



It is primarily drilled by Penn Oil and  
Glen O'Byrne took over operations of this  
well in September, 1965.

December 19, 1956

Pure Oil Company  
Box 1597  
Billings, Montana

Gentlemen:

It has come to the attention of this office that you intend to drill Well No. 1 Big Flat Unit in the SW SE of Section 14, Township 26 South, Range 19 East, S1M, Grand County, Utah.

Prior to spudding in, please forward a notice of intention to drill to this office for approval.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

GILSON B. FRIGETT  
SECRETARY

GBF:en

# THE PURE OIL COMPANY

GENERAL OFFICES, 35 EAST WACKER DRIVE, CHICAGO.

ROCKY MOUNTAIN PRODUCING DIVISION

P. O. BOX 1597

BILLINGS, MONTANA

December 20, 1956

Mr. Clem B. Feight  
Oil & Gas Conservation Commission  
Room 105 Capital Building  
SALT LAKE CITY 14, Utah

Dear Mr. Feight:

Enclosed, in duplicate, is Form OGCC-1, Notice of Intention to Drill, Pure - Big Flat Unit Well No. 1, together with location plat, located C/SWSE, T26S-R19E, Grand County, Utah.

Inasmuch as we desire to have this well spudded by January 4, 1957, it will be greatly appreciated if you will wire or call the writer collect, if you have any further questions pursuant to the approval of this Notice.

Yours very truly,



T. L. Warburton  
Division Chief Production  
Clerk

WLW:rh  
Encls.

STATE OF UTAH  
OIL AND GAS CONSERVATION COMMISSION  
NOTICE OF INTENTION TO DRILL

OIL AND GAS CONSERVATION COMMISSION

December 20, 1956

In compliance with Rule C-4, notice is hereby given that it is our intention to commence the work of drilling Well No. 1, which is located 660 ft from (N) line and 1980 ft. from (E) line of Sec. 14, Twp. 26-S, R. 19-E, Salt Lake, Big Flat Unit  
(Meridian) (Field or Unit)

Grand \_\_\_\_\_, on or about 4th day of January, 1957.  
(County)

LAND: Fee and Patented ( ) Name of Owner of patent or lease Glen M. Ruby  
State ( ) Address 525 Newhouse Building  
Lease No. \_\_\_\_\_  
Public Domain ( ) Salt Lake City, Utah  
Lease No. S.L.C. 067043

Is location a regular or exception to spacing rule? Regular Has a surety bond been filed? Yes With whom? Federal Area in drilling unit 19,550 acres.  
(State or Federal)  
Elevation of ground above sea level is 6021 ft. All depth measurements taken from top of Kelly Bushing which is 12 ft above ground  
(Derrick Floor, Rotary Table or Kelley Bushing)  
Type of tools to be used Rotary. Proposed drilling depth 8000 ft. Objective formation is Mississippian.

PROPOSED CASING PROGRAM

Size of Casing Inches A.P.I.	Weight Per Foot	Grade and Type	Amount		Top	Bottom	Cementing Depths
			Ft.	In.			
20" OD	94#	H-40 SS	40'	-0-			Cemented to surface
13-3/8" OD	48#	H-40 SS	800'	-0-			Cemented to surface
* 7" OD	26#	N-80 SS	800'	-0-			
* 7" OD	23#	N-80 SS	7200'	-0-			Total Depth.

\* If well is producer

AFFIDAVIT

I hereby certify under the penalty of perjury, that the information contained and statements herein made are to the best of my knowledge and belief, true, correct and complete.

Approved \_\_\_\_\_

Date 19

By \_\_\_\_\_

Title \_\_\_\_\_

By T. L. Warburton  
T. L. Warburton  
Division Chief Production Clerk  
(Title or Position)  
The Pure Oil Company  
(Company or Operator)  
Address P. O. Box 1597  
Billings, Montana

INSTRUCTIONS:

- Complete this form in duplicate and mail both copies to the Oil and Gas Conservation Commission, Room 105, Capitol Building, Salt Lake City 14, Utah.
- A plan or map must be attached to this form showing the location of all leases, property lines, drilling and producing wells within an area of sufficient size so that the Commission may determine whether the location of the well conforms to applicable rules, regulations and orders.
- Any information required by this form that cannot be furnished at the time said form is submitted must be forwarded to the commission as soon as available.
- Use back of form for remarks.

The Pure Oil Company is acting under "Designation of Agent" on file in the office of the U. S. Geological Survey in Casper, Wyoming, covering operations in the Big Flat Unit area.

# THE PURE OIL COMPANY LOCATION REPORT

Date December 13, 1956

A.F.E. No. 156

Division Rocky Mtn. Producing District Big Flat Unit

U.S.A. Salt Lake 067043  
Lease Pure - Big Flat Unit

Acres \_\_\_\_\_ Lease No. \_\_\_\_\_ Elevation 6021' Gr. Well No. Unit 1 (Serial No. \_\_\_\_\_)

Quadrangle C SW $\frac{1}{4}$ SE $\frac{1}{4}$  Sec. 11 Twp. 26S Rge. 19E Blk. Dist. Twp. \_\_\_\_\_

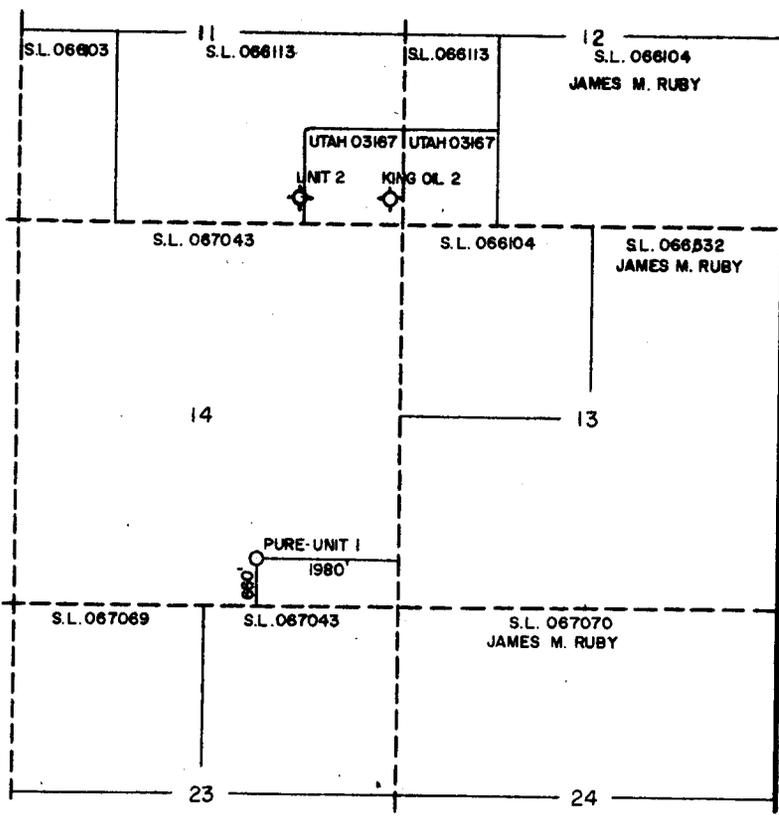
Survey Salt Lake Principle Meridian County Grand State Utah

Operator The Pure Oil Company Map \_\_\_\_\_

_____	Feet from North Line of Lease
_____	" " East " " "
_____	" " South " " "
_____	" " West " " "
<u>1620</u>	Feet from North Line of Section
<u>1980</u>	" " East " " "
<u>660</u>	" " South " " "
<u>3300</u>	" " West " " "

**LEGEND**

 Gas Well	 Dry Showing Gas
 Oil Well	 Abandoned Location
 Gas - Distillate Well	 or  Abandoned Gas Well
 or  Dry Hole	 or  Abandoned Oil Well
 Dry Showing Oil	 or  Input Well



NOTE: ALL LEASES ARE GLEN M. RUBY NOT OTHERWISE DESIGNATED

Scale 2" = 1 MILE

Remarks: See Agreement between Glen M. Ruby, et al. and The Pure Oil Company covering the entire Big Flat Unit dated April 1, 1956. Section 11, unsurveyed, Well located 7260 feet east and 660 feet north of surveyed southwest corner of Section 18, Township 26 South, Range 20 East.

Submitted by [Signature] Civil Engineer Approved by \_\_\_\_\_ Division Manager  
Approved by \_\_\_\_\_ Vice-President - General Manager

December 26, 1956

The Pure Oil Company  
P. O. Box 1597  
Billings, Montana

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Pure-Big Flat Unit, which is to be located 660 feet from the south line and 1980 feet from the east line of Section 14, Township 26 South, Range 19 East, SEEM, Grand County, Utah.

Please be advised that insofar as this office is concerned, approval to drill said well is hereby granted.

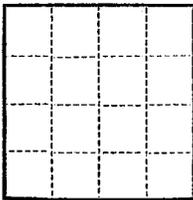
Yours very truly,

OIL & GAS CONSERVATION  
COMMISSION

OLESON B. FREIGHT  
SECRETARY

OBF:en

cc: Don Russell  
USGS, FEDERAL BLDG.  
Salt Lake City, Utah



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SLC 067043  
Unit Big Flat

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.....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

June 4, 1957

Pure-Big Flat Unit

Well No. 1 is located 660 ft. from AS line and 1980 ft. from E line of sec. 14

C. SW 1/4 Sec. 14  
(1/4 Sec. and Sec. No.)

26-3  
(Twp.)

19-E  
(Range)

Salt Lake  
(Meridian)

Big Flat  
(Field)

Grand  
(County or Subdivision)

Utah  
(State or Territory)

The elevation of the ~~deck~~ <sup>ground</sup> floor above sea level is 6021 ft.  
~~KB elevation is 6033 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)

May 23, 1957.

Set 9-5/8 inch OD 36' and 4 1/2' 3-2 J-55 Spang and Youngstown casing at 56 1/2' and cemented with 1000 sacks Possix cement.

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

Company The Pure Oil Company

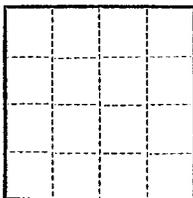
"Designated Agent" of Glen M. Ruby, Unit Operator.

Address P. O. Box 1597

Billings, Montana

By J. L. Warburton

Title J. L. Warburton  
Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City

Lease No. SLC 067043

Unit Big Flat

*7/1/57  
COK  
7-1-57*

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.....	<b>X</b>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

June 18, 1957

Well No. 1 is located 660 ft. from SW line and 1980 ft. from E line of sec. 14

C. SW 1/4 Sec. 14 26-S 19-R Salt Lake  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 6021 ft.  
**KB elevation is 6033 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)

June 8, 1957 Present Depth 6373'.

Halliburton DST No. 1 from 6268' to 6373'. Opened tool at 6:51 a.m. Weak blow at start, growing stronger until tool closed. Tool open 2 hours, shut in 30 minutes for Bottom Hole Pressures. Recovered 1000' of fluid. 500' slightly oily, heavily gas out, muddy salt water. 500' gas out salt water. Pressures: in 4830, 17 100, 17 645, shut in 4850, PH 4620.

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

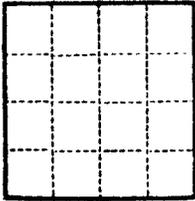
Company The Pure Oil Company

"Designated Agent" of Glen M. Ruby, Unit Operator.

Address P. O. Box 1597

Billings, Montana

By T. L. Warburton  
T. L. Warburton  
Title Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SLC 067043  
Unit Big Flat

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.....	X
NOTICE OF INTENTION TO ABANDON WELL.....		

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

July 10, 1957.

Well No. 1 is located 660 ft. from S line and 1980 ft. from E line of sec. 14

C. SW 1/4 SE 1/4, Sec. 14 26-S 19-E Salt Lake  
(of Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ <sup>ground</sup> above sea level is 6021 ft.  
KB elevation is 6033 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)

June 9, 1957

Halliburton Drill Stem Test No. 2, from 5621' to 6373'. Tool open at 5:30 a.m. Flowed 10 barrels displacement water, then dribbled until 9:00 a.m. At 9:00 a.m. and 1:00 p.m., flowed one barrel water. Well dead from 1:00 p.m. until 8:00 p.m., at which time unseated Packer and pulled tool.

July 3, 1957.

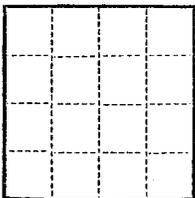
Halliburton Drill Stem Test No. 3 from 7496' to 7544', 48 feet. Tool Open at 12:05 p.m. Strong blow immediately increasing to very strong blow from bottom of 5 gallon bucket in 2 minutes. Sulfide odor to surface in 9 minutes. Blew steadily throughout test to pit through 2-1/2" tubing. Estimated 100,000 cubic feet inert gas. Tool open 2 hours, shut in 30 minutes. Recovered 300' total fluid, 1' black sulfide water and 120' black sulfide water, slightly gas and mud cut. Pressures: IH 5235, IF 70, FF 70, Shut in 2515, and increasing, FH 5215.

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

Company The Pure Oil Company

Address 1700 Broadway  
Denver 2, Colorado

By   
T. L. Warburton  
Title Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SLC 067043  
Unit Big Flat

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..... <b>X</b>
NOTICE OF INTENTION TO ABANDON WELL.....	

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

..... July 17, ....., 1957

Well No. 1 is located 660 ft. from the line and 1980 ft. from E line of sec. 14  
C. SW 1/4 Sec. 14 26-S 19-E Salt Lake  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~ground~~ ground above sea level is 6021 ft.  
KB elevation is 6033 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)

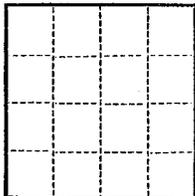
July 9, 1957

Halliburton DST No. 4. Dual Packers with bottom packer set at 7546'. Testing zone 7546' to 7636'. Tool open 1-1/2 hours. Gas to surface in two minutes. Spray diminished toward end of test. Fluid analyzed as highly gas out drilling and blackened with hydrogen sulfide. No water. Very strong blow through 2-1/2" line throughout test. Gas analysis: Nitrogen 86.13%, Carbon Dioxide 1.76%, Hydrogen Sulfide 0.57%, Methane 5.77%, Ethane and higher 5.77%. Shut in 30 minutes for Bottom Hole Pressures. Pipe stuck and unable to pull loose.

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

Company The Pure Oil Company  
 Address 1700 Broadway  
Denver 2, Colorado

By T. L. Warburton  
 Title Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SLC 067063  
Unit Big Flat

*Noted  
Catt  
8-6-57*

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.....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

..... July 30, 1957

Well No. 1 is located 660 ft. from 10-S line and 1900 ft. from E line of sec. 14

C. 34-24 Sec. 14 36-S 12-S Salt Lake  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Wasatch Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~ground surface~~ <sup>ground</sup> above sea level is 6021 ft.  
KB elevation is 6033 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)

SEE ATTACHED SHEET

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

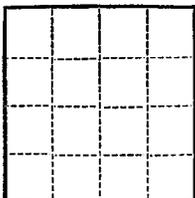
Company The Pure Oil Company

Address 1700 Broadway

Denver 2, Colorado

By T. L. Warburton

Title Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SIC 067043  
Unit Big Flat

*Noted  
C.A.H.  
8-14-57*

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.....	
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	<b>X</b>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

..... August 8, ....., 1957

Well No. 1 is located 660 ft. from SW line and 1900 ft. from E line of sec. 14

S. 34 N. Sec. 14 26-S 19-E Salt Lake  
(Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ <sup>ground</sup> above sea level is 6071 ft.  
**KB elevation is 6033 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)

July 30, 1957

Set 7" OD 23' and 26' 8-R H-80 and J-55 casing at 790', cemented with C/O socks Halliburton Pozmix cement.

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

Company The Pure Oil Company  
Address 1700 Broadway  
Denver 2, Colorado

By J. L. Harburton  
T. L. Harburton  
Title Division Chief Production Class

# THE PURE OIL COMPANY

GENERAL OFFICES, 35 EAST WACKER DRIVE, CHICAGO.

ROCKY MOUNTAIN PRODUCING DIVISION  
1700 BROADWAY  
DENVER 2, COLORADO

October 16, 1957

*Noted  
CAH  
10-24-57*

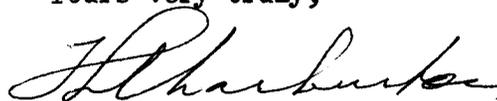
Mr. Cleon B. Feight  
Oil and Gas Conservation Commission  
Salt Lake City 14, Utah

Dear Mr. Feight:

Enclosed, are the following records pertaining to Big Flat  
Unit No. 1, Section 14-26S-19E, Grand County, Utah:

1 copy	U.S.G.S. Form 9-330, Log of Oil or Gas Well
1 copy	Schlumberger MicroLog
1 copy	Schlumberger Laterolog
1 copy	Lane Wells Radioactivity Log S. O. 9245
1 copy	Lane Wells Radioactivity Log S. O. 9249
1 copy	Lane Wells Temperature Log
1 copy	Geological Sample Log

Yours very truly,



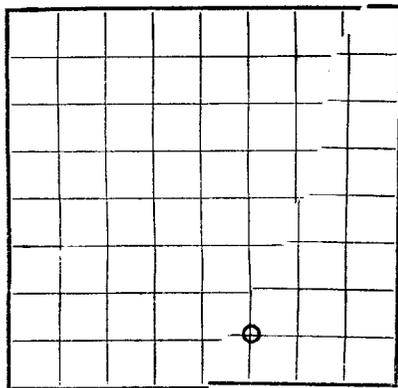
T. L. Warburton  
Division Chief Production Clerk

TLW/lb

Enclosures - 7

*W*

U. S. LAND OFFICE Salt Lake City  
SERIAL NUMBER SLC 067043  
LEASE OR PERMIT TO PROSPECT \_\_\_\_\_



LOCATE WELL - CORRECTLY

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

OCT 19 1957

Company The Pure Oil Company Address 1700 Broadway - Denver 2, Colorado

Lessor or tract U. S. Government Field Big Flat State Utah

Big Flat

Well No. \_\_\_\_\_ Sec. 14 T. 26-S R. 19-E Meridian Salt Lake P.M. County Grand

Location 660 ft. N. of 8 Line and 1980 ft. W. of 8 Line of Section 14 Elevation 6,621 ft.  
(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 [Signature]

Date October 15, 1957

Title Division Chief Production Clerk

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

Commenced drilling January 2, 1957 Finished drilling July 27, 1957

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 7694' to 7728' 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 None to \_\_\_\_\_ No. 3, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_ No. 4, from \_\_\_\_\_ to \_\_\_\_\_

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From-	To-	
22"	94#	8-R	SS	19'	Coupling				Conductor
13-3/8"	124#	8-R	SS	741'					Drilled to
9-5/8"	36# & 47#	8-R	Spring	580'					
7"	23# & 26#	8-R	SS	790'			7694'	7728'	Production

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
22"	19'	1-1/2 yards	Halliburton		
13-3/8"	747'	600 sacks	Halliburton		
9-5/8"	563'	2000 sacks	Halliburton		
7"	790'	600 sacks	Halliburton		

PLUGS AND ADAPTERS

Heaving plug—Material \_\_\_\_\_ Length \_\_\_\_\_ Depth set \_\_\_\_\_

Adapters—Material \_\_\_\_\_ Size \_\_\_\_\_

SHOOTING RECORD

FOLD MARK

FOLD MARK

22"	19'	1-1/2 yards	Halliburton
13-3/8"	747'	640 ex.	Halliburton
7-5/8"	563 1/2'	1000 ex.	Halliburton
7"	790 1/2'	640 ex.	Halliburton

**PLUGS AND ADAPTERS**

Heaving plug—Material \_\_\_\_\_ Length \_\_\_\_\_ Depth set \_\_\_\_\_  
 Adapters—Material \_\_\_\_\_ Size \_\_\_\_\_

**SHOOTING RECORD**

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

**TOOLS USED**

Rotary tools were used from zero feet to 795 1/2 feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 Cable tools were used from \_\_\_\_\_ feet to \_\_\_\_\_ feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet

**DATES**

\_\_\_\_\_, 19\_\_\_\_ Put to producing August 13, \_\_\_\_\_, 1957  
 The production for the first 24 hours was 319 barrels of fluid of which 98 % was oil; \_\_\_\_\_ %  
 emulsion; 1 % water; and 1 % sediment. Gravity, °Bé. 43.3  
 If gas well, cu. ft. per 24 hours \_\_\_\_\_ Gallons gasoline per 1,000 cu. ft. of gas \_\_\_\_\_  
 Rock pressure, lbs. per sq. in. \_\_\_\_\_

**EMPLOYEES**

\_\_\_\_\_, Driller \_\_\_\_\_, Driller  
 \_\_\_\_\_, Driller \_\_\_\_\_, Driller

**FORMATION RECORD**

FROM—	TO—	TOTAL FEET	FORMATION
0	221'	221'	Red sandstone.
221'	553'	332'	Sandy shale.
553'	785'	232'	Sand.
785'	968'	183'	Sandy shale.
968'	1193'	225'	Red sand and shale.
1193'	1435'	242'	Sandstone.
1435'	1664'	229'	Broken sandstone.
1664'	1974'	280'	Broken red sandstone.
1974'	2105'	241'	Red sandstone.
2105'	2313'	158'	Limestone and sand.
2313'	2526'	203'	Red sandstone.
2526'	2713'	167'	Sand and shale.
2713'	2835'	142'	Sand and limestone.
2835'	2958'	103'	Sand and shale.
2958'	3101'	143'	Sandstone.
3101'	3110'	9'	Sand.
3110'	3196'	86'	Sand and dolomite.
3196'	3412'	216'	Sand and bentonite.
3412'	3426'	14'	Limestone.
3426'	3616'	190'	Limestone and sandstone.
3616'	3895'	279'	Limestone and sand.
3895'	3961'	66'	Line and sandstone.
3961'	4176'	215'	Limestone and sand.
4176'	4218'	42'	Limestone and shale.
4218'	4250'	32'	Limestone and sand.
4250'	4280'	30'	Line and sand.

(OVER)

**FORMATION RECORD—Continued**

FROM	TO	TOTAL FEET	FORMATION
4280	4523	243	Sand, lime and salt.
4523	4805	282	Shale and salt.
4805	4865	60	Core No. 1 - See below.
4865	5440	575	Shale and salt.
5440	5603	163	Shale and limestone.
5603	6180	577	Shale and salt.
6180	6240	60	Core No. 2 - See below.
6240	6373	133	Salt.
6373	6500	127	Salt with shaly streaks.
6500	6877	377	Salt and shale.
6877	6892	15	Shale and anhydrite.
6892	7326	434	Salt and shale.
7326	7371	45	Shale and anhydrite.
7371	7404	33	Lime, sandstone and anhydrite.
7404	7435	31	Shale and limestone.
7435	7458	23	Shale.
7458	7463	5	Lime.
7463	7486	23	Shale.
7486	7534	58	Core No. 3 - See below.
7534	7534	10	Steel Line Measurement Correction.
7534	7578	44	Core No. 4 - See below.
7578	7636	58	Core No. 5 - See below.
7636	7668	32	Core No. 6 - See below.
7668	7724	56	Core No. 7 - See below.
7724	7725	1	Lime.
7725	7732	7	Core No. 8 - See below.
7732	7797	65	Core No. 9 - See below.
7797	7777	3	Lime.
7777	7780	3	Core No. 10 - See below.
7780	7838	58	Core No. 11 - See below.
7838	7896	58	Core No. 12 - See below.
7896	7954	58	Core No. 12 - See below.
		7954	TOTAL DEPTH

Core No. 1 4805' to 4865' Cut 60' Rec. 60'

16-1/2' - Shale with spotted slight stain, fluorescence and bubbling gas from 4819' to 4820'.

15-1/2' - Anhydrite with streaks shale and numerous random hairline fractures with slight stain and fluorescence on fracture faces.

21-1/2' - Shale.

6-1/2' - Salt.

Core No. 2 6180' to 6240' Cut 60' Rec. 60'

1' - Salt.

3' - Shale, grey to black.

4 1/2' - Salt with thin streaks dark grey shale.

7' - Shale, grey to black.

5' - Salt.

Core No. 3 7486' to 7534' Cut 58' Rec. 58'

58' - Limestone, fragmental, highly fractured, bleeding light green oil and gas on fractures. Matrix rock non-porous.

Core No. 4 7534' to 7578' Cut 44' Rec. 44'

44' - Grey limestone with cherty streaks, random fractures, small vugs, inter-alya porosity throughout. Core bleeding light green oil. Core has slight sulfur odor. Bottom 11' exln limestone, porosity, decrease in sulfur odor and show of oil.

BIG FLAT PROSPECT

BIG FLAT UNIT NO. 1

C SW SE Sec. 14, T. 26S., R. 19E.

660' FSL & 1980' FEL

GRAND COUNTY, UTAH

7/15/57  
CUT  
10-24-57

SPUDDED JANUARY 2, 1957

COMPLETED AUGUST 16, 1957

SAMPLE ANALYSIS BY . V. O. GUSTAFSON

W/

BIG FLAT UNIT NO. 1

(C. SW  $\frac{1}{4}$  SE  $\frac{1}{4}$ , Sec. 14,  
T-26-S, R-19-E, Grand Co., Utah)

July 18, 1957

Halliburton DST No. 5 from 7675' to 7732', 57', open hole. Tool open at 6:10 a.m. Very weak blow increasing to fair blow in five minutes and strong blow of air in 25 minutes which continued for remainder of test. No gas odor. Tool shut in at 8:10 a.m. for Bottom Hole Pressures. Recovered 1320' of fluid. 60' highly gas cut mud, 630' very highly gas cut and highly oil cut mud, 180' very highly gas and oil cut mud and 450' gas cut light green oil, approximately 50% B.S. Pressures as follows: IH 5345, IF 130, FF 470, 30 minute shut in 450, FH 5320.

July 20, 1957

Halliburton DST No. 6 from 7732' to 7777'. Tool open two hours, shut in 30 minutes. Weak blow immediately, fair blow in 8 minutes, increasing to strong blow in 30 minutes and continued throughout test. No gas to surface. Recovered 2640' of fluid. 270' gas and slightly oil cut mud, 450' highly gas and oil cut mud, 180' highly gas and highly oil cut mud, 180' highly gas and highly oil cut water, 270' highly gas cut and water cut oil, and 1290' black sulfur water. Pressures: IH 5535, IF 60, FF 1115, Shut In 2475, FH 5505.

FORMATION TOPS

<u>Formation</u>	KB 6085'	<u>Sample</u>	Gr 6021'	<u>Gamma Ray Neutron</u>
Jurassic				
Kayenta		Spuds		Spuds
Wingate		220		230
Triassic		540		550
Chinle		540		550
Moenkopi		911		895
Permian		1410		1410
Cutler		1410		1410
Rice		2175		2175
Pennsylvanian		2700		2700
Harnosa		2700		2700
Upper Harnosa		2700		2700
Paradox				
Salt		4502		4280
Base Salt		7522		7521
Mississippian		7465		7465
Devonian		7954 *		7946
Ouray		7954 *		7946
Total Depth		7954		7953

\* Picked from core.

Spudded: 9:00 P. M., January 2, 1957

Surface Pipe: January 7, 1957, set 746' of 1 3/8" w/570 sacks.

Drilled out from under surface 8:00 A. M., January 9, 1957

- 80 - 80 Sandstone, white thru pink to orange, fine grain, friable, angular to sub-rounded; some shale, green-gray to gray, slightly calcareous. VERY POOR SAMPLE.
- 80 - 100 As above; VERY POOR SAMPLE.
- 100 - 120 Sandstone, as above; trace shale, maroon.
- 120 - 140 As above.
- 140 - 160 No Sample.
- 160 - 180 As above.
- 180 - 200 Sandstone, as above and shale, green-gray to gray, maroon.
- 200 - 220 As above, slight sandstone increase.
- 220 - 240 Shale, green-gray to gray; little shale, maroon; little sandstone, as above. VERY POOR SAMPLE.
- 240 - 260 As above; sandstone decrease. VERY POOR SAMPLE.
- 260 - 280 As above; shale, slightly silty. VERY POOR SAMPLE.
- 280 - 300 Shale, gray; little sandstone, white, w/grains of black and green, fine grain, sub-angular to sub-rounded.
- 300 - 320 Shale, gray, little sandstone, white w/grains of black and green, fine grain, sub-angular to sub-rounded. VERY POOR SAMPLE.
- 320 - 340 Sandstone, white to orange, fine grain, friable, sub-angular to sub-rounded.
- 340 - 360 As above.
- 360 - 380 No Sample.
- 380 - 400 As above.
- 400 - 420 Sandstone, white to orange, medium to fine grain, sub-angular to sub-rounded, friable; trace shale, red to maroon.
- 420 - 440 Sandstone, white to orange, very fine grain w/scattered black grains, sub-angular to sub-rounded, friable.
- 440 - 460 Sandstone, as above; trace shale, gray, slightly calcareous.

- 460 - 480 As above.
- 480 - 500 As above.
- 500 - 520 As above.
- 520 - 540 Sandstone, white to orange w/scattered black grains, very fine grain, sub-angular to sub-rounded, friable.
- 540 - 560 Sandstone, white to orange w/scattered black grains, fine to medium grain, sub-angular to sub-rounded, friable; little shale, gray to dark gray, maroon.
- 560 - 580 As above.
- 580 - 600 As above.
- 600 - 620 Sandstone, white to orange w/scattered black grains, fine to medium grains, sub-angular to sub-rounded, friable; trace shale, gray to dark gray, maroon.
- 620 - 640 As above.
- 640 - 660 Sandstone, as above; little shale, gray and green-gray to dark gray, maroon.
- 660 - 680 Sample missing.
- 680 - 700 As above.
- 700 - 720 Sandstone, white to orange w/scattered black grains, very fine to fine grain, sub-angular to sub-rounded, friable; trace shale, gray and green-gray to dark gray, maroon.
- 720 - 740 As above.
- 740 - 760 As above.
- NOTE: Surface hole samples so poor (because of lost circulation and not being able to use shaker) as to seemingly lack significance.
- 760 - 780 Sample missing.
- 780 - 790 Sample missing.
- 790 - 800 Shale, red, green-gray and green, silty and sandstone, green-gray, orange, fine grain, sub-angular to sub-rounded.
- 800 - 810 As above.
- 810 - 820 Shale, as above; some sandstone, as above; little limestone, dark gray, crystalline, dense.

- 820 - 830 Sandstone, as above; some shale, as above.
- 830 - 840 Shale, gray, green-gray, silty and shale, red, silty; some sandstone, orange, red, maroon, gray, very fine to fine grain, sub-angular to sub-rounded.
- 840 - 850 As above; sandstone increase.
- 850 - 860 As above; slight sandstone increase.
- 860 - 870 Shale, gray, green-gray, silty; little sandstone, gray-green, very fine grain, sub-angular to sub-rounded.
- 870 - 880 As above.
- 880 - 890 As above.
- 890 - 900 As above.
- 900 - 910 As above; little limestone, gray, granular.
- Sample Top: Moankopi 911'
- 910 - 920 Shale, gray, green-gray, silty and shale, chocolate, micaceous, slightly silty; very little sandstone, green-gray, very fine grain, sub-angular to sub-rounded.
- 920 - 930 Shale, chocolate, micaceous and shale, gray, green-gray, silty; little sandstone, green-gray, very fine grain, sub-angular to sub-rounded.
- 930 - 940 As above.
- 940 - 950 As above.
- 950 - 960 As above.
- 960 - 970 Shale, chocolate brown, micaceous and shale, gray-green, silty, calcareous and sandstone, orange, gray-green, very fine to fine grain, sub-angular to sub-rounded.
- 970 - 980 As above.
- 980 - 990 Shale, chocolate brown, micaceous and shale, gray-green, silty, calcareous and sandstone, orange, gray-green, very fine to fine grain, sub-angular to sub-rounded.
- 990 - 1000 As above, sandstone increase.
- 1000 - 1010 Sample missing.

- 1010 - 1020 Shale, chocolate brown, micaceous and shale, gray-green, silty, slightly calcareous; some sandstone, orange, gray-green, very fine to fine grain, sub-angular to sub-rounded.
- 1020 - 1030 As above, increase sandstone.
- 1030 - 1040 As above.
- 1040 - 1050 As above, sandstone increase.
- 1050 - 1060 As above, sandstone increase.
- 1060 - 1070 As above.
- 1070 - 1080 As above.
- 1080 - 1090 As above; slight sandstone decrease.
- 1090 - 1100 As above; slight sandstone decrease.
- 1100 - 1110 Shale, chocolate brown, micaceous and shale, gray-green to gray; trace sandstone, as above.
- 1110 - 1120 As above.
- 1120 - 1130 As above.
- 1130 - 1140 Shale, chocolate brown, micaceous and shale, gray-green to gray; trace sandstone, orange, gray-green, very fine to fine grain, sub-angular, to sub-rounded.
- 1140 - 1150 As above.
- 1150 - 1160 As above.
- 1160 - 1170 As above.
- 1170 - 1180 As above; little limestone, gray, crystalline, dense, argillaceous.
- 1180 - 1190 As above; only trace of limestone, as above.
- 1190 - 1200 As above; no limestone.
- 1200 - 1210 As above.
- 1210 - 1220 As above.
- 1220 - 1230 As above; little limestone, gray, colitic, argillaceous.
- 1230 - 1240 As above; no limestone.
- 1240 - 1250 As above; increase shale, chocolate brown, micaceous.

- 1250 - 1260 As above.
- 1260 - 1270 As above; increase sandstone; trace limestone, gray, fragmental, sandy.
- 1270 - 1280 As above; sandstone decrease; no limestone.
- 1280 - 1290 Shale, chocolate brown, micaceous; little shale, gray-green to gray; trace sandstone, gray-green, very fine to fine grain, sub-angular to sub-rounded.
- 1290 - 1300 Shale and siltstone, chocolate brown, micaceous; some shale and siltstone, gray-green to gray; trace sandstone, gray-green, very fine to fine grain; trace limestone, gray, oolitic.
- 1300 - 1310 Shale and siltstone, chocolate brown, micaceous; some shale and siltstone, gray-green to gray.
- 1310 - 1320 As above.
- 1320 - 1330 As above.
- 1330 - 1340 As above.
- 1340 - 1350 As above.
- 1350 - 1360 As above.
- 1360 - 1370 As above.
- 1370 - 1380 As above.
- 1380 - 1390 As above.
- 1390 - 1400 As above.
- 1400 - 1410 As above.
- 1410 - 1420 As above; little sandstone, gray-green, very fine to fine grain, sub-angular to sub-rounded.
- 1420 - 1430 As above.
- 1430 - 1440 Shale and siltstone, chocolate brown, micaceous; some shale and siltstone, green-gray to gray; some sandstone, green-gray, tan, orange, fine grain, sub-rounded.
- 1440 - 1450 As above.
- 1450 - 1460 As above, sandstone decrease.
- 1460 - 1470 As above, sandstone increase; trace limestone, gray, oolitic.

1470 - 1480 As above; slight sandstone increase; no limestone.  
 1480 - 1490 As above.  
 1490 - 1500 As above.  
 1500 - 1510 As above.  
 1510 - 1520 As above.  
 1520 - 1530 As above.  
 1530 - 1540 As above.  
 1540 - 1550 As above.  
 1550 - 1560 As above.  
 1560 - 1570 SAMPLE MISSING.  
 1570 - 1580 As above.  
 1580 - 1590 SAMPLE MISSING.  
 1590 - 1600 As above.  
 1600 - 1610 As above.  
 1610 - 1620 As above.  
 1620 - 1630 As above.  
 1630 - 1640 As above.  
 1640 - 1650 As above.  
 1650 - 1660 As above.  
 1660 - 1670 Sandstone, orange-brown, gray-green, very fine to medium grain, sub-  
 angular to sub-rounded; some shale, chocolate brown, (Hoenkopi), gray-  
 green, silty; trace pyrite.  
 1670 - 1680 As above; shale increase; no pyrite.  
 1680 - 1690 As above; shale decrease.  
 1690 - 1700 As above.  
 1700 - 1710 As above. (Much lost circulation material.)  
 1710 - 1720 Mostly lost circulation material; probably as above.

- 1720 - 1730 Probably as above; Mostly lost circulation material.
- 1730 - 1740 Sandstone, orange-brown, very fine to medium grain, sub-angular to sub-rounded; some shale, chocolate brown, gray-green (Moenkopi?); trace limestones, gray, oolitic.
- 1740 - 1750 As above; much lost circulation material.
- 1750 - 1760 As above; no limestones; much lost circulation material.
- 1760 - 1770 Probably as above; mostly lost circulation material.
- 1770 - 1780 Probably as above; mostly lost circulation material.
- 1780 - 1790 Probably as above; mostly lost circulation material.
- 1790 - 1800 Probably as above; mostly lost circulation material.
- 1800 - 1810 Probably as above; mostly lost circulation material.
- 1810 - 1820 Probably as above; mostly lost circulation material.
- 1820 - 1830 MISSING SAMPLE.
- 1830 - 1840 As above.
- 1840 - 1850 Probably as from 1750 - 1820; almost entirely lost circulation material.
- 1850 - 1860 Probably as above; nearly all lost circulation material.
- 1860 - 1870 Probably as above; nearly all lost circulation material.
- 1870 - 1880 Probably as above; nearly all lost circulation material.
- 1880 - 1890 Nearly all lost circulation material; probably sandstone, orange-brown, very fine to medium grain, sub-angular to sub-rounded; some shale, chocolate brown, gray-green, (Moenkopi?) as above.
- 1890 - 1900 Probably as above; nearly all lost circulation material.
- 1900 - 1910 Probably as above; nearly all lost circulation material.
- 1910 - 1920 Probably as above; nearly all lost circulation material.
- 1920 - 1930 Sandstone, orange to orange-brown, gray, very fine to medium grain (some scattered coarse grains); little shale, chocolate brown, gray-green (Moenkopi?).
- 1930 - 1940 As above; shale decrease; much lost circulation material.
- 1940 - 1950 SAMPLE MISSING.

1950 - 1960 Sample nothing but lost circulation material.

1960 - 1970 Sandstone, orange to orange-brown, gray; very fine to coarse grain; little shale, chocolate brown, orange, gray-green (Moankopi?) .

1970 - 1980 As above.

1980 - 1990 As above.

1990 - 2000 As above; trace limestone, gray, oolitic.

2000 - 2010 As above; no limestone.

2010 - 2020 SAMPLE MISSING.

2020 - 2030 As above.

2030 - 2040 SAMPLE MISSING.

2040 - 2050 As above.

2050 - 2060 As above.

2060 - 2070 As above.

2070 - 2080 As above.

2080 - 2090 As above.

2090 - 2100 As above.

2100 - 2110 As above.

2110 - 2120 As above.

2120 - 2150 Sandstone, red-brown, fine to coarse grain, sub-angular to sub-rounded; little shale, chocolate brown, gray-green.

2150 - 2140 As above.

2140 - 2150 As above.

2150 - 2160 As above; shale increase.

2160 - 2170 As above; shale decrease.

2170 - 2180 As above; shale increase; some limestone, pink, fine crystalline, dense.

SAMPLE TOP: Rice 2175'.

- 2180 - 2190 Limestone, pink, very fine crystalline, dense; shale, red-brown and gray-green, silty; little sandstone, pink to brown-red, fine grain, sub-angular to sub-rounded; much lost circulation material in sample.
- 2190 - 2200 Probably as above; mostly lost circulation material.
- 2200 - 2210 Probably as above; mostly lost circulation material.
- 2210 - 2220 Probably as above; shale increase; much lost circulation material.
- 2220 - 2230 Sandstone, brown-red, very fine to fine grain, sub-angular to sub-rounded; shale, red-brown and gray-green, silty; much lost circulation material.
- 2230 - 2240 As above; sandstone increase.
- 2240 - 2250 Probably as above; sandstone decrease; mostly lost circulation material.
- 2250 - 2260 As above.
- 2260 - 2270 As above.
- 2270 - 2280 Sandstone, brown-red, fine to coarse grain, sub-angular to sub-rounded; shale, red-brown, gray-green, silty; limestone, tan-gray to gray, very fine crystalline, dense.
- 2280 - 2290 As above.
- 2290 - 2300 Sandstone, brown-red, medium to coarse grain, sub-angular to sub-rounded; little shale, red-brown, gray-green, silty; trace limestone, as above.
- 2300 - 2310 As above; no limestone.
- 2310 - 2320 As above.
- 2320 - 2330 As above; trace limestone, gray, oolitic.
- 2330 - 2340 Sandstone, brown-red, medium to coarse grain, sub-angular to sub-rounded; some shale, red-brown, gray-green, silty, micaceous.
- 2340 - 2350 As above; slightly less shale.
- 2350 - 2360 Sandstone, as above but slight decrease in color and more micaceous; some shale, as above.
- 2360 - 2370 As above.
- 2370 - 2380 As above.
- 2380 - 2390 As above.
- 2390 - 2400 As above.

- 2400 - 2410 As above.
- 2410 - 2420 As above.
- 2420 - 2430 MISSING SAMPLE.
- 2430 - 2440 As above.
- 2440 - 2450 As above.
- 2450 - 2460 Sandstone, light pink to brown-red, gray-green, medium to coarse grain, sub-angular to sub-rounded; little shale, red-brown, gray-green, silty, micaceous.
- 2460 - 2470 As above.
- 2470 - 2480 As above.
- 2480 - 2490 Sandstone, brown-red, fine to coarse grain, sub-angular to sub-rounded; little shale, red-brown, gray-green, silty, micaceous.
- 2490 - 2500 As above; shale decrease.
- 2500 - 2510 SAMPLE MISSING.
- 2510 - 2520 Sandstone, light pink to brown-red, green-gray, fine to coarse grain, sub-angular to sub-rounded; some shale, red-brown, gray-green, silty, micaceous.
- 2520 - 2530 As above; shale increase.
- 2530 - 2540 As above; little limestone, pink, very fine crystalline, dense.
- 2540 - 2550 As above; some shale, dark gray.
- 2550 - 2560 As above; shale decrease.
- 2560 - 2570 As above.
- 2570 - 2580 As above; no limestone.
- 2580 - 2590 As above.
- 2590 - 2600 Sandstone, red-brown, gray-green, very fine to fine grain, argillaceous, micaceous, sub-angular to sub-rounded and (grading to) shale, red-brown, gray-green, silty, micaceous.
- 2600 - 2610 As above; slight shale increase.
- 2610 - 2620 As above; slight shale decrease; little limestone, pink, very fine crystalline, dense.

- 2620 - 2630 As above.
- 2630 - 2640 Sandstone, red-brown, gray-green, fine to course grain, sub-angular to sub-rounded and shale, red-brown, silty, micaceous; little limestone, pink to brown, very fine crystalline, dense.
- 2640 - 2650 As above; trace pyritic sandstone.
- 2650 - 2660 SAMPLE MISSING.
- 2660 - 2670 Sandstone, red-brown, medium to course grain, sub-angular to sub-rounded, micaceous; little shale, red-brown, gray-green, silty, micaceous.
- 2670 - 2680 As above; shale increase.
- 2680 - 2690 As above.
- 2690 - 2700 As above; shale, gray, calcareous; little limestone, pink to gray, fine to medium grain sandstone, very calcareous.
- SAMPLE TOP: Upper Hermosa 2700'.
- 2700 - 2710 Limestone, gray, fine grain, silty and argillaceous, micaceous and shale, gray, calcareous, silty, micaceous; little limestone, gray, tan-gray, very fine crystalline.
- 2710 - 2720 As above.
- 2720 - 2730 As above; little shale, red, red-brown, silty, calcareous; little sandstone, red, red-brown, very fine grain.
- 2730 - 2740 Sandstone, white to brown, very fine grain, slightly calcareous and shale, brown, gray, gray-green, silty, slightly calcareous.
- 2740 - 2750 As above.
- 2750 - 2760 As above; sandstone increasing.
- 2760 - 2770 Probably as above; mostly lost circulation material.
- 2770 - 2780 Probably as above; mostly lost circulation material.
- 2780 - 2790 Sandstone, pink to red-brown, gray, green-gray, very fine to fine grain, micaceous and shale, red-brown, gray, gray-green, silty, micaceous; little limestone, gray, tan-gray, fine crystalline, dense.
- 2790 - 2800 As above; sandstone, fine to course grain.
- 2800 - 2810 Shale, gray, brown-red, gray-green, silty, micaceous; some limestone, tan, very fine crystalline, dense; little sandstone, pink to red-brown, gray-green, gray, very fine to fine grain, micaceous.

- 2810 - 2820 Sandstone, red-brown, gray, fine to course grain, micaceous; some shale, red-brown, gray-green, gray, silty, micaceous; little limestone, tan, gray, very fine crystalline, dense.
- 2820 - 2830 As above; some limestone is colitic.
- 2830 - 2840 As above; some sandstone, calcareous.
- 2840 - 2850 As above.
- 2850 - 2860 As above.
- 2860 - 2870 As above.
- 2870 - 2880 As above.
- 2880 - 2890 Probably as above; much lost circulation material.
- 2890 - 2900 Probably as above w/increase in sandstone and shale decrease; much lost circulation material.
- 2900 - 2910 Sandstone, red-brown, fine to course grain; little shale, red-brown, gray-green, gray, silty, micaceous; little limestone, tan, gray, very fine crystalline, dense.
- 2910 - 2920 Limestone, gray, tan, very fine crystalline, dense; shale, gray, red-brown, silty, calcareous; sandstone, red-brown, fine to course grain.
- 2920 - 2930 As above; limestone decrease; shale, gray increase.
- 2930 - 2940 Shale, red-brown, gray to dark gray, silty, micaceous and sandstone, red-brown, gray, fine to course grain; little limestone, gray, tan, very fine crystalline, dense.
- 2940 - 2950 SAMPLE MISSING.
- 2950 - 2960 Sandstone, red-brown, gray, fine to course grain, micaceous; little shale, red-brown, gray, green-gray, silty, micaceous; little limestone, gray, tan, very fine crystalline, dense.
- 2960 - 2970 Sandstone, gray-green, red-brown, fine to course grain, micaceous, calcareous; some shale, red-brown, gray, green-gray, silty, micaceous, calcareous; little limestone, gray, tan, very fine crystalline.
- 2970 - 2980 As above; shale increase.
- 2980 - 2990 As above; limestone increase.
- 2990 - 3000 Shale, gray-green, red-brown, silty; some limestone, gray, tan, very fine crystalline, dense; some sandstone, white, very fine grain, calcareous.

- 3000 - 3010 As above; limestone decrease. (Sample much contaminated with pipe dope.)
- 3010 - 3020 Shale, gray, gray-green, red-brown, calcareous; limestone, gray, tan, very fine crystalline, dense; little sandstone, white, very fine grain, calcareous.
- 3020 - 3030 As above; limestone increase.
- 3030 - 3040 SAMPLE MISSING.
- 3040 - 3050 Limestone, gray, tan-gray, very fine crystalline, dense; some shale, red-brown, gray-green, silty, micaceous; little sandstone, white to red-brown, fine to coarse grain.
- 3050 - 3060 As above.
- 3060 - 3070 As above; sandstone increase.
- 3070 - 3080 As above; sandstone increase.
- 3080 - 3090 Shale, red-brown, gray-green, gray, silty, micaceous; sandstone, red-brown, gray, medium to very coarse grain, angular to sub-angular; limestone, gray, tan-gray, very fine crystalline, dense.
- 3090 - 3100 As above; more shale; less sandstone.
- Stuck drill pipe 2 stands off bottom while making trip at 11:00 A.M., 1-22-57.
- 3100 - 3110 Shale, red, gray, silty and sandstone, green-gray, pink, very fine grain, sub-rounded, to rounded, very calcareous. (Fluorescence and stain from diesel fuel used in freeing stuck drill pipe.)
- 3110 - 3120 Shale, gray, red, silty; sandstone, as above and limestone, gray, oolitic, silty.
- 3120 - 3130 Sandstone, white, gray, fine grain, rounded, micaceous, calcareous; some shale, as above; little limestone, tan, gray, very fine crystalline, dense.
- 3130 - 3140 Shale, red, gray, silty and sandstone, white, gray, fine grain, rounded, micaceous, calcareous; trace limestone, tan, very fine crystalline to oolitic, dense.
- 3140 - 3150 Shale, red, chocolate, gray, green, silty; some sandstone, dark gray, very fine grain, hard, calcareous.
- 3150 - 3160 As above.

- 5160 - 5170 Shale, as above and sandstone, as above; little limestone, brown, very fine crystalline, dense, fossiliferous?
- 5170 - 5180 Limestone, brown, very fine crystalline, dense and shale, red, gray, silty.
- 5180 - 5190 Limestone, gray, brown, very fine grain, silty; shale, gray, red, red-brown, silty.
- 5190 - 5200 As above.

Mud Record at 5196'. Weight - 9.1, Vis - 48.

- 5200 - 5210 Shale, gray, very silty, calcareous (possibly calcareous siltstone).

NOTE: Drilled 5101 - 5121 w/only one collar - 3000# weight.

- 5210 - 5220 Shale, gray, very silty, calcareous (possibly calcareous siltstone); little limestone, tan, very fine to fine grain, argillaceous, silty.

- 5220 - 5230 As above. Mud Record at 5223'. Weight - 9.4, Vis. 61.

- 5230 - 5240 As above; fossils in limestone (crinoids, fusilinid?).

- 5240 - 5250 As above; no fossils.

- 5250 - 5260 As above.

- 5260 - 5270 Shale, gray, red, silty, calcareous, and sandstone, red-brown, fine to medium grain, calcareous plus rather numerous unconsolidated sand grain, white to pink, fine to coarse grain; trace limestone, tan, gray, dense.

- 5270 - 5280 As above; slight sandstone increase; limestone increase.

Mud Record at 5272'. Weight - 9.0, Vis. 45.

- 5280 - 5290 As above.

- 5290 - 5300 As above.

- 5300 - 5310 Sandstone in sample as unconsolidated grain, white, pink, orange, medium grain, sub-angular to sub-rounded; limestone, white to light gray-brown, very fine crystalline, dense; little shale, red, red-brown, silty (caving?).

- 5310 - 5320 As above.

- 5320 - 5330 As above; slight sandstone decrease.

- 5330 - 5340 As above; shale increase.

3340 - 3350 As above; slight sandstone increase.

Mud Record at 3349'. Weight - 9.1, Vis. - 47.

3350 - 3360 Sandstone, as above plus sandstone, white, very fine grain, rounded, and shale, gray, red, silty; some limestone, light gray-brown, very fine crystalline.

NOTE: Possible correlation--3300' in this well may equal 3320' in King well (no lag correction in this well).

3360 - 3370 Shale, gray, red, silty, (much looks like caving) and limestone, tan-gray to dark gray, fine granular, silty.

3370 - 3380 Limestone, tan-gray, gray, very fine crystalline; some shale, gray, red, silty; some unconsolidated sandstone, gray, white to pink and orange, sub-angular to sub-rounded.

3380 - 3390 As above; sandstone increasing; limestone decreasing.

3390 - 3400 As above.

3400 - 3410 Shale, gray, red, micaceous, silty; some limestone, light tan to brown, very fine crystalline, dense; trace chert, red.

Lost section of slips in hole while making trip @ 3412'.

3410 - 3420 Limestone, tan-gray, fine crystalline, dense; some shale, gray, chocolate, red (caving?).

Made no hole -- slips lost in hole while going in with this bit.

3420 - 3430 Limestone, gray, tan-gray, fine crystalline, dense; little shale, gray, chocolate, red (caving?).

3430 - 3440 As above.

3440 - 3450 As above.

3450 - 3460 Limestone, gray, tan-gray, fine crystalline, dense; some shale, gray, graygreen, chocolate, red (caving)?.

3460 - 3470 Limestone, as above; some shale, as above; little sandstone as unconsolidated grains; white to pink, medium to coarse grain, sub-angular.

Mud Record @ 3467'. Mud weight 9.6, Vis. 44.

3470 - 3480 As above; sandstone increasing.

3480 - 3490 Sandstone, gray, fine to medium grain, sub-angular, to rounded, very micaceous, and shale, gray, brown, micaceous; some chert, pink; some limestone, as above.

3490 - 3500 Limestone, as above, and shale, as above and sandstone as unconsolidated grains, white to pink, fine to coarse grain.

3500 - 3510 As above; sandstone increasing.

Mud Record @ 3511'. Weight - 9.6, Vis. 47.

3510 - 3520 Limestone, gray, fine crystalline, dense, and shale, gray, red-brown, micaceous, and sandstone, gray, very fine grain, round plus unconsolidated grains.

3520 - 3530 Sandstone as unconsolidated grains, clear, white, pink, very fine to coarse grain, angular to sub-angular (little sandstone, gray, as above); some limestone, light gray to gray, very fine crystalline (little oolitic); some shale, dark gray to black, red-brown, micaceous; trace chert?, pink.

3530 - 3540 Sandstone, as above (much limestone and shale from above in sample).

3540 - 3550 As above.

3550 - 3560 As above (some limestone, gray, silty belongs in this interval). (Also little shale, dark gray to black, brown-red.)

3560 - 3570 Limestone, gray, fine crystalline (in part oolitic), and shale, gray to black, calcareous (much sandstone from above in sample -- sample still not going over shaker).

3570 - 3580 As above.

Mud Record @ 3573'. Weight - 9.6, Vis. - 47.

NOTE: Drilling with: Weight on bit 20,000#, RPM 100, Pump pressure 700.

3580 - 3590 Shale, gray to dark gray, silty in part, calcareous in part; some limestone, gray to brown-gray, fine crystalline; little sandstone, gray, green-gray, very fine grain, micaceous in part.

3590 - 3600 As above; limestone decreasing.

3600 - 3610 As above; limestone increasing. (Much lost circulation material. Cuttings were run over shaker from this point downward.)

3610 - 3620 As above. (No lost circulation material.)

Mud Record @ 3615'. Mud weight 9.6, Vis. 48.

NOTE: Drilled with: Weight on bit 30,000#, RPM 100, Pump Pressure 350.

3620 - 3630 Limestone, gray to brown-gray, fine crystalline, and shale, gray to dark gray, silty in part, calcareous in part; little sandstone, gray, very fine to fine grain, micaceous in part, calcareous.

3630 - 3640 As above; sandstone increasing.

3640 - 3650 Sandstone, light gray, very fine grain, rounded, calcareous, micaceous in parts, grading into limestone, light gray, fine grain, silty, and limestone, gray, tan, fine crystalline, dense, and shale, dark gray, calcareous, silty.

Mud Record @ 3649'. Mud weight - 9.4, Vis. 44.

3650 - 3660 Poor Sample. Probably as above.

3660 - 3670 As above; sandstone increasing (?) as unconsolidated grains, white to clear to pink, fine to coarse grain, angular to sub-angular.

Lost circulation @ 3665' and drilled without return 3665- 3669.

Drilled with: Weight on bit 30,000 - 40,000#, RPM 60 - 100, Pump pressure 800.  
(does not apply to lost circulation zone.)

3670 - 3680 Sandstone, gray, fine to medium grain, rounded, calcareous, micaceous in parts; some limestone, brown-gray, fine crystalline, dense; little shale, dark gray, silty, calcareous in parts.

3680 - 3690 Sandstone, as above and as unconsolidated grains, white to orange, medium to coarse grain, sub-angular; little limestone, as above; little shale, as above.

3690 - 3700 As above; shale decreasing.

Mud Record @ 3698'. Mud weight - 9.6, Vis. - 49.

3700 - 3710 Limestone, gray to dark gray, fine granular, argillaceous; some sandstone, as above.

3710 - 3720 Sandstone, gray to dark gray, fine grain, rounded, calcareous, micaceous and as unconsolidated grains, clear to orange, sub-angular, medium to coarse grain; some limestone, brown-gray to dark gray, fine granular.

Mud Record @ 3716'. Mud weight - 9.5, Vis. - 50.

3720 - 3730 As above.

3730 - 3740 Sandstone, gray, fine grain, rounded, calcareous, micaceous.

3740 - 3750 As above.

Mud Record @ 3748'. Mud weight - 9.4, Vis. 48.

3750 - 3760 As above; sandstone, very fine grain.

Drilled with: Weight on bit 38,000#, RPM 100, Pump pressure 800.

- 3760 - 3770 Sandstone, gray, fine grain, rounded, calcareous, micaceous in parts; some limestone, brown-gray, fine grain.
- 3770 - 3780 Limestone, brown-gray, fine grain, silty in parts; some chert, brown.  
Mud Record @ 3775'. Weight 9.4, Vis. 45.
- 3780 - 3790 As above; much chert.
- 3790 - 3800 Limestone, brown-gray, fine granular, silty in parts; some chert, brown.  
Mud Record @ 3794'. Weight 9.6, Vis. 47.
- 3800 - 3810 Limestone, brown-gray, fine crystalline in parts, fine granular in parts, silty in parts, and sandstone as unconsolidated grains, clear to orange, fine to medium grain, sub-angular to sub-rounded.
- 3810 - 3820 As above; sandstone decreasing.  
Mud Record @ 3818'. Weight 9.6, Vis. 48.
- 3820 - 3830 As above; sandstone increasing.
- 3830 - 3840 Shale, dark gray, silty, calcareous; some limestone, as above; some sandstone, white, very fine to fine grain, rounded, calcareous.
- |             | <u>Weight on bit</u> | <u>RPM</u> | <u>Pump pressure</u> |
|-------------|----------------------|------------|----------------------|
| 3775 - 3795 | 30,000#              | 100        | 800                  |
| 3795 - 3840 | 38,000#              | 100        | 800                  |
- 3840 - 3850 Sandstone, white, very fine to fine grain, rounded, calcareous; some shale, dark gray, silty, calcareous in parts; little limestone, brown-gray, fine crystalline to fine granular, silty in parts.
- 3850 - 3860 Sandstone increase.  
Mud Record @ 3854'. Weight 9.7, Vis. 57.
- 3860 - 3870 Sandstone, white to tan, very fine to fine grain, rounded, calcareous; some limestone, as above plus limestone, white, marly.
- 3870 - 3880 Limestone, brown-gray, fine granular, oolitic in parts, silty to sandy in parts, grades to sandstone, white to gray, very fine to fine grain, rounded, calcareous; some shale, dark gray, silty, calcareous; little sandstone as unconsolidated grains, white to orange, sub-angular, fine to coarse grain.
- 3880 - 3890 As above; increase in sandstone, unconsolidated as above.  
Mud Record @ 3888'. Weight 9.5, Vis. 48.  
At 3895' twisted off leaving 4 drill collars in hole.
- 3840 - 3890, Weight on bit 30,000, RPM 100, Pump pressure 800.

3890 - 3900 Limestone, brown-gray and gray, fine granular, argillaceous to silty in parts; trace white, smokey chert.

3900 - 3910 As above; chert increasing.

Mud Record @ 3912'. Weight 9.6, Vis. 51.

3910 - 3920 Limestone, as above plus limestone, white, marly, silty in parts, grading to sandstone, white, very fine to fine grain, rounded, calcareous.

3920 - 3930 As above.

Mud Record @ 3927'. Weight 9.5, Vis. 57.

3930 - 3940 Limestone, gray-brown, gray, very fine granular, marly in parts grading to little sandstone, white, very fine to fine grain, rounded, calcareous.

3940 - 3950 Limestone, gray-brown, gray, fine granular, silty in parts; some shale, dark gray, silty.

3950 - 3960 Limestone, gray-brown, gray, fine granular, silty in parts grading, white, very fine to fine grain, rounded, calcareous, plus sandstone as unconsolidated grains, white to orange, sub-angular, fine to medium grain.

Mud Record @ 3959'. Weight 9.5, Vis. 48.

3960 - 3970 As above.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
3890 - 3942	25,000#	100	850
3942 - 3970	25,000#	100	800

3970 - 3980 Limestone, gray, gray-brown, fine to medium granular, mostly silty, grading to little sandstone, gray, fine grain, rounded, calcareous, plus few unconsolidated sand grains, white to orange, fine to medium grain, sub-angular; little shale, dark gray, silty, calcareous.

3980 - 3990 Shale, dark gray to black, silty in parts, calcareous, and limestone, gray, brown-gray, fine to medium granular, silty in parts, grading to little sandstone, gray, very fine grain, rounded, calcareous; trace chert, tan, smokey.

3990 - 4000 Limestone, as above; some sandstone as unconsolidated grains, fine to medium grain, sub-angular to sub-rounded; little shale, as above.

Mud Record @ 4000'. Weight 9.6, Vis. 48.

3970 - 4000, Weight on bit 25,000#, RPM 100, Pump pressure 800.

- 4000 - 4010 Sandstone, white, gray, very fine to fine grain, rounded, calcareous plus unconsolidated grains, clear to orange, fine to medium grain, sub-angular, and limestone, brown-gray, very fine to fine granular, and shale, dark gray, silty, calcareous; little chert, pink, brown.
- 4010 - 4020 Limestone, gray-brown, very fine to fine granular, silty in parts grading to little sandstone, white, gray, very fine grain, rounded, calcareous; little shale, dark gray, silty, calcareous; trace chert, pink.
- 4020 - 4030 Sandstone, white, gray, very fine grain, rounded, calcareous, plus unconsolidated grains of sandstone, clear, white to orange, sub-angular; some limestone, gray-brown, very fine to fine grain, silty in parts; some shale, dark gray, silty, calcareous; little chert, pink, smokey.
- 4030 - 4040 Limestone, gray, brown-gray, fine granular, argillaceous to silty grading to shale, gray, silty, calcareous.

Mud Record @ 4031'. Weight 10.6, Vis. 56.  
Changed drilling fluid over to brine at 4008'.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
4000 - 4008	25,000#	100	800
4008 - 4024	30,000#	90	800
4024 - 4040	30,000#	60	800

- 4040 - 4050 Shale, gray, dark gray, calcareous, silty and silicious in parts; some limestone, gray to dark brown-gray, fine granular to coarsely fragmental and crinoidal in parts, silty in parts.

Mud Record @ 4044'. Weight 10.6, Vis. 57.

- 4050 - 4060 As above; trace chert.
- 4060 - 4070 As above; little sandstone, white, brown-gray, very fine grain, rounded, calcareous.

Mud Record @ 4067'. Weight 10.9, Vis. 58.

4040 - 4070, Weight on bit 30,000#, RPM 60, Pump pressure 800.

- 4070 - 4080 Shale, gray, dark gray, calcareous, silty and silicious in parts, with some sandstone, white to gray, very fine grain, rounded, calcareous; little limestone, gray to brown-gray, fine granular to coarsely fragmental and crinoidal in parts, silty in parts; trace chert, dark brown.

Mud Record @ 4078'. Weight 10.9, Vis. 60.

- 4080 - 4090 As above.
- 4090 - 4100 Limestone, as above; some shale, as above; little sandstone, as above; trace chert, brown.

- 4100 - 4110 As above; no fragmental, crinoidal limestone; no chert.  
Mud Record @ 4104'. Weight, 10.8, Vis. 55.  
 4070 - 4100, Weight on bit 50,000#, RPM 60, Pump pressure 800.
- 4110 - 4120 Shale, light gray, to gray, silty, silicious, calcareous, grading to sandstone, light gray to gray, argillaceous, calcareous, very fine grain, rounded; little limestone, gray, marly; little limestone, brown, fragmental in parts.  
Mud Record @ 4116'. Weight 10.9, Vis. 55.
- 4120 - 4130 As above; limestone (mostly gray, marly) increase.
- 4130 - 4140 Limestone, light gray to gray, fine granular, silty in parts, marly in parts grading to sandstone, light gray to gray, very fine grain, rounded, calcareous; little shale, light gray to gray, calcareous; little chert, brown.
- 4140 - 4150 As above; sandstone decreasing.  
Mud Record @ 4141'. Weight 10.9, Vis. 56.
- 4150 - 4160 Limestone, light gray to gray, brown, fine to medium granular, silty in parts, fragmental in parts, oolitic in parts with inclusions of anhydrite, white; (limestone grade to) little sandstone, white to light gray, very fine grain, rounded, calcareous; little chert, brown.  
Mud Record @ 4160'. Weight 10.9, Vis. 58.  
 4110 - 4160, Weight on bit 50,000#, RPM 60, Pump pressure 800.
- 4160 - 4170 Limestone, gray, brown-gray, fine to coarse granular, crinoidal in parts with little pin-point porosity, silty in parts grading to little sandstone, gray, very fine grain, rounded, calcareous; trace chert, white, as inclusions in limestone.
- 4170 - 4180 Limestone, gray, brown-gray, fine to medium granular, silty, anhydritic with inclusions of anhydrite, white; trace chert, brown.  
Mud Record @ 4179'. Weight 10.8, Vis. 52.
- 4180 - 4190 As above.  
 4160 - 4190, Weight on bit 30,000#, RPM 60, Pump pressure 800.
- 4190 - 4200 Limestone, gray, brown-gray, fine to medium granular, silicious, silty, anhydritic in parts with inclusions of anhydrite, white; trace chert, brown.

4200 - 4210 As above; no chert.

4210 - 4220 As above.

Mud Record @ 4215'. Weight 10.8, Vis. 52.

4190 - 4220, Weight on bit 30,000#, RPM 60, Pump pressure 800.

4220 - 4230 Limestone, gray, brown-gray, fine to medium granular, silicious, silty, anhydritic in parts.

4230 - 4240 As above; trace chert, pink.

Mud Record @ 4231'. Weight 11.0, Vis. 45.

4240 - 4250 Limestone, as above with inclusions of anhydrite, white.

4250 - 4260 Limestone, as above with anhydrite inclusions; some shale, dark gray to black, silicious, hard, calcareous.

Mud Record @ 4253'. Weight 10.9, Vis 58.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
4220 - 4243	30,000#	60	700
4243 - 4265	30,000#	60	800

4260 - 4270 Limestone, brown-gray, fine to medium granular, silty, anhydritic, and some sandstone, gray, very fine grain, rounded, calcareous; little anhydrite, white.

Mud Record @ 4265'. Weight 10.9, Vis. 55.

4270 - 4280 Sandstone, gray, very fine grain, rounded, calcareous; some limestone, as above; little shale, dark gray to black, silty, anhydritic.

4280 - 4290 VERY POOR SAMPLE. Probably sandstone, gray, very fine grain, rounded, calcareous with some anhydrite, white, granular, and gypsum, white.

Mud Record @ 4285', Weight 11.0, Vis. 58.

4290 - 4300 VERY POOR SAMPLE. Probably gypsum, white, and some anhydrite, white, granular.

4280 - 4300, Weight on bit 30,000#, RPM 60, Pump pressure 800.

4300 - 4310 Salt, clear to white; some gypsum, white.

Mud Record @ 4304'. Weight 11.0, Vis. 55.

4310 - 4320 Salt, clear to white.

TOP OF THE SALT - 4302'.

4320 - 4350 As above.

Mud Record @ 4326'. Weight 11.0, Vis. 54.

4350 - 4340 As above.

4340 - 4350 As above.

4350 - 4360 As above.

4360 - 4370 As above.

Mud Record @ 4362'. Weight 11.0, Vis. 49.

4370 - 4380 As above.

4380 - 4390 As above.

4390 - 4400 Anhydrite, gray, white, gray-brown, granular; little salt.

4400 - 4410 Anhydrite, as above; little shale, gray, anhydritic, calcareous.

Mud Record @ 4400'. Weight 11.0, Vis. 47.

4410 - 4420 Shale, gray, anhydritic, calcareous; little anhydrite, as above.

4420 - 4430 Shale, gray, brown, gray to dark-gray, anhydritic, calcareous.

Mud Record @ 4421'. Weight 10.9, Vis. 52.

4430 - 4440 As above; little anhydrite, white, gray, tan, granular; little shale, black.

4440 - 4450 Shale, dark gray to black, anhydritic in parts, calcareous, soft, greasing looking in parts (no fluorescence); little anhydrite, as above.

4500 - 4450, Weight on bit 30,000#, RPM 60, Pump pressure 800.

4450 - 4460 Anhydrite, gray, granular, and shale, gray to black, anhydritic in parts, calcareous.

4460 - 4470 Anhydrite, white, gray, powdery to granular; little shale, as above.

Mud Record @ 4467'. Mud weight 10.9, Vis. 52.

4470 - 4480 Anhydrite, as above (shale cavings?).

4480 - 4490 Salt, white, clear; some anhydrite, as above.

4490 - 4500 Salt, as above.

4500 - 4510 As above.

Mud Record @ 4511'. Mud weight 10.9, Vis. 52.

4510 - 4520 As above.

4520 - 4530 As above.

NOTE: At 4532' this well appears to be only 37' lower than King well.

4530 - 4540 Anhydrite, white to gray, powdery to granular; some salt, as above.

4540 - 4550 Anhydrite, as above.

Mud Record @ 4544'. Weight 11.0, Vis. 47.

4550 - 4560 Anhydrite, gray, granular.

4560 - 4570 Anhydrite, gray, granular; some salt?

4570 - 4580 As above.

4580 - 4590 Anhydrite, gray, granular; little shale, gray to black, anhydritic in parts, calcareous.

4590 - 4600 As above; shale increase.

Mud Record @ 4592'. Weight 11.0, Vis. 43.

4600 - 4610 VERY POOR SAMPLE. Probably anhydrite, gray, granular, gummy (balls up bit).

Mud Record @ 4604'. Weight 11.0, Vis. 47.

4610 - 4620 Salt, white, colorless; some anhydrite, as above.

4620 - 4630 Salt, white, colorless.

4630 - 4640 As above.

4640 - 4650 Anhydrite, gray, powdery, granular; little shale, dark gray to black, anhydritic, calcareous; some salt, white, colorless. VERY POOR SAMPLE.

4650 - 4660 As above.

Mud Record @ 4657'. Mud weight 10.9, Vis. 46.

4660 - 4670 Salt, white, colorless.

4670 - 4680 As above.

4680 - 4690 As above.

4690 - 4700 As above.

Mud Record @ 4693'. Mud weight 11.1, Vis. 52.

4700 - 4710 As above.  
4710 - 4720 As above.  
4720 - 4730 As above.  
4730 - 4740 As above.  
4740 - 4750 As above.  
4750 - 4760 Salt, white, Colorless.  
4760 - 4770 As above.  
4770 - 4780 As above.  
4780 - 4790 As above.

Mud Record @ 4785'. Weight 11.1, Vis. 50.

4790 - 4800 Shale, gray to black, anhydritic, calcareous; some sandstone, brown (staining?), fine grain anhydritic, bubbling gas, fluoresces light green; some salt, as above.  
4800 - 4805 As above; no salt.

4800-4805, Weight on bit 30,000%, RPM 90, Pump pressure 900%.

NOTE: The zone topped @ 4792' should be the zone which blew out and made some gas and oil in the King well (4835-4845'). Will core ahead below 4805'.

Core # 1, 4805 - 4865; Recovered 60'

4805 - 4806 Shale, brown, gray to black, mottled in parts, anhydritic.  
4806 - 4807 As above.  
4807 - 4808 As above, mostly black.  
4808 - 4809 As above, soft.  
4809 - 4810 Shale, gray, very anhydritic.  
4810 - 4811 As above.

Mud Record @ 4811'. Weight 10.8, Vis. 58, Water Loss 14.

4811 - 4812 As above.  
4812 - 4813 As above.

- 4815 - 4814 Shale, gray, anhydritic with small inclusions of salt.
- 4814 - 4815 Shale, gray, very anhydritic.
- 4815 - 4816 As above.
- 4816 - 4817 Shale, gray, anhydritic.
- 4817 - 4818 Shale, gray, anhydritic with anhydrite filled veins.
- 4818 - 4819 Shale, gray, anhydritic.
- 4819 - 4820 Shale, gray, very anhydritic with spotted stain, fluorescence.
- 4820 - 4821 Shale, gray, anhydritic.
- 4821 - 4822 Shale, gray to dark gray, anhydritic with random hairline fractures, slight fluorescence on fracture surfaces.

Mud Record @ 4822'. Mud weight 10.9, Vis. 53.

- 4822 - 4823 Anhydrite, gray, crystalline.
- 4823 - 4824 Anhydrite, gray, crystalline; with inclusions and partings of shale, dark gray, brown, anhydritic; random hairline fractures with some fluorescence on fracture.
- 4824 - 4825 As above.
- 4825 - 4826 As above.
- 4826 - 4827 As above.
- 4827 - 4828 As above.
- 4828 - 4829 As above.

Mud Record @ 4829'. Mud weight 11.1, Vis. 50, Water Loss 7.6

- 4829 - 4830 As above.
- 4830 - 4831 As above.
- 4831 - 4832 Anhydrite, gray, crystalline and shale, gray, dark gray, brown, anhydritic in alternating thin beds; random hairline fractures thruout.
- 4832 - 4833 As above.
- 4833 - 4834 As above.
- 4834 - 4835 As above.

4805 - 4835, Weight on bit 12,000#, RPM 52, Pump Pressure 700#.

- 4835 - 4836 Shale, gray, anhydritic with random hairline fractures.  
Mud Record @ 4834'. Weight 11.1, Vis. 50, Water loss 8
- 4836 - 4837 As above.
- 4837 - 4838 Shale, gray, anhydritic.
- 4838 - 4839 As above.
- 4839 - 4840 Shale, gray, anhydritic with verticle fractures filled with gypsum.
- 4840 - 4841 Shale, gray, anhydritic with salt filled vein @ 45°.
- 4841 - 4842 Shale, gray, anhydritic.
- 4842 - 4843 Shale, gray, anhydritic with salt filled verticle fractures.
- 4843 - 4844 As above.
- 4844 - 4845 Shale, gray, anhydritic.
- 4845 - 4846 Shale, gray, anhydritic with salt filled verticle fractures.
- 4846 - 4847 Shale, gray, anhydritic.
- 4847 - 4848 As above.
- 4848 - 4849 Shale, gray, anhydritic, with streaks and mottles of shale, black.
- 4849 - 4850 Shale, gray, anhydritic.
- 4850 - 4851 Shale, gray, anhydritic, with inclusion of crystalline anhydrite.
- 4851 - 4852 Shale, gray, anhydritic.
- 4852 - 4853 Alternating laminae of shale, gray, anhydritic and shale, black, soft.
- 4853 - 4854 As above.
- 4854 - 4855 Anhydrite, dark gray, dense, shaly in parts.
- 4855 - 4856 Shale, gray, very anhydritic, dense, hard.
- 4856 - 4857 Anhydrite, dark gray, dense.
- 4857 - 4858 As above.
- Mud Record @ 4859'. Mud weight 10.8, Vis. 61, Water Loss 14.
- 4858 - 4859 As above.

4859 - 4860 Salt, white with streaks of tan and gray coloring.

4860 - 4861 As above.

4861 - 4862 As above.

4862 - 4863 As above.

4863 - 4864 As above.

4864 - 4865 As above.

4865-4865, Weight on bit 12,000#, RPM 52, Pump pressure 700#.

Reamed 7 3/4" hole, 4865-4865, to 9".

4865 - 4870 Salt, white, colorless to brown, gray.

4870 - 4880 As above.

4880 - 4890 As above.

4890 - 4900 As above; some salt, orange.

Mud Record @ 4895'. Mud weight 11.0, Vis. 58

4900 - 4910 As above.

4910 - 4920 As above; increase in salt, orange.

4920 - 4930 As above.

Mud Record @ 4929'. Mud weight 11.0, Vis. 59.

4930 - 4940 As above.

4940 - 4950 As above.

4950 - 4960 As above.

4960 - 4970 As above.

4970 - 4980 As above.

4980 - 4990 As above; decrease in salt, orange.

4990 - 5000 As above.

5000 - 5010 As above.

4965 - 4965, Weight on bit 20,000#, RPM 90, Pump pressure 800#.

4965 - 5058, Weight on bit 20,000#, RPM 65, Pump pressure 900#.

5010 - 5020 Salt, white, gray, orange.

5020 - 5030 As above.

5030 - 5040 As above.

5040 - 5050 As above.

Mud Record @ 5050'. Mud weight 11.0, Vis. 44.

5050 - 5060 As above.

5060 - 5070 As above; little shale, black, gray, brown, anhydritic in parts.

5070 - 5080 As above; shale increasing.

Mud Record @ 5089'. Mud weight 11.1, Vis. 49.

5080 - 5090 As above.

5090 - 5100 As above; shale decrease.

5100 - 5110 As above; no shale.

5110 - 5120 As above.

5120 - 5130 As above.

5130 - 5140 As above.

5140 - 5150 As above.

5150 - 5160 As above.

Mud Record @ 5150'. Mud weight 11.1, Vis. 48.

5058 - 5160, weight on bit 20,000<sup>lb</sup>, RPM 90, Pump pressure 900.

5160 - 5170 Salt, white, gray, orange.

5170 - 5180 As above; little (?) shale, black, gray, anhydritic in parts.

5180 - 5190 As above; shale increase?

Mud Record @ 5188'. Mud weight 11.0, Vis. 54.

5190 - 5200 Salt, white, gray, orange.

5200 - 5210 As above.

5210 - 5220 As above.

5220 - Mud Record. Mud weight 11.0, Vis. 56.

5220 - 5230 As above.

5230 - 5240 As above.

5240 - 5250 Shale, black, gray, anhydritic in parts; some anhydrite, gray; some salt, white, gray, orange.

Mud Record @ 5250'. Mud weight 11.1, Vis. 48.

5250 - 5260 Shale, as above; little anhydrite, gray.

Mud Record @ 5260'. Mud weight 11.1, Vis. 47.

5260 - 5270 As above.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5160 - 5171	20,000#	90	900#
5171 - 5240	18,000#	80	900#
5240 - 5270	8,000#	80	900#

Using little weight trying to straighten hole.

5270 - 5280 Shale, black, gray, anhydritic in parts; some anhydrite, gray.

5280 - 5290 Salt, white, gray; little shale and anhydrite, as above.

5290 - 5300 Salt, white, gray.

Mud Record @ 5299'. Mud weight 11.1, Vis. 54.

5300 - 5310 As above.

5310 - 5320 As above.

Mud Record @ 5315'. Mud weight 10.9, Vis. 56.

5320 - 5330 As above.

5330 - 5340 As above.

Mud Record @ 5335'. Mud weight 11.0, Vis. 54.

5340 - 5350 As above.

Mud Record @ 5347'. Mud weight 11.0, Vis. 55.

5350 - 5360 As above.

Mud Record @ 5359'. Mud weight 11.1, Vis. 54.

5360 - 5370 As above.

5370 - 5380 As above; little anhydrite, gray.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5270 - 5272	8,000#	90	900#
5272 - 5275	10,000#	90	900#
5275 - 5332	11,000#	90	900#
5332 - 5354	10,000#	90	900#
5354 - 5380	12,000#	90	900#

Using little weight trying to straighten hole.

5380 - 5390 Shale, black, gray, anhydritic in parts; some anhydrite, gray.

Mud Record @ 5387'. Mud weight 11.1, Vis. 52.

5390 - 5400 As above.

5400 - 5410 As above.

5410 - 5420 As above.

Mud Record @ 5417'. Mud weight 11.0, Vis. 55.

5420 - 5430 Salt, white, gray and shale, black, gray, anhydritic in parts.

5430 - 5440 Salt, white, gray.

Mud Record @ 5436'. Mud weight 11.0, Vis. 54.

5440 - 5450 As above.

5450 - 5460 As above.

5460 - 5470 Salt, white, gray; some shale, black, gray, anhydritic in parts.

5470 - 5480 Salt, white, gray.

5480 - 5490 As above.

Mud Record @ 5478'. Mud weight 11.1, Vis. 54.

5490 - 5500 As above.

5500 - 5510 As above.

5510 - 5520 As above.

5520 - 5530 As above.

5530 - 5540 Salt, white, gray.

Mud Record # 5531'. Mud weight 11.2, Vis. 58.

5540 - 5550 As above.

5550 - 5560 As above.

Mud Record # 5558. Mud weight 11.1, Vis. 52

5560 - 5570 As above.

5570 - 5580 Shale, black, gray, anhydritic in parts, and anhydrite, gray; some salt, white, gray.

5580 - 5590 Salt, white, gray; little shale, as above and anhydrite, gray.

Mud Record # 5587'. Mud weight 11.1, Vis. 50.

5590 - 5600 Anhydrite, gray; some shale, black, gray, anhydritic in parts. VERY POOR SAMPLE.

5600 - 5610 Shale, black, gray, anhydritic in parts; little anhydrite, gray. VERY POOR SAMPLE.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5580 - 5588	12,000#	90	900#
5388 - 5411	15,000#	90	900#
5411 - 5471	15,000#	90	1000#
5471 - 5587	22,000#	90	1000#
5587 - 5610	22,000#	90	900#

5610 - 5620 Shale, black, gray, anhydritic in parts; some anhydrite, gray; little salt, white gray? VERY POOR SAMPLE.

5620 - 5630 Anhydrite, gray; some shale, as above and little salt. VERY POOR SAMPLE.

5630 - 5640 Shale, black, gray, anhydritic in parts; some salt, white, gray; little anhydrite, gray. VERY POOR SAMPLE.

5640 - 5650 Salt, white, gray, orange.

5650 - 5660 As above.

Mud Record # 5660'. Mud weight 11.0, Vis. 49.

5660 - 5670 As above.

5670 - 5680 As above.

5680 - 5690 As above.

5690 - 5700 As above.

Mud Record @ 5697'. Mud weight 11.1, Vis. 50.

5700 - 5710 As above.

5710 - 5720 As above.

5720 - 5730 As above.

Mud Record @ 5727'. Mud weight 11.1, Vis. 50.

5730 - 5740 As above.

5740 - 5750 As above.

Mud Record @ 5749'. Mud weight 11.1, Vis. 52.

5750 - 5760 As above.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5610 - 5613	22,000#	90	900#
5613 - 5642	20,000#	90	1000#
5642 - 5730	20,000#	90	900#
5730 - 5760	18,000#	90	1000#

5760 - 5770 Salt, white, gray, orange.

5770 - 5780 As above.

5780 - 5790 As above.

Mud Record @ 5784'. Mud weight 11.0, Vis. 53.

5790 - 5800 As above.

5800 - 5810 Shale, black, carbonaceous, soft; some salt, as above; little anhydrite, gray; trace pyrite in black shale.

5810 - 5820 Salt, white, gray, orange; little anhydrite, gray.

Mud Record @ 5817'. Mud weight 11.1, Vis. 45.

5820 - 5830 Shale, black, carbonaceous, soft; trace of pyrite; little anhydrite, gray, little salt, white gray, orange.

Mud Record @ 5827'. Mud weight 11.1, Vis. 48.

5830 - 5840 Salt, as above and shale, as above.

	<u>Weight on bit</u>	<u>RFM</u>	<u>Pump pressure</u>
5760 - 5765	18,000#	90	1000#
5765 - 5806	10,000#	90	1000#
5806 - 5826	10,000#	120	1000#
5826 - 5840	8,000#	120	900#

5840 - 5850 Salt, white, gray with interbeds (?) of shale, black, carbonaceous, soft.

Mud Record 5850'. Mud weight 11.1, Vis. 47.

5850 - 5860 As above.

5860 - 5870 As above.

5870 - 5880 As above.

Mud Record @ 5870'. Mud weight 11.1, Vis. 46.

5880 - 5890 As above; shale increase.

5890 - 5900 Shale, as above and shale, gray, anhydritic; little salt.

5900 - 5910 Salt and shale, black, gray, brown, anhydritic in parts; trace pyrite in black shale.

Mud Record @ 5901'. Mud weight 11.2, Vis. 57.

5910 - 5920 Salt, white, gray with interbeds (?) of shale, black, carbonaceous, pyritic in parts.

5920 - 5930 As above.

Mud Record @ 5928'. Mud weight 11.0, Vis. 53.

5930 - 5940 As above.

	<u>Weight on bit</u>	<u>RFM</u>	<u>Pump pressure</u>
5840 - 5887	10,000#	125	1000#
5887 - 5909	8,000#	120	900#
5909 - 5940	8,000#	120	1000#

5940 - 5950 Salt, white, gray.

5950 - 5960 Shale, black, carbonaceous and shale, brown, silty grading to trace of sandstone, brown (staining?), very fine grain, very slightly fluorescent; little salt, as above.

Mud Record @ 5957'. Mud weight 11.0, Vis. 53.

5960 - 5970 As above. VERY POOR SAMPLE.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5940 - 5955	6,000#	120	1000#
5955 - 5965	6,000#	120	900#
5965 - 5970	6-8,000#	120	1000#

5970 - 5980 Shale, black, gray, brown, anhydritic in parts and salt, white, gray, orange; trace pyrite.

Mud Record @ 5974'. Mud weight 11.0, Vis. 52.

5980 - 5990 Salt, white, gray, orange; little shale, as above; trace pyrite.

5990 - 6000 Salt, white gray, orange and shale, as above; trace pyrite.

Mud Record @ 5994'. Mud weight 11.5, Vis. 54.

6000 - 6010 Salt, white, gray, orange; some shale, as above; trace pyrite.

Mud Record @ 6008'. Mud weight 11.2, Vis. 53.

6010 - 6020 As above; shale decrease.

6020 - 6030 As above; shale increase.

Mud Record @ 6025'. Mud weight 11.2, Vis. 61.

	<u>Weight on bit</u>	<u>RPM</u>	<u>Pump pressure</u>
5970 - 5980	8,000#	120	1,000#
5980 - 6005	6,000#	120	900#
6005 - 6030	6,000#	120	1,000#

6030 - 6040 Salt, white, gray (much black shale caving?).

Mud Record @ 6039'. Mud weight 11.2, Vis. 63.

6040 - 6050 As above.

6050 - 6060 As above; little black shale in place?

6060 - 6070 Shale, black, carbonaceous and salt, white, gray.

Mud weight @ 6061', 11.3, Vis. 71.

6070 - 6080 Shale, black, carbonaceous; little salt, white, gray; trace pyrite in black shale.

6080 - 6090 As above; (one piece of salt has two inclusions of black shale.)

6090 - 6100 Shale, as above and salt, as above.

Mud Record @ 6095'. Mud weight 11.2, Vis. 73.

	<u>Weight on bit</u>	<u> RPM</u>	<u>Pump pressure</u>
6060 - 6069	6,000#	120	1,000#
6069 - 6080	6,000#	120	900#
6080 - 6100	6,000#	120	1,000#

6100 - 6110 Shale, black, carbonaceous; some salt, white, gray, orange.

Mud Record @ 6110'. Mud weight 11.2, Vis. 72.

6110 - 6120 Salt, white, gray, orange, some with inclusions of black, pyritic shale; some shale, black, carbonaceous.

6120 - 6150 Shale, black, carbonaceous; little shale, gray-brown, anhydritic.

Mud Record @ 6125'. Mud weight 11.2, Vis. 70.

6150 - 6140 Shale, as above; some salt, white gray, orange.

6140 - 6150 Salt, white, gray, orange (little salt fluoresces light green).

6150 - 6160 As above.

Mud Record @ 6155'. Mud weight 11.2, Vis. 79, Waterloss 8.

6160 - 6170 As above.

6170 - 6180 As above.

Mud Record @ 6174'. Mud weight 11.2, Vis. 80, Waterloss 8.

Will go in with core barrel and attempt to core interval comparable to one in King well # 6242 - 6270 which made some oil.

	<u>Weight on bit</u>	<u> RPM</u>	<u>Pump pressure</u>
6100 - 6108	8,000#	120	1,000#
6108 - 6153	6,000#	120	900#
6153 - 6180	8,000#	120	1,000#

Core # 2, 6180 - 6240 (60'); Recovered 60'.

6180 - 6181 Salt, white, clear, gray with thin nearly horizon stringers of shale, dark gray to black, anhydritic.

6181 - 6182 Shale, dark gray to black, anhydritic in parts with petroliferous odor on fresh break with thin horizontal stringers of salt.

6182 - 6183 As above.

Mud Record @ 6183'. Mud weight 11.4, Vis. 84.

6183 - 6184 As above.

6184 - 6185 Salt, white, clear, gray, brown with gray banding dipping 10°.

6185 - 6186 As above.

6186 - 6187 As above.

6187 - 6188 As above.

6188 - 6189 As above.

6189 - 6190 As above.

6190 - 6191 As above.

Mud Record @ 6191'. Mud weight 11.3, Vis. 90, Waterloss 4.5

6191 - 6192 As above.

6192 - 6193 As above.

6193 - 6194 As above.

6194 - 6195 As above.

6195 - 6196 As above.

6196 - 6197 As above.

6197 - 6198 As above.

6198 - 6199 As above.

Mud Record @ 6199'. Mud weight 11.2, Vis. 91, Waterloss 4.5

6199 - 6200 As above.

6200 - 6201 As above.

6201 - 6202 As above.  
6202 - 6203 As above.  
6203 - 6204 As above.  
6204 - 6205 As above.  
6205 - 6206 As above.  
6206 - 6207 As above.  
6207 - 6208 As above.  
6208 - 6209 As above; numerous orange salt crystals.  
6209 - 6210 As above.

Mud Record @ 6210'. Mud weight 11.2, Vis. 95, Waterloss 7

6210 - 6211 Salt, white, clear, gray, orange with gray banding dipping 10°.  
6211 - 6212 As above.  
6212 - 6213 As above.  
6213 - 6214 As above.  
6214 - 6215 As above.  
6215 - 6216 As above.  
6216 - 6217 As above;  $\frac{1}{2}$ " streak of shale, gray to dark gray, anhydritic @ 6216'.  
6217 - 6218 Salt, white, clear, gray with gray banding dipping 10°;  $\frac{1}{2}$ " streak of shale, gray to dark gray, anhydrite. @ 6217'.  
6218 - 6219 Salt, white, clear, gray with gray banding dipping 10°.  
6219 - 6220 As above.  
6220 - 6221 As above.  
6221 - 6222 As above.  
6222 - 6223 As above.  
6223 - 6224 As above.  
6224 - 6225 As above.  
6225 - 6226 As above.

- 6226 - 6227 As above.
- 6227 - 6228 As above.
- 6228 - 6229 Salt, as above grading downward to anhydrite, gray, crystalline in bottom 6".
- 6229 - 6230 Shale, dark gray to black, anhydritic in parts with petroliferous odor and spotted fluorescence (light green) on fresh break with thin bands of salt dipping 10°.
- 6230 - 6231 As above.
- Mud Record @ 6231'. Mud weight 11.2, Vis. 97, Waterloss 5
- 6231 - 6232 As above.
- 6232 - 6233 As above.
- 6233 - 6234 As above.
- 6234 - 6235 Anhydrite, gray to dark gray grading to salt in bottom 3".
- Mud Record @ 6235'. Mud weight 11.5, Vis. 97, Waterloss 5
- 6235 - 6236 Salt, white, clear, gray, tan with slight contorted thin streaks of shale, gray to black (dipping 15°).
- 6236 - 6237 As above.
- 6237 - 6238 As above.
- 6238 - 6239 As above.
- 6239 - 6240 As above.

6180 - 6240 Weight on bit 14,000#, RPM 54, Pump pressure 700#.

Generalized description of Core # 2:

Core # 2; 6180 - 6240; Recovered 60'.

6180-6181 (1') Salt, white, clear, gray, with thin nearly horizontal stringers of shale, dark gray to black, anhydritic in parts.

6181-6184 (3') Shale, dark gray to black, anhydritic in parts with petroliferous odor on fresh break with thin horizontal stringers of salt.

6184-6228 (44') Salt, white, clear, gray, with gray banding dipping 10°;  $\frac{1}{2}$ " streaks of shale, gray to dark gray, anhydritic @ 6216' and 6217'; numerous orange salt crystals 6206-6217.

6229-6235 (7') Shale, dark gray to black, anhydritic in parts with petroliferous odor on fresh break with thin beds of salt throughout (dipping 10°) and a 6" bed of anhydrite, gray, crystalline at top of interval and 3" bed at base.

6235-6240 (5') Salt, white, clear, gray, tan with slightly contorted thin streaks of shale, gray to black, anhydritic (dipping 15°).

6240 - 6250 Salt, white, clear, gray (with shale, black cavings and trace shale, brown, silty, anhydritic with slightly light green fluorescence).

6250 - 6260 As above.

Mud Record # 6254'. Mud weight 11.2, Vis. 90, Waterloss 8.

6260 - 6270 As above. No shale.

6270 - 6280 As above.

6280 - 6290 As above.

Mud Record # 6284'. Mud weight 11.2, Vis. 73, Waterloss 12.

6290 - 6300 As above.

6300 - 6310 As above.

6310 - 6320 As above.

6320 - 6330 As above.

Mud Record # 6324'. Mud weight 11.2, Vis. 70, Waterloss 5.

6330 - 6340 These samples not available since well began to flow before they had reached surface. Drilling time indicates no change from above.

6340 - 6350 As above.

At 6348' hole began making salt water.

6350 - 6360 As above.

Mud Record # 6358'. Mud weight 11.2, Vis. 64, Waterloss 5.

6360 - 6370 As above.

While drilling ahead with waterflow at 6367' (12:00 A.M.), it was observed that hole was also making some oil and gas. Closed BOP and bled off thru burn line. At 6:00 A.M., 5-14-57, well was flowing a 2" stream of oily, muddy, highly gas cut water with flammable gas estimated 250 MCFPD all flowing by heads. Lit gas and flame shot out 15 to 25' and continued burning with light yellow to dark yellow flame. Will kill well and drill ahead.

6240 - 6285 Weight on bit 10,000#, RPM 120, Pump pressure 1,000#.  
6285 - 6367 Weight on bit 12,000#, RPM 120, Pump pressure 900#.

Sidewall Core #1 @ 5882'; recovered 3/4" anhydrite, white, shaly.  
 Sidewall Core #2 @ 5905'; recovered 3/4" shale, gray, anhydritic.  
 Sidewall Core #3 @ 5907'; recovered 1/2" same as Core #2.  
 Sidewall Core #4 @ 5965'; not recovered.  
 Sidewall Core #5 @ 5975'; recovered 1/2" intermixed fragments of shale,  
 gray, anhydritic, and anhydrite, white.  
 Sidewall Core #6 @ 5975'; recovered 1/2" anhydrite, white w/thin, black  
 shale streaks (slight stain?).  
 Sidewall Core #7 @ 5977'; recovered few fragments, same as Core #6.  
 Sidewall Core #8 @ 5979'; recovered 3/4", same as Core #6 and #7.  
 Sidewall Core #9 @ 6156'; recovered 1 1/2".  
 1" cement.  
 1/2" interlaminated shale, gray, anhydritic,  
 and anhydrite, white, sugary.  
 Sidewall Core #10 @ 6256'; recovered 1/2" anhydrite, white, sugary  
 w/interlaminae of shale, black.  
 Sidewall Core #11 @ 6324'; recovered 2".  
 1 1/2" cement.  
 1 1/2" salt, white w/hairlike streaks of brown  
 and black shale; salt is slightly anhydritic  
 in spots.  
 Sidewall Core #12 @ 6334'; recovered 1 1/2".  
 1" cement.  
 1/2" salt, white.

Drilling depths of above cores are as measured on Lane-Wells Gamma Ray-Neutron log.

**TEST #1, 6266 - 6375, Paradox member of Hermosa Formation (Pennsylvanian),**  
 open 2 hours, shut in 30 minutes, very weak blow immediately increasing  
 to weak after 5 minutes, increasing to fair after 30 minutes and  
 continuing throughout test. Pipe recovery: 1030 feet of fluid as  
 follows: 500 feet slightly oil and heavily gas and mud cut salt water,  
 530 feet gas cut salt water (bitter brine -- salinity 530,000 PPM),  
 IFP 100#, PPP 645#, SIP 4570/30", IHH 4830, FHH 4620.

**TEST #2, 5624 - 6375, Paradox member of the Hermosa Formation (Pennsylvanian),**  
 production packer used packer seated 15 hours, displaced mud w/35  
 barrels salt water followed by 45 barrels fresh water before seating  
 packer; packer seated 15 hours; dripped water from end of flow line  
 throughout test heading to 1/2" stream every 5 hours. Production packer  
 used so there were no pressures recorded and no pipe recovery.

6370 - 6380 Salt, white, clear, w/minor amounts of shale, black, and shale, gray,  
 tan, anhydritic; (also lost circulation matrix, cement and cuttings  
 from all up and down the hole); salt, fluoresces light blue thruout  
 (mineral fluorescence?); and some anhydritic shale has faint yellow  
 fluorescence, no cut.

Mud weight @ 6380' - 13.9

6380 - 6390 As above.

6390 - 6400 As above.

6400 - 6410 As above.

6410 - 6420 As above.

Mud Record @ 6414'. Mud weight 15.7, Vis. 68.

6420 - 6430 As above.

6430 - 6440 Salt, white, clear; some shale, gray, tan, anhydritic grading to granular anhydrite; little shale, black; salt fluoresces light blue; some tan anhydrite has faint yellow fluorescence (no cut). (Bit seemed to be balled up @ 4637 - 6439').

6440 - 6450 As above; anhydrite and shale, anhydrite increasing; fluorescence of tan anhydrite a shade stronger (no cut).

Mud Record @ 6440'. Mud weight 15.8, Vis. 64

6450 - 6460 Salt, white, clear; little shale, gray, tan, anhydrite grading to granular anhydrite; little shale, black; salt fluoresces light blue.

Mud Record @ 6455'. Mud weight 15.9, Vis. 65

6460 - 6470 Salt, white, clear w/minor amounts of shale, black and shale, gray, tan, anhydritic; salt fluoresces very light blue and some anhydritic shale has faint yellow fluorescence (no cut).

6470 - 6480 As above; shale increasing?

6480 - 6490 As above.

6490 - 6500 As above.

Mud Record @ 6498'. Mud weight 14.0, Vis 69

6500 - 6510 As above; shale decrease?

6510 - 6520 As above.

Mud Record @ 6514'. Mud weight 15.7, Vis. 66

6520 - 6530 Salt, white, clear w/minor amounts of shale, black and shale, gray, tan, anhydritic; salt fluoresces very light blue and some anhydritic shale has faint yellow fluorescence (no cut).

6530 - 6540 As above; shale increasing?

Mud Record @ 6531'. Mud weight 15.8, Vis. 67

6540 - 6550 As above.

6550 - 6560 As above; shale decrease?

6375 - 6455 Weight on bit 15,000#, RPM 125, Pump pressure 800#  
6455 - 6500 Weight on bit 15,000#, RPM 155, Pump pressure 800#  
6500 - 6580 Weight on bit 15,000#, RPM 125, Pump pressure 800#

6560 - 6570 Salt, white, clear w/minor amounts of shale, black, and shale, gray, tan, anhydritic grading to anhydrite, granular.

6570 - 6580 As above.

6580 - 6590 As above - trace shale, anhydritic w/faint yellow fluorescence.

6590 - 6600 As above.

Mud Record @ 6590'. Mud weight 13.6, Vis. 63

6600 - 6610 As above - trace shale, anhydritic w/faint yellow fluorescence.

6610 - 6620 As above - trace shale, anhydritic w/faint yellow fluorescence.

Mud Record @ 6615'. Mud weight 13.6, Vis. 63

6620 - 6630 As above.

Mud Record @ 6627'. Mud weight 13.5, Vis. 64

6630 - 6640 As above.

Note: At 6629' while out of hole for new bit, well started flowing back about a 3/4" stream. With BOP closed, pressure at the wellhead rose to 10# per sq. inch/15"; 18# per sq. inch/20"; and 28# per sq. inch/25". Went back in hole and killed flow by weighting mud to 13.8#.

6640 - 6650 As above.

6650 - 6660 Salt, white, clear w/minor amounts of shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular.

6660 - 6670 As above.

Mud Record @ 6665'. Mud weight 13.8, Vis. 64

6670 - 6680 As above.

6680 - 6690 As above.

6690 - 6700 As above.

6700 - 6710 As above.

6710 - 6720 Salt, white, clear w/minor amounts of shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular.

Mud Record @ 6719'. Mud weight 13.5, Vis. 63

6720 - 6730 Salt, white, clear w/minor amounts of shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular.

6730 - 6740 As above.

6740 - 6750 As above.

6750 - 6760 As above.

Mud Record @ 6760'. Mud weight 15.7, Vis. 67

6580 - 6629	Weight on bit 15,000#	RPM 125	Pump pressure 800
6629 - 6671	Weight on bit 20,000#	RPM ?	Pump pressure ?
6671 - 6760	Weight on bit 20,000#	RPM 125	Pump pressure 800

6760 - 6770 Salt, white, clear w/minor amounts of shale, black, and shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular.

6770 - 6780 As above.

6780 - 6790 As above.

6790 - 6800 As above; trace shale, anhydritic, tan w/yellow fluorescence (no cut).

6800 - 6810 As above.

Mud Record @ 6807'. Mud weight 15.8, Vis. 65

6810 - 6820 As above.

6820 - 6830 As above.

6830 - 6840 As above.

6840 - 6850 As above.

Mud Record @ 6845'. Mud weight 15.9, Vis. 65

6850 - 6860 Salt, white, clear; some shale, black, gray and minor amounts of shale, gray, tan, anhydritic grading to anhydrite, gray, tan granular.

6860 - 6870 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular and shale, black, soft. One very large piece of anhydrite, tan, gray-green in circulating sample w/good yellow to light green fluorescence (no cut). (Much salt in sample)

Mud Record @ 6861'. Mud weight 15.8, Vis. 65

6760 - 6859	Weight on bit 20,000#	RPM 125	Pump pressure 800
6859 - 6877	Weight on bit 20,000#	RPM 130	Pump pressure 800

Correlation: 6449' (-416') = 6751' (-580') in King well,  
Pure 184' higher.

6870 - 6880 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, granular and shale, black, soft (much salt in sample).

Mud Record @ 6870'. Mud weight 15.7, Vis. 75

6880 - 6890 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular; some shale, black, soft?

Mud Record @ 6888'. Mud weight 15.7, Vis. 75

6890 - 6900 As above.

Mud Record @ 6898'. Mud weight 15.7, Vis. 70

Note: All samples are gummy presumably because of anhydritic shale content.

6870 - 6877	Weight on bit 20,000#	RPM 150	Pump pressure 800
6877 - 6880	Weight on bit 20,000#	RPM 125	Pump pressure 800
6880 - 6892	Weight on bit ?	RPM ?	Pump pressure ?
6892 - 6900	Weight on bit 25,000#	RPM 125	Pump pressure 800

Correlation: The break at 6858' in this well may correlate either w/the break in the King well at 7012' or the one at 7225' .  
If 6858' (-825') = 7012' (-881') the Pure well is 56' higher.  
If 6858' (-825') = 7225' (-1072') the Pure well is 247' higher.

6900 - 6910 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular; light shale, black, soft.

Mud Record @ 6907'. Mud weight 15.7, Vis. 75

6910 - 6920 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular.

Mud Record @ 6912'. Mud weight 15.7, Vis. 72

6920 - 6930 Salt, white, clear; some shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular.

6930 - 6940 Salt, white, clear; little shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular; little shale, black, soft.

Mud Record @ 6951'. Mud weight 15.8, Vis. 70

6940 - 6950 As above.

Mud Record @ 6945'. Mud weight 15.5, Vis. 68

6950 - 6960 Salt, white, clear; little shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular.

Mud Record @ 6959'. Mud weight 15.6, Vis. 66

Note: Samples thru this interval are very poor. Washed a normal length of time, they are a clayey gob; washed longer, the clay and anhydrite wash out leaving salt (precipitated from drilling fluid?). Shale and anhydrite particles heavily coated w/anhydrite and anhydritic clays. Possible fluorescence is very likely masked by this coating.

6900 - 6940 Weight on bit 25,000# RPM 125 Pump pressure 800#  
 6940 - 6960 Weight on bit 25,000# RPM 75 Pump pressure 1100#

6960 - 6970 Shale, gray, tan, anhydritic grading to anhydrite, gray, tan, white, granular; little shale, black, soft.

Mud Record @ 6968'. Mud weight 13.6, Vis. 63

6970 - 6980 Shale, gray, tan, anhydritic grading to anhydrite, white, gray, tan, granular; little siltstone, tan, calcareous (almost very fine sandstone) hard.

Mud Record @ 6978'. Mud weight 13.8, Vis. 70

6980 - 6990 Anhydrite, white, gray, tan, granular, grading to some shale, gray, tan, anhydritic; trace siltstone, as above.

Mud Record @ 6988'. Mud weight 13.8, Vis. 73

6980 - 6982 Weight on bit 25,000 RPM 75 Pump pressure 1100  
 6982 - 6987 Weight on bit 22,000 RPM 70 Pump pressure 1500  
 6987 - 6990 Weight on bit 20,000 RPM 75 Pump pressure 1200

6990 - 7000 Anhydrite, white, gray, tan, granular grading to shale, gray, tan, anhydritic; little shale, black, soft.

Mud Record @ 6991'. Mud weight 13.7, Vis. 72

7000 - 7010 Salt, white, clear; some anhydrite, white, gray, tan, granular grading to shale, gray, tan, anhydritic; trace shale, black, soft.

7010 - 7020 Salt, white, clear w/minor amounts of shale, gray, tan, anhydritic and shale, black (trace limestone, brown, granular, argillaceous?).

7020 - 7030 As above.

Mud Record @ 7021'. Mud weight 13.6, Vis. 68

7030 - 7040 As above.

Mud Record @ 7038'. Mud weight 13.8, Vis. 62

7040 - 7050 As above; (no limestone).

7050 - 7060 As above.

Mud weight @ 7051'. Mud weight 13.6, Vis. 68

7060 - 7070 As above.

7070 - 7080 As above.

7080 - 7090 As above.

7090 - 7100 As above.

6990 - 6997	Weight on bit 20,000#	RPM 75	Pump pressure 1200
6997 - 7026	Weight on bit 30,000#	RPM 75	Pump pressure 1200
7026 - 7100	Weight on bit 35,000#	RPM 75	Pump pressure 1200

7100 - 7110 Salt, white, clear; trace shale, dark gray to black, calcareous.

7110 - 7120 Sample missing.

7120 - 7130 Salt, white, clear; trace shale, black, calcareous.

7130 - 7140 As above.

7140 - 7150 As above.

7150 - 7160 As above.

7160 - 7170 As above.

7170 - 7180 As above.

7180 - 7190 Salt, white, clear and anhydrite, white, gray, brown, sucrosic; some very shaley; little shale, black, anhydritic.

7190 - 7200 Anhydrite, as above; some shale, gray, brown and black, anhydritic.

7200 - 7210 Anhydrite and shale, as above; salt, white, clear.

7210 - 7220 Salt, white, clear; trace anhydrite, as above; trace shale, gray, brown, black.

7220 - 7230 As above.

7230 - 7240 As above.

7240 - 7250 As above; trace smokey salt.

7250 - 7260 Salt, white, clear; trace anhydrite, brown, gray, white; trace shale, brown, gray, black; trace salt, orange.

7260 - 7270 As above; salt becoming less clear.

7270 - 7280 As above; some salt, orange (may be potash).

7280 - 7290 Salt, white, orange, and smokey; trace anhydrite and shale, as above.

- 7290 - 7300 Salt, white, orange and smokey; trace anhydrite and shale, as above.  
 7300 - 7310 As above.  
 7310 - 7320 As above.

5' samples begin.

- 7320 - 7325 Salt, as above; shale, black, sooty, soft, calcareous; trace anhydrite, white, gray.

Weight on bit 30,000#    RPM 90    Pump pressure 1300#

- 7325 - 7330 Shale, black, dolomitic, micaceous, carbonaceous; some anhydrite, dark gray and black. Samples poor, very gummy. Trace salt, white, clear (caving); trace gray, salt and pepper siltstone, very shaley.  
 7330 - 7335 As above.  
 7335 - 7340 As above.

Weight on bit 30,000#,    RPM 90,    Pump pressure 1300#,  
Mud weight 13.8, Vis. 77

- 7340 - 7345 Very poor sample. Shale, black, anhydritic, carbonaceous, dolomitic; anhydrite, gray, black; some salt, clear (caving?).  
 7345 - 7350 Shale, gray and black, anhydritic, dolomitic; little anhydritic, gray and black; trace salt, caving.  
 7350 - 7355 As above; trace limestone, gray, brown, fine crystalline, dense; trace siltstone, medium gray, calcareous, slightly shaley.

- 7355 - 7360 Shale, medium gray, slightly silty, calcareous; some siltstone, medium gray, calcareous; some limestone, gray, brown, fine crystalline, dense; trace shale, black, dolomitic; trace anhydrite, white.

Weight on bit 30,000#    RPM 90    Pump pressure 1200#  
Mud weight 13.8, Vis. 72

- 7360 - 7365 Shale, black, carbonaceous, dolomitic; some siltstone, medium gray, shaley, calcareous; little limestone, gray, brown, fine crystalline, silty; trace gray shale; trace anhydrite.  
 7365 - 7370 Shale, medium gray, calcareous, very silty; some siltstone, medium gray, calcareous, hard; limestone, gray, brown, fine crystalline; trace shale, black; trace anhydrite, white.

Weight on bit 30,000#,    RPM 90,    Pump pressure 1200#  
Mud weight 13.6#, Vis. 68

- 7370 - 7375 Siltstone, gray-brown, calcareous, moderately soft and shale, gray to light gray, slightly calcareous; some limestone, gray-brown, hard, dense, slightly silty, tight.

7375 - 7380 Siltstone, as above and limestone, light brown to dark brown, dense, hard, tight; some shale, as above.

Weight on bit 35,000#, RPM 90, Pump pressure 1200#  
Mud weight 15.6, Vis. 68

7380 - 7385 Siltstone, light gray to gray-brown to brown, calcareous, fine to medium texture, hard, some slightly anhydritic; some limestone, brown-gray, very silty, hard, dense, tight; trace shale, black, very slightly anhydritic (?); trace shale, gray (?).

7385 - 7390 Siltstone, as above, less anhydritic; and shale, black, slightly calcareous, slightly anhydritic, hard; little limestone, as above.

7380 - 7387 Weight on bit 35,000# RPM 90, Pump pressure 1200#  
7387 - 7390 Weight on bit 50,000# RPM 82, Pump pressure 1200#

Mud Record - Mud weight 15.6, Vis. 68, Water loss 6.4, Filter cake 2/32"

7390 - 7395 Siltstone, gray to gray-brown, fine to medium textured, hard, slightly calcareous, anhydritic; w/inclusions of anhydrite, white, granular, grading to little shale, gray, anhydritic, hard, slightly calcareous; some limestone, brown to brown-gray, dolomitic in parts (brown pieces?); some ? anhydrite, white to gray, powdery to sugary.

7395 - 7400 As above w/considerable increase in anhydrite, white, powdery to sugary and slight increase in limestone.

Mud Record @ 7399'. Mud weight 15.6, Vis. 65

7390 - 7397 Weight on bit 45,000# RPM 60 Pump pressure 1200#  
7397 - 7399 Weight on bit 40,000# RPM 60 Pump pressure 1200#

7400 - 7405 Shale, black, hard, slightly calcareous (deliquescent?); little salt and anhydrite caving.

Mud Record @ 7409'. Mud weight 15.5, Vis. 16

7405 - 7410 As above.

7410 - 7415 Limestone, gray, gray-brown, tan, finely crystalline, dense, dolomitic w/trace pinpoint porosity; little anhydrite, white, creamy, powdery to sugary (caving?).

Mud Record @ 7415'. Mud weight 15.3, Vis. 65

7400 - 7404 Weight on bit 40,000# RPM 60 Pump pressure 1200#  
7404 - 7408 Weight on bit 35,000# RPM 60 Pump pressure 1200#  
7408 - 7414 Weight on bit 30,000# RPM 60 Pump pressure 1200#  
7414 - 7415 Weight on bit 40,000# RPM 60 Pump pressure 1200#

Note: The black shale at 7400' is the first good black shale encountered below the salt. The first such sample shale in the King well is at 7670'. If 7400' (-1367') = 7670' (-1519) in the King well, the Pure well is 152' higher at this point.

7415 - 7420 Limestone, gray, gray-brown, tan, finely crystalline, dense, dolomitic, some silty.

Mud Record @ 7417'. Mud weight 13.3, Vis. 59

7420 - 7425 Limestone, gray, gray-brown, tan, finely crystalline, dense, dolomitic, grading to some limestone, gray, silty; shale, gray, silty, calcareous.

Mud Record @ 7422'. Mud weight 13.2, Vis. 62

7425 - 7430 Limestone, gray, gray-brown, tan, finely crystalline, dense, dolomitic, dirty in parts, grading to little shale, gray to dark gray, hard, calcareous.

Mud Record @ 7427'. Mud weight 13.4, Vis. 65

7430 - 7435 As above; increase in dark shale.

Mud Record @ 7434'. Mud weight 13.4, Vis. 61

7415 - 7418	Weight on bit 40,000#	RPM 60	Pump pressure 1200#
7418 - 7423	Weight on bit 35,000#	RPM 60	Pump pressure 1000#
7423 - 7430	Weight on bit 35,000#	RPM 60	Pump pressure 1200#
7430 - 7435	Weight on bit 45,000#	RPM 60	Pump pressure 1200#

7435 - 7440 Limestone, gray, gray-brown, finely crystalline, dense, dolomitic w/trace pinpoint porosity, dirty in parts, grading to little shale, gray to dark gray, calcareous.

Mud Record @ 7436'. Mud weight 13.2, Vis. 62, Water loss 6

7440 - 7445 Limestone, gray, gray-brown, finely crystalline, dense, dolomitic, dirty in parts, grading to some shale, gray to dark gray, calcareous.

Mud Record @ 7444'. Mud weight 13.3, Vis. 70

7445 - 7450 Limestone, brown-gray, gray, finely crystalline, dense, dolomitic w/fair pinpoint to vuggy (small) porosity, vugs are stained black, fluoresces light green-blue, w/light green-blue cut fluorescence.

7450 - 7455 Limestone, gray, gray-brown, finely crystalline, dense, dolomitic in parts, argillaceous and silty in parts grading to shale, gray to dark gray, calcareous; stain and fluorescence as above.

7435 - 7444	Weight on bit 45,000#	RPM 50	Pump pressure 1000
7444 - 7451	Weight on bit 45,000#	RPM 40	Pump pressure 800
7451 - 7455	Weight on bit 45,000#	RPM 40	Pump pressure 1000

7455 - 7460 Limestone, gray, gray-brown, finely crystalline, dense, dolomitie in parts; argillaceous and silty in parts grading to shale, gray to nearly black, calcareous, silty in parts.

Mud Record @ 7459'. Mud weight 13.1, Vis. 49, Water loss 8.9,  
Filter cake 2/32"

7455 - 7458	Weight on bit 45,000#	RPM 40	Pump pressure 1000#
4758 - 7460	Weight on bit 40,000#	RPM 52	Pump pressure 1400#

NOTE: 10' depth correction at 7460' (7460' = 7450').

7450 - 7455 Shale, black, not micaceous, calcareous (looks like shale @ 7710' in King well - is somewhat more calcareous in Pure well).

7455 - 7460 Limestone, gray, gray-brown, finely crystalline, dense, mostly argillaceous grading to shale, gray to nearly black, calcareous.

7460 - 7465 Limestone, gray to gray-brown, tan, finely crystalline, dense, some argillaceous (generally cleaner than in 5 feet above); little anhydrite, white to tan, granular to crystalline; little shale, dark gray to black.

7465 - 7470 Limestone, white to tan, finely crystalline, very dense, (evaporitic appearance - effervesces strongly in hydrochloric acid at first and continues at ever diminishing rate); some limestone, as above; little shale, dark gray to black.

Mud Record @ 7470'. Mud weight 13.1, Vis. 59, Water loss 6.2,  
Filter cake 2/32"

7450 - 7453	Weight on bit 40,000#	RPM 52	Pump pressure 1400#
7453 - 7460	Weight on bit 40,000#	RPM 50	Pump pressure 1200#
7460 - 7470	Weight on bit 45,000#	RPM 50	Pump pressure 1200#

7470 - 7472 Limestone, white to tan, some chalky, finely crystalline, dense; much chalky material in sample which washed out of sample; (some limestone, gray to brown-gray, finely crystalline, dense, and shale, gray to black, probably from above.

7472 - 7474 As above.

Mud Record @ 7475'. Mud weight 13.1, Vis. 58, Water loss 6.2

7474 - 7476 As above; increase in white to tan limestone (Mississippian?).

Tentative top Mississippian: 7475 (-1442) = 7780 (-1629) in King well. Pure is then 187' higher.

7470 - 7476	Weight on bit 45,000#	RPM 50	Pump pressure 1200#
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Will run core barrel (Core #8) @ 7476'.

- Core #5, 7476 - 7534 (58'); recovered 58'.
- 7476 - 7477 Limestone, gray, mottled, dark gray (has fragmental appearance), fine to medium crystalline, crinoidal, w/random fractures and small vugs throughout, bleeding light green oil and gas; also some inter-crystalline porosity; fluoresces along fractures and throughout (scattered); some fractures have slickensided surfaced (stylolites?); has odor of oil and hydrogen sulfide.
- 7477 - 7478 As above.
- 7478 - 7479 As above.
- 7479 - 7480 As above; more medium crystalline and more intercrystalline porosity.
- 7480 - 7481 As above; fine to medium crystalline w/less intercrystalline porosity.
- 7481 - 7482 As above.
- 7482 - 7483 As above.
- 7483 - 7484 As above; more finely crystalline in streaks.
- 7484 - 7485 As above; several (6)  $\frac{1}{2}$ " vugs @ 7485'.
- 7485 - 7486 As above.
- 7486 - 7487 As above.
- 7487 - 7488 As above.
- 7488 - 7489 As above; one  $\frac{3}{4}$ " vug @ 7489'.
- 7489 - 7490 As above; one fracture lined w/selenite crystals cuts across impression of brach shell @ 7490'.
- 7490 - 7491 As above.
- 7491 - 7492 As above.
- 7492 - 7493 As above.
- 7493 - 7494 As above.
- 7494 - 7495 Limestone, dark gray, fine crystalline, argillaceous, without fractures, vugs or intercrystalline porosity; no fluorescence.
- 7495 - 7496 As above; one  $\frac{1}{2}$ " vugs @ 7496'.
- 7496 - 7497 Limestone, gray mottled, dark gray (bituminous) w/fragmental appearance w/random fractures, vugs and intercrystalline porosity throughout, bleeding oil and gas; scattered fluorescence along fractures and throughout.

- 7497 - 7498 As above; vugs appear to be lined w/salenite crystals and stained w/dead oil residue (no fluorescence).
- 7498 - 7499 As above.
- 7499 - 7500 As above; more coarsely crystalline w/increase ? in intercrystalline porosity.
- 7500 - 7501 As above; decrease in crystal size and intercrystalline porosity.
- 7501 - 7502 As above; slightly cherty in streaks, stylolitic in parts.
- 7502 - 7503 As above; no chert, more finely crystalline in streaks (veins?).
- 7503 - 7504 As above.
- 7504 - 7505 As above.
- 7505 - 7506 As above; increase in crystal size and in intercrystalline porosity.
- 7506 - 7507 Limestone, gray, mottled dark gray, (fragmental appearance), crinoidal in parts, fine to medium crystalline, w/intercrystalline porosity, random fractures and small vugs (pinpoint to  $\frac{1}{8}$ " ), throughout bleeding light green oil and gas; scattered fluorescence along fractures and throughout, stylolitic in parts; has odor of oil and hydrogen sulfide; little green-gray, calcareous shale @ 7508'; slightly more intercrystalline porosity @ 7509'.
- 7507 - 7508 As above.
- 7508 - 7509 As above.
- 7509 - 7510 As above.
- 7510 - 7511 As above.
- 7511 - 7512 As above; w/streaks, cherty.
- 7512 - 7513 As above.
- 7513 - 7514 As above; decrease chert streaks.
- 7514 - 7515 As above; no chert; limestone, more finely crystalline and dense in streaks.
- 7515 - 7516 As above.
- 7516 - 7517 As above.
- 7517 - 7518 As above; vuggy porosity increase to good (rock looks worm eaten); more fluorescence; limestone is dolomitic.

- 7518 - 7519 As above; decrease in vuggy porosity and in dolomitic nature of rock; also decrease in spotty fluorescence; one  $\frac{1}{2}$ " vug @ 7519'.
- 7519 - 7520 As above.
- 7520 - 7521 As above; w/cherty streaks.
- 7521 - 7522 As above; decrease chert.
- 7522 - 7523 As above; no chert.
- 7523 - 7524 As above; increase in crystal size.
- 7524 - 7525 As above; decrease in crystal size; w/cherty streaks; increase in vugs; very little fluorescence.
- 7525 - 7526 As above; more fluorescence (intercrystalline).
- 7526 - 7527 As above.
- 7527 - 7528 As above.
- 7528 - 7529 As above.
- 7529 - 7530 As above; decrease in vugs.
- 7530 - 7531 - As above.
- 7531 - 7532 As above.
- 7532 - 7533 Limestone, gray mottled dark gray, medium crystalline, crinoidal in parts w/intercrystalline porosity, random fractures and small vugs bleeding light green oil and gas, scattered fluorescence along fractures and throughout; stylolitic in parts; has odor of oil and hydrogen sulfide.
- 7533 - 7534 As above.

NOTE: In general, vuggy porosity appears to have dead oil stain; fractures and intercrystalline porosity have spotty light blue fluorescence, slight cut?

UBT #8, 7495 - 7534, Mississippian, open 2 hours, shut in 30 minutes, strong blow immediately from bottom of five gallon bucket becoming very strong in 2 minutes and continuing throughout. Non-inflammable gas (?) w/sulfur odor to surface in 9 minutes. Pipe recovery: 800' of fluid as follows: 180' black water w/sulfur odor, 120' slightly mud cut black water w/sulfur odor. IPP 70, FPP 70, SIP 2515/30", IWI 5255, PHH 5215.

Core #4, 7534 - 7578, (44'), recovered 44'.

- 7534 - 7535 Limestone, gray, gray-brown, grading to mottles and nodules of denser limestone, both lighter and darker, fine to coarse crystalline, crinoidal in parts with intercrystalline porosity, random fractures and small vugs (up to  $\frac{1}{2}$ " ); intercrystalline and fracture porosity show scattered light blue fluorescence and bleeding light green oil (sulfur odor not so distinct in this core as in core #3 and decreases below 7554); dead oil stain ? in vugs and some intercrystalline porosity.
- 7535 - 7536 As above.
- 7536 - 7537 As above.
- 7537 - 7538 As above.
- 7538 - 7539 As above; coral @ 7539'.
- 7539 - 7540 As above; no coral.
- 7540 - 7541 As above.
- 7541 - 7542 As above.
- 7542 - 7543 As above; more brown brachiopod @ 7534'.
- 7543 - 7544 As above; no brachiopod.
- 7544 - 7545 As above; some pinpoint porosity.
- 7545 - 7546 As above.
- 7546 - 7547 As above.
- 7547 - 7548 As above.
- 7548 - 7549 As above; w/cherty streaks; increase in vuggy to pinpoint porosity; no fluorescence in vugs (dead oil stain); brachiopods.
- 7549 - 7550 As above; more coarsely crystalline.
- 7550 - 7551 As above; less coarsely crystalline.
- 7551 - 7552 As above.
- 7552 - 7553 As above.
- 7553 - 7554 As above; increase dead oil?
- 7554 - 7555 As above; increase in crystal size, in intercrystalline porosity (?), in fluorescence and in bleeding oil; less dead oil.
- 7555 - 7556 As above.

- 7556 - 7557 As above; (stylolites from 7555 - 7577 $\frac{1}{2}$ ).
- 7557 - 7558 As above.
- 7558 - 7559 As above.
- 7559 - 7560 As above; decrease in crystal size, in intercrystalline porosity (?), in fluorescence and in bleeding oil; cherty streaks.
- 7560 - 7561 As above.
- 7561 - 7562 As above.
- 7562 - 7563 As above.
- 7563 - 7564 As above.
- 7564 - 7565 Limestone, gray, grading to mottles and nodules of more dense limestone, both lighter and darker, fine to coarse crystalline, crinoidal in parts, stylolitic w/intercrystalline porosity, random fractures and small vugs (up to  $\frac{1}{2}$ " ); intercrystalline and fracture porosity show scattered light blue fluorescence and bleeding light green oil; dead stain vugs.
- 7565 - 7566 As above.
- 7566 - 7567 Limestone, gray, mostly medium to coarse crystalline (less mottled than above), crinoidal in parts, stylolitic in parts, w/intercrystalline porosity (better than above?), random fractures (fewer than above) and small vugs (up to  $\frac{1}{2}$ " ); intercrystalline and fracture porosity show light blue fluorescence and bleeding light green oil (rock is still relatively tight), less intercrystalline dead oil (✓) stain than above, more bleeding of oil 7566 - 7578.
- 7567 - 7568 As above.
- 7568 - 7569 As above.
- 7569 - 7570 As above.
- 7570 - 7571 As above.
- 7571 - 7572 As above.
- 7572 - 7573 As above.
- 7573 - 7574 As above.
- 7574 - 7575 As above; brachiopod @ 7575'.
- 7575 - 7576 As above; no brachiopod.
- 7576 - 7577 As above.
- 7577 - 7578 As above.

Core #5, 7578 - 7636 (58') recovered 57'.

- 7578 - 7579 Limestone, light gray, dense, cherty w/streaks of limestone, gray to brown-gray, fine to medium crystalline, tite w/random fractures, stylolites and small vugs bleeding light green oil and salt water; (light green-blue fluorescence), intercrystalline fluorescence in crystalline streaks (spotty).
- 7579 - 7580 As above.
- 7580 - 7581 As above.
- 7581 - 7582 As above.
- 7582 - 7583 As above.
- 7583 - 7584 As above; coral (rugose) @ 7584'.
- 7584 - 7585 Limestone, gray to brown-gray, fine to coarse crystalline, crinoidal with scattered intercrystalline to vuggy (small) porosity, fluorescing light blue-green.
- 7585 - 7586 As above.
- 7586 - 7587 As above.
- 7587 - 7588 As above.
- 7588 - 7589 As above.
- 7589 - 7590 As above.
- 7590 - 7591 Limestone, light gray, dense, cherty w/streaks of limestone, gray to gray-brown, fine to coarse crystalline, tite w/random fractures, stylolites and small vugs bleeding light green oil and salt water. (light blue-green fluorescence); intercrystalline fluorescence in crystalline streaks (spotty).
- 7591 - 7592 As above.
- 7592 - 7593 As above.
- 7593 - 7594 As above.
- 7594 - 7595 As above.
- 7595 - 7596 As above.
- 7596 - 7597 As above.
- 7597 - 7598 As above.

- 7598 - 7599 Limestone, gray to light gray, dense, cherty, fragmental, fractured w/fractures filled w/shale, dark gray, calcareous (especially fractured 7598 - 7602) w/streaks dolomite, brown, fine to coarse crystalline, w/very good intercrystalline porosity (fluoresces light blue-green); has sulfur odor.
- 7599 - 7600 As above.
- 7600 - 7601 As above.
- 7601 - 7602 As above.
- 7602 - 7603 As above.
- 7603 - 7604 As above.
- 7604 - 7605 As above.
- 7605 - 7606 Limestone, gray to brown-gray, crystalline, crinoidal, slightly fractured w/scattered fair intercrystalline to vuggy (small) porosity, bleeding light green oil and salt water.
- 7606 - 7607 Limestone, light gray, dense, cherty w/random fractures and small vugs bleeding light green oil and salt water.
- 7607 - 7608 Limestone, light gray, dense, cherty w/random fractures and small vugs bleeding oil and salt water.
- 7608 - 7609 Limestone, gray to brown-gray, crystalline, crinoidal, slightly fractured w/good intercrystalline to vuggy (small) porosity, bleeding oil and salt water.
- 7609 - 7610 As above.
- 7610 - 7611 Top 8" as above; bottom 6" limestone, light gray, dense, cherty w/streaks of limestone, gray to brown-gray, fine to coarse crystalline, crinoidal w/random fractures and stylolites bleeding oil and salt water.
- 7611 - 7612 Limestone, as in 6" above.
- 7612 - 7613 As above.
- 7613 - 7614 As above.
- 7614 - 7615 Limestone, gray, brown-gray, crystalline, crinoidal, dense, w/very scattered intercrystalline porosity, bleeding light green oil and salt water (fluoresces light blue-green).
- 7615 - 7616 As above.
- 7616 - 7617 As above.

- 7617 - 7618 Limestone, gray, brown-gray, crystalline, crinoidal, dense, w/very scattered intercrystalline porosity, bleeding light green oil and salt water (fluoresces light blue-green).
- 7618 - 7619 As above.
- 7619 - 7620 As above.
- 7620 - 7621 As above.
- 7621 - 7622 As above.
- 7622 - 7625 Limestone, gray, brown-gray, fine to coarse crystalline, crinoidal, dense, w/very scattered intercrystalline porosity, bleeding oil and salt water w/streaks of limestone, light gray, dense, cherty w/numerous random fractures bleeding oil and salt water, and good vuggy porosity, not bleeding and invaded by drilling fluid (best porosity of this kind between 7631-7634). Fluorescence in some vugs and (tightest?) fractures.
- 7625 - 7624 As above.
- 7624 - 7625 As above.
- 7625 - 7626 As above; w/cherty streak near 7626.
- 7626 - 7627 As above; not cherty.
- 7627 - 7628 As above; mottled w/white calcite.
- 7628 - 7629 As above; not mottled.
- 7629 - 7630 As above.
- 7630 - 7631 As above; mottled w/white chert (mottles up to 1" across).
- 7631 - 7632 As above.
- 7632 - 7633 As above.
- 7633 - 7634 As above.
- 7634 - 7635 As above.
- 7635 - 7636 Missing.

Mud Record. Mud weight 15.5, Viscosity 61, Water loss 4.6

Weight on bit 20,000#, RPM 60, Pump pressure 700#

IST #4, 7546 - 7637, Mississippian. open 1 hour 30 minutes, shut in 30 minutes, very strong blow air immediately and throughout; non-inflammable gas\* to surface in 2 minutes (has sulfur odor); black viscous non-fluorescing fluid w/gas in 10 minutes; turned to burn pit, stream of gas stained bank @ end of burn pit 100' from end of flow line; after shutting in for 30 minutes for SIP tried to unseat tool @ 9:30 A.M. Packer stuck. Fluid recovery: unknown; packer stuck - displaced fluid in trying to free tool.

IFP 1695, FFP 1460, SIP 2530/30", IHH 5335, FHH - none.

\*Chem Lab analyses show fluid to be highly gas cut and blackened w/H<sub>2</sub>S - no water. Gas analysis; nitrogen 86.15%, CO<sub>2</sub> 1.76%, H<sub>2</sub>O 0.57%, methane 5.77%, ethane and higher 5.77%.

Core #6, 7636 - 7668 (32'), recovered 32'.

- 7636 - 7637 Limestone, gray, gray-brown, fine to coarse crystalline, crinoidal in parts, bleeding oil, gas and salt water from very scattered inter-crystalline to vuggy porosity, spotty light blue-green fluorescence.
- 7637 - 7638 As above; more finely crystalline; stylolite @ 7638'.
- 7638 - 7639 As above; more coarsely crystalline; less fluorescence.
- 7639 - 7640 Limestone, gray, gray-brown, as above w/cherty streaks @ 7639' and 7640', w/vuggy (small) porosity bleeding oil, gas and salt water; some random fractures @ 7640' (corals? @ 7640).
- 7640 - 7641 Limestone, gray, dense, cherty w/small vugs and random fractures bleeding oil, gas and salt water; w/streaks of limestone, gray, gray-brown, crystalline, also w/tiny vugs bleeding oil, gas and salt water, light blue-green fluorescence in vugs and fractures.
- 7641 - 7642 As above.
- 7642 - 7643 Limestone, gray, gray-brown, finely crystalline w/few random fractures and vugs bleeding oil, gas and salt water; chert streak near 7643'; fluoresces light blue-green.
- 7643 - 7644 Same as 7640 - 7642.
- 7644 - 7645 Limestone, gray, gray-brown, finely crystalline, slightly cherty w/ few random hairline fractures and numerous small vugs bleeding oil, gas and salt water; light blue fluorescence mostly on fracture surfaces.
- 7645 - 7646 Limestone, gray, gray-brown, crystalline, slightly cherty, w/very few tiny vugs and hairline fractures bleeding oil, gas and salt water.
- 7646 - 7647 Limestone, gray, gray-brown, fine to medium crystalline, slightly cherty, dolomitic (some dolomite crystals) w/few hairline fractures and numerous small vugs bleeding oil, gas and salt water; vuggy porosity @ 7646 - 7646½, not bleeding (may be permeable).

- 7647 - 7648 Limestone, gray, gray-brown, fine to coarse crystalline, dolomitic w/very few tiny vugs and random hairline fractures bleeding oil, gas and salt water. Faint light blue fluorescence on fracture surface.
- 7648 - 7649 Top 6 inches as above; lower 6 inches as below.
- 7649 - 7650 Limestone, gray, dense, cherty w/numerous small vugs and random hairline fractures bleeding oil, gas and salt water; very cherty and fractured @ 7650'; vugs w/brown stain fluoresces light blue-green; vugs w/black stain (dead oil?) show no fluorescence; light blue green on fracture surface.
- 7650 - 7651 As above.
- 7651 - 7652 Limestone, gray, gray-brown, finely crystalline; w/streaks limestone, gray, dense, cherty w/few vugs, tiny, and numerous hairline fractures bleeding oil, gas and salt water (limestone silicified along one fracture @7652'), light blue-green fluorescence on fracture surface (scattered); vugs have black streak and no fluorescence.
- 7652 - 7653 As above.
- 7653 - 7654 Limestone, gray, cherty, dense, w/streaks of limestone, gray, gray-brown, fine to coarse crystalline, dolomitic in parts and streaks of chert @ 7653½, 7655, 7656½, 7657 and 7658 w/random hairline fractures and small vugs bleeding oil, gas and salt water; spotty light blue-green fluorescence on fracture surface and in vugs w/brown stain; black stained vugs have no fluorescence. (chert has fractures and vugs, too).
- 7654 - 7655 As above.
- 7655 - 7656 As above.
- 7656 - 7657 As above.
- 7657 - 7658 As above.
- 7658 - 7659 As above.
- 7659 - 7660 Top 6 inches as above; lower 6 inches as below.
- 7660 - 7661 Chert, light to dark gray w/ streaks of limestone, gray, dense, cherty w/numerous hairline fractures and a few tiny vugs bleeding slightly oil, gas and salt water; light blue-green fluorescence on fracture surface.
- 7661 - 7662 Limestone, gray to dark gray, dense, cherty w/ streaks of limestone, gray, gray-brown, fine crystalline w/numerous random hairline fractures throughout and numerous small vugs in limestone both bleeding oil, gas and salt water; light blue-green fluorescence (very scattered) on fracture surfaces and in some vugs.
- 7662 - 7663 As above.

7663 - 7664 Limestone, gray to dark gray, dense, cherty w/streaks of limestone, gray, gray-brown, fine crystalline w/numerous random hairline fractures throughout, and numerous small vugs in limestone both bleeding oil, gas and salt water; light blue-green fluorescence (very scattered) on fracture surfaces and in some vugs.

7664 - 7665 As above.

7665 - 7666 As above.

7666 - 7667 Limestone, gray to dark gray, dense, cherty w/streaks of limestone, gray, gray-brown, fine crystalline w/numerous random hairline fractures throughout and numerous small vugs in limestone, both bleeding oil, gas and salt water; light blue-green fluorescence (very scattered) on fracture surfaces and in some vugs; streak of chert @ 7668'.

7667 - 7668 As above.

NOTE: In general this core looks wetter than Core #3, 4 and 5. Vugs and fractures appear to bleed water first then oil. Entire core has sulfur odor on fresh break.

Mud Record. Mud weight 15.2, Vis. 57, Water loss 4.4, Filter cake 2/32.

Weight on bit 15,000 to 20,000, RPM 60, Pump pressure 700#.

Core #7, 7668 - 7724 (56'), recovered 56'.

7668 - 7669 Limestone, gray, dense, cherty w/streaks of limestone, gray, gray-brown, fine to medium crystalline; and streaks of nodular chert @ 7668, 7670, 7671, 7671½, 7672½ and 7674; w/numerous random hairline fractures throughout, and numerous small vugs in limestone, both bleeding oil, gas and salt water. Black residue in some vugs; other vugs and fractures fluoresce light blue-green.

7669 - 7670 As above.

7670 - 7671 As above.

7671 - 7672 As above.

7672 - 7673 As above.

7673 - 7674 Limestone, gray, brown-gray, fine crystalline, dolomitic w/streaks limestone, gray, dense, cherty w/random hairline fractures (less than above, and numerous small vugs bleeding oil, gas and some salt water. Some vugs lined w/black residue; other vugs and fracture surface fluoresce light blue-green.

7674 - 7675 As above.

7675 - 7676 As above.

7676 - 7677 As above.

- 7677 - 7678 Limestone, gray, dense, cherty and dolomitic; w/streaks limestone, gray, brown-gray, very fine to fine crystalline, dolomitic in parts; streaks of nodular chert (@ 7678 $\frac{1}{2}$ , 7679, 7683, 7684 $\frac{1}{2}$ , 7685 $\frac{1}{2}$ , 7686 $\frac{1}{2}$ , 7689, 7689 $\frac{1}{2}$ , 7690, 7695 $\frac{1}{2}$ , 7695) w/numerous random hairline fractures throughout and numerous small vugs in limestone, both bleeding oil, gas and some salt water; black residue in some vugs; other vugs and fracture surface fluoresce light blue-green.
- 7678 - 7679 As above.
- 7679 - 7680 As above.
- 7680 - 7681 As above.
- 7681 - 7682 As above.
- 7682 - 7683 As above.
- 7683 - 7684 As above.
- 7684 - 7685 As above; limestone generally more dense.
- 7685 - 7686 As above.
- 7686 - 7687 As above.
- 7687 - 7688 As above.
- 7688 - 7689 As above.
- 7689 - 7690 As above.
- 7690 - 7691 As above.
- 7691 - 7692 As above.
- 7692 - 7693 As above.
- 7693 - 7694 As above.
- 7694 - 7695 As above.
- 7695 - 7696 As above.
- 7696 - 7697 Limestone, gray to dark gray, dense, very fine to fine grain, cherty in parts, dolomitic; streaks of limestone, nearly black, dolomitic, dense w/a few random hairline fractures and numerous small vugs throughout, bleeding oil, gas and some salt water.
- 7697 - 7698 As above.

- 7698 - 7699 Limestone, gray to dark gray, dense, very fine to fine grain, cherty in parts, dolomitic w/streaks of limestone, nearly black, dolomitic, dense w/a few random hairline fractures and numerous small vugs throughout bleeding oil, gas and some salt water; only very few vugs contain black residues; other vugs and fracture surfaces fluoresce light blue-green.
- 7699 - 7700 As above.
- 7700 - 7701 As above.
- 7701 - 7702 As above.
- 7702 - 7703 As above.
- 7703 - 7704 As above.
- 7704 - 7705 As above.
- 7705 - 7706 As above; streak of nodular chert @ 7705 $\frac{1}{2}$ '.
- 7706 - 7707 As above.
- 7707 - 7708 As above; streak of nodular chert @ 7708'.
- 7708 - 7709 As above.
- 7709 - 7710 As above.
- 7710 - 7711 As above; anhydrite inclusion 1" x 2" @ 7711'.
- 7711 - 7712 As above.
- 7712 - 7713 As above.
- 7713 - 7714 As above.
- 7714 - 7715 As above.
- 7715 - 7716 As above; streak of nodular chert @ 7716'.
- 7716 - 7717 As above.
- 7717 - 7718 As above.
- 7718 - 7719 As above; core badly broken up from 7718' to 7720'.
- 7719 - 7720 As above.
- 7720 - 7721 As above.
- 7721 - 7722 As above; core appeared especially oily (bleeding) @ 7721 to 7722; streak of nodular chert @ 7722'.

7722 - 7723 As above.

7723 - 7724 As above; core badly broken up from 7723 - 7724'.

GENERAL: Drilling mud on the surface of the core was brown above 7696'; below 7696', it was more black.

The core had a sulfur odor throughout, especially on fresh breaks, but in general, this core smelled more oily than earlier cores.

Core #8, 7725 - 7732 (7'); recovered top 5½'.  
Drilled one foot 7724 - 7725 to clean up hole.

7725 - 7726 Limestone, dark gray, fine crystalline, dolomitic w/few random fractures and numerous small vugs bleeding oil and gas throughout (also from intercrystalline porosity?) (very little or no water apparent), 1½" layer of shale, black, slightly calcareous, hard @ 7725½'.

7726 - 7727 As above.

7727 - 7728 Alternating bands (½" to 2" thick) of limestone, gray, dark gray, fine crystalline, dolomitic; limestone, light gray to gray, fine crystalline, dolomitic w/few random fractures and numerous small vugs bleeding oil and gas; best vuggy porosity in dark streaks; 1" streak of very dense oolitic gray-tan limestone @ 7727½'.

7728 - 7729 As above.

7729 - 7730½ As above.

7730½-7732 Not recovered.

Entire core has petroliferous odor and slight sulfur odor.

Mud Record. Mud weight 13.0, Vis. 59, Waterloss 6.8, Filter cake 2/32.

Weight on bit 18,000#, RPM 60, Pump pressure 600#.

EST #5, 7675 - 7732, Mississippian, open 2 hours, shut in 30 minutes, weak blow air immediately from hose in bottom of 5 gallon bucket increasing to fair in 5 minutes and to strong in 25 minutes and continuing throughout test. No combustible gas to surface. Slight flare gas at end of flow line when tool was shut in. Sulfide odor while pulling tool. Fluid recovery: 60' highly gas cut mud, 650' very highly gas cut and highly oil cut mud, 180' very highly gas cut and very highly oil cut mud, 450' gas cut light green oil w/high percentage of BS = total 1320' (14.66 barrels). IFP 130, FFP 470, SLP 2450/50", IHR 5345, FHW 5320.

Core #9, 7732 - 7777 (45'); recovered 45' (✓ 1½' of Core #8)

- 7730½ - 7732 Limestone, gray to dark gray w/brown cast (stain?), fine crystalline, dolomitic w/random fractures and small vugs bleeding oil and gas; 1" streak black shale, slightly calcareous @ 7731½' (45° to axis of core); anhydrite inclusion w/above black shale; fossil impression (?) throughout.
- 7732 - 7733 As above.
- 7733 - 7734 As above; streak of chert, gray @ 7734'.
- 7734 - 7735 As above.
- 7735 - 7736 As above.
- 7736 - 7737 As above.
- 7737 - 7738 As above; streaks of chert @ 7737½; streak of black shale, slightly calcareous w/inclusion of anhydrite @ 7738' (shale streak is horizontal).
- 7738 - 7739 As above.
- 7739 - 7740 As above.
- 7740 - 7741 As above.
- 7741 - 7742 As above.
- 7742 - 7743- As above.
- 7743 - 7744 As above; streak of chert, gray @ 7744'; this foot more dolomitic than above.
- 7744 - 7745 Dolomite, gray to dark gray, fine crystalline, w/a few random fractures (less than above) and numerous small vugs (more than above) bleeding oil and gas, fossil impressions throughout (crinoids, brachs).
- 7745 - 7746 As above.
- 7746 - 7747 As above.
- 7747 - 7748 As above.
- 7748 - 7749 As above.
- 7749 - 7750 As above.
- 7750 - 7751 As above; black streak @ 7751 (dolomite impregnated w/blk residue? non-fluorescent).
- 7751 - 7752 As above.

- 7752 - 7753 As above; streak of gray chert @ 7753'.
- 7753 - 7754 As above.
- 7754 - 7755 As above.
- 7755 - 7756 As above.
- 7756 - 7757 As above; black streak @ 7757, as above.
- 7757 - 7758 As above; black streak @ 7757 $\frac{1}{2}$ , as above.
- 7758 - 7759 As above.
- 7759 - 7760 As above.
- 7760 - 7761 Dolomite, gray to dark gray, fine crystalline w/a few random fractures and numerous small vugs bleeding oil and gas, fossil impressions throughout (crinoids, brachs); black streaks @ 7761 & 7761 $\frac{1}{2}$ , as above.
- 7761 - 7762 As above.
- 7762 - 7763 As above; black streak @ 7762 $\frac{1}{2}$ , as above.
- 7763 - 7764 As above; chert nodule @ 7764', (4" across).
- 7764 - 7765 As above.
- 7765 - 7766 As above; black streak @ 7766', as above.
- 7766 - 7767 As above.
- 7767 - 7768 As above; this foot looks somewhat wet.
- 7768 - 7769 As above.
- 7769 - 7770 As above; chert nodule @ 7769 $\frac{1}{2}$ '.
- 7770 - 7771 As above.
- 7771 - 7772 As above.
- 7772 - 7773 As above; anhydrite inclusions @ 7772 $\frac{1}{2}$ '.
- 7773 - 7774 As above.
- 7774 - 7775 Dolomite, gray (lighter color than above), fine crystalline w/random fractures and small vugs bleeding mostly water; (slight amount of oil w/water 7774-75).
- 7775 - 7776 As above.
- 7776 - 7777 As above.

Mud Record: Mud weight 15.2, Vis. 63, Waterloss 10.4, Filter cake 2/32.

Weight on bit 20,000#, RPM 60, Pump pressure 700#.

TEST #6, Mississippian, 7752 - 7777, open 2 hours, shut in 30 minutes, weak blow air immediately thru hose from bottom of 5 gallon bucket of water increasing gradually to fair after 8 minutes and strong after 30 minutes and continuing throughout test. Fluid recovery: 270' gas out and slightly oil out mud; 450' highly gas out and oil out mud; 180' highly gas out and highly oil out mud; 180' highly gas out and highly oil out water; 270' highly gas out and water out oil; 1290' black sulfur water; total recovery 2640'. IFF 60, FFP 1115 (still rising) SIP 2475/30" (still rising), IEM 5535 FWH 5505.

Drilled 7777 - 7780

Core #10, 7780 - 7858 (58'), recovered 58'

- 7780 - 7781 Dolomite, gray to dark gray, fine crystalline w/random fractures and numerous small vugs bleeding some salt water, very slightly oily.
- 7781 - 7782 As above; numerous anhydrite inclusions 7781 - 7785.
- 7782 - 7783 As above.
- 7783 - 7784 As above.
- 7784 - 7785 As above.
- 7785 - 7786 Dolomite, as above w/few random fractures (fewer than above) and very few vugs; fractures bleeding slightly oil, gas and water.
- 7786 - 7787 As above.
- 7787 - 7788 As above.
- 7788 - 7789 As above.
- 7789 - 7790 As above.
- 7790 - 7791 Dolomite, gray to dark gray, fine crystalline, w/random fractures (many vertical) throughout and small vugs in more dolomitic parts bleeding some salt water; 6" bed of shale, green, dolomitic 7790 - 90½ -- bleeding horizontal.
- 7791 - 7792 As above.
- 7792 - 7793 As above.
- 7793 - 7794 As above.
- 7794 - 7795 As above.

- 7795 - 7796 Dolomite, gray to dark gray, fine crystalline, w/ random fractures (many vertical) throughout and small vugs in more dolomitic parts bleeding some salt water; 6" bed of shale, green, dolomitic 7790 - 90 $\frac{1}{2}$  -- bleeding horizontal.
- 7796 - 7797 As above.
- 7797 - 7798 As above; becoming increasingly cherty below 7797, streak of chert @ 7797 $\frac{1}{2}$  and 7798.
- 7798 - 7799 As above.
- 7799 - 7800 As above.
- 7800 - 7801 As above.
- 7801 - 7802 As above; anhydrite inclusions @ 7802.
- 7802 - 7803 As above.
- 7803 - 7804 As above.
- 7804 - 7805 As above.
- 7805 - 7806 As above.
- 7806 - 7807 As above; anhydrite inclusion @ 7806 $\frac{1}{2}$ '.
- 7807 - 7808 As above; 2-1" beds of shale, green, dolomitic 7807 $\frac{1}{2}$  - 08.
- 7808 - 7809 As above.
- 7809 - 7810 As above.
- 7810 - 7811 Dolomite, gray to dark gray, fine crystalline, very cherty, w/random fractures (many vertical) throughout, and small vugs in more dolomitic parts, bleeding some salty water; streak chert @ 7810 $\frac{1}{2}$ '.
- 7811 - 7812 As above.
- 7812 - 7813 As above.
- 7813 - 7814 As above; dolomite becomes mostly cherty below 7813'.
- 7814 - 7815 As above.
- 7815 - 7816 As above.
- 7816 - 7817 As above.
- 7817 - 7818 As above.
- 7818 - 7819 As above; anhydrite inclusion @ 7819'.

- 7819 - 7820 As above; slight bleeding oil and gas w/water from fracture @ 7820'.
- 7820 - 7821 As above.
- 7821 - 7822 As above.
- 7822 - 7823 As above; 6" bed of chert, gray to dark gray 7822 $\frac{1}{2}$  - 25.
- 7823 - 7824 As above.
- 7824 - 7825 As above.
- 7825 - 7826 As above.
- 7826 - 7827 As above.
- 7827 - 7828 Shale, green, dolomitic, waxy on some surfaces -- slickensided.
- 7828 - 7829 Dolomite, gray to dark gray, fine crystalline to very fine crystalline, mostly very cherty w/random fractures (many vertical) throughout and small vugs in more dolomitic parts bleeding some salty water.
- 7829 - 7830 As above.
- 7830 - 7831 As above.
- 7831 - 7832 As above.
- 7832 - 7833 As above.
- 7833 - 7834 As above; somewhat less cherty below 7833'.
- 7834 - 7835 As above.
- 7835 - 7836 As above.
- 7836 - 7837 As above.
- 7837 - 7838 As above.

NOTE: Dolomite has sulfur odor on fresh break throughout core; fluorescence on vugs and fractures very scattered in this core, but present in every foot of dolomite (may be mud).

Core #11, 7838 - 7838 (58'); recovered 58'.

- 7838 - 7839 Dolomite, gray to dark gray (w/brown cast), mottled and banded, very fine to medium crystalline, w/random fractures (stained black) and a few small vugs bleeding salt water (bitter); no fluorescence.
- 7839 - 7840 As above.
- 7840 - 7841 As above.

7841 - 7842 Dolomite, gray to dark gray (w/brown east), mottled and banded, very fine to medium crystalline, w/random fractures (stained black) and a few small vugs bleeding salt water (bitter); no fluorescence.

7842 - 7843 As above.

7843 - 7844 As above.

7844 - 7845 As above; core very broken up 7844 - 7844 $\frac{1}{2}$ .

7845 - 7846 As above.

7846 - 7847 As above.

7847 - 7848 As above.

7848 - 7849 As above; slight spotted fluorescence (light blue)?

7849 - 7850 As above; no fluorescence.

7850 - 7851 As above.

7851 - 7852 As above.

7852 - 7853 As above.

7853 - 7854 As above.

7854 - 7855 As above.

7855 - 7856 As above.

7856 - 7857 As above.

7857 - 7858 As above.

7858 - 7859 As above; core very broken up 7858 - 7860.

7859 - 7860 As above.

7860 - 7861 As above.

7861 - 7862 As above.

7862 - 7863 As above.

7863 - 7864 As above.

7864 - 7865 As above.

7865 - 7866 As above.

7866 - 7867 As above.

7867 - 7868 As above.

- 7868 - 7869 Dolomite, gray to dark gray (w/brown cast) mottled and banded, very fine to medium crystalline, w/random fractures (stained black), and a few small vugs bleeding salt water (bitter); no fluorescence.
- 7869 - 7870 As above.
- 7870 - 7871 As above; more dense.
- 7871 - 7872 As above.
- 7872 - 7873 As above.
- 7873 - 7874 As above.
- 7874 - 7875 As above.
- 7875 - 7876 As above.
- 7876 - 7877 As above.
- 7877 - 7878 Dolomite, gray (w/brown cast), fine crystalline, w/very few random fractures (no black stain) and numerous small vugs bleeding salt water (bitter); brach impression @ 7879'.
- 7878 - 7879 As above.
- 7879 - 7880 As above.
- 7880 - 7881 As above.
- 7881 - 7882 As above.
- 7882 - 7885 As above; slight amount of oil bleeding w/water in somewhat more dense dolomite 7882 - 7885; slight spotty fluorescence (light blue) in these 3 feet.
- 7885 - 7884 As above.
- 7884 - 7885 As above.
- 7885 - 7886 As above; no apparent oil; no fluorescence.
- 7886 - 7887 As above.
- 7887 - 7888 As above.
- 7888 - 7889 As above.
- 7889 - 7890 As above.
- 7890 - 7891 As above.
- 7891 - 7892 As above.

7892 - 7893 As above.

7893 - 7894 As above.

7894 - 7895 As above.

7895 - 7896 As above.

GENERAL: Entire core looks wet. Sulfur odor on fresh break throughout core. Bedding throughout core is horizontal.

Core #12, 7896 - 7954 (58'); recovered 58'.

7896 - 7897 Dolomite, gray, fine crystalline with very few random fractures and numerous small vugs bleeding slightly oil water (very slight faint light blue fluorescence?).

7897 - 7898 As above.

7898 - 7899 As above.

7899 - 7900 As above.

7900 - 7901 As above.

7901 - 7902 As above.

7902 - 7903 As above.

7903 - 7904 As above; calcite inclusion along fracture @ 7904; 7903 $\frac{1}{2}$  - 04 is more dense and very fine crystalline.

7904 - 7905 As above.

7905 - 7906 As above.

7906 - 7907 Dolomite, gray, brown-gray, very fine crystalline, dense, w/ random fracture and a few stylolites (no bleeding).

7907 - 7908 As above.

7908 - 7909 As above.

7909 - 7910 As above.

7910 - 7911 As above.

7911 - 7912 As above.

7912 - 7913 As above; between 7912 - 7914' dolomite is mottled and banded w/darker dolomite and fractures are filled w/calcite.

7913 - 7914 As above.

- 7914 - 7915 As above; between 7912 - 7914' dolomite is mottled and banded w/darker dolomite and fractures are filled w/ calcite.
- 7915 - 7916 As above.
- 7916 - 7917 As above.
- 7917 - 7918 Dolomite, gray to dark gray (w/brown cast), mottled and banded, very fine to fine crystalline, w/random fractures and a few small vugs -- bleeding slightly oily water @ 7917 $\frac{1}{2}$  to 7918.
- 7918 - 7919 As above.
- 7919 - 7920 As above.
- 7920 - 7921 As above.
- 7921 - 7922 As above; bleeding slightly oily water @ 7921 $\frac{1}{2}$ .
- 7922 - 7923 As above.
- 7923 - 7924 As above.
- 7924 - 7925 As above; bleeding slightly oil water @ 7925'; 7924 to 7925 looks fragmental.
- 7925 - 7926 As above.
- 7926 - 7927 Dolomite, gray to dark gray (w/brown cast), mottled and banded, very fine to fine crystalline, w/random fractures and a few small vugs, bleeding slightly oily water @ 7927 $\frac{1}{2}$ '.
- 7927 - 7928 As above.
- 7928 - 7929 As above; bleeding slightly oily water @ 7928 $\frac{1}{2}$ '.
- 7929 - 7930 As above.
- 7930 - 7931 As above.
- 7931 - 7932 As above.
- 7932 - 7933 As above; slight fluorescence?
- 7933 - 7934 As above; no fluorescence.
- 7934 - 7935 Limestone, dark gray, fine crystalline, dense, dolomitic; w/partings of shale, black, cherty and a few calcite filled random fractures; calcite inclusions @ 7935 $\frac{1}{2}$ '.
- 7935 - 7936 As above.
- 7936 - 7937 As above.
- 7937 - 7938 As above.

7938 - 7939 Limestone, gray, banded, dark gray, very fine crystalline, dense w/a few calcite filled random fractures and partings (thin) of green shale.

7939 - 7940 As above.

7940 - 7941 As above.

7941 - 7942 As above.

7942 - 7943 As above.

7943 - 7944 As above.

7944 - 7945 As above; more dolomitic.

7945 - 7946 As above.

7946 - 7947 As above.

7947 - 7948 As above.

7948 - 7949 As above.

7949 - 7950 As above.

7950 - 7951 As above.

7951 - 7952 As above.

7952 - 7953 As above.

7953 - 7954 As above.

Generalized description of Core #1:

Core # 1; 4805-4865; recovered 60'.

4805-4819 (14') shale, gray, black, brown, anhydritic with small inclusions of salt, 4813-14 and anhydrite filled veins 4817-18.

4819-4822 (3') shale, gray, anhydritic with little spotted stain and fluorescence particularly on fracture surfaces.

4822-4825 (1') anhydrite, gray, crystalline.

4825-4831 (8') anhydrite, gray, crystalline, with inclusions and partings of shale, dark gray, brown, anhydritic: random hairline fractures with some fluorescence on fractures.

4831-4835 (4') anhydrite, gray, crystalline and shale, gray, dark gray, brown, anhydritic in alternating thin beds: random hairline fractures thruout.

4835-4840 (5') shale, gray, anhydritic with random hairline fractures 4835-36 and gypsum filled verticle fracture 4839-40.

4840-4848 (8') shale, gray, anhydritic with salt filled fractures 4840-41, 4842-43 and 4845-46.

4848-4849 (1') shale, gray, anhydritic with streaks and mottles of shale, black.

4849-4852 (3') shale, gray, anhydritic with inclusions of crystalline anhydrite 4850-51.

4852-4854 (2') alternating laminae of shale, gray, anhydritic and shale, black, soft.

4854-4855 (1') anhydrite, dark gray, dense, shaly in part.

4855-4856 (1') shale, gray, very anhydritic, dense, hard.

4856-4859 (3') anhydrite, dark gray, dense.

4859-4865 (6') salt, white with streaks of tan and gray coloring.

## BIG FLAT #1

Following acid jobs in February and March, 1958, well produced only water, emulsion, and inert gas. Well was shut in until August 30, 1958, awaiting further attempts at completion.

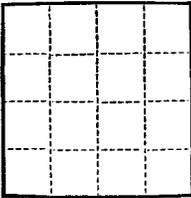
Moved in rig, pulled tubing and 5" circulating string preparatory to cement squeeze job. Set cement retainer at 7660' and squeezed 350 sq. 50-50 Pozmix through perforations 7694-7728. Maximum pressure 8100 pounds. After WOC drilled out retainer and McCullough perforated 7" OD casing, 7714-7728, with three super casing jets per foot. Set HOWCO straddle packers at 7710 and 7652. Dowell acidized with 2500 gallons gel-x, 100 acid. Breakdown pressure 4550 pounds, decreased slowly to 1100 pounds. Displaced acid with water. Swabbed well two days swabbing approximately 75 barrels of fluid in 33 hours, average 12% BS & W.

Pulled straddle packers and McCullough perforated 7" OD casing 7747-7758, with three super casing jets per foot. Set straddle packers at 7667 and 7737. Swabbed 71 barrels fluid, 15% water, in 24 hours. Acidized through perforation with 500 gallons MCA acid, maximum pressure 2500 pounds. In 12 hour period, swabbed 47 barrels fluid, 10% water, and 2% BS.

Pulled packers and perforated 7" OD casing 7733-7742 with three super casing jets per foot. Set three packers at 7663, 7731, and 7745, testing these perforations. Dowell acidizing through perforation with 500 gallons BIA and followed with 1000 gallons XFW acid, maximum pressure 3300 pounds. Swabbed load water and acid water to pit, turned to tank. Swabbed 24 barrels of oil to tank in 6-1/2 hours. Pulled tubing and Howco packers and set Baker Model D production packers to 7709 and 7679 with McCullough wire line. Ran 3661 feet 5" OD 15# J-55 casing for hot oil circulating string. Ran tubing and set in packer, installed tubinghead and released rig 9-15-58.

Pumping equipment was installed and well started pumping 9-26-58. Well pumped total of 1288 barrels of oil, daily average 41 barrels oil, no water during the month of October, 1958.

w



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. SLC 067013  
Unit Big Flat

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.....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

October 29, 1957

**Big Flat Unit**  
Well No. 1 is located 660 ft. from S line and 1980 ft. from E line of sec. 14

C SW 1/4 SE 1/4, Sec. 14 26S 19E Salt Lake  
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ <sup>ground</sup> above sea level is 6021 ft.  
~~KB Elevation is~~ <sup>KB Elevation is</sup> 6033 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)

T.D. 7954

October 9, 1957

Run 5" OD 15# 8-R J-55 Circulating String, swung at 3662'.

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

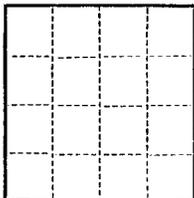
Company The Pure Oil Company

Address 1700 Broadway

Denver 2, Colorado

By T. L. Warburton

Title Division Chief Production Clerk



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office Salt Lake City  
Lease No. S.L.C. 067043  
Unit Big Flat

*7-A*  
*12-1-58*

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.....	<b>X</b>
NOTICE OF INTENTION TO ABANDON WELL.....		

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

..... November 5, ....., 1958

**Pure-Big Flat Unit**  
Well No. 1 is located 660 ft. from [M] line and 1980 ft. from [E] line of sec. 14

C. SW 1/4 Sec. 14 26-S 19-E Salt Lake  
(Sec. and Sec. No.) (Twp.) (Range) (Meridian)  
Big Flat Grand Utah  
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~ground~~ <sup>ground</sup> above sea level is 6021 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)

**See Attached Schedule.**

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

Company The Pure Oil Company  
Address 1700 Broadway  
Denver 2, Colorado  
By T. L. Warburton  
Title Division Chief Production Clerk

*W*

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

SL-067043

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		7. UNIT AGREEMENT NAME <b>Big Flat</b>	
2. NAME OF OPERATOR <b>Glen M. Ruby</b>		8. FARM OR LEASE NAME	
3. ADDRESS OF OPERATOR <b>8329 Willow Creek Dr. SANDY, Utah</b>		9. WELL NO. <b>Pure #1</b>	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <b>Center SW<math>\frac{1}{4}</math>/SE<math>\frac{1}{4}</math> Sec. 14, T.26s;R.19e Grand County</b>		10. FIELD AND POOL, OR WILDCAT <b>Big Flat</b>	
14. PERMIT NO.		15. ELEVATIONS (Show whether DF, RT, GR, etc.) <b>Ground 6021 (G/N log based on KB 6033)</b>	
		11. SEC., T., E., M., OR BLK. AND SURVEY OR AREA <b>Sec. 14, T.26s R.19e</b>	12. COUNTY OR PARISH 13. STATE <b>Grand Co. Utah</b>

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>

(Other) **Test zones not previously tested.**

SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>

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

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

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\* **Originally drilled as Pure #1. Spudded 1/2/57. Surface casing 13 3/8 48#, H-40, 746 feet. 570 sax cement. On 3/14/57, drlg. at 6367', there was such a flow of oil, gas, & water that it was necessary to close BOP. No intermediate csg had been set at top of salt, as advised, so weighted mud was lost in Hermosa Lime. Well flowed first, green oil, characteristic of clastic #13, then black oil, found only in clastic #12, also a mixture of both and quantity of brine, probably from clastic #11. After failure of several efforts to control, Mr. Frank Manning, Gen. Sup't. of Pure, ordered a 5 hour open-flow test to see if well would blow down. Not until about a year later, did he tell me of this test. He estimated that at the start the well was making about 30BOPH & 2 to 2 1/2 MM cuft. It built up steam daily until at the end of 5 hours, he estimated 150 to 200 BOPH & 12 - 15 MM cuft gas per day. It was apparent that drill pipe could not be pulled, so he ordered it cemented in. It was then washed over and recovered. On May 23, 69 days later, csg. 9 5/8", was set at 5634', lapped in the 13 3/8 and cemented with 1,000 sax.**

**The present plan is to pull the 2-7/8 tubing, perforate or notch the casing, & acid-frac the zones which have not been tested in #1, but which have made significant shows in subsequent wells on the Unit. Depths are from G/N log of Pure #1. First, the CCH at 7320 to 7350; next, clastic #13, 6130 to 45; then, clastic #12, 5960 to 80. Start of the work is planned before the end of Sept. Mr. W.W. Butler, Casper Pet. Eng., has been engaged to supervise the work. He will, no doubt, contact the Casper office of the Geological Survey regarding this plan and he is hereby authorize to make any changes deemed advisable.**

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

SIGNED *Glen M. Ruby* TITLE Operator DATE 6 Sept. 1965

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

UTAH OIL AND GAS  
COMMISSION

9-21-65

*Walter D. Churchill*  
Chief Petroleum Engineer

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Form approved.  
Budget Bureau No. 42-R356.5.  
LAND OFFICE **SALT LAKE CITY**  
LEASE NUMBER **067043**  
UNIT **BIG FLAT**

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State **UTAH** County **GRAND** Field **BIG FLAT**

The following is a correct report of operations and production (including drilling and producing wells) for the month of **OCTOBER**, 19 **65**,

Agent's address **GLEN M. RUBY** Company **GLEN M. RUBY**  
**310 Newhouse Bldg.** Signed *W. W. Butler*

Phone **SALT LAKE CITY, UTAH** Agent's title **ENGINEER**

SEC. AND ¼ OF ¼	TWP. S	RANGE E	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)
SW SE	26	19	1	15						<p><b>THIS WELL WAS REWORKED AND HAD CONSIDERABLE DIFFICULTY IN COMBATING SALT CRYSTALIZATION.</b></p> <p><b>EXPERIMENTAL INJECTIONS OF FRESH WATER ARE BEING ATTEMPTED. ✓</b></p> <p><b>THE WELL IS CAPABLE OF PRODUCTION FROM CLASTIC ZONES # 12 and # 13 WHEN THE SALT PROBLEM IS SOLVED. ✓</b></p>

NOTE.—There were **0** runs or sales of oil; **0** M cu. ft. of gas sold;

**0** 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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Form approved.  
Budget Bureau No. 42-B356.5  
**SALT LAKE CITY**

LAND OFFICE 067043  
LEASE NUMBER BIG FLAT  
UNIT \_\_\_\_\_

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State UTAH County GRAND Field BIG FLAT

The following is a correct report of operations and production (including drilling and producing wells) for the month of November, 1965,

Agent's address Glen M. Ruby Company Glen M. Ruby  
310 Newhouse Bldg. Signed Will Butler  
Salt Lake City, Utah Agent's title Engineer

SEC. AND 1/4 OF 1/4	TWP. <u>5</u>	RANGE <u>E</u>	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)
SW SE	26	19	1	0	0	35	0	0	0	
<p>The well has been equipped with an injection pump to pump fresh water down the annulus.</p> <p>Salt is crystalizing inside of the perforations and effectively shutting off production.</p> <p>The well has been shut in to permit the tubing and casing pressures to build in hopes this would assist in relieving the block.</p> <p>Nov. 1 thru 20 Casing pressure increased from 0 to 500 psig. Ave. rate of 25 psig per day.</p> <p>Nov. 21 thru 27 Casing pressure increased from 500 psig to 710 psig. Ave. rate of 35 psig per day.</p> <p>Nov. 28 thru Dec. 1 Casing pressure increased from 710 psig to 860 psig. Ave. rate of 50 psig per day.</p>										

NOTE.—There were 0 runs or sales of oil; 0 M cu. ft. of gas sold; 0 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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SALT LAKE CITY  
667043  
BIG FLAT

LESSEE'S MONTHLY REPORT OF OPERATIONS

State **UTAH** County **GRAND** Field **BIG FLAT**  
 The following is a correct report of operations and production (including drilling and producing wells) for the month of **DECEMBER**, 19 **65**  
 Agent's address **310 Newhouse Bldg. Salt Lake City, Utah** Phone **255-6984**  
 Company **GLEN M. RUBY** Signed **W. W. Butler** Agent's title **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>LEADVILLE PARTICIPATING AREA</b>										
<b>Sec 14 SW NE</b>	<b>26S</b>	<b>19E</b>	<b>1</b>	<b>1</b>	<b>22</b>	<b>35</b>	<b>----</b>	<b>0</b>	<b>30</b>	<b>Casing pressure 2085 psig. Tubing pressure 680 psig.) prior to opening. Opened to flow and clean out. Heavy salt, crystals produced with brine water, then 35°, API brown crude oil. Shut in to preserve pressures above 800 psig.</b>
<b>Sec. 14 SW SE</b>	<b>26S</b>	<b>19E</b>	<b>2</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>Shut in entire month</b>
<b>Sec. 23 NE NE</b>	<b>26S</b>	<b>19 E</b>	<b>3</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>Shut in entire month</b>

NOTE.—There were **0** runs or sales of oil; **0** M cu. ft. of gas sold;

**0** 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.

AK

GLEN M. RUBY

8329 SOUTH WILLOW CREEK DRIVE

SANDY, UTAH

PHONE AM 5-6984

oil

1/30/66

Utah State Oil and Gas Conservation Commission  
348 East South Temple  
Salt Lake City:

Ladies and Gentlemen:

Herewith Belated data on Big Flat Unit #1, (Pure)  
rework by Glen M. Ruby, Operator.

No oil or gas was sold during the period involved.

Experimenting with casing and tubing pressures continues. The well is making gas with spray of oil under 850 psi tubing pressure and 2050 psi casing pressure.

Yours very truly,

Glen M. Ruby, Operator

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Form approved.  
Budget Bureau No. 42-R356.5.  
**Salt Lake City**  
LAND OFFICE  
LEASE NUMBER **067043**  
UNIT **Big Flat**

## LESSEE'S MONTHLY REPORT OF OPERATIONS

State **Utah** County **Grand** Field **Big Flat**

The following is a correct report of operations and production (including drilling and producing wells) for the month of **March**, 19**66**,

Agent's address **310 Newhouse Bldg.** Company **Glen M. Puby**  
**Salt Lake City, Utah** Signed *W. W. Butler*

Phone **255-6984** Agent's title **Engineer**

SEC. AND ¼ OF ¼	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>Sec. 14</b> <b>SW SE</b>	<b>26 S</b>	<b>19 E</b>	<b>1</b>	<b>2</b>	<b>20</b>	<b>34</b>	-----	-----	<b>20</b>	<b>1200 psig C. H. P. 200 psig T. H. P. Waiting on weather to commence injection into annulus with fresh water. Salt troubles.</b>
<b>Sec. 14</b> <b>SW NE</b>	<b>26 S</b>	<b>19 E</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>--</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Shut in entire month</b>
<b>Sec. 23</b> <b>NE NE</b>	<b>26 S</b>	<b>19 E</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>--</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Shut in entire month</b>

NOTE.—There were **0** runs or sales of oil; **0** M cu. ft. of gas sold;

**0** 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.

Form 1-54  
(May 1953)

**RECEIVED**  
BR. OF OIL & GAS OPERATIONS

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

**JUN 9 1966** NOTICES AND REPORTS ON WELLS

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

U. S. GEOLOGICAL SURVEY

WELL LAKE CO., UTAH

2. NAME OF OPERATOR

3. ADDRESS OF OPERATOR

Glen M. Ruby, Newhouse Bldg, SLG, or

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

PURE #1, Center SW/SE Sec. 14. T.26S. R19E

14. PERMIT NO.

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

Ground 6021

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(Note: Report results of multiple completion Well Completion or Recombination Report and Log Form.)

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

Pull rods and tubing to clean out salt.

Put perforated joint of tubing with bull plug on tail pipe

Run back in hole and pump.

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

SIGNED

*Glen M. Ruby*

TITLE

Operator

(This space for Federal or State office use)

APPROVED BY

*J. F. Brown*

TITLE ACTING DISTRICT ENGINEER

CONDITIONS OF APPROVAL, IF ANY:

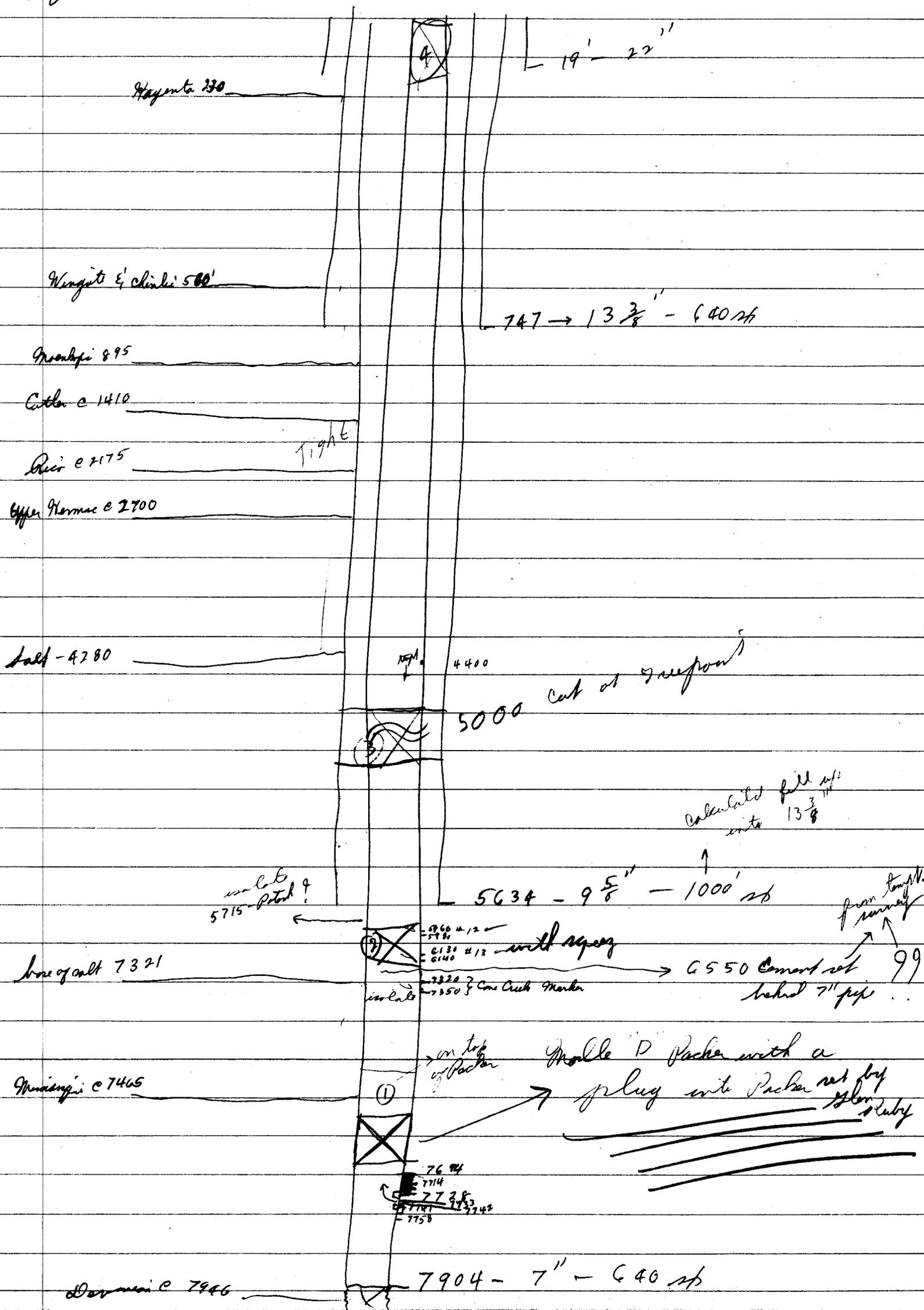
DATE

6/7/66

DATE

JUN 15 1966

Plugging Program for U.S.G.S. → Glen Ruby  
 wants to plug - June 30, 1966 PWB  
 Proj # 1



*Copy from 3 copies, Ahern*

*AMP*

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Form approved.  
Budget Bureau No. 42-R356.5.  
LAND OFFICE SALT LAKE CITY  
LEASE NUMBER 067043  
UNIT BIG FLAT

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State UTAH County GRAND Field BIG FLAT

The following is a correct report of operations and production (including drilling and producing wells) for the month of SEPTEMBER, 19 66

Agent's address 310 Newhouse Bldg. Company GLEN M. RUBY  
Salt Lake City, Utah Signed W. W. Butler

Phone 255-6984 Agent's title 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)
Sec. 14 SE SE	26S	19E	1	3	35	37	---	-----	350	Moved on workover rig and circulated fresh water to remove salt block.
Sec. 14 SE NE	26S	19E	2	0	-----	---	---	---	---	Shut in entire month
SEC. 23 NE NE	26S	19E	3	0	-----	---	---	---	---	Set bridge plug at 5470'. Set whipstock at 5370' & cut window 5370-5385' Drilled 6 1/4" hole to 6136'. Ran 4 1/2 casing liner from 5130' to 6135'. Cemented w/320sx. by Dowell. Reverse out 80 sax. W.O.C.
<p>31 hours. Circulated brine water out of hole with fresh water and the circulated with oil. Drilled out shoe and drilled ahead to 6159' (through Clastic zone #12). Moved rig off. Shut in for further remedial work.</p>										

None. There were NO runs or sales of oil; NO

gallons of gasoline during the month. (Write "0" if none.)

LAND OFFICE Salt Lake City  
LEASE NUMBER 067043  
UNIT Big Flat

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

RECEIVED  
JUN 28 1967  
U.S. GEOLOGICAL SURVEY  
SALT LAKE CITY

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State Utah County Grand Field Big Flat

The following is a correct report of operations and production (including drilling and producing wells) for the month of March, April May & June, 1967

Agent's address 310 Newhouse Bldg Company Olson M. Ruby, Operator  
Salt Lake City Signed [Signature]

Phone Residence 262-4014 Agent's title Operator

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)
sec. 14 SESE	26s	19e	1							The tubing on this well is salted up and the well must be shut in for long periods to let the formation temperature build up and melt the paraffin, when it can be flowed for a short time, thru the annulus, when small amounts of gas, oil, & salt water can be recovered. The pressure in the annulus will build up to 1850psi.
Sec 14 SENE	26s	19e	2	0						Shut in entire month. Will be reworked or abandoned
Sec. 23 NENE	26s	19e	3							Shut in entire month. It is planned to start rework on this well  I have a signed contract with Warren King and Mike Hatch, of Grace Idaho, to begin work-over operations or drilling on or before July 1, 1967, and have good reason to believe they will be able to comply.

NOTE.—There were NO runs or sales of oil; NO M cu. ft. of gas sold;

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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
DRILL  DEEPEN  PLUG BACK

b. TYPE OF WELL  
OIL WELL  GAS WELL  OTHER  SINGLE ZONE  MULTIPLE ZONE

2. NAME OF OPERATOR  
Mike W. Hatch Agent Operator

3. ADDRESS OF OPERATOR  
271 North Main, Spanish Fork, Utah 84660

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\*  
At surface SW/SE of Sec. 14, T. 26 So., Range 19 E. Grand County

At proposed prod. zone  
Claustic zones #13 & #12

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)

16. NO. OF ACRES IN LEASE

17. NO. OF ACRES ASSIGNED TO THIS WELL

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

19. PROPOSED DEPTH

20. ROYALTY OR RENTAL POOL

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
APPROX. DATE WORK WILL START\*  
July 1967

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH

SUPPLEMENTAL DEVELOPMENTAL PROGRAM FOR BIG FLAT UNIT  
REWORK PROGRAM FOR PURE #1

1. Blow well down - Casing and Tubing. Try to blow down casing and tubing.
2. (option) Pull rods and pump. If can't pull rods, run pump and circulate fresh water down casing until return. Try to pull pump. If pump cannot be pulled, may have to cut tubing.
3. When rods are out, if well has not been washed with fresh water, wash with fresh water.
4. Cut paraffin out of tubing.
5. Nipple up Tree and kick well off to pits. Flow well to diminish salt water and increase oil to commercial level.
6. Shut well in and re-rig surface equipment and install water injection system.
7. Install paraffin cutter stop in tubing 3300' and rig up water injection system.
8. Install water injection system.
9. Put well on production.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present production zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measure preventive program, if any.

24. SIGNED Demetrius Ruby TITLE Operator

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_

APPROVED BY: Paul H. Burchell DATE: July 21, 1967  
CHIEF PETROLEUM ENGINEER

\*See Instructions On Reverse Side

5. LEASE DESIGNATION SERIAL NO.  
SL 067043

6. ALLOTTEE'S NAME  
BIG FLAT

7. COUNTY OR PARISH OF STATE  
Grand Utah

8. FIELD AND PLOT  
PURE #1

9. APPROX. DATE WORK WILL START\*  
July 1967

10. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

11. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)

12. NO. OF ACRES IN LEASE

13. NO. OF ACRES ASSIGNED TO THIS WELL

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

15. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

16. PROPOSED DEPTH

17. ROYALTY OR RENTAL POOL

18. ELEVATIONS (Show whether DF, RT, GR, etc.)

19. APPROX. DATE WORK WILL START\*

20. PROPOSED CASING AND CEMENTING PROGRAM

21. SUPPLEMENTAL DEVELOPMENTAL PROGRAM FOR BIG FLAT UNIT  
REWORK PROGRAM FOR PURE #1

22. IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present production zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measure preventive program, if any.

23. SIGNED Demetrius Ruby TITLE Operator

24. APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_

25. APPROVED BY: Paul H. Burchell DATE: July 21, 1967  
CHIEF PETROLEUM ENGINEER

\*See Instructions On Reverse Side

Monthly report on ~~the~~ #1.

August 1, 1967: Well flowing about 8 bbl. per hour. Recovering fresh water and some salt flow.

August 2, 1967 Well stopped flowing. The Artec Unit was swabbing in preparation for perforation in Claustic #1s (at 6311'-6338'). McCulloch Unit perforated the interval 6311-38' and the blow out preventer was on the well head. There was no difference in the small flow of salt water or any increase in pressures. Pressure at well head was 100 psi on the tubing and 750 psi on the casing.

August 3, 1967: Halliburton was on location and they had tried to treat the newly perforated zone with fresh water and had put 175 balls in the hole to pressure up. The balls had no effect and they were unable to pressure up. Halliburton left location at 10:00 AM and the Artec unit continued swabbing until 4:00 PM at which time they gave up because the balls were in the tubing and the swabbing unit would not fall through the tubing.

August 4, 1967: Artec unit on location at 7:00 AM and worked with the swabbing unit until they had reached a depth of 5000' by 7:00 PM that evening. Ed Durrett arrived by plane from Texas at 6:45 PM and outlined the plan for action the next day. It was his theory that the hole was open and that the attempts to pressure up were negative due to the plug which the records stated was placed at 7200' (apprx) not being there.

August 5, 1967: Bled off the casing with considerable oil show and gas pressure of about 1200 psi/some fresh water was recovered also. Artec unit began pulling the tubing tubing out of the hole at 1:00 PM. Halliburton on location. McCulloch arrived at 1:30 PM, ran the dirt trap to clear the casing and set Baker Bridge Plug at 6350'. Artec Unit ran tubing back in the hole with a Sweet packer set at 6286'. Completed running tubing at 8:15 PM.

August 6, 1967: Bled off the well with slight show of green oil, gas, and salt water. Halliburton treated the isolated zone with 1000 gal. of Halliburton MCA acid at 1000 psi at the rate of 3 WPM. Started operation at 6:30 AM. Began to flow back to the pits at 9:00 AM, recovering acid water, acid gas, and a slight trace of gas. Well was flowing at the rate of apprx. 8 bbls per hour. Artec Unit began swabbing at 12:15 PM and continued until 5:00 PM, the fluid level was standing at 1000' Closed the casing and let the tubing flow to the pits from 5:00 PM at the rate of apprx. 8 bbls per hour. Flowing straight salt water.

*Big  
Hole*  
*Mike W. Nalch  
Operator*

NOV 11 1961

August 7, 1967:

Astec Unit tore down and was off location at 9:00 AM. Well flowing heavy salt water (with a slick feel). Salt crystals showed up this morning. Casing pressure was 700 psi and green oil flowed for a short time. Flowed the casing for 1 1/2 hours and the pressure dropped to 450psi. Riggged up the flow lines to a new pit and during the time of shut down the pressure rose to 1200psi. (apprx 2 hours). Tubing had accumulated a ring of salt crystals around the pipe and the choke was salted open. Shut off the main valve and un-salted the choke and well head with fresh water. Shorty Hall was on location and continued to flow the well to ascertain what procedures to take in order to continue to flow the tubing. Flowed at apprx. 5-8 bbls per hr.

August 8, 1967:

Shorty Hall working with well in order to make proper recommendations for continued work.

August 9, 1967:

Shorty Hall shut in the well in the afternoon so that it would not salt up and left for Texas the next morning.

August 10, 1967:

Southern Natural Gas have a high pressure pump on location that needs some parts before it can be used. It will pump 1/2 gal per. min. at 2000psi. It was decided to repair the pump and clear the tubing to continue flowing the well.

August 11, 1967:

Joe Severins (pumper for Southern Natural) was to get the serial # off the pump so that we could order the parts and get into operation. He didn't do it so David Bradford, Snock Ladlow and myself (Mike Hatch) drove to the well to get the pump repaired and to check the well which had been shut in for two days. There was 700 psi on the casing and the flow was oil with burnable gas from the flow line. The flow had increased from 5-8 bbls per hr. to apprx 20 bbls per hour and there was gas flowing from the tubing which could be burned at the pits.

August 12, 1967:

Called McFarland Engineering and Pump Company and ordered the parts to be delivered air-mail special delivery to Salt Lake City. Well shut in awaiting arrival of the parts for the pump.

August 13-18, 1967:

Well shut in awaiting arrival of the parts from McFarland.

August 19, 1967:

Parts arrived, pump was repaired and David Bradford was on location pumping fresh water into the tubing to dissolve the salt. He pumped for three (3) hours and then the pressure built up so high that the pump would not buck it. By bleeding off the casing every 15 min. he was able to force apprx. 1000 gal. of fresh water into the tubing. The pressure at well head on the tubing had increased to 1650psi and the casing pressure was 1150psi. Flow had increased to apprx. 60 bbls. per hour, with gas that could be burned at the pit from the flow line.

August 20-31, 1967:

Shut in. Mr. Durrett has located a high pressure pump that will displace the tubing water every three (3) hours and it has been purchased, a water located, parts put together and is on its way to the well location. The pump must have pressure capabilities over 5000psi because the pressures have increased this high.

*Original  
Copy Shown*

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LAND OFFICE .....  
LEASE NUMBER .....  
UNIT .....

LESSEE'S MONTHLY REPORT OF OPERATIONS

State Utah County Grand Field Big Flat

The following is a correct report of operations and production (including drilling and producing wells) for the month of August & September, 1967,

Agent's address New House Bldg. Salt Lake City Company Big Flat Unit

Phone 322-0404 or Residence, - 262-4014 Signed [Signature] Agent's title Operator

SEC. AND 1/4 OF 1/4	TWP.	RANGE	WELL NO.	DATE 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)
no/no Sec 23	26s.	19e	3	none	none					Shut Down
no/no Sec. 14	26s	19e	2	none	none					Shut Down
no/no	26s	19e	1	none	no oil recovered					gas below
-	-	-	-	-	-	-	-	-	-	-
<p>After the work-over of Number One started, late in July, the August report shows that the well was perforated by McCallough 6311-38. It is assumed that the casing was perforated by the jets, but the well gave no evidence of it. The zone was isolated with a Sweet packer set at 6286, on tubing. The perforations were treated with 4,000 gal. HCA at the rate of 3bbl per min. under 4,000 psi. 8/6/67. At 9 AM began flowing back to pits at rate of 8 bbl salt water per hr. with detectable amount of sweet gas and HHE trace of oil.</p> <p>I arrived an hour or so later, and could detect no acid in water, nor was there any sign of effervescence in pits. The workover rig was moved off in the AM of August 7th, and as of this date, no rig has replaced it.</p> <p>There was no evidence that the acid had done anything but go up along the casing or cement into zones which had been opened up by the first work-over job, when the well was treated with 4,000 gal. of acid at 4,000 psi, with the same results.</p> <p>A feeble attempt was made to inject water early in September, and fresh water was circulated for a few days but no oil showed up. No work has been done later and I know of no plans to continue. It is my feeling that the project has been abandoned. At least temporarily.</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.

Big Flat Unit #1

Producing 150 BOPD from the  
Clastic Break #13 - (Paradox member  
of the Aermosa Formation).

Pumped fresh water down  
annulus and produced flowing  
fluids through tubing.

Pat Healy, Agent - Venture Resource  
371 North main  
Spanish Fork, Utah  
Phone: 798-7141

Ed Duritt - Engineer.

Information needed.

Production Reports  
Resignation of  
Operator  
Sales Report  
Secondary Report on Well

10-31-67 - PMP

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LAND OFFICE .....  
LEASE NUMBER .....  
UNIT .....

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State UTAH County GRAND Field Big Flat

The following is a correct report of operations and production (including drilling and producing wells) for the month of October, 1967,

Agent's address 310 Newhouse Bldg. Company J. Warren King  
Salt Lake City, Utah Signed [Signature]

Phone 262-4014 Agent's title Operator

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)
Sec. 23 NE/NE	26S	19E	3	0	None		None	None	None	Shut in all month
Sec. 14 SW/NE	26S	19E	2	0	None		None	None	None	Shut in all month
Sec. 14 SW/SE	26S	19E	1							Well is in process of being worked over and experiments carried out by E. G. Barrett, of Odessa, Texas. During the last days of October three tank loads of oil were shipped to Phillips Petroleum Co. refinery north of Salt Lake City, by K. E. McDougald Oil Company. I do not yet have the run tickets, but am advised by Mr. McDougald it amounts to something less than 500 barrels. This will be reported later.  Please see enclosed letter for my comments on the workover operation.

NOTE.—There were ..... runs or sales of oil; ..... M cu. ft. of gas sold;

..... 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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

LAND OFFICE .....  
LEASE NUMBER .....  
UNIT .....

**LESSEE'S MONTHLY REPORT OF OPERATIONS**

State ..... County ..... Field .....

The following is a correct report of operations and production (including drilling and producing wells) for the month of OCTOBER, 1967,

Agent's address 271 NORTH MAIN Company .....

SPANISH FORK, UTAH

Signed Mark W. H. C. C.

Phone 374-8336 Agent's title Report Operator

SEC. AND ¼ OF ¼	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)
SEC. 14 SWSE	26S	19E	1	*	*	*	*	*	*	*
				*	- SEE ATTACHED SCHEDULE					

NOTE.—There were ..... runs or sales of oil; ..... M cu. ft. of gas sold;

..... 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.

GMP

**MONTHLY REPORT - BIG FLAT OPERATIONS**  
October 1 through October 31st, 1967

- 10/1 - Received order to proceed with operations.
- 10/2 - Hall prep to go to Big Flat - en route
- 10/3 - Start pumping 12:00 Noon. T - 0#. Csg. - 2000#, 1" choke. building to 2600#  
10 hrs. Injection Rate 9 BWPH. Flowing 20 BWPH w/sli show oil and gas.  
Total injection this date 108 bbls. Recd. this date - 140 bbls.
- 10/4 - T - 0#, C - 2100#, 1" choke. Tbg. salted up @ 11:00 AM., pump down tbg.  
6 hrs. Injection this date - 212 bbls. Recd. this date - 220 bbls.
- 10/5 - T - 0#, C - 2500 to 2000# (2400# @ 9:00 PM) Choke 1".  
Injection this date - 120 bbls. Recd. this date - 400 bbls.
- 10/6 - T - 0#, C - 2400#, 1" choke. Started pumping reverse. Made 15 bbls. oil and  
good gas show. Injected 112 bbls. down tubing.  
Recd. this date - 280 bbls. T - 1600#, C - 0#.
- 10/7 - C - 0#, T - 2300#. SI casing, 1700# 30 mins. Open to pit. Injection - 192 bbls.  
Recovered 480 bbls. this date. Est. Oil Cut - 6%.
- 10/8 - C - 0#, T - 4000#. appears salted up. Csg. flowing 20 BPH. Rocked well -  
injected 108 bbls. in casing, 50 bbls. in tubing. SI. T - 0#, C - 2700#.
- 10/9 - W.O.O.
- 10/10 - W.O.O.
- 10/11 - W.O.O.
- 10/12 - W.O.O.
- 10/13 - Move in Flint Engineering Unit. Cleared tubing w/fresh water. Rig up and  
unseat packer. Start out of hole, well swabbing, hit salt bridge @ 5600'.  
Cleared same. Pulling out.
- 10/14 - Pulled out, laid down packer, went in hole, set 205 jts. 2-1/2" tubing and seat  
nipple. Final setting 6334' DI. Nipple up, swab 2 hrs. @ 60 BPH. Release  
unit. Flow to pit on Csg. 0#. Injected water in tubing - 15 BWPH.
- 10/15 - Injected total 280 bbls. Close well. Pump in perforations @ 2325#. Open to pits  
@ 35 BWPH. Injecting on tubing @ 575# - 2 BWPH.
- 10/16 - Injected 72 bbls. water. T - 690#, C - 0#. Flowed 24 hrs. Total fluid 792 bbls. -  
Oil Cut - 5%.

Monthly Report - Big Flat Operations for 10/1 through 10/31/67 - continued:

- 10/17 - Injected 50 bbls. water. T - 625#, C - 0#. Flowed 24 hrs. Total fluid 720 bbls. - Oil Cut - 8%, Gas increasing.
- 10/18 - Injected 24 bbls. water. T - 300#, C - 50#. Flowed 24 hrs. Total fluid 750 bbls., Oil Cut - 10%, Gas increasing. Cleaning tanks and heater treater.
- 10/19 - Injected 18 bbls. T - 310#, C - 50#. Good volume gas. Total fluid 720 bbls., Oil Cut - 12%. Cleaning tanks and treater. Turned to tanks - 7:00 PM
- 10/20 - Injected 18 bbls. T - 310#, C - 25#. Oil produced this date - 147.83 bbls., Water - 600 bbls.
- 10/21 - Injected 18 bbls. T - 325#, C 25#. Oil produced this date - 134.85 bbls., Water - 600 bbls.
- 10/22 - Injected 18 bbls. T - 400#, C - 20#. Oil produced this date - 79.34 bbls., Water - 500 bbls.
- 10/23 - Injected 18 bbls. T - 600#, C - 0#. Oil produced this date - 62.42 bbls., Water - 650 bbls. Annulus bridging w/salt.
- 10/24 - Injected 100 bbls. water. T - 950#, C - 0#. Oil produced this date - 67.68 bbls., gas weakening. Water - 700 bbls. Turned to pit, gas too low to run treater.
- 10/25 - Injected 50 bbls., T - 300#, C - 25#. Oil produced this date - 17.45 bbls., gas back. Water - 650 bbls.
- 10/26 - Injected 50 bbls., T - 300#, C - 25#. Oil produced this date - 15.40 bbls., Water - 600 bbls.
- 10/27 - Injected 200 bbls. T - 450#, C - 25#. Oil produced this date - 44.34 bbls., Water - 900 bbls.
- 10/28 - Injected 150 bbls. T - 25#, C - 500#. Oil produced this date - 22.0 bbls., Water - 620 bbls. (Turned around)
- 10/29 - Injected 150 bbls. T - 25#, C - 850#. Ret. water wt. - 10.6. Oil produced this date - 0 bbls., flowing 27 bbls. water/hr. Water - 640 bbls.
- 10/30 - Injected 150 bbls. C - 625#, T - 40#. Oil produced this date - 0 bbls. Ret. water wt. - 10.4. Water - 648 bbls. (rate of 27 BWPH)
- 10/31 - Injected 150 bbls. C - 625#, T - 40#. Oil produced this date - 0 bbls. Ret. water wt. - 10.6. Water - 27 bbls/hr. or 648 BWPH.

11/1/67

Memo on Pure #1, to accompany Monthly Report  
of Operations for the month of October, 1967

To District Engineer, United States Geological Survey,  
Oil and Gas Division, Salt Lake City

You have a statement from Mr. E. G. Darrett, Petroleum Engineer in charge of the workover operations, to the effect that he is of the opinion that the zones that blow out in Pure #1 and Pure #3, are the same formations. However, he seems to have misinterpreted the G/N logs of these wells and, also, seems to be confused regarding the depths.

Consequently, he perforated #1 at 6311 - 33 ? thinking that this point represents the same horizon as that which blew out while drilling on #3 at 6372. He was unable to get any production at this point. However, the packer which he had set below the perforations I made at 6130 - 40, appeared to be leaking and he requested permission to pull the tubing and remove the packer.

The zone I perforated at 6130 to 40 had very poor penetration but we did recover significant amounts of oil. We were unable to get a high pressure pump of sufficient capacity to displace the salt water which broke in when my engineer, disregarding my instructions, acidized with 4,000 gal. of acid-frac at 4,000psi. This broke into the "bitter brine" zone at 5910' and we were unable to cope with it.

When Mr. Darrett acidized with 4,000 gals. of acid at 6311, the same thing happened, with the result that he has a large flow of brine. Since we have previously learned that there is only one brine zone in this area, and with the same content of KCl and MgCl<sub>2</sub>, I am sure that he will have the same problem that I had.

He has a large capacity Kobe high pressure pump capable of pumping 17 BBL of water per hour, and as this is able to reduce materially, the weight of the fluid in the hole, the oil and gas from Elastic #13, the zone which I perforated, now enters the hole in considerable volume. He is experimenting with various pressures, and when the input of fresh water is reduced to 3 BWPH, the gas is barely perceptible, and the oil is only little more than 30 BOPD.

In my opinion, the experimentation has proven that the oil is in elastic #13, the "green oil zone", which was the point I perforated. Apparently Mr. Darrett does not recognize that this is the same zone which occurs at 6318 to 36 in Pure #3. The difference in depth is due to the fact that #3 is some 200 feet lower, structurally, than #1.

If this practice of trying to produce #1 under the same circumstances; that is, by permitting water to invade the sand after it has been temporarily depleted, it could result in water blocking and necessitate more costly recovery than cementing off the water zone by cementing it with a few hundred sacks of cement thru' perforations at about 5900 feet.

In any event the well should be completed and properly produced, or abandoned, and the same zone then worked over and produced from number 3. ~~THIS~~ This is probably the better alternative, as there is no water drive and the lower part of the sand lens should be produced by gas expansion from the upper part.

*James M. Tinsley*

NOV 14 1967

VENTURE RESOURCES  
271 North Main  
Spanish Fork, Utah

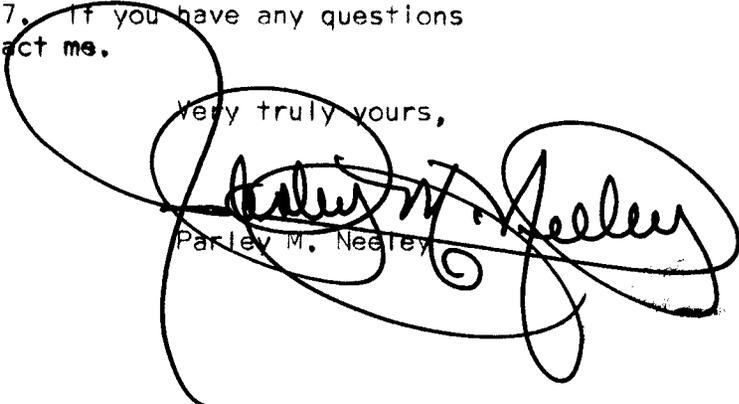
November 10, 1967

Oil and Gas Conservation Commission  
348 East South Temple  
Salt Lake City, Utah

Gentlemen:

Enclosed is a summary of our activities on the Big Flat oil unit for the month of October 1967. If you have any questions regarding this matter please contact me.

Very truly yours,

  
Parley M. Neale

PMN:rn  
Enclosures

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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

Form approved.  
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

SL-067043

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

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

7. UNIT AGREEMENT NAME

Big Flat

8. FARM OR LEASE NAME

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

Parley M. Neeley (Agent)

3. ADDRESS OF OPERATOR

271 North Main, Spanish Fork, Utah

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

9. WELL NO.

#1

10. FIELD AND POOL, OR WILDCAT

Big Flat

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

SN/SE/14/T26S/R19E

12. COUNTY OR PARISH 13. STATE

Grand Utah

14. PERMIT NO.

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

16.

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

Work Over

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

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

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

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

Pull tubing rig up and run 5 in. casing patch total length 300 feet from 5900 to 6200 to close perforations in the interval from 5960 to 6146, rerun tubing nipple up tree. Wash with fresh water and break down perforations. Dig pit around number three.

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

SIGNATURE

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

AGENT OPERATOR

DATE

DEC 11, 1967

TITLE

DATE

K P

September 15, 1975

MEMO FOR FILING

Re: Glen Ruby  
Big Flat Unit #1  
Sec. 14, T. 26 S., R. 19 E.  
Grand County, Utah

On September 9, 1975, a visit to this location was made on the above referred to well.

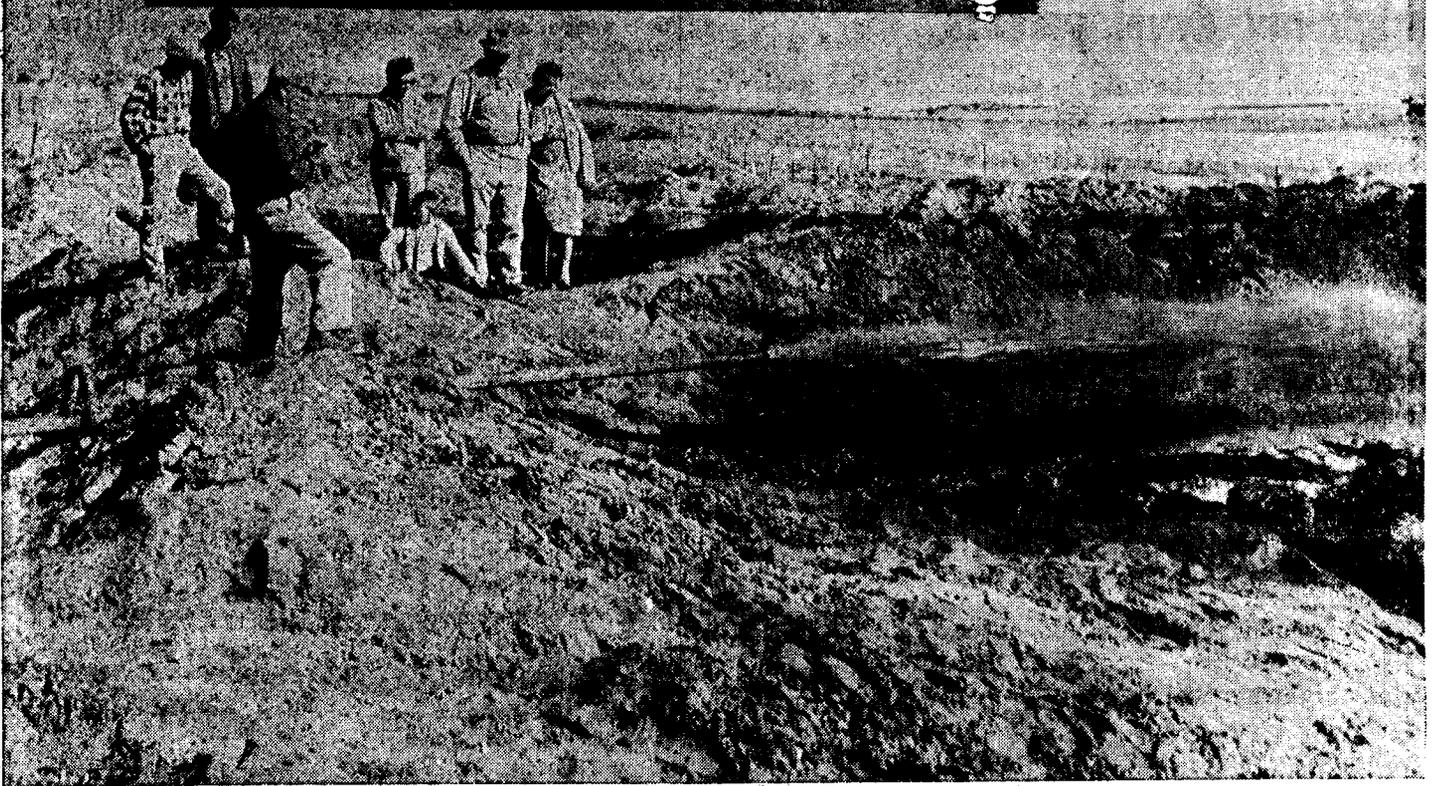
The location had been fenced, and it was relatively clean. The few minor discrepancies noted were:

- a) The cellar is full of oil.
- b) There appears to be a slight leak around the tubing head.
- c) On the second well, the tubing and rods are still in the hole.

PATRICK L. DRISCOLL  
CHIEF PETROLEUM ENGINEER

PLD:tb

cc: U. S. GEOLOGICAL SURVEY



Glen Ruby, long interested in oil prospects on the Big Flat west of Moab, checks oil flow shooting from pipe near Big Flat No. 1 Saturday morning during swabbing operations.

The well produced, on the swab, at the rate of 10 to 12 barrels of oil per hour, and a pump is being installed this week, aiming at a possible commercial well. (T-I Photo)

## Big Flat Oil Interest Renewed With Apparent Ruby Success

Prospects for renewed activity in oil exploration on the Big Flat structure west of Moab seemed assured this week as operators completed swabbing and began placing a pump on the Glen Ruby Big Flat No. 1 well. The well, originally drilled in 1957 by Pure Oil Co., was shut down by that company several years ago, and Mr. Ruby, Salt Lake City geologist, took over as operator on the unit.

Mr. Ruby in turn brought in Venture Resources, Inc., Spanish Fork, Utah, as agent-operator, and the firm began some time ago the job of reworking the well. Originally operated as a producing well from the Mississippian formation at a depth near 7,700 feet, the current operators plugged back and sought production from the Paradox Salt formation near 6,150 feet. That zone had shown possibilities on the original drilling operation, but production had not been attempted at the shallower level.

Earl VanVranken, consulting engineer on the project for Venture, confirmed Saturday that following acidization Friday night, the well began producing at the rate

Utah Pioneers. Mrs. Gwen Meador and Mrs. Ina Young met with the board concerning repairs needed to the building. They stated that, in order to justify the expense of these repairs, they would need some commitment by the School Board as to the length of time they would be allowed to occupy the building. It was decided by the Board that further consideration would be given the matter and a decision given to the DUP as soon as possible.

of 10 to 12 barrels of oil per hour during swabbing operations. The fluid was around ninety per cent oil, reports indicated, and operators feel confident that under the pump, somewhere around 200 barrels of oil per day can be expected from the eleven-year-old well.

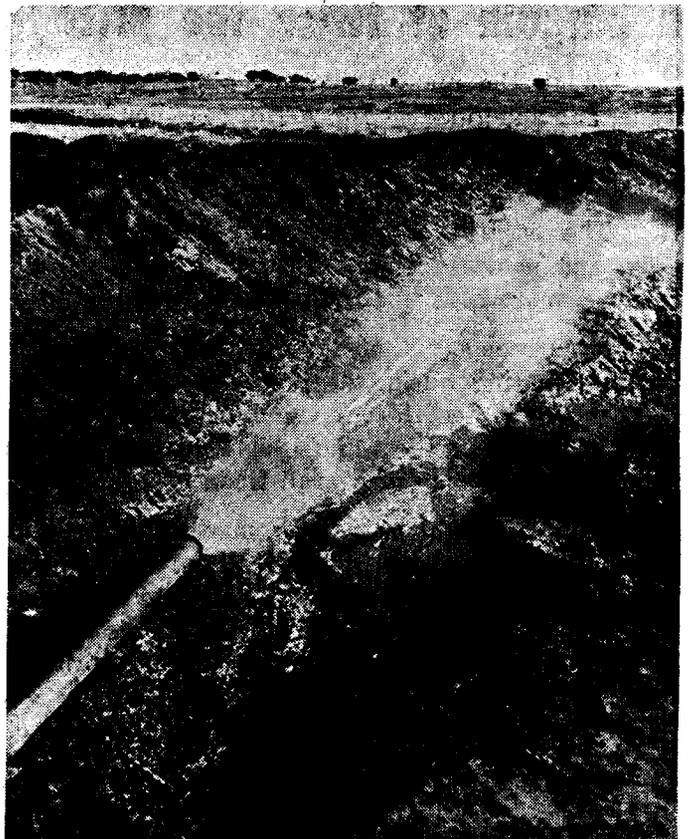
Specifically, production is being obtained from Clastic Break No. 13 in the Paradox Salt (listed as Break No. 16 by some geologists). Sustained production from the Paradox on the Big Flat has been difficult in the past, but operators are optimistic that the experience gained in dealing with specific problems in production on past operations will enable them to make a commercial success of the operation.

Not far from Big Flat No. 1, Southern Natural Gas is producing from the Cane Creek Marker zone in the Paradox Salt in Long Canyon, and the well, after six years is producing at a fairly steady rate. Production at Southern Natural during the month of June this year was 4,039 barrels, bringing the total to that point in 1968 to 25,057 barrels, according to reports from the Utah Oil and Gas Conservation Commission. Total cumulative production to that point since the well was completed in 1962, has been nearly a half million barrels.

The formation where production is being attempted on Big Flat No. 1 is considerably shallower than the Cane Creek marker in the Paradox.

Pure Oil Co., unit operator at Big Flat during the 1950's, turned interests over to King Oil Co. and Mr. Ruby several years ago. King is involved in the current work as an interest holder in the unit.

Big Flat No. 1 is located just off the entrance road to the Island in the Sky section of Canyonlands National park about one mile south of its junction with the Dead Horse Point road.



Pressure during swabbing forced drilling fluid, containing some 90 per cent oil, to shoot several hundred feet into the air near Big Flat No. 1.

07/10/12

*Glen Kaley*

WORKOVER REPORT

Big Flat Un Well No. 1

660' FSL 1989' FEL

Sec. 14, T. 6S., R. 19E

Grand Co ty, Utah

Elevations 6021' GL

6033' KB

B

E. V. Van Vranken

Petroleum Engineer

P. E. License #736-Wyoming

#6435-Colorado

Big Flat Unit Well No. 1

1968

- 6-11 PBTD 6263' KB. Rigged up Aztec Well Servicing Co. pulling unit. Unseated packer and installed B.O.P. Pulled 2 7/8" O.D. tubing and Baker packer. Ran Baker Model P-1 bridge plug on McCullough Tool Co. wireline. Hit tight place at 1565' KB with bridge plug (probably salt deposition). Set bridge plug at 6030' KB. Strapped tubing -- 209 joints equals 6366.71'. Ran Halliburton RTTS packer on 2 7/8" O.D. tubing. Well flowing some oil and gas (estimated 95% water) out of tubing while running packer. Installed bridging ball in tubing. Tagged bridge plug at 6030' KB with packer. Pumped 50 barrels of fresh water down tubing to clear tubing of salt deposits. Shut down at dark.
- 6-12 PBTD 6030' KB. Laid down 7 joints of tubing. Set packer at 5816' KB. Pressured annulus with 1500 psig. Pressured formation and formation took water at the rate of 4 BPM at 1900 psig. Mixed 75 sacks of regular cement, salt saturated by Halliburton. Displaced with 36 barrels of water and shut pumps down to stage cement. Staged cement for 2 1/2 hours, could not get squeeze. Cleared perforations with 3 barrels of water. Unseated packer and washed over packer with 1 barrel of water. Reset packer at 5816' KB. Left 1200 psig on well.
- 6-13 PBTD 6030' KB. Pressure on well 1200 psig. Pressured annulus with 1500 psig. Pressured formation and formation took fluid at the rate of 3 BPM at 2600 psig. Mixed 175 sacks of regular cement, salt saturated by Halliburton. Displaced with 36 barrels of water and shut pumps down to stage cement. Staged cement for 3 1/2 hours, could not get squeeze. Cleared perforations with 2 barrels of water. Unseated packer and washed over packer with 1 barrel of water. Reset packer at 5816' KB. Left 1300 psig on well.
- 6-14 PBTD 6030' KB. Pressure on well 1200 psig. Opened tubing to let well flush out fresh water from tubing. After well had flowed back approximately 40 barrels of fresh water, well started flowing back oil, gas and water. After flowing for 15 minutes, the flowing rate was approximately 3/4 BPH (estimated 95% water and 5% oil and BS). Pressured annulus with 1500 psig. Mixed 300 sacks of regular cement, salt saturated by Halliburton. Displaced cement with 36 barrels of water and shut pumps down to stage cement. Staged cement for 4 hours, could not get squeeze. Left 1400 psig on cement plug. Top of cement plug at 5800' KB.

**Big Flat Unit Well No. 1**

**NOTE:**

**Pertinent data on the present condition of the well:**

- 1. Cement plug from 5880'-5960' KB (80').**
- 2. Perforations from 5960'-5980' KB (20').**
- 3. Baker Model P-1 bridge plug at 6030' KB. Bridge plug 1' long.**
- 4. Perforations from 6130'-6145' KB (16').**
- 5. Bridge plug at 6263' KB.**
- 6. There is a reported leak between the 7' and 9 5/8" casing. However, the leak caused no problems during the cementing operations.**



# United States Department of the Interior

OFFICE OF THE SOLICITOR

SUITE 6201, FEDERAL BUILDING

125 SOUTH STATE STREET

SALT LAKE CITY, UTAH 84138

February 26, 1980

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

King Oil Company  
Attention: Mr. Bocell  
c/o Energy Resources Oil & Gas Corp.  
2735 Villa Creek Drive, Suite 165  
Dallas, Texas 75234

Re: Wells Nos. 1 and 1A, Sec. 11,  
T. 26 S., R. 19 E., Grand County,  
Utah, Lease No. SL-066103

Wells Nos. 1, 2, and 3, Secs. 14 and  
23, T. 26 S., R. 19 E., Grand County,  
Utah, Lease No. SL-067043

Gentlemen:

This is to advise you that in response to a request from the U. S. Geological Survey, we are hereby issuing a formal demand that the above-referenced abandoned locations be properly plugged and restored. Numerous letters on this matter have been directed to your company, its surety, and its legal counsel by U.S.G.S. since 1972. To date, there has been no response assuring results.

Your company's failure to live up to the terms of the now terminated leases makes this formal demand necessary. Geological Survey has been more than patient in its attempts to have these plugging and restoration obligations satisfied. Patience, however, has its limits, and we feel it imperative that we receive a response setting up a satisfactory schedule for the completion of this work. Failure to do so will result in the initiation of legal proceedings.



ENERGY RESOURCES OIL & GAS CORPORATION

a subsidiary of  
Energy Resources Corporation

2735 VILLA CREEK DRIVE • SUITE 165 • DALLAS, TEXAS 75234 • (214) 241-2776

February 29, 1980

Mr. Roland G. Robison, Jr.  
Assistant Regional Solicitor  
U.S. Department of the Interior  
Suite 6201 Federal Building  
125 South State Street  
Salt Lake City, Utah 84138

Re: Wells No. 1 and 1-A  
Section 11, T-26-S, R-19-E  
Grand County, Utah  
Lease #SL-066103

Wells No. 1, 2, and 3  
Sections 14 and 23, T-26-S, R-19-E  
Grand County, Utah  
Lease #SL-067043

Dear Mr. Robison:

We are in receipt of your letter of February 26, 1980, regarding the subject wells. As a result of a recent merger, Energy Resources Oil & Gas Corporation acquired the properties of King Oil Company without the knowledge of the location of old dry holes or abandoned wells. As a result of our bonding company advising us that we had a problem with these wells, we did track down their whereabouts.

On February 11, 1980, I talked to Mr. Dee Dearth by telephone and he related the location and well site conditions. Mr. Dearth also provided us with considerable well data and records which we did not previously have. Further, Mr. Dearth advised us that the area was covered with snow and that it would be difficult to do any work until Spring.

It is our intention to comply with the department requirements as soon as feasibly possible. I plan a personal trip to the well sites to make arrangements to properly plug and abandon these wells. Thank you for your cooperation.

Sincerely,

*Robert D. Bocell*  
Robert D. Bocell  
Operations Manager

Routing:  
() Nielson  
() Robison  
( ) McConkie  
( ) Kelly  
( ) Linn  
( ) Smith  
( ) McPhie  
( ) Bailey  
( ) \_\_\_\_\_  
( ) \_\_\_\_\_  
File \_\_\_\_\_

RDB/sc

If you have any questions concerning this matter, please feel free to contact us. We look forward to your response.

Very truly yours,

REID W. NIELSON  
Regional Solicitor

*Roland G. Robison, Jr.*

By

ROLAND G. ROBISON, JR.  
Assistant Regional Solicitor

cc: Dee Dearth, Geological Survey, 2000 Administration Bldg.,  
1745 West 1700 South, SLCU 84104  
Siegfried Insurance, Attn: Peggy Borneman, P. O. Box 3308,  
Tulsa, OK 74101

2-27-80

COPIES SENT TO:

BLM, MORB  
USGS, VERNAB  
USGS, GED. I.C.T.  
WELL FILES (5)



# United States Department of the Interior

GEOLOGICAL SURVEY  
Conservation Division  
2000 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

October 23, 1980

United States Department of the Interior  
Office of the Solicitor  
Suite 6201, Federal Building  
125 South State Street  
Salt Lake City, Utah 84138

Re: Well Nos. 1 and 1A, Section 11,  
Township 26S, Range 19E  
Grand County, Utah  
Lease No. SL - 066103

Well Nos. 1, 2, and 3, Section 14  
and 23, Township 26S, Range 19E  
Grand County, Utah  
Lease No. SL - 067043

Gentlemen:

Personnel from this office inspected the referenced locations on October 16, 1980. No progress has been made by Energy Resources Oil and Gas Corporation to comply with your demand letter dated February 26, 1980 (see attached letter).

According to Energy Resources Oil and Gas Corporation's reply letter dated February 29, 1980 (see letter attached) they proposed to comply with the Federal requirements as soon as feasibly possible.

Sufficient time has elapsed to complete this work; therefore, we feel further action will be necessary for compliance.

If additional information or assistance is required, please contact Dee Dearth at this office.

Sincerely yours,

(ORIG. SGD.) E. W. GUYNN

E. W. Guynn  
District Oil and Gas Supervisor

Attachments

cc: BLM, Moab, Utah w/attachment  
Utah State Oil and Gas w/attachment ✓

RECEIVED

OCT 27 1980

DIVISION OF  
OIL, GAS & MINING

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN TR. DATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 42 R1424.

5. LEASE DESIGNATION AND SERIAL NO.  
*50 111 42*

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

<p>1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/></p>	<p>7. UNIT AGREEMENT NAME</p>
<p>2. NAME OF OPERATOR <b>ENERGY RESOURCE OIL &amp; GAS CORP.</b></p>	<p>8. FARM OR LEASE NAME <b>Big Flat Unit</b></p>
<p>3. ADDRESS OF OPERATOR <b>2735 Villa Creek Drive, Suite 165, Dallas Texas 75234</b></p>	<p>9. WELL NO. <b>1</b></p>
<p>4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <b>Big Flat Unit Well #1 SW/4 SE/4 Sec. 14 T26S R19E Grand Co. Utah</b></p>	<p>10. FIELD AND POOL, OR WILDCAT <b>Big Flat Unit</b></p> <p>11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA <b>SW/4 SE/4 Sec 14 T26S R19E</b></p>
<p>14. PERMIT NO.</p>	<p>15. ELEVATIONS (Show whether DF, RT, GR, etc.)</p>
<p>12. COUNTY OR PARISH <b>Grand Co.</b></p>	<p>13. STATE <b>Utah</b></p>

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

<p align="center">NOTICE OF INTENTION TO:</p> <table border="0" style="width:100%;"> <tr> <td>TEST WATER SHUT-OFF <input type="checkbox"/></td> <td>PULL OR ALTER CASING <input type="checkbox"/></td> </tr> <tr> <td>FRACTURE TREAT <input type="checkbox"/></td> <td>MULTIPLE COMPLETE <input type="checkbox"/></td> </tr> <tr> <td>SHOOT OR ACIDIZE <input type="checkbox"/></td> <td>ABANDON* <input type="checkbox"/></td> </tr> <tr> <td>REPAIR WELL <input type="checkbox"/></td> <td>CHANGE PLANS <input type="checkbox"/></td> </tr> <tr> <td colspan="2">(Other) <input type="checkbox"/></td> </tr> </table>	TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>		<p align="center">SUBSEQUENT REPORT OF:</p> <table border="0" style="width:100%;"> <tr> <td>WATER SHUT-OFF <input type="checkbox"/></td> <td>REPAIRING WELL <input type="checkbox"/></td> </tr> <tr> <td>FRACTURE TREATMENT <input type="checkbox"/></td> <td>ALTERING CASING <input type="checkbox"/></td> </tr> <tr> <td>SHOOTING OR ACIDIZING <input type="checkbox"/></td> <td>ABANDONMENT* <input checked="" type="checkbox"/></td> </tr> <tr> <td colspan="2">(Other) <input type="checkbox"/></td> </tr> </table> <p align="center">(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)</p>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input checked="" type="checkbox"/>	(Other) <input type="checkbox"/>	
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SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input checked="" type="checkbox"/>																		
(Other) <input type="checkbox"/>																			

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

Start on 5/14/81 & Complete on 6/16/81

1. Move in casing pulling unit.
2. Recovered 5075' of sucker rods & 5050' of 2 7/8" tubing. 9\* (Note) We were 16 days washing & fishing to recover this amount of rods & tubing. We were unable to recover anymore without a great expense.
3. Cut casing at 5026'. 7"
4. Cut casing at 4500' and recover. 7"
5. (9 5/8" casing could not be recovered.
6. RIN with tubing & circulate hole with 9.4# mud.
7. Made braden head type squeeze at 5026' with 76 sk. cement & 3/8 CC. Wait 4 hrs. & tag top of plug at 4800'.
8. Spot 76 sk. in & out of casing stub. 4600' to 4400'.
9. Spot 38 sk. at 2500' to 2400'.
10. Squeeze 19 sk. between 9 5/8" & surface casing.
11. Run 50 sk at surface & erect regulation marker.
12. Move off & clean & relevel location.
13. Arrangements have been made to reseed in the fall.

**RECEIVED**  
JAN 07 1982

DIVISION OF  
OIL, GAS & MINING

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

SIGNED *W.J. Rippy Jr.* TITLE *President of Rippy Inc* DATE *7/23/81*

(This space for Federal or State office use)

APPROVED BY *E.W. Guynn* TITLE *District Oil & Gas Supervisor* DATE *JAN 05 1982*

CONDITIONS OF APPROVAL, IF ANY: