SOUTH DAKOTA
STATE GEOLOGICAL SURVEY
SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471

DUNCAN J. McGREGOR
Director and State Geologist

MERLIN J. TIPTON
Assistant State Geologist

Western Field Office
Belle Fourche, South Dakota
November 24, 1964

Mr. Frank Gillespie
The Consolidated Royalty Oil Company
P.O. Box 605
Casper, Wyoming

Re: Conroy #1 State
Conroy #1 Trotter-Fed.
Conroy #1 Ideen-Fed.
Conroy #1 Helsel

Dear Frank:

I understand you have released the logs and results on the above tests. The State Survey must keep the information confidential unless authorization to release is obtained from you. If all information may now be released, I would appreciate a note to that effect.

I hope to see you back in Fall River County in the near future.

Sincerely,

Earl Cox

Earl Cox
Engineering-Petroleum Geologist

EC:cr

POWERTECH (USA) INC.

November 19, 1964

Mr. Earl J. Cox
State Geological Survey
Box 208
Belle Fourche, South Dakota

Dear Earl:

Please find enclosed the following:

1) Consolidated Royalty #1 Helsel, Fall River County
Dual Induction-Laterolog and Sonic-Log-Gamma Ray
2) Colonial Oil #1 Bailey, Fall River County
Induction-Electrical Log and Sonic Log-Gamma Ray
3) Dual Induction-Laterolog and Sonic Log-Gamma Ray
Consolidated Royalty #1 Trotter-Lane-Federal #1,
Fall River County
4) Consolidated Royalty #1 State, Fall River County
Dual Induction-Laterolog and Sonic Log-Gamma Ray
5) Conroy-Sun #1 Ideen Federal, Fall River County
Dual Induction-Laterolog and Sonic Log-Gamma Ray

Sincerely yours,

(Mrs.) Donna Jean Hedges
Administrative Assistant

For the State Geologist

Enclosures

SOUTH DAKOTA
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DUNCAN J. McGREGOR
Director and State Geologist
MERLIN J. TIPTON
Assistant State Geologist

Western Field Office
Belle Fourche, South Dakota
November 16, 1964

Mr. Merlin Tipton
Assistant State Geologist
Vermillion
South Dakota

Re: Conroy #1 State
NW¼ SW¼-24-7S-1E
Fall River County, South Dakota
Permit No. 370

Dear Tip:

I have your November 13 letter concerning the above test. I have talked to Mrs. Riis by phone. She checked her records and finds that she has one copy each of the laterolog, sonic log, sample description, formation test, and drill stem test #1.

It would seem that as soon as the samples have been received from this test, that the bond can be released.

Sincerely,

Earl Cox

Earl Cox
Engineering-Petroleum Geologist

EC:cr

cc: Secretary, Oil and Gas Board

POWERTECH (USA) INC.

November 13, 1964

Mr. Earl Cox
State Geological Survey
P. O. Box 208
Belle Fourche, South Dakota

Dear Earl:

Reference is made to your letter of November 4, 1964, concerning the Mule Creek #1 State well in the NW¼ NW¼ Sec. 16, T. 22 N., R. 3 E. We have two copies of all the logs, two copies of the plugging forms, two copies of the sample and core description, but we have only one copy of drill stem test #4. If you have a copy of the drill stem test, and if Mrs. Wiedenman has one in Pierre, we can go ahead and release the bond. If not, perhaps you had better drop them a line and request two additional copies.

Referring to your letter of November 9, 1964, concerning the Conroy #1 State in the NW¼ SW¼ Sec. 24, T. 7 S., R. 1 E., we have three copies each of Form 4 and Form 7, but we only have one copy of the laterolog, sonic log, sample descriptions, formation test (2089½-92), and drill stem test #1 (2095-2105). If Mrs. Wiedenman has one copy of each of the above, we can release the bond as soon as the samples arrive.

Sincerely yours,

MJ

Merlin J. Tipton
Assistant State Geologist

MJT:jmd

cc: Mrs. Essie Wiedenman

SOUTH DAKOTA
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SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471

DUNCAN J. McGREGOR
Director and State Geologist
MERLIN J. TIPTON
Assistant State Geologist

NOV 10 1964

Western Field Office
Belle Fourche, South Dakota
November 9, 1964

Dr. Duncan McGregor
State Geologist
Vermillion
South Dakota

Re: Conroy #1 State
NW¼ SW¼-24-7S-1E
Fall River County, South Dakota
Permit No. 370

Dear Duncan:

The pits have been filled and smoothed and the marker pipe placed at the above location. It would seem that the bond can be released after the following has been received:

Three copies of Form 7.
Three copies of Form 4.
Two copies of the lateroleg.
Two copies of the sonic log.
Two copies of the sample descriptions.
Two copies of the wireline formation test, (2089½-92).
Two copies of drill stem test #1 (2095-2105).
One set of samples.

The October 26 letter from Mrs. Wiedenman to you makes no mention of the drill stem test record. The bond should not be released if two copies of the drill stem test have not been received.

Sincerely,

Earl Cox

Earl Cox
Engineering-Petroleum Geologist

EC:cr

cc: Secretary, Oil and Gas Board
The Consolidated Royalty Oil Company

OCT 6 1964

SOUTH DAKOTA

State Water Resources Commission

STATE OFFICE BUILDING

PIERRE, SOUTH DAKOTA

October 2, 1964

Mr. Alfred Manke
Edgemont, South Dakota

Dear Mr. Manke:

I have been advised that the Consolidated Royalty Oil Co. has obtained a Permit to Drill for Oil and Gas on your land in Section 24, T 7 S, R 1 E.

Occasionally, owners of land consider converting abandoned oil wells into water wells. Please advise me whether or not you intend to convert the oil well drill hole on your land into a water well if water is encountered and the drill hole is abandoned as an oil well.

If you are considering making a water well out of the abandoned oil well drill hole, special considerations are necessary to comply with the State's oil and water laws. The abandoned oil hole must be properly plugged and the water well properly constructed. All conversion work will be at your expense. The cost will vary, depending upon the characteristics of the drill hole, but such cost will be in the neighborhood of $5,000 or more. Usually another driller and drill rig will have to be arranged for. This other drill rig and casing and other materials will have to be on hand to take over immediately after the special oil well plugging is completed, because the drill hole cannot be left open for any appreciable length of time without spoiling it. Approval of plans for construction of the water well will be required, and a bond covering proper constructin may be required. Also, a water right may be required. All of these arrangements take considerable time to accomplish.

Please advise me immediately if you plan to convert the oil well drill hole into a water well. We both hope that a producing oil well results from the drill hole on your land; however, if not and you are planning on a water well, we must start making arrangements now.

Sincerely,

J.W. GRIMES
Chief Engineer

cc Oil & Gas Board, Pierre, S.D.
Dr. McGregor, State Geologist
Vermillion, South Dakota

JWG/bw

POWERTECH (USA) INC.

SURETY

SOUTH DAKOTA
STATE GEOLOGICAL SURVEY
SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471

DUNCAN J. McGREGOR
Director and State Geologist

MERLIN J. TIPTON
Assistant State Geologist

January 20, 1965

Miss Alma Larson
Secretary of State
Secretary, Oil and Gas Board
State Capitol
Pierre, South Dakota 57501

Dear Miss Larson:

This letter is to inform you that I have released the bond on the following wells.

Pan-American Petroleum Corporation, NW NW sec. 6, T. 12 S., R. 1 E., Fall River County.

Consolidated Royalty Oil Company Trotter-Lane-Federal, SW NE sec. 21, T. 7 S., R. 2 E., Fall River County.

Consolidated Royalty Oil Company K.A. Helsel, SE SE sec. 25, T. 9 S., R. 3 E.

Consolidated Royalty Oil Company #1 State, center of NW SW sec. 24, T. 7 S., R. 1 E.

I got a letter from Earl Cox today stating that he had been in conversation with you, and that you would like to discuss procedures used in granting permits and releasing bonds. I plan to be in Pierre on February 3, 1965, for a couple of days, and I am sure we can find time within that time interval in order to discuss any problems you may foresee relative to your position as Secretary to the Oil and Gas Board. I shall contact Earl and see if he can come to Pierre on Friday, February 5, and possibly the three of us can get together and map out the procedure.

We certainly want to be of as much help to you as possible, and certainly if you have any questions pertaining to oil and gas matters in the State, feel free to call or write me, and I am sure we can find the answers.

Sincerely yours,

Duncan J. McGregor
State Geologist

DJM:jmd
cc: Earl Cox

POWERTECH (USA) INC.

MISCELLANEOUS

Belle Fourche Post
December 16, 1964

12-16-64

THREE WILDCAT TESTS NOW BEING DRILLED IN SOUTH DAKOTA

Three wildcat oil tests are presently being drilled in South Dakota according to Earl Cox of the State Geological Survey.

Drilling commenced on the Kucera No. 1 Kling oil test last Friday, Dec. 11 and by Monday Dec. 14, had reached a depth of 1040 feet. The 2700 foot test, which will reach the Minnelusa formation, is located two miles southwest of Nisland in Butte county.

In Fall River county the Consolidated Royalty Oil Company was planning to start drilling at their new location five miles northwest of Edgemont. The test will be the fifth one drilled by Consolidated in the Edgemont vicinity since August. The test, on the Clarence Ward ranch will reach a depth of 2600 feet.

The Dewey county test drilled by Pendak Inc. of Wichita Falls, Texas, has reached a depts of 5700 feet. No additional information is being released by the operator at this time.

Buffalo Times Herald
January 7, 1965

TWO OIL TESTS PLUGGED IN STATE WITHIN LAST WEEK

Two oil tests have been plugged and aandoned in South Dakota within the last week. The Kucera No. 1 Kling test in Butte county was plugged after reaching a depth of 2677 feet. A trace of asphaltic residue was reported at a depth of 1120 feet.

Consolidated Royalty reached a depth of 2472 feet in their test near Edgemont. Several shows of oil were encountered in the samples, but did not warrant setting casing. The test was plugged December 30.

The No. 1 State oil test in northeastern Butte county, being drilled by O. N. Beer of San Antonio, is nearing its objective. The 5500 foot test is scheduled to test the Minnelusa formation.

Beer has received permits to drill a total of five tests. Four of the tests are in eastern Butte county! the other is in western Meade county. The depths will range from 4500 to 5500 feet.

A seismic crew is scheduled to move into the Kadoka area within a week. The crew should complete the work within two weeks, according to Earl Cox, Engineering-Petroleum Geologist with the Western Field Office of the South Dakota State Geological Survey, of Belle Fourche.

Samples received
12-30-64

for:

Consolidated Royalty

✓ 1) # 1 State
0-2480'

2) # 1 Gratter
0-2230'

3) # 1 Welsel
0-2485'

Fall River County.

DEC 18 1964

INVOICE

AMERICAN STRATIGRAPHIC COMPANY

1820 BROADWAY, DENVER · 524 E. YELLOWSTONE, CASPER · 17 NO. 31ST ST. BILLINGS

December 14, 1964

NC 1780

South Dakota State Geological Survey
Attn: Dr. Duncan McGregor
Science Center
Vermillion, South Dakota

P. O. No.

1 Box	Consolidated Royalty Oil et al #1 Trotter-Federal SW NE 21-7S-2E Fall River Co., South Dakota	N/C
1 Box	Consolidated Royalty et al #1 Helsel SE SE 25-9S-3E Fall River Co., South Dakota	
1 Box	Consolidated Royalty Oil Co. #1 State NW SW 24-7S-1E Fall River Co., South Dakota	

POWERTECH (USA) INC.

South Dakota Department of Environment & Natural Resources
Protecting SD's Tomorrow...Today

Oil and Gas Search for: *api_no_ like '40 033 05219'*

Page 1 of 1	**Download Database** (Excel spreadsheet format)	**Page:** Prev 1 Next

Record 1 of 1

Well Information

API No:	40 033 05219	**County:**	CUSTER
Well Name:	CARTER 1	**Location:**	SWSE 19-6S-1E
Permit No:	H31-3	**Total Depth:**	405
Operator Name:	CARTER OIL COMPANY	**Bottom Hole:**	Fall River
Permit Date:	01-01-1931	**KB Elevation:**	
Spud Date:	01-01-1931	**Ground Elevation:**	3690
Plug Date:	01-01-1931	**Latitude:**	43.508820
		Longitude:	-104.042397
Well Field	WILDCAT	**Status**	P&A
Class:	DRY HOLE	**Type:**	DRY HOLE

Formation Tops

Formation	Depth (ft.)
Fall River	**395**

Page 1 of 1 (goto top)	**Page:** Prev 1 Next

COUNTY:	**CUSTER**
LEGAL LOCATION:	**SWSE 19-6S-1E**
API NO:	**40 033 05219**
PERMIT NO:	**H31-3**
WELL NAME:	**CARTER #1**
OPERATOR:	**CARTER OIL CO**
PERMIT ISSUED:	
PERMIT CLOSED:	
FILE LOCATION:	**6S-1E-19 SWSE**

TARGET CODES:

POWERTECH (USA) INC.

WELL HISTORY / CHECKLIST

PERMIT TO DRILL / INTENT TO DI

WELL INSPECTION / SCOUT REPO

OPERATOR'S TECHNICAL REPOR

ADMINISTRATIVE / SUNDRY REPO

CORRESPONDENCE

SURETY

MISCELLANEOUS

POWERTECH (USA) INC.

WELL HISTORY CHECKLIST

POWERTECH (USA) INC.

NO WELL HISTORY OR CHECKLIST FOR THIS WELL AS OF 9/21/2011

POWERTECH (USA) INC.

PERMIT TO DRIL

INTENT TO DRIL

POWERTECH (USA) INC.

NO PERMIT TO DRILL OR INTE

TO DRILL FOR THIS WELL

POWERTECH (USA) INC.

AS OF 9/21/2011

POWERTECH (USA) INC.

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POWERTECH (USA) INC.

Page 7

NO WELL INSPECTION OR SCC REPORTS FOR THIS WELL AS OF 9/21/2011

POWERTECH (USA) INC.

Page 8

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POWERTECH (USA) INC.

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POWERTECH (USA) INC.

NO OPERATOR'S TECHNICAL REPORTS OR MAPS FOR THIS WE AS OF 9/21/2011

ADMINISTRATIV

SUNDRY REPOR

POWERTECH (USA) INC.

Page 11

NO ADMINISTRATIVE OR SUNI REPORTS FOR THIS WELL AS OF 9/21/2011

POWERTECH (USA) INC.

Page 12

POWERTECH (USA) INC.

CORRESPONDEN

Powertech (USA) Inc.

NO CORRESPONDENCE FOR THIS WELL AS OF 9/21/2011

SURETY

POWERTECH (USA) INC.

Page 15

NO SURETY INFORMATION FC

POWERTECH (USA) INC.

THIS WELL AS OF 9/21/2011

POWERTECH (USA) INC.

MISCELLANEOU

POWERTECH (USA) INC.

Page 17

Carter 111 NE SW SE
Drlg. Date 1932?
T. D. 420 dater Well
Surface - Graneros
300-380 DAk.

From USES files, Newcastl

e C3 3 o / 7

pertild *N31-3*

No.	Date	Name	Location	Elevation	Total Depth
			Custer County--continued		
7	1931	Carter	SW SE 19-6S-1E	3690+	405
8	1932?	Carter #2	SW SE 19-6S-1E	3690+	420
9	1956	Continental #1 Harrison	SW SE 24-3S-8E	3208K	1544
10	1956	Continental #1 Larson	SW SE 33-2S-8E	3252K	953

POWERTECH (USA) INC.

11	1963	Dodgin #1 Coffing	SE NE NW 34-6S-2E	4211 1367
12	1963	Dodgin #1 Cornelison	SW NW 26-5S-1E	4116K 763
13	1946	Dyer #1 Government-Christiana	NE SW 30-5S-2E	4332 851
14	1930	Fairburn #1	SE 19-4S-EE	32801 740:;
15	1957	Gary #1 Bohling	NE SE 21-3S-1:E	2864K 2500 1
16	1957	Gary #1 O'Neill	S: NW 23-3S-11E	2804K 2565 1
17	1957	Gary #1 Wilsey	NW SW 30-3S-1:1	3017K 2530 1
18	1957	- Gary #1 Young	NE NW 21-4S-EE	3465K 1605
19	1934	Gokel #1 Govern-ment-Halterman	Sfi NW 1-6S-1E	4040+ 1047
20	1956	Great Western Eyres #1 Coffing	SW SW 27-6S-2E	4141 1378
21	1958	Harris #1 Rothleutner	NE SW 7-6S-2E	4040+ 1200

Minne-kahta	Minne-lusa	Madi-son	Devo-nian	Red River	Pre Cam-brian	Logs	Remarks

Custer County--continued

			Cored 1100-1225
C 30		GRN	Production from
	350	CRN	Oil show 745-54
	140		
		s	Water at 740+ w
		E,ML,S	
		E,ML,S	
		E,ML,S	
		E,ML,S	
	141	D,s	Oil show 682-70 show 805-7,908-
568	640	GRN	Oil show 1365, I 68
407	500	E;S	

POWERTECH (USA) INC.

Center 3c

Department of Environment & Natural Resources

...Today

Oil and Gas Search for: *api_no_ like '40 033 05221'*		
Page 1 of 1	***Download Database*** (Excel spreadsheet format)	**Page:** 1

Record 1 of 1

Well Information

API No:	40 033 05221	**County:**	CUSTER
Well Name:	CARTER 2	**Location:**	SWSE 19-6S-1E
Permit No:	H32-2	**Total Depth:**	420
Operator Name:	CARTER OIL COMPANY	**Bottom Hole:**	Fall River
Permit Date:	01-01-1932	**KB Elevation:**	
Spud Date:	01-01-1932	**Ground Elevation:**	3690
Plug Date:	01-01-1932	**Latitude:**	43.508820
		Longitude:	-104.042397
Well Field	WILDCAT	**Status**	P&A
Class:	DRY HOLE	**Type:**	DRY HOLE

Formation Tops

Formation	Depth (ft.)
Red River	300

Page 1 of 1 (goto top)	**Page:** 1

COUNTY:	**CUSTER**
LEGAL LOCATION:	**SWSE 19-6S-1E**
API NO:	**40 033 05221**
PERMIT NO:	**H32-2**
WELL NAME:	**CARTER #2**
OPERATOR:	**CARTER OIL COMPANY**
PERMIT ISSUED:	
PERMIT CLOSED:	
FILE LOCATION:	**6S-1E-19 SWSE**

TARGET CODES:

WELL HISTORY / CHECKLIST

PERMIT TO DRILL / INTENT TO DRILL

WELL INSPECTION / SCOUT REPORTS

OPERATOR'S TECHNICAL REPORTS / MAPS

ADMINISTRATIVE / SUNDRY REPORTS

CORRESPONDENCE

SURETY

MISCELLANEOUS

WELL HISTORY / CHECKLIST

NO WELL HISTORY OR CHECKLIST FOR THIS WELL AS OF 9/21/2011

PERMIT TO DRILL / INTENT TO DRILL

NO PERMIT TO DRILL OR INTENT TO DRILL FOR THIS WELL AS OF 9/21/2011

WELL INSPECTION / SCOUT REPORTS

NO WELL INSPECTION OR SCOUT REPORTS FOR THIS WELL AS OF 9/21/2011

OPERATOR'S TECHNICAL REPORTS / MAPS

NO OPERATOR'S TECHNICAL REPORTS OR MAPS FOR THIS WELL AS OF 9/21/2011

ADMINISTRATIVE / SUNDRY REPORTS

NO ADMINISTRATIVE OR SUNDRY REPORTS FOR THIS WELL AS OF 9/21/2011

CORRESPONDENCE

NO CORRESPONDENCE FOR THIS WELL AS OF 9/21/2011

SURETY

NO SURETY INFORMATION FOR THIS WELL AS OF 9/21/2011

MISCELLANEOUS

Carter #2
Drlg Date 1931
T. D. 405 Water Well
Surface - Graneros
395-405 Dak. Water

NE SW SE 19-6S-1E

From USGS files, Newcastle

No.	Date	Name	Location	Elevation	Total Depth	Greenhorn	Dakota	Fall River
			Custer County--continued					
7	1931	Carter #1	SW SE 19-6S-1E	3690±	405			395?
8	1932?	Carter #2	SW SE 19-6S-1E	3690±	420			300?
9	1956	Continental #1 Harrison	SW SE 24-3S-8E	3208K	1544	662	1100	1507
10	1956	Continental #1 Larson	SW SE 35-2S-8E	3252K	953		548	940
11	1963	Dodgin #1 Coffing	SE NE NW 34-6S-2E	4211	1367			
12	1963	Dodgin #1 Cornelison	SW NW 26-5S-1E	4116K	763			
13	1946	Dyer #1 Government-Christian	NE SW 30-5S-2E	4332	854			
14	1956	Faircurn #1	SE 19-4S-8E	3260±	7401			1360±
15	1957	Gary #1 Bohling	NE SE 21-3S-10E	2804K	2500	1559	2002	2430
16	1957	Gary #1 O'Neill	SW NW 28-3S-11E	2804K	2560	1654	2040	2510
17	1957	Gary #1 Wilsey	NW SW 30-3S-10E	3017K	2520	1619	2025	2471
18	1957	Gary #1 Young	NE NW 21-4S-8E	3465K	1005	660	1113	1538
19	1934	Gokel #1 Government-Halterman	SW NW 1-6S-1E	4040±	1047			
20	1956	Great Western Eyres #1 Coffing	SW SW 27-6S-2E	4141	1378			
21	1958	Harris #1 Rotsleutner	NE SW 7-6S-2E	4040±	1200			

10

Minne-kanta	Minne-lusa	Madi-son	Devo-nian	Red River	Pre-Cam-brian	Logs	Remarks	No.
						Custer County--continued		
						s		7
						s		8
						E,ML	Cored 1100-1225,1240-93	9
								10
680						GRN	Production from 1379-1385	11
484	350					GRN	Oil show 745-54	12
	140					s		13
						s	Water at 740± with oil	14
						E,ML,S		15
						E,ML,S		16
						E,ML,S		17
						E,ML,S		18
	141					D,s	Oil show 682-704, Gas show 805-7,908-12	19
568	640					GRN	Oil show 1365, DST 1357-68	20
407	500					E,S		21

C.I.C. 35

South Dakota Department of Environment & Natural Resources

Oil and Gas Search for: *api_no_ like '40 047 05089'*

Page 1 of 1	Download Database (Excel spreadsheet format)	Page: Prev 1 Next

Record 1 of 1

Well Information

API No:	40 047 05089	**County:**	FALL RIVER
Well Name:	SUN 1 LANCE NELSON	**Location:**	NESE 21-7S-1E
Permit No:	356	**Total Depth:**	3057
Operator Name:	SUN OIL COMPANY	**Bottom Hole:**	Madison
Permit Date:	01-27-1964	**KB Elevation:**	3535
Spud Date:	02-04-1964	**Ground Elevation:**	3526
Plug Date:	02-22-1964	**Latitude:**	43.425795
		Longitude:	-103.997224
Well Field	WILDCAT	**Status**	P&A
Class:	DRY HOLE	**Type:**	DRY HOLE

Formation Tops

Formation	Depth (ft.)
Fall River	**366**
Lakota	**562**
Morrison	**653**
Sundance	**850**
Spearfish	**1152**
Minnekahta	**1726**
Opeche	**1764**
Minnelusa	**1838**
Red Marker	**2272**
2nd Leo	**2384**
3rd Leo	**2618**
Madison	**2989**

Page 1 of 1 (goto top)	Page: Prev 1 Next

COUNTY:	**FALL RIVER**
LEGAL LOCATION:	**NESE 21-7N-1E**
API NO:	**40 047 05089**
PERMIT NO:	**356**
WELL NAME:	**SUN #1 LANCE-NELSON**
OPERATOR:	**SUN OIL COMPANY**
PERMIT ISSUED:	**01/27/1964**
PERMIT CLOSED:	**09/02/1964**
FILE LOCATION:	**7N-1E-21 NESE**

TARGET CODES:

WELL HISTORY / CHECKLIST

PERMIT TO DRILL / INTENT TO DRILL

WELL INSPECTION / SCOUT REPORTS

OPERATOR'S TECHNICAL REPORTS / MAPS

ADMINISTRATIVE / SUNDRY REPORTS

CORRESPONDENCE

SURETY

MISCELLANEOUS

WELL HISTORY / CHECKLIST

API 40 047 05089

WELL HISTORY

Well Name Sun #1 Lance-Nelson Permit No. 356

Location NESE 21-7S-1E - Fall River Date of Permit 1-27-64

Elev. 3526.0' API No. _____

Confidential X From _____ To 8-21-64

Logs Received _____

Cuttings Received _____ Cores Received _____

Drill Stem Records _____

Cap Plug and Marker Set 2-28-64

Surface Restored 5-12-64

Plugging Affidavit Signed _____ Date _____

Bond Released _____ Date 9-2-64

Summary of Scout Reports

2-1-64 No equipment at location - First report

2-7-64 Spudded 2-4-64

2-22-64 Plugged

2-28-64 Rig moved out - Marker placed - Mud pits not filled

5-12-64 Mud pits filled & surface restored

PERMIT TO DRILL / INTENT TO DRILL

State Pub. Co., Pierre

APPLICATION FOR PERMIT TO:

S. Dak. Oil & Gas Board FORM 2

☒ DRILL ☐ DEEPEN ☐ PLUG BACK

☐ SINGLE ZONE

☐ OIL WELL ☐ GAS WELL ☐ MULTIPLE ZONE

FARM OR LEASE NAME: Lance - Nelson Estate

WELL NO.: 1

OPERATOR: Sun Oil Company

FIELD AND POOL, OR WILDCAT: Wildcat

ADDRESS: P. O. Box 1798 (mailing Address) 800 Security Life Bldg. Denver, Colorado Phone: 266-2181

NO. ACRES IN LEASE: 40

LOCATION (In feet from nearest lines of section or legal subdivision, where possible)*: 1980' North of South Line & 660' West of East Line of Section 21, Township 7S, Range 1E, Fall River, South Dakota

¼ ¼ SEC. TWP. RGE: NE SE Sec. 21-7S-1E

COUNTY: Fall River County

NAME AND ADDRESS OF SURFACE OWNER: First National Bank of Black Hills, Trustee of the Nelson Estate

ELEVATION: 3526.0'

PROPOSED DEPTH: 3200

NO. OF WELLS ETC.: none

ROTARY OR CABLE TOOLS: Rotary Tools

NAME AND ADDRESS OF CONTRACTOR: Unknown

APPROXIMATE DATE WORK WILL START: January 16, 1964

IF LEASE PURCHASED WITH ANY WELLS DRILLED, FROM WHOM PURCHASED (Name and address)

- -

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	NEW OR SECOND HAND	DEPTH	SACKS OF CEMENT
12-1/4"	8-5/8"	24#	New	200'	150
7-7/8"	4-1/2"	9.5#	New	3200'	200

DESCRIBE PROPOSED OPERATIONS. IF PROPOSAL IS TO DEEPEN OF PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOW OUT PREVENTER PROGRAM IF ANY

Principal Objective is Minnelusa Ss
Certified Location Plat Attached
Check in the amount of $100.00 covering the drilling permit fee attached.

A $5000 bond from our South Dakota agent will be submitted in the very near future.

Please wire your approval to drill this well to the undersigned when everything is in order.

SIGNED W. J. Turner TITLE Div. Supt.-Oper. Dept. DATE January 7, 1964

DO NOT WRITE BELOW THIS LINE

PERMIT NO 356

CHECKED BY _____ School and Public Lands 1/9/64 Date

APPROVAL DATE January 27, 1964

_____ Secretary

CONDITIONS:

☒ COMPLETE SET OF SAMPLES, AND CORES IF TAKEN, MUST BE SUBMITTED.

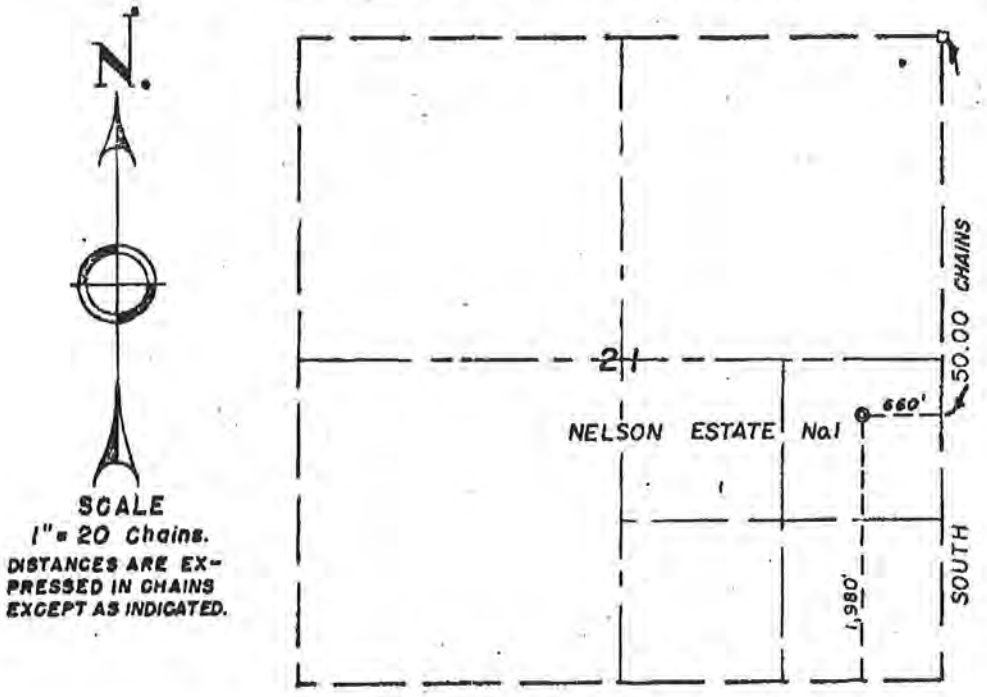
☐ SAMPLES, AND CORES IF TAKEN, BELOW _____ DEPTH, MUST BE SUBMITTED.

*See Instructions On Reverse Side

SECTION 21

T. 7 S., R. 1 E., EAST OF THE BLACK HILLS MERIDIAN

FALL RIVER COUNTY, SOUTH DAKOTA



LEGEND

U.S. Government Brass Cap Corner ..... ○
Original stone corner, properly marked, firmly set ..... ●
Iron pipe set at propartionate distance ..... ⊠
Corner established by others as indicated ..... □
Dependent Resurvey ..... ═══
Protraction ..... ─ ─ ─
Well location ..... ⊙

ELEVATIONS:

LOCATION	3526.0
R.P. 100'N	3526.6
100'S	3526.5
100'E	3526.4
100'W	3526.3

SURVEY AND PLAT BY

WORTHINGTON, LENHART & ASSOCIATES, INC.
200 South Lowell St., Casper, Wyoming
Direct solar lines and chained distances. Ref. Book No. 247, P. 64

REGISTERED LAND SURVEYOR
REG. NO. 1255
WILLIAM G. LADD
SOUTH DAKOTA

PLATTED FIELD NOTES OF SURVEY MARKING WELL LOCATION NE 1/4 SE 1/4, SECTION 21 FOR SUN OIL COMPANY ..... CASPER, WYOMING

William G. Ladd
Certified true and correct, Surveyor.
SOUTH DAKOTA REG. NO. 1255

Dated: 1-6-64
Work Order No. 1-2-A4

WELL INSPECTION / SCOUT REPORTS

API 40 047 05089
CONFIDENTIAL

STATE GEOLOGICAL SURVEY

Permit Number 356

Scout Report

Date scouted May 12, 1964

Owner. . . . . Sun Oil Company

Designation of well. . . #1 Lance-Nelson

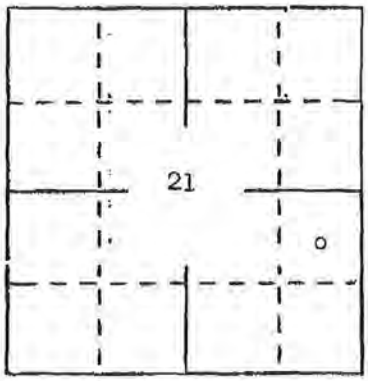
Location: Sec. 21 T. 7 N. ~~E~~. .R. 1 E. ~~W~~.

. . . . Fall River . . . . .County, S. D. Total Depth . . 3,057 . . . . feet

Casing Record:

8 5/8 269 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

None

Developments since last visit:

Mud pits have been filled and the surface satisfactorily restored.

Remarks and recommendations:

Scouted by. . . . . Earl Cox, Geologist

Approved by Duncan J. McGregor

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . February 28, 1964

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. . . . . #1 Lance-Nelson . . . . . .

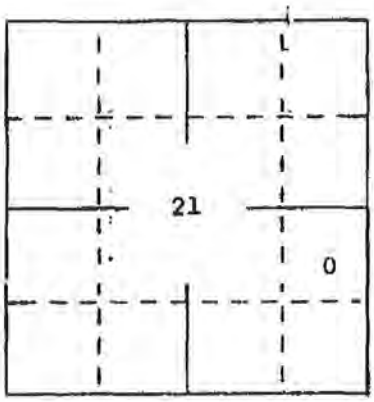
Location: Sec. 21 T. 7 N. S. R. 1 E. W.

. . . . . Fall River . . . .County, S. D. Total Depth . . . 3057 . . . . feet

Casing Record:

8 5/8" 269 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

None

Developments since last visit:

Rig moved from location.
Abandonment marker placed.

Remarks and recommendations:

Mud pits not filled.

Scouted by. . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . . Duncan J. McGregor . . . . . .
Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

All information on this test may be released immediately to anyone.

Permit No. 356

Scout Report

Date scouted February 22, 1964

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. . . #1 Lance-Nelson . . . . . .

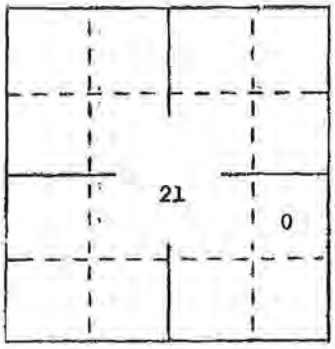
Location: Sec. 21 T. 7 N. S. R. 1 E. W.

. . . Fall River . . . . . County, S. D. Total Depth . . 3057 . . . . . feet (T.D.)

Casing Record:

8 5/8" 269 Ft. _____ Ft.

_____ Ft. _____ Ft.



y Phone: Work in progress at time of visit:

Plugged as follows:

25 5x	2977-3057	Madison
25 5x	2360-2440	2nd Leo Sand
25 5x	1800-1880	Minnelusa
25 5x	820- 900	Top Sundance
40 5x	330- 460	Top Dakota
25 5x	220- 290	Bottom Surface Casing
10 5x	Surface Plug	

Developments since last visit:

Drilled from 2916'-3057'.
Run laterolog and gamma ray sonic logs.

Remarks and recommendations:

Log Tops:

Dakota 368	Gypsum Springs - 1151	2nd Leo - 2384
Lakota - 562	Spearfish - 1186	3rd Leo - 2618 (?)
Morrison - 653	Minnelusa - 1842	Madison - 2990
Sundance - 850	Red Marker - 2271	T.D. - 3057

Scouted by. . . . . Earl Cox, Geologist . . . . . .

Approved by . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Hold this information confidential until well is plugged.

Date scouted . . February 20, 1964

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. . . . . #1 Lance-Nelson . . . . . .

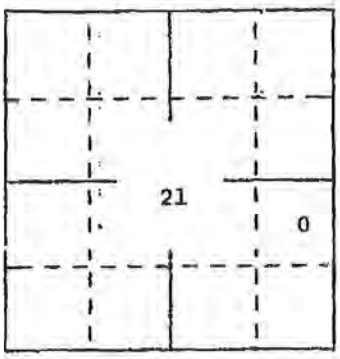
Location: Sec. 21 T. 7 N. S. R. 1 E. W.

. . . Fall River . . . . . County, S. D. Total Depth . . 2916 . . . . . feet

Casing Record:

8 5/8" 269 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

Drilling at 2916.

Developments since last visit:

DST #1 2315-33. Shut in 30 min., open 60 min., shut in 40 min.
Recovered 15 feet drilling mud.
Shut in pressures - 15-27
Flow pressures - 15-27
Hydro Static pressures - 1211-1143
Temp. - 67° (oil show in samples 2318-25)

DST #2 2390-2400. (Second Leo) Shut in 30 min; open 60 min; shut in 30 min.

~~Remarks and recommendations:~~

Recovered 2036' black sulphur water, slightly gas cut.
Shut in pressures 1026-1026
Flow pressures 144-884
Hydrostatic pressures 1341-1241
Temp. - 84°

Scouted by. . . Earl Cox, Geologist . . . . . .

Approved by . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . February 14, 1964

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. . #1 Lance-Nelson . . . . . .

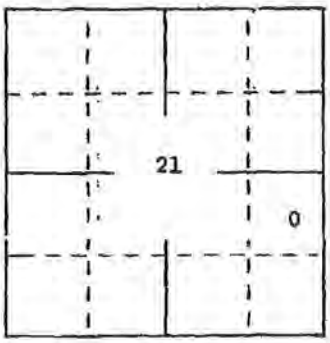
Location: Sec. 21 T. 7 N. S. R. 1 E. M.

. . Fall River . . . . . .County, S. D. Total Depth . . 2333 . . . . . feet

Casing Record:

8 5/8" 269 Ft. _____Ft.

_____Ft. _____Ft.



Work in progress at time of visit:

Preparing to drill stem test at 2333' after obtaining oil show.

Developments since last visit:

Drilled from 300-2333'.

Elevation: Gd - 3526
KB - +8.5

Remarks and recommendations:

Sample Tops:

Dakota - 370	Minnekahta - 1727
Morrison - 710	Opeche - 1795
Sundance - 870	Minnelusa - 1840
Spearfish - 1186	Red Marker - 2272

Scouted by. . . . . Earl Cox, Geologist

Approved by . . . . . Duncan J. McGregor

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted .February 7,.1964 .

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. .#1 Lance - Nelson. . . . . .

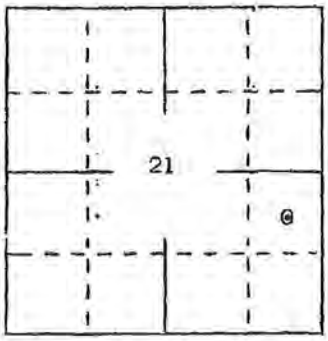
Location: Sec. 21 T. 7 M. S. .R. 1 E. M.

. . .Fall River . . . . . .County, S. D. Total Depth . . 300 . . . . . feet

Casing Record:

8 5/8 269 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

Preparing to drill out from under surface casing

Developments since last visit:

Spudded: February 4, 1964

Set 269' of 8 5/8" surface casing with 175 sacks.

Remarks and recommendations:

Scouted by. . . .Earl Cox, Geologist. . . . . .

Approved by Duncan J. McGregor. . . . . .

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted .February 1,.1964 .

Owner. . . . . Sun Oil Company . . . . . .

Designation of well. #1 Lance - Nelson . . . . . .

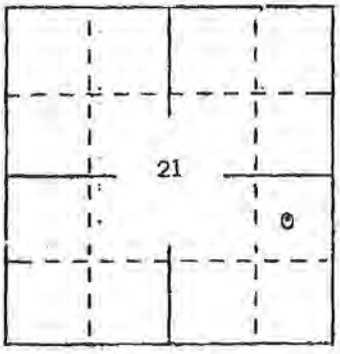
Location: Sec. 21 T. 7 N. S. R. 1 E. W.

. . . Fall River . . . . . County, S. D. Total Depth . . . 0 . . . . . feet

Casing Record:

_____Ft. _____Ft.

_____Ft. _____Ft.



Work in progress at time of visit:

None

Developments since last visit:

Remarks and recommendations:

Pits not dug.

No equipment at location

Scouted by. . . . Earl Cox, Geologist . . . . . .

Approved by . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

... Conf.

SUN #1 LANCE-NELSON
1980' NSL + 660 WEL.
NESE - 21-7S-1E
Fall River Co.

Sun Oil Co
Denver, Colo. Phone - 266-2181

Surface owner - 1st Nat Bank
Trustee of Nelson-Estate.

Elev: GL - 3526
K.B - 8.5

Permit: 1-27-64
Est. T.D. - 3200 Ml

Contractor: - Bernhardt.

Feb 1, 1964
- moving on equipment at location.

Feb 20, 1964
@ 2916
expect to T.D. at 2941

2886 madison Top (?)

DST #1 2315-33
30" - op 1 hr - 40"
fair blow & died.
Rec. 15' mud.
ISIP 15-27 Temp 67°
FP 15-27
HP 1211-1193
oil show at 2318-25

2nd Sundance
DST #2 2390-2450
30" - 1 hr - 30"
open with good blow for 30 min to fair blow but/ Ok.
Rec 2036' black sulphur water, slightly gas cut
ISIP 1026-1026
FP 144 - 884 HP 1341-1242
HP 1341 1242 Temp 84°

Feb 7, 1964
Spud: Feb 4, 1964
Set 8 5/8" 269 w/175 sx
Drilling out from under.

Feb 14, 1964
@ 2333'
preparing to DST. gas show.

Sample tops:
Dak 370
Morrison 710
Sundance 870
Sp. 1186
Mk 1727 (?)
op 1795 (?)
Ml 1840
R.Mark. 2272

Est T.D. 3200 or 50' into Madison

Will Run Laterolog & Gamma Ray down.
7 7/8" hole. =

2nd leo
Top Ml
Top Sundance.
Dak
50 sx bottom Surface.

2-21-64
Johnston Called at nite & Said were about ready to plug.
T.D. 3057
Log tops from laterolog & Gamma Ray
Dak 368
Lak 562
Morrison - 653
Sundance 850
Gypsum Springs 1151
Spearfish 1186 OP 1770
MK 1760(?) Ml 1842
... ...(?)

API 40 64 Bender 2271

2nd Leo 2384
3rd Leo 2618 (?)
Madison 2990

Johnson called & wants to ~~drill~~ drilling Madison should have plug as it had 23% porosity. I said yes & ~~the~~ these plugs were placed Saturday 2-22-64

~~25 sx~~ 2977-3057 Madison
25 sx 2nd Leo 2360-2440
25 sx Mdl 1800-1880
25 sx Sundance top 820-900
40 sx Top Dak 330-460
25 sx 230-290 Rot Segue.
10 sx Surface plug.

2-28-64

Rig gone. Pits not filled
Mud up. Does not have
NESE on it - but guess it OK.

May 12, 64 Page 17 of 64

Pits filled O.K. & ~~drilled~~
& ground leveled.

Sept. 9, 1964

Frank Neiffer says OK to
Release everything on this
test.

~~Jack Stay~~

WELL;- Lucas #1 Lance Melton

LOCATION;- NE SE sec 21, T7S, R1E

LOGS RECD;-
TOPS;-

GEOLOGIC;- completion Report (2)
(3-9-64)

ELECTRIC, FIELD;-
FINAL;- LL, 2 copies
3-9-64

RADIO, FIELD;- (copy RMWLS
FINAL;- Sonic - GR
(2 copies) 3-9-64

OTHERS;- (copy RMWLS

CUTTINGS RECD;- 3-27-64

CORES RECD;-

DRILL STEM DATA RECD;- ok
completion Report

CAP PLUG CHECKED;- OK 2-28-64

PLUGGING AFFIDAVIT SIGNED;-
Rec plugging Rec (form 7) 2-28-64
Rec form 6 (1-7-64)
Bond released 9-2-64

Released - 2-22-64

Sun #1 Lance - Nelson

NE, SE, sec 21, T. 7S., R 1E

Fall River Co.

elev. 3526.0

2-1-64

Pits not dug: No equipment at location.

2-7-64

Spudded 2-4-64 + set 264' of 8 5/8" surface csg.

2-14-64

Preparing to drill stem test at 2333' after obtaining odd show Spl tops:

Kd - 370	Mowaneballe - 1727
Newton - 710	Opeka - 1795
Sundance - 870	Minnelusa - 1840
Spearfish - 1186	Red Marker - 2272

2-20-64

Drilling at 2916

DST #1 2315-33 Rec 15' drilling mud
SIP-15-27, FP-15-27, HP 1211-1143
(oil show in sampler 2318-25) Temp 67°

DST #2 2390-2400 (second test)
Rec. 2036' black sulphur H_2O, slty gas cut
SIP 1026-1026, FP 144-884, HP 144-1241
temp 84°

2-22-64

Plugged
Drilled from 2916-3057, ran LL
& GR-Sonic logs

Tops

Kd-368	Gypsum Spring -1151	2nd Salt -2384	
KL-562	Greenbrier -1186	3rd " -2618(?)	
Maccrady -653	Hinkelman -1842	Madison -2990	
Sunbury -850	RM -2271	TD 3057	

2-28-64

Rig moved from loc
Marker placed
Pits not filled

5-12-64

Mud pits filled

OPERATOR'S TECHNICAL REPORTS / MAPS

WELL COMPLETION REPORT

SUN OIL CO.

#1 LANCE-NELSON ESTATE

NE SE, SEC. 21, T. 7S., R. 1E.

FALL RIVER COUNTY, SOUTH DAKOTA

Eldred D. Johnson
3025 Alna Ave.
Casper, Wyoming
Phone: 23 4-0568

I N D E X

SYNOPSIS

OPERATOR:	Sun Oil Co.
WELL:	#1 Lance-Nelson Estate
LOCATION:	NE SE; 1980 NSL, 660 WEL (not center location) Sec. 21, T. 7S., R. 1E. Fall River County, South Dakota
ELEVATION:	3526 Gr., 3535 KB
SPUDDED:	February 4, 1964 (9:00 P.M.)
CEASED DRILLING:	February 21, 1964 (12:30 P.M.)
COMPLETED:	February 22, 1964 (7:00 A.M.)
STATUS:	P & A
TOTAL DEPTH:	3057 Driller; 3057 Log
CASING:	8-5/8" surface casing set @ 269 w/175 sacks
HOLE SIZE:	9" from below surface casing to 620'. 8-3/4" from 620' to 802'. 7-7/8" from 802' to T.D.
CONTRACTOR:	Barnhart Drilling Co. - Rig #1 Tool Pusher - Lyle Robinson Drillers - H. H. Wilson, Floyd P. Reed, Sam Rinard
DRILLING MUD:	Magnet-Cove Barium Corp.; Low PH Gel-Chemical Mud Engineers - Morris Carroll, George Brown, J. Martin
LOST CIRCULATION:	Lost circulation for 5½ hours @ 2125'. Lost approximately 500 bbl. mud. Lost Circulation while making trip @ 2523. Lost approximately 200 bbl. mud.
CORING:	No cores cut
DRILL STEM TESTS:	DST #1 2315-33 (1st Leo ?) Zone) Rec. 15' drilling mud DST #2 2390-2400 (2nd Leo) Rec. 2036' SGC black sulphur water Johnston Testers Inc. Test Engineer - Jimmie Hulse; Gillette, Wyo.
LOGS:	Schlumberger Well Surveying Corp. Laterolog from 3057 to 269; Sonic Log-Gamma Ray Caliper from 3057 to 269 Log Engineer: Ted Campen

SAMPLES: All samples were delivered to American Stratigraphic Co., Casper, Wyoming.

GEOLOGIST RELEASED: February 22, 1964

CHRONOLOGICAL HISTORY

Date	8:00 A.M. Depth	Data
2-4-64	Rigging up	Spudded 9:00 P.M. this date
2-5-64	Drilling surface hole @ 187	Made 187'
2-6-64	Drilling surface hole @ 772	Made 585' Drilled surface hole to 802 @ 9:45 A.M. Made 32'. No water flow was encountered so surface hole was reamed out to 12¼" to a depth of 272'. Ran 8-5/8" surface casing to 269' w/175 sax. Plug down @ 4:30 PM this date.
2-7-64	Nippling up	Drilled out cement and cleaned out to 802'. Began drilling new hole @ 5:30 PM this date. Encountered water flow of 10-12 bbl./hr. White Ø @ 900
2-8-64	Trip for bit #4 @ 1102'	Made 220'
2-9-64	Drilling @ 1486'	Made 384'
2-10-64	Drilling @ 1745'	Made 259'
2-11-64	Drilling @ 1942'	Made 197'
2-12-64	Drilling @ 2079'	Made 137' Lost circulation for 5½ hrs. @ 2125. Lost approximately 500 bbl. mud before regaining circulation.
2-13-64	Drilling @ 2210'	Made 131'
2-14-64	Trip for Bit #13 @ 2310'	Made 100'
2-15-64	Pulling DST #1	DST #1 2315-2333. Rec. 15' Ø mud, no show.
2-16-64	Trip for DST #2 @ 2400'	Made 90' DST #2, 2390-2400. Rec. 2036' SGC sulph. wtr.
2-17-64	Drilling @ 2488'	Made 88' Lost circulation while making trip @ 2523'. Lost approximately 200 bbl. mud

2-18-64	Drilling @ 2607'	Made 119'
2-19-64	Drilling @ 2752'	Made 145'
2-20-64	Drilling @ 2891'	Made 139'
2-21-64	Drilling @ 3005'	Made 114' Drilled to TD of 3057 @ 12:30 PM this date. Made 52'. Ran Schlumberger Laterolog and Gamma Ray-Sonic-Caliper log from 3057 to 269'. TD 3057 driller 3057 Log
2-22-64	P & A	Set 25 sack plug from 2977-3057 across top of Madison. Set 25 sack plug from 2360-2440 across 2nd Leo. Set 25 sack plug from 1800-1880 across top of Minnelusa Set 25 sack plug from 820-900 across top of Sundance. Set 40 sack plug from 330-460 across top of Dakota. Set 25 sack plug from 220-290 in base of surface pipe. Set 10 sack plug with regulation marker in top of surface pipe. Rig released @ 7:00 AM. P & A.

BIT RECORD

Bit No.	Size	Make	Type	Serial #	Depth Out	Footage	Hours Run
1	9	Smith	85N	Re-Run	620	374	10-1/4
2	8-3/4	HTC	OSC1G	Re-Run	802	132	6-1/2
3	7-7/8	Smith	DT2G	Re-Run	1102	300	12
4	7-7/8	CP	ES2G	14067	1423	321	12-1/4
5	7-7/8	CP	ES2G	15569	1618	195	17-3/4
6	7-7/8	Reed	YT1A	134234	1815	197	15-1/2
7	7-7/8	Reed	YTLR	D34627	1916	101	7-1/4
8	7-7/8	HTC	OWL	39185	2000	84	9
9	7-7/8	Smith	SV2	60727	2038	38	6-1/4
10	7-7/8	HTC	OWC	98482	2162	127	14
11	7-7/8	Reed	YHR	331353	2250	88	15-1/2
12	7-7/8	HTC	OWL	38519	2310	60	11-3/4
13	7-7/8	CP	EH1	10557	2371	61	11-1/2
14	7-7/8	Smith	C2	69423	2461	90	10-3/4
15	7-7/8	Smith	C2	69459	2523	62	9-1/2
16	7-7/8	Reed	YH1	131688	2593	70	10-1/4
17	7-7/8	HTC	W7	35485	2680	87	14-1/4
18	7-7/8	Smith	L4	64483	2757	77	11-1/2
19	7-7/8	CP	EH1	194044	2867	110	14-1/2
20	7-7/8	CP	EH1	12792	2941	74	9-3/4
21	7-7/8	HTC	W7	35478	2997	56	7-3/4
22	7-7/8	Reed	YH	21582	3057	60	5-3/4

DEVIATION SURVEYS

Depth	Deviation	Depth	Deviation
72'	1/4°	1618'	1-1/4°
130'	1/4°	1815'	1°
328'	1/4°	1916'	1-1/2°
474'	3/4°	2000'	1-1/4°
538'	1/2°+	2162'	1-3/4°
620'	1/4°	2310'	1-3/4°
744'	3/4°	2371'	1-3/4°
802'	1/2°	2593'	2-1/4°
994'	1°	2757'	2-1/2°
1102'	3/4°	3057'	3°
1423'	3/4°		

DRILL STEM TEST DATA

DST #1, 2315-2333 (1st Leo (?) Zone)
ISI 30 minutes. Open 1 hour. FSI 30 minutes.
Tool opened with a very slight blow and died
Recovered 15' drilling mud.

ISIP	15#	IFP	15#	IHP	1211#
FSIP	27#	FFP	27#	FHP	1143#

B.H.T. 67°F.

DST #2, 2390-2400 (2nd Leo)
ISI 30 minutes. Open 1 hour. FSI 30 minutes
Tool opened with a good blow for 30 minutes, decreased to fair blow at end of test.
Recovered 2036' slightly gas cut black sulphur water.

ISIP	1026#	IFP	144#	IHP	1341#
FSIP	1026#	FFP	884#	FHP	1242#

B.H.T. 84°F.

Drill stem tests by Johnston Testers, Inc.
Engineer: Jimmie Hulse, Gillette, Wyoming

SCHLUMBERGER POROSITY AND WATER SATURATION DETERMINATIONS

Dakota 450-460
SP = +10 R11 = 35
Δ+ = 115 Rw = 2.4
Ø = 27% Sw = 75-80%

Lakota 590-600
SP = +10 R11 = 50
Δ+ = 115 Rw = 2.5
Ø = 27% Sw = 70%

Sundance 1080-1090
SP = +10 R11 = 48
Δ+ = 100 Rw = 2.4
Ø = 21% Sw = 100%

Converse 1850-1900
SP = +10 R11 = 48
Δ+ = 100 Rw = 2.4
Ø = 21% Sw = 100%

Converse 1970-1980
SP = +20 R11 = 200
Δ+ = 75 Rw = 3.0
Ø = 14% Sw = 90%

Converse 2106-2138
R11 = 30
Δ+ = 84 Rw = .41
Ø = 17% Sw = 61-78%

1st Leo (?) Zone 2318-2325
SP = -10 R11 = 75
Δ+ = 65 Rw = .80
Ø = 11% Sw = 87%

2nd Leo 2400-2420
R11 = 13 Rw = .60 @ 60°
Δ+ = 110 Rw = .38 @ 100°
Ø = 29% Sw = 70%

3rd (?) Leo 2685-2690
SP = +35 R11 = 30
Δ+ = 83 Rw = 5.0
Ø = 20% Sw = 100%

Pahasapa 3030-3040
SP = -45 R11 = 200
Δ+ = 85 Rw = 4.0
Ø = 22% Sw = 85%

SAMPLE DESCRIPTION

Samples were examined under the binocular microscope with 9X eyepiece and 1X, 2X, and 3X objective lenses during the drilling of the well, February, 1963. 30' samples were caught from surface to 600'. 10' samples were caught from 600' to T.D. The samples description is condensed from the well-site description and adjusted to the E-Log depths.

From	To	Feet	Description
Surface	45	45	Stream gravel; red, pink, orange chert and quartz granules and pebbles, unconsolidated.
45	260	215	Shale, very dark gray to black, firm to hard, slightly micaceous, bentonitic to siliceous, silty. Trace of dark brown, hard, slightly calcareous siltstone in interval 150-180. Scattered traces of calcite and selenite fragments.
260	270	10	Sandstone, medium gray, very fine grained, sub-angular, poor sorting, clay filled, very heavily glauconitic, poor P & P, no show.
270	366	96	Shale, very dark gray to black, firm to hard, some soft, silty, slightly micaceous, bentonitic in part.
Dakota sandstone			366 (+3169) log
366	400	34	Sandstone, white-light gray, very fine grained, sub-angular, clay filled, fairly friable, poor P & P, no show, interbedded with shale, very dark gray to black, firm to hard, some soft, silty, micaceous.
400	425	25	Shale, as above, very dark gray to black, with some interbedded streaks of sandstone, as above, white, hard and calcareous in part.
425	450	25	Sandstone, white, fine to very fine grained, sub-angular, hard, calcareous in part, poor P & P, interbedded with shale, as above, very dark gray to black, silty, also some medium gray, smooth, somewhat waxy, in part variegated with brown to tan shale.
450	500	50	Sandstone, white, fine to very fine grained, sub-angular, glauconitic in part, fair P & P to very hard and tight. Spotty bright yellow fluorescence with fair to good cut in sample 450-480. Some interbedded medium gray to green claystone, waxy, smooth, with floating sand grains, and some scattered gray to black silty shale, as above. Abundant brown siderite pellets in sample 450-480. Scattered pyrite and very abundant loose very coarse quartz grains at base of interval.

From	To	Feet	Description
500	562	62	Sandstone, white to gray, medium to very coarse grained, conglomeritic, sub-rounded to sub-angular, extremely friable, being mostly loose grains in samples, no show. Some traces of interbedded shale, variegated medium gray, lavender, olive green, trace pink, smooth, somewhat waxy, some light green shale with floating sand grains.
Lakota sandstone			562 (+2973) log
562	600	38	Sandstone, white to gray, fine to coarse grained, conglomeritic, sub-rounded to sub-angular, poor sorting, extremely friable, excellent P & P, some scattered fairly bright yellow fluorescence, poor to fair cut. Some interbedded shale, as above, variegated, purple, gray, green, rust-brown, waxy.
600	653	53	Sandstone, white to fine to coarse grained, conglomeritic, poor sorting, sub-rounded, extremely friable, excellent P & P, slight trace of stain, spotty bright yellow fluorescence, poor cut at base of interval. Some interbedded shale, variegated as above, but mostly gray and lavender.
Morrison formation			653 (+2882) log
653	690	37	Shale, medium gray, firm, smooth and waxy, some silty, with some variegated shale, as above, and sandstone white, fine to very coarse grained, conglomeritic, sub-rounded, poor sorting, very friable, good to excellent P & P, some scattered fairly bright yellow fluorescence with poor to fair cut at base of interval. At top of interval is some yellow to yellow-brown sandstone, very fine grained, sub-rounded to sub-angular, micaceous, hard to friable, calcareous, Scattered pyrite fragments throughout interval.
690	720	30	Shale, as above, medium to dark gray, some variegated, with some sandstone, white, fine to very coarse grained, conglomeritic, sub-rounded, very friable, good to excellent P & P, some scattered bright yellow fluorescence with fair to good cut at top of interval. Trace white, fine grained, fairly hard, clay filled sandstone. Slight trace hard, brown, silty, crystalline limestone. Some very coarse red and yellow chert grains.

From	To	Feet	Description
720	750	30	Shale, medium to dark gray, some variegated, firm, smooth, waxy and sandstone, conglomeratic, as above, very friable, and some white to light gray, fine to very fine grained, sub-angular to sub-rounded, clay filled, friable to hard and tight, slightly micaceous, slightly glauconitic in part, no show. Fairly abundant pyrite at top of interval.
750	780	30	Shale, medium to dark gray and greenish gray, firm, blocky, fairly smooth, somewhat waxy, becoming silty in part. Some medium to dark gray and dark grayish brown, hard, silty, very argillaceous limestone, increasing toward base of interval. Scattered traces of calcite fragments. Slight trace of pyrite.
780	850	30	Limestone, light to medium gray, some gray-green, hard, very argillaceous, grading to and interbedded with shale, medium to dark gray, calcareous to very calcareous, silty in part, mostly smooth and waxy. Some bright green shale, smooth waxy, some with floating sand grains at bottom of interval some very argillaceous limestone shows fairly bright yellow fluorescence but no cut. Also at base of interval is some sandstone, white to bright green, very fine grained, sub-angular to sub-rounded, friable, calcareous, clay matrix, fair to good P & P, some dull to fairly bright yellow fluorescence, no cut.
Sundance formation			850 (+2685) log
850	880	30	Shale, medium gray to grayish-brown, soft, silty, some carbonaceous inclusions, also bright green waxy shale, interbedded with sandstone, white to medium gray and green, very fine grained, sub-rounded, clay matrix, silty fairly friable, becoming glauconitic, fair to good P & P, no show. Some hard, gray, very argillaceous limestone at top of interval.
880	920	40	Shale, medium to dark grey and grayish-brown, soft, silty, calcareous in part, also light to dark, soft lavender shale, slightly silty, slightly calcareous in part. Some interbedded sandstone, light grey to green, very fine grained, sub-rounded, glauconitic, clay matrix, calcareous, hard to soft and friable, no show.

From	To	Feet	Description
920	970	50	Shale, variegated, medium gray, green, maroon, lavender, red, some olive green, firm to soft, silty to waxy, calcareous, interbedded with sandstone, as above, gray to green, very fine grained, sub-rounded, glauconitic, calcareous, no show.
970	990	20	Siltstone, rust-red, sandy, soft, shaly and sandstone, rust-red, very fine grained, sub-angular to sub-rounded, very silty, friable, no show. Some variegated shale, as above.
990	1050	60	Sandstone and siltstone, rust-red, as above, and sandstone, light to medium gray and gray green, very fine grained, sub-angular to sub-rounded, glauconitic slightly calcareous, friable, no show. Some interbedded shale, variegated as above, becoming predominately gray, soft to firm, smooth and waxy to silty. Some bright green waxy shale with floating sand grains.
1050	1100	50	Sandstone, light gray to green, some very light tan, very fine grained, sub-angular to sub-rounded, clay filled in part, becoming glauconitic at base of interval, calcareous, friable, fair to good P & P, no show. Some interbedded shale, gray as above, some variegated.
1100	1152	52	Shale, medium to dark gray, firm to soft, slightly silty, calcareous, with some light green and lavender variegated shale, as above.
Gypsum Spring formation			1152 (+2383) log
1152	1186	34	Shale, medium to dark gray and grayish-brown, some green and lavender, soft, slightly silty, calcareous. Some scattered sandstone, white, fine to very fine grained, friable, calcareous, no show. (The above description of the Gypsum Spring is what was observed in the samples. From the drilling time, however, it would appear that the interval is made up predominently of gypsum or anhydrite. This interval drilled at the rate of .25 minutes per foot as compared to 1.45 minutes per foot both immediately above and below the Gypsum Spring. The log also looks like gypsum, especially since the caliper shows a washed out zone at this interval.)

From	To	Feet	Description
Spearfish formation			1186 (+2349) log
1186	1290	104	Siltstone, brick red, becoming bright brick red in lower 2/3 of interval, sandy, shaly in part, slightly calcareous with interbedded dark brick red shale, silty, slightly calcareous. Trace of white crystalline to earthy anhydrite near base of interval.
1290	1350	60	Siltstone, bright brick red, firm to hard, sandy, calcareous, becoming anhydritic, and some shale, brick red to redish-brown, hard, silty, slightly calcareous. Some traces of anhydrite, white, soft, sucrose to earthy, some clear and crystalline.
1350	1450	100	Siltstone, and shale, as above, becoming only slightly calcareous, interbedded with thin stringers of anhydrite, white, soft, sucrose to earthy, some crystalline to fibrous.
1450	1500	50	Siltstone, bright red-orange, becoming darker in lower 1/2 of interval, sandy, hard, slightly calcareous to non-calcareous, anhydritic, and some brick-red, silty shale, as above, and some interbedded anhydrite, as above.
1500	1600	100	Anhydrite, white, firm to hard, brittle, sucrose to crystalline, also soft and earthy, interbedded with siltstone and shale, as above, non-calcareous.
1600	1620	20	Anhydrite, white, firm to hard, sucrose to crystalline, brittle.
1620	1640	20	Dolomite, white, light gray, pink, light purple, very fine to microcrystalline, hard, brittle, dull to light yellow fluorescence, no cut. Some interbedded siltstone bright, red-orange, sandy, anhydritic.
1640	1680	40	Interbedded siltstone, bright red-orange as above, and dolomite, white, pink, purple, fine to microcrystalline, silty in part, light to dull yellow fluorescence, no cut.
1680	1726	46	Siltstone, as above, red-orange, sandy anhydritic. Scattered traces of dolomite and anhydrite, as above.

From	To	Feet	Description
Minnekahta limestone			1726 (+1809) log
1726	1764	38	Limestone, white to gray, pink, hard, brittle, very fine to microcrystalline, dull to light yellow fluorescence, no cut, grading to dolomite pink to light purple, hard, brittle, microcrystalline, dull to light yellow fluorescence, no cut.
Opeche shale			1764 (+1771) log
1764	1800	36	Dolomite, white-light gray, pink, hard, brittle, microcrystalline, with some traces of limestone as above, dolomitic, dull yellow fluorescence, no cut, interbedded with siltstone, red-orange to brick-red, sandy, anhydritic and some brick-red silty shale.
1800	1838	38	Siltstone, red-orange to brick-red, firm, sandy, dolomitic, shaly in part, with some scattered dolomite, as above, and anhydrite, white, sucrose.
Minnelusa formation			1838 (+1697) log
1838	1895	57	Sandstone, pink to white, fine to medium grained, sub-rounded to sub-angular, well sorted, friable, good to excellent P & P, no show. Toward base of interval sandstone becomes dark pink to red, slightly harder, clay filled, dolomitic, poor to fair P & P. Trace of interbedded dolomite, as above, at top of interval.
1895	1960	65	Dolomite, white, pink, light gray, trace of purple, hard, brittle, fine to microcrystalline, sandy in part, very slight trace of brown stain, dull yellow fluorescence, no cut. Some interbedded shale, dark gray to black, and grayish-green, firm to soft, silty to smooth and somewhat waxy, sandy in part.
1960	1990	30	Sandstone, pink to red-orange, some white, fine grained, sub-angular to sub-rounded, well sorted, anhydrite filled, friable, poor to fair P & P, some good P & P, no show. Abundant anhydrite, white, soft to very soft, granular to earthy.
1990	2030	40	Limestone, mottled medium to dark gray, hard, fine to microcrystalline, some medium crystalline, silty to sandy, becoming dolomitic and grading to dolomite, dull yellow fluorescence, no cut. Some scattered shale, medium gray to black, also lavender and green, smooth, fairly soft, somewhat waxy, with some floating sand grains. Some scattered soft, white, earthy to sucrose anhydrite.

From	To	Feet	Description
2030	2060	30	Dolomite, mottled medium to dark gray, some light gray, hard, limey, brittle, very fine to fine crystalline, scattered dull fluorescence, no cut. Some interbedded limestone at base of interval, very fine to microcrystalline, hard, brittle, silty to sandy, dull fluorescence, no cut.
2060	2070	10	Sandstone, pink to purple, fine to very fine grained, sub-angular to sub-rounded, clay filled, dolomitic, hard and brittle to friable, poor to fair P & P, no show, with dolomite, white to pink, some purple, very fine to microcrystalline, hard, light yellow fluorescence, no cut. Scattered coarse yellow chert grains.
2070	2080	10	Siltstone, bright red-orange, hard, sandy, dolomitic, with some bright red-orange silty shale, and abundant very soft, white, earthy anhydrite.
2080	2100	20	Shale, medium to dark gray, some green, firm, smooth to silty, with some anhydrite, soft to firm, sucrose to earthy. Some sandstone, as above.
2100	2160	60	Sandstone, white, fine to medium grained, some very fine grained, sub-rounded, well sorted, anhydritic in part, friable to extremely friable, good to excellent P & P, no show, with some interbedded shale, medium gray to grayish-green, some light green, firm, smooth and waxy to silty.
2160	2210	50	Dolomite, white to gray, pink, purple, very fine to microcrystalline, hard, brittle, scattered dull to light yellow fluorescence, no cut. Some interbedded white, dolomitic anhydrite at top of interval, very fine crystalline, firm to hard. Scattered white chert grains.
2210	2230	20	Sandstone white, fine to medium grained, sub-angular to sub-rounded, well sorted, very friable, anhydritic, fair to good P & P, no show, and dolomite, as above, hard, microcrystalline, fair light yellow fluorescence, no cut. Some soft white earthy anhydrite.
2230	2272	42	Dolomite, white to light gray, some pink and purple, very fine to microcrystalline, hard, limey, light to dull yellow fluorescence, no cut, with interbedded shale, gray to greenish gray, soft, silty to waxy. Some scattered streaks of sandstone, white to pink and light purple, fine grained, dolomitic, anhydritic, firm to somewhat friable, no show. Some very soft white, earthy anhydrite, and scattered yellow chert grains.

From	To	Feet	Description
"Red Marker"			2272 (+1263) log
2272	2280	8	Shale, red, soft, flaky, smooth with silky metallic luster.
2280	2318	38	Dolomite, white to gray, pink, very fine to microcrystalline, hard, trace of medium brown stain, trace faint fluorescence, no cut, with some interbedded sandstone, white to pink and purple, fine to medium grained, sub-angular to sub-rounded, dolomitic, anhydritic, hard to fairly friable, poor P & P, no show. Some sandstone at base of interval, white to pink, fine to medium grained, sub-rounded to sub-angular, well sorted, friable, dolomitic in part, some faint yellow fluorescence, trace very faint cut.
2318	2333	15	Dolomite, dark gray, fine crystalline, hard to somewhat porous, shaly in part, scattered dark brown stain, fairly bright yellow gold fluorescence, good bright yellow gold cut, with some sandstone, white fine grained, sub-rounded, dolomitic in part, hard to friable with fairly abundant loose grains, fairly even light brown stain, pale yellow fluorescence, faint light yellow cut.
Circulated samples @ 2333'			
			Dolomite, as above, more light brown stain, and sandstone, as above, light stain, pale fluorescence, more abundant loose grains in sample. Entire sample gives fair to bright light yellow cut.
D.S.T. #1, 1st Leo (?) Zone 2315-2333 (See page 5 for data on DST #1)			
2333	2384	51	Shale, dark to very dark gray, some grayish-green, firm, waxy, silty in part, with some interbedded dolomite, white to gray, tan, very fine to microcrystalline, hard. Some stringers of sandstone, white fine to very fine grained, hard, dolomitic, poor P & P, no show.
2nd Leo Sandstone			2384 (+1151) log
2384	2390	6	Sandstone, medium gray, very fine grained, sub-angular, hard, dolomitic, poor P & P, no show, becoming softer, somewhat friable, with slight fluorescence, no cut.

From	To	Feet	Description
2390	2400	10	(Circulated 30 minutes for samples) Sandstone, white, fine grained, sub-rounded, well sorted, friable, good P & P, fair light brown stain, even fairly bright light yellow fluorescence, fair to good cut. Sulphur odor in sample.
DST #2, 2nd Log, 2390-2400 (See page 5 for data on DST #2)			
2400	2430	30	Sandstone, white, fine to medium grained, sub-rounded, well sorted, friable to extremely friable, good to excellent P & P, even light brown stain at top of interval becoming spotty, fairly bright to dull yellow fluorescence, good to poor cut.
2430	2460	30	Shale, dark to very dark gray, some greenish gray, firm, waxy to silty, with dolomite, gray to pink, tan, fine to microcrystalline, hard, limey, silty in part. Some interbedded sandstone, white, fine to medium grained, sub-rounded, friable, to very friable, good to excellent P & P, slight trace light brown stain, faint to fair light yellow fluorescence, trace fair to good cut. Scattered traces hard, black, brittle, silty shale.
2460	2500	40	Dolomite, tan to dark gray, fine crystalline, hard, limey, silty to sandy in part, with interbedded medium to dark gray, firm waxy to silty shale and, very hard black, brittle, silty shale. Some traces of interbedded sandstone, white to light gray, fine to very fine grained, sub-angular to sub-rounded, hard, dolomite matrix, poor P & P, very slight trace of fluorescence, no cut.
2500	2515	15	Sandstone, white, fine to very fine grained, sub-rounded to sub-angular, hard and dolomitic in part, becoming friable, with good P & P, some very light brown stain, faint yellow fluorescence, very slight trace of cut, sulphur odor.
2515	2580	65	Dolomite, gray to dark gray, fine to very fine crystalline, hard, silty to sandy, limey and anhydritic in part, with interbedded shale, medium to dark gray, firm to hard, with some scattered shale, black, very hard, brittle, silty. Some scattered sandstone, white to light gray, fine to very fine grained, sub-rounded to sub-angular, hard and dolomitic to friable, no P & P to good P & P, trace fair light yellow fluorescence, no cut.

From	To	Feet	Description
2580	2618	38	Dolomite, dark gray to tan, hard, silty to sandy, and sandstone, white to gray, fine grained, sub-rounded to sub-angular, hard, dolomitic, some friable, poor to fair P & P, some scattered even brown stain, very poor to fair yellow fluorescence, no cut.
3rd Leo (?) sandstone			2618 (+917)
2618	2650	32	Sandstone, white to gray, very fine grained, sub-angular to sub-rounded, dolomitic, friable, poor to fair P & P, dull to fair yellow fluorescence, no cut, with dolomite, tan, gray, white, fine to microcrystalline, hard, limey, sandy, dull to fair yellow fluorescence, no cut.
2650	2680	30	Sandstone, white to light gray, very fine to fine grained, sub-rounded, very calcareous, hard to friable, poor to fair P & P, poor light yellow fluorescence, no cut, with some interbedded limestone, white, hard, microcrystalline, very sandy, and dolomite, tan, gray, hard, microcrystalline, very limey, fair light yellow fluorescence, no cut. Abundant very soft, white, earthy anhydrite near top of interval.
2680	2700	20	Sandstone, white, fine to very fine grained, sub-rounded to sub-angular, calcareous to very calcareous, hard to friable, poor to fairly good P & P, no fluorescence on porous sand, to fairly bright light yellow fluorescence on hard and tight sand, no cut. Some dolomite, dark gray to brown, hard, very fine crystalline, silty in part, somewhat limey. Scattered red, yellow, orange and white chert fragments.
2700	2730	30	Shale, dark maroon to red, soft to firm, silty, some green shale inclusions, interbedded with sandstone, white to light gray, very fine grained, sub-rounded to sub-angular, hard and dolomitic to friable and very calcareous, anhydritic, no P & P to fairly good P & P, very faint fluorescence, no cut. Abundant anhydrite at top of interval, white, soft and earthy to firm and sucrose.
2730	2760	30	Sandstone, white to gray and greenish gray, with maroon speckling, very fine grained, sub-angular to sub-rounded, calcareous to very calcareous, firm to friable, scattered faint fluorescence, no cut, with interbedded dolomite, tan to gray, microcrystalline, hard, fairly bright fluorescence, no cut, and some limestone, white, very fine to microcrystalline, hard.

From	To	Feet	Description
2760	2795	35	Shale, variegated red, green, maroon, lavender, soft to firm, silty, sandy in part and calcareous in part, interbedded with limestone, white to light gray and tan, very fine to microcrystalline, hard, shaly in part. Some scattered yellow and orange chert fragments.
2795	2848	53	Limestone, white, light gray, very light pink, light lavender, very fine to microcrystalline, hard to very hard, with abundant orange, tan, and lavender chert, some interbedded shale, variegated gray to dark gray, green, red and green mottled, firm and waxy to soft and silty. Some soft, white, earthy anhydrite in upper half of interval.
2848	2870	22	Sandstone, white to tan, fine to medium grained, sub-angular, calcareous, very conspicuous bright green glauconite grains, hard to friable, poor P & P, no show, interbedded with variegated shale and tan, hard limestone, as above.
2870	2905	35	Limestone, light tan to light gray, some lavender, and very light green, very fine to microcrystalline, trace of floating sand grains, hard, shaly in part, dolomitic in upper half of interval, some pale yellow fluorescence, no cut. Fairly abundant scattered yellow, orange, red, and some white chert.
2905	2917	12	Anhydrite, white, very soft, earthy and abundant chert, mottled scarlet and light gray.
2917	2965	48	Limestone, light tan to light gray, fine to very fine crystalline, hard, some lithographic, very hard and siliceous, with some interbedded shale, variegated, gray, red, purple, firm smooth, somewhat waxy. Scattered, chert, red, gray, orange, yellow. Bryozoan (?) fragment in sample 2930-40.
2965	2989	24	Shale, variegated red, gray, green, purple, red-orange, soft, silty to sandy, anhydritic in part. Some limestone, as above, light tan to light gray, hard. Trace purple dolomitic limestone with floating sand grains.

From	To	Feet	Description
Pahasapa limestone			2989 (+546) log
2989	3057	68	Limestone, white to light gray, some light tan, becoming pink at base of interval, fine to very fine crystalline, some traces medium to coarse crystalline, firm brittle, some soft and earthy. Some limestone has very fine purple speckling.
Circulated for logs @ 3057			
30 min. circulation			Limestone, white to light gray and light pink, fine to very fine crystalline, some medium to coarse crystalline and darker pink, firm to hard, brittle. Trace coarse white calcite rhombs.
1 hour circulation			Limestone, as above, white to light gray and pink, trace tan, fine to very fine crystalline, trace medium to coarse crystalline, fairly hard, brittle. Fairly abundant variegated shale cavings.
1½ hour circulation			Limestone, as above. Sample mostly cavings.
T.D.	3057 Driller (+478) 3057 Log (+478)		Drilling time was kept on an Eastman Star drilling time recorder and the original chart was delivered to the Sun Oil Co., district office in Casper, Wyoming.

ELECTRIC LOG TOPS

Formation	Depth	Datum (K.B.)
Dakota sandstone	366	+3169
Lakota sandstone	562	+2973
Morrison formation	653	+2882
Sundance formation	850	+2685
Gypsum Spring formation	1152	+2383
Spearfish formation	1186	+2349
Minnekahta limestone	1726	+1809
Opeche shale	1764	+1771
Minnelusa formation	1838	+1697
"Red Marker"	2272	+1263
2nd Leo sandstone	2384	+1151
3rd Leo (?) sandstone	2618	+ 917
Pahasapa limestone	2989	+ 546
T.D.	3057	+ 478

PLUGGING RECORD

Set 25 sack plug across top of Pahasapa from 2977-3057.
Set 25 sack plug across 2nd Leo from 2360-2440
Set 25 sack plug across top of Minnelusa from 1800-1880.
Set 25 sack plug across top of Sundance from 820-900.
Set 40 sack plug across top of Dakota from 330-460.
Set 25 sack plug in base of surface pipe from 220-290.
Set 10 sack plug with regulation marker in top of surface pipe.

ADMINISTRATIVE / SUNDRY REPORTS

RECEIVED

STATE PUB CO., PIERRE

S. Dak. Oil & Gas Board
FORM 7

PLUGGING RECORD

Operator	Address
Sun Oil Company	P. O. Box 1798, Denver, Colorado

Name of Lease	Well No.	Field & Reservoir
Lance-Nelson Estate	1	Wildcat

Location of Well	Sec-Twp-Rge or Block & Survey	County
NE SE Sec. 21-7 S-1E		Fall River

Application to drill this well was filed in name of	Has this well ever produced oil or gas	Character of well at completion (initial production): Oil (bbls/day)	Gas (MCF/day)	Dry?
Sun Oil Company	no	-	-	X

Date plugged:	Total depth	Amount well producing when plugged: Oil (bbls/day)	Gas (MCF/day)	Water (bbls/day)
2-22-64	3057'	-	-	-

Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used indicate zones squeeze cemented, giving amount cement.
None			

CASING RECORD

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped, etc.)	Packers and shoes
8-5/8"	269	None	269	-	Surface Casing Remaines in hole

Was well filled with mud-laden fluid, according to regulations?	Indicate deepest formation containing fresh water.
yes	Unknown (possibly the Pahasapa Zone ?)

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated intervals in fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well, and agreeing to assume full liability for any subsequent plugging which might be required.

USE REVERSE SIDE FOR ADDITIONAL DETAIL

Executed this the 24th day of February, 19 64

State of Colorado

County of Denver

W. J. Turner
Signature of Affiant Div. Supt.-Oper. Dept.

Before me the undersigned authority, on this day personally appeared W. J. Turner 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 duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Subscribed and sworn to before me this 24th day of February, 19 64.

SEAL

My Commission expires

Notary Public in and for

County.

DO NOT WRITE BELOW THIS LINE

Approved Sept 2, 1964
Date

OIL AND GAS BOARD OF THE STATE OF SOUTH DAKOTA

, Secretary

See Instructions On Reverse Side

Approved
for release of bond
Leonard W. Fluger
for Sun Oil Co

INSTRUCTIONS

File 3 copies of this form with Secretary, Oil and Gas Board, Pierre.

Our CasPer Office will submit copies of all logs run, complete well history along with other pertinent information in the near future.

Log Tops:	
Dakota	366
Lakota	562
Morrison	653
Sundance	850
Gypsum Springs	1152
Spearfish	1186
Minnekahta	1726
Opeche	1764
Minnelusa	1838
Red Marker	2272
Amsden	2848
Pahasapa	2989
	3057' TD

S. Dak. Oil & Gas Board
FORM 6

SUNDRY NOTICES AND REPORT ON WELLS

FARM OR LEASE NAME: Lance - Nelson

WELL NO.: 1

☐ OIL WELL ☐ GAS WELL ☐ ..... ☒ DRY

FIELD AND POOL, OR WILDCAT: Wildcat

OPERATOR: Sun Oil Company

NO. ACRES IN LEASE: 40

ADDRESS: P.O. Box 1798, Denver, Colorado

LOCATION (In feet from nearest lines of section or legal subdivision, where possible): 1980 NSL and 660 WEL NE SE Sec. 21 - 7S - 1E

¼, ¼ SEC. TWP. RGE.: NE SE Sec. 21-7S-1E

ELEVATIONS (D.F., R.K.B., R.T., GRD., etc.; how determined): 3526.0 Grd.

COUNTY: Fall River

INDICATE BELOW BY CHECK MARK NATURE OF REPORT, NOTICE OR OTHER DATA

NOTICE OF INTENTION TO:			SUBSEQUENT REPORT OF:		
TEST WATER SHUT-OFF		SHOOT OR ACIDIZE		WATER SHUT-OFF		SHOOTING OR ACIDIZING	
FRACTURE TREAT		REPAIR WELL		FRACTURE TREATMENT		REPAIRING WELL	
MULTIPLE COMPLETE		PULL OR ALTER CASING				ALTERING CASING	
ABANDON							

(Note: Report results of multiple completion on Well Completion or Recompletion and Log Form—Form 4)

DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work)

Subsequent report of cleared location:

This well was P & A 2-22-64 and the pits have been filled and leveled and location has been cleaned up and the well site is now ready for final abandonment, inspection and approval.

I hereby certify that the foregoing as to any work or operation performed is a true and correct report of such work or operation.

SIGNED [signature] TITLE Div. Supt. - Oper. Dept. DATE 7-1-64

DO NOT WRITE BELOW THIS LINE

Approved July 7, 1964 (Date)

OIL AND GAS BOARD OF THE STATE OF SOUTH DAKOTA

CONDITIONS, IF ANY: [signature], Secretary

See Instructions On Reverse Side

RECEIVED
SOUTH DAKOTA
STATE

CORRESPONDENCE

SOUTH DAKOTA
STATE GEOLOGICAL SURVEY
SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471
Western Field Office
Belle Fourche, South Dakota

DUNCAN J. McGREGOR
Director and State Geologist
MERLIN J. TIPTON
Assistant State Geologist

August 21, 1964

Dr. Duncan McGregor
State Geologist
Vermillion
South Dakota

RE Sun #1 Lance-Nelson
NE¼ SE¼-21-7S-1E
Fall River County, South Dakota
Permit No. 356

Dear Duncan:

The six months confidential period on information from the above test has now terminated and all information may be released.

Sincerely,

Earl Cox

Earl Cox
Engineering-Petroleum Geologist

EC:cr

DJ
Send for 6 + 7 Jr
Duncan for signing
MJ

August 10, 1964

Mr. Earl J. Cox
State Geological Survey
Box 208
Belle Fourche, South Dakota

Dear Earl:

Please find enclosed the Sonic Log and Laterolog for

Sun Lance #1 Nelson, Fall River County, Sec. 21-7S-1E.

Sincerely yours,

(Mrs.) Donna Jean Hedges
Administrative Assistant

For the State Geologist

Enclosures

SOUTH DAKOTA
STATE GEOLOGICAL SURVEY
SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471

DUNCAN J. McGREGOR
Director and State Geologist
MERLIN J. TIPTON
Assistant State Geologist

Western Field Office
Belle Fourche, South Dakota
May 15, 1964

Dr. Duncan McGregor
State Geelegist
Science Center
Vermillion, South Dakota

Dear Duncan:

Re: Sun #1 Lance-Nelsen
NE¼ SE¼ -21-7S-1E
Fall River County, South Dakota
Permit #356

As shown by the attached Scout report, the above location meets our requirements.

If your office has received the samples, and two copies each of the sample descriptions, two drill stem tests and the logs (latereleg, gamma ray senic), the bond can be released.

As information on this test is Confidential, both sets of records should be kept at Vermillion until August 22, 1964, when the Confidential period ends.

You may wish to wait until August 22, before recommending the bond released.

Sincerely,

Earl

Earl Cox
Engineering-Petroleum Geologist

EC:cr

Enc

March 27, 1964

Mr. Fred McCotter
American Stratigraphic Company
17 North 31st Street
Billings, Montana

Dear Mr. McCotter:

We received the samples in good shape yesterday from the following wells:

Cities Service #1 Carl Wagner
NW NW 13-5N-29E
Stanley County, South Dakota

Cities Service #1-A Phipps
NW SW 4-2S-23E
Jackson County, South Dakota

Sun Oil Company #1 Lance-Nelson
21-7S-1E
Fall River County, South Dakota

Thank you very much.

Sincerely yours,

MJT

Merlin J. Tipton
Assistant State Geologist

MJT:jmd

SOUTH DAKOTA
STATE GEOLOGICAL SURVEY
SCIENCE CENTER
University of South Dakota Campus
VERMILLION 57069
Phone 624-4471

DUNCAN J. McGREGOR
Director and State Geologist
MERLIN J. TIPTON
Assistant State Geologist

Belle Fourche, South Dakota
March 11, 1964

Dear Duncan,

I have your March 10 letter ~~XX~~ with the mention that Frank Neighbor wants the logs on the Sun #1 Lance-Nelson kept confidential.

The Rules, page 3~~#~~42, state that all records shall be ~~K~~kept ~~XXXX~~ confidential for six months if requested in writing by the owner.

I am XX always careful to check with the geologist, engineer, or operator, to see if information I obtain when scouting is confidential. Even if no letter has been written, if I am verbally asked to keep the information confidential, I treat is as such, and so mark the scout sheets.

The geologist on the Sun #1 Lance-Nelson test told me several times it was not a tite hole. Sun themselves gave out the sample tops and DST results to Rineharts. However, now that Sun has changed their mind on this, we are obligated to hold the information until August 21, 1964, unless Sun approves the release before that. Neighbor seems to want only the mechanical logs kept confidential, but to be on the safe side I suppose the whole file should be considered confidential. Under the circumstances, any information we might have released prior to Neighbors letter cannot be considered a violation.

The method followed in the past seems to have worked satisfactorily and we have not had any hard feelings or misunderstandings about this to my knowledge. I believe we would get adverse reactions from the oil industry if we made it a policy not to release any information for six months on "non Confidential" tests.

Sincerely,

Earl

Earl Cox

March 10, 1964

Mr. Earl Cox
State Geological Survey
P. O. Box 208
Belle Fourche, South Dakota

Dear Earl:

I just received your two memos telling us (1) that you are about to make your move, and (2) the fact that you are getting together with Mr. Hanson about pictorial coverage on your big article on petroleum in South Dakota. Both of these are very good, and I feel that this will materially improve not only the physical space of the Geological Survey in our Western Field Office, but certainly will get the meaning and worth of our organization before the public.

I just got a letter from Frank Neighbor relative to the Sun Oil Company Lance Nelson Estate #1, in which he sent me copies of the logs. He wrote a P. S., saying that he wanted these logs kept confidential as they have not released them to date. I note on some of the scout reports that information you submitted on the Sun Wells carried no confidential word at the top. I was wondering if this were an oversight, or if they have actually waited until now before they declared it confidential. I am wondering if we should adopt a policy that all records we get from these oil companies are held confidential for the six-month period from close of operation. On the other hand, I realize this may hold up getting information out, particularly if the company doesn't mind if it is released. This presents a bit of a problem, because since they have not seen fit to mark the information you got for scout confidential, we may have given out some information that we shouldn't have.

You might ponder this and give me your ideas on what to do about it.

Sincerely yours,

Duncan J. McGregor
State Geologist

DJM:jmd

March 10, 1964

Mr. Frank Neighbor
District Exploration Manager
411 Petroleum Building
P. O. Box 1732
Casper, Wyoming

Dear Frank:

Reference is made to your letter of March 5, 1964, in which you attached a P. S., requesting that we keep the logs confidential until released by you.

This letter is to inform you that because of your request, we have so placed your logs in confidential file, and they will remain there for six months from the date of completion of the Lance-Nelson Estate #1 well.

Seeing your signature at the bottom of the letter made me feel homesick for Salt Lake City. You may or may not remember me, but back in the early "50's I was working with Darwin Quigley for the Sinclair Oil and Gas Company. At that time you and Lou Wells held the fort down on the third floor in the Newhouse Building.

If and when I am in Casper, and I hope it won't be too long before I am, I will certainly make an effort to look you up and at least say "hi".

Sincerely yours,

Duncan J. McGregor
State Geologist

DJM:jmu

SUN OIL COMPANY

ROCKY MOUNTAIN DIVISION
DENVER CLUB BUILDING
P. O. BOX 1798
DENVER 1, COLORADO

WM. WALMSLEY
MANAGER

REPLY TO
DISTRICT OFFICE
411 PETROLEUM BUILDING
P. O. BOX 1732
CASPER, WYOMING

March 5, 1964

Dr. Duncan McGregor
State Geologist
Science Center
Vermillion, South Dakota

Re: Sun Oil Co. Lance Nelson Estate # 1
Section 21, T. 7 S., R. 1 E.
Fall River County, South Dakota

Dear Sir:

Enclosed you will please find the following information on the subject well:

1: Two Copies - Well History by Eldred Johnson
Consulting Geologist

2: Two Copies - Final Print - Sonic Gamma Ray Log
By Schlumberger

3: Two Copies - Final Print - Laterolog
By Schlumberger

If additional copies are needed please do not hesitate to call on us. American Stratigraphic Company as per your requirements has been instructed to furnish you with a cut of the samples.

Very truly yours,

SUN OIL COMPANY

Frank Neighbor

Frank Neighbor
District Exploration Manager

FN/mk
Enc.

P.S. We would appreciate your keeping the logs confidential, since we have not released these logs to-date.

SOUTH DAKOTA JAN 30 1964

State Water Resources Commission

STATE OFFICE BUILDING

PIERRE, SOUTH DAKOTA

January 29, 1964

First National Bank of Black Hills
(as Trustee of the Nelson Estate)
Hot Springs, South Dakota

Gentlemen:

I have been advised that the Sun Oil Company has obtained a Permit to Drill for Oil and Gas on your land in Section 21, T 7 S, R 1 E.

Occasionally, owners of land consider converting abandoned oil wells into water wells. Please advise me whether or not you intend to convert the oil well drill hole on your land into a water well if water is encountered and the drill hole is abandoned as an oil well.

If you are considering making a water well out of the abandoned oil well drill hole, special considerations are necessary to comply with the State's oil and water laws. The abandoned oil hole must be properly plugged and the water well properly constructed. All conversion work will be at your expense. The cost will vary, depending upon the characteristics of the drill hole, but such cost will be in the neighborhood of $5,000 or more. Usually another driller and drill rig will have to be arranged for. This other drill rig and casing and other materials will have to be on hand to take over immediately after the special oil well plugging is completed, because the drill hole cannot be left open for any appreciable length of time without spoiling it. Approval of plans for construction of the water well will be required, and a bond covering proper constructin may be required. Also, a water right may be required. All of these arrangements take considerable time to accomplish.

Please advise me immediately if you plan to convert the oil well drill hole into a water well. We both hope that a producing oil well results from the drill hole on your land; however, if not and you are planning on a water well, we must start making arrangements now.

Sincerely,

J.W. GRIMES
Chief Engineer

JWG/bw

cc State Oil and Gas Board, Secretary of State, State Capitol, Pierre, S.D.
State Geologist, Dr. Duncan McGregor, Vermillion, S.D.

SURETY

NO SURETY INFORMATION FOR THIS WELL AS OF 5/18/2011

MISCELLANEOUS

MAR 21 1964

INVOICE

AMERICAN STRATIGRAPHIC COMPANY

1820 BROADWAY, DENVER · 812 E. YELLOWSTONE, CASPER · 17 NO. 31ST ST., BILLINGS

March 19, 1964

NC1078

State of South Dakota Geological Survey
Attn: *Dr. Duncan McGregor, State Geologist*
Science Center
Vermillion, South Dakota

P. O. No.

SOUTH DAKOTA SAMPLES N/C

Cities Service #1 Carl Wagner NW NW 13-5N-29E Stanley Co., South Dakota	N/C
Cities Service #1-A Phipps NW SW 4-2S-23E Jackson Co., South Dakota	
Sun Oil Company #1 Lance-Nelson 21-7S-1E Fall River Co., South Dakota	

PLEASE NOTE:

We are shipping these samples via United Buckingham. Please let us know when you receive them.

Fred McCotter

Edgemont Herald Tribune
February 27, 1964

Sun abandons second oil test

The Sun Oil Company plugged and abandoned their No. 1 Lance-Nelson oil test in Fall River County last Friday, Feb. 22, according to a report released this week by Earl Cox, Belle Fourche, Engineering-Petroleum Geologist of the State Geological Survey. This was the second oil test in the Edgemont area which Sun has made unsuccessfully within the past few months.

Cox said oil and gas shows were found in the Minnelusa sands by Sun in this latest test, but were not present in commercial quantities. The Company has not indicated if additional tests are planned for South Dakota, he said.

Drilling continues at the Carpenter No. 1 Cox test near the Barker Dome Field. A depth of 1530 feet had been reached by February 20, Cox reported. Information on this test is confidential and the only part being released to the public is the drilling depth.

Rapid City Journal
February 25, 1964

Fall River Oil Test Abandoned By Sun Oil Co.

BELLE FOURCHE -- Sun Oil Company plugged and abandoned its Number One Lance-Nelson oil test in Fall River County Friday, according to Earl Cox, engineering-petroleum geologist for the State Geological Survey in Belle Fourche.

Cox said the test reached a depth of 3,057 feet.

Oil and gas shows were found in the Minnelusa sands but were not present in commercial quantities.

Cox said Sun Oil Co. has not indicated if additional tests are planned in South Dakota.

Drilling continues at the Carpenter Number One Cox test near the Barker Dome field in Fall River County.

A depth of 1,530 feet had been reached Feb. 20, but Cox said information on the test is confidential and the only information being released concerns drilling depth.

Edgemont Herald Tribune
February 13, 1964

Sun Oil gets permit for second test well

Earl Cox, Engineering-Petroleum Geologist of the State Geological Survey, Belle Fourche last week announced that the State Oil and Gas Board granted a permit January 27 to the Sun Oil Company to drill their No. 1 Lance-Nelson Oil and gas test in Fall River County. The location is twelve miles northwest of Edgemont and will reach an estimated depth of 3200 feet. The test is seven miles east of the West Mule Creek Oil Field in Wyoming and eight miles southwest of the Barker Dome Oil Field in Custer County, South Dakota.

This test will be the second recent wildcat to be drilled by Sun Oil Company in Fall River County. Sun plugged and abandoned their No. 1 Government test a month ago after reaching a dept of 3250 feet. The No. 1 Government test was located six miles west of Edgemont.

Sun

Rapid City Journal
January 31, 1964

Wildcat Well In Fall River Set

Sun Oil Co. was granted a permit Monday to drill an oil and gas test well in Fall River County 12 miles northwest of Edgemont, according to Earl Cox, geologist with the State Geological Survey.

The State Oil and Gas Board issued the permit for the well, the No. 1 Lance-Nelson, with drilling estimated to reach a depth of 3,200 feet.

The test is seven miles east of the West Mule Creek Oil Field in Wyoming and eight miles southwest of the Barker Dome Oil Field in Custer County.

The test will be the second recent wildcat to be drilled by Sun Oil Co. in Fall River County. The company plugged and abandoned their No. 1 government test a month ago after reaching a depth of 3,250 feet. This test was located six miles west of Edgemont.

API 40 047 05089

Rapid City Journal
December 24, 1963

Sun Oil Starts Wildcat Well Near Edgemont

EDGEMONT — Sun Oil Company has set surface casing and was drilling below the 913-foot level last week at its No. 1 NCRA-Government oil well 5½ miles west of Edgemont.

The projected 3,200-foot Minnelusa wildcat is 14 miles southwest of the Barker Dome field in Fall River County, according to C. W. Sanders, owner of C. W. Sanders and Associates of Rapid City, a petroleum exploration and consulting firm.

Sanders said the information came from Rineharts Oil Report, a daily publication issued from Denver.

The wildcat was started Dec. 13 and surface casing was set at 199 feet.

In Stanley County, Cities Service Oil Co., was making hole below 2,230 feet at its No. 1 Carl Wagner well. The projected 2,500-foot wildcat is 12 miles northwest of Pierre.

Department of Environment & Natural Resources

Tomorrow... Today

Oil and Gas Search for: *api_no_ like '40 047 05095'*		
Page 1 of 1	***Download Database*** (Excel spreadsheet format)	**Page:** 1

Record 1 of 1

Well Information

API No:	40 047 05095	**County:**	FALL RIVER
Well Name:	DOLEZAL 1 DARROW	**Location:**	SESE 2-7S-1E
Permit No:	361	**Total Depth:**	2447
Operator Name:	GEORGE DOLEZAL JR	**Bottom Hole:**	Minnelusa
Permit Date:	07-03-1964	**KB Elevation:**	3797
Spud Date:	07-24-1964	**Ground Elevation:**	3792
Plug Date:	08-19-1964	**Latitude:**	43.466062
		Longitude:	-103.958032
Well Field	WILDCAT	**Status**	P&A
Class:	DRY HOLE	**Type:**	DRY HOLE

Formation Tops

Formation	Depth (ft.)
Dakota Mud	**120**
Lakota	**300**
Morrison	**425**
Sundance	**640**
Spearfish	**918**
Goose Egg	**1240**
Minnekahta	**1479**
Opeche	**1520**
Minnelusa	**1616**
Red Marker	**2032**

Page 1 of 1 (goto top)	**Page:** 1

ORIGINAL WELL CONSTRUCTION DURING OPERATION

API No. 4004705095
2-7S-1E

Surface

Surface Casing
8 5/8", 24#, set @
142' with 60 sx

Perforations
None (DH)

Hole Size
11" (to 145') &
7 7/8" 145'-TD

Total Depth
2447'

PLUGGING AND ABANDONMENT CONSTRUCTION

Surface

10 sx @ Surface

25 sx @ 90'-165'

25 sx @ 325'-400'
(Lakota/Morrison)

25 sx @ 525'-600'
(Morrison)

25 sx 1575'-1650'
(Opeche/Minnelusa)

25 sx 2360' - 2435'
(Minnelusa)

Feet of cement from Plugging Report
Mud wt. Unknown

Surface Casing
8 5/8", 24#, set @
142' with 60 sx

Balance of hole filled with gel-based drilling mud

Total Depth
2447'

STATE PUB. CO., PIERRE

S. Dak. Oil & Gas Board
FORM 7

PLUGGING RECORD

Operator	Address
George Colozal, Jr.	1121 Tower Building, Denver, Colorado

Name of Lease	Well No.	Field & Reservoir
Earl Larson	1	Wildcat

Location of Well	Sec-Twp-Rge or Block & Survey	County
C SW NW Section 2- 7 -21		Fall River

Application to drill this well was filed in name of	Has this well ever produced oil or gas	Character of well at completion (initial production): Oil (bbls/day)	Gas (MCF/day)	Dry?
George Colozal, Jr.	No			✓

Date plugged:	Total depth	Amount well producing when plugged: Oil (bbls/day)	Gas (MCF/day)	Water (bbls./day)
August 19, 1964	2,327'	None	None	None

Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used indicate zones squeeze cemented, giving amount cement.

CASING RECORD

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of perforating casing (shot, ripped etc)	Packers and shoes
8-5/8"	142'	None	142'		

Was well filled with mud-laden fluid, according to regulations?	Indicate deepest formation containing fresh water.
Yes	

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

USE REVERSE SIDE FOR ADDITIONAL DETAIL

Executed this the 27th day of August, 1964

George Colozal Jr.
Signature of Affiant

STATE OF [illegible]
County of [illegible]

Before me, the undersigned authority, on this day personally appeared George Colozal, Jr. 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 duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Subscribed and sworn to before me this 27th day of August, 1964.

SEAL

My commission expires [illegible]

Notary Public in and for [illegible]
County, State of Colorado

DO NOT WRITE BELOW THIS LINE

Approved March 12, 1965
Date

OIL AND GAS BOARD OF THE STATE OF SOUTH DAKOTA

Adam Larson, Secretary

See Instructions On Reverse Side

Approved for release of bond
Date March 9, 1965

State Geologist

Cement plugs set as follows:

25 sacks	"	2435' to 2350'
25 sacks	"	1650' to 1575'
25 sacks	"	500' to 525'
25 sacks	"	400' to 325'
25 sacks	"	165' to 90'

Dry hole marker and 10 sacks at surface.
Balance of hole filled with gel-base drilling mud.

SUMMARY OF WELL DATA

Operator:	George Dolezal Jr., Sun Oil Co., etal.
Lease:	No. 1 Earl Darrow
Location:	C SE SE Section 2, T. 7S., R. 1E. 660' FSL 660' FEL Fall River County, South Dakota.
Elevation:	Ground 3792' K. B. 3797'
Contractor:	Baker Drilling Company Rig No. 3 - Sullivan draw works Tool Pusher: Jim Baker Drillers: Don Garhart Ed Buchannan
Spud Date:	July 24, 1964
Completion Date:	August 19, 1964
Casing:	140' 8-5/8" used 24# @ 142' ground with 60 sacks of regular cement.
Hole Size:	11" cable tool hole to 145' 7-7/8" from 145' to total depth.
Mud:	Mo-Mar Mud Company Casper, Wyoming J. M. Bunce Engineer Gel base
Logging:	Drilling time: From surface casing to total depth (Geolograph) Schlumberger: Dual Induction-Laterlog 147' to 2442' Schlumberger: Sonic Log-Gamma Ray 147' to 2441'
Samples:	10-foot samples 140 - 2100 feet 5-foot samples 2100 - 2250 feet 10-foot samples 2250 - 2450 feet Samples on file at AmStrat in Denver.
Geology:	Well site geology by S. D. Ayres
Lost Circulation:	Lost minor amounts of mud from 1630' to total depth.

SUMMARY OF WELL DATA (continued)

Total Depth:	2450' - Driller 2446' - Schlumberger
Status:	Plugged and Abandoned
Plugs:	2435' to 2360' - 25 sacks 1650' to 1575' - 25 sacks 600' to 525' - 25 sacks 400' to 325' - 25 sacks 165' to 90' - 25 sacks Dry-hole marker and 10 sacks at surface.
Drill Stem Tests:	Schlumberger Formation Tester 1688' to 1690.5' Converse sand. Tool open 30 minutes Tool shut in 23 minutes Recovered 600 cc mud Pressures 0
Cores:	Core #1-2155' to 2206'. First Leo zone (see sample desc.)

ELECTRIC LOG FORMATION TOPS

Formation	Depth	Datum
Fuson	300	+3497
Lakota	350	+3447
Morrison	425	+3372
Sundance	640	+3157
Spearfish	918	+2879
Goose Egg	1240	+2557
Minnekahta	1479	+2318
Opeche	1520	+2277
Minnelusa	1616	+2181
Red Shale Marker	2032	+1765

GEOLOGICAL SUMMARY

The subject well was drilled to a total depth of 2450 feet within a sand that would possibly correlate with the Third Leo sandstone of the Pennsylvanian stratigraphic section in the Lance Creek field.

The Dakota sandstone between the base of the surface casing and 300 feet gave no indications of oil staining

2.

COUNTY:	**FALL RIVER**
LEGAL LOCATION:	**SESE 2-7S-1E**
API NO:	**40 047 05095**
PERMIT NO:	**361**
WELL NAME:	**DOLEZAL #1 DARROW**
OPERATOR:	**GEORGE DOLEZAL, JR.**
PERMIT ISSUED:	**07/03/1964**
PERMIT CLOSED:	**03/12/1965**
FILE LOCATION:	**7S-1E-2 SESE**

TARGET CODES:

WELL HISTORY / CHECKLIST

PERMIT TO DRILL / INTENT TO DRILL

WELL INSPECTION / SCOUT REPORTS

OPERATOR'S TECHNICAL REPORTS / MAPS

ADMINISTRATIVE / SUNDRY REPORTS

CORRESPONDENCE

SURETY

MISCELLANEOUS

WELL HISTORY / CHECKLIST

WELL HISTORY

Well Name Dolezal #1 Darrow Permit No. 361

Location SESE 2-7S-1E - Fall River Date of Permit 7-3-64

Elev. 3792 Gr. API No. _____

Confidential X From 8-20-64 To 2-18-65

Logs Received _____

Cuttings Received _____ Cores Received _____

Drill Stem Records _____

Cap Plug and Marker Set 10-2-64

Surface Restored 10-21-64

Plugging Affidavit Signed _____ Date _____

Bond Released _____ Date 3-12-65

Summary of Scout Reports

7-8-64 First visit - rig was not at location

8-3-64 Spudded 7-24-64

9-19-64 plugged

10-2-64 Marker has been placed - mud pits not filled.

10-21-64 Mud pits filled & surface smoothed.

Wireline test 1688 - 1690.5, Op 30, SI 23, Rec. 600 cc Mud, Press zero.

PERMIT TO DRILL / INTENT TO DRILL

State Pub. Co., Pierre

APPLICATION FOR PERMIT TO:

S. Dak. Oil & Gas Board
FORM 2

☒ DRILL ☐ DEEPEN ☐ PLUG BACK

☐ SINGLE ZONE

☒ OIL WELL ☐ GAS WELL ☐ MULTIPLE ZONE

OPERATOR

George Dolezal, Jr.

ADDRESS

1111 Tower Building, Denver 2, Colorado

LOCATION (In feet from nearest lines of section or legal subdivision, where possible)*

934.5 feet North - 450 East from the southeast corner of Section 3, Township 7 South, Range 1 East

FARM OR LEASE NAME

Carl Larrow

WELL NO.

No. 1

FIELD AND POOL OR WILDCAT

Wildcat

NO. ACRES IN LEASE

320

SEC. TWP. RGE

Sec. 3 Tp. 7 S., Range 1 East

COUNTY

Fall River

NAME AND ADDRESS OF SURFACE OWNER

Carl Jarrow, Edgemont, South Dakota

ELEVATION

3792

PROPOSED DEPTH

2450 ft.

NO. OF WELLS ETC

One

ROTARY OR CABLE TOOLS

Rotary

APPROXIMATE DATE WORK WILL START

July 10, 1964

NAME AND ADDRESS OF CONTRACTOR

Baker Drilling Company, Casper, Wyoming

IF LEASE PURCHASED WITH ANY WELLS DRILLED, FROM WHOM PURCHASED (Name and address)

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	NEW OR SECOND HAND	DEPTH	SACKS OF CEMENT
12¼ inch	8-5/8 inch	24 lbs.	new	150 feet	100

DESCRIBE PROPOSED OPERATIONS. IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOW OUT PREVENTER PROGRAM IF ANY

Principal objective is the Leo Sands of the Minnelusa formation. Proposed to drill to 2450 feet, or to a point 200 feet below the top of the Red Marker and test any zones having significant shows of oil or gas

SIGNED George Dolezal Jr. TITLE Operator DATE July 1, 1964

DO NOT WRITE BELOW THIS LINE

PERMIT NO 361

CHECKED BY Bernard Lien 7/3/64
School and Public Lands Date

APPROVAL DATE July 3, 1964

, Secretary

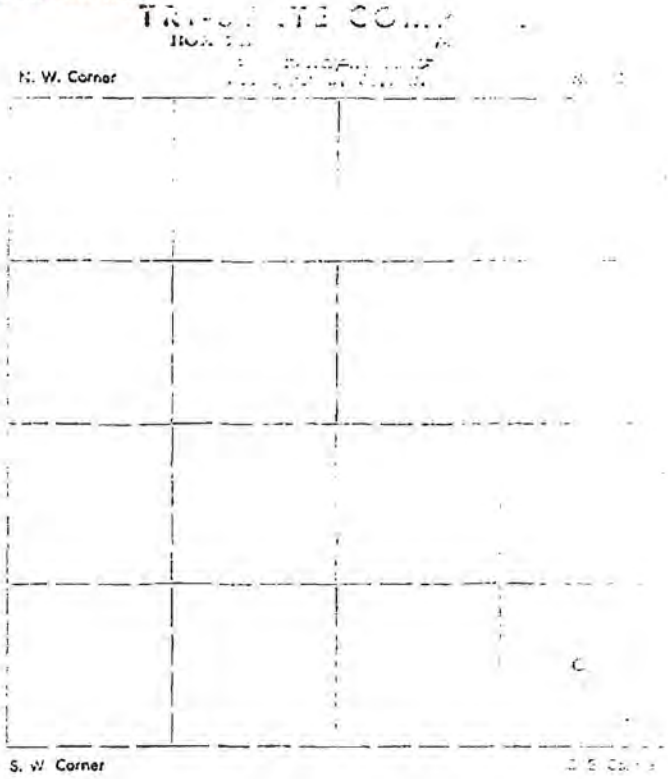
CONDITIONS:

☒ COMPLETE SET OF SAMPLES AND CORES IF TAKEN, MUST BE SUBMITTED.

☐ SAMPLES, AND CORES IF TAKEN, BELOW DEPTH, MUST BE SUBMITTED.

*See Instructions On Reverse Side

SE 200



I, Joseph Dodd

that in accordance with a request from

of Denver, Colo. for

I made a survey (date)

for the location and elevation

of Section 2,

As shown on above map, the

Section 2 Township

Hill River

WELL INSPECTION / SCOUT REPORTS

SCOUT REPORT

Well Name: Dolezal #1 Darrow
Location: 7S-1E-2 SESE, Fall River
Directions: 933.5 FNL and 450 west of SE corner
Spud Date: 7-24-64
Elevation: 3792

Permit Date: 7-3-64
Permit #: 361
API: 40 047 05095
Plug Date: 8-19-64
Total Depth: 2446

DATE					
Dry Hole Mark					
Marker Correct					
Marker Sturdy					
Marker Capped					
Fences Up					
Pits Back Fill					
Site Leveled					
Site Smoothed					
Site Seeded					
Site Clean					
Roads Reclaim					
Approved by					
Not Approved					

Remarks:

7- 8-64: Mud pits has not been dug. Rig was not at location
8- 3-64: Casing 8 5/8 142 feet. By phone from Dolezal - drilling at 977 in Spearfish. Spudded July 24, 1964, set 142' 8 5/8 surface casing with 60 sacks, drilled 0-977'. Geologist Sam Ayres.
8- 6-64: Drilling at 1700 in Minnelusa, drilled from 977-1700. Saple tops: Lakota 320, Morrison 407, Sunsance 600, Spearfish 932, Minnekahta 1472, Opeche 1508
8-13-64: Coring at 2163, drilled from 17-0-02155, Cored from 2155-2163
8-18-64: Drilling at 2429 and preparing to log, drilled from 2162-2429
8-19-64: Plugged 2435-2360 25 sacks Leo Sand
1650-1575 25 sacks Top Minnelusa
600- 525 25 sacks top Sundance
400- 325 25 sacks top Lakota
165- 90 25 sacks base surface casing
10 sacks surface plug

cored 2155-2206 no shows, DST #1 1688-90 12(7) recovered only a little drilling mud-formation tight, drilled 2206-2446, run induction-laterolog and gamma ray sonic. Tentative log tops:

Fuson-300, Lakota-350, Morrison-460, Sundance-640, Basal Sundance sand-866, Triassic-918, Minnekahta-1479, Opeche-1520, Minnelusa-1578, Red Marker-2032, 3rd Leo-2400

9-21-64: Abandonment marker had been placed, mud pits filled and surface smoothed satisfactorily.

signed by Earl Cox

Permit No. 361

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . September 21, 1964

Owner . . . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

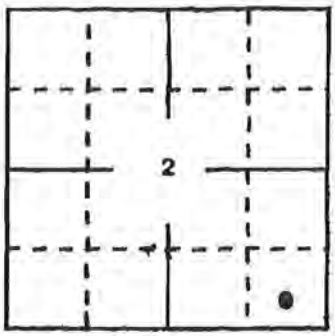
Location: Sec. 2 T. 7 N. S. R. 1 E. M.

. . . . . Fall River . . . . . County, S. Dak. Total Depth . 2446 . . feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

None

Developments since last visit:

Mud pits had been filled and surface smoothed satisfactorily

Remarks and recommendations:

Scouted by . . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . . Duncan J. MacGregor . . . . . .

Duncan J. MacGregor, State Geologist

Permit No. 361

STATE GEOLOGICAL SURVEY

Confidential

Scout Report

Date scouted . Sept. 2, 1964 . . .

Owner . . . . . Dolezal . . . . . .

Designation of well . #1 Darrow . . . . . .

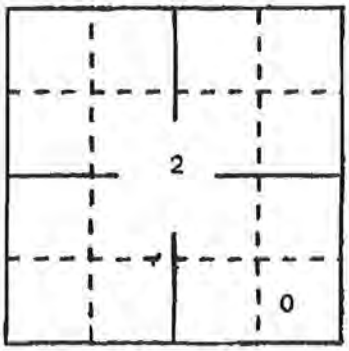
Location: Sec. 2 T. 7 N. S. R. 1 E. W.

. . Fall River . . . . County, S. Dak. Total Depth . 2446 . . feet

Casing Record:

8 5/8 142 Ft. _____Ft.

_____Ft. _____Ft.



Work in progress at time of visit:

None

Developments since last visit:

Abandonment marker had been placed.

Remarks and recommendations:

Mud pits not filled.

Scouted by . . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

Confidential

Permit No. 361

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted August 19, 1964

Owner. . . . . Dolezal . . . . . .

Designation of well. . #1 Darrow . . . . . .

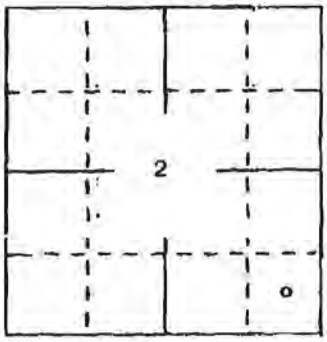
Location: Sec. 2 T. 7 N. S. .R. 1 E. M.

. . . . Fall River . . . . .County, S. D. Total Depth . . 2446. . . . . feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Plugged as follows:

Work in progress at time of visit:

2435-2360	25 sacks	Leo Sand
1650-1575	25 sacks	Top Minnelusa
600-525	25 sacks	Top Sundance
400-325	25 sacks	Top Lakota
165-90	25 sacks	Base surface casing
	10 sacks	Surface plug

Developments since last visit:

Cored 2155-2206 No shows
Dst#1 1688-90½(?) Recovered only a little drilling mud - formation tight
Drilled 2206-2446
Run induction-Laterolog and gamma ray sonic

Remarks and recommendations:

Tentative log tops:

Fuson - 300	Minnekahta - 1479
Lakota - 350	Opeche - 1520
Morrison - 460	Minnelusa - 1578
Sundance - 640	Red Marker - 2032
Basal Sundance Sand - 866	3rd Leo - 2400
Triassic - 918	

Scouted by. . . . . Earl Cox, Geologist . . . . . .

Approved by . . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . August 18, 1964

Owner . . . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

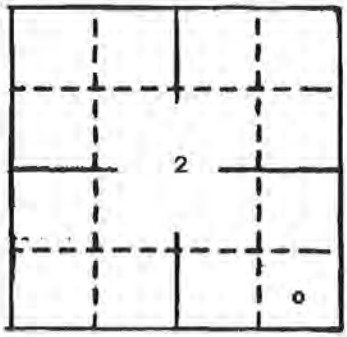
Location: Sec. 2 T. 7 N. S. R. 1 E. M.

. . . Fall River . . . . County, S. Dak. Total Depth . . 2429 . . feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

Drilling at 2429 and preparing to log

Developments since last visit:

Drilled from 2163-2429 (details later)

Remarks and recommendations:

Scouted by . . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . . Duncan J. McGregor, State Geologist . . . . . .

Temporarily confidential

Permit No. 361

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . . . . August 13, 1964

Owner . . . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

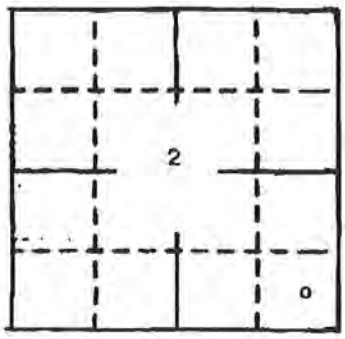
Location: Sec. 2 T. 7 ~~N~~ S. R. 1 E. M.

. . . Fall River . . . . County, S. Dak. Total Depth . . . 2163 . . feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

Coring at 2163

Developments since last visit:

Drilled from 1700-2155
Cored from 2155-2163

Remarks and recommendations:

Scouted by . . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . . Duncan J. McGregor, State Geologist . . . . . .

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted August 6, 1964.

Owner . . . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

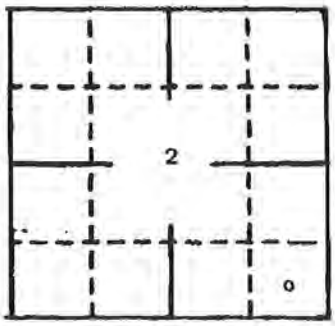
Location: Sec. 2 T. 7 M. S. R. 1 E. W.

. Fall River . . . . . County, S. Dak. Total Depth . 1700 . . feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

Drilling at 1700 in Minnelusa

Developments since last visit:

Drilled from 977-1700

Remarks and recommendations:

Sample tops: Lakota 320
Morrison 407
Sundance 600
Spearfish 932
Minnekahta 1472
Opeche 1508

Scouted by . . . . . Earl Cox, Geologist . . . . . .

Approved by . . . . . .
Duncan J. McGregor, State Geologist

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted August 3, 1964.

Owner . . . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

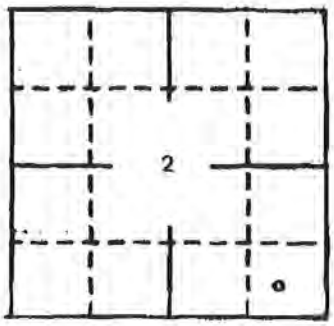
Location: Sec. 2 T. 7 ~~N~~ S. R. 1 E. ~~W~~.

. . Fall River . . . . County, S. Dak. Total Depth 977 . . .feet

Casing Record:

8 5/8 142 Ft. _____ Ft.

_____ Ft. _____ Ft.



Work in progress at time of visit:

By phone from Dolezal

Drilling at 977 in Spearfish

Developments since last visit:

Spudded July 24, 1964
Set 142' 8 5/8" surface casing with 60 sacks.
Drilled 0-977'

Remarks and recommendations:

Geologist: Sam Ayres, Rainbow Motel, Edgemont, South Dakota

Scouted by . . . . . Earl Cox, Geologist

Approved by . . . . . Duncan J. McGregor

Duncan J. McGregor, State Geologist

API ID 40 047 05095
First Report

Permit No. 361

STATE GEOLOGICAL SURVEY

Scout Report

Date scouted . July 8, 1964.

Owner . . . Dolezal . . . . . .

Designation of well . . #1 Darrow . . . . . .

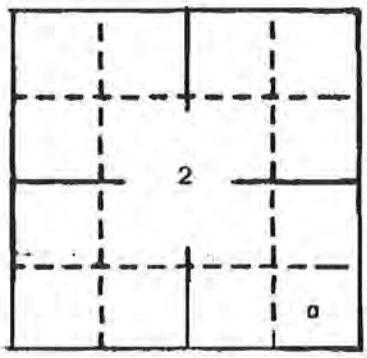
Location: Sec. 2 T. 7 N. S. R. 1 E. M.

. . . . . County, S. Dak. Total Depth . . . 0 . .feet

Casing Record:

_____Ft. _____Ft.

_____Ft. _____Ft.



Work in progress at time of visit:

Mud pits had not been dug
Rig was not at location

Developments since last visit:

Remarks and recommendations:

Scouted by . . . Earl Cox, Geologist . . . . . .

Approved by . Duncan J. McGregor . . . . . .

Duncan J. McGregor, State Geologist

Aug 18, '64
7:30 PM
T.D. 2446

25' 24 2435 - 2360 [illegible]

25' 24 1575 - 1650 T. Ml
~~[illegible]~~

25' 24 585 - 600 T. Sun.
25' 24 325 - 400 Lak.

~~[illegible]~~

25 165 - up Surface.

Tops

135 24.

Logger dual induction Schlumberger

7 7/8 hole

Cored 2155 - 2206
no shows.

Room 11 - Sonlyms

Chuck Reiling - Superior

Hupp Hotel - 662-7312

DST #1
1688 - 90½

~~[illegible]~~
No Recovery at all
[illegible]

Aug 19, 1964
DST #1 Run
to test plugged

Confidential
Log copy - Tentative.

300	Fusam
350	Lak
460	Morr.
640	Sun
~~[illegible]~~ 866'	Basal Sundance Sd.
718	Triassic
1479	mnk
1580	OP
1578	Ml
2032	Red marker
2400	3rd Leo
	3rd Leo

T.D. 2446

~~[illegible]~~
~~to [illegible]~~
Sept 2, 1964

Marker in O.F.
pits not filled

Sept. 2, 1964
Letter from Dolezal: wants
to continue keeping samples
& Schlumberger logs confidential.

Sept. 21, 1964
pits filled & surface
leveled satisfactorily

Dolezal #1 Darrow
C SESE-2-7S-1E
Fall River County.

Geo. Dolezal Jr.
1121 Tower Bld. Denver 2

Surface
Earl Darrow - Dewey, S.D.

Contractor
Baker Drilling Co.

Elev: Gd 3792
KB 3797

Permit: July 3 64 No. 361
T.P. 2450 (Leo or 400 below Red marker)

Plan to Start July 10

July 8, 1964
No pits or Rig Could be located.

July 13, 64
Could find nothing neither pits or Rig.

July 30, 1964
Called Dodge. He said Baker Had his Rig Tore down & that Holwell had spudded July 24 and was going to set surface for Baker.

Aug 3, 1964
Phone call from Dolezal
Spudded July 24
Set 8 5/8 - 143' G.L. 600#
Morning Aug 3 at 977 in Spearfish
Geol: 10 Sam Ayres - Rawlins

Aug 6, 1964
@ 1700' in Mrl.

Sample tops:
Lak 320
Mor 407
Sun 600
Sp 932
Mk 1472
Op 1508

Est T.D. Aug 13

Aug 13
Coring at 2155-63
no DST or other Cores
Taken.
Was drilling so slow they thought that Coring was faster. Coring at 30 min/ft.

Phone from Ayres.
@ 2429 and will drill about 10 more feet and log.
Gamma Ray Sonic w/ Caliper + dual induction-laterolog.

~~Program~~ Exploration
plan:
~~20' Leo Top - 25 ea~~
~~top Mul - 25~~
~~top Skinner 25~~
~~Lak 25~~
~~base surface 25~~
~~10 sx surface + Marker~~

Should log by Sunday & then plug.