

# Subsequent Report of Abandonment

## FILE NOTATIONS

Entered in NID File   
Entered On S R Sheet   
Location Map Pinned   
Card Indexed   
IWR for State or Fee Land

Checked by Chief PWB  
Copy NID to Field Office   
Approval Letter   
Disapproval Letter

## COMPLETION DATA:

Date Well Completed 7-30-63

Location Inspected \_\_\_\_\_

OW \_\_\_\_\_ WW \_\_\_\_\_ TA \_\_\_\_\_

Bond released \_\_\_\_\_

GW \_\_\_\_\_ OS \_\_\_\_\_ PAL

State of Fee Land \_\_\_\_\_

## LOGS FILED

Driller's Log 8-13-63

Electric Logs (No. ) 2

E \_\_\_\_\_ I \_\_\_\_\_ E-I  GR \_\_\_\_\_ GR-N \_\_\_\_\_ Micro \_\_\_\_\_

Lat \_\_\_\_\_ Mi-I \_\_\_\_\_ Sonic  Others \_\_\_\_\_

2-19-97 JH

Checked ~~to~~ <sup>of</sup> page and worth of location  
can be approved due to rough terrain and ~~of~~ <sup>of</sup> ~~rest~~ <sup>rest</sup>. —  
Called Mr. Rod Giddes June 3, 1963 and verified  
said location as being worthless due to topography. Mr. Giddes  
will send a letter requesting an easement to State C-3. PMB

*Copy H. L. E.*

Budget Bureau No. 42-2284.  
Form Approved.

	(B)	
		X

**(DUPLICATE IN TRIPLICATE)**  
**UNITED STATES**  
**DEPARTMENT OF THE INTERIOR**  
**GEOLOGICAL SURVEY**

Land Office Salt Lake  
 Lease No. 11-88151-A  
 Well Paradise Lake  
 (pending)

**SUNDRY NOTICES AND REPORTS ON WELLS**

NOTICE OF INTENTION TO DRILL.....	<input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....		SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....		SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....		SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

*Summitt* ✓

May 25, 1963, 19

Paradise Lake

Well No. 43-8 is located 2203 ft. from [S] line and 437 ft. from [E] line of sec. 8

*NE* NE 1/4 SE 4 25 South 4 East Salt Lake  
(Of Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Wildcat Sevier Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 8928 ft.

**DETAILS OF WORK**

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudlogging jobs, cementing points, and all other important proposed work)

(See attached drilling program)

JUN 1 1963

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Pacific Natural Gas Exploration Company ✓  
 Address 366 South Fifth East  
Salt Lake City, Utah  
322-2583  
 By R. D. Geddes  
R. D. Geddes  
 Title Petroleum Engineer

# OIL WELL LOCATION CERTIFICATE

COMPANY Pacific Natural Gas Exploration Company

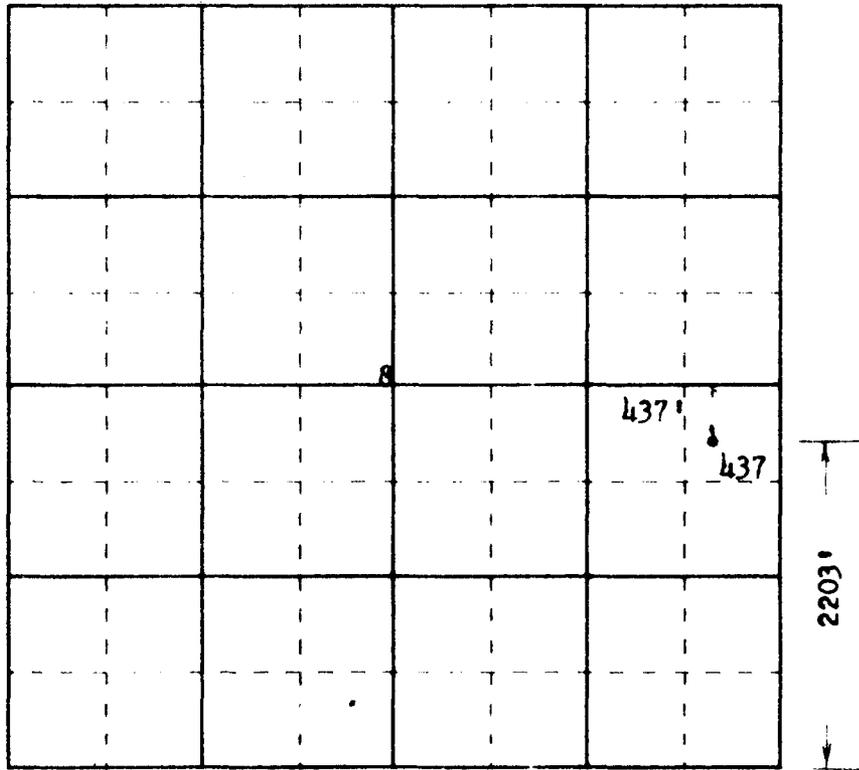
Well Name and No. \_\_\_\_\_ Lease No. \_\_\_\_\_

Location 437 feet from the East line and 2203 feet from the South line

Being in the NE $\frac{1}{4}$  NE $\frac{1}{4}$  SE $\frac{1}{4}$

Section 8, T. 25 S, R. 4 E, S1M Sevier County, Utah

Ground Elevation 8928



Scale—4 inches equals 1 mile

Surveyed May 25, 19 63

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

*Carl Nyman*  
Registered Professional  
Engineer and Land Surveyor



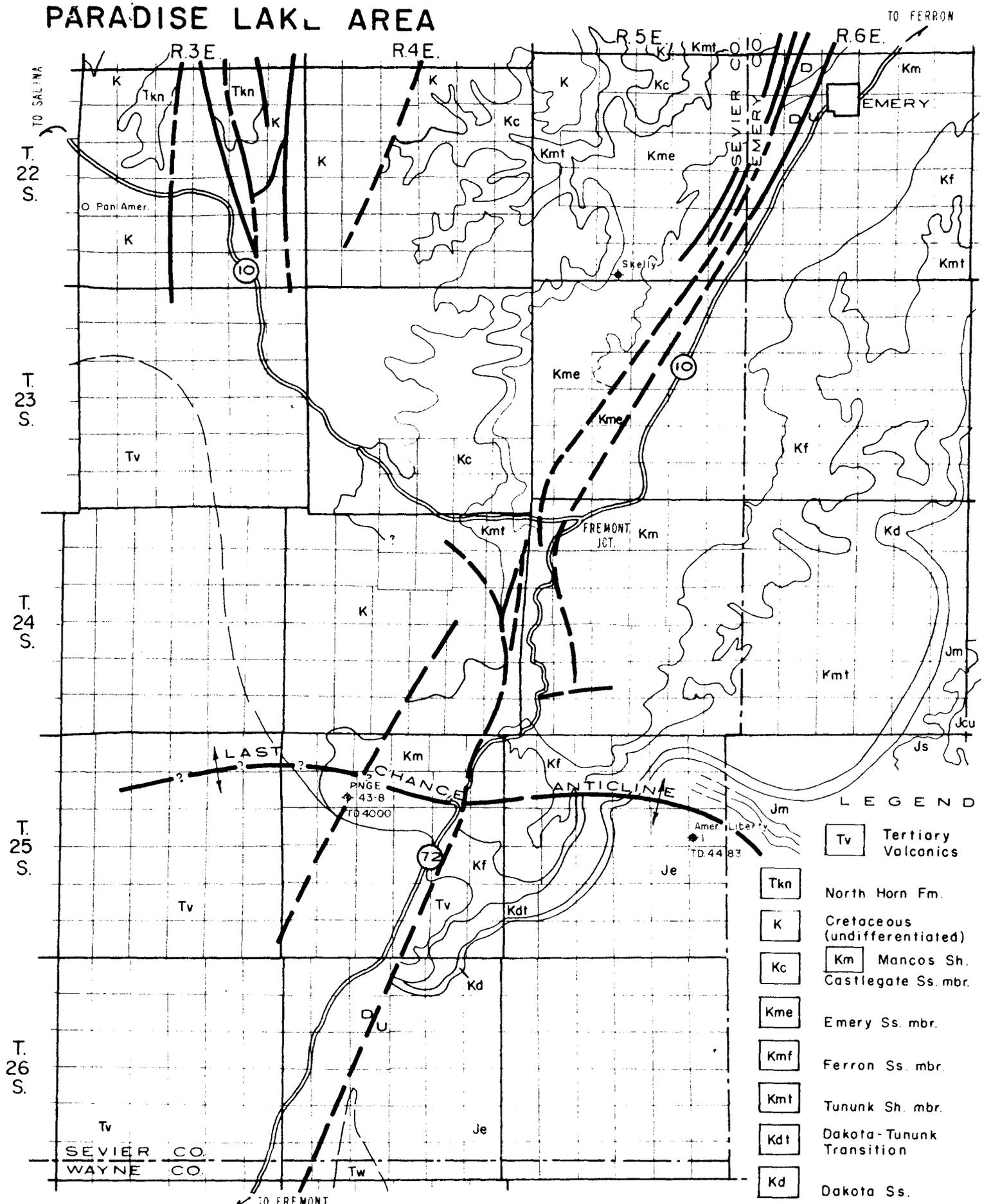
PACIFIC NATURAL GAS EXPLORATION COMPANY  
COMPLETION REPORT

Well: Paradise Lake Unit 43-8  
Location: NE, SE, Sec. 8, T 25 S, R 4 E  
2203 FSL, 437 FEL  
Sevier County, Utah  
Area: Paradise Lake Unit, Fish Lake National Forest  
Elevation: 8928 Gr. 8939.5 K.B.  
Spud: June 25, 1963  
Completed: July 30, 1963, Dry and Abandoned  
Total Depth: 4000' in Cedar Mountain Shale  
Objectives: Ferron and Dakota Sands  
Results: Both objectives well developed, wet  
Contractors: Barker Well Service, Vernal, Utah  
Service Mud Company, Duchesne, Utah  
Portable Engineers, Farmington, New Mexico  
Brown Brothers, Loa, Utah

Geologic Tops:	Depth	Sub Sea	Thickness
Mancos Formation			
Blue Gate Shale	170'	+8758	2175
Ferron Sand	2245'	+6683	770
Tununk Shale	3015'	+5913	820
Dakota Formation	3835'	+5093	145
Cedar Mtn. Fm.	3970'	+4958	
Total Depth	4000'		

Compiled by James B. Lindsay  
JBL/lc

# PARADISE LAKE AREA



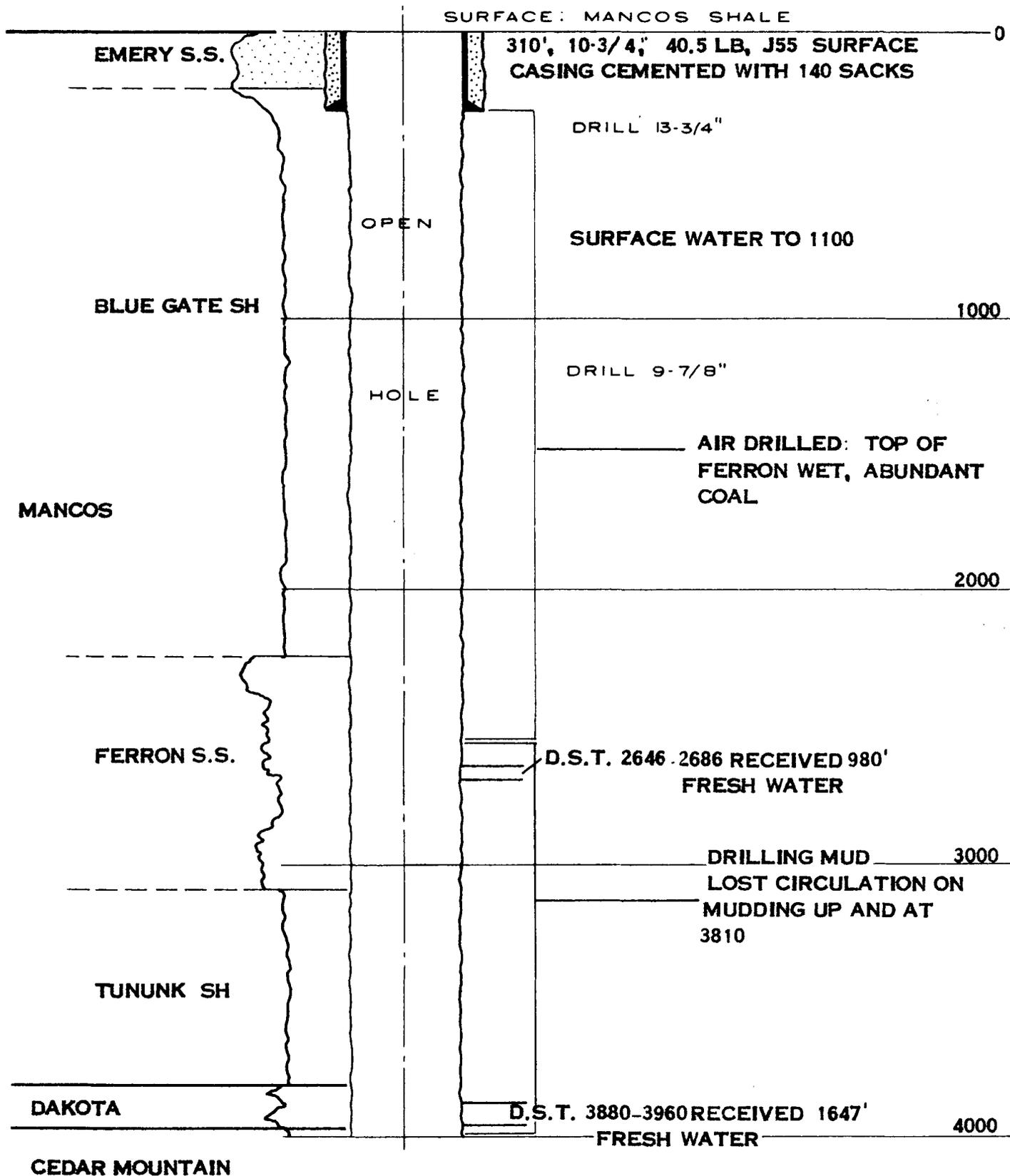
## LEGEND

- Tv Tertiary Volcanics
- Tkn North Horn Fm.
- K Cretaceous (undifferentiated)
- Kc Mancos Sh. Castlegate Ss. mbr.
- Kme Emery Ss. mbr.
- Kmf Ferron Ss. mbr.
- Kmt Tununk Sh. mbr.
- Kdt Dakota-Tununk Transition
- Kd Dakota Ss.
- Jcu Curtis Fm.
- Jm Morrison Fm.
- Js Summerville Fm.
- Je Entrada Fm.

Paradise Lake No. 43-8

# PARADISE LAKE UNIT 43-8 Sevier County, Ut.

## SCHEMATIC ILLUSTRATION OF DRILLING PROGRESS



VERT. SCALE - 2" = 1000 FT.  
HORIZONTAL - 1" = 1'-0"

PROPOSED DRILLING PROGRAM  
For  
PARADISE LAKE WELL  
SE $\frac{1}{4}$  Section 8, Township 25 South, Range 4 East  
Sevier County, Utah

The following program of drilling, testing, and completing the Paradise Lake well is proposed. The location for the test well is in the Southeast 1/4 of Section 8, Township 25 South, Range 4 East, Sevier County, Utah. The location is in extremely rugged country and is at an elevation in excess of 9,000 feet. Approximately four miles of road work will be required to reach the location from an existing gravel road. The exact location will be dictated by Forest Service requirements of minimum timber removal.

1. Move in, rig up, and drill 13-3/4-inch hole with air to the base of the fresh water measures (maximum depth estimated to be 300 feet).
2. Run and cement an estimated 300 feet of 10-3/4-inch, 40.5 pound, J-55 casing with 120 sacks of Class A cement (20 percent excess). If cement returns are not obtained at the surface, the annulus between the casing and hole should be filled with cement through small diameter pipe. Cement to set 24 hours before drilling out.
3. Install B.O.P.E. and pressure test casing with 800 pounds to 1,000 pounds for 15 minutes.
4. Drill out cement with 9-7/8-inch bit and blow hole dry.
5. Air drill 9-7/8-inch hole as directed. Expected formation tops and total depth are as follows:

Ferron	2,300 feet
Dakota	3,700 feet
Total Depth	4,000 feet

6. Samples of formation cuttings should be collected at 10 foot intervals beginning at 2,200 feet.
7. Deviation surveys will be run at 200 foot intervals. The deviation will be kept within 1 degree per 100 feet of hole with the total accumulative deviation not to exceed 1 degree per 1,000 feet of total hole.
8. If the Ferron Sand is wet as determined after penetrating the entire Ferron section (estimated depth of 3,100 feet), proceed as follows:
  - a. Run Gamma-Induction log.
  - b. Run and cement 7-5/8-inch, 26.4 pound, J-55, ST & C casing with 615 sacks of Class A cement (10 percent excess) to provide a fillup behind the casing to the surface. Cement to set 36 hours before drilling out.
  - c. Run in with 6-3/4-inch bit to top of cement. Pressure test 7-5/8-inch casing with 2,000 pounds for 30 minutes.
  - d. Drill out cement and drill out 5 feet below shoe of 7-5/8-inch casing.
  - e. Run packer with perforated tail and pressure recorders on dry drill pipe. Set packer 20 feet to 25 feet above casing shoe. Open tester for one hour to test effectiveness of cement job of the 7-5/8-inch casing.
  - f. If test shows water entry, squeeze cement shoe of 7-5/8-inch casing.
  - g. If test shows no water entry, blow hole dry and air drill ahead with 6-3/4-inch bit as directed.

PROPOSED DRILLING PROGRAM For PARADISE LAKE WELL (Continued)

9. If the Ferron Sand is gas bearing or does not contain water, reduce hole size to 6-3/4-inch and drill ahead from 3,100 feet to total depth (4,000 feet).
10. Run Gamma-Induction, Formation Density-Caliper and Temperature Logs.
11. Run and cement 4-1/2-inch, 13.5 pound, N-80 and 11.6 pound, J-55 casing as follows:
  - a. If 7-5/8-inch casing has been set through the Ferron sand, set 4-1/2-inch, 13.5 pound, N-80 liner from 4,000 feet to 3,000 feet. Use sufficient cement to fill to the shoe of the 7-5/8-inch casing.
  - b. If no 7-5/8-inch casing has been set through the Ferron Sand, run a full string of 4-1/2-inch, 13.5 pound, N-80 and 11.6 pound, J-55 casing and cement the Ferron and Dakota sections in two separate stages. Cement to set 36 hours.
12. Clean out cement to the shoe of the 4-1/2-inch liner or casing.
13. Perforate and frac as directed. Frac with liquid CO<sub>2</sub> if possible.
14. Run tubing and complete well as directed.
15. A flare will be kept ignited at the end of the blooie line during all air drilling operations.
16. Blowout equipment will include a hydraulically operated Shaffer double gate.
17. The rig will be equipped with a two-way telephone or radio telephone to facilitate the co-ordination of all operations.

RDG:des  
4/17/63

June 3, 1963

Pacific Natural Gas Exploration Company  
366 South Fifth East  
Salt Lake City, Utah

Attention: R. D. Geddes, Petroleum Engineer

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Paradise Lake 43-8, which is to be located 2203 feet from the south line and 437 feet from the east line of Section 8, Township 25 South, Range 4 East, SLEM, Sevier County, Utah.

Please be advised that insofar as this office is concerned approval to drill said well on said unorthodox location is hereby granted in accordance with Rule C-3(c), General Rules and Regulations and Rules of Practice and Procedure, Utah State Oil and Gas Conservation Commission.

As soon as you have determined that it will be necessary to plug and abandon the above mentioned well, you are hereby requested to immediately notify the following:

PAUL W. BURCHELL, Chief Petroleum Engineer  
Office: DA 8-5771 or DA 8-5772  
Home: CR 7-2890  
Salt Lake City, Utah

This approval terminates within 90 days if the above mentioned well has not been spudded in within said period.

Enclosed please find Form OGCC-8-X, which is to be completed

Pacific Natural Gas  
Exploration Company

-2-

June 3, 1963

if water sands (aquifers) are encountered while drilling,  
particularly assessable near surface water sands.

Your cooperation with respect to completing this form  
will be greatly appreciated.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT  
EXECUTIVE DIRECTOR

CBF:cnp

cc: Don Russell, District Engineer  
U. S. Geological Survey  
Salt Lake City, Utah

H. L. Coonts, Petroleum Engineer  
Oil & Gas Conservation Commission  
Moab, Utah

210

PACIFIC NATURAL GAS EXPLORATION COMPANY

940

366 SOUTH FIFTH EAST  
SALT LAKE CITY 2, UTAH

June 4, 1963

Utah Oil and Gas Conservation Commission  
Newhouse Building  
Salt Lake City, Utah

Attention: Mr. Paul W. Burchell

Subject: Paradise Lake No. 43-8  
NE NE SE Sec. 8-T25S-R4E, SLM  
Sevier County, Utah

Dear Mr. Burchell:

We recently filed a notice of intention to drill the above captioned well at a location 2203' North of the South line and 437' West of the East line of Section 8, Township 25 South, Range 4 East, S.L.M. The subject location does not conform to your spacing requirements, however the existing topography renders it virtually impossible to drill the well at the conventional "center of a quarter-quarter section" location.

Our interest in the subject well stems from a farmout agreement with Continental Oil Company. Pacific and Continental are the sole lessees in Sections 8 and 9, Township 25 South, Range 4 East.

In light of the foregoing, we request that our notice of intention to drill, although not conforming to your Rule C-3, be approved. ✓

*not approved*

Very truly yours,

*R. D. Geddes by jrb*  
R. D. Geddes  
Petroleum Engineer

RDG/jt

H.

*Ray H. E.*  
**UNITED STATES**  
**DEPARTMENT OF THE INTERIOR**  
**GEOLOGICAL SURVEY**

Form approved.  
 Budget Bureau No. 42-R356.5  
**Salt Lake**  
 LAND OFFICE  
 LEASE NUMBER **U-00151 A**  
 UNIT **Paradise Lake (pending)**

## LESSEE'S MONTHLY REPORT OF OPERATIONS

State Utah County Sevier Field Wildcat  
 The following is a correct report of operations and production (including drilling and producing wells) for the month of June, 19 63, Pacific Natural Gas  
 Agent's address 366 South Fifth East St. Company Exploration Company  
Salt Lake City 2, Utah  
 Signed R. D. Geddes  
322-2583 Agent's title Petroleum Engineer

SEC. AND 1/4 OF 1/4	TWP.	RANGE	WELL NO.	DAYS PRODUCED	BARRELS OF OIL	GRAVITY	CU. FT. OF GAS (in thousands)	GALLONS OF GASOLINE RECOVERED	BARRELS OF WATER (if none, so state)	REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
<b>NE 1/4 SE 1/4</b> <b>8</b>	<b>25S</b>	<b>4E</b>	<b>43-8</b>							<p style="text-align: center;"><i>Paradise Lake</i></p> <p>Spud at 11 pm 6-25-63            Drilled 9 7/8" hole with mud to 325'.            Ran and cemented 10 3/4", 40.5#, J-55 casing at 310' with 140 sacks including 4% CaCl<sub>2</sub>.            Drilled 9 5/8" hole with air to 764'.</p>

NOTE.—There were No runs or sales of oil; No M cu. ft. of gas sold;  
No runs or sales of gasoline during the month. (Write "no" where applicable.)  
 NOTE.—Report on this form is required for each calendar month, regardless of the status of operations, and must be filed in duplicate with the supervisor by the 6th of the succeeding month, unless otherwise directed by the supervisor.

610

Copy H-L &

Form approved, Budget Bureau No. 42-R356.5.

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

LAND OFFICE Salt Lake LEASE NUMBER U-00151 A UNIT Paradise Lake (pending)

LESSEE'S MONTHLY REPORT OF OPERATIONS

State Utah County Sevier Field Wildcat The following is a correct report of operations and production (including drilling and producing wells) for the month of July, 1963, Pacific Natural Gas Agent's address 366 South Fifth East Street Company Exploration Company 322-2583 Signed R. D. Eddes K. D. Eddes Agent's title Petroleum Engineer Phone

Table with 10 columns: SEC. AND 1/4 OF 1/4, TWP., RANGE, WELL NO., DAYS PRODUCED, BARRELS OF OIL, GRAVITY, CU. FT. OF GAS (In thousands), GALLONS OF GASOLINE RECOVERED, BARRELS OF WATER (If none, so state), REMARKS. Includes handwritten 'Paradise Lake' and detailed drilling logs for DST No. 1 and 2.

NOTE.—There were no runs or sales of oil; no M cu. ft. of gas sold; no runs or sales of gasoline during the month. (Write "no" where applicable.) NOTE.—Report on this form is required for each calendar month, regardless of the status of operations, and must be filed in duplicate with the supervisor by the 6th of the succeeding month, unless otherwise directed by the supervisor.

600  
17D  
17D  
file

Copy H.L.C.

48  
50

Form 9-331a  
(Feb. 1961)

Budget Bureau No. 42-R358.4  
Form Approved.


(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office \_\_\_\_\_  
Lease No. \_\_\_\_\_  
Unit \_\_\_\_\_

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....		SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....		SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....		SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....		SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

July 31, 1963

Well No. 43-8 is located 2203 ft. from S line and 437 ft. from E line of sec. 8

NE SE 25S 4E Salt Lake  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Paradise Lake Unit Sevier County Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 8938 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

As per U.S.G.S. instructions the following plugs have been set:

3800-4000	50 sacks
2950-3050	50 sacks
2225-2725	100 sacks
2350-2450	50 sacks
500- 600	50 sacks
275- 325	25 sacks
Surface Marker	10 sacks

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Pacific Natural Gas Exploration Company

Address 366 South 5th East

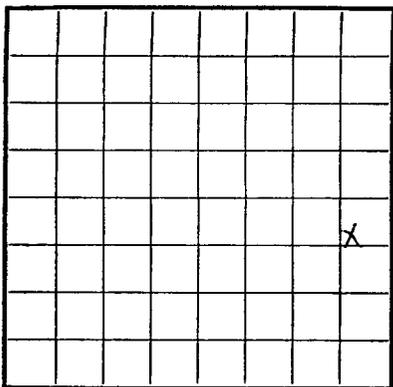
Salt Lake City, Utah

By James B. Lindsay  
James B. Lindsay  
Title Drilling Supervisor

11

1-2-63 DW

U. S. LAND OFFICE  
SERIAL NUMBER  
LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Pacific Natural Gas Exploration Address 366 South 5th East

Lessor or Tract Paradise Lake Unit Field State Utah

Well No. 43-8 Sec. 8 T25S R. 4E Meridian Salt Lake County Sevier

Location 2263 ft. [N.] of S. Line and 437 ft. [E.] of W. Line of Sec. 8 Elevation 8938  
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed James B. Lindsay Title Drilling Supervisor

Date August 5, 1963

The summary on this page is for the condition of the well at above date.

Commenced drilling June 25, 1963 Finished drilling July 30, 1963

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from to No. 4, from to

No. 2, from to No. 5, from to

No. 3, from to No. 6, from to

IMPORTANT WATER SANDS

No. 1, from to No. 3, from to

No. 2, from to No. 4, from to

CASING RECORD

Table with columns: Size casing, Weight per foot, Threads per inch, Make, Amount, Kind of shoe, Cut and pulled from, Perforated (From-To), Purpose.

MUDDING AND CEMENTING RECORD

Table with columns: Size casing, Where set, Number sacks of cement, Method used, Mud gravity, Amount of mud used.

PLUGS AND ADAPTERS

Heaving plug—Material Length Depth set

Adapters—Material Size

SHOOTING RECORD

FOLD MARK





STATE OF UTAH  
 OIL & GAS CONSERVATION COMMISSION  
 310 NEWHOUSE BUILDING  
 SALT LAKE CITY 11, UTAH

REPORT OF WATER ENCOUNTERED DURING DRILLING

Well Name & Number: Paradise Lake Unit 43-8

Operator Pacific Natural Gas Address 366 South 5th Phone DA2-2583  
Exploration Company East, S.L.C.

Contractor Barker Well Service Address Vernal, Utah Phone \_\_\_\_\_

Location: NE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> Sec. 8 T.25 E R. 4 S Sevier County, Utah

Water Sands:

	<u>Depth</u>		<u>Volume</u>	<u>Quality</u>
	<u>From</u>	<u>To</u>	<u>Flow Rate or Head</u>	<u>Fresh or Salty</u>
1.	<u>300</u>	<u>1100</u>	<u>5 to 15 bbl/hr</u>	<u>fresh</u>
2.	<u>2400</u>	<u>3000</u>	<u>30 bbl/hr</u>	<u>fresh</u>
3.	<u>3835</u>	<u>3860</u>	<u>1647' rise on DST</u>	<u>fresh</u>
4.				
5.				

Formation Tops:

Mancos Fm  
 Blue Gatesh 170  
 Ferron Sd 2245  
 Tunnuk Sh 3015  
 Dakota Fm 3835  
 Cedar Mountain Fm 3970

Total Depth 4000

Note: (a) Upon diminishing supply of forms, please inform the Commission  
 (b) Report on this form as provided for in Rule C-20, General Rules and Regulations and Rules of Practice and Procedure. (See back of form)

## GEOLOGIC INTERPRETATION

### PARADISE LAKE UNIT 43-8

The Paradise Lake Unit is located in the Central Plateau, or Transition Belt between the stable Colorado Plateau, and the more recently active Great Basin. The unit is better assigned perhaps to the more stable province. Dips are shallow, 10 degrees or less, and broad folds of the east-west trending Last Chance Anticline are still preserved. It is on this structure that the 43-8 well was drilled.

The Last Chance Structure has been explored extensively to the east, but where the productive Ferron and Dakota Sands are eroded away.

Skelley's Emery Unit No. 1, 14 miles due north is the closest well that has penetrated the Cretaceous Mancos, and Dakota Formations. Both the Ferron Sand of the Mancos, and the Dakota were better developed than in our Ferron Unit 41-22, which produces from the Ferron Sand, but is about 30 miles north of the Paradise Lake Unit. Implication was that both sands should be better developed to the south.

The Paradise Lake Unit is located on a closed structure in that a north-south boundary fault cuts it on the east and nosing closes it to the west, the faulted fold being on the Last Chance trend.

Excellent sand development in both Ferron and Dakota Sections was encountered. Good porosity and permeability were found, but unfortunately both were wet.

The presence of dead oil, tar, and carbonaceous matter indicates that hydrocarbons were once present. It is believed the faulting has created avenues whereby extensive water has flushed the oil. Where to, is yet to be determined. Good structural development, excellent sands, and little previous exploration, make the Paradise Lake Unit and adjacent areas along the Last Chance trend an area of great potential.

Dakota Sands show current bedding typical of fairly deep water, whereas the silty Upper Dakota Section contains an excellent assemblage of fossils. This assemblage represents a death accumulation in that shells are not connected, and show orientation opposite to that which the animals assume in life. These fossils are chiefly of the Pelecypod Class, benthonic, littoral to neritic.

Interbedded argillites, within the Dakota Cores, change color from gray to green rapidly. Possibly implying a deeper basin of deposition. At any rate, a rather unstable period existed during Dakota time, but favorable for good marine sand and shale development.

## WELL HISTORY

June 25, 1963 Spud well 11:00 p.m.  
 26 170' Drlg, 9 7/8" hole, Deviation 1/2 degree at 132'.  
 27 325' P.T.D. Reaming 240', prepare to set surface casing.  
 28 Casing - 10 3/4", 40.5 #/ft., J-55, cement at 310' w/  
 140 sacks reg. cement w/ 4% CaCl W.O.C.  
 29 310' P.T.D. tested BOP to 800 psi for 30 min. WSO okay,  
 prepare to C.O.  
 30 763' Drlg. Making 15-18 bbls. water/hour.  
 July 1, 1963 955' Drlg with air and soap injection.  
 2 1420' Drlg, blk sh  
 3 1600' P.T.D. down for repairs  
 4 1982' Drlg, blk sh, water 20 bbls/hr.  
 5 2380' Drlg, Spl top of Ferron 2245'  
 6 2507' Drlg, w/ air and soap, water entry increased to  
 45 bbls/hr. at 2400'. Hole caving. Prepare to convert  
 to drlg mud.  
 7 2507 P.T.D., Lost circulation while converting from air  
 to mud.  
 8 2507' P.T.D. Conditioning hole in 300' stages, bridges  
 at 1355' and 1410'.  
 9 2507' P.T.D. C.O. to 2480', conditioned hole, drilled  
 ahead, and lost circ. lmm.  
 10 2507 P.T.D. C.O. to bottom, regained circ., conditioned  
 hole 2 hrs, prep to resume drlg.  
 11 2565' Drlg SS  
 12 2690' Drlg SS  
 13 2775' Drlg Sh and Sd, Mud loggers on location.  
 14 2905' Drlg SS and Sh  
 15 3002' P.T.D., laid down 4 1/2 D.P., Prep to reline hole from  
 9 5/8 to 6 3/4.  
 16 3096' Drlg, drk gry sh. Spl top tununk sh 3010'.  
 17 3285' Drlg, drk gry sh.  
 18 3465' Drlg, drk gry sh.  
 19 3610' Drlg  
 20 3761' Drlg  
 21 3810' P.T.D., Lost circulation.  
 22 3810' P.T.D., Lost circulation.  
 23 3810' P.T.D., Circulation regained, prep to C.O.

### Core No. 1

3819 - 3879' recovered 60'  
 3819 - 3829, 10' Shale, drk gry, silty, massive, hard,  
 no fissility or bedding, good horiz. break on frac.  
 3829 - 3839, 10' Siltstone, gry-lgt gry, massive fair por  
 and perm, occ coal showing wood outline.  
 3839 - 3852, 13' Siltstone, gry-lgt gry, highly fossiliferous  
 (lg mega fossils, pelecypod assem, some up to 1 1/2") Shells  
 show orientation indicating flat dip.  
 3852 - 3877, 25' Siltstone, argillaceous, abd fossils as  
 above, excell. vert frac.  
 2877 - 3879, 2' Mudstone, gry, massive, hard, highly frac.  
 No fossils.

- Core No. 2 3879 - 3890 recovered 11'  
 Sandstone: gry - lgt gry, med-fg, well sorted, angular-subrounded, well unt'd, calcite cement, gd por and perm. No show.  
 Note: A very slight amount of gilsonite mud produces an excellent cut with carbon tet, giving a bright yellow flour. Cores on fresh break appear clean and gry, but after exposure to the air they turn a light brn, and produce a sli cut even though there is no flour. on a fresh break.
- Core No. 3 3890 - 3902' recovered 12'  
 3890 - 3897, 7' Siltstone: sdy vfg, gry-lft gry, poorly bedded, frac 45 degrees-30 degrees, numerous drk carb. streaks sub parallel to frac., good por and perm. No show.  
 3897 - 3902, 5' Sandstone: gry-lgt gry, m-fg, angular - subrounded, hard, calcite cement, gd por and perm, 30 degrees frac., poorly bedded. No shows.
- Core No. 4 3902 - 3939 Cut 37' recovered 29'  
 8" Argillite with mixed pockets of m-fg sd. gry-drk gry, sd lgt gry, hard,  
 2' Sandstone: gry-lgt gry, fg, silty, massive, no bedding, slump struc occ, abd carb matter as sub-parallel viens to 20 degrees-30 degrees dip, highly pyritic in frac., good vert. fracs.  
 4' Argillite: gry, massive, upper 6" thin bedded, no dip, abd. blk residue on bedding (upper bedding), grades to gry green on bottom, gd vert. frac.  
 1½' Siltstone: sdy, argillaceous, lgt gry-gry, massive, hard, gd vert. frac.  
 4' Argillite: lgt gry-lgt brn, silty, massive occ poorly bedded silt stringers sag no dip, gd vert. frac.  
 3' Siltstone: lgt gry-lgt grn, Silty, massive, abd coal and carb res, abd pyrite.  
 6' Argillite: lgt gry-lgt grn, silty, massive, abd coal and carb residue, abd pyrite.  
 8' Sandstone: vfg, lgt gry, silty, abd carb res as poorly oriented stringers at about 40 degree dip, grns, qtz, angular subrounded, calcite cement, gd por and perm, No show.
- Core No. 5 3939 - 3960' recovered 21'  
 3939 - 3946', 7' Siltstone: sdy, gry, hd, tight, 30 degree fracture, abd thin parallel to sub-parallel coal and carb seams.  
 3946 - 3960' Argillite: gry-blk, massive, hd, 80 degree frac and gd horiz. frac. abd small coal lenses on horiz plane, bottom 7', highly fraq, highly carb, abd coal. No shows.
- July 27 D.S.T. No. 1 3880 - 3960, Dakota Formation  
 open tool 7:40 a.m., SI 30, Opn 60, SI 30, opened with a fair blow, incr to good blow in 5 min. Remained steady 35 min., decr to weak by end of test. Recovered 1647' fresh water. Pressures: IH 1850, ISI 655, IF 176, FF 350, FSI 535, FHP 1840, BHT 100 degrees.

28 Log Tops: 4000' T.D. Ran IES, Dipmeter, and Sonic-Caliper Log.  
 Ferron 2245, Tununk 3020, Dakota 3835, Ceder Mtn. 3970.

July 29 D.S.T. No. 2 2646 - 2686 Ferron Sand

Open tool SI 30 Opn, SI 30, Open with a good blow, decreased to dead in 40 min. rec 980' fluid, 200' mud cut wtr 780' muddy fresh water.

Pressures: top; IH 1265, ISI 488, IF 297, FF 488, FSI 488, FH 1265, Middle; IH 1286, ISI 508, IF 311, FF 508, FSI 508, FH 1286, Bottom; IH 1319, FH 1150.

30

4000' T.D. Plugged and abandoned.

BIT RECORD  
PARADISE LAKE 43-8

DATE	NO.	SIZE	MAKE	DEPTH	FOOTAGE	HOURS
June 25, 1963	1	9 5/8	Smith DTG	0-325	325'	15
	2	"	Smith C4	325-763	438'	13
July 1, 1963	3	"	Hughes W7	763-1202	439'	13 1/2
	4	"	Hughes W7	1202-1541	339'	12
	5	"	Smith 4W4	1541-1869	328'	10
	6	"	Smith 4W4	1869-2381	512'	17 1/2
	7	"	Hughes W7	2381-2514	133'	5
	8	"	Reed YSI	2514-2560	46'	6 1/2
	9	"	Reed YSI	2560-2621	61'	14 1/2
	10	"	Reed YSI	2621-2695	74'	8
	11	"	Hughes W7R	2695-2775	80'	13
	12	"	Smith 4W4	2775-2843	68'	11
	13	"	Smith C4	2843-3002	159'	15 1/2
	14	6 3/4	Smith C2	3002-3096	94'	17
	15	"	Smith C2	3096-3268	172'	15
	16	"	Smith SV2	3268-3413	145'	15
	17	"	Hughes OWV	3413-3515	102'	12
	18	"	Reed YSI	3515-3668	153'	22
	19	"	Reed YSI	3668-3778	110'	13
	20	"	Hughes OWC	3778-3806	28	7 1/2
	21	"	Hughes W7	3806-3810	4'	2
22	"	Hughes OWV				
		R.P.	3810-3819	9'	2 1/2	
		Christensen				
		Coring Head	3819-3960			
	21	Hughes W7 R.R.	3960-4000	40'	3	

SAMPLE DESCRIPTIONS - PARADISE LAKE UNIT 43-8

- 200-2010 Shale, SS, Anhydrite, Aragonite,  
 Shale: gry-gry brn, silty showing occ. very massive tex, abund  
 biotite giving pepper tex.  
 SS: qtz, vit to milk white gr, vfg, sharp angular, occ.  
 vit gr well rounded, assoc. with Sh.  
 Anhydrite: white, soft  
 Aragonite: white, accicular habit, abundant spl fossil:  
 rd stem, brn, (calc.?) res. crinoid stem.
- 2010-2020 Siltstone: sdy, gry, light gry, fossiliferous (seeds?)  
 abn Aragonite - poor spl.
- 2020-2030 Sandstone: white, silty, qtzitic, abd. Aragonite, micaceous,  
 poor spl.
- 2030-2040 Siltstone: sdy, gry, lgt gry, ss - white, vf gr, qtzitic,  
 Anhydrite prominent, occ. frag Aragonite, micaceous.
- 2040-2050 Siltstone: sdy, gry, light gry, micaceous.
- 2050-2060 No sample
- 2060-2070 No sample
- 2070-2080 Siltstone: sdy, drk-lgt gry, micaceous.
- 2080-2090 Siltstone: sdy, drk-lgt gry, occ. Aragonite, micaceous.
- 2090-2100 Siltstone: sdy, Bentonitic, gry-lgt gry. Soft when wet.
- 2100-2110 Siltstone: sdy, mica, lgt gry-gry, Bentonitic.
- 2110-2120 Siltstone: sdy, mica, lgt gry-gry, Aragonite and Gypsum  
 present as vein type (satin spar) chips.
- 2120-2130 Siltstone: sdy, occ massive chip, micaceous, lgt gry-gry.
- 2130-2140 Siltstone: sdy, gry-lgt gry, occ. Aragonite, Anhydrite.
- 2140-2150 Siltstone: sandy, gry-lgt gry- dark heavy mineral? assemblage.  
 occ. dark prismatic crystal showing gd striations, no  
 orientation (detrital) poss tourmaline, occ Aragonite chip,  
 occ coal chip. Calc. cement in all silt samp. sand-v fg,  
 qtzitic, vit, subrounded to subangular.
- 2150-2160 Siltstone: sdy, gry-lgt gry
- 2160-2170 Siltstone: sdy, gry-lgt gry. Poor spl.
- 2170-2180 Siltstone: sdy, gry, occ Anhydrite.
- 2180-2190 Siltstone: sdy, gry, occ Aragonite.

VERTICAL TESTS - PARADISE LAKE 43-8

Depth	Degree Deviation
60	1/4 degree
120	1/4 degree
310	3/4 degree
530	1/2 degree
1200	1 degree
1295	3/4 degree
1600	1/2 degree
1800	3/4 degree
2012	3/4 degree

Line Float in at 2012 - 2514, No surveys run

2500	1 degree
2695	1 degree
2927	1 degree
3226	2 1/2 degrees
3354	2 1/4 degrees
3413	2 1/2 degrees
3515	2 3/4 degrees
3623	3 degrees
3668	2 degrees
3770	2 1/4 degrees
4000	2 degrees

2190-2200 Siltstone: sdy, gry, occ Aragonite

2200-2210 Siltstone: sdy, gry, occ Aragonite

2210-2220 Siltstone: gry-lgt gry, occ Bentonite chip.

2220-2030 Missing

2030-2040 Siltstone: gry-lgt gry, occ Bentonite

2240-2250 Missing

2250-2260 Siltstone; SS, occ Bent, occ Arag. gry-lgt gry

2260-2270 Siltstone: sdy, Bentonitic

2270-2280 Siltstone, gry, Anhydrite, sdy

2280-2290 Siltstone, gry-sdy, Bentonitic, Anhydrite, occ SS chip  
Spl top Ferron

2290-2300 Siltstone: gry-Bentonitic, Anhydrite, Aragonite

2300-2310 SS, Siltstone, gry-lgt gry, solitary qtz grains, vit-opa,  
well rounded, well sorted, fg

2310-2320 Siltstone and Sandstone, gry-lgt gry SS as above

2320-2330 Coal and Silt.

2330-2340 Coal and Silt.

2340-2350 Coal, silt, sd.

2350-2360 Coal, silt, sd, Bentonitic

2360-2370 Coal, Silt, Sand, Bentonitic

2370-2380 Siltstone, SS, Coal, Pyritic, Bentonitic

2380-2390 Coal, Siltstone, gry-lgt gry, SS lgt gry, v fg, qtzitic,  
solitary qtz grains, vit, well rounded, large, 25 mm, well  
sorted.

2390-2400 Coal, Siltstone, very poor sample.

2400-2410 SS, Coal, Siltstone, pyrite in coal, occ. Bentonite occ  
Anhydrite, ss: white-light gry, silica cmt, vry fn gr,  
grain vit lust. clear, well rounded to sub rounded, some  
broken edges.

2410-2420 SS, Coal, Sd- fg gr, solitary gr from larger consolidated  
pieces, of white qtzitic ss, orange yellow siltstone chips  
common with coal inclusions, occ silver pyrite cement with  
larger vit qtz gr. Top Ferron massive Sds.

2420-2430 SS, Coal, Siltstone as above. Sandstone and coal intermixed.  
Pyrite more obvious, occ Aragonite, pyritic occurs as seams  
in coal or cement in SS.

2430-2440 SS, Coal, Siltstone - Sample lighter in color, yellows and oranges with occ red chert chip, coal deminishing, sd fg, multicolored, grains, well sorted, vry sharp angular, occ rd vit clear qtz, grain. Anhydrite ? common, pyrite missing.

2440-2450 SS, Coal - SS as above, pyrite common. (Coal may be contaminate)

2450-2460 SS multicolored - yellow, red, orange, lgt grys, clear. Med coal with silt stringers through some pieces.

2460-2470 SS, Siltstone, multicolored sd grading to siltstone, gry-lgt gry. Abd. coal, Bentonite.

2470-2480 Siltstone, Coal, Bentonite, Anhydrite. Siltstone: gry-lgt gry, SS. white, v fg, vit qtz, white opaque cement. Abd pyrite as cement in SS and as veins in Coal - Cavings ?

2480-2490 Siltstone, Coal, SS, as above. - Cavings

2490-2500 SS, Siltstone, Bentonite, Coal, Anhydrite. white-lgt gry-gry (highly contaminated ?)

2500-2510 SS, multicolored, yellows, oranges, reds, clear-white, angular-sub-angular - Lots of lost circ material. Spl poor.

2510-2520 No spl

2520-2530 No spl

2530-2540 No spl

2540-2550 Qtzite, fg, white-lgt gry, white cement, vit clr gr, sub-angular, Abd orange chert, pyritic, abd Bentonite, abd soft siltstone, gry-lgt gry. Spl highly contaminated.

2550-2560 Fg Qtzite, Bentonite, sdy shale. Contaminate Spl. Qtzite white-lgt gry, vit clear gr, with milk white cut, gr appear well sorted, sub-angular, Abd lg chips orange-brn chert.

2560-2570 Sandstone, gry, qtzitic, Shale: gry, soft, silty, occ. orange-brn chert.

2570-2580 Sandstone, gry-lgt gry, qtzitic possible oil on fractures - black sticky, hard, dead.

2580-2590 No spl

2590-2600 No spl

2600-2610 Sandstone, gry and lgt-gry, qtzitic, Bentonite abd, fg, well worted, sub-rounded-angular, sil cement.

2610-2620 Poor Spl - all Bentonite, cavings ?. Sandstone as above.

2620-2630 Sandstone: gry-gry brn, pyrite, abd chert orange brn, black dead oil stain in lgt gry SS.

2630-2640 Poor Spl - lots of Bentonitic clay, SS. gry, fg, qtzitic.

2640-2650 Poor Spl. Bentonite, (Cavings ?) SS gry, qtzitic.

2650-2660 SS. gry-lgt gry, abd loose grains, well rounded to angular, abd orange brn chert.

2660-2670 SS. lgt gry-gry brn, sil cement, soft, easily broken. Abd orange chert.

2670-2680 SS. gry, fg, poorly cemented, abd loose gr, well rounded-angular, small interbed, sdy bentonite clay seams or cavings (?)

2680-2690 SS, gry, fg, poorly cemented, as above.

2690-2700 SS. gry, hard, well cemented, cherty (orange) occ. dead oil spot or melted gilsonite fr mud ?

2700-2710 Siltstone, gry, massive, bentonitic, hard.

2710-2720 Siltstone, gry-lgt gry, pyritic abd Bentonite

2720-2730 Siltstone, as above, more Bentonitic.

2730-2740 Siltstone as above.

2740-2750 Siltstone.

2750-2760 Siltstone.

2760-2770 Siltstone.

2770-2780 Siltstone, sdy, lgt gry-gry, SS v fg, qtzitic. Abd small coal chips assimilated in SS

2780-2790 Siltstone and SS, abd tar cementing chips.

2790-2800 Siltstone, SS, abd tar chips.

Mud Loggers on at 2775