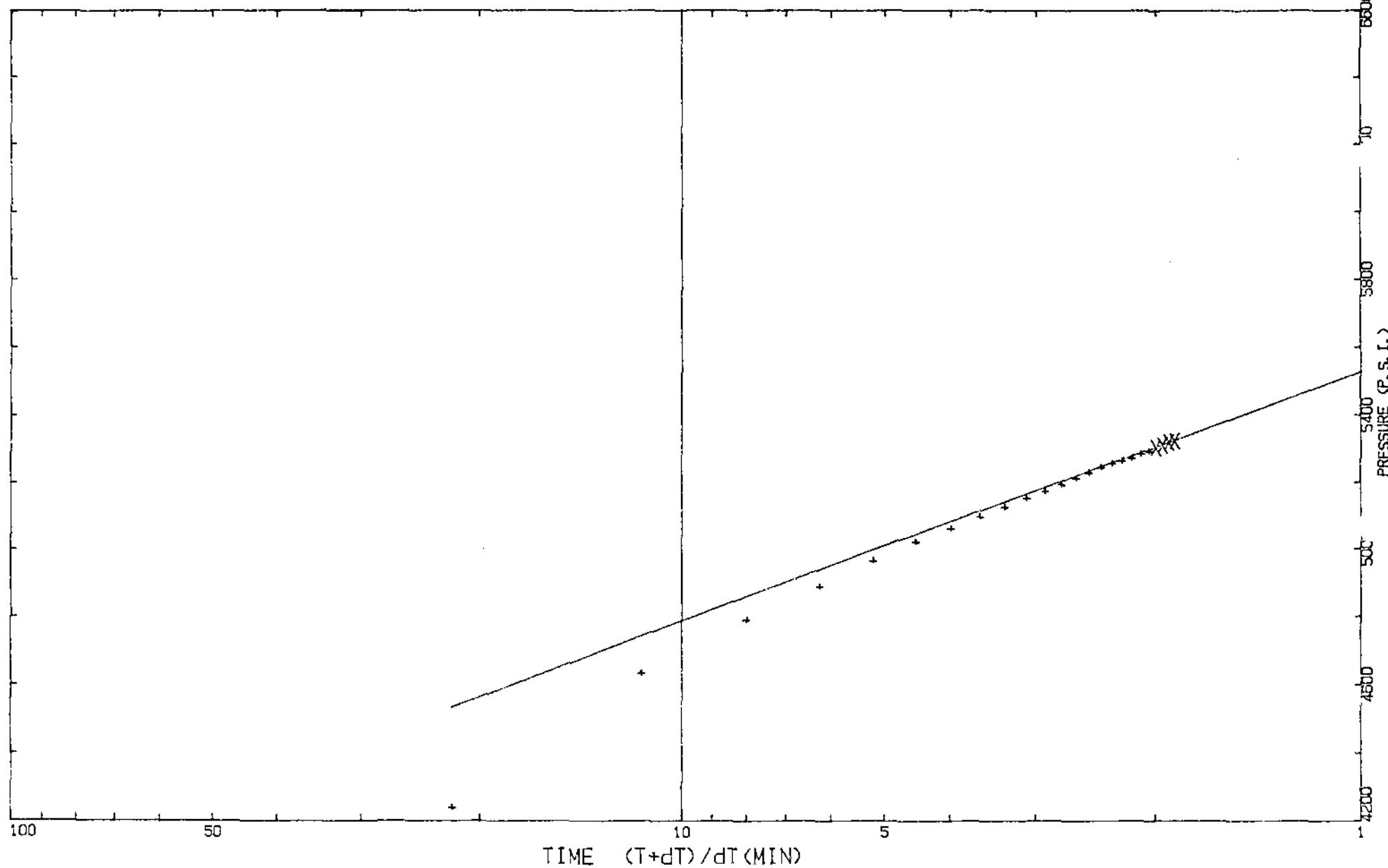
OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 10 T15N R101W  
RECORDER: 22482

WELL NAME: CORPS #31-10  
DST #: 3  
DEPTH: 11127 ft.

SECOND SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
WELL NAME: CORPS #31-10  
LOCATION: SEC. 10 T153N R101W DST #: 3  
SECOND SHUT-IN  
RECORDER: 22462 DEPTH: 11127 ft.  
EXTRAPOLATED PRESSURE: 5527.627 P.S.I. SLOPE: 741.608 P.S.I./CYCLE



SIC EARTH SCIENCE SYSTEMS C.  
DST #: 3  
CORPS #31-10  
11087 - 11132ft.

Page 3

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: LOWER DUPEROW

Recorder Number: 22462  
Recorder Depth: 11127 ft.

SAMPLE DATA  
\*\*\*\*\*

SAMPLE CHAMBER:

\*\*\*\*\*

Capacity of sample chamber 3300 cc  
Volume of sample..... 3300 cc  
Pressure in sampler..... 1450 psig  
Where sampler was drained... on location

Sampler contained:

Oil 1700 cc 38 @ 60 Degrees F  
Water 1600 cc  
Gas 9.7 cu-ft  
GOR 913

RESISTIVITY DATA:

\*\*\*\*\*

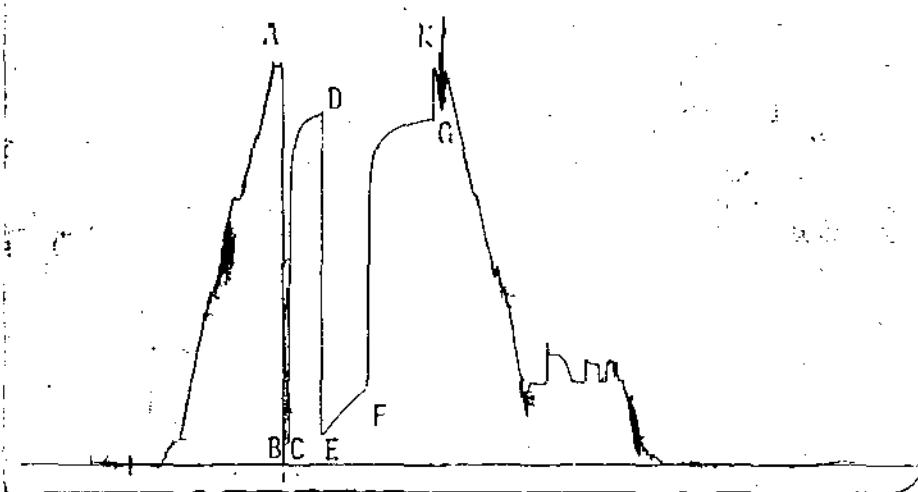
Top..... 195 000 PPM NACL  
Middle..... OIL-CUT MUD  
Bottom..... 175 000 PPM NACL  
Sampler..... 200 000+ PPM NACL  
Mud pit..... 195 000 PPM NACL  
Make-up Water...:

SIC EARTH SCIENCE SYSTEMS INC.  
DST# : 3  
CORPS #31-10  
11087 - 11132ft.

Page 4

PRESSURE RECORDER NUMBER : 13878

DEPTH : 11061.00ft. LOCATION : INSIDE  
TYPE : K-3 CAPACITY : 7100.00psi

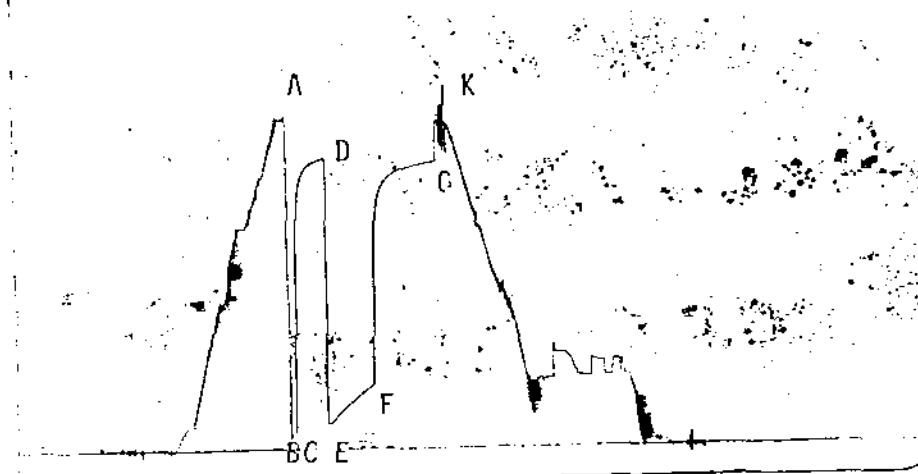


PRESSURE  
psi

A)Initial Hydro : 6143.0  
B)1st Flow Start: 269.0  
C)1st Flow End : 383.0  
D)END 1st Shutin: 5434.0  
E)2nd Flow Start: 482.0  
F)2nd Flow End : 1196.0  
G)END 2nd Shutin: 5342.0  
Q)Final Hydro. : 6116.0

PRESSURE RECORDER NUMBER : 3087

DEPTH : 11097.00ft. LOCATION : OUTSIDE  
TYPE : K-3 CAPACITY : 8400.00psi



PRESSURE  
psi

A)Initial Hydro : 6161.0  
B)1st Flow Start: 240.0  
C)1st Flow End : 355.0  
D)END 1st Shutin: 5436.0  
E)2nd Flow Start: 484.0  
F)2nd Flow End : 1196.0  
G)END 2nd Shutin: 5353.0  
Q)Final Hydro. : 6114.0

Contractor Shelby Drilling  
Rig No. 52  
Spot NW/NE  
Sec. 10  
Twp. 153N  
Rng. 101W  
Field Skunk Hollow  
County McKenzie  
State North Dakota  
Elevation 1872 ft.  
Formation Duperow

Top Choke  $\frac{1}{4}$ "  
Bottom Choke  $\frac{3}{4}$ "  
Size Hole  $8 \frac{3}{4}$ "  
Size Rat Hole --  
Size & Wt. D. P.  $4\frac{1}{2}$ " XH 16.60#  
Size Wt. Pipe --  
I. D. of D. C.  $2 \frac{3}{4}$ "  
Length of D. C. 684 ft.  
Total Depth 10984 ft.  
Interval Tested 10920-10984 ft  
Type of Test Bottom Hole  
Conventional

Flow No. 1 15 Min.  
Shut-in No. 1 60 Min.  
Flow No. 2 120 Min.  
Shut-in No. 2 180 Min.  
Flow No. 3 -- Min.  
Shut-in No. 3 -- Min.  
Bottom Hole Temp. 236°F  
Mud Weight 10.5#  
Gravity --  
Viscosity 40

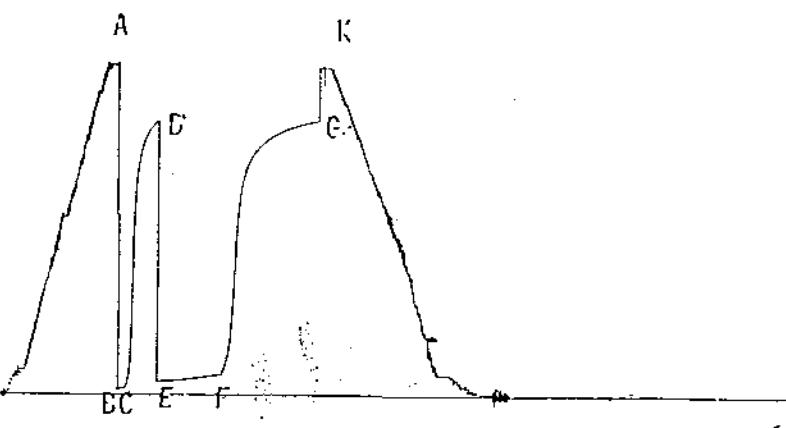
Tool opened @ 6:00 a.m.

#### Outside Recorder

PRD Make Kuster K-3  
No 3087 Cap. 8400 @ 10930'

Press	Corrected
Initial Hydrostatic	A <u>6092</u>
Final Hydrostatic	K <u>6055</u>
Initial Flow	B <u>94</u>
Final Initial Flow	C <u>129</u>
Initial Shut-in	D <u>5036</u>
Second Initial Flow	E <u>240</u>
Second Final Flow	F <u>358</u>
Second Shut-in	G <u>5047</u>
Third Initial Flow	H <u>--</u>
Third Final Flow	I <u>--</u>
Third Shut-in	J <u>--</u>

Lynes Dist. Williston, ND  
Our Tester Keith Hammer  
Witnessed By Tom Hopkin



Did Well Flow - Gas No Oil No Water No

RECOVERY IN PIPE:

622 ft. Total Recovery	= 4.53 Bbls
250 ft. Drilling mud	= 1.82 Bbls
372 ft. Mud-cut salt water	= 2.71 Bbls

Blow Description:

1st Flow: Tool opened with a weak surface blow, increasing to a  $\frac{1}{4}$ " blow in 5 minutes for the remainder of the flow.

2nd Flow: Tool opened with a weak surface blow, increasing to a  $\frac{1}{4}$ " blow in 5 minutes, and continuing to increase to a 5" blow in 105 minutes, then decreasing to a 4" blow at the end of the flow.

Comments: The test results indicate a mechanically successful test. The flow and shut-in curves suggest low permeability within the zone tested. The initial and final shut-in curves were incremented and plotted, but no extrapolations could be performed due to insufficient curve development.

Operator Basic Earth Science Systems Inc.  
P.O. Box 3088 Englewood, CO 80150  
Well Name and No. Corps #31-10  
Ticket No. 04033  
Date 7-2B-86  
No. Final Copies 5  
DST No. 2

Location: SEC. 10 T153N R101W  
 Test Type: BOTTOM HOLE CONVENTIONAL  
 Formation: DUPEROW

Recorder Number: 3087  
 Recorder Depth: 10930 ft.

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	PRESSURE ABSCISSA	PRESSURE SQUARED psi^2/10^6
A	INITIAL HYDROSTATIC	0.00		6092.0		
B	START OF 1st FLOW	0.00		94.0		
C	END OF 1st FLOW	15.00		129.0		
1st SHUTIN PERIOD						
		0.00	0.0	129.0	0.0000	
		5.00	160.0	289.0	4.0000	
		10.00	714.0	843.0	2.5000	
		15.00	2835.0	2964.0	2.0000	
		20.00	3821.0	3950.0	1.7500	
		25.00	4192.0	4321.0	1.6000	
		30.00	4415.0	4544.0	1.5000	
		35.00	4570.0	4699.0	1.4286	
		40.00	4671.0	4800.0	1.3750	
		45.00	4755.0	4884.0	1.3333	
		50.00	4816.0	4945.0	1.3000	
		55.00	4871.0	5000.0	1.2727	
D	END OF 1st SHUTIN	60.00	4907.0	5036.0	1.2500	
E	START OF 2nd FLOW	0.00		240.0		
F	END OF 2nd FLOW	120.00		358.0		
2nd SHUTIN PERIOD						
		0.00	0.0	358.0	0.0000	
		5.00	112.0	470.0	28.0000	
		10.00	272.0	630.0	14.5000	
		15.00	525.0	883.0	10.0000	
		20.00	1094.0	1452.0	7.7500	
		25.00	2128.0	2486.0	6.4000	
		30.00	2960.0	3318.0	5.5000	
		35.00	3371.0	3729.0	4.8571	
		40.00	3624.0	3982.0	4.3750	
		45.00	3790.0	4148.0	4.0000	
		50.00	3909.0	4267.0	3.7000	
		55.00	4010.0	4368.0	3.4545	
		60.00	4089.0	4447.0	3.2500	
		70.00	4211.0	4569.0	2.9286	
		80.00	4301.0	4659.0	2.6075	
		90.00	4374.0	4732.0	2.5000	
		100.00	4431.0	4789.0	2.3500	
		110.00	4482.0	4840.0	2.2273	
		120.00	4526.0	4884.0	2.1250	

SIC EARTH SCIENCE SYSTEMS . . .  
DST #: 2  
CORPS #31-10  
10920 ~ 10984ft.

Page 2

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: DUPEROW

Recorder Number: 3087  
Recorder Depth: 10930 ft.

TIME-PRESSURE LISTING

---

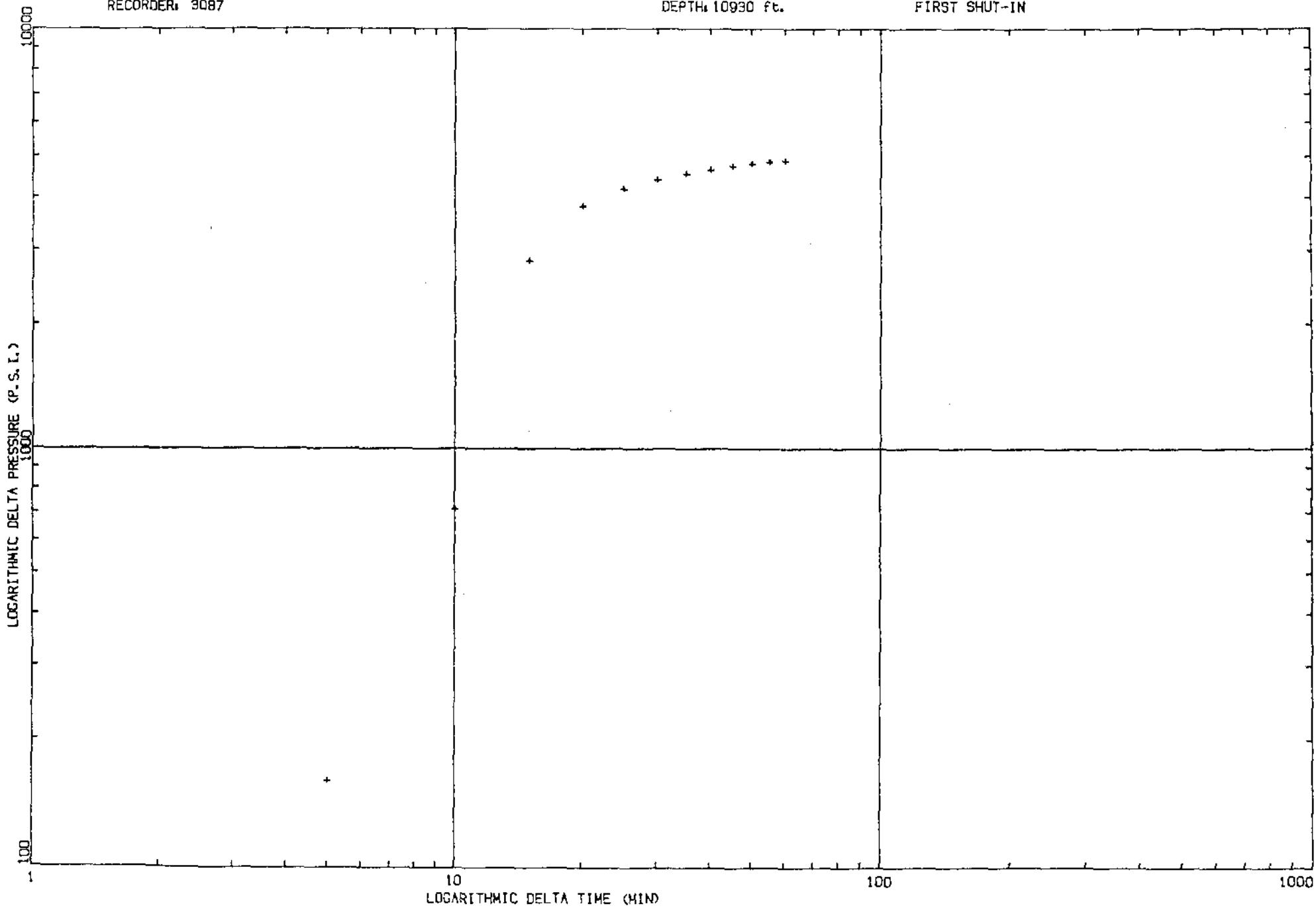
CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	ABSCISSA	PRESSURE SQUARED psi^2/10^6
		130.00	4566.0	4924.0	2.0385	
		140.00	4595.0	4953.0	1.9643	
		150.00	4624.0	4982.0	1.9000	
		160.00	4649.0	5007.0	1.8438	
		170.00	4671.0	5029.0	1.7941	
G END OF 2nd SHUTIN		180.00	4689.0	5047.0	1.7500	
Q FINAL HYDROSTATIC			0.00	6055.0		

\* VALUES USED FOR EXTRAPOLATIONS

OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 10 T153N R101W  
RECORDER: 3087

WELL NAME: CORPS #31-10  
DST #: 2  
DEPTH: 10930 ft.

FIRST SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.

WELL NAME: CORPS #31-10

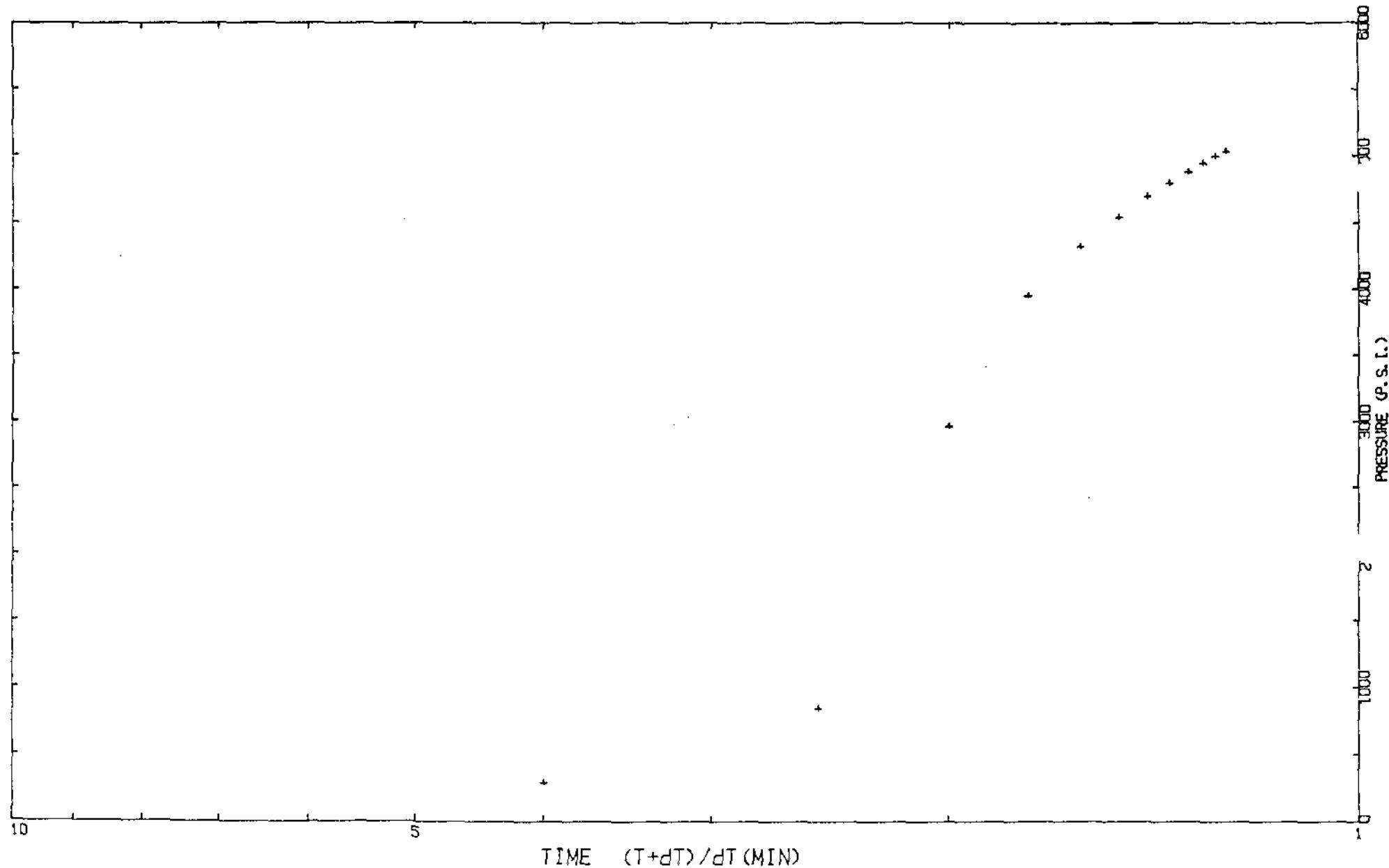
LOCATION: SEC. 10 T153N R101W

DST #: 2

FIRST SHUT-IN

RECORDER: 3087

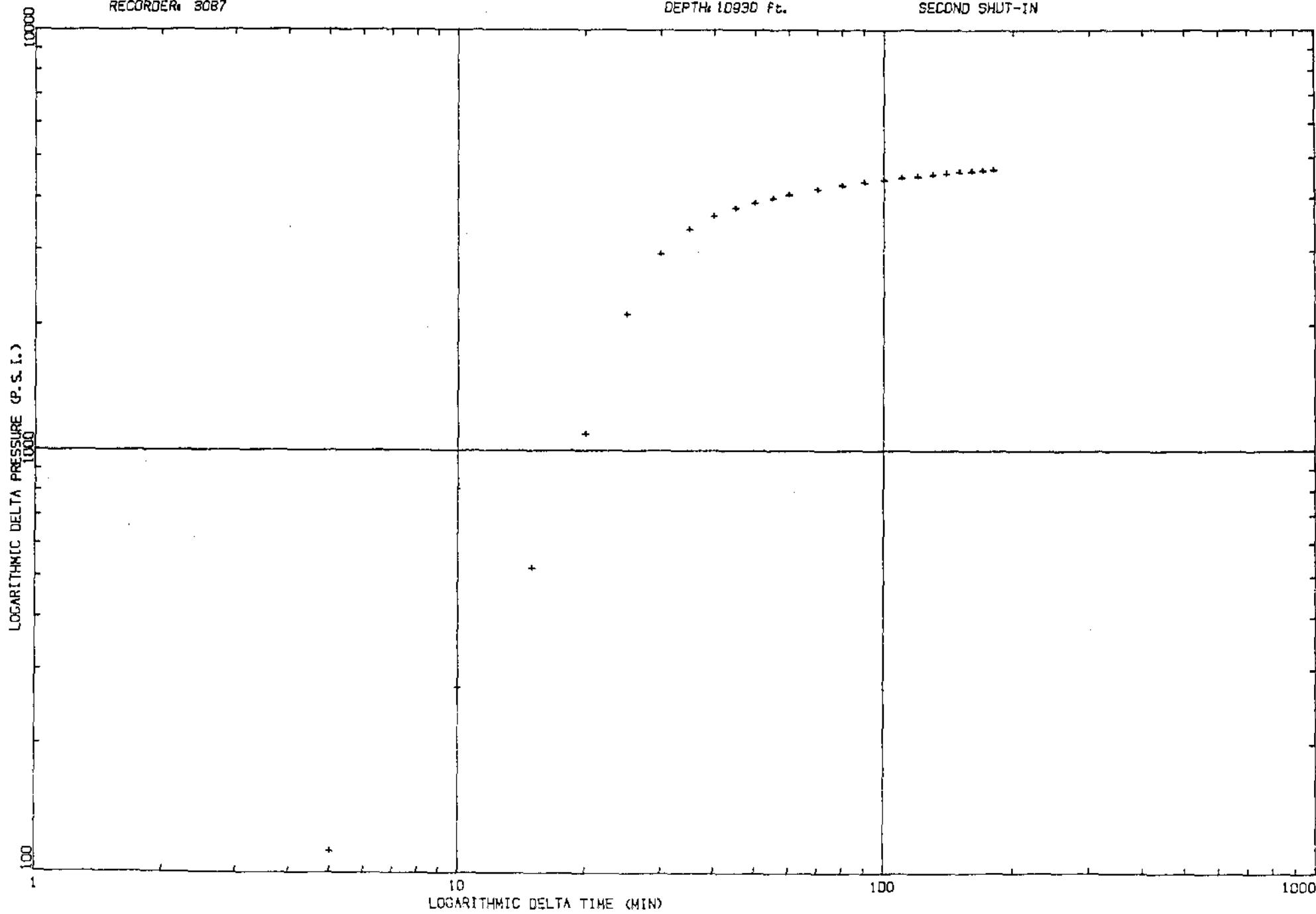
DEPTH: 10930 ft.



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 10 T15N R101W  
RECORDER: 3087

WELL NAME: CORPS #31-10  
DST #: 2  
DEPTH: 10930 ft.

SECOND SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.

WELL NAME: CORPS #31-10

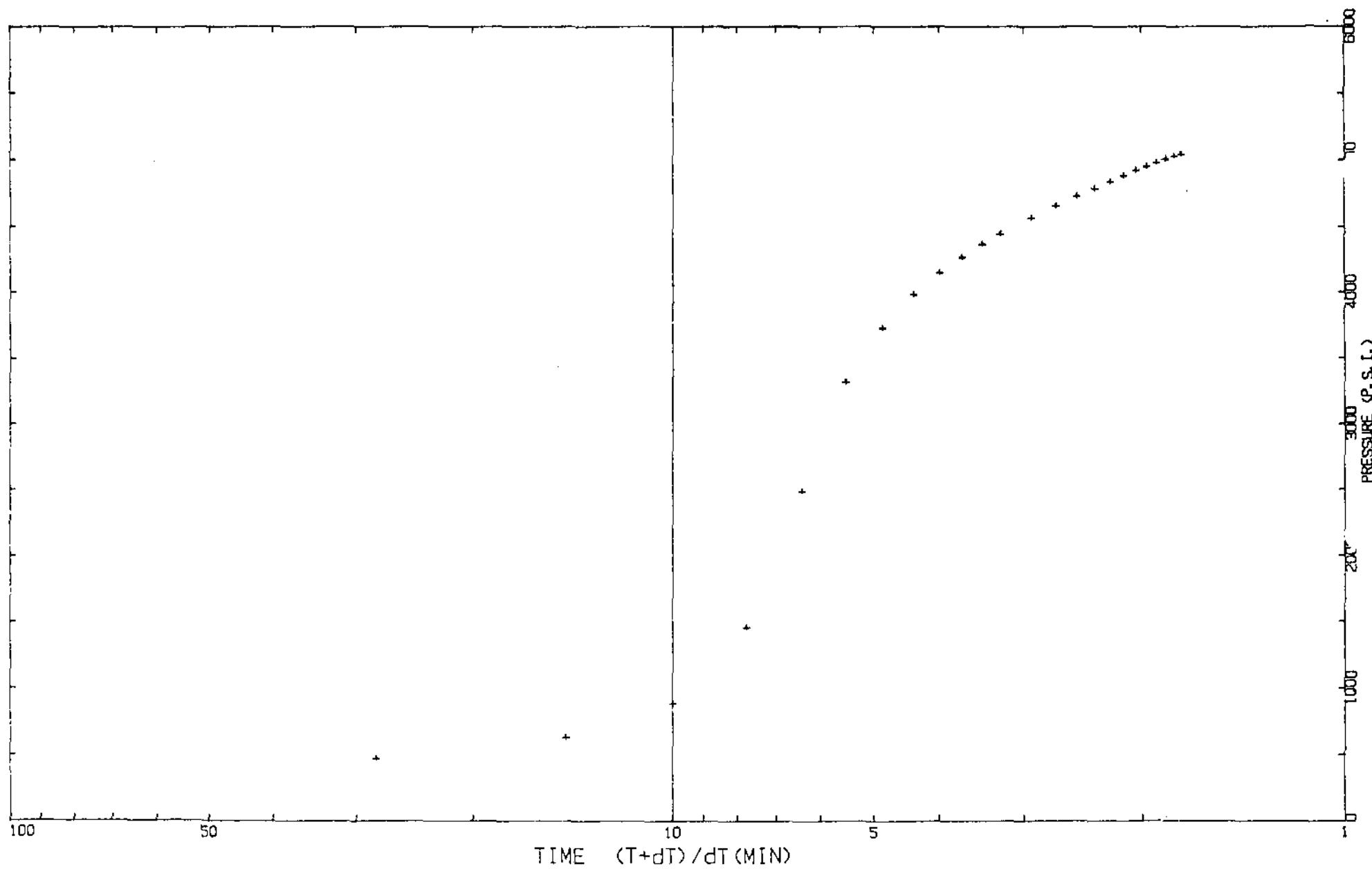
LOCATION: SEC. 10 T15N R101W

DST #: 2

SECOND SHUT-IN

RECORDER: 3087

DEPTH: 10930 ft.



JIC EARTH SCIENCE SYSTEMS . J.  
DST#: 2  
CORPS #31-10  
10920 - 10984ft.

Page 3

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: DUPEROW

Recorder Number: 3087  
Recorder Depth: 10930 ft.

SAMPLE DATA  
\*\*\*\*\*

SAMPLE CHAMBER:  
\*\*\*\*\*

Capacity of sample chamber 2300 cc  
Volume of sample..... 2150 cc  
Pressure in sampler..... 900 psig  
Where sampler was drained... on location

Sampler contained:

Oil 550 cc 39 @ 60 Degrees F  
Water 1600 cc  
Gas .5.5 cu-ft  
GOR 1600

RESISTIVITY DATA:

\*\*\*\*\*

Top.....	185 000 PPM NACL
Middle.....	185 000 PPM NACL
Bottom.....	155 000 PPM NACL
Sampler.....	155 000 PPM NACL
Mud pit.....	200 000 PPM NACL
Make-up Water..	

T DIC EARTH SCIENCE SYSTEMS INC.  
Lift: 2  
CORPS #31-10  
10920 - 10984ft.

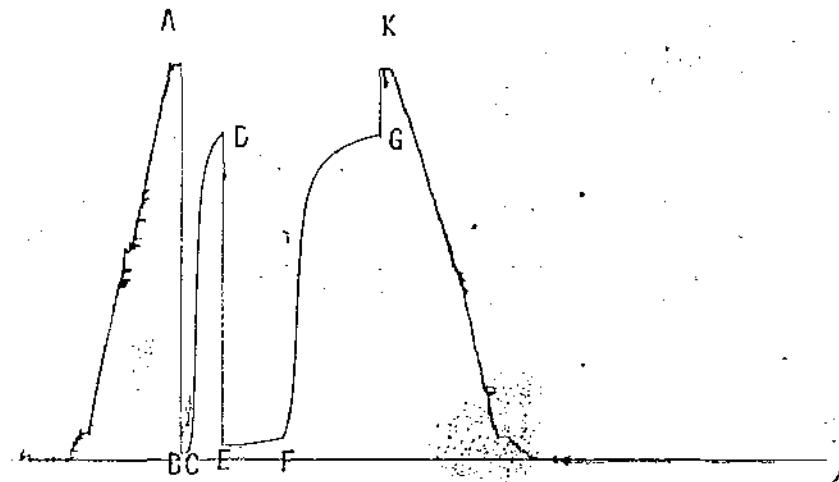
Page 4

PRESSURE RECORDER NUMBER : 13878

DEPTH : 10903.00ft. LOCATION : INSIDE  
TYPE : K-3 CAPACITY : 7100.00psi

PRESSURE  
psi

A)Initial Hydro : 6069.0  
B)1st Flow Start: 93.0  
C)1st Flow End : 132.0  
D)END 1st Shutin: 5030.0  
E)2nd Flow Start: 221.0  
F)2nd Flow End : 332.0  
G)END 2nd Shutin: 5019.0  
Q)Final Hydro. : 6027.0



TEST TIMES(MIN)

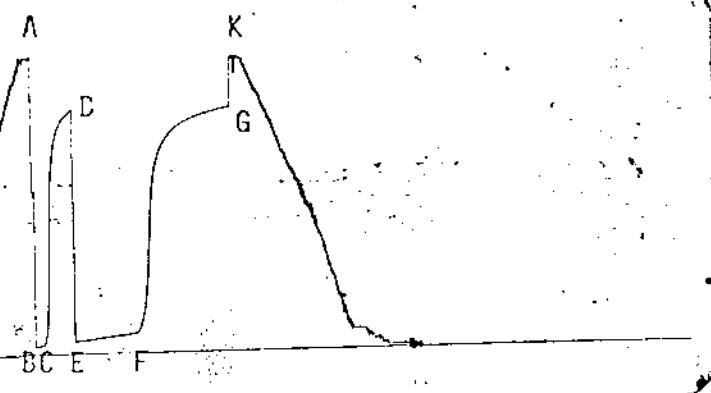
1st FLOW : 15  
SHUTIN: 60  
2nd FLOW : 120  
SHUTIN: 180

PRESSURE RECORDER NUMBER : 22462

DEPTH : 10979.00ft. LOCATION : OUTSIDE  
TYPE : K-3 CAPACITY : 9475.00psi

PRESSURE  
psi

A)Initial Hydro : 6103.0  
B)1st Flow Start: 138.0  
C)1st Flow End : 181.0  
D)END 1st Shutin: 5020.0  
E)2nd Flow Start: 244.0  
F)2nd Flow End : 397.0  
G)END 2nd Shutin: 5016.0  
Q)Final Hydro. : 6059.0



11020

TECHNICAL SERVICES, Security Life Bldg. • Suite 1350 • 1616 Glenarm • Denver, Colorado 80202 • Phone. (303) 573-8027

Contractor Shelby Drilling  
Rig No. 52  
Spot NW/NE  
Sec. 10  
Twp. 153N  
Rng. 101W  
Field Skunk Hollow  
County McKenzie  
State North Dakota  
Elevation 1872 ft.  
Formation Hesson

Top Choke 1/4"  
Bottom Choke 3/4"  
Size Hole 8 3/4"  
Size Rat Hole --  
Size & Wt. D. P. 4 1/2" XH 16.60#  
Size Wt. Pipe --  
I. D. of D. C. 2 3/4"  
Length of D. C. 728 ft.  
Total Depth 9200 ft.  
Interval Tested 9156-9200 ft.  
Type of Test Bottom Hole  
Conventional

Flow No. 1 15 Min.  
Shut-in No. 1 60 Min.  
Flow No. 2 90 Min.  
Shut-in No. 2 120 Min.  
Flow No. 3 -- Min.  
Shut-in No. 3 -- Min.  
  
Bottom Hole Temp. 192°F  
Mud Weight 10.6#  
Gravity --  
Viscosity 40

Tool opened @ 5:00 a.m.

#### Outside Recorder

PRD Make Kuster K-3  
No 16797 Cap. 6600 @ 9166'

Press	Corrected
Initial Hydrostatic	A 5134
Final Hydrostatic	K 5099
Initial Flow	B 161
Final Initial Flow	C 150
Initial Shut-in	D 3468
Second Initial Flow	E 195
Second Final Flow	F 195
Second Shut-in	G 1084
Third Initial Flow	H --
Third Final Flow	I --
Third Shut-in	J --

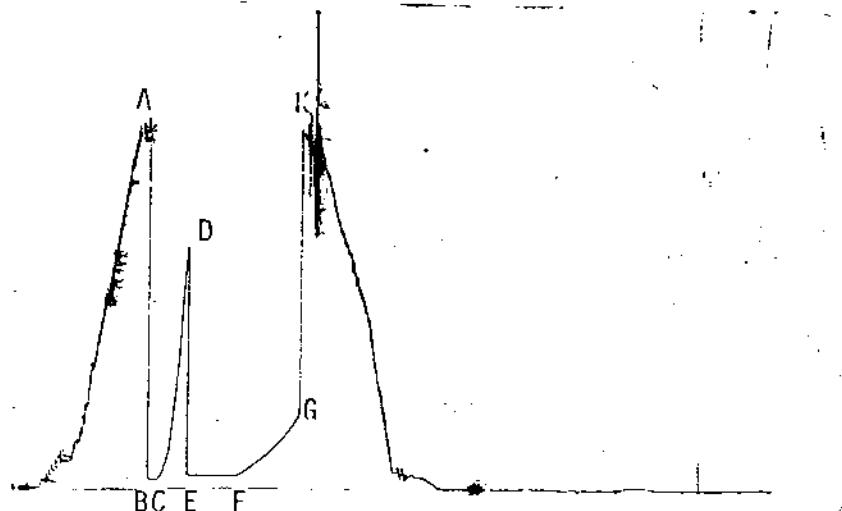
Ticket No. 22960

Date 7-15-86

No. Final Copies 5

Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, CO 80150

Address \_\_\_\_\_  
Well Name and No. \_\_\_\_\_  
Corps #31-100 \_\_\_\_\_



Lynes Dist. Williston, ND  
Our Tester Rick Green  
Witnessed By Tom Hopkin

Did Well Flow - Gas No Oil No Water No  
RECOVERY IN PIPE:

270 ft. Total Recovery	= 1.96 Bbls
1 ft. Oil & gas emulsion	= --
60 ft. Mud and oil-cut ammonia water	= .44 Bbls
60 ft. Mud-cut ammonia water	= .44 Bbls
149 ft. Gas and ammonia-cut mud	= 1.08 Bbls

Ran 15 gallons ammonia inhibitor.

#### Blow Description:

1st Flow: Tool opened with a  $\frac{1}{4}$ " blow, decreasing to a weak surface blow in 5 minutes, and dying to nil in 7 minutes.

2nd Flow: Tool opened with a  $\frac{1}{2}$ " blow, increasing slightly to a  $1\frac{1}{2}$ " blow in 5 minutes, decreasing to a  $\frac{1}{2}$ " blow in 30 minutes, then steadily increasing to a  $2\frac{1}{2}$ " blow at the end of the flow.

Comments: The test results indicate a mechanically successful test. The flow and shut-in curves suggest very low permeability within the zone tested.

FIC EARTH SCIENCE SYSTEMS I  
 Draft: 1  
 CORPS #31-10  
 9156 - 9200ft.

Page 1

Location: SEC. 10 T153N R101W  
 Test Type: BOTTOM HOLE CONVENTIONAL  
 Formation: NESSON

Recorder Number: 16797  
 Recorder Depth: 9166 ft.

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt ABSCISSA	PRESSURE SQUARED psi^2/10^6
A	INITIAL HYDROSTATIC	0.00		5134.0	
B	START OF 1st FLOW	0.00		161.0	
C	END OF 1st FLOW	15.00		150.0	
	1st SHUTIN PERIOD	0.00	0.0	150.0	0.0000
		5.00	45.0	195.0	4.0000
		10.00	113.0	263.0	2.5000
		15.00	232.0	382.0	2.0000
		20.00	345.0	495.0	1.7500
		25.00	566.0	716.0	1.6000
		30.00	877.0	1027.0	1.5000
		35.00	1218.0	1368.0	1.4286
		40.00	1581.0	1731.0	1.3750
		45.00	2077.0	2227.0	1.3333
		50.00	2598.0	2748.0	1.3000
		55.00	3021.0	3171.0	1.2727
D	END OF 1st SHUTIN	60.00	3318.0	3468.0	1.2500
E	START OF 2nd FLOW	0.00		195.0	
F	END OF 2nd FLOW	90.00		195.0	
	2nd SHUTIN PERIOD	0.00	0.0	195.0	0.0000
		5.00	3.0	198.0	22.0000
		10.00	26.0	221.0	11.5000
		15.00	51.0	246.0	8.0000
		20.00	80.0	275.0	6.2500
		25.00	111.0	306.0	5.2000
		30.00	139.0	334.0	4.5000
		35.00	170.0	365.0	4.0000
		40.00	198.0	393.0	3.6250
		45.00	230.0	425.0	3.3333
		50.00	258.0	453.0	3.1000
		55.00	286.0	481.0	2.9091
		60.00	320.0	515.0	2.7500
		65.00	357.0	552.0	2.6154
		70.00	397.0	592.0	2.5000
		75.00	435.0	630.0	2.4000
		80.00	474.0	669.0	2.3125
		85.00	515.0	710.0	2.2353
		90.00	562.0	757.0	2.1667

SIC EARTH SCIENCE SYSTEMS C.  
DST #: 1  
CORPS #31-10  
9156 - 9200ft.

Page 2

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: NESSON

Recorder Number: 16797  
Recorder Depth: 9166 ft.

TIME-PRESSURE LISTING

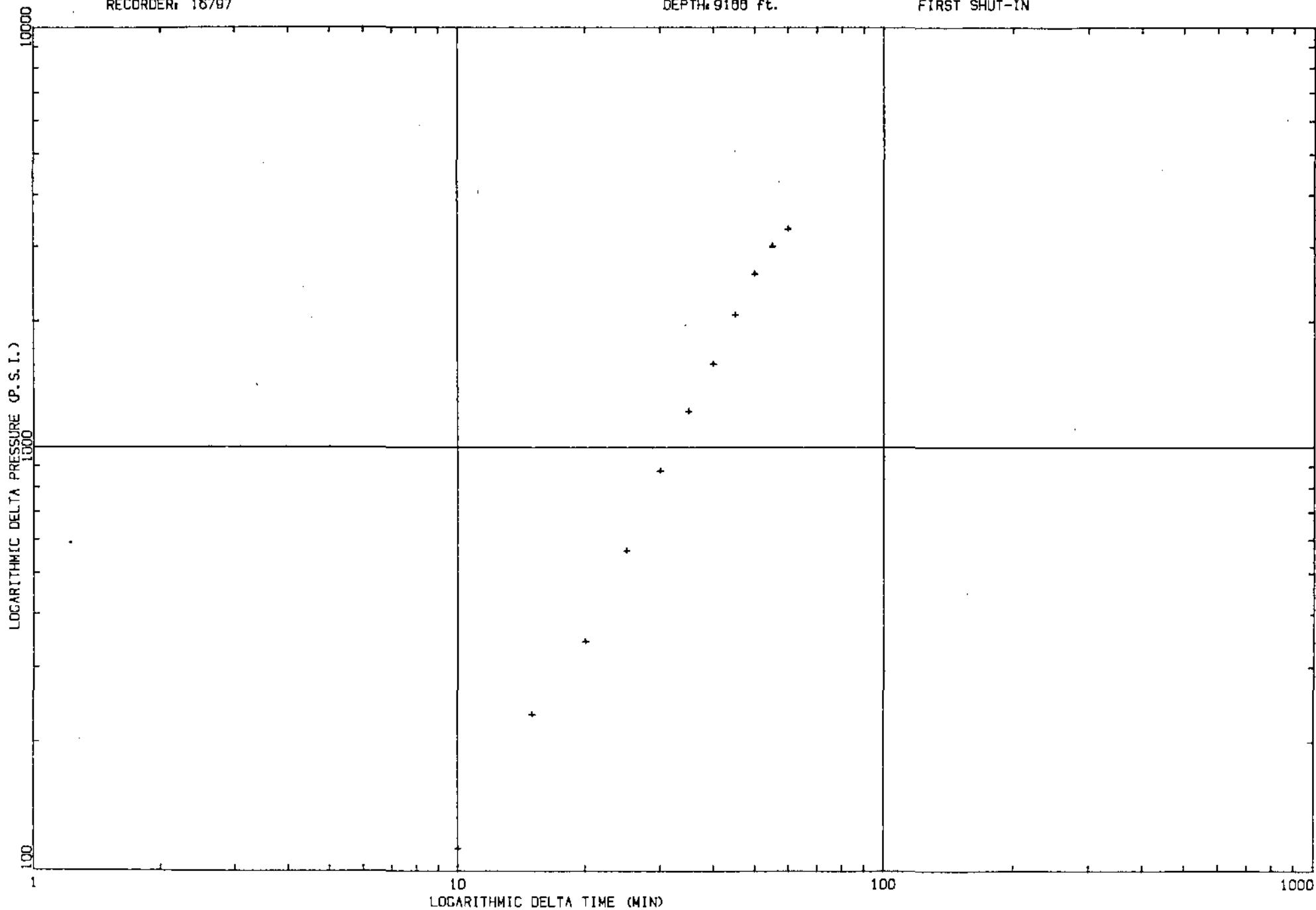
CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	ABSCISSA	PRESSURE SQUARED psi <sup>2</sup> /10 <sup>6</sup>
		95.00	609.0	804.0	2.1053	
		100.00	658.0	853.0	2.0500	
		105.00	713.0	908.0	2.0000	
		110.00	766.0	961.0	1.9545	
		115.00	823.0	1018.0	1.9130	
G END OF 2nd SHUTIN		120.00	889.0	1084.0	1.8750	
Q FINAL HYDROSTATIC		0.00		5099.0		

\* VALUES USED FOR EXTRAPOLATIONS

OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 10 T153N R101W  
RECORDER: 16797

WELL NAME: CORPS #31-10  
DST #: 1  
DEPTH: 9100 ft.

FIRST SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.

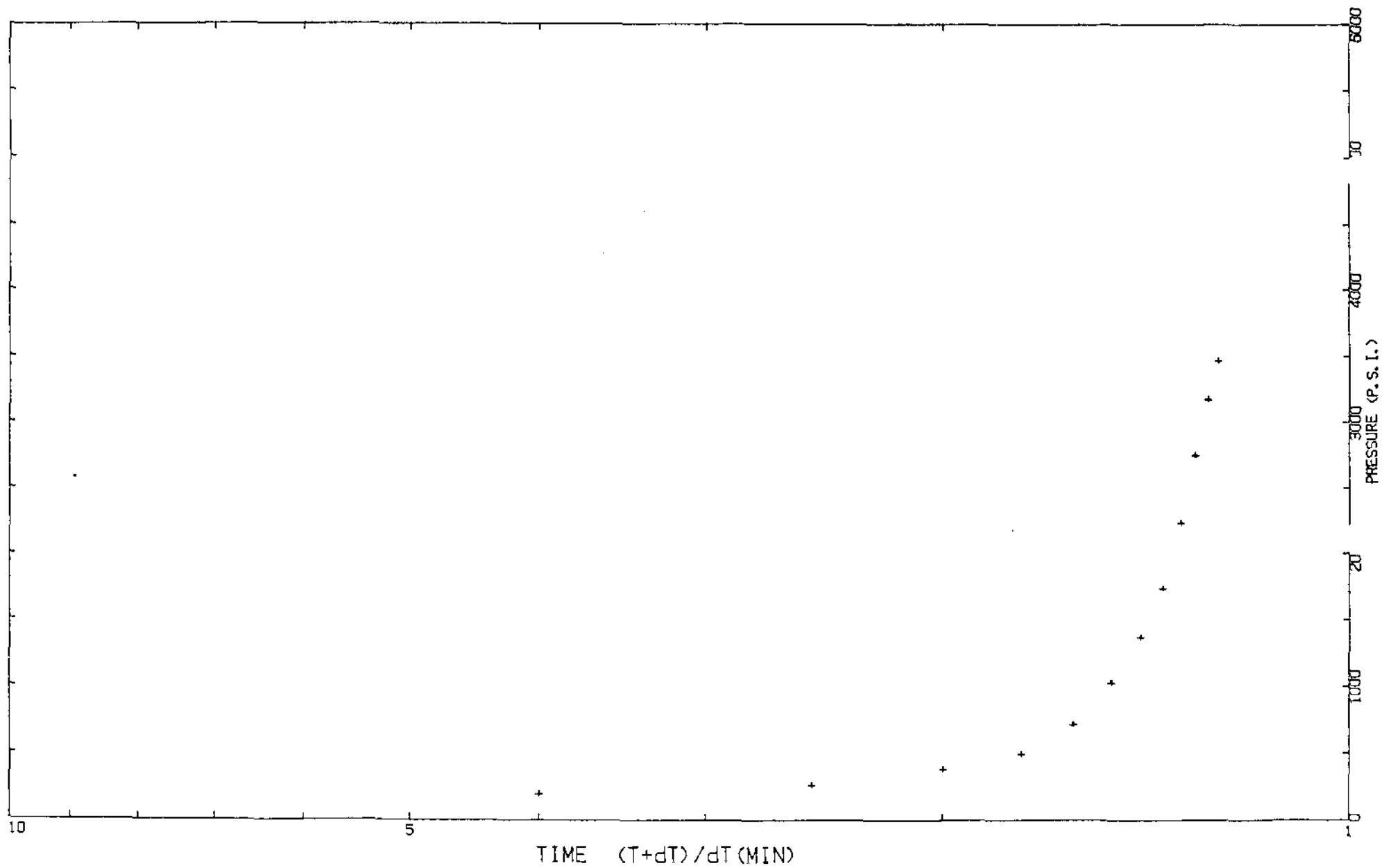
WELL NAME: CORPS #31-10

LOCATION: SEC. 10 T153N R101W DST #: 1

FIRST SHUT-IN

RECORDER: 16797

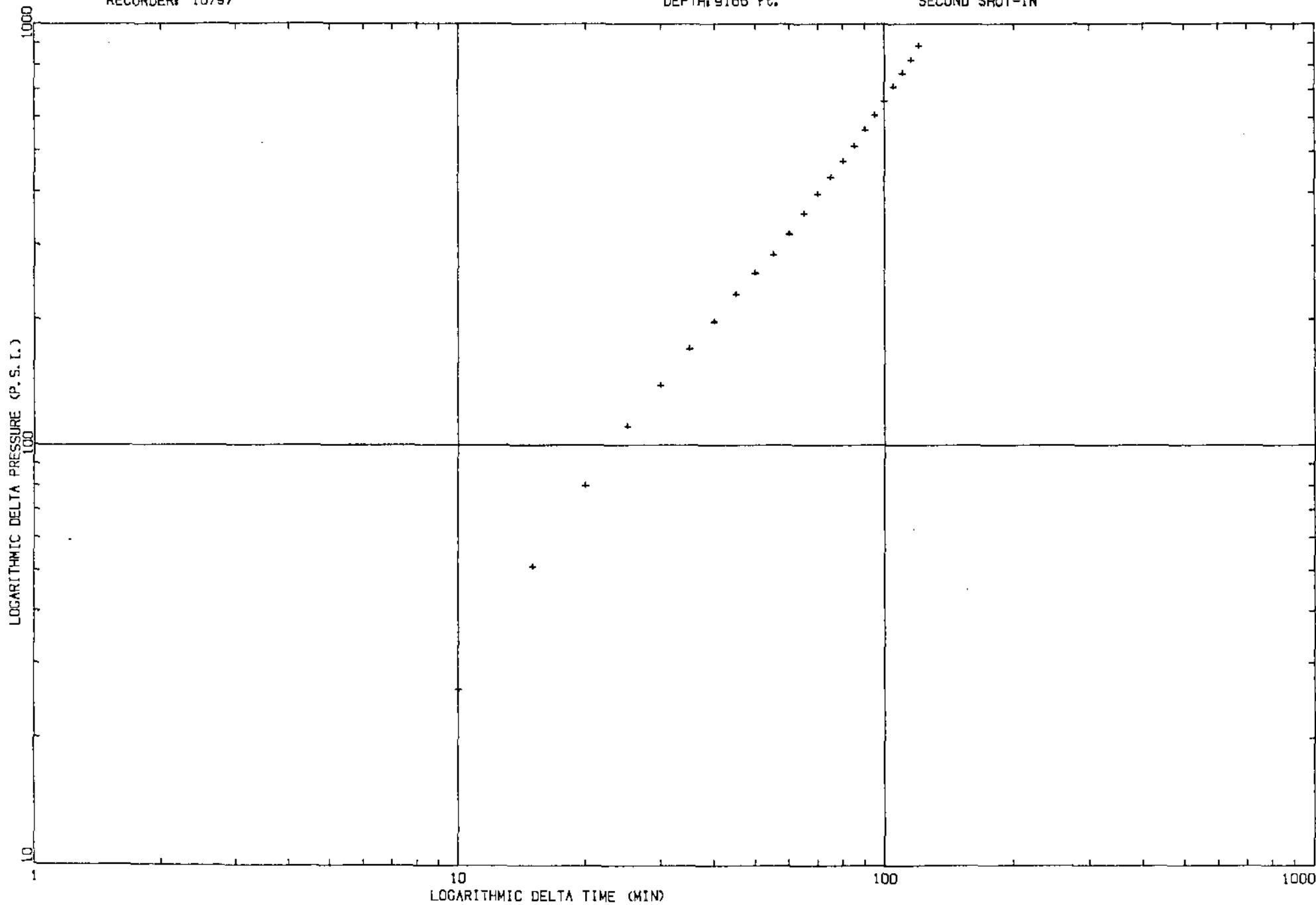
DEPTH: 9166 ft.



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.  
LOCATION: SEC. 10 T153N R101W  
RECORDER: 18797

WELL NAME: CORPS #31-10  
DST #: 1  
DEPTH: 9168 ft.

SECOND SHUT-IN



OPERATOR: BASIC EARTH SCIENCE SYSTEMS INC.

WELL NAME: CORPS #31-10

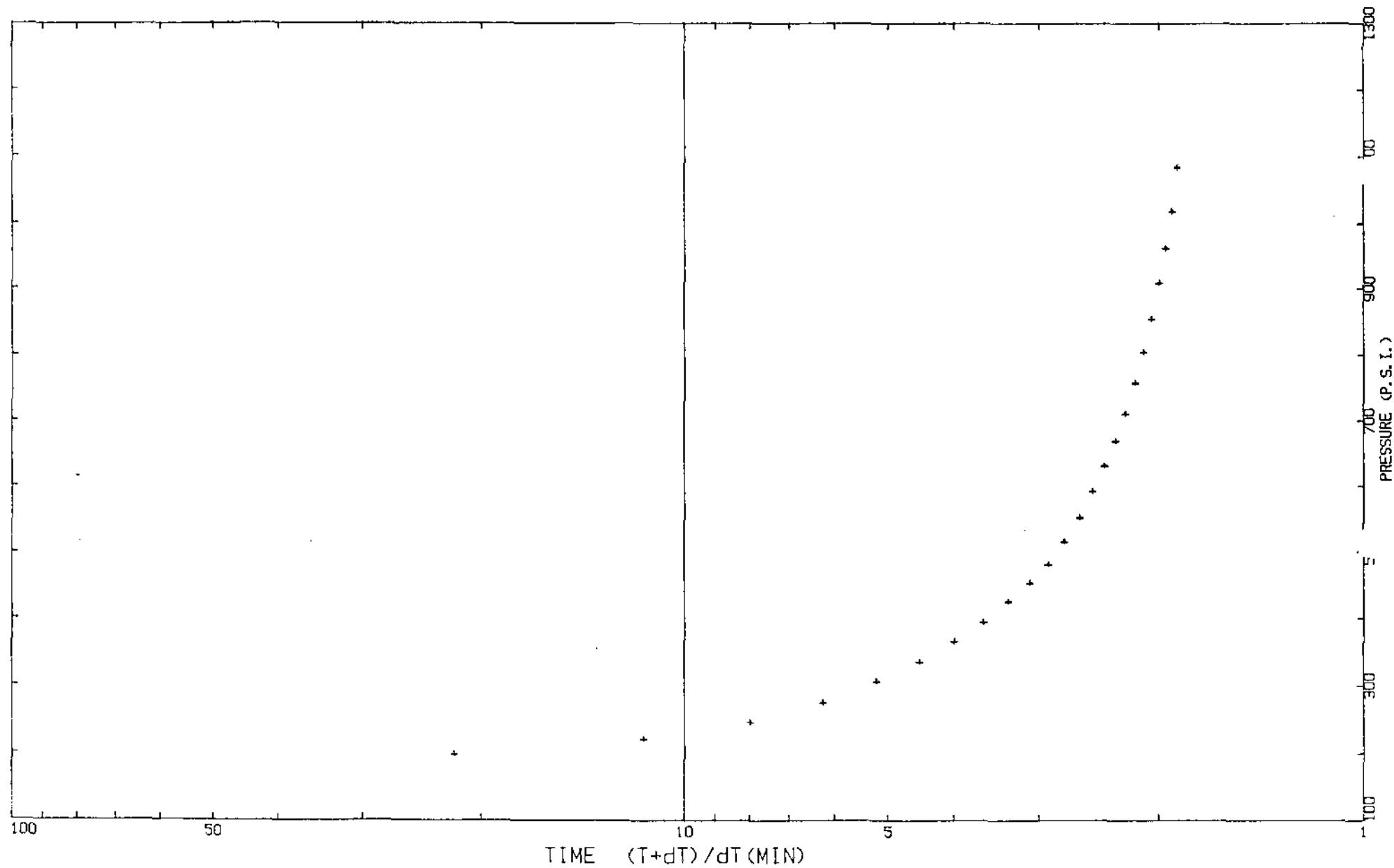
LOCATION: SEC. 10 T153N R101W

DST #: 1

SECOND SHUT-IN

RECORDER: 16797

DEPTH: 9166 ft.



SIC EARTH SCIENCE SYSTEMS CO.  
B&T#1  
CORPS #31-10  
9156 - 9200ft.

Page 3

Location: SEC. 10 T153N R101W  
Test Type: BOTTOM HOLE CONVENTIONAL  
Formation: NESSON

Recorder Number: 16797  
Recorder Depth: 9166 ft.

SAMPLE DATA  
\*\*\*\*\*

SAMPLE CHAMBER:

\*\*\*\*\*

Capacity of sample chamber 2300 cc  
Volume of sample..... 1000 cc  
Pressure in sampler..... 60 psig  
Where sampler was drained... on location

Sampler contained:

Oil 400 cc 38 @ 60 Degrees F  
Water 600 cc  
Mud .cc  
Gas .78 cu-ft  
GOR 312

RESISTIVITY DATA:

\*\*\*\*\*

Top..... 115 000 PPM NACL  
Middle..... 115 000 PPM NACL  
Bottom..... 190 000 PPM NACL  
Sampler..... 145 000 PPM NACL  
Mud pit..... 200 000+ PPM NACL  
Make-up Water...

SIC EARTH SCIENCE SYSTEMS C.  
TEST #: 1  
CORPS #31-10  
9156 - 9200ft.

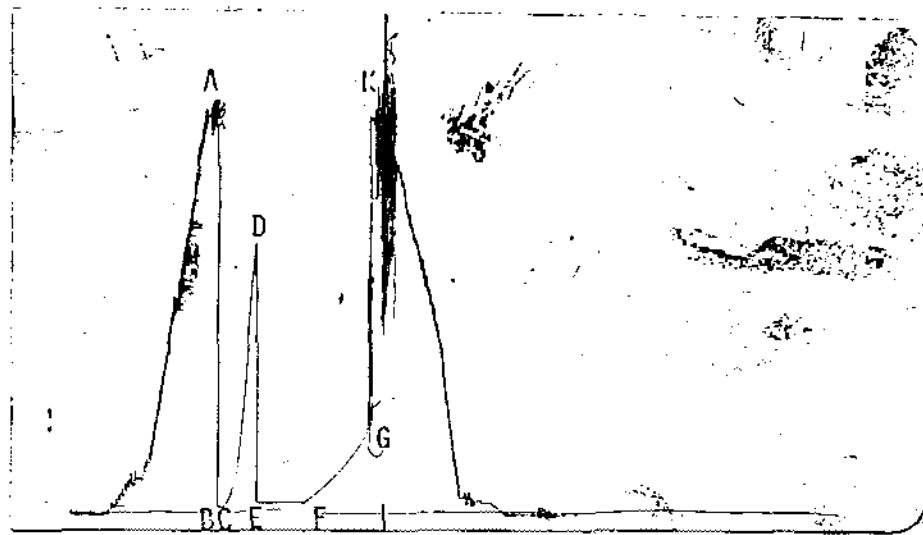
Page 4

PRESSURE RECORDER NUMBER : 20161

DEPTH : 9125.00ft. LOCATION : INSIDE  
TYPE : K-3 CAPACITY : 5950.00psi

PRESSURE  
psi

A)Initial Hydro : 5083.0  
B)1st Flow Start: 105.0  
C)1st Flow End : 105.0  
D)END 1st Shutin: 3462.0  
E)2nd Flow Start: 145.0  
F)2nd Flow End : 153.0  
G)END 2nd Shutin: 1055.0  
Q)Final Hydro. : 5063.0



TEST TIMES(MIN)

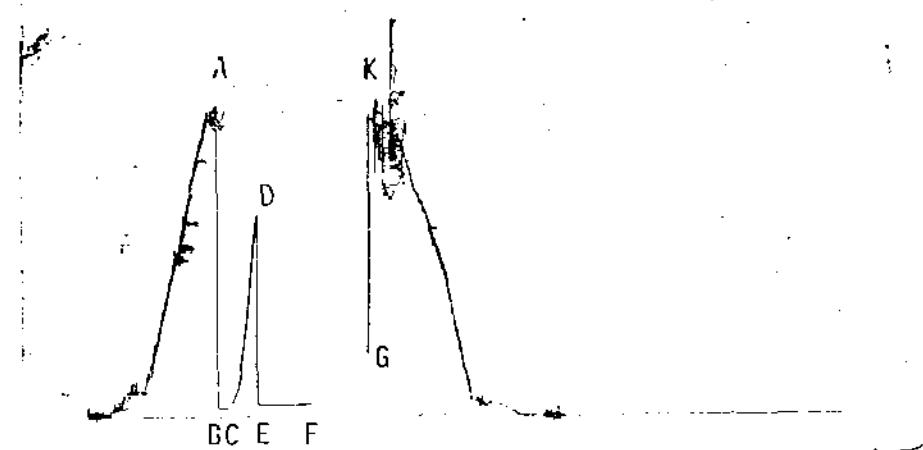
1st FLOW : 15  
SHUTIN: 60  
2nd FLOW : 90  
SHUTIN: 120

PRESSURE RECORDER NUMBER : 21804

DEPTH : 9199.00ft. LOCATION : OUTSIDE  
TYPE : K-3 CAPACITY : 7900.00psi

PRESSURE  
psi

A)Initial Hydro : 5089.0  
B)1st Flow Start: 137.0  
C)1st Flow End : 143.0  
D)END 1st Shutin: 3457.0  
E)2nd Flow Start: 178.0  
F)2nd Flow End : 191.0  
G)END 2nd Shutin: 1096.0  
Q)Final Hydro. : 5089.0



11920

**NORTH DAKOTA INDUSTRIAL COMMISSION**  
**OIL AND GAS DIVISION**

---

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

January 21, 1987

Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, CO 80155

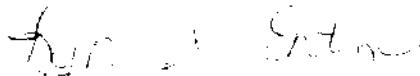
ATTN: Mr. Jeff Jones

RE: Basic Corps of Eng's #31-10  
NW NE Sec.10-153-101  
Well File #11920  
McKenzie County

Dear Mr. Jones:

Please submit to this office in triplicate a Producer's Certificate to Transport Oil (Form 8) for approval. Thank you.

Sincerely,

  
Lyn S. Entzi  
Clerk II

/lse

Enclosures



Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

December 19, 1986

11920



North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Basic Corps of Engineers #31-10  
Sec. 10, T153N, R101W  
McKenzie County, ND

Gentlemen:

Enclosed please find the Completion Report, submitted in triplicate, for the above referenced well along with the Geologist Report and Directional Survey.

Please do not hesitate to contact me if you have any questions or need further information.

Sincerely,

Basic Earth Science Systems, Inc.

Jeffery E. Jones  
Vice President

JEJ:ak

Enclosures

cc: Project Manager, Garrison Project Office  
Chief, Operations Div., Corps of Engineers  
Well Distribution w/o encl.

## NORTH DAKOTA STATE INDUSTRIAL COMMISSION

Oil and Gas Division

900 East Boulevard, Bismarck, ND 58505

## WELL COMPLETION OR RECOMPLETION REPORT

(Submit in Triplicate)

Designate type of completion

OIL WELL

GAS WELL

OTHER

RECEIVED

SOME RESVR

NEW WELL

WORK OVER

DEEPEN

PLUG BACK

OTHER

DIFF. BESVR

OPERATOR

Basic Earth Sience Systems, Inc.

(303) 792-5230

ADDRESS

P. O. Box 3088, Englewood, CO 80155

LOCATIONS (Show quarter-quarter, footages, and section, township and range.)

At surface

NW $\frac{1}{4}$ NE $\frac{1}{4}$ , 660' FNL & 2305' FEL, Sec. 10-T153N-R101W

At top prod. interval, reported below

At total depth

NW $\frac{1}{4}$ NE $\frac{1}{4}$ , 840.59' FNL & 1926.72' FEL, Sec. 10-T153N-R101W McKenzie

Date Spudded	Date TD Reached	Date Comp. (ready to prod.)	Elevation (KB,DF,GR)	Total Depth (MD & TVD)	Plug Back (TD,MD,TVD)
6/20/86	8/20/86	11/17/86	1872' KB 1851' GL	13,480' MD	13,344'

PRODUCING INTERVAL(S), THIS COMPLETION, TOP, BOTTOM, NAME (MD & TVD)	No. of DST's Run (see back)	Date Directional Survey Submitted
Red River B & C zones 13,255' - 13,330'	7	Attached

TYPE ELECTRIC AND OTHER LOGS RUN (See instructions)	Was Well Cored	No.
CNL, DLL-SFL, FDC, BHC, Cyberlook, PDC Perf, CCL		

CASING RECORD (Report all strings set in well)					
Casing Size	Depth Set (MD)	Hole Size	Weight Lbs./Ft.	Sacks Cement	Amount Pulled
9-5/8"	2,954'	12 $\frac{1}{2}$ "	36# & 40#	1340	None
5 $\frac{1}{4}$ "	13,480'	8-3/4"	17#, 20# & 26#	(1) 1082 (2) 1856	None

LINER RECORD					TUBING RECORD		
Size	Top (MD)	Bottom (MD)	Sacks Cement	Screen (MD)	Size	Depth Set (MD)	Packer Set (MD)
None					2-7/8"		13,243.54

PERFORATION RECORD				ACID, SHOT, FRAC., CEMENT SQUEEZE, Etc.		
Depth Interval (MD)	Holes per ft.	Size and Type	Purpose	Amt. & Kind of Material Used	Depth Interval (MD)	
11,80'	4 JSPE	.43	Cnt. Sqze.	175Sx. Howco lite, 742	"G"	
13,120-13,122	4JSPE	.43	Cnt. Sqze.	5 bbl. G		
13,225-13,265	4JSPE	.43	Test Red River	42 bbl. 15% HCl	13,225-13,265	
13,296-13,303	4JSPE	.43	Test Red River	7 bbl. 15% HCl	13,296-13,303	

PRODUCTION					
Date First Production	Producing Method (Flowing, gas, lift, pumping - size & type of pump)				Well Status (Prod. or shut-in)
11/17/86	Flowing				Producing
Date of Test	Hours Tested	Choke Size	Production For Test	Off, Bbls.	Gas, Mcf.
11/24/86	24 hrs	16/64"		245	425

Flow, Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil, Bbls.	Gas, Mcf.	Water, Bbls.	Oil Gravity - API (Corr.)
750psi	--		245	425	-0-	1,735:1

DISPOSITION OF OIL & GAS (Purchaser and Transporter)				Test Witnessed By
Oil - The Permian Corporation, purchaser & transporter				
Gas - Ecological Engineering, pipeline				

## LIST OF ATTACHMENTS

Drill Stem Test details, Geologist Report, Directional Survey

Over to Complete Form

\*\* See reverse for additional perforations &amp; treatments.

GEOLOGIC MARKERS

Name	Measured Depth of Formation	True Vertical Depth
Greenhorn	4,344'	4,343'
Morrison	5,622'	4,497'
Minnekahta	7,022'	6,990'
Minnelusa	7,343'	7,311'
Kibbey L.S.	8,098'	8,065'
Three Forks	10,507'	10,474'
Interlake	12,095'	12,062'
Red River "C"	13,286'	13,252'

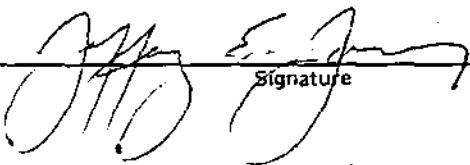
DRILL STEM TEST DATA

Please see attached.

Additional Perforations & Treatments

13,308-13,312	4 JSPP	.43	Test Red River; 3 bbls. 15% HCl	13,308-13,312
13,322-13,330	4 JSPP	.43	Test Red River; 2 bbls. 14% HCl	13,322-13,330
			1500 gal. 15% HCl	13,286-13,344
13,400-13,402			Cmt. Squeeze;	41 bbls. cmt. slurry
13,440-13442				1500 gal. 15% HCl

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.



Signature

Vice President

Title

12/19/86

Date

State of Colorado)  
ss

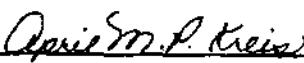
County of Arapahoe)

On this 19th day of December, 1986, before me personally appeared

Jeffery E. Jones to me known as the person described in and who executed the foregoing instrument

and acknowledged that (s)he executed the same as his/her free act and deed.

Notary  
Seal

  
Notary Public April M. P. Kreis  
State of Colorado County of Arapahoe  
My Commission expires 3-21-90

INSTRUCTIONS

1. Within thirty (30) days after the completion of a well, or recompletion of a well in a different pool, the original and three copies of this report must be filed with the North Dakota Industrial Commission, Oil and Gas Division.
2. Immediately after the completion or recompletion of a well in a pool or reservoir not then covered by an order of the commission, the original and three copies of this report must be filed with the North Dakota Industrial Commission, Oil and Gas Division.
3. The owner or operator shall file with the Oil and Gas Division three copies of the following: all logs run, drill stem test reports and charts, formation water analysis and noninterpretive lithologic logs or sample descriptions if compiled.

DST # 1- Nesson, tested 9156 to 9200

Times 15,60,90, 120

Tool opened with 1/4 inch blow, decreased to surface at 5 min. Dead after 7 min, and stayed dead for rest of initial open and all of first shut in. Reopened with 1/2" blow, 1 1/2 " in 5 min, 3/4 " in 15 min, 1/2" in 30 min, 1" in 45 min, 2" in 60 min, 1 1/2" in 60 min, and 2 " in 90 min. Final shut in 2 1/2 " died in 18 minutes.

Pressures	Inside (9,125)	Outside (9166)
IH	5070 psig	5101 psig
FH	5045 psig	5087 psig
IF	100-100 psig	113-113 psig
ISIP	3467 psig	3343 psig
FFP	125-137 psig	156-156 psig
FSIP	1107 psig	1048 psig
		BHT 192 deg

Comments: Good mechanical test, charts show no breakover during the shutins.

Recovery: Total of 270 ft of fluid: 1ft of O&G emulsion, 60 ft of M&OC water (Rw .07 @ 70 deg 100,000 chlorides no nitrates or chromates), 60 ft MC water (Rw .07 @ 70 deg no nitrates or chromates), 149 ft of GC mud (Rw .05 @ 70 deg 20 ppm nitrates 90 ppm chromates) Note: all fluids had some ammonia inhibitor which was in the string prior to opening the tool.

DST #2 Duperow 10,920 to 10,984

Times 15-60-120-180

Pressures	Inside (10,903)	Outside (10,930)
IH	6025 psig	6055 psig
FH	5985 psig	6028 psig
IF	105-135 psig	104-139 psig
ISIP	5007 psig	5065 psig
FFP	219-329 psig	278-383 psig
FSIP	5007 psig	5065 psig
		BHT 236°

Recovery: Two hundred feet of gas in pipe 622 ft of total fluid, 250 ft of drilling mud, and 372 ft of mud cut salt water. Chlorides for the pipe recovery were 185,000 for top, 185,000 for middle, and 170,000 for bottom. Drilling mud had 195,000 chlorides.

Sampler: Total volume 2300 cc. AT 900 psig sampler contained 550 cc of 39 deg API oil, and 1600 cc of 170,000 chloride (.05 ohms at 80 deg) salt water, along with 5.5 cubic ft of gas.

DST #3 Duperow from 11,087 to 11,132

Times: 15-60-90-120

Had gas to surface in 60 minutes of the final shutin, there was still a six inch blow in the bucket when we started to pull pipe.

Pressures	Inside (11,097)	Outside (11,061)
IH	6125 psig	6104 psig
FH	6088 psig	6074 psig
IF	244-348 psig	239-329 psig
ISIP	5429 psig	5422 psig
FFP	452-1160 psig	449-1169 psig
FSIP	5320 psig	5303 psig
		BHT 230 deg

RECOVERY: Pipe 2415 ft of total fluid, 1050 ft of HGC&amp;SOC mud, 450 ft of SO\$GC muddy saltwater, and 915 ft of Saltwater with a trace of oil.

Sampler; 3300 cc total volume at 1450 psig. 1500 cc of saltwater, 100 cc of free salt, and 1700 cc of 38 deg API oil at 60 deg. Note: water in the sampler was free of nitrates.

DST #4 Interlake from 12,088 to 12,138

Times: 15-60-210-240

No fluid to surface.

Pressures	Inside (12,103)	Outside (12,110)
IH	7125 psig	7135 psig
FH	7125 psig	7135 psig
IF	500-518 psig	502-521 psig
ISIP	6020 psig	6026 psig
FFP	518-594 psig	524-596 psig
FSIP	5925 psig	5932 psig
		BHT 254 deg

RECOVERY: Pipe 1403 ft of total fluid, 577 ft of SM&amp;GCM, 826 ft HGC&amp;SOCM estimated 15 % oil.

SAMPLER: Total volume 2200 CC, recovered 1.57 ft cubic of gas at 270 psi, 320 cc of oil and 1280 cc of mud.  $R_w$  .04 at 60 deg and 197,000 chlorides which is a match with the pit mud. None of the samples had any nitrates measured on site which is difficult to believe will send in for analysis.

DST #5 Interlake from 12,866 to 12,940

Times: 15-60-90-120

No fluid to surface.

Tool opened with a 1" blow, 2" in 1 min, 2" in 5 min, 2 1/4" in 10 min, and 4 1/2 at the end of the 15 min preflow. Blow built to 9" 20 minutes into shut in and died to 1" at end of 60 min shut. Reopened with 2" blow, 2 1/2 in 15 min, 5" in 20 min, 7" in 25 min, still 7" after 40 min, 6" in 45 min, 6" in 70 min, 6 1/2" in 75 min, 6" in 80 min, and 5 1/2" in 85 min.

Pressures	Inside (12,891)	Outside (12,898)
IH	7250 psig	7259 psig
FH	7250 psig	7259 psig
IF	365-388 psig	371-389 psig
ISIP	4770 psig	4772 psig
FFP	385-474 psig	389-479 psig
FSIP	5340 psig	5345 psig
		BHT deg

RECOVERY: Pipe 1114 ft of total fluid, 319 ft of gcwcush, and 695 ft of SG&WCM

SAMPLER: Total volume 2500 CC, recovered 5.56 ft cubic of gas at 2100 psi. 1700 cc of SMCSW. R<sub>w</sub> .05 @ 60 deg.

DST #6 from 13,252-13,480

Red River B and C

Tool opened with a 7" blow, 2 min bottom of bucket, 5 min 33", and 10 minutes 50" and packers failed.

Day 61, picking up to run DST # 7 from 13,232 to 13,480, Red River B and C. When DST # 6 was pulled after the packers failed we recovered 1598 ft HGCWCush and 3694 ft of HGCM. The charts indicated that the packers started leaking right away. Tripped back in hole to recondition for DST. Tripped out and picked up test tool, and tripped in. Opened tool with a 2" blow, 5 min 8", 10 min 20", and 15 min 28". S.T. \$7,108 Cum \$525,814

8/23/86

Day 62, circulating and conditioning mud to run pipe at 13,480. Recovered 6412 ft of total fluid, 1781 of HGCWCush, and 4631 ft of HGCM with no sign of oil. Charts from DST #7 show that the initial shutin pressure built to 6275# before the packers started to leak. Sampler had .03 cubic ft of gas at 10 psi and 2400 cc of mud. S.T. \$6,860 Cum \$532,694

11920



**REPORT  
of  
SUB-SURFACE  
DIRECTIONAL  
SURVEY**



SHELBY DRILLING INC (BASIC EARTH SCIENCES)  
COMPANY

CORPS OF ENGINEERS 31-10  
WELL NAME

MCKENZIE COUNTY, NORTH DAKOTA  
LOCATION

<u>JOB NUMBER</u>	<u>TYPE OF SURVEY</u>	<u>DATE</u>
410-516	SINGLE SHOT	11-SEP-86

SURVEY BY  
S. J. COCHRAN AND RIG CREWS

OFFICE  
CASPER, WYOMING

**EASTMAN WHIPSTOCK, INC.**

**RECORD OF SURVEY**

FOR

EW DISTRICT : ROCKY MOUNTAIN DIST,



DATA SYSTEMS INC  
BASIC EARTH SCIENCES  
CORPS OF ENGINEERS 31-10

SLOT :  
WELL : C OF E 31-10  
PBHL : S 70 0 E

DATE PRINTED : 11-SEP-86  
OUR REF. NO. : 902708.0SZ  
JOB NUMBER :

PAGE NO. :

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	VERTICAL SECTION	RECTANGULAR COORDINATES	BOGLEE SEVERITY
510.00	0 30	S 25 0 W	0.00	510.00	0.00	0.00 N	0.00 E
1094.00	0 15	S 43 0 W	584.00	1093.99	-0.92	3.16 S	2.13 W
1620.00	0 15	N 68 0 E	526.00	1619.98	0.43	4.53 S	1.19 W
2125.00	0 15	N 26 0 E	505.00	2124.98	1.40	3.06 S	0.38 E
2472.00	0 0	N 26 0 E	347.00	2471.98	1.48	2.38 S	0.71 E
2935.00	0 30	S 79 0 E	463.00	2934.97	3.48	2.77 S	2.70 E
3510.00	0 45	S 77 0 E	575.00	3509.94	9.70	4.07 S	8.84 E
3980.00	0 0	S 77 0 E	470.00	3979.92	12.76	4.76 S	11.84 E
4030.00	0 45	S 79 0 E	50.00	4029.92	13.08	4.83 S	12.16 E
4063.00	1 15	N 88 0 E	33.00	4062.92	13.64	4.87 S	12.74 E
4094.00	2 0	N 88 0 E	31.00	4093.90	14.45	4.84 S	13.62 E
4126.00	2 45	S 88 0 E	32.00	4125.88	15.70	4.84 S	14.94 E
4158.00	3 15	S 84 0 E	32.00	4157.83	17.31	4.96 S	16.61 E
4190.00	3 45	S 74 0 E	32.00	4189.77	19.23	5.33 S	18.53 E
4221.00	4 30	S 74 0 E	31.00	4220.69	21.46	5.95 S	20.67 E
4253.00	5 0	S 67 0 E	32.00	4252.58	24.11	6.83 S	23.17 E
4285.00	5 45	S 71 0 E	32.00	4284.44	27.10	7.90 S	25.96 E
4317.00	6 15	S 67 0 E	32.00	4316.27	30.45	9.10 S	29.09 E
4348.00	6 45	S 67 0 E	31.00	4347.07	33.95	10.47 S	32.32 E
4380.00	7 30	S 63 0 E	32.00	4378.82	37.90	12.15 S	35.91 E
4411.00	8 0	S 62 0 E	31.00	4409.54	42.05	14.08 S	39.62 E
4443.00	8 30	S 62 0 E	32.00	4441.20	46.59	16.24 S	43.68 E
4540.00	9 45	S 64 0 E	97.00	4536.97	61.86	23.22 S	57.38 E
4635.00	10 15	S 64 0 E	95.00	4630.53	78.27	30.45 S	72.21 E
4794.00	11 0	S 65 0 E	159.00	4786.80	107.45	43.07 S	90.67 E
4889.00	11 30	S 63 0 E	95.00	4879.98	125.08	51.20 S	115.32 E
4985.00	11 45	S 66 0 E	96.00	4974.01	145.13	59.52 S	132.78 E
5050.00	12 15	S 65 0 E	65.00	5037.59	158.61	65.13 S	145.08 E
5145.00	12 45	S 65 0 E	95.00	5130.34	179.09	73.82 S	163.72 E
5177.00	12 30	S 66 0 E	32.00	5161.56	186.06	76.72 S	170.08 E

CONTINUED ON NEXT PAGE ...



U.S. ARMY ENGINEERS  
MAGIC EARTH SCIENCES  
CORPS OF ENGINEERS 31-10

SITE : C 100 E 31-10  
WELL : C 100 E 31-10  
FIDEL : S 70 0 E  
DATE PRINTED : 11-SEP-86  
OUR REF. NO. : 602708.05Z  
JOB NUMBER :

PAGE NO. 3

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	VERTICAL SECTION	RECTANGULAR COORDINATES	DOBLEE SEVERITY	
5225.00	12 30	S 66 0 E	48.00	5208.42	196.43	80.94 S	179.57 E	0.00
5241.00	12 0	S 65 0 E	16.00	5224.06	199.81	82.35 S	182.66 E	0.39
5336.00	11 30	S 64 0 E	95.00	5317.07	219.07	90.68 S	200.12 E	0.57
5430.00	11 45	S 64 0 E	94.00	5409.14	237.91	98.98 S	217.15 E	0.27
5559.00	10 45	S 64 0 E	129.00	5535.66	262.94	110.02 S	239.77 E	0.78
5650.00	10 0	S 65 0 E	91.00	5625.17	279.25	117.07 S	254.56 E	0.65
5712.00	10 0	S 65 0 E	62.00	5686.23	289.97	121.62 S	264.32 E	0.00
5785.00	9 30	S 64 0 E	73.00	5758.18	302.28	126.94 S	275.47 E	0.72
5848.00	9 0	S 67 0 E	63.00	5820.36	312.37	131.14 S	284.67 E	1.10
5912.00	8 30	S 68 0 E	64.00	5883.61	322.10	134.87 S	293.68 E	0.82
6004.00	7 0	S 70 0 E	92.00	5974.77	334.50	139.31 S	305.26 E	1.66
6036.00	7 15	S 69 0 E	32.00	6006.52	338.47	140.70 S	308.98 E	0.87
6099.00	7 0	S 66 0 E	63.00	6049.04	346.28	143.69 S	316.20 E	0.71
6163.00	6 15	S 66 0 E	64.00	6132.61	353.64	146.70 S	322.94 E	1.17
6226.00	5 30	S 64 0 E	63.00	6195.28	360.07	149.42 S	328.79 E	1.23
6281.00	5 0	S 67 0 E	55.00	6250.05	365.08	151.51 S	333.37 E	1.04
6383.00	4 15	S 71 0 E	102.00	6351.71	373.30	154.46 S	341.04 E	0.80
6479.00	4 0	S 66 0 E	96.00	6447.46	380.21	156.99 S	347.47 E	0.46
6542.00	3 45	S 67 0 E	63.00	6510.32	384.46	158.68 S	351.37 E	0.41
6700.00	3 0	S 57 0 E	158.00	6668.04	393.65	163.05 S	359.58 E	0.60
6828.00	2 30	S 67 0 E	128.00	6795.90	399.73	165.92 S	364.99 E	0.54
6955.00	2 0	S 57 0 E	127.00	6922.80	404.66	168.26 S	369.39 E	0.50
7455.00	1 0	S 57 0 E	500.00	7422.62	417.41	175.39 S	380.36 E	0.20
7958.00	1 0	S 42 0 E	503.00	7925.54	425.61	181.08 S	387.02 E	0.05
8242.00	0 30	S 55 0 E	284.00	8209.52	429.06	183.53 S	389.80 E	0.18
9170.00	0 30	S 57 0 E	928.00	9137.48	436.92	188.06 S	396.51 E	0.00
9477.00	0 15	N 1 0 E	307.00	9444.48	438.03	187.29 S	397.97 E	0.22
10290.00	0 0	N 1 0 E	813.00	10257.47	437.45	185.52 S	398.00 E	0.03
10968.00	0 15	S 64 0 W	678.00	10935.47	436.43	186.17 S	396.68 E	0.04
11450.00	0 30	N 18 0 E	482.00	11412.46	434.11	184.53 S	394.80 E	0.14

CONTINUED ON NEXT PAGE ...



PRINTED BY DRIFTING LOG  
BAGLIO NORTH SOUTHERN  
CORPS OF ENGINEERS 81-10

SDI : 3  
DATE : 11-SEP-86 01:31:10  
PAGE : 8 70 0 E

DATE PRINTED : 11-SEP-86  
OUR REF. NO. : 902708.06Z  
JOB NUMBER :

PAGE NO. 4

MEASURED DEPTH	DRIFT ANGLE	DRIFT DIRECTION	COURSE LENGTH	TRUE VERTICAL DEPTH	VERTICAL SECTION	REC TANGULAR COORDINATES	ROBLES SEVERITY
D M	D M	D M					
12003.00	1 15	N 43 0 W	553.00	11970.39	429.78	176.67 S 393.06 E	0.20
12570.00	1 0	S 43 0 W	567.00	12537.28	420.45	176.67 S 383.13 E	0.29
12980.00	0 45	S 59 0 W	410.00	12942.24	417.24	180.59 S 376.28 E	0.08

CLOSURE - DISTANCE : 419.18  
DIRECTION : S 64 29 E

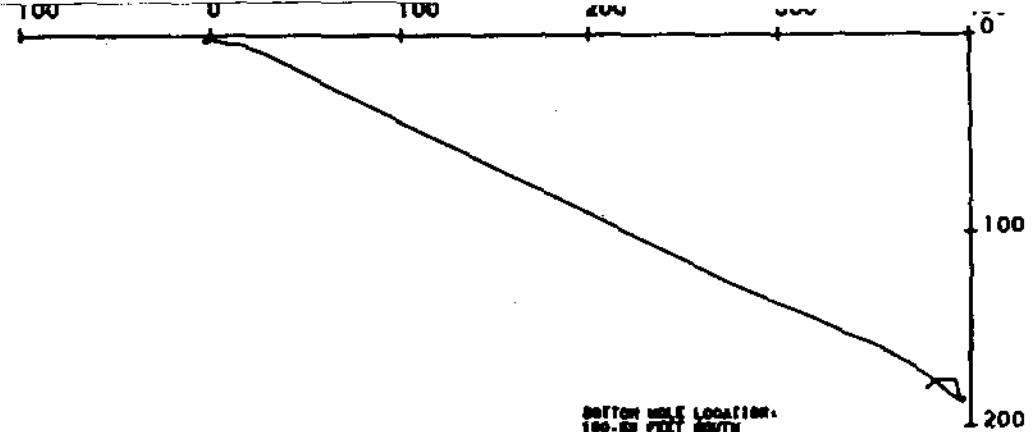
REPORT UNITS : Feet

SURVEY CALCULATION METHOD : Radius of curvature

#### SURVEY RUN INFORMATION

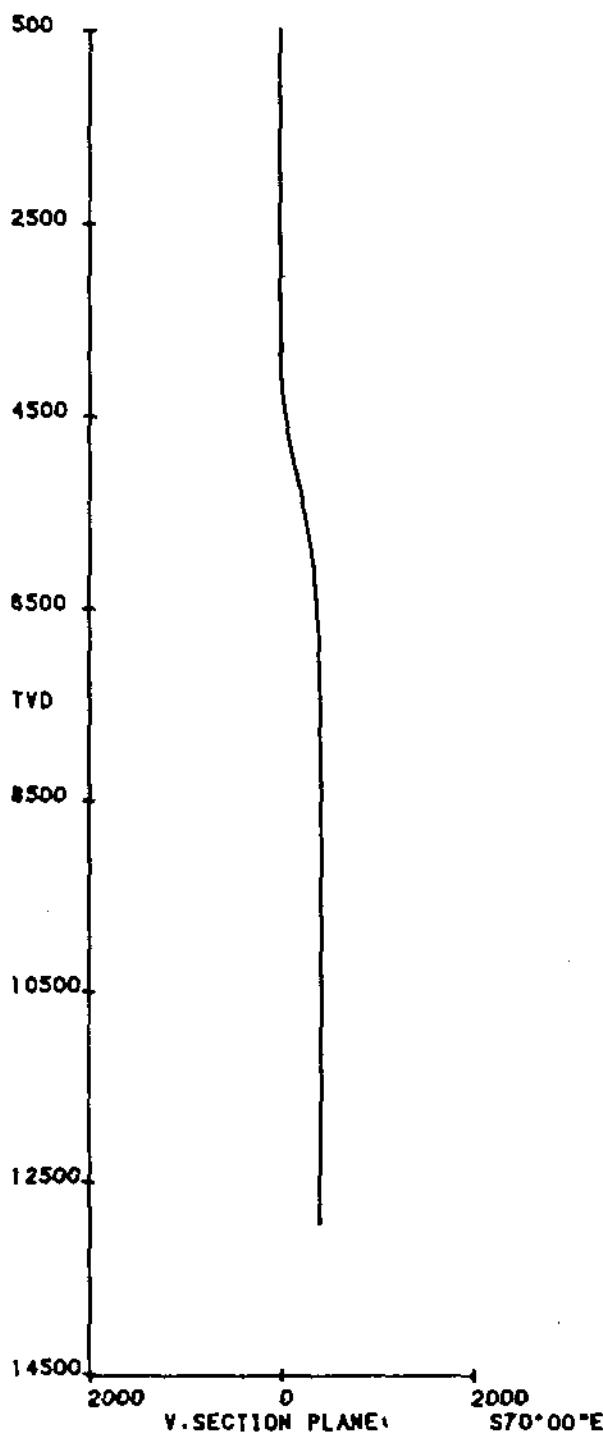
CDD JOB WITH S J COCHRAN  
SINGLE SHOT ~ B242 THRU 12980 ADDED ON 11-SEP-86





SCALE 1"=100FT.

NOTE: COORDINATES RELATIVE  
TO SLOT



 EASTMAN  
CHRISTENSEN

SHELBY DRILLING INC  
BASIC EARTH SCIENCES  
CORPS OF ENGINEERS 31-10

11920

**NORTH DAKOTA INDUSTRIAL COMMISSION**  
**OIL AND GAS DIVISION**

---

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

December 18, 1986

Mr. Jeffery E. Jones  
Basic Earth Science Systems  
P.O. Box 3088  
Englewood, Colorado 80155

RE: Basic Corps of Eng. #31-10  
NW NE Section 10-T153N-R101W  
Well File No. 11920

Dear Mr. Jones:

According to our records, our office has not received a Completion Report (Form 6) for the above captioned well.

The Form 6 is due thirty days after the completion of a well. At this time, please submit this report, in triplicate, as soon as possible. Thank you.

Sincerely,

*Tom Delling* rls  
Tom Delling  
Field Inspector

TD/rls

CONFIDENTIAL

FORM 8

Well File No. 11920

North Dakota State Industrial Commission  
Oil and Gas Division

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA - 58505

**PRODUCERS CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO  
TRANSPORT OIL FROM LEASE**

Basic Corps of  
WELL Engineers (SEC.) 10 (TWP.) 153N (RGE.) 101W COUNTY McKenzie

PRODUCER Basic Earth Science Systems Inc. FIELD Baker POOL Red River

ADDRESS CORRESPONDENCE TO Jeffery E. Jones, Basic Earth Science Systems, Inc.

STREET P.O. Box 3088 CITY Englewood STATE Colorado 80155

THE ABOVE NAMED PRODUCER HEREBY AUTHORIZES The Permian Corporation  
(Name of Purchaser)

WHOSE PRINCIPAL PLACE OF BUSINESS IS P.O. Box 3119, Midland, TX 79702  
(Street) (City) (State)

AND WHOSE FIELD ADDRESS IS P.O. Box 2358, Williston, NE 58801

TO TRANSPORT 100 % OF THE OIL PRODUCED FROM THE LEASE DESIGNATED ABOVE UNTIL  
FURTHER NOTICE

THE OIL WILL BE TRANSPORTED BY The Permian Corporation  
(Name of Transporter)

OTHER PURCHASERS TRANSPORTING OIL FROM THIS LEASE ARE: None

% %  
(Name of Purchasers) (Name of Purchasers)

REMARKS: Effective Date: November 22, 1986

The undersigned certifies that the rules and regulations of the State Industrial Commission have been complied with except as noted above and that the purchaser is authorized to transport the above percentage of oil produced from the above described property and that this authorization will be valid until further notice to the purchaser named herein until canceled by the producer.

Executed this 22th day of November, 19 86. Basic Earth Science Systems, Inc.  
(Company or Operator)

STATE OF COLORADO )  
COUNTY OF ARAPAHOE ) ss

(Signature) Jeffery E. Jones (Title)  
Vice President

Before me the undersigned authority, on this day personally appeared Jeffery E. Jones known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states that he is authorized to make this report and has knowledge of the facts stated herein and that said report is true and correct.

Subscribed and sworn to before me this the 22th day of November, 19 86.

My Commission expires 3-21-90 Notary Public in and for Arapahoe County, Colorado.  
Approved by: Fell Dillman DEC 2 1986  
(Deputy Enforcement Officer) (Date)

(Instructions Over)

11920

**NORTH DAKOTA INDUSTRIAL COMMISSION**  
**OIL AND GAS DIVISION**

---

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

November 21, 1986

Mr. Jeffrey Jones  
Vice President  
Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, CO 80155

RE: Basic Corps of Engineers #31-10  
NW NE Section 10-T153N-R101W  
McKenzie County, ND  
Well File No. 11920

Dear Mr. Jones:

I have recently spoken with State Field Inspector Tom Delling about the reserve pit at the Basic Corps of Engineers #31-10. We feel all the material from the pit should be removed to a legal waste disposal system. I understand most has been removed already. This is a sensitive area as far as the high water table, and the possible flooding of the Missouri River. We felt this should have been a lined pit. A sample of the water in the pit showed 70,000 PPM. There is a possibility this could contaminate the area.

We will require the pit to be reclaimed this fall. If you have any question, please feel free to contact me.

Sincerely,

*Kenneth Kallestad*

Kenneth Kallestad  
Reclamation Supervisor

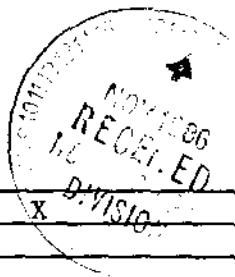
KK/tp  
cc: Tom Delling

## North Dakota State Industrial Commission

Oil and Gas Division

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA 58505

## SUNDRY NOTICES AND REPORTS ON WELLS



1. Notice of Intention to Drill or Redrill \_\_\_\_\_
2. Notice of Intention to Change Plans \_\_\_\_\_
3. Notice of Intention to Pull Casing \_\_\_\_\_
4. Notice of Intention to Abandon Well \_\_\_\_\_
5. Report of Water Shut-Off \_\_\_\_\_
6. Report of Shooting or Acidizing \_\_\_\_\_

7. Report of Casing \_\_\_\_\_
8. Report of ~~Breakdown~~ Repair \_\_\_\_\_
9. Supplementary History \_\_\_\_\_
10. Well Potential Test \_\_\_\_\_
11. Drilling Prognosis \_\_\_\_\_
12. \_\_\_\_\_

NAME OF LEASE Basic Corps of Engineers Date November 17, 1986WELL NO. 31-10 Bottom-hole is located 840.59 ft. from (N) (E) line and 1926.72 ft. from the (E) (N) lineof Section 10 Township 153N Range 101W in McKenzieCounty, Baker Field Red River Pool. The elevation of the groundis 1851 feet above sea level.Name and Address of Contractor, or Company which will do work is: Shelby Drilling

## (DETAILS OF WORK)

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing,  
indicate mud weights, cementing points, and all other details of work)

On August 23, 1986, while running casing, pipe became stuck in hole, worked pipe and casing prematurely parted. Came out with 32 jts. TIH and found top of fish @ 5812', total pipe in hole 7682'. Unable to pull casing. Tied into casing with casing patch and cleaned out to TD. Unable to get casing to circulate from TD back up. Pressure tested casing to verify integrity of string. Perforated 11,840', set retainer at 11,791' and cemented from 11,840' back to DV @ 8940' with 175 sx of lite and 742 sx of class G. Then cemented second stage with 706 sx of lite followed by 1150 sx of class G. Drilled out to TD of 13,450', ran cement bond log. Cement too @ 5130'. Also bond log showed packed off section of the hole @ 12,450' - 12,680' that was packed off looking like cement. Perforated 13,120 - 13,122' and 13,400 - 13,402'. Set retainer @ 13,355' and performed circulating squeeze to cement off Red River. Drilled out cement, pressure tested and began production testing.

Company Basic Earth Science Systems, Inc.

Do not write in this space

Address P.O. Box 3088, Englewood CO 80155Approved Nov. 29 1986By Jeffery E. JonesBy Areni HamweyTitle Vice PresidentTitle field supervisor



P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

November 17, 1986



Mr. F. E. Wilborn  
Deputy Enforcement Officer  
North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Basic Corps of Engineers #31-10  
Township 153 North-Range 101 West  
Section 10: NW<sup>1</sup>NE<sup>4</sup>  
McKenzie County, ND  
Well File No. 11920

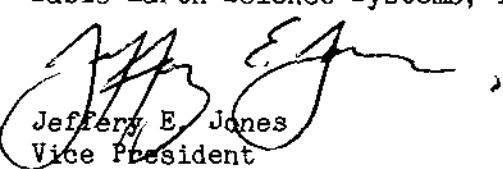
Dear Mr. Wilborn:

Enclosed you will find a Sundry Notice (Form 4) for the Basic Corps of Engineers #31-10 detailing a parted casing problem and the work involved in correcting it.

If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Basic Earth Science Systems, Inc.

  
Jeffery E. Jones  
Vice President

JEJ:jb

encl.

North Dakota State Industrial Commission  
Oil and Gas Division

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA - 58505

## SUNDRY NOTICES AND REPORTS ON WELLS

1. Notice of Intention to Drill or Redrill \_\_\_\_\_
2. Notice of Intention to Change Plans \_\_\_\_\_
3. Notice of Intention to Pull Casing \_\_\_\_\_
4. Notice of Intention to Abandon Well \_\_\_\_\_
5. Report of Water Shut-Off \_\_\_\_\_
6. Report of Shooting or Acidizing \_\_\_\_\_

7. Report of Casing \_\_\_\_\_
8. Report of Redrilling or Repair \_\_\_\_\_
9. Supplementary History \_\_\_\_\_
10. Well Potential Test \_\_\_\_\_
11. Drilling Prognosis \_\_\_\_\_
12. Rehabilitation Notice \_\_\_\_\_

NAME OF LEASE Basic Corps of Engineers Date October 30, 1986  
WELL NO. 31-10 Bottom-hole is located 840.59 ft. from (N) (S) line and 1926.72 ft. from the (E) (W) line  
of Section 10 Township 153N Range 101W in McKenzie  
County, Baker Field Red River Pool. The elevation of the ground  
is 1851 feet above sea level.

Name and Address of Contractor, or Company which will do work is:

## (DETAILS OF WORK)

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing,  
indicate mud weights, cementing points, and all other details of work)

**"TIGHT HOLE"**

- A. Dirt contractor is Hexom Earth Construction, Rt. 3, Box 238, Williston, ND 58801
- B. Surface Owner: Corps of Engineers, Real Estate Div., 6014 US Post Office & Courthouse,  
Omaha, NE 68102-4978.
- C. Surface restoration will begin approx. 11/10/86 and be completed by 12/10/86.
- D. Water hauled to Great Plains Disposal well State #16-11.
- E. Drilling mud hauled to Great Plains Helling State disposal well, drill cuttings will  
be hauled to Prairie Disposal Dishon well. Pit is empty except for solids and rainwater.
- F. Drill site will be leveled and contoured, redistribution of the topsoil will be delayed  
one year to allow for settling of the location.
- G. Basic Earth Science Systems, Inc. will reseed the location with approved mixture.

Company Basic Earth Science Systems, Inc.

Do not write in this space

Address P.O. Box 3088, Englewood CO 80155

Approved

11-3 1986

By Jeffrey E. Jones

By

Kenneth Kallstedt  
Title Reclamation Supervisor

Title Vice President

bASIC

Earth Science Systems, Inc.

11920  
P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

October 27, 1986



Mr. Tom Delling  
Field Inspector  
North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Rosebud #22-11  
Township 153 North-Range 101 West  
Section 11: SE<sub>1</sub>NW<sub>1</sub>  
McKenzie County, ND  
Well File No. 11549

Basic Corps of Engineers #31-10  
Township 153 North-Range 101 West  
Section 10: NW<sub>1</sub>NE<sub>1</sub>  
McKenzie County, ND  
Well File No. 11920

Dear Mr. Delling:

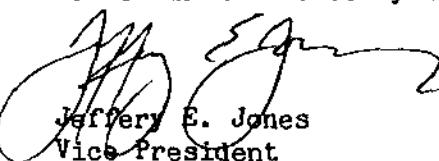
We are in receipt of your letter of October 20, 1986, regarding the above-referenced wells. We have reviewed our production operation both in-house and with our field personnel and are unaware of any recurring problem with gas venting off the top of the Rosebud #22-11 tanks. Since this well is hooked into a gas sales line, we would be anxious to correct this problem. Please contact me at your earliest convenience so we can discuss this perceived problem and seek a reasonable solution. Any solution to a problem must be matched with the scope of the problem it is intended to solve, for this reason I am in need of further input from you to solve this problem.

We are still in the process of repairing the casing problems in the Corps of Engineers #31-10 well and as soon as that work is completed, we will submit a form 4 detailing exactly what has been done to date. At this point in time, we have run a string of casing to the bottom of the hole and are attempting to verify how well cemented it is.

Please contact me at your convenience so we can resolve any problem we may have. ~

Sincerely,

Basic Earth Science Systems, Inc.



Jeffrey E. Jones  
Vice President

JEJ:jb

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

11920

WESLEY D. NORTON  
Chief Enforcement Officer

F. E. WILBORN  
Deputy Enforcement Officer

CLARENCE G. CARLSON  
Geologist

CHARLES KOCH  
Engineering Dept.

DOREN DANNEWITZ  
Field Supervisor

KEN KALLESTAD  
Reclamation Sup.

October 20, 1986

Mr. Jeffery E. Jones  
Basic Earth Science System  
P.O. Box 3088  
Englewood, Colorado 80155

RE: Rosebud #22-11  
SE NW Section 11-T153N-R101W  
Well File No. 11549

Basic Corps of Engineers #31-10  
NW NE Section 10-T153N-R101W  
Well File No. 11920

Dear Mr. Jones:

Please be advised that we are requiring that a closed system be installed on the Rosebud #22-11. You may either tie in the tank vent lines to the flare pit or install a vapor recovery system. This is due to the close proximity of the rifle range and previous problems with gas coming off the top of the tanks. Please take care of this immediately.

Also, it is our understanding that you encountered problems with your casing program on the Basic Corps of Eng #31-10 well. Please submit a Form 4 detailing the problems and what was done to rectify the problems. Thank you.

Sincerely,

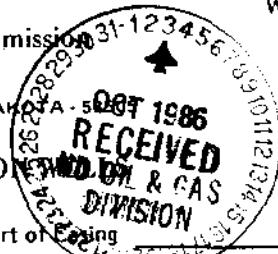
*Tom Delling /rb*  
Tom Delling  
Field Inspector

TD/rbs

North Dakota State Industrial Commission  
Oil and Gas Division

900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA 58501

SUNDRY NOTICES AND REPORTS ON



1. Notice of Intention to Drill or Redrill \_\_\_\_\_
2. Notice of Intention to Change Plans \_\_\_\_\_
3. Notice of Intention to Pull Casing \_\_\_\_\_
4. Notice of Intention to Abandon Well \_\_\_\_\_
5. Report of Water Shut-Off \_\_\_\_\_
6. Report of Shooting or Acidizing \_\_\_\_\_

7. Report of Casing \_\_\_\_\_ X
8. Report of Redrill \_\_\_\_\_
9. Supplementary History \_\_\_\_\_
10. Well Potential Test \_\_\_\_\_
11. Drilling Prognosis \_\_\_\_\_
12. \_\_\_\_\_

NAME OF LEASE Basic Corps of Engineers Date September 30, 1986

WELL NO. 31-10 is located 660 ft. from (N) (S) line and 2305 ft. from the (E) (W) line

of Section 10 Township 153N Range 101W in McKenzie

County, Baker Field Red River Pool. The elevation of the ground

is 1851 feet above sea level.

Name and Address of Contractor, or Company which will do work is:

**(DETAILS OF WORK)**

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing, indicate mud weights, cementing points, and all other details of work)

**"TIGHT HOLE"**

Production Casing: Ran 335 jts. 17 & 20# L-80 and 26# SS-95 casing. Landed at 13,434'.

Cementing: 1st stage: 340 sx. Halliburton lite followed by 742 sx. class "G".  
2nd stage: Lead w/176 sx lite, followed by 530 sx lite tailed w/1150 sx class "G". Dropped plug and displaced w/186 bbls. salt water.

Company Basic Earth Science Systems, Inc.

Do not write in this space

Address P.O. Box 3088, Englewood CO 80155

Approved

OCT 03 1986

19

By Jeffrey E. Jones

By

F. Ellsworth

Title Vice President

Title

Deputy Enforcement Officer



Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

September 30, 1986



North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Corps of Engineers #31-10  
Sec. 10, T153N, R101W  
McKenzie County, ND

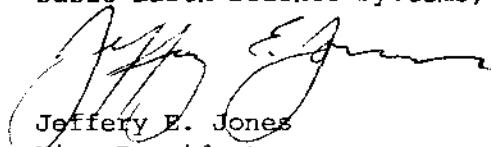
Gentlemen:

Enclosed please find four copies of a Sundry Notice detailing the setting and cementing of the production casing in the above referenced well.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Basic Earth Science Systems, Inc.

  
Jeffery E. Jones  
Vice President

JEJ:ak

Enclosures

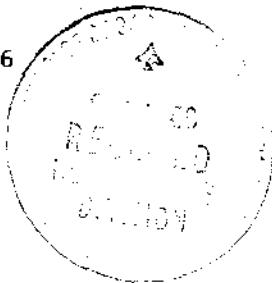
**basic**

Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

1192C

September 22, 1986



DISTRIBUTION

Re: Corps of Engineers #31-10  
Sec. 10, T153N, R101W  
McKenzie County, ND

Gentlemen:

Enclosed please find your required number of copies of the Geologist's Well Report for the above referenced well.

Please do not hesitate to contact me if you have any questions or need further information.

Sincerely,

Basic Earth Science Systems, Inc.

*Charles L. Mitchell*

Charles L. Mitchell  
Geologist

CLM:ak

Enclosure/s

1980



WELL REPORT

BASIC EARTH SCIENCE SYSTEMS, INC.

BASIC CORPS OF ENGINEERS NO. 31-10  
Sec. 10-T153N-R101W  
McKenzie County, North Dakota

Charles L. Mitchell  
Senior Geologist  
Basic Earth Science Systems, Inc.

TABLE OF CONTENTS

GENERAL DATA.....	2
FORMATION TOPS AND MARKERS.....	3
DRILL STEM TESTS.....	4
DEVIATIONS.....	14
BITS.....	15
MUD.....	16
ELECTRIC LOGS.....	17
SAMPLE DESCRIPTION.....	18
WELL HISTORY.....	31
DRILLING TIME LOG.....	In Pocket

DATA SHEET

OPERATOR: Basic Earth Science Systems, Inc.  
44 Inverness Drive East, Building E  
Englewood, CO 80112  
(P.O. Box 3088, Englewood, CO 80155)

WELL: Basic Corps of Engineers #31-10

LOCATION: NWNE Sec. 10-T153N, R101W  
McKenzie Co., North Dakota  
Surface: 660 FNL' and 2305' FEL  
Bottom Hole: 841' FNL and 1918' FEL

ELEVATION: 1851' Ground  
1872' K.B.

SPUD: June 20, 1986, 11:00 PM

FINISH DRILLING: August 18, 1986

COMPLETED: Completion pending

TOTAL DEPTH: 13,480' Driller, 13,475' Schlumberger

CASING: 9 5/8" @ 2996' w/1100 sacks, 5-1/2" @ 13,480'.

TESTS: DST #1: 9156 - 9200 (Nesson); DST #2: 10,920 - 10,984 (Duperow); DST #3: 11,087 - 11,132 (Duperow); DST #4: 12,088 - 12,138 (Interlake); DST #5: 12,866 - 12,940 (Interlake); DST #6: 13,252 - 13,480 (Red River); DST #7: 13,239 - 13,480 (Red River).

CORES: None

RIG: Shelby Drilling Inc. Rig #52

TOOL PUSHER: Ray Gentry

MUD: Davis Mud Co., Greg Sjaastad

MUDLOG: Red River Exploration, Marvin Heupel, one man unit

WELLSITE GEOLOGIST: Charles L. Mitchell-Basic Earth Science Systems, Inc.

WELLSITE ENGINEER: Tom Hopkin, Dickinson, North Dakota

FORMATION TOPS AND MARKERS

	<u>Log Depth</u>	<u>TVD Correction</u>	<u>Subsea K.B. 1872'</u>	<u>Structurally High to Rosebud #22-11</u>
<u>Cretaceous</u>				
Greenhorn	4,344 ft.	1 ft.	-2,471 ft.	
Muddy	4,746	7	-2,867	
Dakota	5,156	15.5	-3,269	
<u>Jurassic</u>				
Morrison	5,622	25	-3,725	
Piper	6,267	31	-4,364	
Dunham Salt	6,653	32	-4,749	
<u>Permian</u>				
Minnekahta	7,022	32	-5,118	
Opeche	7,078	32	-5,174	
<u>Pennsylvanian</u>				
Minnelusa	7,343	32	-5,439	
Amsden	7,636	32	-5,732	
<u>Mississippian</u>				
Kibbey L.S.	8,098	33	-6,193	
Charles	8,252	33	-6,347	
Base Last Salt	8,950	33	-7,045 . . . . . 11 ft.	
Midale	9,077	33	-7,172	
Nesson	9,174	33	-7,269 . . . . . 15	
Lodgepole	9,739	33	-7,834	
Bakken	10,430	33	-8,525 . . . . . 30	
<u>Devonian</u>				
Three Forks	10,507	33	-8,602	
Nisku	10,695	33	-8,790	
Duperow	10,782	33	-8,877 . . . . . 34	
Souris River	11,242	33	-9,337	
Dawson Bay	11,478	33	-9,573	
Prairie	11,596	33	-9,691 . . . . . 35	
Winnepegosis	11,790	33	-9,885	
Ashern	11,981	33	-10,076 . . . . . 49	
<u>Silurian</u>				
Interlake	12,095	33	-10,190 . . . . . 51	
Stonewall	12,938	33	-11,033	
<u>Ordocovician</u>				
Gunton	13,012	33	-11,107	
Stoney Mtn. Shale	13,119	33	-11,214 . . . . . 38	
Red River	13,176	33	-11,271 . . . . . 35	
"B" Anhydrite	13,239	33	-11,334	
"C" Anhydrite	13,286	33	-11,381	
Total Depth	13,480	33	-11,575	

## DRILL STEM TEST DATA

DST No. 1: 9,156' - 9,200' (Nesson)

Test Type: Conventional, Open Hole.

DST Times: 15"-60"-90"-120".

BHT: 192 Degrees

Company: Lynes Inc., Rick Green-Tester

---

BLOW: IF: 1/4" Initial Blow, dead in 7 minutes.

ISI: No Blow-remained dead.

FF: 1/2" Initial Blow, 1 1/2" in 5 min., 3/4" in 15 min., 1/2" in 30 min., 1" in 45 min., 2" in 60 min., 1 1/4" in 75 min., 2 1/2" at end of test.

FSI: Shut in with 2 1/2" blow, dead in 18 min.

---

CUSHION: 15 gal. amonia

Recovery: 1' oil & gas emulsion

60' mud and oil cut amonia water

60' mud cut amonia water

149' gas and amonia cut mud

270' Total Fluid Recovery

---

RESISTIVITIES: Top Sample R.W.=.07 @ 70 degrees (100,000 PPM)-no nitrates

Middle Sample R.W.=.07 @ 70 degrees (100,000 PPM)-no  
nitrates

Bottom Sample R.W.=.05 @ 70 degrees (170,000 PPM)- 30 PPM  
nitrates

---

SAMPLE CHAMBER: 2300 cc total capacity

Pressure: 60 psi

Recovery: 400 cc oil, 600 cc water

RW: .06 @ 70 degrees (125,000 PPM)-no nitrates

Gravity: 30.7 API @ 60 degrees F

Mud Pit RW: .04 @ 70 degrees (200,000 PPM)

---

LABORATORY ANALYSIS OF SAMPLER

RW = .46 ohms @ 77 degrees F

Sodium Chloride = 310,100 PPM - no H<sub>2</sub>S

API Gravity = 30.7 @ 60 degrees F

Pour Point = 49 degrees F

Paraffin = 11.1%

DST #1 Continued

<u>PRESSESSES:</u>	<u>9125'(INSIDE)</u>	<u>9166'(OUTSIDE)</u>
IHP:	5070	5101
IFP:	100-100	113-113
ISIP:	3467	3443
FFP:	125-137	156-156
FSIP:	1107	1048
FHP:	5045	5087

REMARKS: The charts indicate that the test was successful. All pressures are uncorrected field pressures.

---

DST No. 2: 10,920 - 10,984 (Duperow)  
Test Type: Conventional, open hole  
DST Times: 15"-60"-120"-180"  
BHT: 236 degrees F  
Company: Lynes Inc., Keith Hammer, Tester

---

BLOW: IF: Open with a weak surface blow, 1/4" blow in 5 min., 1/4" in 15 min.  
ISI: Shut in with 1/4" blow, dead in 17 min.  
FF: Opened with a weak surface blow, 1/4" in 5 min., 1 1/2" in 15 min., 3" in 30 min., 5" in 45 min., 3 1/2" in 60 min..., 4" in 120 min.  
PSI: Closed tool with a 4" blow, dead in 25 min.

---

CUSHION: None

Recovery: 250' Drilling mud  
372' Mud cut salt water  
622' Total Fluid Recovery

---

RESISTIVITIES:

Top Sample  $R_w$ . = .045 @ 82 degrees F (185,000 PPM)  
Middle Sample  $R_w$ . = .045 @ 82 degrees F (185,000 PPM)  
Bottom Sample  $R_w$ . = .05 @ 80 degrees F (170,000 PPM)

---

LABORATORY ANALYSIS:

	Oil	Nitrates(PPM)	Clorides(PPM)
Top Sample:	16%	355	193,448
Middle Sample:	4%	52	209,219
Bottom Sample:	50%	None	207,116

---

ANALYSIS OF SAMPLER:

$R_w$ . = .044 ohms @ 77 degrees F  
Sodium Chloride = 342,200 PPM  
API Gravity = 36.4 at 60 degrees F  
Pour Point = 73 degrees F  
Paraffin = 13.72%

---

SAMPLE CHAMBER: 2300 cc Total Capacity

Pressure: 900 psi  
Recovery: 550 cc oil, 1600 cc water  
 $R_w$ : 0.05 @ 80 degrees F, (170,000 PPM)  
Gravity: 39 degrees API @ 60 degrees F  
Mud Pit  $R_w$ : 0.04 @ 76 degrees (200,000 PPM)

---

DST #2 Continued

<u>PRESSESSES:</u>	<u>10,903(INSIDE)</u>	<u>10,930(OUTSIDE)</u>
IHP:	6015	6055
IFP:	105-135	104-139
ISIP:	5007	5065
FFP:	219-329	278-383
FSIP:	5007	5065
FHP:	5985	6028

REMARKS: The charts indicate that the test was successful. All pressures are uncorrected field pressures.

DST No. 3: 11,087 - 11,132 (Duperow)  
Test Type: Conventional, Open hole  
DST Times: 15"-60"-90"-120"  
BHT: 230 degrees  
Company: Lynes, Inc., Keith Hammer, Tester

---

BLOW: IF: Tool opened with a 1/2" blow, 3 1/2" in 5 min., 6" in 10 min., 8 1/2" in 15 min.  
ISI: Shut-in with an 8 1/2" blow, dead in 22 min.  
FF: Opened with a 1" blow, 16" in 30 min., 1 psi in 45 min., 3 psi in 80 min., 2 1/2 psi in 90 min.  
FSI: Closed tool with 2 psi blow, opened blow to flare pit, GTS in 60 min., decreased to 6" blow in 120 min.

---

CUSHION: None

Recovery: 1050' Highly gas cut, slightly oil cut mud (20% oil)  
450' Slightly oil and gas cut muddy saltwater  
915' Salt water w/trace of oil  
2415' Total Fluid Recovery

---

RESISTIVITIES:

Top Sample  $R_w$  = .04 @ 79 degrees F (195,000 PPM-CL)  
Middle Sample  $R_w$  = Oil cut mud  
Bottom Sample  $R_w$  = .045 @ 83 degrees F (175,000 PPM)

---

LABORATORY ANALYSIS:

	<u>NaCl</u>	<u>Nitrates</u>	<u>Oil</u>	<u><math>R_w</math></u>
Top:	318,992 PPM	355 PPM	16%	.044 Ohm-Meters
Middle:	344,998 PPM	52 PPM	4%	.046 Ohm-Meters
Bottom:	351,530 PPM	None	1%	.046 Ohm-Meters

SAMPLER ANALYSIS:

$R_w$  = 0.46 ohms @ 77 degrees F  
Sodium Chloride = 351,530 PPM  
API Gravity = 34.4 @ 60 degrees F  
Pour Point = 84 degrees F  
Paraffin = 21.75%

---

SAMPLE CHAMBER: 3300 cc Total Capacity

Pressure: 1450 psi  
Recovery: 1700 cc Oil, 1600 cc Water, 9.7 cu. ft. gas  
 $R_w$ : .03 @ 84 degrees F (200,000 PPM)  
Gravity: 38 degrees API @ 60 degrees F  
Mud Pit  $R_w$ : 0.04 @ 79 degrees F (195,000 PPM) ~ no nitrates

---

DST #3 Continued

<u>PRESSESURES:</u>	<u>11,061(INSIDE)</u>	<u>11,097(OUTSIDE)</u>
IHP:	6104	6125
IFP:	239-329	244-348
ISIP:	5422	5429
FFP:	449-1169	452-1160
FSIP:	5303	5320
FHP:	6074	6088

REMARKS: The charts indicate that the test was successful. All pressures are uncorrected field pressures.

DST No. 4: 12,088 - 12,138 (Interlake)

Test Type: Conventional, Open hole

DST Times: 15"-60"-210"-270"

BHT: 254 Degrees F

Company: Johnson Testers, Bob Osborne, Tester

---

BLOW: IF: Opened with a 1/2" blow, 1" in 15 min.

ISI: Blow dead in 30 min.

FF: Opened with a surface blow, 1/8" in 20 min., 1 1/2" in 40 min., 4" in 50 min., 14" in 80 min., 26" in 100 min., 37" in 120 min., 63" in 180 min. and 72" in 210 min.

FSI: Opened to flow line, no GTS

---

CUSHION: 1000 ft. (8.2 Bbls.) fresh water

Recovery: 577' Slightly mud and gas cut water cushion

826' Highly gas and oil cut mud

1403' Total Fluid Recovery

---

LABORATORY ANALYSIS:

	Oil	Nitrates(PPM)	Chlorides(PPM)
Top Sample:	0%	None	16,700
Middle Sample	38%	347	166,900
Sampler:	20%	164	199,000

ANALYSIS OF SAMPLER:

Rw.= None calculated - foamy mud.

API Gravity: = 41.6 @ 60 degrees F

Pour Point = 43 degrees F

Paraffin = 15.17%

---

SAMPLE CHAMBER: 2500 cc Total Volume

Pressure: 279 psi

Recovery: 320 cc of oil, 1280 cc of mud, 1.57 C.F. gas

Rw: 0.04 @ 60 degrees F (197,000 PPM)

Mud Pit Rw: .04 @ 60 degrees F (197,000 PPM)

Gravity: 41.6 @ 60 degrees F

---

<u>PRESSESURES</u>	<u>12,103(INSIDE)</u>	<u>12,110(OUTSIDE)</u>
IHP:	7125	7135
IFP:	500-518	502-521
ISIP:	6020	6026
FFP:	518-594	521-596
FSIP:	5925	5932
FHP:	7125	7135

REMARKS: The charts indicates that the test was successful. All pressures are uncorrected field pressures.

DST No. 5: 12,866 - 12,940 (Interlake)

Test Type: Conventional, Open hole

DST Times: 15"-60"-90"-120"

BHT: 258 degrees F

Company: Flopetrol Johnson, Bob Osborn, Tester

---

BLOW: IF: Tool opened with a surface blow, 2" in 7 min., 4 1/2" in 15 min.

ISI: Shut in with a 6" blow, 9" in 20 min., 4" in 40 min. and 1" 60 min.

FF: Opened with a 2" blow, 2" in 10 min., 5" in 20 min., 7" in 30 min., 6" in 60 min. and 5 1/2" in 90 min.

---

CUSHION: 720' Fresh water (4.5 bbls)

Recovery: 319' (4.5 bbls) Fresh water

695' (4.17 bbls) Slighty gas and water cut mud

1014' Total Fluid Recovery

---

LABORATORY ANALYSIS OF SAMPLER:

Rw: .046 ohms at 77 degrees F

Sodium Chloride: 336,600 PPM

---

SAMPLE CHAMBER: 2500 cc Total Volume

Pressure: 2100 psi

Recovery: 1720 cc Slighty mud cut salt water

Rw: .05 ohms @ 60 degrees F (196,000 PPM)

Pit Mud Rw: .04 ohms @ 60 degrees F (187,000 PPM)

---

<u>PRESSESSES:</u>	<u>12,891(INSIDE)</u>	<u>12,898(OUTSIDE)</u>
IHP:	7250	7259
IFP:	365-385	371-389
ISIP:	4770	4772
FFP:	385-474	389-479
FSIP:	5340	5345
FHP:	7250	7259

REMARKS: The charts indicate that the test was successful. All pressures are uncorrected field pressures.

DST No. 6: 13,252 - 13,480 (Red River)

Test Type: Conventional, Open hole

DST Times: Open 9", Packers Failed

BHT: 255 degrees F

Company: Flopetrol Johnson, Bob Osborn, Tester

---

BLOW: IF: Tool opened with a 7" blow, 33" in 5 min., 50" in 10 min.,  
lost packer seat - misrun

---

CUSHION: 1758' Fresh Water (22.7 bbls)

Recovery: 1598' Highly gas cut water cushion (22.7 bbls)  
3694' Highly gas cut mud (foam)  
5292' Total Recovery

---

SAMPLE CHAMBER: 2500 cc Total Volume

Pressure: 810 psi

Recovery: 1100 cc mud, 4.1 cf gas

---

PRESSURES: None

REMARKS: The packers failed 9" into the first flow. The test was a misrun.

DST No. 7: 13,239 - 13,480 (Red River)

Test Type: Conventional, Open hole

DST Times: 15"-90"

BHT: 255 Degrees F

Company: Flopetrol Johnson, Bob Osborne, Tester

---

BLOW: IF: Opened with a 2" blow, 8" in 5 min., 20" in 10 min., 28" in 15 min.

ISI: Shut in with a 28" blow, 31" blow in 60 min., 45" in 90 min.

FF: Lost packer seat.

---

CUSHION: 1944' Fresh water (25.3 bbls)

Recovery: 1781' Water cushion (25.3 bbls)

4631' Gas cut mud (63.3 bbls)

6412' Total Recovery

---

SAMPLE CHAMBER: 2500 cc Total Volume

Pressure: 10 psi

Recovery: 2400 cc mud, .03 CF Gas

---

PRESSURES:	<u>13,294(INSIDE)</u>	<u>13,300(OUTSIDE)</u>
IHP:	7430	7438
IFP:	1000-1170	1015-1176
ISIP:	6270	6275
FFP:	Packers Failed	
FHP:	7430	7438

REMARKS: The initial flow and initial shut-in pressures appear valid. The packers failed at the beginning of the second flow period resulting in a misrun. All pressures are uncorrected field pressures.

DEVIATION

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
510	1/2	S25W	6163	6-1/4	S66E
1094	1/4	S43W	6226	5-1/2	S64E
1620	1/4	N68E	6281	5	S67E
2125	1/4	N26E	6383	4-1/4	S71E
2572	0	N26E	6479	4	S66E
2935	1/2	S79E	6542	3-3/4	S67E
3510	3/4	S77E	6700	3	S57E
3980	0	S77E	6828	2-1/2	S67E
4030	3/4	S79E	6955	2	S57E
4063	1-1/4	N88E	7455	1	S57E
4094	2	N88E	7958	1	S42E-
4126	2-3/4	S88E	<u>TVD 7925.54</u>		
4158	3-1/4	S84E	8242	1/2	S55E
4190	3-3/4	S74E	9170	1/2	S57E
4221	4-1/2	S74E	9477	1/4	N1E
4253	5	S67E	10270	0	
4285	5-3/4	S71E	10968	1/4	N64W
4317	6-1/4	S67E	12003	1-1/4	N43W
4348	6-3/4	S67E	12570	1	S43W
4380	7-1/2	S63E	12980	3/4	S59W
4411	8	S62E	13450	3/4	N76W
4443	8-1/2	S62E			
4540	9-3/4	S64E			
4635	10-1/4	S64E	The Corps. of Engineers #31-10 was drilled as a deviated hole. At 7958' the True Vertical Depth is 32.5' less than the drillers depth, the bottom hole location is 181 feet South and 387 feet East of the Surface Location or about 841 feet FNL and 1918 feet FEL.		
4794	11	S65E			
4839	11-1/2	S63E			
4985	11-3/4	S66E			
5050	12-1/4	S65E			
5145	12-3/4	S65E			
5177	12-1/2	S66E			
5225	12-1/2	S66E			
5241	12	S65E			
5336	11-1/2	S64E			
5430	11-3/4	S64E			
5559	10-3/4	S64E			
5650	10	S65E			
5712	10	S65E			
5785	9-1/2	S64E			
5848	9	S67E			
5912	8-1/2	S68E			
6004	7	S70E			
6036	7-1/4	S69E			
6099	7	S66E			



Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155BIT RECORDWELL NAME: Basic Corps of Engineers #31-10LOCATION: Sec. 10-T153N-R101WCOUNTY McKenzieSTATE ND

Bit No.	Make	Type	Jet Size	Interval	Feet	Hours	Wt. 1000#	RPM	PP	Dullness Cond	
										T	B
1	HTC	J-1	14-14-13	90-2518	2,428	21-1/2	35	200	1800	8	4
1A	HTC	J-1	14-14-13	2518-3000	482	4	35	200	1800	1	1
1	HTC	J-1	10-10-10	3000-4000	1,000	17	45	120	1400	6	4
2	HTC	J-1	16-16-16	4000-4354	354	7 1/2	45	120	1000	1	1
3	HTC	J-2	16-16-16	4354-4521	167	7 3/4	45	80	1000	1	1
4	HTC	J-22	11-11-11	4521-5744	1,223	41 1/2	40	80	1800	4	4
5	HTC	J-22	11-11-11	5744-6880	1,136	72 1/4	40	90	2000	3	5
6	HTC	J-33	10-11-11	6880-7832	952	59 1/2	55	80	2000	5	8
7	HTC	J-33H	10-11-11	7832-8690	858	53	55	80	1600	5	8
8	HTC	J-33H	10-11-11	8690-9200	464	39 3/4	50	80	1700	2	2
9	HTC	J-33H	10-11-11	9200-9517	317	30 1/4	50	80	1700	8	5
10	HTC	J-33C	10-10-10	9517-9637	120	14 3/4	55	70	1800	8	2
11	HTC	J-33C	10-10-10	9637-9780	144	16	52	70	2000	6	2
12	HTC	J-33C	10-10-10	9780-10320	540	59	55	72	2000	8	8
13	HTC	J-33C	10-10-10	10320-10922	602	63	55	55	1900	4	6
14	HTC	J-33C	10-10-10	10922-11336	414	40 3/4	55	60	1800	4	2
15	HTC	J-33C	10-10-10	11336-12024	688	70 1/4	50	60	2000	2	2
16	STC	F-37RR	10-10-10	12024-12138	144	20 1/4	50	60	1950	3	8
17	HTC	J-55	10-10-10	12138-12692	554	46	50	60	2050	8	8
18	HTC	J-55	10-10-10	12692-12940	248	31	55	60	2050	8	8
19	HTC	J-33RR	10-10-11	12940-13015	75	8 3/4	50	60	1950	6	8
20	STC	F-3	10-10-11	13015-13393	378	39 1/2	55	60	1950	8	2
21	HTC	J-33RR	10-10-11	13393-13480	87	12 1/4	55	60	2075	2	8

MUD

DATE	DEPTH	WT	VIS	PV	YP	WL	CHLORIDES	SALT	NITRATES
6/21	202	8.6	35	7	4	18	120	-	-
6/22	1,925	9.3	46	10	13	16	1320	800	-
6/23	3,000	9.3	34	10	8	22	1452	880	-
6/24	3,000	9.9	105	26	32	14	1815	1100	-
6/25	-	-	-	-	-	-	-	-	-
6/26	3,000	8.6	27	2	1	-	7425	4500	-
6/27	4,000	9.0	31	3	4	12	1200	1980	-
6/28	4,354	9.1	34	5	5	11.6	1350	2227	-
6/29	4,521	8.8	36	7	7	16	2300	3795	-
6/30	5,093	9.2	34	7	8	14	1800	2970	-
7/1	5,470	9.3	38	10	7	15	2100	3465	-
7/2	5,744	9.2	38	6	9	13	2000	3300	-
7/3	6,077	9.3	40	9	13	16	2600	4290	-
7/4	6,390	10.0	26	-	-	22	200,000	330,000	-
7/5	6,729	10.1	32	6	5	26	202,000	333,300	-
7/6	6,928	10.3	36	10	8	36	198,000	326,700	-
7/7	7,292	10.3	34	10	7	28	194,000	320,100	-
7/8	7,578	10.4	35	10	8	24.2	199,000	328,350	-
7/9	7,844	10.5	36	11	9	16	197,000	325,050	-
7/10	8,116	10.5	38	14	11	11	194,000	320,100	-
7/11	8,572	10.5	38	13	11	14	194,000	320,100	-
7/12	8,830	10.5	37	13	11	14	193,000	310,450	-
7/13	9,056	10.5	38	10	10	14	194,000	320,100	120
7/14	9,154	10.5	38	12	10	15.6	193,000	318,450	100
7/15	9,200	10.6	40	13	10	9.8	195,000	321,750	100
7/16	9,313	10.6	40	13	10	12.4	193,000	318,450	75
7/17	9,517	10.7	37	14	9	14.6	191,000	315,100	60
7/18	9,637	10.8	38	14	8	15.4	192,000	316,800	50
7/19	9,780	10.7	38	13	9	16.8	195,000	321,750	35
7/20	9,923	10.7	39	14	12	16.4	195,000	321,750	25
7/21	10,068	10.6	40	12	10	15.2	196,000	323,400	85
7/22	10,278	10.5	39	12	11	15.0	196,000	323,400	75
7/23	10,414	10.4	39	12	10	15.8	197,000	325,000	80
7/24	10,471	10.5	39	13	10	16.8	196,000	323,400	80
7/25	10,572	10.6	39	13	9	15.2	197,000	325,050	95
7/26	10,777	10.5	40	12	11	14.6	197,000	325,050	90
7/27	10,922	10.6	38	11	10	11.0	191,000	315,100	95
7/28	10,984	10.5	40	13	10	11.2	196,000	323,400	100
7/29	11,057	10.5	39	12	10	14.0	196,000	323,400	85
7/30	11,132	10.5	40	10	12	13.0	198,000	326,700	85
7/31	11,186	10.5	42	12	10	15.0	198,000	326,700	60
8/1	11,336	10.5	42	12	11	16.0	194,000	320,100	50
8/2	11,369	10.5	42	12	13	16.0	196,000	323,400	85
8/3	11,569	10.6	42	13	12	17.0	196,000	323,400	100
8/4	11,642	10.7	40	14	10	15.6	197,000	325,050	75
8/5	11,930	10.6	42	14	13	14.6	197,000	325,050	60
8/6	12,024	10.7	43	15	12	14.0	194,000	320,100	80

Mud cont.

DATE	DEPTH	WT	VIS	PV	YP	WL	CHLORIDES	SALT	NITRATES
8/7	12,138	10.7	41	13	12	11.8	191,000	315,150	85
8/8	12,138	10.6	41	13	12	10.0	191,000	315,150	85
8/9	12,230	10.6	44	14	12	12.0	192,000	316,800	80
8/10	12,504	10.7	45	17	13	16.0	195,000	321,750	80
8/11	12,692	10.6	43	14	11	11.6	194,000	320,100	80
8/12	12,825	10.7	44	17	13	9.0	194,000	320,100	75
8/13	12,940	10.7	44	16	12	8.0	187,000	308,550	70
8/14	12,956	10.7	45	19	14	14.0	193,000	318,450	70
8/15	13,110	10.6	45	17	14	8.0	189,000	311,850	80
8/16	13,278	10.8	44	16	11	9.2	194,000	320,100	85
8/17	13,393	10.7	44	15	12	14.0	194,000	320,100	95
8/18	13,480	10.8	48	18	13	8.2	195,000	321,750	85
8/19	13,480	10.8	48	18	13	8.0	195,000	321,750	85
8/20	13,480	10.8	48	17	14	9.0	192,000	316,800	85

#### ELECTRIC LOGS

After reaching total depth, the following Schlumberger logs were run:

Dual Laterolog - Micro SFL: 0 - 13,474

Compensated Neutron-Density: 8,750 - 13,442

Borehole Compensated Sonic-Gamma Ray: 2,968 - 13,460

SAMPLE DESCRIPTIONS

Descriptions begin at 8400 feet, in the Charles Formation. Unlagged 30 foot samples were caught by drilling crews from the base of surface casing to 8400 feet. Lagged 10 foot samples were caught by drilling crew personnel from 8400 feet to TD. Sample quality is poor to 8400 feet and fairly good below 9000 feet.

8,400 - 8,460	Salt
8,460 - 8,490	Limestone, brown, finely crystalline, 70% shale cavings: black, orange and gray-green.
8,490 - 8,505	Limestone, brown, microcrystalline, 70% shale cavings.
8,505 - 8,545	Salt, cavings.
8,545 - 8,575	Predominately cavings.
8,575 - 8,640	Salt.
8,640 - 8,660	Limestone, brown, microcrystalline, 50% shale cavings.
8,660 - 8,680	Limestone, as above, trace limestone, gray, pelletoidal, tight.
8,680 - 8,690	No sample, tripped for Bit #8.
8,690 - 8,700	Limestone, brown, microcrystalline.
8,700 - 8,720	Limestone, brown, crystalline, no visible porosity, trace limestone, gray, pelletoidal, tight.
8,720 - 8,760	Salt, about 80% cavings.
8,760 - 8,800	Limestone, brown, crystalline, mottled, trace anhydrite, gray, 40% cavings.
8,800 - 8,840	Limestone, brown, microcrystalline, 20% shale cavings.
8,840 - 8,860	Anhydrite, gray, 20% shale cavings.
8,860 - 8,884	Limestone, gray, microcrystalline.
8,884 - 8,934	Salt.
<u>8,934 Base Last Charles Salt</u>	
8,934 - 9,042	Anhydrite, gray, interbedded with dolomite, brown-gray, finely crystalline.

Sample Descriptions cont.

Drilling break at 9,042 - 9,049 = 9 unit gas increase.

9,042 - 9,049      Limestone, light brown, finely crystalline, no visible porosity, some gold mineral fluorescence, no cut, no visible show.

9,049 - 9,062      Anhydrite, gray-white.

9,062 Midale

9,062 - 9,068      Limestone, brown, microsucrosic, no visible porosity, no cut or fluorescence, trace anhydrite, gray.

Drilling break at 9,068 - 9,096: 5 unit gas increase.

9,068 - 9,096      Limestone, brown, pelletoidal, tight, 40% limestone, brown, finely crystalline, tight, no shows.

9,096 - 9,150      Limestone, brown, microcrystalline, tight.

9,150 - 9,159      No sample - tripped for hole in drill pipe.

9,159 - 9,168      Limestone, brown, finely crystalline, trace limestone, gray, microsucrosic, tight, no shows.

9,168 Nesson

Drilling break at 9,168 - 9,176 - No gas increase.

9,168 - 9,170      Limestone, brown, finely crystalline, tight, trace limestone, gray, pelletoidal, tight, no shows, 15% cavings

9,170 - 9,175      Limestone, brown to gray, mottled, argillaceous, tight, no shows, limestone, gray, microsucrosic, tight, no shows (cluster of 200 grains equals 0.25mm diameter), asphaltic contamination - pipe dope?, gives poor yellow streaming cut to pinch cut samples.

9,175 - 9,180      Limestone, brown to gray, mottled, argillaceous, tight, trace limestone, sucrosic with brown oil stain, fair porosity, weak fluorescence when wet, good yellow-white streaming cut with a slight greenish tint, contamination?

9,180 - 9,185      Limestone, brown, finely crystalline tight.

9,185 - 9,200      Limestone, brown-gray, microcrystalline, no visible porosity.

9,200 - 9,230      Cavings after DST #1: 9,156 - 9,200.

9,230 - 9,260      Limestone, light brown, finely crystalline, firm, tight, no shows.

Sample Descriptions cont.

9,260 - 9,320	Limestone, light gray, microcrystalline, occasionally subsucrosic, slightly argillaceous, tight.
9,320 - 9,360	Limestone, light brownish gray, microcrystalline, slightly argillaceous tight.
9,360 - 9,410	Limestone, light brown to tan, cryptocrystalline, slightly fossiliferous-fragmental, tight.
9,410 - 9,430	Limestone, light brownish gray, microcrystalline, tight.
9,430 - 9,470	Limestone, as above, predominately tan-brown.
9,470 - 9,500	Limestone, gray to dark gray, microcrystalline, slightly mottled, no visible porosity.
9,500 - 9,517	No samples - tripped for Bit #10.
9,517 - 9,550	Limestone, as above, becoming light-medium gray.
9,550 - 9,590	Limestone, as above, some dark gray.
9,590 - 9,620	Limestone, light gray, microcrystalline, micritic, subchalky, tight.
9,620 - 9,637	No samples - tripped for hole in drill collars.
9,637 - 9,670	Limestone, light brownish gray, microcrystalline, slightly argillaceous, tight.
9,670 - 9,730	Limestone, as above, brown-gray, some light gray.
9,730 - 9,770	Limestone, light gray, microcrystalline, no visible porosity.
9,770 - 9,780	No samples - tripped for Bit #12.
9,780 - 9,870	Limestone, light gray-gray, microcrystalline, subchalky, slightly argillaceous, tight.
9,870 - 9,943	Limestone, brownish gray to gray, cryptocrystalline, slightly fragmental, tight.
<u>Drilling break at 9,943 - 9,944 - 42 unit gas increase.</u>	
9,943 - 9,944	Limestone, medium gray, microcrystalline, trace pinpoint porosity with dead oil stain, no fluorescence or cut.
9,944 - 9,980	Limestone, brownish gray, microcrystalline, slightly argillaceous, no visible porosity, trace limestone, dark gray, pyritic.

Sample Description cont.

9,980 - 10,000 Limestone, as above, light gray, tight.  
10,000 - 10,017 No sample - tripped for hole in drill collars.  
10,017 - 10,040 Limestone, dark gray, carbonaceous, abundant plant fragments, also limestone, grayish brown, microcrystalline tight.

Drilling break at 10,040 - 10,042: 54 unit gas increase.

10,040 - 10,042 Limestone, dark gray, microcrystalline, firm, slightly argillaceous, tight, no fluorescence or cut.  
10,042 - 10,080 Limestone, light grayish brown, microcrystalline.  
10,080 - 10,100 Limestone, as above, gray, carbonaceous, earthy texture.  
10,100 - 10,120 Limestone, as above, trace vuggy porosity.  
10,120 - 10,150 Limestone, light grayish brown, microcrystalline, no visible porosity.  
10,150 - 10,200 Limestone, grayish brown, cryptocrystalline, tight.  
10,200 - 10,210 Limestone, light brown, microcrystalline, slightly argillaceous.  
10,210 - 10,240 No samples - shale shaker repairs.  
10,240 - 10,290 Limestone, as above, light brown-gray, no visible porosity.  
10,290 - 10,310 Limestone, light brownish gray, microcrystalline, no visible porosity.  
10,310 - 10,320 No sample - tripped for Bit #13.  
10,320 - 10,400 Limestone, light grayish brown, finely crystalline, no visible porosity.  
10,400 - 10,418 Limestone, light gray to gray, finely crystalline, tight.  
10,424 Bakken  
10,418 - 10,441 Tripped for hole in drill collars at 10,441 feet. Samples not circulated out.  
10,441 - 10,474 Shale, black, soft, slightly gritty, earthy.  
10,474 - 10,480 Exshaw Shale: 240 unit gas increase.  
10,474 - 10,480 Shale, black, moderately firm, carbonaceous.

Sample Descriptions cont.

10,480 - 10,500 Shale, black, carbonaceous.

10,500 Three Forks

10,500 - 10,510 Tripped for hole in drill collars at 10,510 feet, samples not circulated out.

10,510 - 10,550 Limestone, brownish gray, microcrystalline, tight, 80% black shale cavings.

10,550 - 10,570 Limestone, brown to tan with an orange cast., microcrystalline, no visible porosity.

10,570 - 10,600 Limestone, orange-white, microcrystalline to crystalline, no visible porosity, interbedded with shale, orange-brown, lavender.

10,600 - 10,630 Limestone, orange-white, microcrystalline, tight.

10,630 - 10,650 Limestone as above, some shale, purple and orange.

10,650 - 10,682 Limestone and shale, as above.

10,682 Nisku

10,682 - 10,706 Limestone, brownish gray, microcrystalline, no visible porosity, no shows.

Drilling break at 10,706 - 10,708: No gas increase.

10,706 - 10,708 Limestone, brownish gray, microcrystalline, tight.

10,708 - 10,734 Limestone, as above.

Drilling break at 10,734 - 10,738: 16 Unit gas increase.

10,734 - 10,740 Limestone, brownish gray, slightly mottled, microcrystalline, trace limestone, gray, microsucrosic, no visible porosity, no cut or fluorescence.

10,740 - 10,760 Limestone, light brownish gray, microcrystalline, no visible porosity, no shows.

10,760 - 10,776 Limestone, brownish gray, pelletoidal, tight, no shows.

10,776 Duperow

10,776 - 10,804 Limestone, light gray-brown, mottled, microcrystalline, no visible porosity, no cut or fluorescence. Ireton shale not discernible.

Sample description cont.

Drilling break at 10,804 - 10,834: No gas increase.

- 10,804 ~ 10,815 Limestone, light brown-gray, microcrystalline, no visible porosity, no shows.  
10,815 ~ 10,830 Limestone, light brown, pelletoidal, cemented, no shows.  
10,830 ~ 10,860 Limestone, light brown-gray, microcrystalline, no visible porosity, no shows.

Drilling break at 10,860 - 10,862: 20 unit gas increase.

- 10,860 ~ 10,862 Limestone, light brown-gray, microcrystalline, some mottled, no visible porosity, no shows.  
10,862 ~ 10,875 Limestone, as above.  
10,875 ~ 10,885 Limestone, light brown, microcrystalline, slightly mottled, no visible porosity, no shows.  
10,885 ~ 10,890 Limestone, as above, trace limestone, gray, pelletoidal, tight.  
10,890 ~ 10,910 Limestone, light brown-gray, mottled, microcrystalline, tight, no shows, 20% cavings.  
10,910 ~ 10,922 No sample-tripped for hole in drill collars.

Drilling break at 10,926 - 10,932: No gas increase.

- 10,926 ~ 10,932 Limestone, brown-gray, mottled, microcrystalline, no visible porosity, no cut or fluorescence.  
10,932 ~ 10,958 Limestone, brown-gray, microcrystalline, tight.

Drilling break at 10,958 - 10,960: 28 unit gas increase.

- 10,958 ~ 10,965 Limestone, light brown, microsucrosic, slight stain, poor to fair porosity, 1% had blue-white fluorescence and a weak streaming cut. Poor sample show.  
10,965 ~ 10,970 Limestone, light brown, microcrystalline, tight.  
10,970 ~ 10,975 Limestone, light brown-gray, microcrystalline, trace dolomite, gray-white, sucrosic, poor porosity, no cut or fluorescence, no gas increase.  
10,975 ~ 10,984 Limestone, as above.  
10,984 ~ 11,000 Cavings from DST #2.  
11,000 ~ 11,025 Limestone, brown, microcrystalline, tight.

Sample description cont.

11,025 - 11,040 Limestone, light brown-gray, microcrystalline, no visible porosity.

Drilling break at 11,040 - 11,046: 12 unit gas increase.

11,040 - 11,046 Limestone, light brown-gray, mottled, microcrystalline, some Dolomite, white, sucrosic, no cut or fluorescence.

11,046 - 11,060 Limestone, brown, finely crystalline, tight, no shows.

11,060 - 11,080 Limestone, as above.

11,080 - 11,090 Limestone, as above, trace Dolomite, brown, sucrosic, trace light brown stain, slight dull yellow fluorescence, no cut.

Drilling break at 11,090 - 11,104: 80 unit gas increase.

11,090 - 11,104 Dolomite Limestone, light brown, 15% sucrosic, fair porosity, no cut or fluorescence, trace Dolomite, sucrosic, yellow-green fluorescence, slow blue-white streaming cut.

11,104 - 11,116 Limestone, light gray-brown, finely crystalline, tight.

Drilling break at 11,116 - 11,126: 18 unit gas increase:

11,116 - 11,126 Dolomitic Limestone, light gray-brown, sucrosic, fair porosity, no cut or fluorescence. Pinch cuts have a trace of weak streaming cut - wet.

11,126 - 11,132 Limestone, light gray, finely crystalline, tight.

11,132 - 11,140 Cavings from DST #3.

11,140 - 11,150 Limestone, light gray-brown, finely crystalline, mottled, tight, no shows.

11,150 ~ 11,178 Limestone, as above, trace limestone, sucrosic, poor porosity, no shows.

Drilling break at 11,178 - 11,184: No gas increase.

11,178 - 11,184 Dolomitic limestone, light brown, sucrosic, trace dark oil stain, few pieces with a slow blue white cut and yellow green fluorescence.

11,184 - 11,200 Dolomitic limestone, as above, no shows.

11,200 - 11,222 Limestone, light brown-gray, finely crystalline, tight, no shows.

Sample description cont.

11,222 - 11,235      13' downward strap correction.

11,235 - 11,246      Limestone, as above.

11,246 Souris River

11,246 - 11,270      Limestone, light brownish gray, microcrystalline, dense, argillaceous.

11,270 - 11,300      Limestone, as above.

11,300 - 11,314      Limestone, as above, medium gray.

11,314 - 11,336      No samples - trip for hole in drill collars.

11,336 - 11,350      Poor samples - 85% cavings, shale, dark gray, silty.

11,350 - 11,400      Poor samples - 65% cavings, shale, dark gray, silty, some limestone, light gray, microcrystalline, tight.

11,400 - 11,448      Limestone, brown, microcrystalline, tight, trace limestone light brown, pelletoidal.

11,448 - 11,454      Limestone, light brown, microcrystalline, tight, possible 14 unit gas increase, no sample shows.

11,454 - 11,470      Limestone, light gray-brown, finely crystalline, tight.

11,476 Dawson Bay

11,470 - 11,488      Limestone, as above.

Drilling break at 11,488 - 11,498: 48 unit gas increase.

11,488 - 11,498      Dolomitic limestone, white to buff, finely crystalline, subchalky, no visible porosity, no cut or fluorescence in pinch cuts - no sample shows.

11,498 - 11,505      Limestone, white to buff, very finely crystalline, subchalky, tight.

11,505 - 11,550      Limestone, brown-buff, microcrystalline, tight.

11,550 - 11,569      No samples - tripped for hole in drill collars.

11,569 - 11,585      Limestone, light brown, microcrystalline, poor samples - 80% black shale cavings.

11,592 Prairie Salt

11,585 - 11,644      No samples - tripped for hole in drill collars.

Sample description cont.

11,644 - 11,790 Salt, samples are 80% Bakken shale cavings.

11,790 Winnepegosis

11,790 - 11,800 Salt, 50%, and shale cavings 50%.

11,800 - 11,824 Limestone, brown, microcrystalline, tight, and 60% shale cavings.

11,824 - 11,832 Poor samples - 60% cavings - 23 unit gas increase - limestone brown, microcrystalline, tight, no drilling break.

11,832 - 11,862 Limestone, as above. Poor samples, 50% cavings.

11,862 - 11,880 Limestone, as above, 29 unit gas increase, poor samples - 50% shale cavings - no drilling break.

11,880 - 11,900 Limestone, light brown-gray, finely crystalline, tight. 30% shale cavings.

11,900 - 11,920 Limestone, light brown, finely crystalline, mottled, slightly pelletoidal.

11,920 - 11,950 Limestone, as above.

11,950 - 11,979 Limestone, light brown, microcrystalline, tight.

11,979 - 11,981 Limestone, as above, 28 unit gas increase, no sample show.

11,982 Ashern

11,982 - 12,000 Limestone, dark brown, microcrystalline, tight, 20% cavings.

12,000 - 12,010 Shale, orange, and limestone, brown, tight.

12,010 - 12,024 No samples - tripped for a new bit.

12,024 - 12,050 Limestone, light brown-gray, microcrystalline, tight, interbedded with orange shale.

12,050 - 12,094 Limestone, brown, microcrystalline.

12,094 Interlake

Drilling break at 12,094 - 12,112: 40 unit gas increase.

12,094 - 12,112 Dolomitic limestone, light gray, some vuggy porosity, trace dolomite, white, sucrosic, very friable, no apparent stain, trace with good blue-white cut.

Sample decription cont.

12,112 - 12,126 Dolomitic limestone, light gray-white finely crystalline, tight.

Drilling break at 12,126 - 12,128: 16 unit gas increase.

12,126 - 12,128 Dolomite, light gray, finely crystalline, no visible porosity, dolomite fluorescence, no cut, trace dolomite, white, sucrosic, good porosity, friable, no shows.

12,128 - 12,138 Dolomite, as above.

12,138 - 12,146 Strap correction - 8' downward.

12,146 - 12,170 80% cavings from DST #4.

12,170 - 12,190 Dolomite, white, finely crystalline, some forams, no visible porosity, subchalky, tight.

12,190 - 12,200 Dolomite, as above.

12,200 - 12,210 Dolomite, as above, 80% shale cavings.

12,210 - 12,230 Dolomite, white, microcrystalline, trace forams, subchalky no visible porosity. 10% cavings.

12,230 - 12,250 Dolomite, as above, 50% cavings.

12,250 - 12,290 Dolomite, as above, 10% cavings, good samples.

12,290 - 12,320 Dolomite, as above.

12,320 - 12,350 Dolomite, buff - light brown, finely crystalline, subchalky, tight.

12,350 - 12,360 Dolomite, light brown, as above, trace dolomite, brown, sucrosic, no shows.

12,360 - 12,400 Dolomite, light brown, microcrystalline, medium soft, subchalky, tight.

12,400 - 12,440 Dolomite, as above.

12,440 - 12,470 Dolomite, white-buff, microcrystalline, subchalky, tight.

12,470 - 12,480 Dolomite, as above.

12,480 - 12,500 Dolomite, white - light brown, microcrystalline, no visible porosity, some dolomite, brown, sucrosic, tight.

12,500 - 12,550 Dolomite, as above, 5% cavings.

12,550 - 12,600 Dolomite, light brown, microsucrosic, no visible porosity.

Sample description cont

12,600 ~ 12,630 Dolomite, light brown, finely sucrosic, no visible porosity.

12,630 - 12,650 Dolomite, as above, becoming tan, microcrystalline, tight.

12,650 - 12,670 Dolomite, light brown-tan, finely crystalline to sucrosic, no visible porosity.

12,670 - 12,692 No samples - tripped for bit.

12,692 - 12,740 Dolomite, light brown, finely crystalline, granular, cemented, no visible porosity.

12,740 - 12,760 Dolomite, buff, finely crystalline, tight.

12,760 - 12,800 Dolomite, buff-brown, finely crystalline, tight.

12,800 - 12,850 Dolomite, dark brown, finely crystalline, slightly mottled, tight.

12,850 - 12,870 Dolomite, dark brown, finely crystalline, tight, some dolomite, dark brown, pelletoidal, trace dolomite, brown, sucrosic, tight.

Drilling break at 12,870 - 12,908: 59 unit gas increase.

12,870 - 12,890 Dolomite, dark brown, finely crystalline, no visible porosity, 5% dolomite, dark brown, sucrosic, tight, no fluorescence or cut.

12,890 - 12,908 Dolomite, as above, trace dolomite, pelletoidal, tight, no shows.

12,908 - 12,940 Dolomite, brown, microcrystalline to granular, no visible porosity, no cut or fluorescence.

12,944 Stonewall

12,940 - 12,960 Dolomite, brown-dark brown, finely crystalline, tight, trace dolomite, brown, sucrosic, no shows.

12,960 - 12,970 Dolomite, as above, possible 26 unit gas increase-possible recycle gas.

12,970 - 13,000 Dolomite, brown, finely crystalline, tight, trace dolomite, dark brown-brown, mottled, tight.

13,000 - 13,015 No samples - tripped for a new bit.

13,015 - 13,050 Limestone, brown, microcrystalline, tight.

13,050 - 13,100 Limestone, as above.

Sample description cont.

13,100 - 13,128 Limestone, brown-gray, microcrystalline, argillaceous, tight.

13,128 Stoney Mountain

13,128 - 13,150 Shale, light gray, calcareous.

13,150 - 13,184 Shale, as above.

13,184 Red River

13,184 - 13,200 Dolomite, brown, microcrystalline, no visible porosity, tight.

13,200 - 13,220 Dolomite, as above.

13,220 - 13,230 Anhydrite, gray-white.

Drilling break at 13,230 - 13,244: 5 unit gas increase.

13,230 - 13,248 Dolomite, brown-gray, microcrystalline, tight; about 5% dolomite, brown, microsucrosic, no visible porosity, no cut or fluorescence.

13,248 "B" Anhydrite

13,248 - 13,258 Dolomite, brownish gray, microcrystalline, slightly mottled, tight, trace anhydrite, gray-white.

Drilling break at 13,258 - 13,260: 29 unit gas increase.

13,258 - 13,266 Dolomite, brown, microcrystalline, no visible porosity, no shows. Circulate samples at 13,264.

Drilling break at 13,266 - 13,274: 47 unit gas increase.

13,266 - 13,274 Dolomite, brown, microcrystalline, subchalky, no visible porosity, no cut or fluorescence.

13,274 - 13,283 Dolomite, as above, circulated samples 120 min @ 13,283'.

13,183 - 13,306 Dolomite, brown, finely crystalline, tight, trace anhydrite, gray-white.

13,296 "C" Anhydrite

Drilling break at 13,306 - 13,310: 24 unit gas increase.

13,306 - 13,310 Dolomite, brown, finely crystalline, tight, trace dolomitic limestone, brown; mottled, pelletoidal, no cut or fluorescence.

Sample description cont.

13,310 - 13,318 Dolomite, as above.

Drilling break at 13,318 - 13,324: 19 unit gas increase.

13,318 - 13,324 Dolomite, brown-gray, microcrystalline, slightly mottled, tight, trace dolomite, microsucrosic, no visible porosity, no cut or fluorescence.

13,324 - 13,332 Dolomite, brown, microcrystalline, tight, no shows, circulated samples @ 13,332.

13,332 - 13,340 Dolomite, brown, microcrystalline, tight.

13,340 - 13,360 Dolomite, brown-gray, finely crystalline, mottled, tight, no cut or fluorescence.

13,360 - 13,384 Dolomite, brown-light brown, finely crystalline, trace pelletoidal micrite, tight.

13,384 - 13,393 No samples - tripped for a new bit.

13,393 - 13,420 Dolomite, light brown-gray, microcrystalline, tight; trace dolomite, gray, granular.

13,420 - 13,450 Limestone, light gray, dolomitic, tight.

13,450 - 13,480 Dolomite, light brown-gray, microcrystalline, tight.

13,480 - Driller's Total Depth.

13,475 - Schlumberger Total Depth.

WELL HISTORY

<u>DATE</u>	<u>6 AM DEPTH &amp; OPERATION</u>	<u>DRILLING PROGRESS: PREVIOUS 24 HOURS ACTIVITIES</u>
6/21	202' Drilling	Drilled 112' in 2 1/2 hours. Finished rigging up, spudded at 11:00 PM 6-20-86, drilled with Bit #1, HTC 12-1/4" J-1 from 90' to 202'. (*Previously set 16" csg @ 90')
6/22	1925' Drilling	Drilled 1723' in 14-1/2 hrs., hit water flow at 1600'. Drilling with fresh water, built mud to 9.3 and vis. to 46. Flow stopped.
6/23	3000' Rng Csg	Drilled 1075' in 10-3/4 hrs. Lost circulation at 2125 feet.
6/24	3000' Rng Csg	Ran 14 jts. of Csg., could no go any further. TOH with CSG. TIH with drill pipe to condition hole.
6/25	3000' W.O.C.	Ran 75 jts of 9-5/8" casing. Set @ 2954' with 850 sacks of Howco Lite and 250 sacks of Class A cement.
6/26	3000' Drig Cement	Nippled up and tested BOP. Picked up 14 drill collars.
6/27	4000' Rng Survey	Drilled 1000' in 11-1/2 hrs. Circulated hole for Dynadrill.
6/28	4354' Tripping	Drilled 354' in 7-1/2 hrs. Picked up Dynadrill.
6/29	4521' Tripping	Drilled 167' in 7-3/4 hrs. Layed down mud motor, bent sub, bit sub., 2 jts DP, picked up NBIBS, bit sub, tripped to 4400', W & R to 4500'.
6/30	5093' Wash & Ream	Drilled 572' in 14-1/2 hrs. Tripped to change out BHA.
7/1	5470' Drilling	Drilled 377' in 16-1/2 hrs.
7/2	5744' Tripping	Drilled 274' in 12 hrs. Rig repair, pump drive chain.
7/3	6077' Drilling	Drilled 333' in 16 hrs.

Well History cont.

7/4	6390' Drilling	Drilled 313' in 20-3/4 hrs. Changed to salt water mud system.
7/5	6729' Drilling	Drilled 339' in 21 hrs.
7/6	6928' Drilling	Drilled 199' in 18-1/4 hrs. Worked BOP Rams.
7/7	7292' Drilling	Drilled 364' in 22-3/4 hrs.
7/8	7578' Drilling	Drilled 286' in 16 hrs. Tripped for leak in drill collar.
7/9	7844' Drilling	Drilled 266' in 18-1/2 hrs. Tripped for bit #7, changed out key seat wipers.
7/10	8116' Drilling	Drilled 272' in 23-1/4 hrs.
7/11	8572' Drilling	Drilled 456' in 23 hrs.
7/12	8830' Drilling	Drilled 254' in 16-3/4 hrs. Changed out 10 cracked collars.
7/13	9056' Drilling	Drilled 226' in 20 hrs.
7/14	9154' Inspecting Drill Collars	Drilled 98' in 8-3/4 hrs. Layed down 13 cracked collars.
7/15	9200' Rng DST #1	Drilled 46' in 3-1/2 hrs. Running DST #1 - interval 9156' to 9200'.
7/16	9313' Drilling	Drilled 113' in 8-1/2 hrs.
7/17	9517' Tripping	Drilled 204 feet in 21-3/4 hrs. Tripped for bit #10.
7/18	9637' Tripping	Drilled 120 feet in 14-3/4 hrs. Tripped for bit #11.
7/19	9780' Tripping	Drilled 143' in 15-3/4 hrs. Tripped for hole in drill collars.
7/20	9923' Drilling	Drilled 144' in 15-1/2 hrs. Changed out and picked up 4 - 7" drill collars.
7/21	10,068' Drilling	Drilled 145' in 15-3/4 hrs. Tripped for cracked collars.
7/22	10,278' Drilling	Drilled 210' in 23-1/4 hrs.

Well History cont.

7/23	10,414' Drilling	Drilled 136' in 15 hrs. Tripped for hole in drill collars.
7/24	10,471' Tripping	Drilled 57' in 5-1/2 hrs. Tripped for hole in drill collars.
7/25	10,577' Drilling	Drilled 101' in 10-1/2 hrs. Tripped for hole in drill collar.
7/26	10,777' Drilling	Drilled 205' in 22-1/2 hrs.
7/27	10,922' Tripping	Drilled 145' in 17.5 hrs., tripped for hole in drill pipe.
7/28	10,984' Rng. DST #2	Drilled 62' in 6 hrs. Running DST #2: 10,920 - 10,984.
7/29	11,057' Drilling	Drilled 73' in 6-1/2 hrs. Finished Running DST #2.
7/30	11,132' Rng. DST #3	Drilled 75' in 6-3/4 hrs. Running DST #3: 11,087 - 11,132.
7/31	11,186' Drilling	Drilled 54' in 5-1/2 hrs.
8/1	11,336' Tripping	Drilled 150' in 16 hrs. Tripped for hole in drill collars. Worked stuck drill pipe.
8/2	11,369' Drilling	Drilled 33' in 5 hrs. Tripped out hole for 2 cracked drill collars.
8/3	11,569' Tripping	Drilled 200' in 23-1/2 hrs. Tripping for cracked drill collar.
8/4	11,642' Tripping	Drilled 73' in 5-1/2 hrs. Tripped out and layed down 6 drill collars.
8/5	11,922' Drilling	Drilled 280' in 21 hrs.
8/6	12,024' Tripping	Drilled 102' in 15-1/2 hrs. Tripped for bit #7 @ 12,024.
8/7	12,138' Circ. Samples	Drilled 114' in 20-1/4 hrs. Prep to run DST #4.
8/8	12,138' Rng. DST #4	Running DST #4: 12,088' - 12,138'. 8' downward strap correction.
8/9	12,202' Drilling	Drilled 56' in 4-1/2 hrs. Finished running DST #4.

Well History cont.

8/10	12,474' Drilling	Drilled 272' in 23-1/2 hrs.
8/11	12,692' Tripping	Drilled 218' in 18 hrs. Bit locked up.
8/12	12,820' Drilling	Drilled 128' in 15-1/4 hrs.
8/13	12,940' Rng DST #5	Drilled 120' in 15-3/4 hrs. Running DST #5.
8/14	12,945' Drilling	Drilled 5' in 1/2 hour. Running DST #5.
8/15	13,076' Drilling	Drilled 131' in 14-1/4 hrs. Rerun bit locked up.
8/16	13,278' Circ. Samples	Drilled 182' in 21 hrs. Circulated samples @ 13,264'.
8/17	13,393' Tripping	Drilled 115' in 12-1/2 hrs. Tripped for Bit #21.
8/18	13,480' Tripping	Drilled 87' in 12 hrs. Prepared to run Schlumberger logs.
8/19	13,480' Conditioning Hole	Preparing to run DST #6: 13,252 - 13,480.
8/20	13,480' Conditioning Hole	Preparing to run DST #7: 13,239 - 13,480.
8/21	13,480' Conditioning Hole	Preparing to run 5-1/2" casing.

11920

**NORTH DAKOTA INDUSTRIAL COMMISSION**  
**OIL AND GAS DIVISION**

---

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

September 15, 1986

Mr. Jeffery E. Jones  
Basic Earth Science Systems  
P.O. Box 3088  
Englewood, Colorado 80155

RE: Basic Game & Fish #34-3  
SW SE Section 3-T153N-R101W  
Well File No. 11745

Basic Corps of Engineers #31-10  
NW NE Section 10-T153N-R101W  
Well File No. 11920

Rosebud #22-11  
SE NW Section 11-T153N-R101W  
Well File No. 11549

Dear Mr. Jones:

Upon a recent inspection of the above captioned wells, I noted the following problems:

Basic Game & Fish #34-3 - reclamation of the drilling pit must be completed immediately. The ignitor is not working and must be repaired as soon as possible. Additionally, there is an area around the production equipment that is very weedy and is a potential fire hazard.

Rosebud #22-11 - ignitor was not working. Also weeds on the location that need to be removed.

Basic Corps of Engineers #31-10 - the drilling pit mud cuttings must be hauled out to an approved disposal pit and the drilling pit on location reclaimed immediately.

Please take care of these problems as soon as possible. If you have any questions, feel free to contact our office.

Sincerely,

*Tom Delling kb*  
Tom Delling  
Field Inspector

TD/rls

1920

3141516171819  
10

REPORT NO.  
13712F  
PAGE NO. 1  
TEST DATE:  
8-20-86

# WELL PERFORMANCE TESTING™ REPORT

SEP 1986  
RECEIVED  
RD OIL & GAS

FLOPETROL JOHNSTON  
Schlumberger

A Production System Analysis (NODAL) SIMULATION  
Based On Model Verified™ Interpretation

**Company:** BASIC EARTH SCIENCE

**Well:** CORPS. 31-10

**TEST IDENTIFICATION**

Test Type ..... MFE OH DST  
Test No. ..... 7  
Formation ..... RED RIVER  
Test Interval (ft) ..... 13239 - 13480  
Reference Depth .....

**WELL LOCATION**

Field ..... MC KENZIE  
County ..... NORTH DAKOTA  
State ..... 10T153NR101  
Sec/Twn/Rng .....  
Elevation (ft) .....

**HOLE CONDITIONS**

Total Depth (MD/TUD) (ft) .... 13480/13480  
Hole Size (in) ..... 8 3/4  
Casing/Liner I.D. (in) .....  
Perf'd Interval/Net Pay (ft) .. --/7  
Shot Density/Diameter (in) ...

**MUD PROPERTIES**

Mud Type ..... SALT STARCH  
Mud Weight (lb/gal) ..... 10.8  
Mud Resistivity (ohm.m) ..... 0.04 @ 60 DEG.F  
Filtrate Resistivity (ohm.m) .. 0.05 @ 60 DEG.F  
Filtrate Chlorides (ppm) ..... 192000

**INITIAL TEST CONDITIONS**

Initial Hydrostatic (psi) .... 7463  
Gas Cushion Type ..... NONE  
Surface Pressure (psi) ..... --  
Liquid Cushion Type ..... FRESH WATER  
Cushion Length (ft) ..... 1944

**TEST STRING CONFIGURATION**

Pipe Length (ft)/I.D. (in) ... 12931/3.83  
Collar Length (ft)/I.D. (in) .. 270/2.50  
Packer Depths (ft) ..... 13239  
Bottomhole Choke Size (in) ... 15/16  
Gauge Depth (ft)/Type ..... 13300/MECH.

**NET PIPE RECOVERY**

Volume	Fluid Type	Properties
*5.98 BBLS.	**OIL	ASSUMED 45 DEG. API
ACTUAL RECVY		
4631 FT.	GAS CUT MUD	
1781 FT.	GC WTR.CUSH	

**NET SAMPLE CHAMBER RECOVERY**

Volume	Fluid Type	Properties
0.229 SCF	GAS	CORRECTED TO PWF
2400 CC	MUD	0.04 @ 60 DEG. F
		190000 PPM CL.
Pressure: 10	GOR: ***2601	GLR: ***2601

**INTERPRETATION RESULTS**

Model of Behavior ..... HOMOGENEOUS  
Fluid Type Used for Analysis . \*OIL  
Reservoir Pressure (psi) .... 6469  
Transmissibility (md.ft/cp) .. 244.92  
Effective Permeability (md) .. 4.83  
Skin Factor/Damage Ratio .... 1.46 / 1.33  
Storativity Ratio .....

**ROCK/FLUID/WELLCORE PROPERTIES**

Oil Density (deg. API) ..... ASSUMED 45  
Basic Solids (%) .....

Gas Gravity ..... 0.65 ASSUMED  
Water Cut (%) ..... ASSUMED 0.0  
Viscosity (cp) ..... 0.138  
Total Compressibility (1/psi) .. 5.39E-05  
Porosity (%) ..... 16  
Reservoir Temperature (F) .... 255  
Form. Vol. Factor (bbl/STB) .... 514EN 2.457

Interporosity Flow Coeff. ....  
Distance to an Anomaly (ft) ..  
Radius of Investigation (ft)..  
Potentiometric Surface (ft) ..

**PRODUCTION RATE DURING TEST: 624 BOPD 0-AUG.**

**COMMENTS:**

THE PACKER SEAT FAILED DURING THE FINAL FLOW PERIOD. THE INITIAL SHUT-IN PERIOD DATA WAS ANALYZED USING HORNER METHOD TO DETERMINE RESERVOIR PARAMETERS OF KH/U, PR, AND SKIN - ASSUMING PRODUCTION OF 45 DEG. API OIL, AND GAS-LIQUID RATIO OF 2601 SCF/BBL. THE RESERVOIR PARAMETERS CALCULATED AND GIVEN ABOVE SHOULD BE USED WITH EXTREME CAUTION, AS THERE WAS ACTUALLY NO HYDROCARBON RECOVERY DURING THIS TEST. FOR THIS REASON, NO COMPLETION DESIGN SENSITIVITY PLOTS HAVE BEEN GENERATED FOR THIS TEST DATA.

REPORT NO.  
13712F  
PAGE NO. 2

SEQUENCE OF EVENTS

FLOPETROL JOHNSTON  
Schlumberger

EVENT NO.	DATE	TIME (HR:MIN)	DESCRIPTION	ELAPSED TIME (MINS)	BHP (PSIA)	BLW (IN.-H2O)
1	8-20-86	1013	SET PACKER	-3.16	7463	—
2		1015	OPENED TOOL-1/8"BUBBLHOSE	0.00	1078	2" BLOW
		1020				8" BLOW
		1025				20" BLOW
3		1030	CLOSED FOR INITIAL SHUTIN	13.79	1224	28" BLOW
4		1054	PACKERS APPARENTLY		5266	—
			BEGINNING TO FAIL. (ONLY			
			SHUT-IN DATA UP TO THIS			
			POINT HAS BEEN ANALYZED.)			
		1200	FINISHED SHUT-IN			
		1200	RE-OPENED TOOL			
		1201	PACKER SEAT FAILED - MADE			
			AN ATTEMPT TO RE-SET, AND			
			TRIPPED OUT OF HOLE.			
5		1218	FINAL HYDROSTATIC PRESSR.		7482	--
		1430	STARTED REVERSING REC'UY			
		1630	FINISHED REVERSING REC'UY			

# BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 13712F

COMPANY : BASIC EARTH SCIENCE

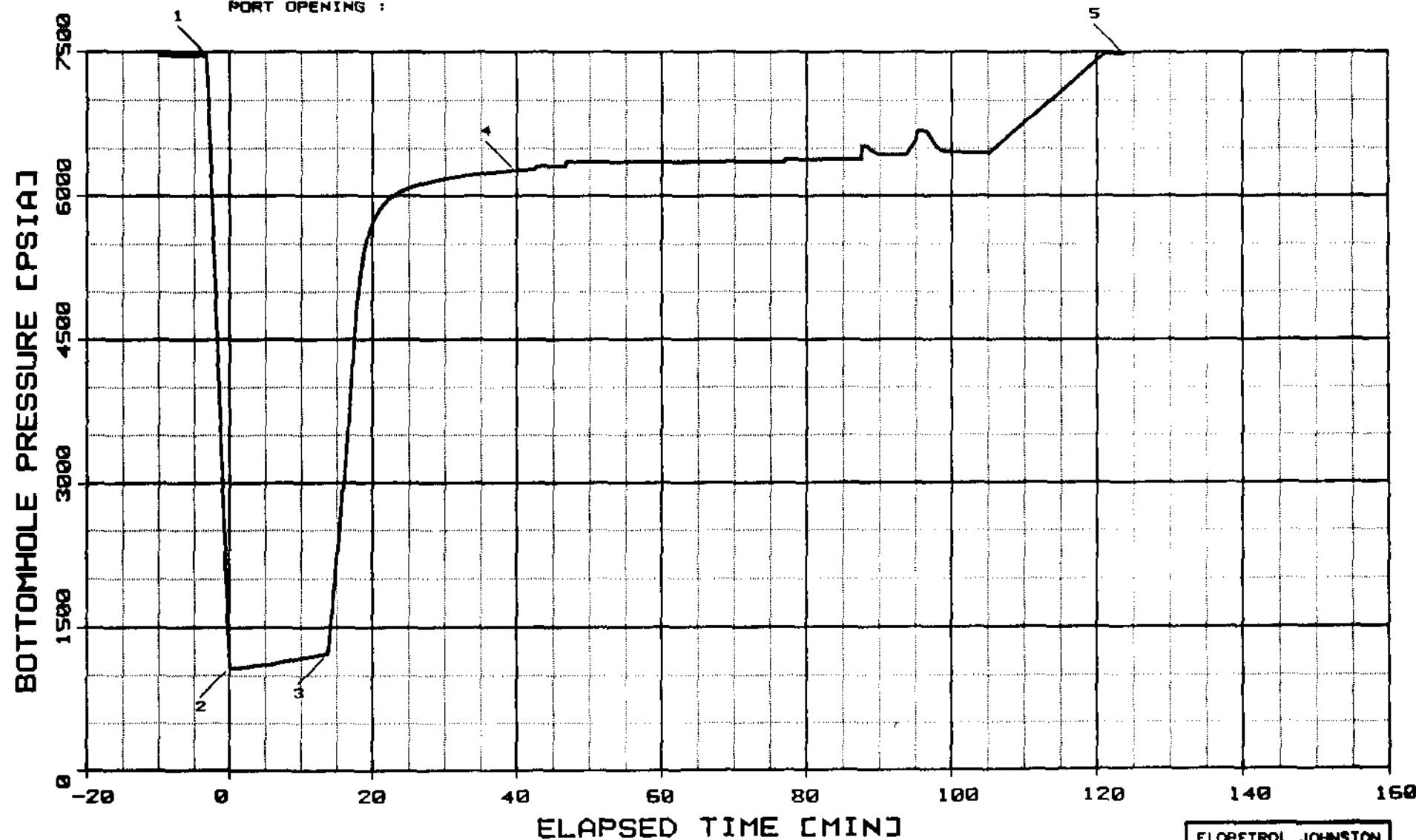
INSTRUMENT NO. J-2130

WELL : CORPS 31-10

DEPTH : 13300 FT

CAPACITY : 9000 PSI

PORT OPENING :



\*\*\*\*\*  
\* WELL TEST DATA PRINTOUT \*  
\*\*\*\*\*

FIELD REPORT # : 13712F

COMPANY : BASIC EARTH SCIENCE  
WELL : CORPS 31-10

INSTRUMENT # : J-2130  
CAPACITY [PSI] : 9000.  
DEPTH [FT] : 13300.0  
PORT OPENING :  
TEMPERATURE [DEG F] : 255.0

LABEL POINT INFORMATION

\*\*\*\*\*

#	TIME OF DAY HH:MM:SS	DATE DO-MM	EXPLANATION	ELAPSED	BOT HOLE
				TIME,MIN	PSIA
1	10:11:50	20-AU	HYDROSTATIC MUO	-3.16	7463
2	10:15: 0	20-AU	START FLOW	0.00	1078
3	10:28:47	20-AU	END FLOW & START SHUT-IN	13.79	1224
4	10:54:46	20-AU	END SHUT-IN	39.77	6266
5	12:18:40	20-AU	HYDROSTATIC MUD	123.67	7482

SUMMARY OF FLOW PERIODS

\*\*\*\*\*

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	PRESSURE PSIA	END PRESSURE PSIA
1	0.00	13.79	13.79	1078	1224

SUMMARY OF SHUTIN PERIODS

\*\*\*\*\*

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	13.79	39.77	25.98	1224	6266	1224	13.79

TEST PHASE : FLOW PERIOD # 1

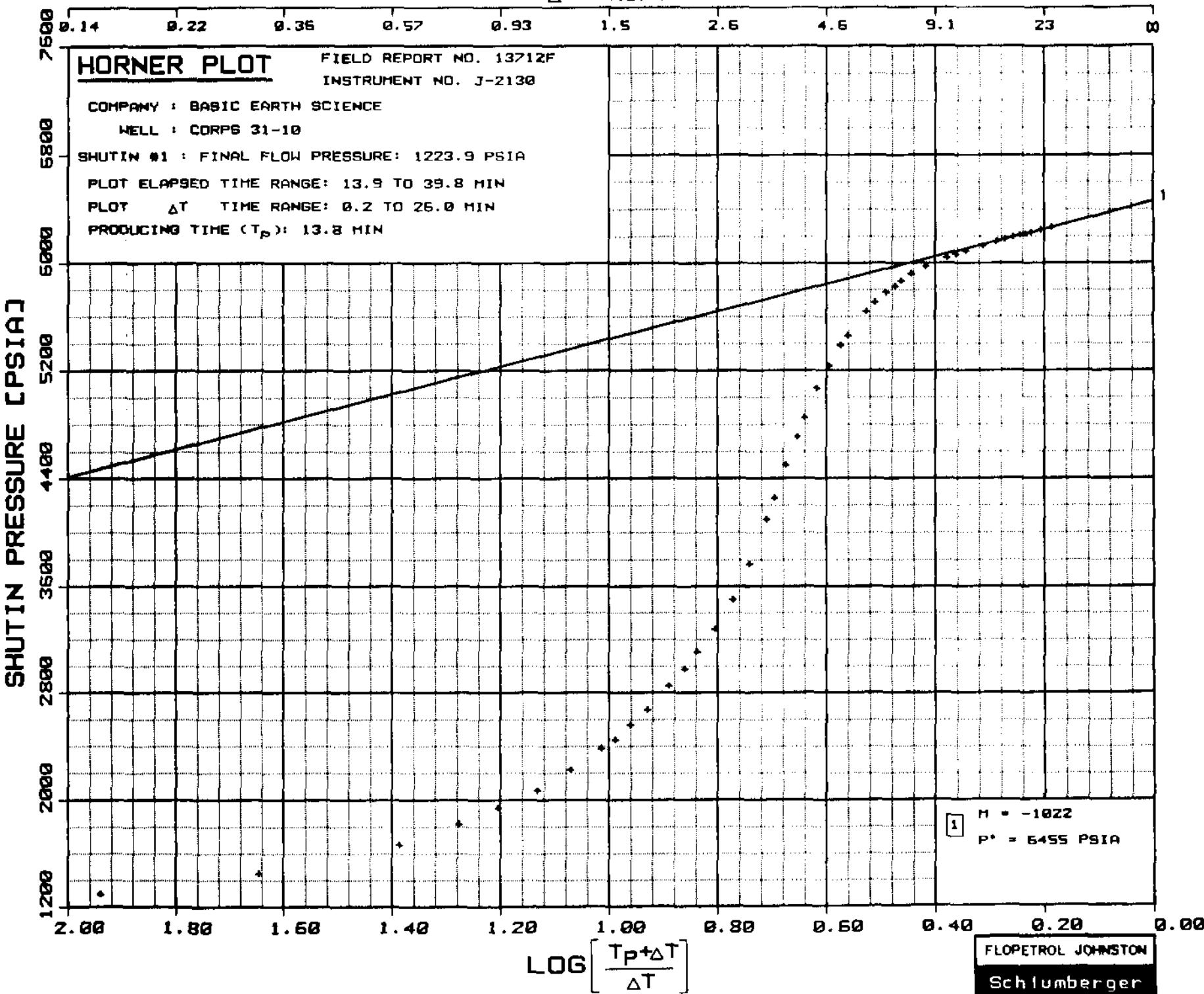
TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM			
10:15:	0 20-AU	0.00	0.00	1078
10:20:	0 20-AU	5.00	5.00	1108
10:25:	0 20-AU	10.00	10.00	1173
10:28:47	20-AU	13.79	13.79	1224

TEST PHASE : SHUTIN PERIOD # 1

FINAL FLDW PRESSURE [PSIA] = 1224  
 PRODUCING TIME [MIN] = 13.79

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM					
10:28:47	20-AU	13.79	0.00	1224	0	
10:29:47	20-AU	14.79	1.00	1994	770	1.170
10:30:47	20-AU	15.79	2.00	2811	1587	0.897
10:31:47	20-AU	16.79	3.00	3709	2485	0.748
10:32:47	20-AU	17.79	4.00	4764	3540	0.648
10:33:47	20-AU	18.79	5.00	5380	4156	0.575
10:34:47	20-AU	19.79	6.00	5674	4450	0.518
10:35:47	20-AU	20.79	7.00	5828	4604	0.473
10:36:47	20-AU	21.79	8.00	5936	4712	0.435
10:37:47	20-AU	22.79	9.00	5995	4771	0.404
10:38:47	20-AU	23.79	10.00	6042	4818	0.376
10:40:47	20-AU	25.79	12.00	6101	4877	0.332
10:42:47	20-AU	27.79	14.00	6144	4920	0.298
10:44:47	20-AU	29.79	16.00	6177	4953	0.270
10:46:47	20-AU	31.79	18.00	6203	4979	0.247
10:48:47	20-AU	33.79	20.00	6222	4998	0.228
10:50:47	20-AU	35.79	22.00	6240	5016	0.211
10:52:47	20-AU	37.79	24.00	6255	5031	0.197
10:54:46	20-AU	39.77	25.98	6266	5042	0.185

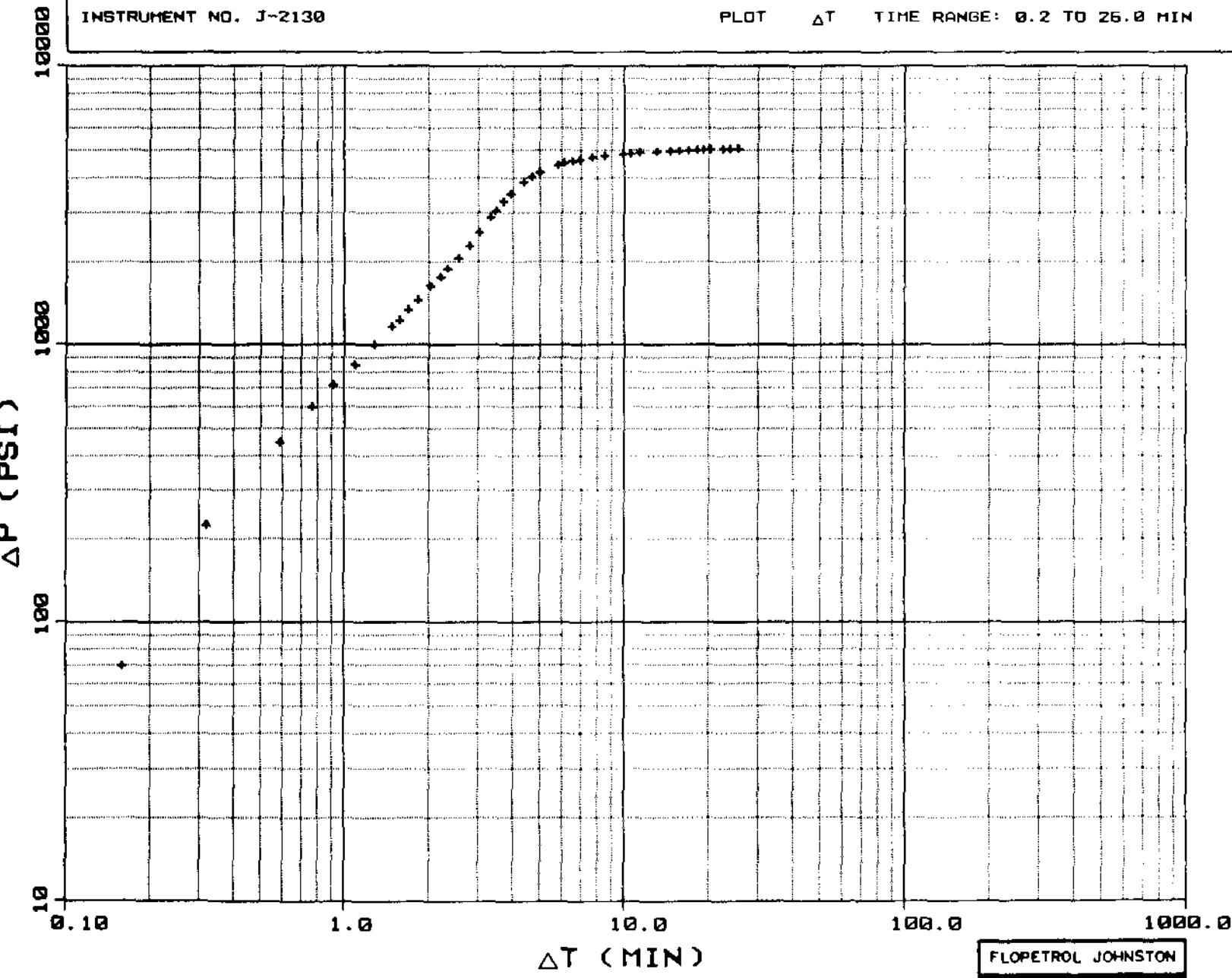
$\Delta T$  (MIN)



# LOG LOG PLOT

COMPANY : BASIC EARTH SCIENCE  
WELL : CORPS 31-10  
FIELD REPORT NO. 13712F  
INSTRUMENT NO. J-2130

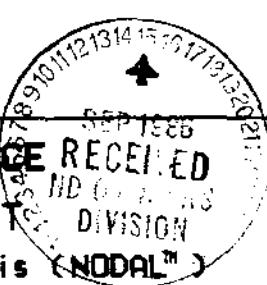
SHUTIN #1 :  
FINAL FLOW PRESSURE (PHF): 1223.9 PSIA  
PLOT ELAPSED TIME RANGE: 13.9 TO 39.8 MIN  
PLOT  $\Delta T$  TIME RANGE: 0.2 TO 26.0 MIN



FLOPETROL JOHNSTON

Schlumberger

11920



REPORT NO.  
13711F

PAGE NO. 1

TEST DATE:  
19-AUG-86

# WELL PERFORMANCE RECEIVED TESTING™ REPORT

A Production System Analysis (NODAL™)  
Based On Model Verified™ Interpretation

FLOPETROL JOHNSTON  
Schlumberger

Company: BASIC EARTH SCIENCE

Well: CORPS. 31-10

## TEST IDENTIFICATION

Test Type ..... MFE OH DST  
Test No. ..... 5  
Formation ..... RED RIVER  
Test Interval (ft) ..... 13252 - 13480  
Reference Depth .....

## WELL LOCATION

Field .....  
County ..... MC KENZIE  
State ..... NORTH DAKOTA  
Sec/Twn/Rng ..... 18T153NR101  
Elevation (ft) .....

## HOLE CONDITIONS

Total Depth (MD/TVD) (ft) ....  
Hole Size (in) ..... 8 3/4  
Casing/Liner I.D. (in) .....  
Perf'd Interval/Net Pay (ft) .. --/--  
Shot Density/Diameter (in) ...

## MUD PROPERTIES

Mud Type ..... SALT STARCH  
Mud Weight (lb/gal) ..... 10.8  
Mud Resistivity (ohm.m) ..... 0.04 @ 60 DEG.F  
Filtrate Resistivity (ohm.m) .. 0.05 @ 60 DEG.F  
Filtrate Chlorides (ppm) ..... 200000

## INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) .... 2474  
Gas Cushion Type ..... NONE  
Surface Pressure (psi) ..... --  
Liquid Cushion Type ..... FRESH WATER  
Cushion Length (ft) ..... 1758

## TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 12942 / 3.83  
Collar Length (ft)/I.D. (in) .. 270 / 2.50  
Packer Depths (ft) ..... 13252  
Bottomhole Choke Size (in) ... 15/16  
Gauge Depth (ft)/Type ..... 13284/MECH.

## NET PIPE RECOVERY

Volume	Fluid Type	Properties
1598 FT.	HGC WTRCUSH	
3694 FT.	HGASCUT MUD	

## NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
4.1 SCF	GAS	
1100 CC	MUD	0.04 @ 60 DEG. F
		194000 PPM CL.

Pressure: 810 GOR: -- GLR: --

## INTERPRETATION RESULTS

Model of Behavior .....  
Fluid Type Used for Analysis ..  
Reservoir Pressure (psi) ....  
Transmissibility (md.ft/cp) ..  
Effective Permeability (md) ..  
Skin Factor/Damage Ratio ..  
Storativity Ratio .....

## ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API) .....  
Basic Solids (%) .....  
Gas Gravity .....  
Water Cut (%) .....  
Viscosity (cp) .....  
Total Compressibility (1/psi).  
Porosity (%) .....  
Reservoir Temperature (F) .... 255  
Form.Vol.Factor (bbl/STB) ....

Interporosity Flow Coeff. ....  
Distance to an Anomaly (ft) ..  
Radius of Investigation (ft)..  
Potentiometric Surface (ft) ..

## PRODUCTION RATE DURING TEST: --

## COMMENTS:

UNSUCCESSFUL TEST; PACKER SEAT FAILURE.

REPORT NO.

13711F

PAGE NO. 2

## SEQUENCE OF EVENTS

FLOPETROL JOHNSTON

Schlumberger

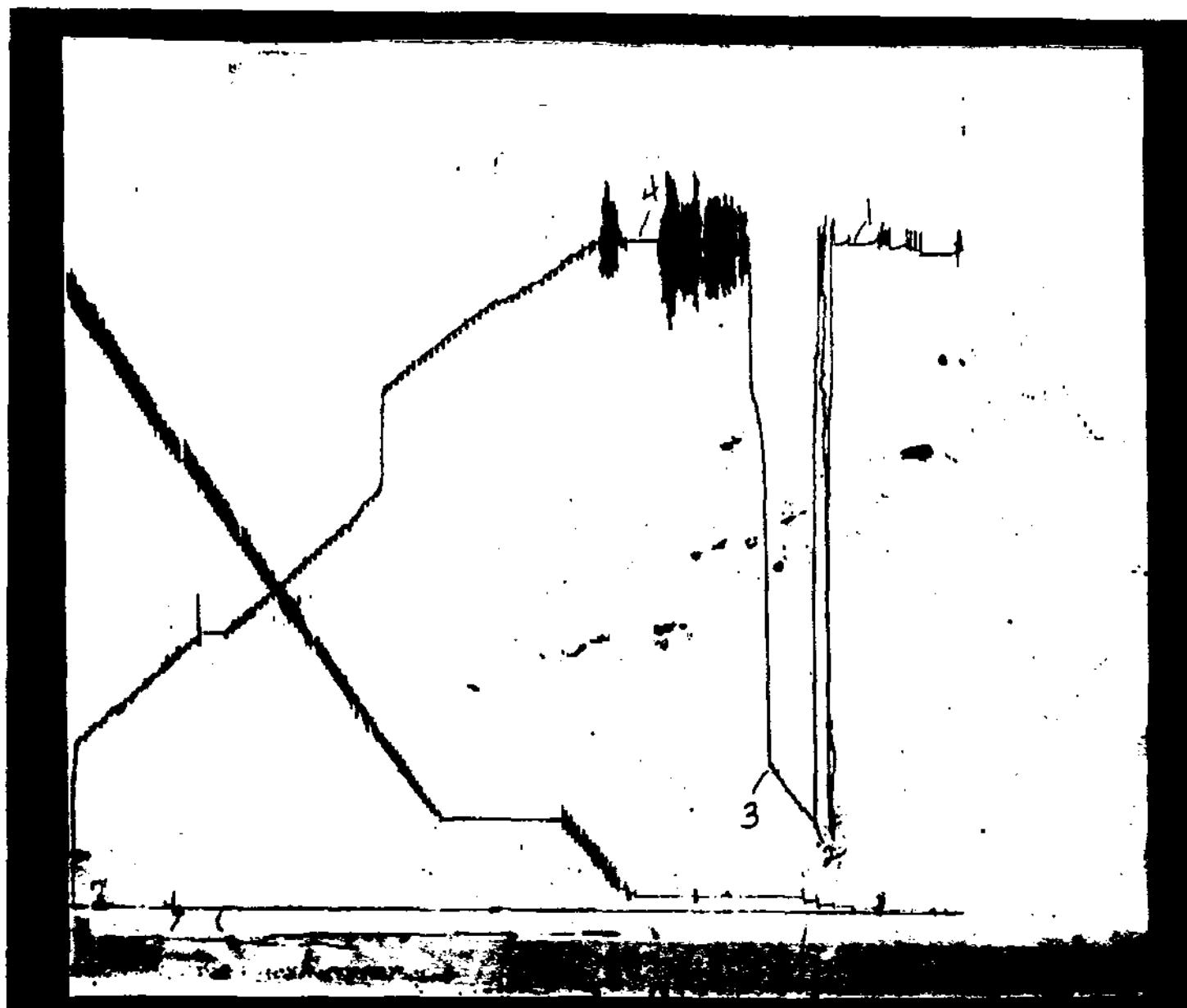
EVENT NO.	DATE	TIME (HR:MIN)	DESCRIPTION	ELAPSED TIME (MINS)	BHP (PSIA)	BLOW (IN.-H2O)
1	8-19-86	0628	SET PACKER	-2.00	7474	--
2		0630	OPENED TOOL-1/8"BUBBLHOSE	0.00	1015	7" BLOW
3		0635	LOST PACKER SEAT	5.00	1641	30" BLOW
4		0645	FINAL HYDROSTATIC MUD		7474	--
			UNSUCCESSFUL TEST; PACKER SEAT FAILURE.			

## BOTTOM HOLE PRESSURE AND TIME DATA

SCHMIDT

INSTRUMENT NUMBER <b>J-2130</b>	CAPACITY P.S.I. <b>9000#</b>	DEPTH <b>13284 FT.</b>
PORT OPENING <b>OUTSIDE</b>	BOTTOM HOLE TEMPERATURE <b>255°F</b>	FIELD REPORT NUMBER <b>13711 F</b>
DESCRIPTION	LABELED POINTS	PRESSURE (P.S.I.)
INITIAL HYDROSTATIC MUD	1	7474
INITIAL FLOW (1)	2	1015
INITIAL FLOW (2)		
INITIAL SHUT-IN		
SECOND FLOW (1)		
SECOND FLOW (2)		
SECOND SHUT-IN		
FINAL FLOW (1)		
FINAL FLOW (2)		
FINAL SHUT-IN		
FINAL HYDROSTATIC MUD	4	7474
REMARKS: LOST PACKER SEAT	3	1641

UNSUCCESSFUL TEST; PACKER SEAT FAILURE



NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

11920

WESLEY D. NORTON  
Chief Enforcement Officer

F. E. WILBORN  
Deputy Enforcement Officer

CLARENCE G. CARLSON  
Geologist

CHARLES KOCH  
Engineering Dept.

DOREN DANNEWITZ  
Field Supervisor

KEN KALLESTAD  
Reclamation Sup.

August 29, 1986

Ms. Judy Burke  
Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, CO 80155-3088

RE: Confidential Well Status  
Basic Corps of Engineers #31-10  
NW $\frac{1}{4}$ NE $\frac{1}{4}$  Sec.10-153N-101W, McKenzie  
Permit No. 11920

Dear Ms. Burke:

Your request for confidential status of all information furnished to the Enforcement Officer, or his representatives, is hereby granted. Such information shall remain confidential for six months commencing on the date such information, except production data, is required by statute and rule to be filed.

If information obtained during the drilling of the well is to be confidential, the six months period begins on the date the well is spudded.

Confidential status notwithstanding, the Enforcement Officer and his representatives shall have access to all well records wherever located. Your company personnel, or any person performing work for your company, shall permit the Enforcement Officer and his representatives to come upon any lease, property, well, or drilling rig operated or controlled by them, complying with all safety rules, and to inspect the records and operation of such wells, and to have access at all times to any and all records of wells.

The Commission's field personnel periodically inspect producing and drilling wells. Any information regarding such wells shall be made available to them at any time upon request. The information so obtained by the field personnel shall be maintained in strict confidence and shall be available only to the Commission and its staff.

Sincerely yours,

*F.E. Wilborn*

F. E. Wilborn  
Deputy Enforcement Officer

FEW:cah

11930



Earth Science Systems, Inc.



August 26, 1986

P.O. Box 3088  
Englewood, Colorado  
80155-3088  
(303) 792-5230

North Dakota State Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Basic Corps of Engineers #31-10  
Township 153 North-Range 101 West  
Section 10: NW<sup>1</sup>NE<sup>1</sup>  
McKenzie County, ND  
Permit No. 11920

Gentlemen:

Basic Earth Science Systems, Inc. is in the process of drilling the above-referenced well. We are drilling this well as a tight hole and will appreciate your assistance in keeping any information you receive as confidential.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Basic Earth Science Systems, Inc.

Judy Burke  
Lease Analyst/Permit Coordinator

encl.

**REPORT NO.**

13710F

PAGE NO. 1

TEST DATE:  
13-AUG-86

## WELL PERFORMANCE

TESTING™ REPORT

AMERICAN  
RECEIVED

FLOPETROL JOHNSTON

Schlumberger

# A Production System Analysis (NODAL™) Based On Model Verified™ Interpretation

Company: BASIC EARTH SCIENCE		Well: BASIC CORPS. OF ENGINEERS #31-10	
<b>TEST IDENTIFICATION</b>		<b>WELL LOCATION</b>	
Test Type .....	MFE OH DST	Field .....	
Test No. ....	5	County .....	MC KENZIE
Formation .....	INT'LK./STNWALL	State .....	NORTH DAKOTA
Test Interval (ft) .....	12866 - 12940	Sec/Twn/Rng .....	10T153NR101
Reference Depth .....	KELLY BUSHING	Elevation (ft) .....	
<b>HOLE CONDITIONS</b>		<b>MUD PROPERTIES</b>	
Total Depth (MD/TVD) (ft) ....	12940 / 12940	Mud Type .....	GEL STARCH
Hole Size (in) .....	8 3/4	Mud Weight (lb/gal) .....	10.7
Casing/Liner I.D. (in) .....		Mud Resistivity (ohm.m) .....	0.05 @ 60 DEG.F
Perf'd Interval/Net Pay (ft) ..	--/38	Filtrate Resistivity (ohm.m) .....	0.04 @ 60 DEG.F
Shot Density/Diameter (in) ...		Filtrate Chlorides (ppm) .....	187000
<b>INITIAL TEST CONDITIONS</b>		<b>TEST STRING CONFIGURATION</b>	
Initial Hydrostatic (psi) ....	7255	Pipe Length (ft)/I.D. (in) ...	12139 / 3.83
Gas Cushion Type .....	NONE	Collar Length (ft)/I.D. (in) ..	687 / 2.50
Surface Pressure (psi) .....	--	Packer Depths (ft) .....	12866
Liquid Cushion Type .....	FRESH WATER	Bottomhole Choke Size (in) ...	15/16
Cushion Length (ft) .....	720	Gauge Depth (ft)/Type .....	12898/MECH.
<b>NET PIPE RECOVERY</b>		<b>NET SAMPLE CHAMBER RECOVERY</b>	
Volume	Fluid Type	Properties	
319 FT.	GC WTR.CUSH		
695 FT.	SGCWC MUD	0.04 @ 60 DEG. F	
		196000 PPM CL.	
<b>INTERPRETATION RESULTS</b>		<b>ROCK/FLUID/WELLBORE PROPERTIES</b>	
Model of Behavior .....		Oil Density (deg. API) .....	
Fluid Type Used for Analysis ..		Basic Solids (%) .....	
Reservoir Pressure (psi) .....		Gas Gravity .....	
Transmissibility (md.ft/cp) ..		Water Cut (%) .....	
Effective Permeability (md) ..		Viscosity (cp) .....	
Skin Factor/Damage Ratio .....		Total Compressibility (1/psi) .....	
Storativity Ratio .....		Porosity (%) .....	10
Interporosity Flow Coeff. ....		Reservoir Temperature (F) ....	258
Distance to an Anomaly (ft) ..		Form.Vol.Factor (bbl/STB) ....	
Radius of Investigation (ft) ..			
Potentiometric Surface (ft) ..			

PRODUCTION RATE DURING TEST: --

**COMMENTS:**

REPORT NO.

13710F

PAGE NO. 2

## SEQUENCE OF EVENTS

FLOPETROL JOHNSTON

Schlumberger

EVENT NO.	DATE	TIME (HR:MIN)	DESCRIPTION	ELAPSED TIME (MINS)	BHP (PSIA)	BLOW (IN.-H2O)
1	8-13-86	1228	SET PACKER	-2.00	7255	--
2		1230	OPENED TOOL-1/8"BUBBLHOSE	0.00	429	1" BLOW
		1235				2" BLOW
		1240				2.25" BLOW
3		1245	CLOSED FOR INITIAL SHUT-IN	14.27	429	4.5" BLOW
4		1345	FINISHED SHUT-IN	78.30	4789	1" BLOW
5		1345	RE-OPENED TOOL	78.30	465	2" BLOW
		1355				5" BLOW
		1405				6" BLOW
		1415				6" BLOW
		1425				7" BLOW
		1435				6" BLOW
		1445				6" BLOW
		1505				6" BLOW
		1515				5.5" BLOW
6		1515	CLOSED FOR FINAL SHUT-IN	169.74	492	5.5" BLOW
		1615				BLOW DIED
7		1715	FINISHED SHUT-IN	297.81	5347	--
8		1716	PULLED PACKER LOOSE	303.82	7301	--

# BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 13710F

COMPANY : BASIC EARTH SCIENCE

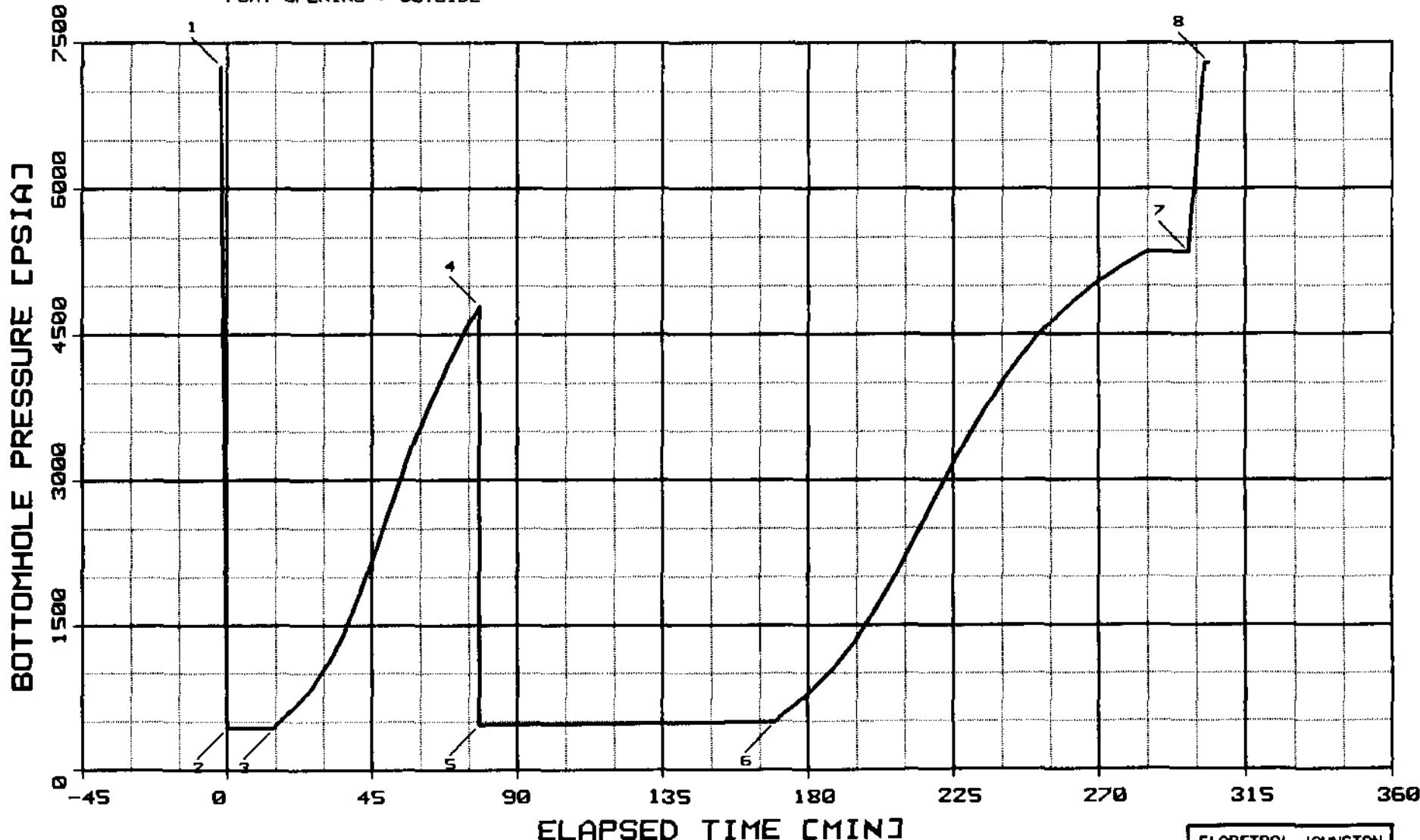
INSTRUMENT NO. J-2130

WELL : BASIC CORPS. OF ENGINEERS #31-10

DEPTH : 12898 FT

CAPACITY : 0 PSI

PORT OPENING : OUTSIDE



\*\*\*\*\*  
 \* WELL TEST DATA PRINTOUT \*  
 \*\*\*\*\*

FIELD REPORT # : 13710F

COMPANY : BASIC EARTH SCIENCE

WELL : BASIC CORPS.DF ENGINEERS #31-10

INSTRUMENT # : J-2130  
 CAPACITY [PSI] : 0.  
 DEPTH [FT] : 12898.0  
 PORT OPENING : OUTSIDE  
 TEMPERATURE [DEG F] : 258.0

LABEL POINT INFORMATION

\*\*\*\*\*

	TIME OF DAY	DATE # HH:MM:SS DD-MM	EXPLANATION	ELAPSED TIME,MIN	BOT HOLE PRESSURE PSIA
1	12:28: 0	13-AU	HYDROSTATIC MUD	-2.00	7255
2	12:30: 0	13-AU	START FLOW	0.00	429
3	12:44:16	13-AU	END FLOW & START SHUT-IN	14.27	429
4	13:48:18	13-AU	END SHUT-IN	78.30	4789
5	13:48:18	13-AU	START FLOW	78.30	465
6	15:19:44	13-AU	END FLOW & START SHUT-IN	169.74	492
7	17:27:49	13-AU	END SHUT-IN	297.81	5347
8	17:33:49	13-AU	HYDROSTATIC MUD	303.82	7301

SUMMARY OF FLOW PERIODS

\*\*\*\*\*

	START ELAPSED PERIOD TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	END PRESSURE PSIA	END PRESSURE PSIA
1	0.00	14.27	14.27	429	429
2	78.30	169.74	91.44	465	492

SUMMARY OF SHUTIN PERIODS

\*\*\*\*\*

	START ELAPSED PERIOD TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	END PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	14.27	78.30	64.03	429	4789	429	14.27
2	169.74	297.81	128.07	492	5347	492	105.71

## TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
12:30: 0	13-AU	0.00	0.00	429
12:35: 0	13-AU	5.00	5.00	429
12:40: 0	13-AU	10.00	10.00	429
12:44:16	13-AU	14.27	14.27	429

## TEST PHASE : SHUTIN PERIOD # 1

FINAL FLOW PRESSURE [PSIA] = 429  
 PRODUCING TIME [MIN] = 14.27

TIME OF DAY	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	LOG DELTA P PSI	LOG HORNER TIME
12:44:16	13-AU	14.27	0.00	429	0	
12:45:16	13-AU	15.27	1.00	468	39	1.184
12:46:16	13-AU	16.27	2.00	502	73	0.910
12:47:16	13-AU	17.27	3.00	535	106	0.760
12:48:16	13-AU	18.27	4.00	564	135	0.660
12:49:16	13-AU	19.27	5.00	593	164	0.586
12:50:16	13-AU	20.27	6.00	619	190	0.529
12:51:16	13-AU	21.27	7.00	647	218	0.483
12:52:16	13-AU	22.27	8.00	684	255	0.445
12:53:16	13-AU	23.27	9.00	722	293	0.413
12:54:16	13-AU	24.27	10.00	760	331	0.385
12:56:16	13-AU	26.27	12.00	841	412	0.340
12:58:16	13-AU	28.27	14.00	944	514	0.305
13: 0:16	13-AU	30.27	16.00	1045	616	0.277
13: 2:16	13-AU	32.27	18.00	1154	724	0.254
13: 4:16	13-AU	34.27	20.00	1282	853	0.234
13: 6:16	13-AU	36.27	22.00	1412	983	0.217
13: 8:16	13-AU	38.27	24.00	1565	1136	0.203
13:10:16	13-AU	40.27	26.00	1726	1297	0.190
13:12:16	13-AU	42.27	28.00	1898	1468	0.179
13:14:16	13-AU	44.27	30.00	2082	1653	0.169
13:19:16	13-AU	49.27	35.00	2584	2155	0.149
13:24:16	13-AU	54.27	40.00	3030	2600	0.132
13:29:16	13-AU	59.27	45.00	3489	3060	0.120
13:34:16	13-AU	64.27	50.00	3868	3439	0.109
13:39:16	13-AU	69.27	55.00	4225	3795	0.100
13:44:16	13-AU	74.27	60.00	4553	4124	0.093
13:48:18	13-AU	78.30	64.03	4789	4359	0.087

## TEST PHASE : FLOW PERIOD # 2

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
13:48:18	13-AU	78.30	0.00	465
13:53:18	13-AU	83.30	5.00	466
13:58:18	13-AU	88.30	10.00	466
14: 3:18	13-AU	93.30	15.00	466
14: 8:18	13-AU	98.30	20.00	466
14:13:18	13-AU	103.30	25.00	466
14:18:18	13-AU	108.30	30.00	467
14:23:18	13-AU	113.30	35.00	470
14:28:18	13-AU	118.30	40.00	472
14:33:18	13-AU	123.30	45.00	474
14:38:18	13-AU	128.30	50.00	476
14:43:18	13-AU	133.30	55.00	479
14:48:18	13-AU	138.30	60.00	482
14:53:18	13-AU	143.30	65.00	484
14:58:18	13-AU	148.30	70.00	486
15: 3:18	13-AU	153.30	75.00	489
15: 8:18	13-AU	158.30	80.00	490
15:13:18	13-AU	163.30	85.00	491
15:18:18	13-AU	168.30	90.00	492
15:19:44	13-AU	169.74	91.44	492

## TEST PHASE : SHUTIN PERIOD # 2

FINAL FLOW PRESSURE [PSIA] = 492  
 PRODUCING TIME [MIN] = 105.71

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSEO TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	LOG DELTA P PSI	HORNER TIME
15:19:44	13-AU	169.74	0.00	492	0	
15:20:44	13-AU	170.74	1.00	521	30	2.028
15:21:44	13-AU	171.74	2.00	550	58	1.731
15:22:44	13-AU	172.74	3.00	577	86	1.559
15:23:44	13-AU	173.74	4.00	604	112	1.438
15:24:44	13-AU	174.74	5.00	631	139	1.345
15:25:44	13-AU	175.74	6.00	659	167	1.270
15:26:44	13-AU	176.74	7.00	688	196	1.207
15:27:44	13-AU	177.74	8.00	724	232	1.153
15:28:44	13-AU	178.74	9.00	734	242	1.105
15:29:44	13-AU	179.74	10.00	778	286	1.063
15:31:44	13-AU	181.74	12.00	841	349	0.992
15:33:44	13-AU	183.74	14.00	906	414	0.932
15:35:44	13-AU	185.74	16.00	973	481	0.881
15:37:44	13-AU	187.74	18.00	1045	553	0.837
15:39:44	13-AU	189.74	20.00	1126	634	0.798
15:41:44	13-AU	191.74	22.00	1212	720	0.764
15:43:44	13-AU	193.74	24.00	1300	808	0.733

TEST PHASE : SHUTIN PERIOD # 2  
 FINAL FLOW PRESSURE [PSIA] = 492  
 PRODUCING TIME [MIN] = 105.71

TIME OF DAY	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
15:45:44	13-AU	195.74	26.00	1392	900	0.705
15:47:44	13-AU	197.74	28.00	1491	999	0.679
15:49:44	13-AU	199.74	30.00	1596	1104	0.655
15:54:44	13-AU	204.74	35.00	1876	1385	0.604
15:59:44	13-AU	209.74	40.00	2189	1697	0.561
16: 4:44	13-AU	214.74	45.00	2513	2021	0.525
16: 9:44	13-AU	219.74	50.00	2839	2348	0.493
16:14:44	13-AU	224.74	55.00	3156	2664	0.466
16:19:44	13-AU	229.74	60.00	3461	2969	0.441
16:24:44	13-AU	234.74	65.00	3738	3246	0.419
16:29:44	13-AU	239.74	70.00	3991	3499	0.400
16:34:44	13-AU	244.74	75.00	4221	3729	0.382
16:39:44	13-AU	249.74	80.00	4427	3935	0.366
16:44:44	13-AU	254.74	85.00	4607	4115	0.351
16:49:44	13-AU	259.74	90.00	4769	4277	0.337
16:54:44	13-AU	264.74	95.00	4909	4417	0.325
16:59:44	13-AU	269.74	100.00	5038	4546	0.313
17: 4:44	13-AU	274.74	105.00	5150	4659	0.302
17: 9:44	13-AU	279.74	110.00	5249	4757	0.292
17:14:44	13-AU	284.74	115.00	5343	4851	0.283
17:19:44	13-AU	289.74	120.00	5347	4855	0.274
17:24:44	13-AU	294.74	125.00	5347	4855	0.266
17:27:49	13-AU	297.81	128.07	5347	4855	0.261

11920

REPORT NO.

13708F

PAGE NO. 1

## WELL PERFORMANCE

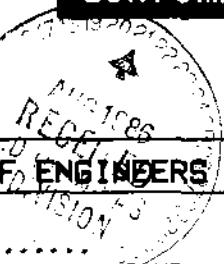
## TESTING™ REPORT

FLOPETROL JOHNSTON

Schlumberger

TEST DATE:

08-AUG-86

A Production System Analysis (NODAL™)  
Based On Model Verified™ Interpretation

Company: BASIC EARTH SCIENCE

Well: BASIC CORP. OF ENGINEERS #31-10

## TEST IDENTIFICATION

Test Type ..... MFE DH DST  
 Test No. ..... 4  
 Formation ..... INTERLAKE  
 Test Interval (ft) ..... 12088 - 12138  
 Reference Depth ..... KELLY BUSHING

## WELL LOCATION

Field .....  
 County ..... MC KENZIE  
 State ..... NORTH DAKOTA  
 Sec/Twn/Rng ..... 10T15SNR101  
 Elevation (ft) ..... 2305

## HOLE CONDITIONS

Total Depth (MD/TUD) (ft) .... 12138 / 12138  
 Hole Size (in) ..... 8 3/4  
 Casing/Liner I.D. (in) .....  
 Perf'd Interval/Net Pay (ft) .. --/24  
 Shot Density/Diameter (in) ...

## MUD PROPERTIES

Mud Type ..... SALT GEL STARCH  
 Mud Weight (lb/gal) ..... 10.7  
 Mud Resistivity (ohm.m) ..... 0.04 @ 60 DEG.F  
 Filtrate Resistivity (ohm.m) .. 0.05 @ 60 DEG.F  
 Filtrate Chlorides (ppm) ..... 191000

## INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) .... 6820  
 Gas Cushion Type ..... NONE  
 Surface Pressure (psi) ..... --  
 Liquid Cushion Type ..... FRESH WATER  
 Cushion Length (ft) ..... 1000

## TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 11388 / 3.83  
 Collar Length (ft)/I.D. (in) .. 660 / 2.50  
 Packer Depths (ft) ..... 12088  
 Bottomhole Choke Size (in) ... 15/16 ←  
 Gauge Depth (ft)/Type ..... 12110/MECH.

## NET PIPE RECOVERY

Volume	Fluid Type	Properties
0.638 BBLS.	OIL	ASSUMED 40 DEG. API
3.615 BBLS.	MUD	0.04 @ 60 DEG. F
		195000 PPM CL.

## NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
1.57 SCF	GAS	
320 CC	OIL	ASSUMED 40 DEG. API
1280 CC	MUD	0.04 @ 60 DEG. F
		197000 PPM CL.
Pressure: 270	GOR: 780	GLR: 156

## INTERPRETATION RESULTS

Model of Behavior ..... HOMOGENEOUS  
 Fluid Type Used for Analysis . OIL  
 Reservoir Pressure (psi) .... 6004  
 Transmissibility (md.ft/cp) .. 3.90  
 Effective Permeability (md) .. 0.155  
 Skin Factor/Damage Ratio .... 0.99 / 1.25  
 Storativity Ratio .....  
 Interporosity Flow Coeff. ....  
 Distance to an Anomaly (ft) ..  
 Radius of Investigation (ft) .. 25  
 Potentiometric Surface (ft) ..

## ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API) ..... ASSUMED 40  
 Basic Solids (%) .....  
 Gas Gravity ..... 0.650  
 Water Cut (%) ..... 0  
 Viscosity (cp) ..... 0.954  
 Total Compressibility (1/psi) .. 1.016E-5  
 Porosity (%) ..... 10  
 Reservoir Temperature (F) .... 254  
 Form.Vol.Factor (bbl/STB) .... 1.12

PRODUCTION RATE DURING TEST: 27.2 BOPD AUG.

## COMMENTS:

AS NOT ENOUGH OIL WAS RECOVERED TO OBTAIN A RELIABLE VALUE FOR API GRAVITY, IT WAS ASSUMED THAT THE API GRAVITY OF THE OIL IS 40 DEG. THE FINAL SHUT-IN PRESSURE BUILD-UP DATA WAS ANALYZED USING HORNER ANALYSIS FOR DETERMINATION OF P\*, KH/U, AND SKIN. COMPLETION DESIGN SENSITIVITY PLOTS WERE GENERATED FOR VARIOUS FRACTURE HALF-LENGTHS, TO PREDICT FUTURE PRODUCTION POTENTIAL OF THE ZONE WITH A HYDRAULIC FRACTURE TREATMENT. SEE SENSITIVITY PLOTS FOLLOWING ON THE NEXT PAGE.

REPORT NO.  
13708F

PAGE NO. 2

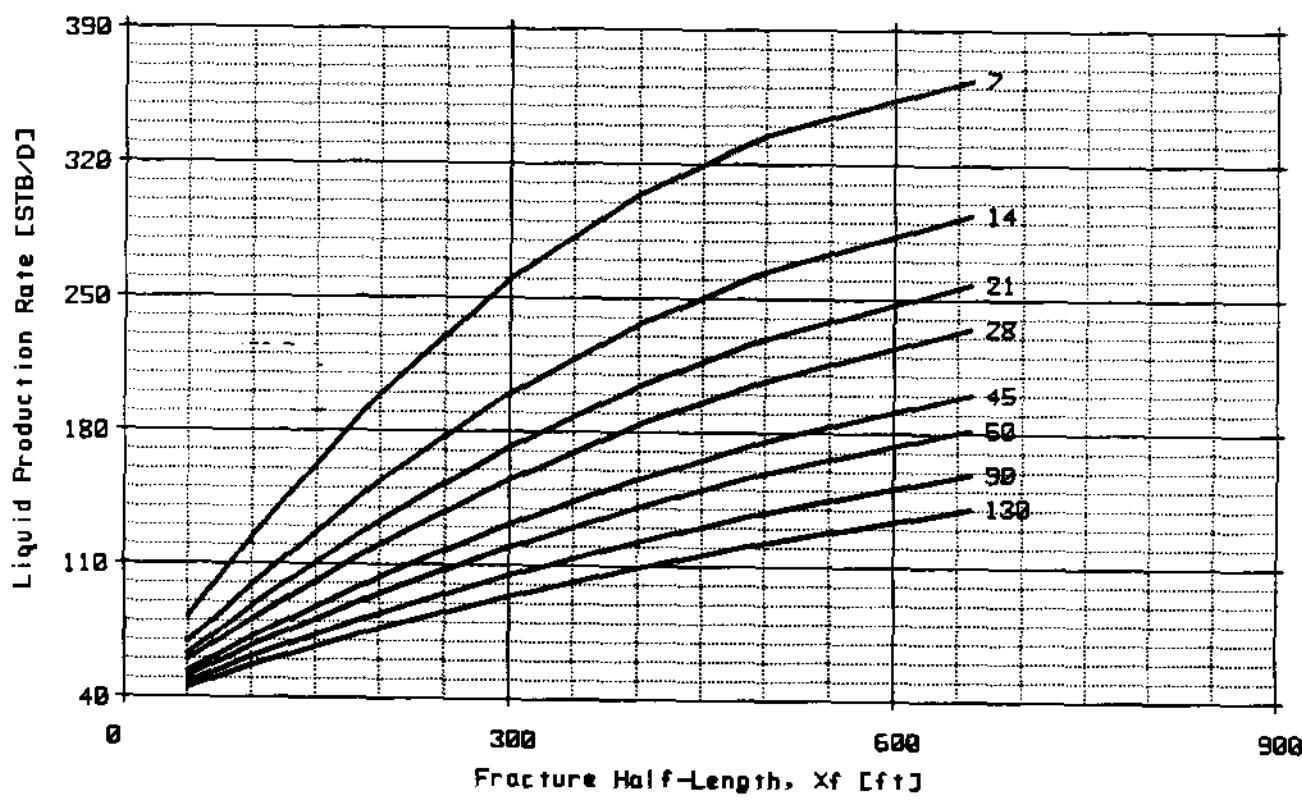
**SENSITIVITY ANALYSIS**  
Rate vs.  $X_f$  (vs. Time)  
ACRE SPACING ASSUMED = 40 AC

FLOPETROL JOHNSTON

Schlumberger

Reservoir Pressure: 6004 psi      Gas/Liquid Ratio: 156.0 SCF/STB  
Permeability: 0.155 md      Tubing Size: 2.441 in (id)  
Net Thickness: 24.0 ft      Wellhead Pressure: 50.0 psi

Fracture Conductivity,  $k_f w$ : 600.0 md.ft



Production Rate vs. Frac. Half-Length, Transient Conditions  
7 to 130 days : ACRE SPACING ASSUMED = 40 AC

REPORT NO.

13708F

PAGE NO. 3

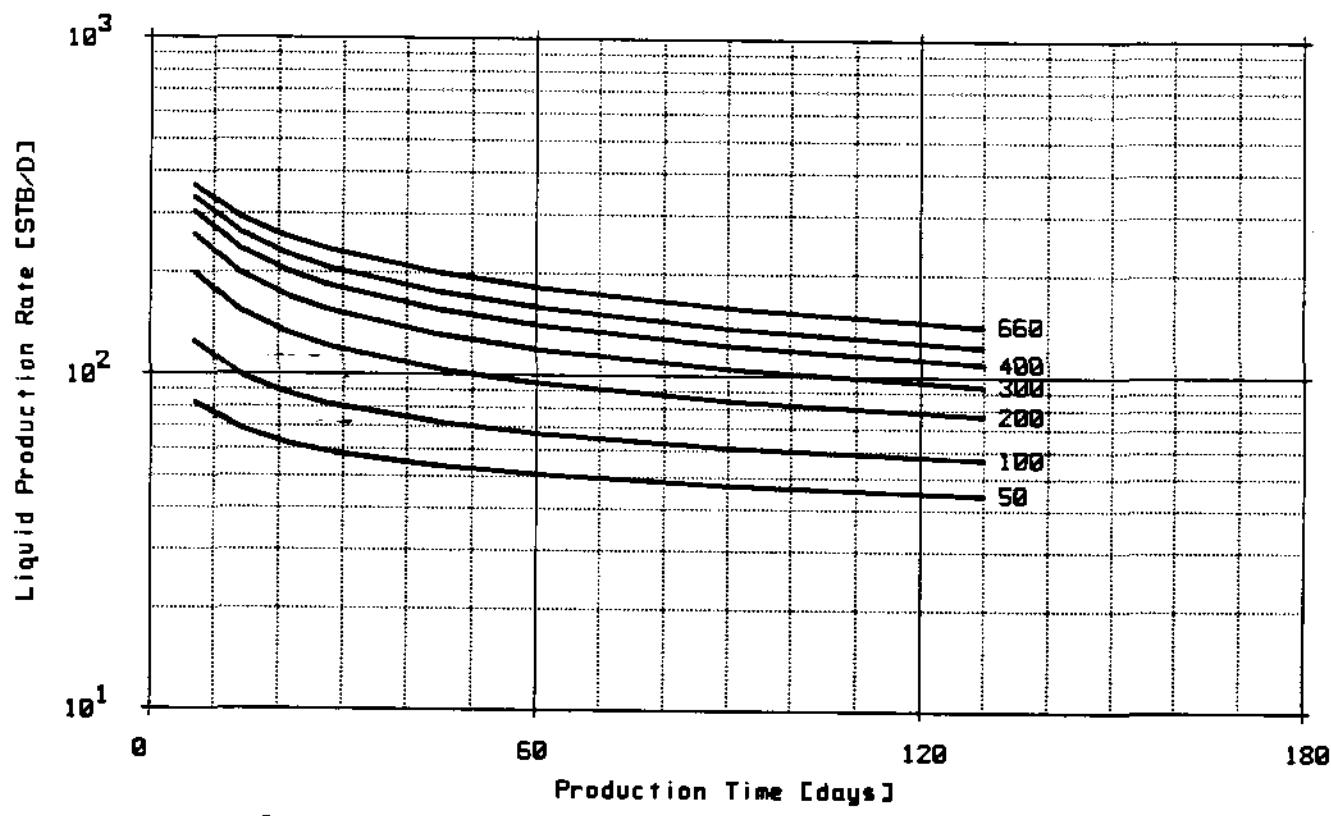
**SENSITIVITY ANALYSIS**  
Rate vs. Time (vs.  $X_f$ )  
ACRE SPACING ASSUMED = 40 AC

FLOPETROL JOHNSTON

Schlumberger

Reservoir Pressure: 6004 psi      Gas/Liquid Ratio: 156.0 SCF/STB  
Permeability: 0.155 md      Tubing Size: 2.441 in (id)  
Net Thickness: 24.0 ft      Wellhead Pressure: 50.0 psi

Fracture Conductivity,  $k_f w$ : 600.0 md.ft



Effect of Time on Production Rate, for Fracture Half-Lengths  
from 50 to 660 ft : ACRE SPACING ASSUMED = 40 AC

REPORT NO.

13708F

PAGE NO. 4

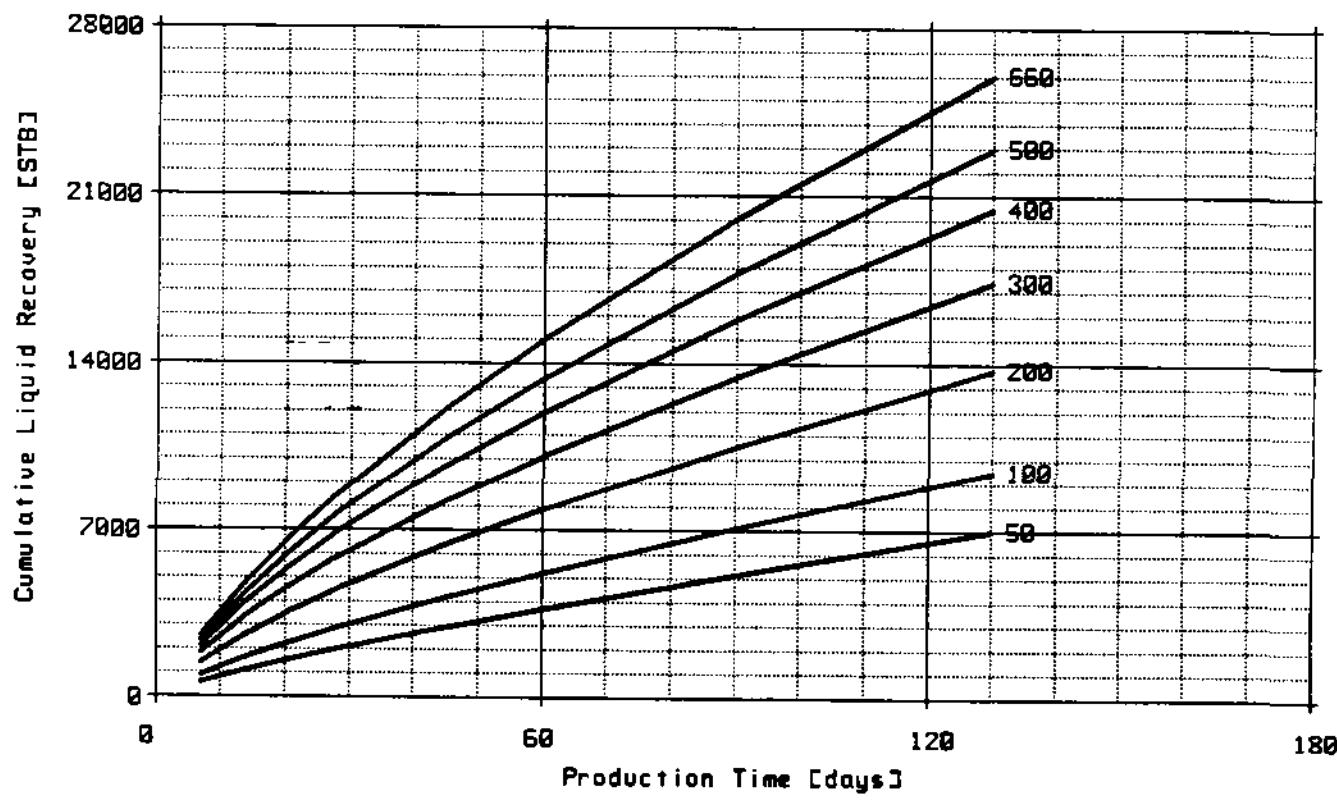
**SENSITIVITY ANALYSIS**  
Recovery vs. Time (vs.  $x_f$ )  
ACRE SPACING ASSUMED = 40 AC

FLOPETROL JOHNSTON

Schlumberger

Reservoir Pressure: 6004 psi      Gas/Liquid Ratio: 156.0 SCF/STB  
Permeability: 0.155 md      Tubing Size: 2.441 in (id)  
Net Thickness: 24.0 ft      Wellhead Pressure: 50.0 psi

Fracture Conductivity,  $k_f w$ : 600.0 md.ft



Effect of Time on Cumulative Recovery, for Fracture Half-Lengths  
from 50 to 660 ft : ACRE SPACING ASSUMED = 40 AC

REPORT NO.  
13708F

PAGE NO. 5

SENSITIVITY ANALYSIS  
Input Data Summary  
ACRE SPACING ASSUMED = 40 AC

FLOPETROL JOHNSTON  
Schlumberger

Production Time [days]

7.0	14.0	21.0	28.0	45.0
60.0	90.0	130.0		

Fracture Half-Length, xf [ft]

50.0	100.0	200.0	300.0	400.0
500.0	660.0			

REPORT NO.

13708F

PAGE NO. 6

## SEQUENCE OF EVENTS

FLOPETROL JOHNSTON

Schlumberger

EVENT NO.	DATE	TIME (HR:MIN)	DESCRIPTION	ELAPSED TIME (MINS)	BHP (PSIA)	BLOW (IN.-H2O)
1	8-8-86	0443	SET PACKER	-2.00	6820	--
2		0445	OPENED TOOL-1/8"BUBBLHOSE	0.00	507	1/2" BLOW
		0450				1" BLOW
3		0500	CLOSED FOR INITIAL SHUT-IN	15.00	516	1" BLOW
		0530				BLOW DIED
4		0600	FINISHED SHUT-IN	74.00	5752	--
5		0600	RE-OPENED TOOL	75.00	541	SURF. BLOW
		0630				SURF. BLOW
		0640				1.5" BLOW
		0650				4" BLOW
		0700				6" BLOW
		0710				10" BLOW
		0720				14" BLOW
		0730				20" BLOW
		0740				26" BLOW
		0750				32" BLOW
		0810				41" BLOW
		0830				51" BLOW
		0900				63" BLOW
6		0930	CLOSED FOR FINAL SHUT-IN	285.00	591	72" BLOW
7		1400	FINISHED SHUT-IN	555.00	5666	--
8		1400	PULLED PACKER LOOSE	556.00	6820	--

# BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 13708F

COMPANY : BASIC EARTH SCIENCE

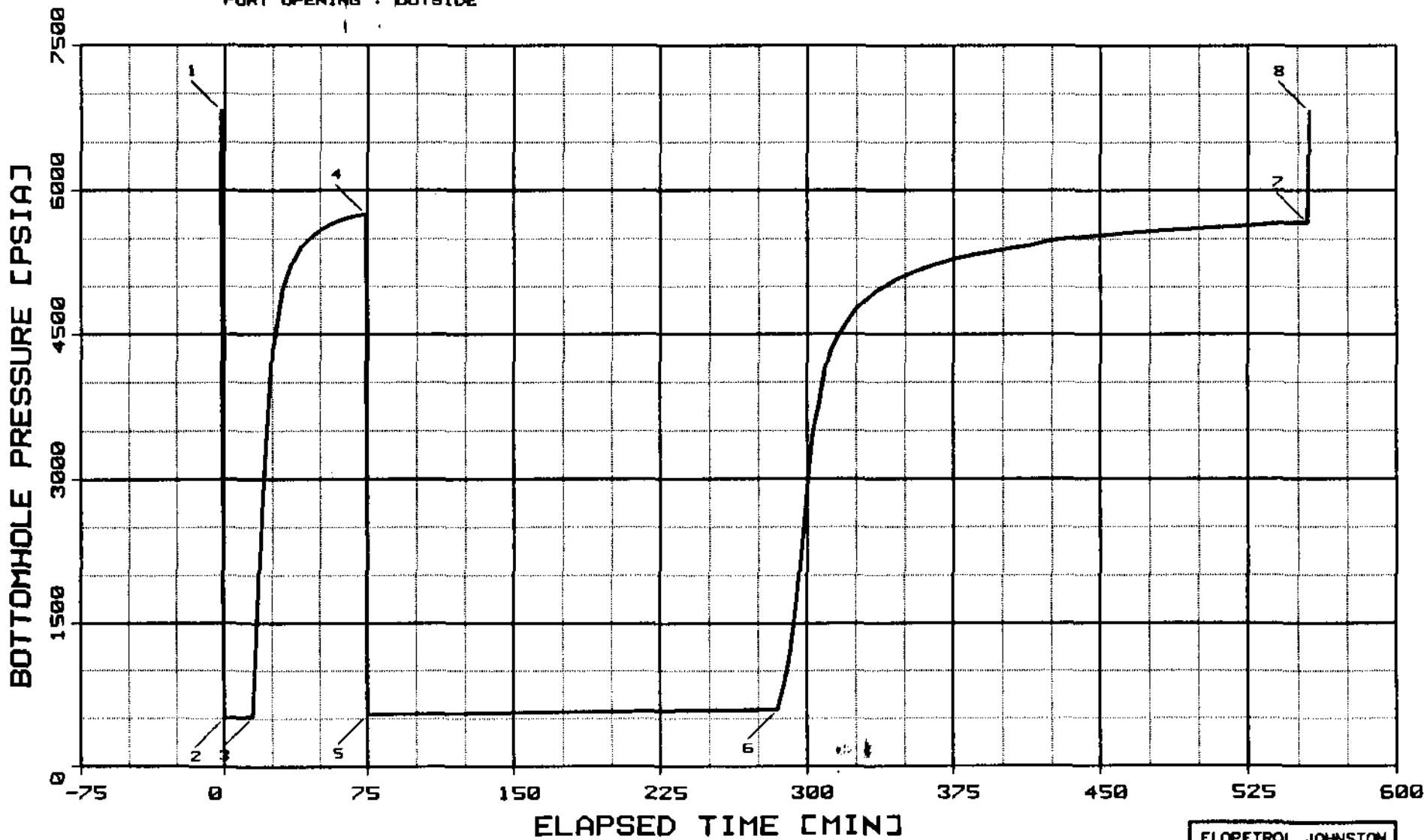
INSTRUMENT NO. J-2130

WELL : BASIC CORP. OF ENGINEERS 31-10

DEPTH : 12110 FT

CAPACITY : 0 PSI

PORT OPENING : OUTSIDE



\*\*\*\*\*  
 \* WELL TEST DATA PRINTOUT \*  
 \*\*\*\*\*

FIELD REPORT # : 13708F

COMPANY : BASIC EARTH SCIENCE

WELL : BASIC CORP. OF ENGINEERS 31-10

INSTRUMENT # : J-2130  
 CAPACITY [PSI] : 0.  
 DEPTH [FT] : 12110.0  
 PORT OPENING : OUTSIDE  
 TEMPERATURE [DEG F] : 254.0

LABEL POINT INFORMATION

\*\*\*\*\*

#	TIME OF DAY HH:MM:SS	DATE DD-MM	EXPLANATION	ELAPSED TIME,MIN	BOT HOLE PRESSURE PSIA
1	4:43: 0	8-AU	HYDROSTATIC MUD	-2.00	6820
2	4:45: 0	8-AU	START FLOW	0.00	507
3	5: 0: 0	8-AU	END FLOW & START SHUT-IN	15.00	516
4	5:59: 0	8-AU	END SHUT-IN	74.00	5752
5	6: 0: 0	8-AU	START FLOW	75.00	541
6	9:30: 0	8-AU	END FLOW & START SHUT-IN	285.00	591
7	14: 0: 0	8-AU	END SHUT-IN	555.00	5666
8	14: 1: 0	8-AU	HYDROSTATIC MUD	556.00	6820

SUMMARY OF FLOW PERIODS

\*\*\*\*\*

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	PRESSURE PSIA	END PRESSURE PSIA
1	0.00	15.00	15.00	507	516
2	75.00	285.00	210.00	541	591

SUMMARY OF SHUTIN-PERIODS

\*\*\*\*\*

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	START DURATION MIN	PRESSURE PSIA	ENO PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	15.00	74.00	59.00	516	5752	516	15.00
2	285.00	555.00	270.00	591	5666	591	225.00

## TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM			
*****	*****	*****	*****	*****
4:45: 0	8-AU	0.00	0.00	507
4:50: 0	8-AU	5.00	5.00	510
4:55: 0	8-AU	10.00	10.00	513
5: 0: 0	8-AU	15.00	15.00	516

## TEST PHASE : SHUTIN PERIOD # 1

FINAL FLOW PRESSURE [PSIA] = 516  
 PRODUCING TIME [MIN] = 15.00

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	LOG DELTA P PSI	HORNER TIME
HH:MM:SS	DD-MM					
*****	*****	*****	*****	*****	*****	*****
5: 0: 0	8-AU	15.00	0.00	516	0	
5: 1: 0	8-AU	16.00	1.00	964	448	1.204
5: 2: 0	8-AU	17.00	2.00	1413	897	0.929
5: 3: 0	8-AU	18.00	3.00	1861	1345	0.778
5: 4: 0	8-AU	19.00	4.00	2310	1794	0.677
5: 5: 0	8-AU	20.00	5.00	2758	2242	0.602
5: 6: 0	8-AU	21.00	6.00	3072	2556	0.544
5: 7: 0	8-AU	22.00	7.00	3387	2871	0.497
5: 8: 0	8-AU	23.00	8.00	3701	3185	0.459
5: 9: 0	8-AU	24.00	9.00	4016	3500	0.426
5:10: 0	8-AU	25.00	10.00	4330	3814	0.398
5:12: 0	8-AU	27.00	12.00	4575	4059	0.352
5:14: 0	8-AU	29.00	14.00	4820	4304	0.316
5:16: 0	8-AU	31.00	16.00	4999	4483	0.287
5:18: 0	8-AU	33.00	18.00	5114	4598	0.263
5:20: 0	8-AU	35.00	20.00	5228	4712	0.243
5:22: 0	8-AU	37.00	22.00	5300	4784	0.226
5:24: 0	8-AU	39.00	24.00	5371	4855	0.211
5:26: 0	8-AU	41.00	26.00	5427	4911	0.198
5:28: 0	8-AU	43.00	28.00	5468	4952	0.186
5:30: 0	8-AU	45.00	30.00	5509	4993	0.176
5:35: 0	8-AU	50.00	35.00	5584	5068	0.155
5:40: 0	8-AU	55.00	40.00	5643	5127	0.138
5:45: 0	8-AU	60.00	45.00	5679	5163	0.125
5:50: 0	8-AU	65.00	50.00	5711	5195	0.114
5:55: 0	8-AU	70.00	55.00	5738	5222	0.105
5:59: 0	8-AU	74.00	59.00	5752	5236	0.098

## TEST PHASE : FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM	*****	*****	*****
6: 0: 0	8-AU	75.00	0.00	541
6: 5: 0	8-AU	80.00	5.00	542
6:10: 0	8-AU	85.00	10.00	543
6:15: 0	8-AU	90.00	15.00	545
6:20: 0	8-AU	95.00	20.00	546
6:25: 0	8-AU	100.00	25.00	547
6:30: 0	8-AU	105.00	30.00	548
6:35: 0	8-AU	110.00	35.00	549
6:40: 0	8-AU	115.00	40.00	551
6:45: 0	8-AU	120.00	45.00	552
6:50: 0	8-AU	125.00	50.00	553
6:55: 0	8-AU	130.00	55.00	554
7: 0: 0	8-AU	135.00	60.00	555
7: 5: 0	8-AU	140.00	65.00	556
7:10: 0	8-AU	145.00	70.00	558
7:15: 0	8-AU	150.00	75.00	559
7:20: 0	8-AU	155.00	80.00	560
7:25: 0	8-AU	160.00	85.00	561
7:30: 0	8-AU	165.00	90.00	562
7:35: 0	8-AU	170.00	95.00	564
7:40: 0	8-AU	175.00	100.00	565
7:45: 0	8-AU	180.00	105.00	566
7:50: 0	8-AU	185.00	110.00	567
7:55: 0	8-AU	190.00	115.00	568
8: 0: 0	8-AU	195.00	120.00	570
8: 5: 0	8-AU	200.00	125.00	571
8:10: 0	8-AU	205.00	130.00	572
8:15: 0	8-AU	210.00	135.00	573
8:20: 0	8-AU	215.00	140.00	574
8:25: 0	8-AU	220.00	145.00	576
8:30: 0	8-AU	225.00	150.00	577
8:35: 0	8-AU	230.00	155.00	578
8:40: 0	8-AU	235.00	160.00	579
8:45: 0	8-AU	240.00	165.00	580
8:50: 0	8-AU	245.00	170.00	581
8:55: 0	8-AU	250.00	175.00	583
9: 0: 0	8-AU	255.00	180.00	584
9: 5: 0	8-AU	260.00	185.00	585
9:10: 0	8-AU	265.00	190.00	586
9:15: 0	8-AU	270.00	195.00	587
9:20: 0	8-AU	275.00	200.00	589
9:25: 0	8-AU	280.00	205.00	590
9:30: 0	8-AU	285.00	210.00	591

TEST PHASE : SHUTIN PERIOD # 2

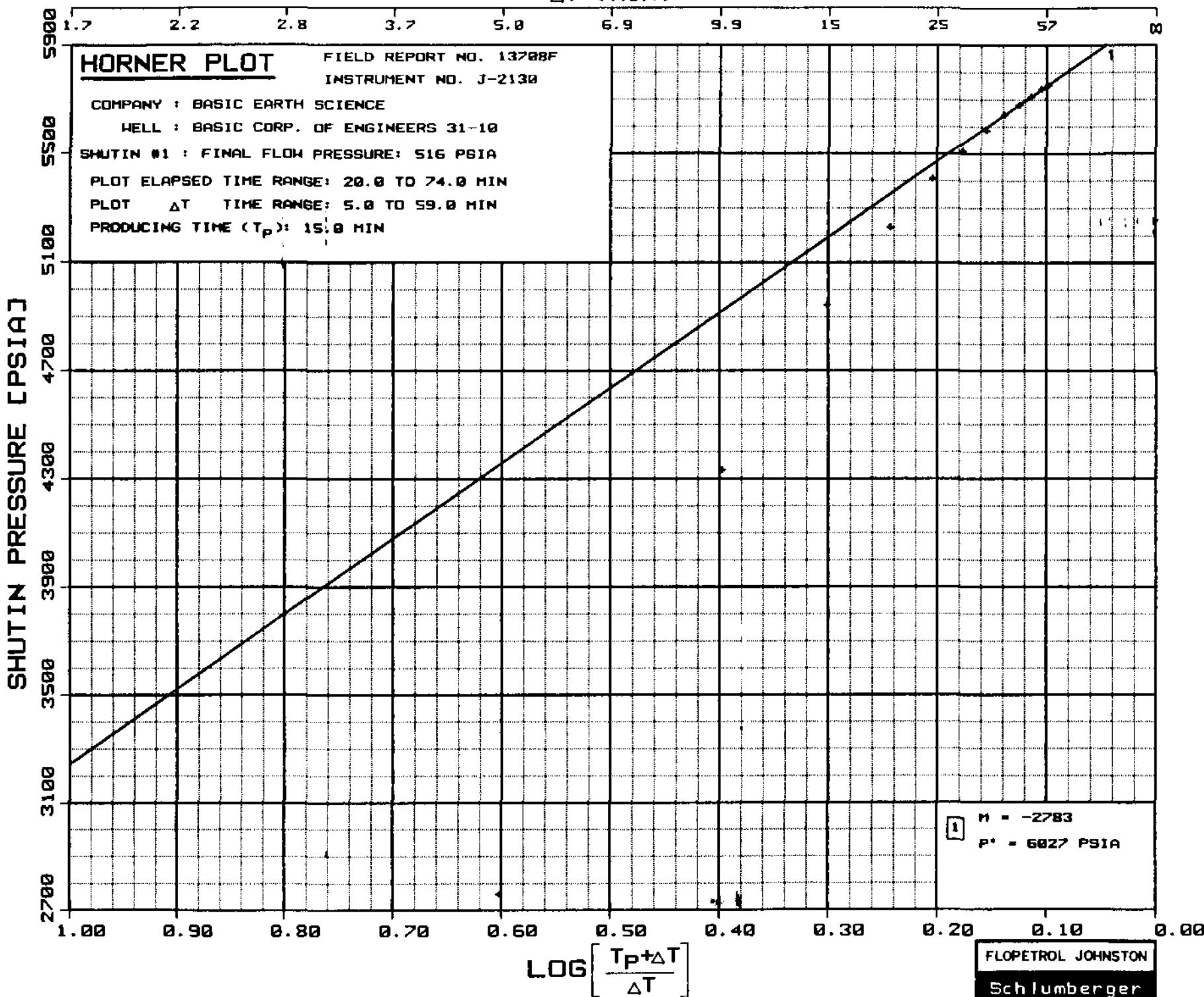
FINAL FLOW PRESSURE [PSIA] = 591  
PRODUCING TIME [MIN] = 225.00

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
9:30: 0	8-AU	285.00	0.00	591	0	
9:31: 0	8-AU	286.00	1.00	682	91	2.354
9:32: 0	8-AU	287.00	2.00	753	162	2.055
9:33: 0	8-AU	288.00	3.00	837	246	1.881
9:34: 0	8-AU	289.00	4.00	927	336	1.758
9:35: 0	8-AU	290.00	5.00	1034	443	1.663
9:36: 0	8-AU	291.00	6.00	1149	558	1.585
9:37: 0	8-AU	292.00	7.00	1279	688	1.520
9:38: 0	8-AU	293.00	8.00	1433	842	1.464
9:39: 0	8-AU	294.00	9.00	1617	1026	1.415
9:40: 0	8-AU	295.00	10.00	1794	1203	1.371
9:42: 0	8-AU	297.00	12.00	2232	1641	1.296
9:44: 0	8-AU	299.00	14.00	2690	2099	1.232
9:46: 0	8-AU	301.00	16.00	3127	2536	1.178
9:48: 0	8-AU	303.00	18.00	3500	2909	1.130
9:50: 0	8-AU	305.00	20.00	3679	3088	1.088
9:52: 0	8-AU	307.00	22.00	3896	3305	1.050
9:54: 0	8-AU	309.00	24.00	4128	3537	1.016
9:56: 0	8-AU	311.00	26.00	4268	3677	0.985
9:58: 0	8-AU	313.00	28.00	4377	3786	0.956
10: 0: 0	8-AU	315.00	30.00	4457	3866	0.929
10: 5: 0	8-AU	320.00	35.00	4613	4022	0.871
10:10: 0	8-AU	325.00	40.00	4768	4177	0.821
10:15: 0	8-AU	330.00	45.00	4857	4266	0.778
10:20: 0	8-AU	335.00	50.00	4945	4354	0.740
10:25: 0	8-AU	340.00	55.00	5006	4415	0.707
10:30: 0	8-AU	345.00	60.00	5067	4476	0.677
10:35: 0	8-AU	350.00	65.00	5112	4521	0.649
10:40: 0	8-AU	355.00	70.00	5156	4565	0.625
10:45: 0	8-AU	360.00	75.00	5192	4601	0.602
10:50: 0	8-AU	365.00	80.00	5228	4637	0.581
10:55: 0	8-AU	370.00	85.00	5258	4667	0.562
11: 0: 0	8-AU	375.00	90.00	5287	4696	0.544
11: 5: 0	8-AU	380.00	95.00	5310	4719	0.527
11:10: 0	8-AU	385.00	100.00	5332	4741	0.512
11:15: 0	8-AU	390.00	105.00	5351	4760	0.497
11:20: 0	8-AU	395.00	110.00	5369	4778	0.484
11:25: 0	8-AU	400.00	115.00	5385	4794	0.471
11:30: 0	8-AU	405.00	120.00	5401	4810	0.459
11:35: 0	8-AU	410.00	125.00	5418	4827	0.447
11:40: 0	8-AU	415.00	130.00	5434	4843	0.436
11:45: 0	8-AU	420.00	135.00	5459	4868	0.426
11:50: 0	8-AU	425.00	140.00	5484	4893	0.416
11:55: 0	8-AU	430.00	145.00	5496	4905	0.407
12: 0: 0	8-AU	435.00	150.00	5507	4916	0.398
12: 5: 0	8-AU	440.00	155.00	5516	4925	0.389
12:10: 0	8-AU	445.00	160.00	5525	4934	0.381
12:15: 0	8-AU	450.00	165.00	5534	4943	0.374

TEST PHASE : SHUTIN PERIOD # 2  
FINAL FLOW PRESSURE [PSIA] = 591  
PRODUCING TIME [MIN] = 225.00

TIME OF DAY	DATE DD-MM	ELAPSED TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
*****	*****	*****	*****	*****	*****
12:20: 0	8-AU	455.00	170.00	5543	4952 0.366
12:25: 0	8-AU	460.00	175.00	5552	4961 0.359
12:30: 0	8-AU	465.00	180.00	5561	4970 0.352
12:35: 0	8-AU	470.00	185.00	5569	4978 0.346
12:40: 0	8-AU	475.00	190.00	5577	4986 0.339
12:45: 0	8-AU	480.00	195.00	5584	4993 0.333
12:50: 0	8-AU	485.00	200.00	5591	5000 0.327
12:55: 0	8-AU	490.00	205.00	5597	5006 0.322
13: 0: 0	8-AU	495.00	210.00	5602	5011 0.316
13: 5: 0	8-AU	500.00	215.00	5609	5018 0.311
13:10: 0	8-AU	505.00	220.00	5616	5025 0.306
13:15: 0	8-AU	510.00	225.00	5622	5031 0.301
13:20: 0	8-AU	515.00	230.00	5627	5036 0.296
13:25: 0	8-AU	520.00	235.00	5633	5042 0.292
13:30: 0	8-AU	525.00	240.00	5639	5048 0.287
13:35: 0	8-AU	530.00	245.00	5647	5056 0.283
13:40: 0	8-AU	535.00	250.00	5654	5063 0.279
13:45: 0	8-AU	540.00	255.00	5660	5069 0.275
13:50: 0	8-AU	545.00	260.00	5666	5075 0.271
13:55: 0	8-AU	550.00	265.00	5666	5075 0.267
14: 0: 0	8-AU	555.00	270.00	5666	5075 0.263

$\Delta T$  (MIN)



# LOG LOG PLOT

COMPANY : BASIC EARTH SCIENCE

WELL : BASIC CORP. OF ENGINEERS 31-10

FIELD REPORT NO. 13708F

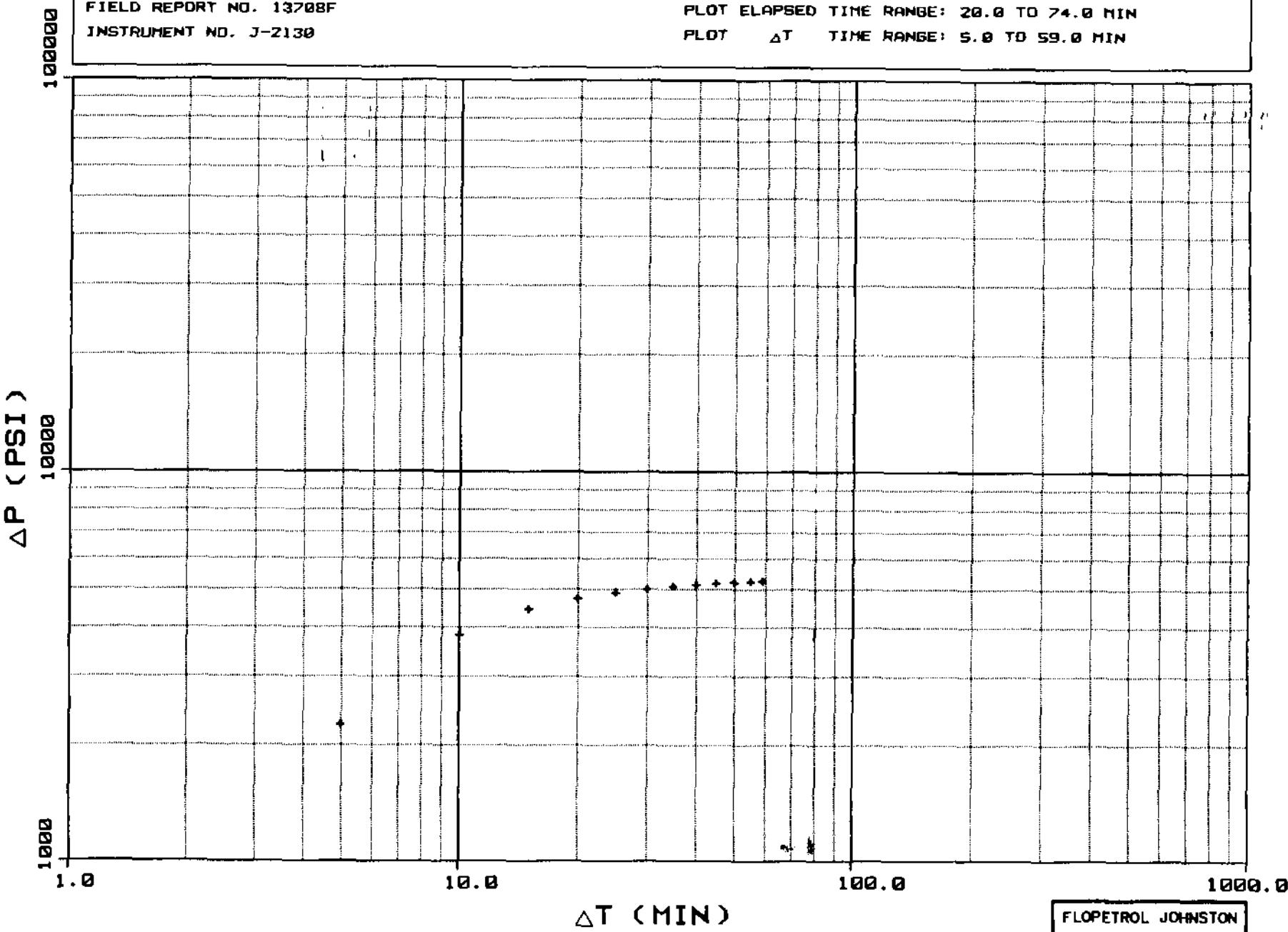
INSTRUMENT NO. J-2130

SHUT-IN #1 :

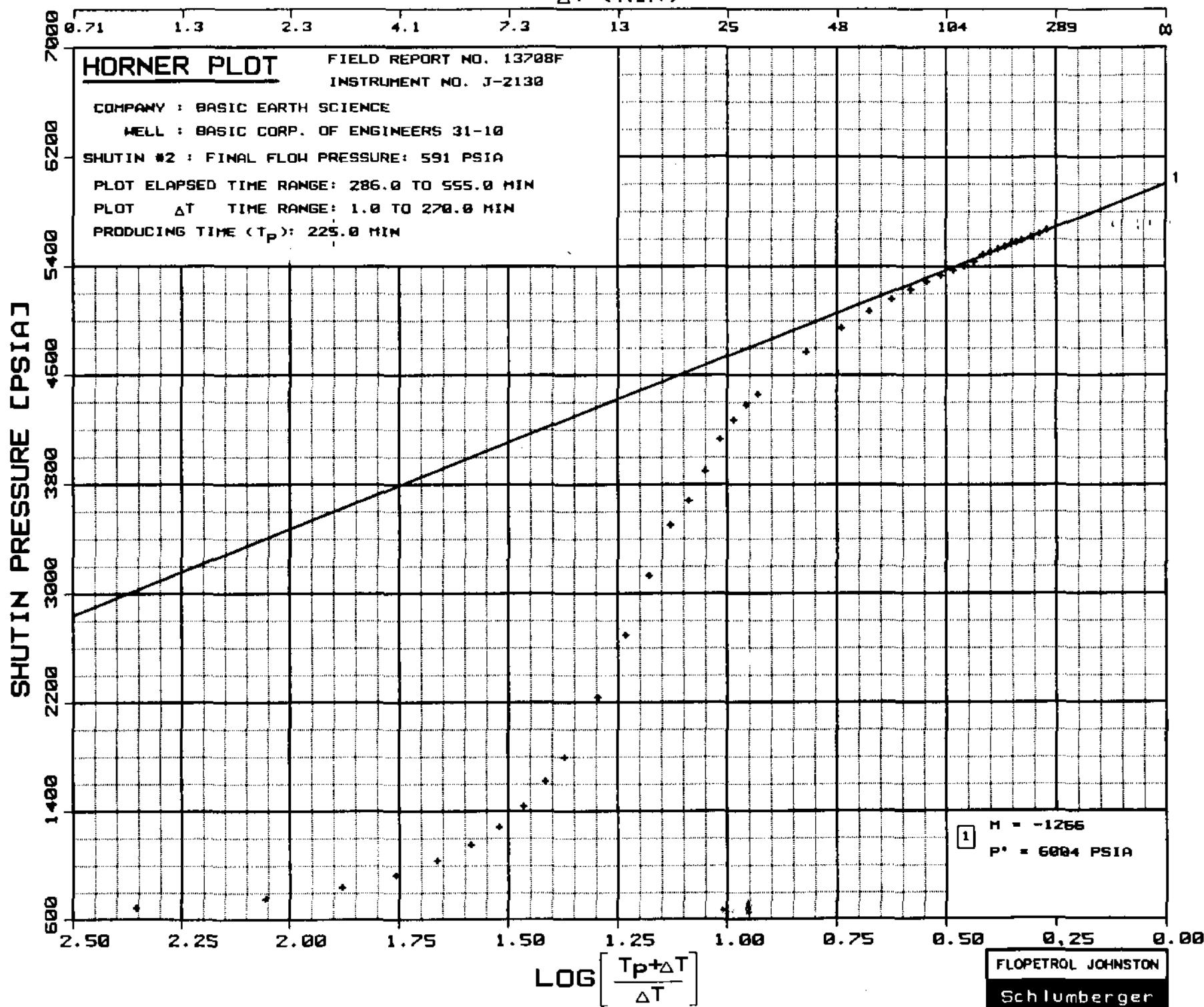
FINAL FLOW PRESSURE (PWF): 516 PSIA

PLOT ELAPSED TIME RANGE: 20.0 TO 74.0 MIN

PLOT AT TIME RANGE: 5.0 TO 59.0 MIN



$\Delta T$  (MIN)



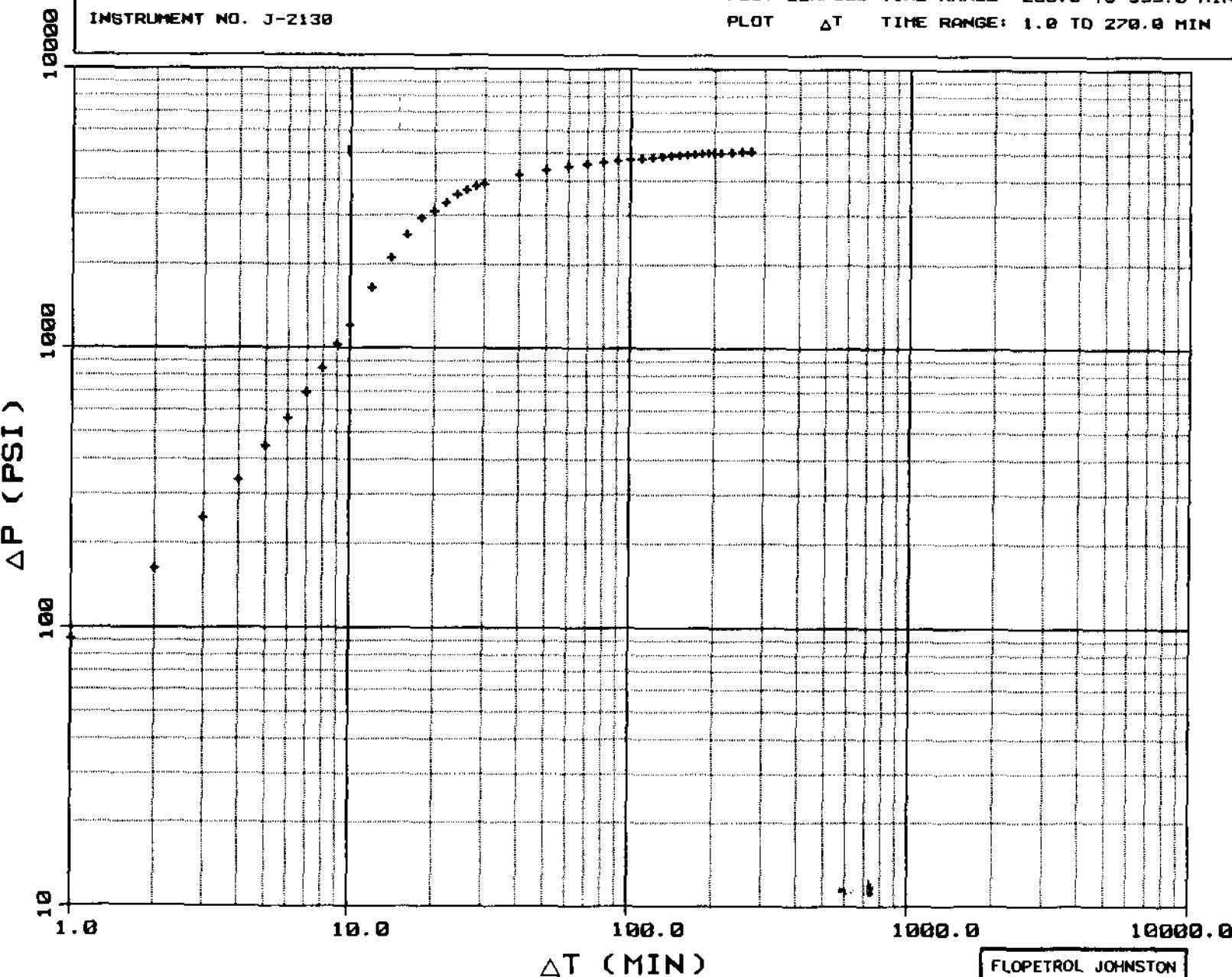
FLOPETROL JOHNSTON

Schlumberger

## LOG LOG PLOT

COMPANY : BASIC EARTH SCIENCE  
WELL : BASIC CORP. OF ENGINEERS 31-10  
FIELD REPORT NO. 13708F  
INSTRUMENT NO. J-2130

SHUT-IN #2 :  
FINAL FLOW PRESSURE (PHF) : 591 PSIA  
PLOT ELAPSED TIME RANGE: 286.0 TO 555.0 MIN  
PLOT  $\Delta T$  TIME RANGE: 1.0 TO 270.0 MIN



WPT Sensitivity Analysis Summary  
File : 13708F Case ID : ACRE SPACING ASSUMED = 40 AC

ISS Report Pages & Data Records

Production Rate vs. Xf (vs. Time) ... ISS Report Page 2 ; Data Record 12  
Production Rate vs. Time (vs. Xf) ... ISS Report Page 3 ; Data Record 13  
Cumulative Recovery vs. Xf (vs. Time) ... ISS Report Page -- ; Data Record 14  
Cumulative Recovery vs. Time (vs. Xf) ... ISS Report Page 4 ; Data Record 15  
  
Summary Printout ... ISS Report Page 5

Input Data for (Xf) Sensitivity

Produced Fluid & In-Place Fluid Information

Produced Fluid is primarily ..... Liquid  
Producing Gas/Liquid Ratio [SCF/STB] ..... 156.00  
Producing Water/Total Liquid Ratio [Water Cut] ..... 0.00000E+00  
Reservoir Oil Saturation [So, fraction] ..... 0.7000  
Reservoir Water Saturation [Sw, fraction] ..... 0.3000  
Reservoir Gas Saturation [Sg, fraction] ..... 0.0000

Fluid Property Data

Water Specific Gravity ..... 1.0700  
Water Salinity [ppm] ..... 1000.0  
Oil (or Condensate) API Gravity ..... 40.000  
Oil Solution GOR & Bub.Pt.Pres. Correlation ..... Standing  
Oil Formation Volume Factor Correlation ..... Standing  
Gas Gravity at Standard Conditions [Air=1.0] ..... 0.6500  
Mole % CO2 ..... 0.000  
Mole % H2S ..... 0.000  
Mole % N2 ..... 0.000

Flowline, Wellhead, Tubing, and Casing Data

Start at ..... Wellhead (no Flowline)  
Wellhead Temperature [deg F] ..... 60.00  
Wellhead Pressure [psig] ..... 50.000  
Tubing Inside Diameter [inch] ..... 2.4410  
Tubing Absolute Roughness [ft] ..... 5.00000E-05  
Tubing Length [ft] ..... 12088.  
Tubing Vertical Multiphase Flow Correlation ..... Hagedorn-Brown  
Casing Inside Diameter [inch] ..... 6.3360  
Casing-Tubing Packer Depth [measured depth, ft] ..... 12088.  
Total Depth [measured depth to mid-formation, ft] ... 12113.  
True Vertical Depth [to mid-formation, ft] ..... 12113.

**Input Data for (Xf) Sensitivity**

---

**Reservoir and Near-Wellbore Data**

Initial Reservoir Pressure [Pi, psia] .....	6004.0
Reservoir Temperature [deg F] .....	254.00
(Total) Permeability [k, md] .....	0.15500
(Net Productive) Thickness [h, ft] .....	24.000
Rock Type .....	Sandstone
Porosity [fraction] .....	0.10000
Fracture Conductivity [kfew, md.ft] .....	600.00

**Reservoir Total (Equivalent Single-Phase) Properties**

Total Liquid Viscosity [cp] .....	0.95444
Total Liquid Form.Vol.Factor [bbl/STB] .....	1.1157
(Vogel) Bub.Pt.Pres. [psia, 0.0=single-phase IPR] ...	915.51
Total Compressibility [1/psi] .....	1.01588E-05
Wellbore Storage Factor [bbl/psi] .....	0.00000E+00

**Sensitivity Parameter Values**

**Production Time [days]**

7.000	14.00	21.00	28.00	45.00	.....
60.00	90.00	130.0			.....

**Fracture Half-Length, Xf [ft]**

50.00	100.0	200.0	300.0	400.0	.....
500.0	550.0				.....

INTAKE Flowrate Range ..... 20 Uneven-Spaced Rates

INTAKE Minimum Liquid Rate [STB/D] .... 1.0000

INTAKE Maximum Liquid Rate [STB/D] .... 5000.0

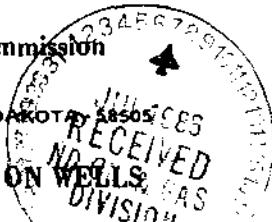
**Time and Date**

---

Option Execution began .....	10:02:58 on 12-AUG-86
Data Input required .....	1 min 25 sec
Data Generation required .....	2 min 19 sec
Option Execution completed .....	10:06:39 on 12-AUG-86
Input & Output Page(s) completed .....	10:10:27 on 12-AUG-86

**North Dakota State Industrial Commission  
Oil and Gas Division**

**900 EAST BOULEVARD - BISMARCK, NORTH DAKOTA 58501**



## SUNDY NOTICES AND REPORTS ON WELLS.

- |  |   |
|--|---|
| 1. Notice of Intention to Drill or Redrill | 7. Report of Casing Surface Csg & Cementing |
| 2. Notice of Intention to Change Plans     | 8. Report of Redrilling or Repair           |
| 3. Notice of Intention to Pull Casing      | 9. Supplementary History                    |
| 4. Notice of Intention to Abandon Well     | 10. Well Potential Test                     |
| 5. Report of Water Shut-Off                | 11. Drilling Prognosis                      |
| 6. Report of Shooting or Acidizing         | 12. Notice of Spud                          |

NAME OF LEASE Basic Corps of Engineers Date July 3, 1986  
WELL NO. 31-10 is located 660 ft. from (N) (E) line and 2305 ft. from the (E) (W) line  
of Section 10 Township 153N Range 101W in McKenzie  
County, Baker Field Red River Pool. The elevation of the ground  
is 1851 feet above sea level.

Name and Address of Contractor, or Company which will do work is: **Shelby Drilling Inc.  
5350 S. Roslyn, Suite 300  
Englewood, CO 80111**

**(DETAILS OF WORK)**

(State names of, and expected depth of objective sand; show sizes, weight, and lengths of proposed casing, indicate mud weights, cementing points, and all other details of work)

Spud well 6/20/86 @ 11:00 pm, drilling contractor is Shelby Drilling Inc. Rig #52.

Surface Casing: 75 jts 36# and 40# 9-5/8" K55, set at 2954'. Cemented with 850 sx Howco Lite and 250 sx Class "A", both mixed with  $\frac{1}{4}$ #/sx celloflake and 2% CaCl. Good returns, no cement to surface. Bumped plug w/2200 psi, held ok. Pumped top job of 120 sx Class "A" w/3% CaCl &  $\frac{1}{4}$ #/sx celloflake, good returns w/cement to surface.

**Company** Basic Earth Science Systems, Inc.

~~Do not write in this space~~

**Address** P.O. Box 3088, Englewood CO 80155

Approved

19

By 

Bx

## Fashion

Jeffrey E. Johnson

**Title**



Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

July 3, 1986

North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Project Manager, Garrison Project Office  
Administration Building  
Riverdale, ND 58565

Chief, Operations Division  
Corps of Engineers  
6014 U.S. Post Office and Courthouse  
Omaha, NE 68102

RE: Basic Corps of Engineers #31-30  
Sec. 10-T153N-R101W  
McKenzie County, ND

Gentlemen:

Enclosed please find your required number of copies of a Sundry Notice detailing the spudding and setting of surface casing for the above referenced well.

Please do not hesitate to contact me if you have any questions or need further information.

Sincerely,

Basic Earth Science Systems, Inc.

Jeffrey E. Jones  
Vice President

JEJ:ak

Enclosures

cc: Distribution

#11520



## DAILY DRILLING REPORT

## TIGHT HOLE

BASIC CORP OF ENGINEERS 31-10, SECTION 10 T153N, R101W

6/19/86 Finish building location and moving in Shelby rig 52.

6/20/86 Rigging up Shelby rig 52.

6/21/86 Rigging up Shelby rig 52.

6/22/86 Rigging up Shelby rig 52.

6/23/86 Day 1, Drilling at 202 ft with fresh water, Wt 8.6, visc 35, tight hole at 200 feet had to shut in to condition mud. Bit # 112-1/4 J-1. Spud 11pm CST 6/20/86 S.T. \$6,582 Cum. \$6,582.

6/24/86

Day 2, drilling at 1,723 ft, made 1,521 ft in 14. 3/4 hrs. Survey, 1 1/4 deg @ 300 ft, 1 1/4 deg 750 ft, 1/4 deg S43W @ 1,094 ft, and 1/4 deg S68E 1620 ft. Had water flow at 1600 ft at a rate of 40-60 gal per minute, let mud wt build to 9.3 lb/gal and built visc to 46 flow stopped. S.T. \$33,025, CUM. \$39,607.

6/25/86

Day 3, running casing at 3,000 ft. Made 1,075 ft in 10.75 hrs. Lost circulation at 2,125 ft. Surveys, at 2,121 ft 1/4 deg N26E; at 2477 ft 0 deg; at 2,935 ft 1/2 deg S66E; and resurvey at 2,500 ft, 1/2 deg S25 W. Bit 2A 12 1/4 J1 in at 2518 ft. S.T. \$20,965 Cum. \$60,572.

6/26/86

Day 4, running casing at 3000 ft. Ran 14 jts of casing could not go any further, TOH with casing, TIH with drill pipe and washed and reamed from 430 ft to 1200 ft. Bit plugged TOH to unplug bit, TIH to 430 washed and reamed from 430 to 1200 ft. Circulated and conditioned hole. Raised weight to 9.9 and visc to 105, chained out of hole and rigged up to run casing. S.T. \$34,124 CUM. \$94,696

6/27/86

Day 5, WOC at 2954 ft. Ran guide shoe and 75 jts of 36# and 40# 5 5/8 casing. Had to wash the casing from 400 ft to T.D. unable to get past 2954. Circulated bottoms up and pumped 20 bbls of water followed by 850 sks of Howco Lite, and 250 sks of Class A both mixed with 1/4# sk celloflake, and 2% CaCl. Good returns throughout job, but no cement to surface. Bumped plug with 2200 psi held ok. Ran 120 ft of one inch and pumped top job of 10 bbls of water followed by 120 sks of Class A with 3% CaCl, and 1/4# per sk celloflake. Good returns with cement to surface held ok. Cut off casing and welded on wellhead. S.T. \$6,221, Cum. \$100,917.

11920

**NORTH DAKOTA INDUSTRIAL COMMISSION**  
**OIL AND GAS DIVISION**

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

June 19, 1986

Mr. Jeffery E. Jones  
Basic Earth Science Systems  
P.O. Box 3088  
Englewood, Colorado 80155

RE: Basic Corps of Engineers #31-10  
NW NE Section 10-T153N-R101W  
Well File No. 11920

Dear Mr. Jones:

As per our conversation on June 16, 1986, neither Ken Kallestad nor Ellis Haake with the Oil and Gas Division, could confirm the fact that they had a conversation with you and approved the use of the drilling pit without a liner on the above captioned location.

The fluids in the pit shall not exceed 3000 ppm TDS. I will be checking the fresh water pit regularly and if at any time it exceeds 3000 ppm TDS, we will require that the fluids be removed and a liner installed. Upon completion of drilling status, you will be required to remove the fluids and reclaim the pit. Also, any contaminates noted must be removed immediately.

If you have any questions, feel free to contact our office.

Sincerely,

*Tom Delling /rls*  
Tom Delling  
Field Inspector

TD/rls



Earth Science Systems, Inc.

11930

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

April 17, 1986



North Dakota Industrial Commission  
Oil and Gas Division  
900 East Blvd.  
Bismarck, ND 58505

Project Manager, Garrison Project Office  
Administration Building  
Riverdale, ND 58565

North Dakota Game & Fish Dept.  
214 Rose Lane  
Williston, ND 58801

Re: Basic Corps of Engineers #31-10  
NWNE Sec. 10, T153N, R101W  
McKenzie County, ND

Gentlemen:

Enclosed please find a copy of the Archeological Report which is to be included in our Multi-Point Surface Use and Operations Plan as Exhibit 8. This report was not available at the time we submitted our Multi-Point plan.

Please do not hesitate to contact me if you have any questions or need anything further.

Sincerely,

Basic Earth Science Systems, Inc.

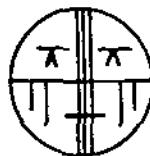
Jeffery E. Jones  
Vice President

JEJ:ak

Enclosure



John & Mavis Greer  
Archeological Consultants



2599 So. Paradise Dr.

Casper, Wyoming 82604

(307) 472-4016

AN INTENSIVE CULTURAL RESOURCE SURVEY  
OF THE  
BASIC EARTH SCIENCE SYSTEMS, INC.  
BASIC CORP OF ENGINEERS 31-10  
WELL PAD AND ACCESS ROAD,  
MCKENZIE COUNTY, NORTH DAKOTA

by

John and Mavis Greer

Mavis Greer (P.I.)

Project No. ND-1946  
March 1986

ABSTRACT: An intensive cultural resource survey was conducted on the area surrounding a proposed well pad and access road. No cultural resources were found, and cultural clearance is recommended with no special stipulations.

PROJECT LOCATION:

Agency: Corp of Engineers, Riverdale  
USGS Quad: Williston SW (7.5')  
Well Location: NW/NE (660 fsl, 2305 fel) Sec.10-T153N-R101W  
Access Route: Public Surface (5 acres surveyed)  
Access Route: NW/NE Section 10  
(0.11 miles surveyed, public surface)

PROJECT DESCRIPTION: Construction is planned on a well pad (est. 300 x 350') and an access road (about 600 feet long). The access road leaves the bladed county road just to the north and runs south on the west side of an irrigation canal to the well location. The well pad and access road are staked in a plowed field which is currently in stubble. This flat area has been diked and is a controlled farming portion of the wide Missouri River floodplain.

PROJECT SETTING: The proposed well location is situated on the recent Missouri River floodplain, in a silty area currently in cultivation. A large major meander (now a large recreational lake) is just to the southeast, while the main Missouri River channel is to the north. Elevation of the well pad area is about 1850 feet.

FILES SEARCH: The files of the North Dakota State Historical Society indicate that no previous surveys or cultural resources are known for the project area. Previous surveys in adjacent and nearby areas include well pad and access road surveys by Greer, a pipeline survey by Powers Elevation, and seismograph line studies by the Corps of Engineers; all previous studies have provided negative results. No subsurface monitoring of construction to provide subsurface information has been reported in any surrounding or nearby areas.

FIELD WORK: During the intensive cultural resource survey on 3/30/86 by John and Mavis Greer, the 5 acres surrounding the well pad were surveyed with multiple transects with an average spacing of 70 feet. Ground visibility was fair to poor, due to mostly dense stubble and grass cover. The well location was staked.

CULTURAL RESOURCES: No cultural resources have been reported from the area, and none were found during the present inspection. There were no surface indications of buried cultural deposits within the project area. Two small shovel tests dug to 1.5 feet deep within the well pad planned construction area also yielded negative results.

RECOMMENDATIONS: It appears that no cultural resources will be affected by the proposed project, and no further work is recommended. If subsurface cultural materials are found during construction, the head of the federal permitting agency should be notified immediately. These recommendations are subject to the approval of the permitting agency.

ATTACHMENTS: Project map (USGS quad).

COLLECTIONS: None.

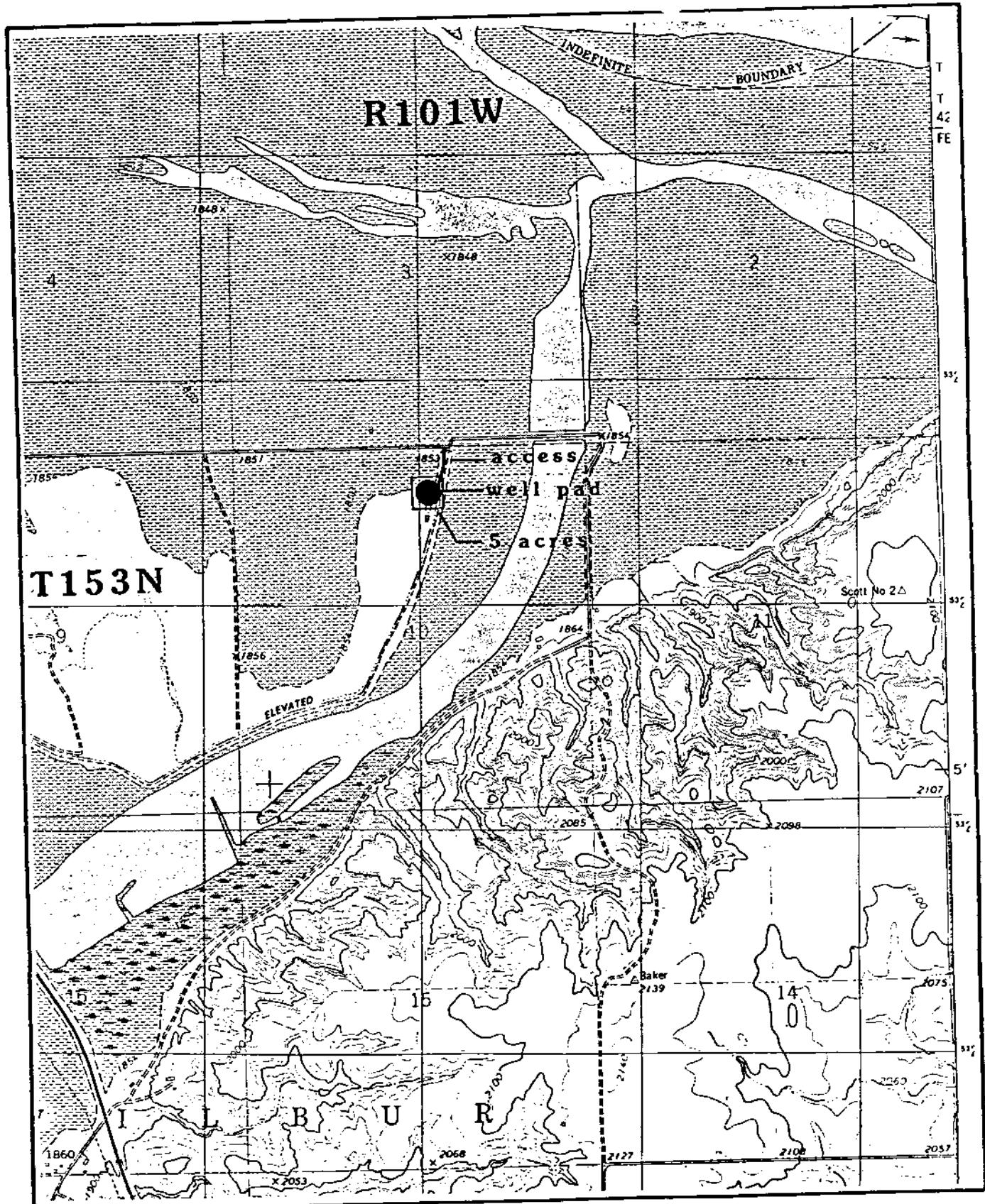


Figure 1. Portion of the Williston SW Quad (USGS 7.5'), McKenzie County, North Dakota, showing the proposed Basic Corp of Engineers 31-10 well pad, access road, and 5-acre survey area. No cultural resources were found.

**basic**

Earth Science Systems, Inc.

11920  
P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

March 6, 1986

Department of the Army  
Omaha District, Corps of Engineers  
6014 U.S. Post Office and Courthouse  
Omaha, Nebraska 68102-4978

Attention: Mr. Rick Noel, Real Estate Division

Re: Basic Corps of Engineers #31-10  
Township 153 North-Range 202 West  
Section 10: NW $\frac{1}{4}$ NE $\frac{1}{4}$   
McKenzie County, ND

Letter Grant No. DACW45-9-86-6112  
ND Permit No. 11920

Gentlemen:

The permitted Basic Corps of Engineers #31-10 location is under two feet of water due to the Missouri River flooding. We estimate a minimum delay of one month before construction of the drill pad can begin. Since the frost should no longer be a factor by that time, we believe a conventional drill pad would be acceptable, therefore, permission is requested to deviate from the requirement to cover the pad with plastic and build the location up with dirt acquired from a private source.

The Multi-Point Surface Use and Operation Plan should be amended as follows:

4. Location of Existing and/or Proposed Facilities

- B. Exhibits 3 and 4 show the surveyed location and the anticipated cut and fill. These show that after removing six to eight inches of top soil, the entire cut will be above 1850 feet. There should be sufficient dirt available from the drill pit and fill to level the location. All top soil and dirt removed during construction of the reserve pits will be placed in separate piles. Both piles will be kept as free as possible from contamination.
- C. Construction will be to strip the top soil and level the drilling pad. The battery .....

6. Source of Construction Materials

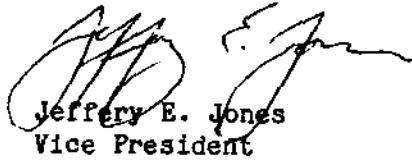
- A. ....the brush covering location will be scraped into a pile on the southeast corner of the location. The top soil will be scraped into a separate pile at the southwest corner of the location. The site will then be leveled .....

Corps of Engineers  
March 6, 1986  
Page 2

Thank you for your consideration of this request and please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,

Basic Earth Science Systems, Inc.



Jeffery E. Jones  
Vice President

JEJ:jb

cc: Project Manager, Garrison Project Office  
Administration Building, Riverdale, North Dakota 58565  
North Dakota Game & Fish Department  
214 Rose Lane, Williston, North Dakota 58801  
North Dakota Industrial Commission  
Oil and Gas Division, 900 E. Blvd., Bismarck, North Dakota 58505

**basic**

Earth Science Systems, Inc.

Amend APD to Surf Loc

Directional hole letter

Must comply w/ all spacing  
requirements in Baker Field  
Connie - add do already?

Project Manager  
Garrison Project Office  
Administration Building  
Riverdale, North Dakota 58565

Chief, Operations Division  
Corps of Engineers  
6014 U.S. Post Office & Courthouse  
Omaha, Nebraska 68102

Attn: MROOP-R

✓ North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, North Dakota 58505

Re: Application to Drill  
Basic Game & Fish #31-10  
Section 10, T153N, R101W  
McKenzie County, ND

Gentlemen:

Enclosed please find Basic Earth Science Systems, Inc.'s Multi-point Surface Use and Operations Plan submitted to obtain permission to drill a 13,500 foot Red River test. An on-site inspection was held on January 9, 1986, with Mr. Alan Steinle of the Corps of Engineers, Mr. Bruce Renhowe of the Game and Fish Department, Mr. Tom Hopkin representing Basic Earth Science Systems, Inc., and several dirt contractors. Recommendations from that meeting have been incorporated into the enclosed application.

A spud date of February 1, 1986 has been requested due to lease constraints and, therefore, we would appreciate your expeditious handling of this application. If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Basic Earth Science Systems, Inc.

*Judy Burke*

Judy Burke  
Lease Analyst/Permit Coordinator

JB  
encl.

44E Inverness Drive East

MULTI-POINT SURFACE USE AND OPERATIONS PLAN



BASIC EARTH SCIENCE SYSTEMS, INC.  
Basic Corps of Engineers #31-10  
NW<sup>1</sup>NE<sup>1</sup> Section 10, Township 153 North, Range 101 West  
660' FNL - 2305' FEL (Surface Location)  
660' FNL - 2140' FEL (Bottom Hole Location)  
McKenzie County, North Dakota

Prepared By:  
Basic Earth Science Systems, Inc.  
P. O. Box 3088  
Englewood, Colorado 80155

Copies:

- 1 - Project Manager, Garrison Project Office  
Administration Building, Riverdale, North Dakota 58565
- 1 - Chief, Operations Division, Corps of Engineers  
6014 U.S. Post Office & Courthouse, Omaha, Nebraska 68102  
Attn: MROOP-R
- 1 - North Dakota Game & Fish Department  
214 Rose Lane, Williston, North Dakota 58801
- 1 - North Dakota Industrial Commission  
Oil and Gas Division, 900 E. Blvd., Bismarck, North Dakota 58505

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

BASIC EARTH SCIENCE SYSTEMS, INC.

Basic Corps of Engineers #31-10

NW $\frac{1}{4}$ NE $\frac{1}{4}$  Section 10, Township 153 North, Range 101 West  
660' FNL - 2305' FEL (Surface Location)  
660' FNL - 2140' FEL (Bottom Hole Location)

McKenzie County, North Dakota

### SUMMARY OF PROJECT

Basic Earth Science Systems, Inc. is submitting the following application to obtain permission from the Corps of Engineers to drill a 13,600 foot Red River test with the above-referenced name and surface location. The location has been carefully chosen to balance the concerns of Basic Earth Science Systems, Inc., the Corps of Engineers, and surface lessee (North Dakota Game and Fish). From this surface location Basic Earth Science Systems, Inc. will directionally drill to a legal bottom hole location of 660' FNL and 2140' FEL of Section 10, T153N, R101W. All of the oil and gas minerals in this area are privately owned. Basic Earth Science Systems, Inc. understands that this location is within the 100-year flood plain. Any facilities and equipment which can be damaged by floodwater and which cannot be readily moved if a flood is imminent will be placed at a location above, or adequately protected by diking to 1858', the 100-year flood water surface elevation at this location plus a minimum of three feet of freeboard to protect against wind-wave runup. Due to lease constraints this well must be drilling by February 1, 1986, and, therefore, your expeditious processing of this application is requested.

### LIST OF EXHIBITS

Number		Page
1.1	Regional Map	10
1.2	Topographical Map - Access Roads	11
2	Existing Well Plat	12
3	Survey Plat	13
4	Cut & Fill Cross Section	14
5	Pit & Pad Layout	15
6	Production & Equipment Layout	16
7	Rig Layout	17
8	Archeological Report	18
9	BOP Diagram	19
10	Well Control Equipment	20
11	ND Application for Permit to Drill	21
12	ND Game & Fish Surface Damage Agreement	22
13	Drilling Prognosis	23

#### 1. Existing Roads

- A. Directions to the location from Williston, North Dakota are as follows: Go south on Highway 85 8-1/4 miles, turn east on first existing gravel road with stop sign controlling access, proceed east 2 miles, turn south on gravel road 460' to wellsite access.

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

- B. For access roads in relation to county roads, see Exhibit 1.1 with the access of U.S. 85 highlighted in pink. This map shows all county roads within a three mile radius.
- C. Exhibit 1.2 shows a detailed map of the existing roads. The first two miles of access off U.S. 85, marked in green, is a high quality gravel road. The following 460', marked in pink, is an existing gravel road with access onto the location.
- D. Roads within a one-mile radius are shown on Exhibit 1.1.
- E. Existing roads will be maintained as necessary to allow access during drilling and completion operations.

### 2. Planned Access Roads

Referencing Exhibit 1.2 and the through segments of road:

- A. Prior to drilling, the existing roads will be upgraded as follows:
  - (1) Gravel Road (Exhibit 1.2, green) This segment of road is in good condition. Basic Earth Science Systems, Inc. has recently upgraded this road in conjunction with other activity in this area and will continue to keep this road maintained.
  - (2) Gravel Road (Exhibit 1.2, pink) This existing gravel road will require no improvement and will only require that the accesses to the location be built.

If the well is completed as a dry hole, the access will be reclaimed along with the rest of the location.

If the well is completed as a producer, the lease road will be upgraded as required and gravel added as needed.

- B. The maximum grade will be less than six percent, however, this may vary as topographical conditions vary.
- C. No turnouts are planned.
- D. No culverts are planned.
- E. Native surfacing material from construction of access road will be sufficient for drilling. No outside construction materials are anticipated, if additional material is needed, then it will be acquired from a private source and it will be free of noxious weeds.
- F. No gates, cattleguards or fence cuts will be necessary.
- G. No road will be built. The location will be accessed from the existing gravel road.

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

### 3. Location of Existing Wells Within One Mile Radius (see Exhibit 2)

- A. Water wells - 0
- B. Abandoned wells - 2
- C. Temporarily abandoned wells - 0
- D. Disposal wells - 0
- E. Drilling wells - 0
- F. Producing wells - 2
- G. Shut-in wells - 0
- H. Injection wells - 0
- I. Monitoring observation wells - 0
- J. Other proposed locations - 1 (#14-2, SW $\frac{1}{4}$ SW $\frac{1}{4}$  2-153N-101W)

### 4. Location of Existing and/or Proposed Facilities

- A. Basic Earth Science Systems, Inc. has production facilities on their Rosebud #22-11 location approximately 4050 ft. to the southwest. These consist of standard producing equipment for a Red River well. The Basic Game & Fish #34-3 is being completed in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  Section 2, Township 153 North, Range 101 West, and equipment will be installed for Mission Canyon production. Basic Earth Science Systems, Inc. has no other facilities in the area.
- B. Exhibits 3 and 4 show the surveyed location and the anticipated cut and fill. Complying with the Corps of Engineers' requirement because of the frozen condition of the land, the wellsite will have the snow and vegetation bladed off down to the ground surface, a plastic liner laid on top and dirt added to level the location. The dirt will be taken from the construction of the pit.
- C. New facilities contemplated in the event of production are shown on Exhibit 6.
  - (1) Proposed tank battery and production equipment are as shown on Exhibit 6 and are to be located adjacent to the existing road as shown on Exhibit 6. Said equipment will be bermed as per the Army Corps of Engineers' requirement.
  - (2) Dimension of the facilities are shown on Exhibit 6.
  - (3) Construction will be to strip the topsoil, level drilling pad. The battery site and treater pits will be constructed with soil materials native to the site. The additional material needed on site will be acquired from a private source and will contain no noxious weeds. Construction methods will be employed to assume that no drainage flows are impounded to prevent the loss of any hydrocarbon from the site. This is to be done in a manner to facilitate rapid recovery and clean up. (See Exhibit 6).

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

(4) Protective measures to protect wildlife and livestock will be taken as follows: the weights on the pumping unit will be enclosed and the production pit will be fenced.

D. Upon completion of well, areas required for continued use will be graded to provide drainage and minimize erosion. Those areas unnecessary for use will be graded to blend with the surrounding topography. Top-soil will be replaced on those areas and seeded with Brome grass or other mixture as required by the Corps of Engineers and the North Dakota Game and Fish Department.

5. Location and Type of Water Supply

- A. Fresh water for spudding and drilling the first 6500 feet will be trucked to location over the roads shown on Exhibit 1.2. Salt water for the salt-saturated mud system will be trucked from Williston.
- B. Salt and fresh water will be trucked to location over the roads marked on Exhibit 1.2.
- C. No water well is to be drilled on this lease.

6. Source of Construction Materials

- A. Exhibit 5 shows the layout of the planned pad for drilling purposes. This layout represents the maximum area to be disturbed. If a smaller drilling rig is available, the actual size of the location will be reduced to minimize the area disturbed. Prior to leveling off the drillsite pad, the brush covering location will be scraped into a pile on the southeast corner of the location. A sheet of plastic will be laid over the wells site. Dirt removed from the pit will be distributed on the plastic. The site will then be leveled and laid out as shown on Exhibit 5. If the well is productive, the drillsite will be reclaimed and an area sufficient for the wellhead and a completion rig will be left at the proposed drillsite. The production equipment will then be installed as shown in Exhibit 6. Said production equipment and wellhead will be diked as required by the Corps of Engineers. Gravel will then be placed on the production pad. Construction materials will consist of soil encountered within the boundaries of the proposed site. Gravel will be used, as needed. The entire producing facility will be fenced with a two strand barbless wire fence.
- B. The planned site and access roads are outleased to the North Dakota Game and Fish Department.

### MULTI-POINT SURFACE USE AND OPERATIONS PLAN

- C. All gravel (containing no noxious weeds) will be obtained from private land in quantities necessary for the access surfacing and tank base material on the battery site.

#### 7. Methods for Handling Waste Disposal

This well is being drilled to a depth of 6500 feet with fresh water. From that depth on salt water will be used. All cuttings and salt saturated material generated will be hauled off location during and after completion of the well. Upon the completion of drilling operations, all waste materials including, but not limited to drill cuttings, drilling fluids, and burned and unburned trash, shall be completely removed from Government land as directed by the Project Manager, Garrison Project. No waste material shall be buried on site.

- A. All drill cuttings will be stored on site in a 20 mil plastic lined pit during drilling and hauled off site prior to reclamation.
- B. All fresh water drilling fluids will be removed from site or allowed to evaporate from the reserve pit.
- C. At 6500 feet we will be switching over to a brine system. All liquid and solid waste that is produced will be hauled from the site, either during or immediately after drilling is completed. All waste stored on location during drilling activities will be stored in steel containers or in an earthen dike lined with 20 mil plastic liner.
- D. No substantial amount of produced water is expected while drilling. The amount of hydrocarbon that may be produced while testing will be stored in a tank. The small amount of loss will be retained in the reserve pit. Previous to clean-up operations the hydrocarbon materials will be skimmed or removed as the situation would dictate.
- E. Sanitary facilities will consist of chemical toilets. Waste will be contained and hauled from the site immediately following the drilling operations.
- F. Garbage and nonflammable waste are to be contained in the trash pit. Flammable waste is to be contained in the burn pit. The flammable trash is to be burned periodically. The trash and/or burn pit will be totally enclosed with small mesh wire to prevent wind scattering and wildlife entry. The pit will be fenced and flagged to prevent entry of livestock. All non-flammable trash will be hauled from site prior to reclamation.

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

- G. All trash, garbage, etc. is to be gathered and burned or hauled from the site at the end of drilling operations. Reserve and mud pits will be trenched as needed and allowed to dry after drilling is completed and then adequately filled and leveled. All garbage and pits will be filled as soon as the rig leaves the location.

### 8. Ancillary Facilities

There are no airstrips, camps or other facilities planned during the drilling of the proposed well.

### 9. Well Site Layout

- A. See Exhibit 5 for a cross section of the drill pad with cut and fills. Exhibit 5 shows that the location is relatively flat and there will be approximately a three foot cut and one foot of fill on the drill pad.
- B. Rig layout is shown on Exhibit 7. No permanent living facilities are planned. However, during drilling operations, three trailers will be on location.
- C. Location of mud tanks; reserve, burn and trash pits; pipe racks; and soil material stockpiles are shown on Exhibits 6 and 7.

### 10. Plans for Restoration of Surface

- A. If well is completed as dry hole.
- (1) The reserve pit will be fenced until dry and all drill cuttings and salt saturated water material from the pits will be hauled, pits backfilled, leveled, and contoured. The brush pile will be burned and reincorporated with the top soil. The top soil will be redistributed and seeded.
  - (2) If access road is not needed, it will be leveled, top soiled, and reseeded.
  - (3) If there is oil in the pit, it will be removed immediately after drilling.
  - (4) Rehabilitation operations will begin immediately after the drilling rig is removed. The trash and/or burn pits will be covered. Produced fluids will be removed or flagged overhead and fenced immediately. Reseeding and revegetation operations shall be accomplished in accordance with the instructions, and to the satisfaction, of the Project Manager, Garrison Project. The entire reclamation process will be completed after the spring thaw of 1986.

## MULTI-POINT SURFACE USE AND OPERATIONS PLAN

### B. If the well is completed as a producer.

- (1) The pit will be trenched and backfilled as soon as possible and all excess liquids will be hauled off site.
- (2) The road will be upgraded as discussed in Section 2 and the production pad will be reduced in areal extent as discussed in Section 6.A. The area to be returned to the Game and Fish will be reclaimed as soon as feasible after the well is completed. The reclamation will consist of returning the ground to original contours and redistributing the top soil and seeding with Brome grass or other seed mixtures as required by the Game and Fish. The excess top soil pile will be seeded to prevent erosion.

### 11. Other Information

- A. Topography: The location borders the Missouri River floodplain.
- B. The surface at the drillsite and on the access road is outleased to the North Dakota Game and Fish Department. The surface settlement with the Game and Fish is attached as Exhibit 12.
- C. The nearest occupied dwelling is greater than a mile south of the site.
- D. The nearest source for water is approximately 1/4 mile east of the location.
- E. An archeological survey is being conducted and will be submitted under separate cover for inclusion in this application as Exhibit 8.
- F. Drilling is planned for February 1, 1986. It is anticipated that casing point will be reached within 55 days after commencement of drilling.

### 12. Lessee's or Operator's Representative

Basic Earth Science Systems, Inc.  
Jeffery E. Jones, Vice President  
P. O. Box 3088  
Englewood, Colorado 80155  
(303)771-5230 (office)  
(303)790-0317 (home)

Tom Hopkin, Field Consultant  
RR 4, P. O. Box 41A  
Dickinson, North Dakota 58601  
(701)677-5621

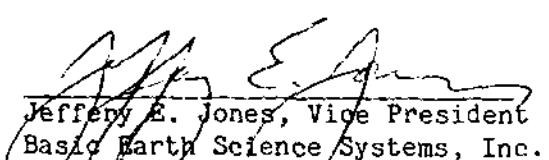
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

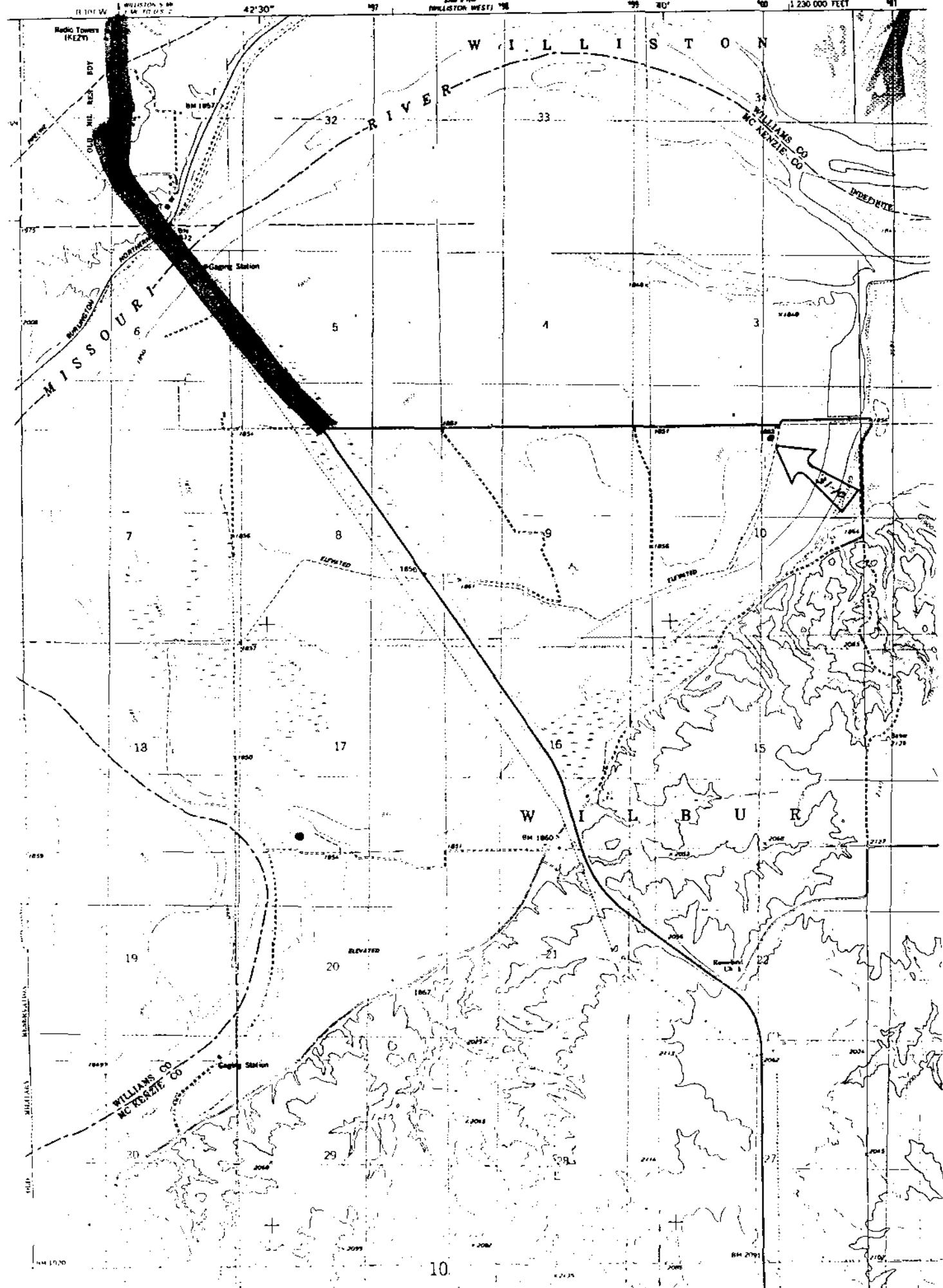
13. Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Basic Earth Science Systems, Inc. and its contractors and subcontractors in conformity with the plan and the terms and conditions under which it is approved.

1-10-86

Date

  
Jeffrey E. Jones, Vice President  
Basic Earth Science Systems, Inc.



NORTH

Basic Earth Science Systems Inc.  
Basic Corp. of Engineers Alternate  
660' fn & 2305' fe  
Sec. 10 T-153N R-101W  
McKenzie Co. North Dakota

Existing gravel road

Existing Hi-Way

Proposed Location

8

17

20

ELEVATED

W

I

B

15

U

R

BM 1860

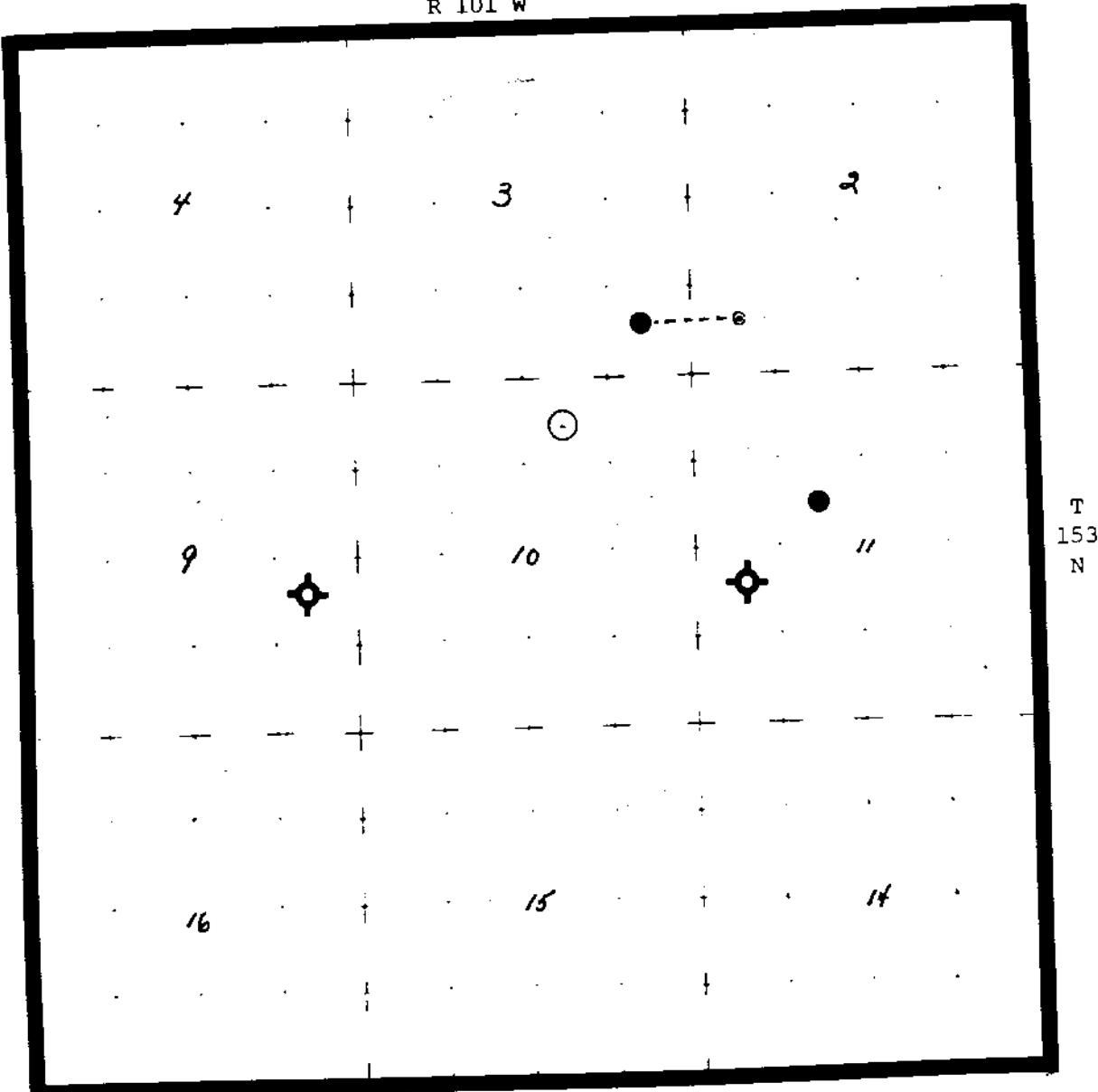
## EXISTING WELL PLAT

EXHIBIT 2

Basic Earth Science Systems, Inc.

CORPS OF ENGINEERS #31-10  
660' FNL & 2305' FWL  
NW $\frac{1}{4}$  NE $\frac{1}{4}$  Section 10-T153N-R101W  
McKenzie County, North Dakota

R 101 W



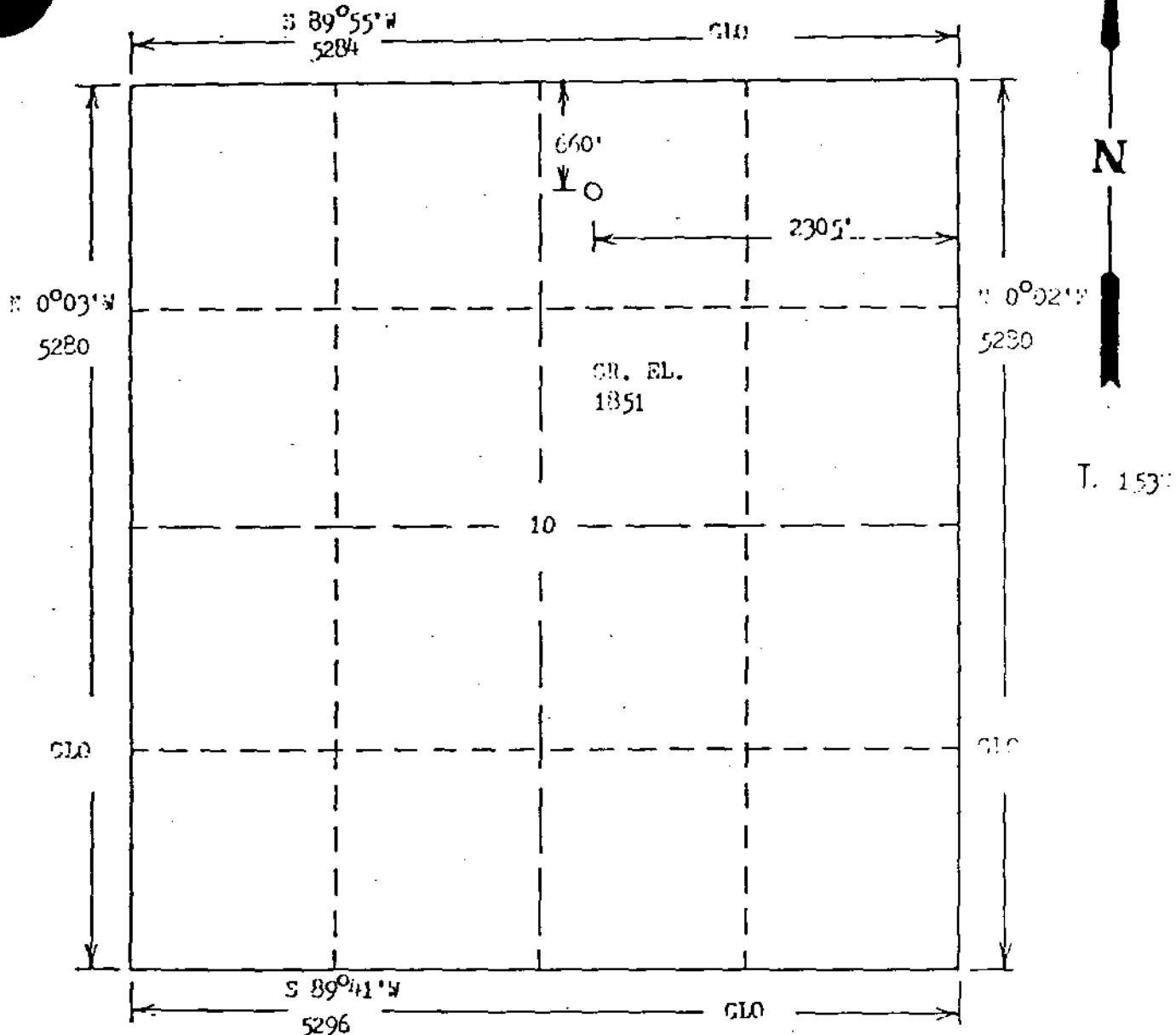
- Proposed Location
- ✖ Abandoned Well
- Producing Well
- ◎ Surface Location  
Directional well



Form PS-102

R. 1019

EXHIBIT 3



Scale: 1"=1000'

Powers Elevation of Denver, Colorado has in accordance with a request  
from Judy Burke for Basic Earth Science Systems Inc.  
determined the location of basic Corp. of Engineers Alternate  
to be 660'fn & 2305'fe Section 10 , Township 153 North  
Range 101 West of the fifth principal Meridian,  
McKenzie County, North Dakota

Date: 12-21-85



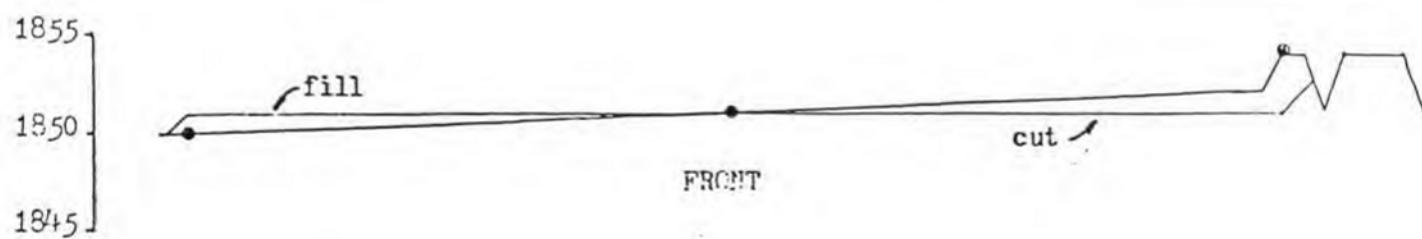
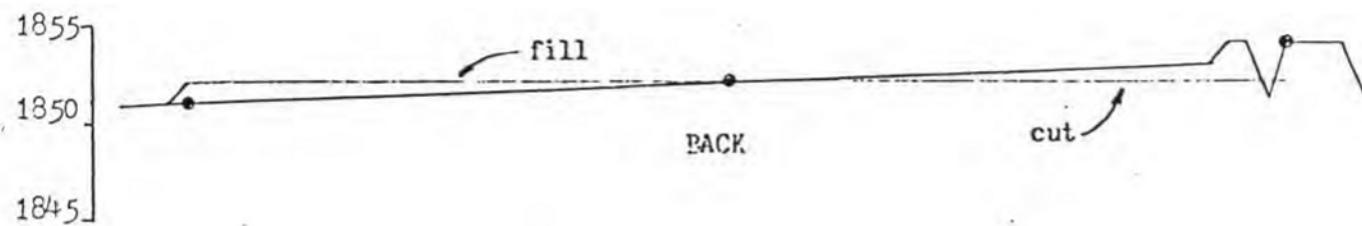
I hereby certify that this plot is an accurate representation of a correct survey showing the location of Basic Corp. of Engineers

Licensed Land Surveyor No. 2883  
State of North Dakota

150' 100' Center line 50' 100' 150'

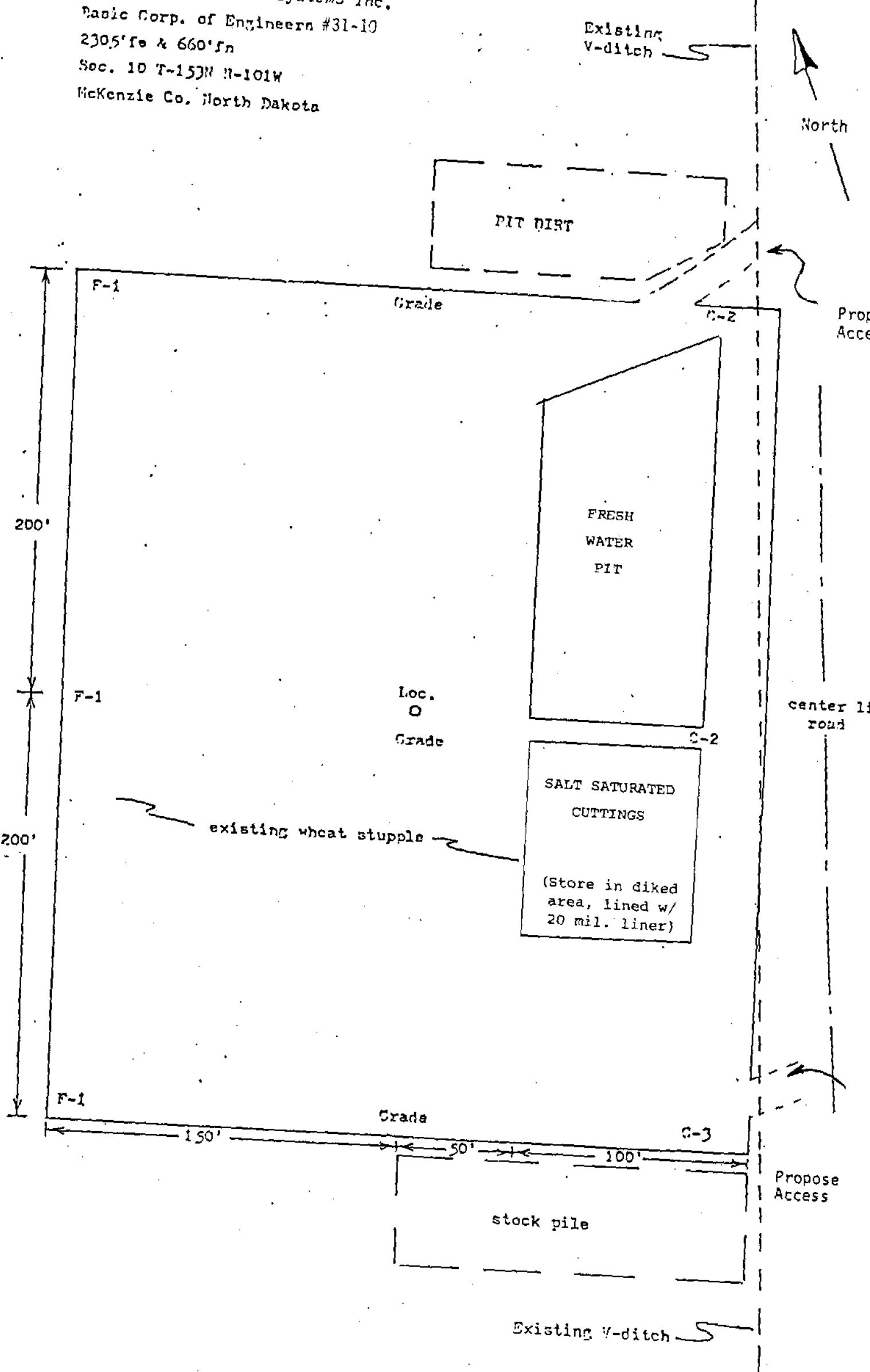
EXHIBIT 4

Scale: Horizontal 1"=50' Vertical 1"=10'  
Dirt Quantities (not including pit)  
CUT: 1,200 CU.YDS.  
Fill: 1,100 CU.YDS.



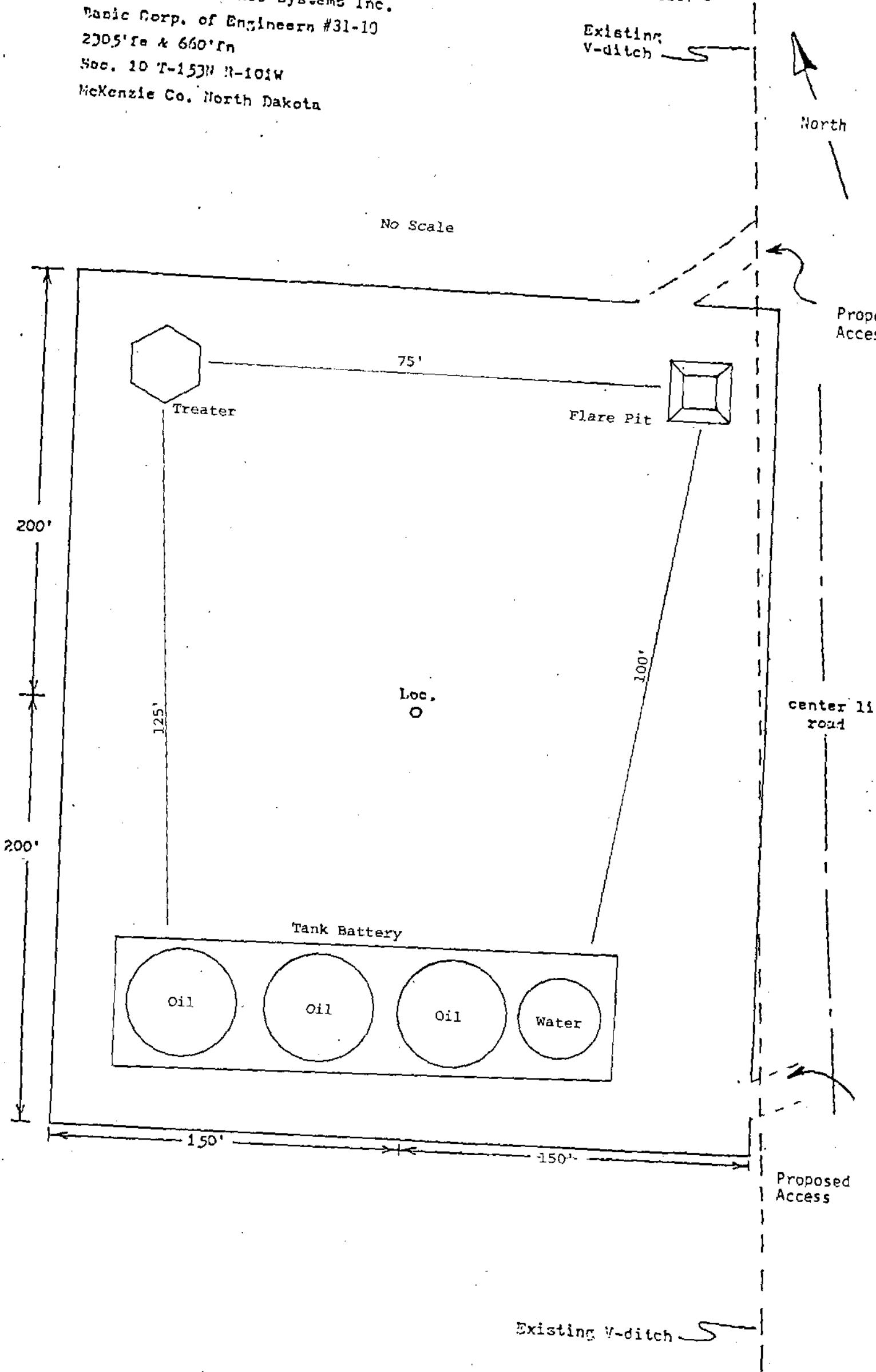
Basic Earth Science Systems Inc.  
Basic Corp. of Engineers #31-10  
2305' fe & 660' fn  
Sec. 10 T-153N N-101W  
McKenzie Co., North Dakota

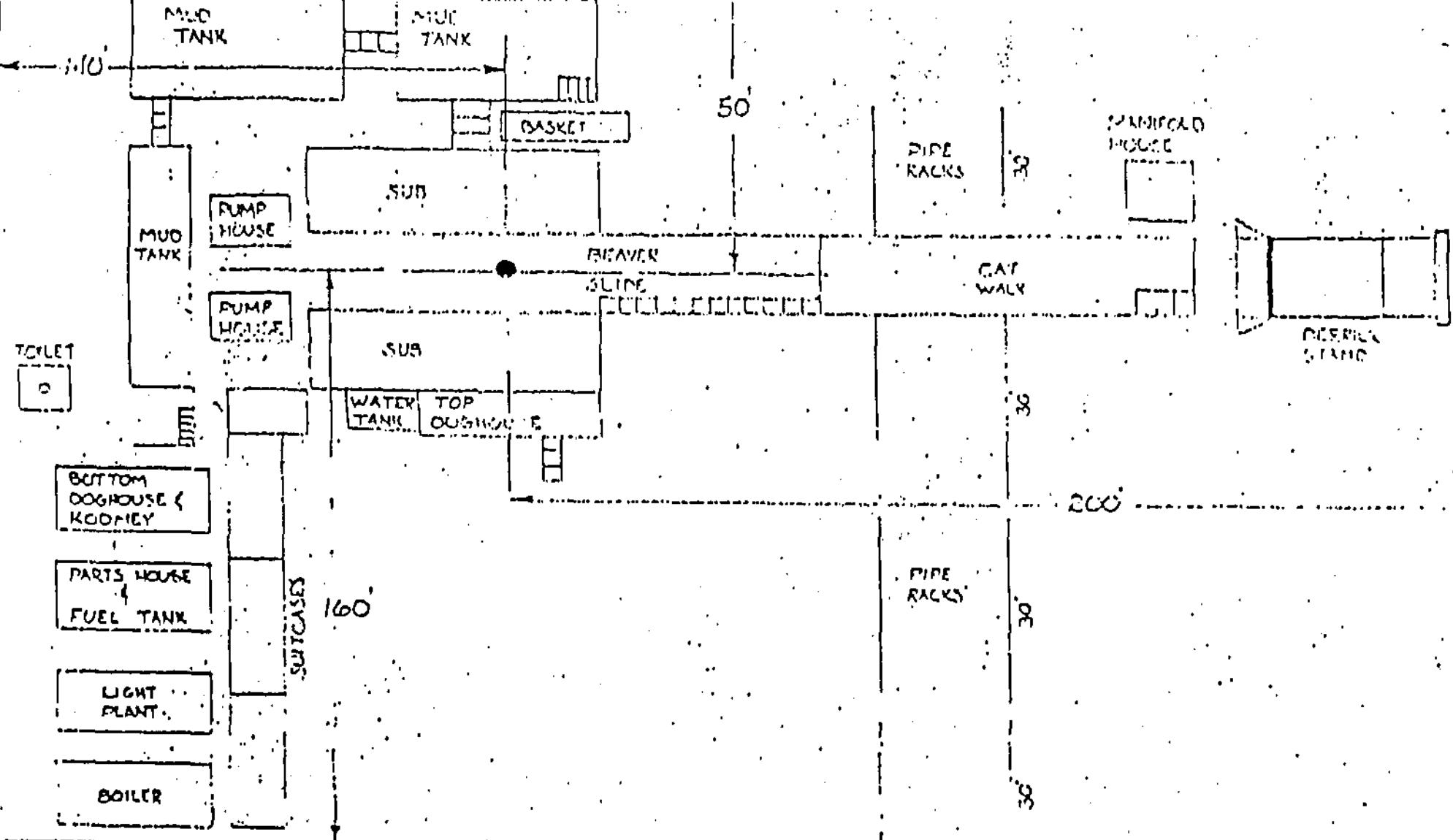
EXHIBIT 5



Basic Earth Science Systems Inc.  
Basic Corp. of Engineers #31-10  
2205' fe & 660' fm  
Sec. 10 T-153N R-101W  
McKenzie Co., North Dakota

EXHIBIT 6



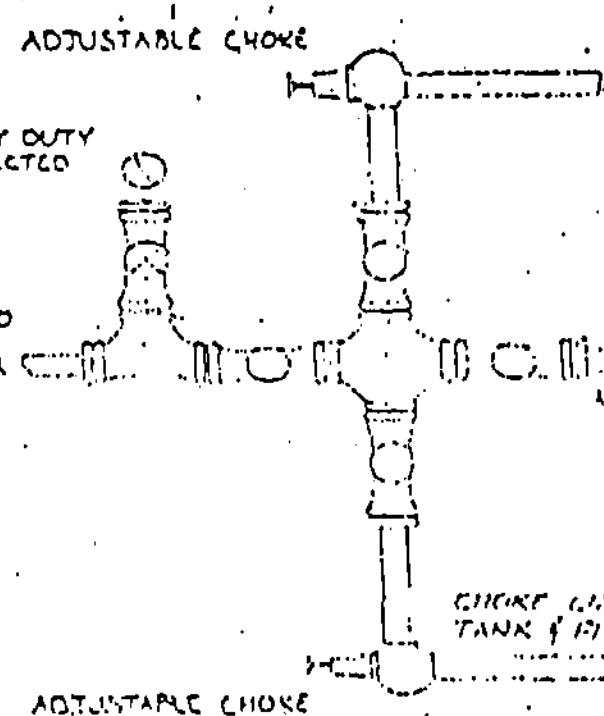
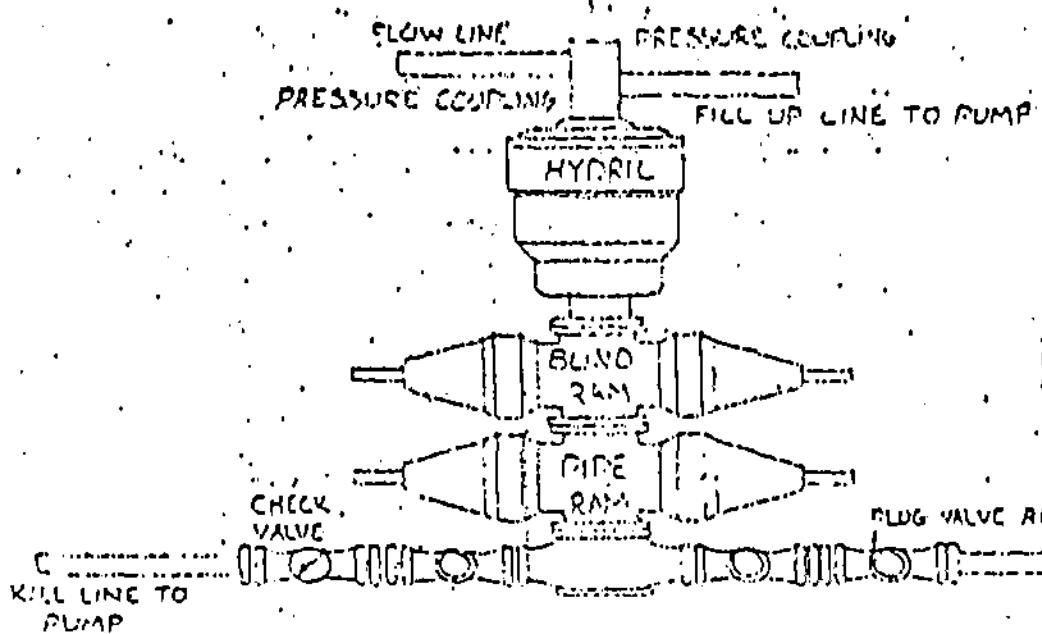


RATLIFF RIG #15 LAYOUT.  
DATE: 11-1-83  
DRAWN BY: M. POLLOCK

**Archeological Report**

The Archeological Report will be submitted under separate cover.

5000 p.s.i. w.e.



WELL CONTROL EQUIPMENT  
TEST PROCEDURE FOR BOP'S

1. Flush BOP's and all lines to be tested with water.
2. Run test plug on test joint and seat in casinghead (leave valve below test plug open to check for leak).
3. Test the following to rated pressure:
  - A. Inside blow out preventer.
  - B. Lower kelly cock.
  - C. Upper kelly cock.
  - D. Stand pipe valve.
  - E. Lines to mud pump.
  - F. Kill line to BOP's.
4. Close and test lower pipe rams to rated pressure.
5. Close and test hydral to rated pressure.
6. Close and test upper pipe rams to rated pressure.
7. Back off and leave test plug in place. Close and test blind rams to rated pressure.
8. Test all choke manifold valves to rated pressure.
9. Test kill line valves to rated pressure.

## FORM 1

## North Dakota State Industrial Commission

## Oil and Gas Division

900 EAST BOULEVARD • BISMARCK, NORTH DAKOTA • 58505

## APPLICATION FOR PERMIT TO DRILL

(File original and 3 copies with the Oil &amp; Gas Division, 900 East Boulevard, Bismarck, North Dakota 58505)

Type of work: Drill new well \_\_\_\_\_, Reenter old well \_\_\_\_\_, Drill directional well  \_\_\_\_\_.Type of well: Oil , gas \_\_\_\_\_, disposal \_\_\_\_\_, injection \_\_\_\_\_, others \_\_\_\_\_.

NAME OF OPERATOR: Basic Earth Science Systems, Inc.

ADDRESS: P.O. Box 3088, Englewood, CO 80155

NAME AND ADDRESS OF SURFACE OWNER OR TENANT: North Dakota Game &amp; Fish

WELL NAME AND NO.: Basic Corps of Engineers #31-10

LOCATION OF WELL: Qtr.-Qtr., NW<sub>1/4</sub>NE<sub>1/4</sub> Sec., 10 Twp., 153N Rge., 101W COUNTY: McKenzieSurface location is 660 feet from (N) ~~(S)~~ section line and 2305 feet and from (E) ~~(W)~~ section line. 10, 153N, 101WIf directional, top of pay is 660 feet from (N) ~~(S)~~ section line and 2140 feet and from (E) ~~(W)~~ section line.

Distance from proposed location to nearest spacing (drilling) unit line 500 ft.

Distance from proposed location to nearest permitted or completed well in the same pool is 1920 ft.

Acres in spacing (drilling) unit 320 Description of spacing unit is North  $\frac{1}{4}$  Section 10

ELEVATION: 1851 (GROUND) 1850.6 (GRADED) ESTIMATED TOTAL DEPTH: 13,600'

PROJECTED HORIZON (Pool Name): Red River APPROXIMATE DATE WORK WILL START: 2/1/85

REMARKS:

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.


  
Signature: Jeffery E. Jones

Vice President

January 2, 1986

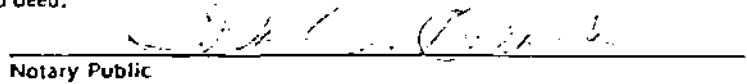
Date

STATE OF Colorado }  
COUNTY OF Arapahoe }

Title

On this 2 day of January 1986, before me personally appeared

Jeffery E. Jones to me known as the person described in and who executed the foregoing instrument and acknowledged that (s)he executed the same as his/her free act and deed.

  
Notary Public

My Commission expires 10-21-88

## FOR STATE USE ONLY

API NO. 55-05-100141

PERMIT NO. &amp; WELL FILE NO. 11050

Notary  
Seal

APPROVAL DATE: JAN 6 1985

BY: 

Dep't

(SEE INSTRUCTIONS ON REVERSE SIDE)



EXHIBIT 12

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

January 10, 1986

Mr. Bruce Renhowe  
Wildlife Resource Management Biologist  
North Dakota Game and Fish Department  
214 Rose Lane  
Williston, North Dakota 58801

Re: Surface Damage Agreement  
Basic Corps of Engineers #31-10  
SW<sub>1</sub>SW<sub>4</sub> Sec. 10, T153N, R101W  
McKenzie County, ND

Dear Mr. Renhowe:

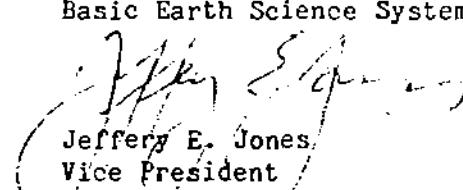
Referencing our telephone conversation of this date, Basic Earth Science Systems, Inc. hereby agrees to a surface damage amount equivalent to \$1,250.00 per acre to be contributed in the form of work for North Dakota Game and Fish projects. Once the actual location is built, our representative will meet with you at your convenience to measure the actual size of the damaged area.

It is also understood that the access roads will be upgraded and maintained in accordance with the multi-point and surface use and operations plan which we are forwarding to you at this time. It is further understood that should we obtain a productive well, that we will be responsible for maintaining the access roads with whatever assistance we can obtain from the township.

If you have any questions regarding the above settlement, please contact me immediately.

Sincerely,

Basic Earth Science Systems, Inc.

  
Jeffery E. Jones  
Vice President

JEJ:jb  
encl.

DRILLING PLAN FOR ONSHORE OIL & GAS ORDER NO. 1  
DRILLING PROGNOSIS

BASIC EARTH SCIENCE SYSTEMS, INC.  
 Basic Corps of Engineers #31-10  
 NW<sup>1</sup>NE<sup>4</sup> Section 10, Township 153 North, Range 101 West  
 660' FNL - 2305' FEL (Surface Location)  
 660' FNL - 2140' FEL (Bottom Hole Location)  
 McKenzie County, North Dakota

1. Estimated Tops of Geological Markers

<u>Formation</u>	<u>True Vertical Depth</u>	<u>Subsea Depth</u>
Pierre Shale	1,580	+ 291
Niobrara	4,107	-2,236
Greenhorn	4,563	-2,692
Belle Fourche	4,607	-2,736
Mowry	4,777	-2,906
Muddy	4,954	-3,083
Dakota	5,357	-3,486
Morrison	5,832	-3,961
Swift	6,100	-4,229
Reardon	6,305	-4,434
Piper	6,487	-4,616
Spearfish	6,787	-4,916
Pine Salt	6,822	-4,951
Minnekahta	7,202	-5,331
Opeche	7,257	-5,386
Minnelusa	7,542	-5,671
Amsden	7,834	-5,963
Tyler	8,020	-6,149
T/Miss. Otter	8,142	-6,271
Kibbey	8,303	-6,432
Charles	8,452	-6,581
BLS	8,933	-7,061
Lodgepole	9,649	-7,777
Bakken	10,423	-8,551
Three Forks	10,496	-8,624
Nisku	10,685	-8,813
Duperow	10,784	-8,912
Souris River	11,243	-9,371
Dawson Bay	11,480	-9,608
Prairie Evap.	11,593	-9,721
Winnepegosis	11,788	-9,916
Ashern	11,987	-10,115
Interlake	12,102	-10,230
Stonewall	12,950	-11,078
Gunton	13,029	-11,157
Stoney Mt.	13,134	-11,262
Red River	13,190	-11,318
TD	13,502	-11,630

DRILLING PLAN FOR ONSHORE OIL & GAS ORDER NO. 1  
DRILLING PROGNOSIS

2. Estimated Depths of Anticipated Water, Oil, Gas or Minerals

<u>Substances</u>	<u>Formation</u>	<u>Anticipated Depths</u>
Brine Water	Dakota	5,357'
Brine Water	Piper	6,487'
Brine Water	Minnelusa	7,542'
Brine Water	Kibbey	8,303'
Oil and Gas	Nesson	9,367'
Oil and Gas	Nisku	10,685'
Oil and Gas	Duperow	10,784'
Oil and Gas	Stonewall	12,950'
Oil and Gas	Red River	13,190'

The 3000' of surface casing will protect any near-surface water zones. Any water zones encountered will be adequately protected.

3. Operator's Minimum Specifications for Pressure Control Equipment

Exhibit 9, is a schematic diagram of the blow out preventer equipment. The BOP's will be hydraulically tested to full working pressure after nipping up and after any use under pressure. Blind rams and annular preventer will be operationally checked at least every two weeks, as per stated specifications in Exhibit 10.

4. Drilling Equipment

- A. A kelly cock will be kept in the string at all times.
- B. A stabbing valve will be kept on the derrick floor to be stabbed into the drill pipe whenever the kelly is not in the string.
- C. A float will be used above the bit.
- D. H<sub>2</sub>S monitoring devices and safety equipment will be installed on the rig by 9000'.

Proposed Casing Program (All new)

<u>Size</u>	<u>Grade</u>	<u>Weight/Ft</u>	<u>Thread</u>	<u>Setting Depth</u>
9-5/8"	K-55	36#	ST&C	0-3000'
5-1/2"	L-80	23#	LT&C	0-2550'
5-1/2"	L-80	20#	LT&C	2550-6550'
5-1/2"	RS-90	23#	LT&C	6550-6750'
5-1/2"	L-80	20#	LT&C	6750-8200'
5-1/2"	RS-90	23#	LT&C	8200-8985'
5-1/2"	L-80	20#	LT&C	8985-11550'
5-1/2"	RS-90	26.4#	LT&C	11550-11850'
5-1/2"	L-80	23#	LT&C	11850-13600'

DRILLING PLAN FOR ONSHORE OIL & GAS ORDER NO. 1  
DRILLING PROGNOSIS

5. Proposed Circulating Medium

The type and characteristics of the proposed circulating mud system will be gel chemical/inverted with adequate stocks of sorptive agents and other materials on-site to handle any anticipated down hole problem, as well as possible spills of fuel and oil on surface.

Depth	Weight	Viscosity	Fluid Loss	Salinity
0-2000	8.5-9.0	Sweeps	N/C	Fresh
2000-4950	8.7-9.5	Sweeps	N/C	Fresh
4950-5600	9.0-10.0	25-32	1/4 15	Fresh
5600-6600	9.5-10.2	25-35	1/4 30	Brine
6600-8450	9.5-10.6	32-50	1/4 30	Saturated
8450-9100	9.5-10.6	28-35	1/4 30	
9100-TD	9.5-10.6	28-50	1/4 12 for DST's	

The surface hole and first 3000' will be drilled with fresh water, using gel pills as needed to keep hole clean. The saturation of the mud will then be allowed to increase to saturated before drilling the Pine Salt at 6822'. The system will be kept salt saturated to TD.

6. Testing, Logging and Coring Programs (Proposed, depending shows)

- A. Drill Stem Tests will be made in any formation indicating commercial production.
- B. Logs run will be an Integrated Sonic Log from 2000' to total depth; a Dual Induction Log from surface to total depth; and a FDC/CNL Log from approximately 6000' to total depth.
- C. A two man mud logging unit will be on location from 8500' to TD.
- D. No cores are anticipated.
- E. We do not anticipate using fracture treatment.
- F. Directional surveys will be taken every 500' from surface to TD and the connection above any anticipated salts and the connection below the Pine and Charles salts.

7. Anticipated Abnormal Pressures or Temperatures Expected

No abnormal pressures or temperatures have been noted or reported in wells drilled in the area at the depths anticipated in the well. Bottom hole temperature should be approximately 280°F at TD, but not extreme.

Traces of hydrogen sulfide may be encountered from 9000' to TD. Adequate precautions will be taken and equipment installed. An H<sub>2</sub>S safety supervisor will be used to train the crews in proper use of the safety equipment and in H<sub>2</sub>S awareness. He will also be on location during testing of potential H<sub>2</sub>S bearing formations.

11920

January 6, 1986

Mr. Jeffery E. Jones  
Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, Colorado 80155

Dear Mr. Jones:

Check No. 4543 in the amount of \$100.00 was received.

Enclosed is Permit No. 11920 to drill the Basic Corps of Engineers #31-10 well, located in the NW NE of Section 10, T.15N., R.10W., McKenzie County, North Dakota.

It is requested that notification be given, immediately upon the spudding of the well. This information shall be relayed to the Oil and Gas Division, in Bismarck, via telephone. The following information should be included: well name, legal location, Permit Number, drilling contractor, company representative, and date and time of spudding. Office hours are 8:00 a.m. to 12:00 noon, and 1:00 p.m. to 5:00 p.m. Central Time. Our telephone number is Area Code 701, 224-2969.

Thank you for your cooperation.

Sincerely yours,

F. E. Wilborn  
Deputy Enforcement Officer

lb  
enc.

# NORTH DAKOTA INDUSTRIAL COMMISSION

## OIL AND GAS DIVISION

**WESLEY D. NORTON**  
Chief Enforcement Officer

**F. E. WILBORN**  
Deputy Enforcement Officer

**CLARENCE G. CARLSON**  
Geologist

**CHARLES KOCH**  
Engineering Dept.

**DOREN DANNEWITZ**  
Field Supervisor

**KEN KALLESTAD**  
Reclamation Sup.

January 6, 1986

Mr. Jeffery E. Jones  
Basic Earth Science Systems, Inc.  
P.O. Box 3088  
Englewood, Colorado 80155

Re: Deviate Wellbore  
Basic Corps of Engineers #31-10  
NW NE Sec.10-153N-101W, McKenzie  
Permit No. 11920

Dear Mr. Jones:

Pursuant to Section 43-02-03-25 NDAC (as amended May 1, 1980), permission to deviate the wellbore of the Basic Corps of Engineers #31-10 well, Permit No. 11920, is hereby given.

The permission is granted on the condition that the wellbore of the well, having a surface location 660' from north line and 2305' from east line of Section 10, T.153N., R.101W., McKenzie County, North Dakota, intersect all pay zones at a point that complies with the spacing requirements in the Baker Field. Also, a directional survey of the well showing the location of the wellbore shall be filed with the Industrial Commission within 30 days after completion of the well.

Sincerely yours,

*F. E. Wilborn*

F. E. Wilborn  
Deputy Enforcement Officer

FEW:lb  
enc.



Earth Science Systems, Inc.

P.O. Box 3088  
Englewood, Colorado 80155  
(303) 792-5230

January 2, 1986

Mr. F. E. Wilborn  
Deputy Enforcement Officer  
North Dakota Industrial Commission  
Oil and Gas Division  
900 East Boulevard  
Bismarck, ND 58505

Re: Basic Corps of Engineers #31-10  
NW&NE<sup>4</sup> Section 10, T153N, R101W  
McKenzie County, ND

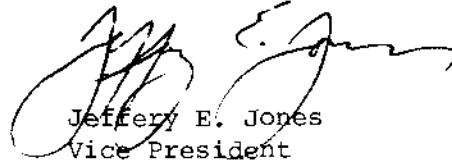
Dear Mr. Wilborn:

Enclosed please find an original and three copies of an Application to Drill for the above referenced well. A check in the amount of \$100.00 is enclosed for the permitting fee, as well as three copies of the Drilling Prognosis and the Surveyor's Plat.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

BASIC EARTH SCIENCE SYSTEMS, INC.



Jeffery E. Jones  
Vice President

JEJ/ib

enc. Application to Drill (4)  
check  
Drilling Prog. & Survr. Plat (3)

FORM 1

North Dakota State Industrial Commission  
Oil and Gas Division

900 EAST BOULEVARD • BISMARCK, NORTH DAKOTA - 58505

APPLICATION FOR PERMIT TO DRILL

(File original and 3 copies with the Oil & Gas Division, 900 East Boulevard, Bismarck, North Dakota 58505)

Type of work: Drill new well \_\_\_\_\_, Reenter old well \_\_\_\_\_, Drill directional well  \_\_\_\_\_.

Type of well: Oil , gas \_\_\_\_\_, disposal \_\_\_\_\_, injection \_\_\_\_\_, others \_\_\_\_\_.

NAME OF OPERATOR: Basic Earth Science Systems, Inc.

ADDRESS: P.O. Box 3088, Englewood, CO 80155

NAME AND ADDRESS OF SURFACE OWNER OR TENANT: North Dakota Game & Fish

WELL NAME AND NO.: Basic Corps of Engineers #31-10

LOCATION OF WELL: Qtr.-Qtr., NW<sup>1/4</sup>NE<sup>1/4</sup> Sec., 10 Twp., 153N Rge., 101W COUNTY: McKenzie

Surface location is 660 feet from (N) ~~(S)~~ section line and 2305 feet and from (E) ~~(W)~~ section line. 10, 153N, 101W

If directional, top of pay is 660 feet from (N) ~~(S)~~ section line and 2140 feet and from (E) ~~(W)~~ section line.

Distance from proposed location to nearest spacing (drilling) unit line 500 ft.

Distance from proposed location to nearest permitted or completed well in the same pool is 1920 ft.

Acres in spacing (drilling) unit 320 Description of spacing unit is North 1/4 Section 10

ELEVATION: 1851 (GROUND) 1850.6 (GRADED) ESTIMATED TOTAL DEPTH: 13,600'

PROJECTED HORIZON (Pool Name): Red River APPROXIMATE DATE WORK WILL START: 2/1/85

REMARKS: \_\_\_\_\_

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.

  
Signature  
Jeffery E. Jones

Vice President

January 2, 1986

STATE OF Colorado) SS  
COUNTY OF Arapahoe

Title

Date

On this 2 day of January, 19 86, before me personally appeared \_\_\_\_\_

Jeffery E. Jones to me known as the person described in and who executed the foregoing instrument  
and acknowledged that (s)he executed the same as his/her free act and deed.

  
Notary Public

My Commission expires 10-21-88

FOR STATE USE ONLY  
API NO. 33-053-02148

PERMIT NO. & WELL FILE NO. 61920

Notary  
Seal

APPROVAL DATE: JAN 6 1986

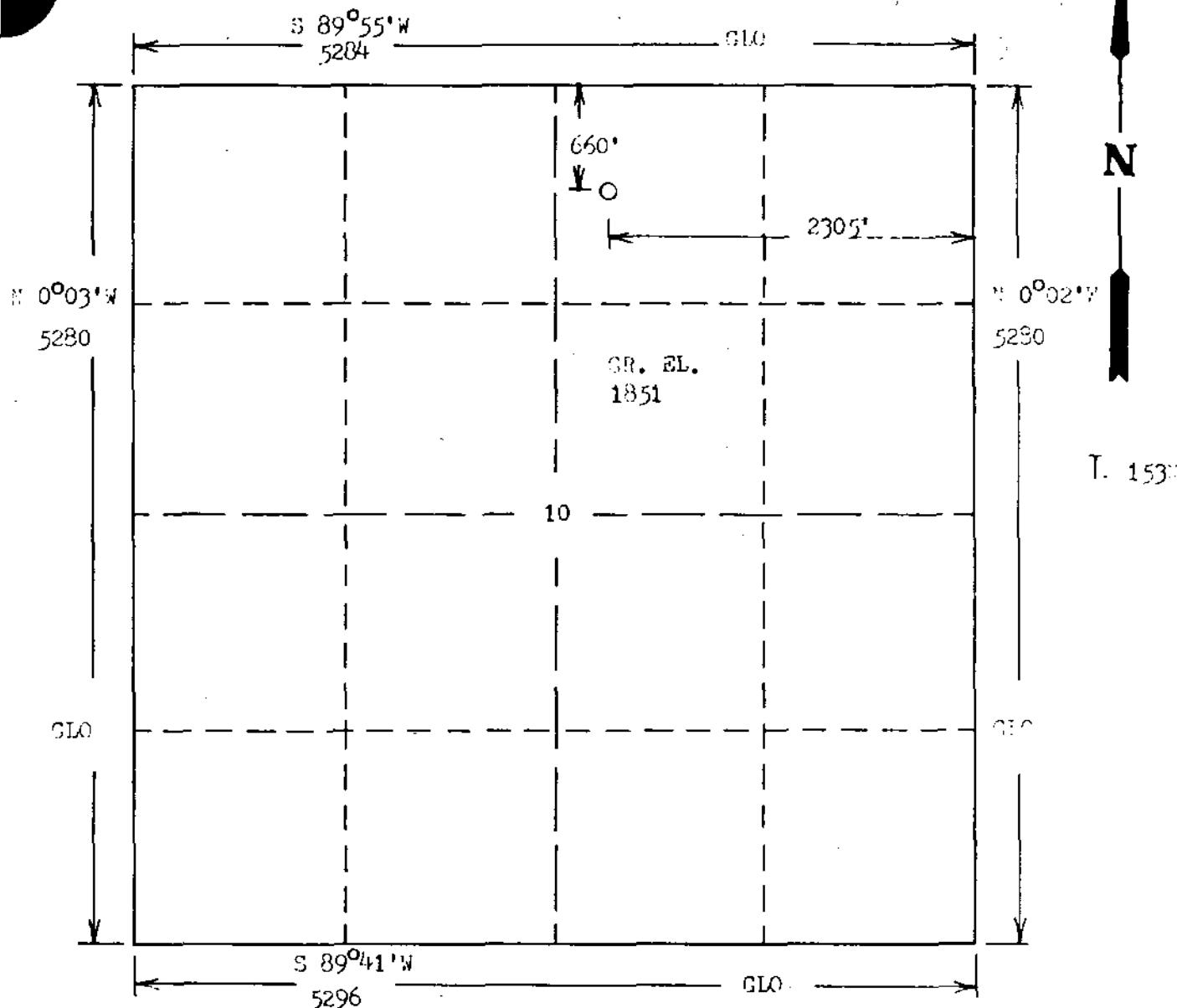
BY: Jeffery E. Jones

(SEE INSTRUCTIONS ON REVERSE SIDE)



Form PS-102

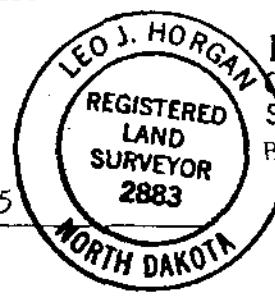
R. 1014

900154  
13-511864  
11745

Scale: 1"=1000'

Powers Elevation of Denver, Colorado has in accordance with a request from Judy Burke for Basic Earth Science Systems inc. determined the location of basic Corp. of Engineers Alternate to be 660'fn & 2305'fe Section 10 , Township 153 North Range 101 West of the fifth principal Meridian,  
McKenzie County, North Dakota

Date: 12-21-85



I hereby certify that this plot is an accurate representation of a correct survey showing the location of  
Basic Corp. of Engineers

Licensed Land Surveyor No. 2883  
State of North Dakota

DRILLING PROGNOSIS  
Basic Corps of Engineers #31-10  
 Directional Well  
 NW $\frac{1}{4}$ NE $\frac{1}{4}$  Section 10, T153N, R101W  
 McKenzie County, ND

1. Estimated Tops of Geological Markers

<u>Formation</u>	<u>True Vertical Depth</u>	<u>Subsea Depth</u>
Pierre Shale	1,580	+ 291
Niobrara	4,107	-2,236
Greenhorn	4,563	-2,692
Belle Fourche	4,607	-2,736
Mowry	4,777	-2,906
Muddy	4,954	-3,083
Dakota	5,357	-3,486
Morrison	5,832	-3,961
Swift	6,100	-4,229
Reardon	6,305	-4,434
Piper	6,487	-4,616
Spearfish	6,787	-4,916
Pine Salt	6,822	-4,951
Minnekahta	7,202	-5,331
Opeche	7,257	-5,386
Minnelusa	7,542	-5,671
Amsden	7,834	-5,963
Tyler	8,020	-6,149
T/Miss. Otter	8,142	-6,271
Kibbey	8,303	-6,432
Charles	8,452	-6,581
BLS	8,933	-7,061
Lodgepole	9,649	-7,777
Bakken	10,423	-8,551
Three Forks	10,496	-8,624
Nisku	10,685	-8,813
Duperow	10,784	-8,912
Souris River	11,243	-9,371
Dawson Bay	11,480	-9,608
Prairie Evap.	11,593	-9,721
Winnepegosis	11,788	-9,916
Ashern	11,987	-10,115
Interlake	12,102	-10,230
Stonewall	12,950	-11,078
Gunton	13,029	-11,157
Stoney Mt.	13,134	-11,262
Red River	13,190	-11,318
TD	13,502	-11,630

**DRILLING PROGNOSIS**  
**Basic Corps of Engineers #31-10**

**Proposed Casing Program (All new)**

<u>Size</u>	<u>Grade</u>	<u>Weight/Ft</u>	<u>Thread</u>	<u>Setting Depth</u>	<u>Hole Size</u>
9-5/8"	K-55	36#	ST&C	0-3000'	12-1/2"
5-1/2"	L-80	23#	LT&C	0-2550'	8-3/4"
5-1/2"	L-80	20#	LT&C	2550-6550'	8-3/4"
5-1/2"	RS-90	23#	LT&C	6550-6750'	8-3/4"
5-1/2"	L-80	20#	LT&C	6750-8200'	8-3/4"
5-1/2"	RS-90	23#	LT&C	8200-8985	8-3/4"
5-1/2"	L-80	20#	LT&C	8985-11550'	8-3/4"
5-1/2"	RS-90	26.4#	LT&C	11550-11850'	8-3/4"
5-1/2"	L-80	23#	LT&C	11850-13600'	8-3/4"

Basic Earth Science Systems, Inc. plans to drill a 13,600' (13,610' measured depth) Red River test directionally from a surface location 660' FNL and 2305' FEL of Section 10, T153N, R101W to a point 660' FNL and 2140' FEL of Section 10, T153N, R101W. Surface casing will consist of 3000' and will protect any near-surface water zones. We will drill approximately 6000' and then begin directional drilling.

Basic Earth Science Systems Inc.

Basic Corp. of Engineers Alternate  
2305'fe & 660'fn

Sec. 10 T-15N R-101W

McKenzie Co. North Dakota

Existing  
V-ditch

proposed road



property

PIT DIRT

F-1

Grade

C-2

PIT

200'

F-1

Loc.

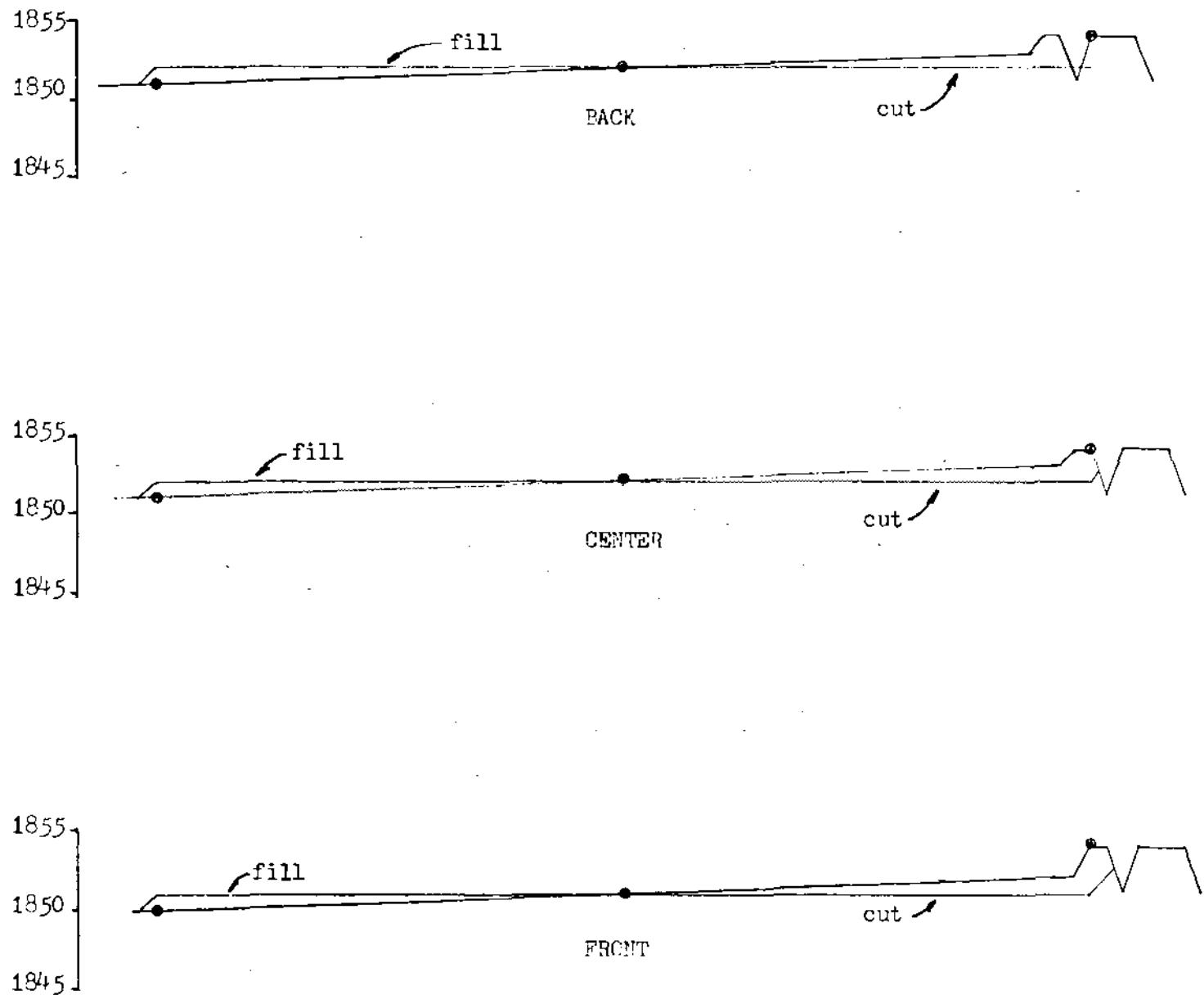
Grade

C-2

center lin  
road

150' 100' 50' Center  
line 50' 100' 150'

Scale: Horizontal 1"=50' Dirt Quantities (not including pit)  
Vertical 1"=10' CUT: 1,200 CU.YDS.  
Fill: 1,100 CU.YDS.



Basic Earth Science Systems Inc.  
Basic Corp. of Engineers Alternate  
660'fn & 2305'fe  
Sec. 10 T-153N R-101W  
McKenzie Co. North Dakota

NORTH

Existing gravel road

1851

Existing Hi-Way

1856

Proposed road

Proposed Location

1855

ELEVATED

8

9

10

17

15

15

ELEVATED

20

BM 1860

2000-21

1851

1850

1854

1856

1861

1864

1868

1872

1876

1880

1884

1888

1892

1896

1900

1904

1908

1912

1916

1920

1924

1928

1932

1936

1940

1944

1948

1952

1956

1960

1964

1968

1972

1976

1980

1984

1988

1992

1996

2000

2004

2008

2012

2016

2020

2024

2028

2032

2036

2040

2044

2048

2052

2056

2060

2064

2068

2072

2076

2080

2084

2088

2092

2096

2100

2104

2108

2112

2116

2120

2124

2128

2132

2136

2140

2144

2148

2152

2156

2160

2164

2168

2172

2176

2180

2184

2188

2192

2196

2200

2204

2208

2212

2216

2220

2224

2228

2232

2236

2240

2244

2248

2252

2256

2260

2264

2268

2272

2276

2280

2284

2288

2292

2296

2300

2304

2308

2312

2316

2320

2324

2328

2332

2336

2340

2344

2348

2352

2356

2360

2364

2368

2372

2376

2380

2384

2388

2392

2396

2400

2404

2408

2412

2416

2420

2424

2428

2432

2436

2440

2444

2448

2452

2456

2460

2464

2468

2472

2476

2480

2484

2488

2492

2496

2500

2504

2508

2512

2516

2520

2524

2528

2532

2536

2540

2544

2548

2552

2556

2560

2564

2568

2572

2576

2580

2584

2588

2592

2596

2600

2604

2608

2612

2616

2620

2624

2628

2632

2636

2640

2644

2648

2652

2656

2660

2664

2668

2672

2676

2680

2684

2688

2692

2696

2700

2704

2708

2712

2716

2720

2724

2728

2732

2736

2740

2744

2748

2752

2756

2760

2764

2768

2772

2776

2780

2784

2788

2792

2796

2800

2804

2808

2812

2816

2820

2824

2828

2832

2836

2840

2844

2848

2852

2856

2860

2864

2868

2872

2876

2880

2884

2888

2892

2896

2900

2904

2908

2912

2916

2920

2924

2928

2932

2936

2940

2944

2948

2952

2956

2960

2964

2968

2972

2976

2980

2984

2988

2992

2996

2000

2004

2008

2012

2016

2020

2024

2028

2032

2036

2040

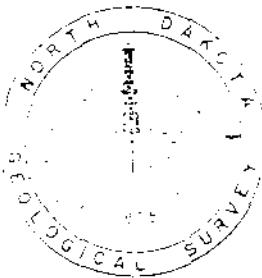
2044

2048

2052

2056

2060



# NORTH DAKOTA GEOLOGICAL SURVEY

UNIVERSITY STATION • GRAND FORKS, N. DAK. 58201  
(701) 777-2231



DON L. HALVORSON  
State Geologist

## NOTICE

RE: Cores and samples from the Basic Earth Science Systems, Inc.,  
NAME OF OPERATOR

Basic Corps of Engineers #31-10, 11920  
WELL NAME AND NUMBER PERMIT NUMBER

Section 38-08-04 of the North Dakota Century Code and Section 43-02-03-38  
of the North Dakota Administrative Code provide for the preservation of  
cores and samples and the shipment of same to the State Geologist free  
of charge when requested.

Samples from the subject well (are) (~~are not~~) to be washed, dried, and  
properly labeled and forwarded to the State Geologist prepaid. Include  
all samples from Base of Last Chalk Silt to total depth.

Cores from the subject well (are) (~~are not~~) to be forwarded to the  
State Geologist prepaid. PLEASE INCLUDE ALL CORES.

Target Formation Cretaceous

Designation:  Wildcat  Replacement

Development

Extension

Outpost

Copies of all logs must be submitted to the State Geologist as provided  
for by Section 38-08-04 of the North Dakota Century Code and Section  
43-02-03-31 of the North Dakota Administrative Code.

Signed

## CHECK SHEET

DATE: January 6, 1986 FILE NO. 11920

COMPANY: Basic Earth Science Systems, Inc.

WELL NAME: Basic Corps of Engineers #31-10

LOCATION: NW NE Sec.10-153N-101W, McKenzie Co

Permit Fee X

Application to Drill X

Organization Report X

\$100,000 Bond \_\_\_\_\_

\$50,000 Bond X

\$15,000 Bond \_\_\_\_\_

Certified Plat X

Notice of Intention to Drill X

Sundry Notice XXXX

Completion Report X

Plugging Report \_\_\_\_\_

Authorization to Transport Oil X

DST Reports 4, 26, 7 enc. 1, 2, 3 enc.

Geological Reports enc.  
*Rept. of Sub-Surface directional Survey Core*

Core Analysis Reports None

Logs CYB, CBL, FDL 2-6-87

PERMIT NO. 11920

*Well File 2-6-87*

*OK Logs OK 2-6-87*

*MISSING DST's #1, 2, 3*

*Cyberlook Log C11 + CN*

*(req same 1-20)*

*Rec'd 2-6-87 (also form 8 and P.I.)*

Status of Well: \_\_\_\_\_ Inspection Date: \_\_\_\_\_ Inspector: \_\_\_\_\_

Terrain: Tillable, Prairie, Badlands Type, other (circle one)

If Producer: Return check sheet promptly when reclamation is first noticed

If Plugged and Abandoned: Is drill site acceptable for bond release? Yes        No         
If no, please explain below.

## CHECK SHEET

DATE: January 6, 1986 FILE NO. 11920

COMPANY: Basic Earth Science Systems, Inc.

WELL NAME: Basic Corps of Engineers #31-10

LOCATION: NW NE Sec.10-153N-101W, McKenzie Co.

Permit Fee X

Application to Drill X

Organization Report X

\$100,000 Bond \_\_\_\_\_

\$50,000 Bond X

\$15,000 Bond \_\_\_\_\_

Certified Plat X

Notice of Intention to Drill X

Sundry Notice \_\_\_\_\_

Completion Report \_\_\_\_\_

Plugging Report \_\_\_\_\_

Authorization to Transport Oil \_\_\_\_\_

DST Reports \_\_\_\_\_

Geological Reports \_\_\_\_\_

Core Analysis Reports \_\_\_\_\_

Logs \_\_\_\_\_

PERMIT NO. 11920ISSUED: Jan. 6, 1986

Status of Well: \_\_\_\_\_ Inspection Date: \_\_\_\_\_ Inspector: \_\_\_\_\_

Terrain: Tillable, Prairie, Badlands Type, other (circle one)

If Producer: Return check sheet promptly when reclamation is first noticed

If Plugged and Abandoned: Is drill site acceptable for bond release? Yes        No         
If no, please explain below.  
\_\_\_\_\_  
\_\_\_\_\_