FILE NOTATIONS

E

F

Location Inspected

Bond released
State of Fee Land

GW WW PA

LOGS FILED

Driller's Log

Electric Logs (No.)

E I E-I GR GR-N Micro

Lat Mi-L Sonic Others

FILE NOTATIONS

Entered in N I D File

Entered On S R Sheet

Location Map Pinned

Card Indexed

I W R for State or Fee Land

Checked By Chief

Copy N I D to Field Office

Approval Letter

Disapproval Letter

COMPLETION DATA

Date Well Completed 12-1-55

Location Inspected

Bond released
State of Fee Land

OW WW TA

GW OS PA

LOGS FILED

Driller's Log

Electric Logs (No. 1)

E I E-I GR GR-N Micro

Lat Mi-L Sonic Others

- GEOLOGICAL REPORT -

KRALOVEC NO. 1

SE SW NE Sec. 29-9S-17E

Duchesne County,

Utah

JOHN C. WIRTH
Geologist

KRALOVEC (UNIT - Wildcat) - Duchesne County

39-9S-17E SE SW NE, Continental Oil Co. #1 (Utah 01864-B)
Ref. #1
STATUS: Drg 2193' Green River (Co. 7-31-54)
REMARKS: NEW DRILLING WELL. Spud 7-23-54 in Uinta for intended 10,800' Mesaverde test. 13-3/8" cc 515'

JUL 1954 Tentative sample top Green River 1160'. DST 1280-1350', 1 hr., rec. 480' mud. *Unit approved 7-14-54

STATUS: Drg 5780' (Visited 8-24-54)
REMARKS: Sample top Green River 1160', DSTs as follow: 1280-1350', 1 hr., 480' mud; 2118-93', 3/4 hr., 15' slightly gas-cut mud; 3560-94', 1½ hrs., 32' oil

AUG 1954 and gas-cut mud; 3675-3750', 2 hrs., 6' black oil, 28° gr. and 88° F. pour point, 84' oil-cut mud with trace water and gas; 4568-4608', 1-3/4 hrs., 1' oil and 82' oil and gas-cut mud; 4708-92', 2 hrs., 38' mud.

STATUS: Drg 8436' Wasatch (U.O.R. 9-25-54)
SEP 1954 REMARKS: Sample top Wasatch 5780'. DST 5736-80', 2½ hrs., rec. 16' sweet green oil, 103° pour point, 42° gravity, and 75' oil-cut mud, SIP 75#.

STATUS: Drg 10,167' Mesaverde (Co. 11-1-54)
OCT 1954 REMARKS: Sample top Mesaverde 8960'. DST 9360-99', 2 hrs., 10' mud, SIP 915#.

STATUS: Drg 11,106'
REMARKS: DST 10,158-78', open 4½ hrs., gas in 3½ hrs., too small to measure, rec. 6' drilling mud; DST
NOV - - 1954 10,906-11,050', rec. 1170' gas-cut mud, packer failed during test.

STATUS: Tstg., TD 11,810', PB 4545' (U.O.R. 1-3-55)
DEC - - 1954 REMARKS: DST 11,319-444', 4 hrs., gas est. 30 MCF/PD, rec. 1200' gas-cut water cushion, 30' gas-cut mud, SIP 4045#.

STATUS: Abd, TD 11,810' (Co. 1-14-55)
REMARKS: DRY HOLE OR FAILURE. EL tops: Green River 1155', Wasatch 5812', Mesaverde 9070'. Scattered
JAN 1955 gas & oil shows in the Green River. 5½" cc 4195' w/200 sx. Abandoned 1-4-55.

23,107

Green River 1155
Wasatch 5812
Mesaverde 9070

St: Add TD 11810'
Re Dry Hole F. EL tops Shows oil in
Scattered shall 6½" CC 4195 w/200 sx
the Green River
Abd 1-4-55

Operator:	Continental Oil Company
Lessee:	Kralovec
Land Owner:	U. S. Government
Well Name & Number:	Kralovec No. 1
Location:	SE SW NE Section 29, T. 9 S., R. 17 E. Duchesne County, Utah
Elevation:	Ground 5,391' K.B. 5,405'
Contractor:	Noble Drilling Company
Surface Formation:	Uinta formation of Tertiary Age
Lowest Formation Penetrated:	Mesaverde formation of Cretaceous Age
Date Spudded:	July 23, 1954
Date Completed:	T. D. reached December 21, 1954 Rig released January 4, 1955
Status:	Dry Hole
Total Depth:	11,810 - Driller 11,812 - Schlumberger

CASING RECORD

13 3/8 inch casing to 519 feet. Set with 360 sacks of regular cement.
5 1/2 inch production string set to 4195 feet and set with 200 sacks of cement.
Shot off and recovered the top 985 feet of 5 1/2 inch casing.

HOLE DIMENSIONS

17 1/4 inch hole to 582 feet and drilled with a 9 inch bit to 11,810 or T.D.

CORES AND CORING EQUIPMENT

For a description of the cores see the attached sheets. Drilling and Service, Inc. furnished the core barrel and core heads. Core No. 1 was taken with an 8 7/8 inch full hole barrel, but the remaining five cores were taken with an 6 1/8 inch barrel. All barrels were able to cut 50 foot cores.

DRILL STEM TESTS

See the attached sheets for the individual account of each test. Some 20 D. S. T.'s were taken, of which 15 were made while the hole was being drilled and the last 5 were made after the hole was plugged back.

Budget Bureau 42 R358.2.
Approval expires 12-31-52.

Land Office Salt Lake City
Lease No. 01864-B - Federal
Unit Kralovec

29

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JAN 7 1955

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	Report of work done since previous report 12-1-54 x

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

January 4, 1954

Well No. 1 is located 2310 ft. from [N/S] line and 1650 ft. from [E/W] line of sec. 29

NE¼ Sec. 29 (¼ Sec. and Sec. No.) 9S (Twp.) 17E (Range) S. L. (Meridian)

Kralovec (Field) Duchesne County (County or Subdivision) Utah (State or Territory)

The elevation of the ground above sea level is 5391 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)

Drilled to total depth of 11810'. Cored 10390-10429', rec. 39' shale. Cored11287-313', rec. 16' shale, 7' siltstone, 3' sand w/slight gas odor. DST 11228-315', tool open 180 minutes, SI 60 minutes, gas to surface in 180 minutes, recovered 85' gas cut mud, FP 200#, SIP 1630#. DST 11314-414', tool open 4 hrs. SI 1 hr., rec. 3500' water cushion, slight gas cut, 35' gas cut mud, FP 0#, SIP 2300#. Tested w/Schlumberger, Micro, Caliper, Gamma Ray & Neutron logs. Plugged back to 4200' to run 5 1/2" casing to test zone 4010-75' and 2531-2606'. 5 1/2" casing set at 4195'. Perforated 4022-60' with 228 holes, set tester at 4009', tool open 6 hrs. SI 1½ hrs. recovered 2890' water, 100' gas cut mud with a trace of oil, SIP 1390#. Perforated 3963-82' with 114 shots. Testing.

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

Company Continental Oil Company

Address 1755 Cleveland

Denver, Colorado

By ORIGINAL SIGNED BY
R. H. POPPETT

Title District Superintendent

POOR COPY

Budget Bureau 42-R356.2.
Approval expires 12-31-52.

7

(SUBMIT IN TRIPLICATE)

Land Office Salt Lake City, Utah

Lease No. 0186½-B Federal

Unit Pending Eralesse

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
ORIGINAL FORWARDED TO CASPER

RECEIVED
JUL 8 - 1954

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

July 7, 1954

Well No. 1 is located 1650 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

SE¼ Sec. 29 (¼ Sec. and Sec. No.) | 9S (Twp.) | 17E (Range) | (Meridian)

Eralesse (Field) | Duchesne County (County or Subdivision) | Utah (State or Territory)

The elevation of the derrick floor above sea level is [redacted] 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)

We propose to drill this well with Rotary tools to an approximate depth of 10,800' to test the Green River, Wasatch and Mesaverde formations. Approximately 500' of 13 3/8" surface casing will be set and cemented. If commercial production is encountered, a 7" OD oil string will be set and cemented. Submit design before run.

[redacted]

APPROVAL IS CONDITIONAL UPON COMPLIANCE WITH THE TERMS ATTACHED HERETO.

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

Company Continental Oil Company

Address 1720 Glenarm

Denver, Colorado

By [redacted]

Title [redacted]

Form 9-331 a
(Feb. 1951)

(SUBMIT IN TRIPLICATE)

Budget Bureau No. [illegible]
Approval expires [illegible]

Land Office Salt Lake City, Utah

Lease No. 0[illegible] Federal

Unit [illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

RECEIVED
JUL 12 1954
[illegible] SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

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

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

July 9, 19[illegible]

Well No. 1 is located 2310 ft. from N line and 1650 ft. from E line of sec. 29

[illegible] 29 (¼ Sec. and Sec. No.) | [illegible] (Twp.) | 17E (Range) | (Meridian)

[illegible] (Field) | Duchesne County (County or Subdivision) | Utah (State or Territory)

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

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)

Due to Terrain, we propose to move this location 660' south of the original location, making the new location 2310' FNL, 1650' FEL, Section 29-[illegible], Duchesne County, Utah.

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

Company Continental Oil Company

Address [illegible]

[illegible]

Approved 7-12-54 [signature]

By ORIGINAL SIGNED BY H. D. ROBERTS

Title [illegible]

Budget Bureau 42-R358.2.
Approval expires 12-31-55.

Form 9-331 a
(Feb. 1951)

(SUBMIT IN TRIPLICATE)

Land Office Salt Lake City, Utah

Lease No. 01864-B Federal

Unit Kraloves

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

RECEIVED
AUG 9 - 1954

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
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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 Report of Work Done Since Previous Report 7-7-54 X
NOTICE OF INTENTION TO ABANDON WELL	

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

August 5, 1954

Well No. 1 is located 2310 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

NE¼ Sec. 29 (¼ Sec. and Sec. No.) 9S (Twp.) 17E (Range) S.L. (Meridian)

Kraloves (Field) Duchesne County (County or Subdivision) Utah (State or Territory)

The elevation of the ~~derrick floor~~ ground above sea level is 5584 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)

Cemented 13 3/8" casing at 504' RKB with 360 sacks regular cement. W. O. C. 36 hours. Tested casing with 1000 lbs. for 1 hour. No pressure drop.

Drill Stem Test #1 - Green River, 1280-1350', tool open 60 minutes, shut in 30 minutes, recovered 180' drilling mud. Flowing pressure and shut in pressure zero.

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

Company Continental Oil Company

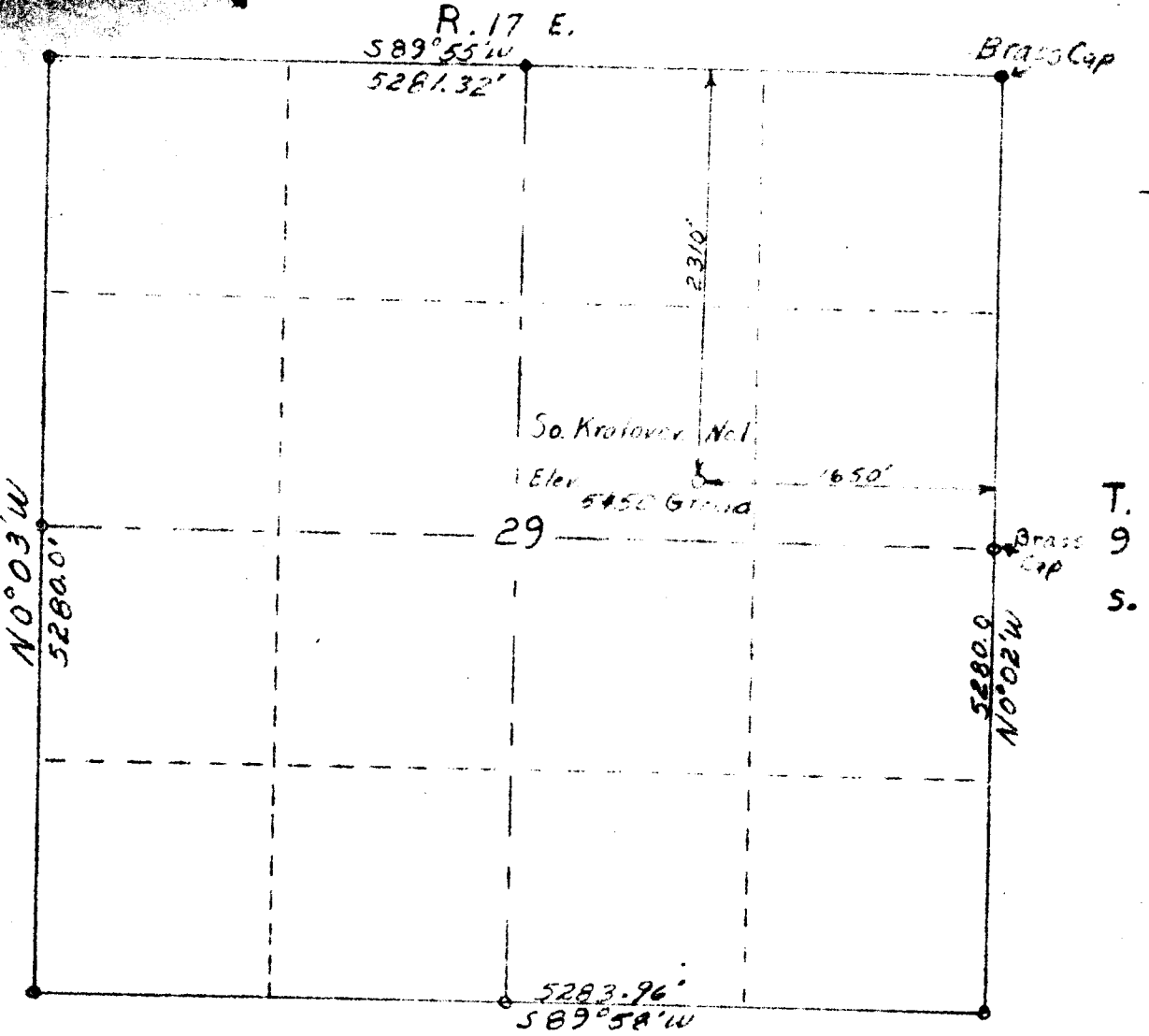
Address 1255 Ramsay

Denver, Colorado

By H. O. Roberts

Title Managing Superintendent

POOR COPY



Location South Kralovec No 1

1650' From East Line 2310' From North Line Sec. 29, T. 9S., R. 17

Duchesne County Utah

Elevation 5450 Ground

U-01864-B

ORIGINAL FORWARDED TO CASPER

CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT

DRAWN	SCALE		FILE NO.
CHECKED	DATE	8-23-54	
APPROVED	SHEET	OF	

Location Plat South Kralovec No 1

Form 9-331 a
(Feb. 1951)

Budget Bureau 42-R358.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

Land Office Salt Lake City, Utah
Lease No. 01361-B Federal
Unit Duchesne

RECEIVED
SEP 7 - 1954
GEOLOGICAL SURVEY
SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Report of Work Done Since Previous Report 8-5-54	X

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

September 2, 1954

Well No. 1 is located 2310 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

NW¼ Sec. 29 (¼ Sec. and Sec. No.) | 9S (Twp.) | 17E (Range) | S.L. (Meridian)

Duchesne (Field) | Duchesne County (County or Subdivision) | Utah (State or Territory)

The elevation of the Ground above sea level is 5460 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)

DST #1 - 2118-93', tool open 30 minutes, SI 15 minutes, rec. 15' gas cut mud, IFP and ISIP 0#, FFP 990#. DST #2, 3560-94', tool open 90 minutes, SI 30 min., rec. 30' slightly oil & gas cut mud. IFP & ISIP 0#. DST #3, 3675-3750, tool open 2 hours, SI 30 minutes, rec. approximately 1 pint free oil, rec. 90' oil and/or gas cut mud. Cored 3811-87', recovered 56'. DST #5, 4368-4468', tool open 135 min., SI 30 minutes, rec. 82' slightly oil and gas cut mud, 1' oil, klink and heavy mud, IFP 40#, ISIP 40#. DST #6, 4708-92', tool open 120 minutes, SI 30 minutes, rec. 30' mud, no oil or gas, no pressures. DST #7, 5736-80', tool open 2 1/2 hrs., SI 30 minutes, rec. 18' oil, 75' oil cut mud, SIP 75#, IFP, Grav. 42.

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

Company Continental Oil Company

Address 1720 Lincoln

By J. E. Smith

Title District Superintendent

Form 9-331a
(Feb. 1951)

Budget Bureau 42-R358.2.
Approval expires 12-31-52.

	29

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COPY RETAINED DISTRICT OFFICE

Land Office Salt Lake City, Utah
Lease No. 01864-B Federal
Unit Kralovec

RECEIVED
OCT 8 - 1954
U.S. GEOLOGICAL SURVEY
SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	Report of work done since previous report 9-2-54.

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

October 6, 1954

Well No. 1 is located 2310 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

NE¼ Sec. 29 (¼ Sec. and Sec. No.) | 9S (Twp.) | 17E (Range) | (Meridian)

Kralovec (Field) | Duchesne County (County or Subdivision) | Utah (State or Territory)

The elevation of the ground above sea level is 5391' 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)

Drilled in sand and shale to 9353'. Top of Mesa Verde 8960'. No drill stem tests or cores. Correction on elevation: 5391' Ground elevation.

no need to approve

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

Company Continental Oil Company

Address 1755 Glenarm

Denver, Colorado

By [signature]

Title District Superintendent

Form 9-331a
(Feb. 1951)

Budget Bureau 42-R358.2.
Approval expires 12-31-52.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake City
Lease No. 01866-B Federal
Unit Kralovec

RECEIVED
NOV 4 - 1954

ORIGINAL FORWARDED TO CASPER

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
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NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	Report of work done since previous report 10-6-54 X

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

November 2, 1954

Well No. 1 is located 2310 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

NW¼ Sec. 29 (¼ Sec. and Sec. No.) 9S (Twp.) 17E (Range) S.L. (Meridian)

Kralovec (Field) Duchesne County (County or Subdivision) Utah (State or Territory)

The elevation of the ground above sea level is 5391' 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)

Drilled to 10221'. DST 9360-99', tool open 120 min., SI 30 minutes, rec. 3000' water cushion and 10' mud, FP 865#, SIP 915#, no oil or gas shows. Cored 10100-130' in tight, hard sand with gas odor. Mud gas cut from 10.3 to 9.5#. Cored 10170-78', recovered 2' hard tight sand, no show, 6' shale. DST 10158-78', tool open 1½ hrs, SI 1 hr., gas to surface in 3½ hrs, too small to measure, recovered 6' drilling mud, FP 940#, SIP 2150#. Now drilling in sand.

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

Company Continental Oil Company

Address 1655 Glenarm

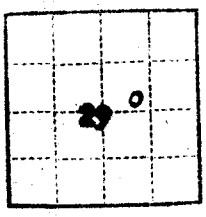
Denver, Colorado

By ORIGINAL SIGNED BY
P. C. SCHLEIER

Title Petroleum Engineer

Budget Bureau 42-R358.2.
Approval expires 12-31-62.

(Feb. 1951)

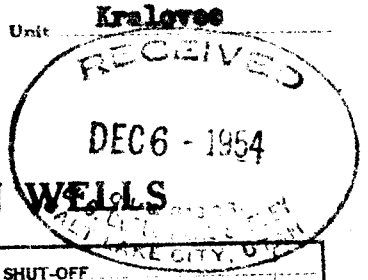


(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

Land Office Salt Lake City
Lease No. U- 01864-B - Federal
Unit Kraloves



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Report of work done since previous report 11-2-54	X

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

December 1, 1954

Well No. 1 is located 2310 ft. from {N/S} line and 1650 ft. from {E/W} line of sec. 29

NE¼ Sec. 29 (¼ Sec. and Sec. No.) | 9S (Twp.) | 17E (Range) | S.L. (Meridian)

Kraloves (Field) | Duchesne County (County or Subdivision) | Utah (State or Territory)

The elevation of the ~~derrick floor~~ ground above sea level is 5391' 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)

Drilled to depth of 11216'. Cored 10990-11029', rec. 39' shale. Cored 11093-11131', rec. 39' shale, 1' sand with coal streaks. Drill stem tested 10906-11050', tool open 60 minutes, packer failed, rec. 1170' slight gas cut mud, plug 3000' water cushion, FP 1500#, SIP 4400#. Ran Schlumberger. Drill stem tested 11136-108', tool open 6 hours, SI 1 hour, rec. water cushion and 60' gas cut mud, FP 1250#, SIP 1650#. Now drilling in sand and shale.

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

Company Continental Oil Company

Address 1755 Glenarm

Denver, Colorado

Approved DEC 6 - 1954

District Engineer

By ORIGINAL SIGNED BY
H. D. ROBERTS

Title District Superintendent

OIL AND GAS SHOWS

The Green River formation has much oil shale and oil marl in it, which tends to give oil indications throughout its thickness. The Green River lies between the interval 1,160-5,812 in this well. Three oil shows of importance were encountered in the formation at the time of being drilled. D.S.T.'s number 4, 5 and 7 were taken in these zones. Number 7 recovered 18 feet of green oil and was the best show.

The Mesaverde had numerous gas shows from sands which were too tight to produce commercial amounts. The coal present in the Mesaverde formation seemed to be related to the gas found to be present in the sands of the Mesaverde.

FORMATION TOPS

Formation	Schlumberger Depth	Datum	Sample Depth	Datum
		surface		surface
Uinta	1,155	+ 4,250	1,160	+ 4,245
Green River	5,812	- 407	5,780	- 375
Wasatch	9,070	- 3,665	8,960	- 3,555
Mesaverde				

REMARKS

This well was strictly a wildcat in which little or no information was available to use as a guide. Sinclair Oil and Gas Company had two wells which were in nearby townships, but the tops picked for the Mesaverde formation were so much different than those we try to use in our work, that it was soon realized that these Sinclair Wells would be of little use in correlation work for this well, or for any of our subsurface work in the central part of the Uintah Basin.

The presence of gas in every sandstone encountered in the lower two-thirds of the Mesaverde formation suggests that more work should be done to determine sand buildups in the Mesaverde shore-lines. It is felt that this sort of approach will lead us to areas in the basin which will have better sorting of the sands and thus suggest the presence of porosity being present. The well bottomed about 200 feet above the Mancos formation, which was the original objective of the well.

As it was expected, the Wasatch formation thickened from our Ouray #2 well (about 20 miles east of this location) and had a much greater amount of shale than its eastern facies has.

The Green River formation here is in the basin deep and thus was expected to have a much greater thickness than was reported by the Sinclair Oil & Gas Company's Juniper Hills and Badlands wells.

No further wells are recommended for this block at this time.

SAMPLE DESCRIPTION

See the attached sheets in this report.

VERTICAL SURVEY

See the attached sheets in this report.

SAMPLE PROGRAM

Samples were caught every ten feet by the drilling crew and every two feet by the Well Logging Unit.

DRILLING TIME

Two foot drilling time was kept from 1,000 feet to the total depth.

DRILLING MUD

Water used from the surface to the Wasatch formation top of 5,800 feet. From 5,800 feet to the total depth and in the plugged back zones an Aquagel base mud was used.

LOGS MADE

E. S. log made from 500 feet to the total depth with detailed microlog made in selected zones of the Green River and Wasatch formations and made of all the Mesaverde formation which was drilled. Gamma-ray was run from the surface to the total depth. Section Gauge log was made from 2,300-5,750 feet; 6,300-6,950 feet and from 8,200 feet to the total depth.

SAMPLE LOG

An interpretative sample log was made from the surface to the total depth.

WEEKLY WELL HISTORY IN SUMMARY FORM

See the attached sheets in this report.

TOTAL COST

The total cost for all operations can be found with their proper break down under A.F.E. 7-11-2872; however, the lump sum totaled about $345,000.

PARTNERS

The Texas Company, Sinclair and the Shell Oil Companies were all minor partners in drilling this well.

COMPLETION DATA

5 1/2 inch casing was run to 4,195 feet and set with 200 sacks of cement. The hole was plugged back to 4,550 feet. The following zones were perforated and tested before the well was abandoned: 4,032-60'; 3,963-82'; 3,353-78'; and 2,550-70'. The tests run in these zones recovered water in each case. All of these tests were taken in the Green River formation.

KRALOVEC NO. 1

WELL HISTORY

Exhibit No. 2

Well History - by Weekly Summary

Week of:

July 19, 195[illegible] Noble rig moved onto location July 19th. Spudded at 10:00 p.m., July 23rd. On July 26th, set surface casing with 360 sacks of cement. Casing set to depth of 515 feet. Drilled out on July 28th at 5:30 a.m. with a nine inch hole. Spud in Uintah formation, topped the Green River formation at 1,160 feet, (tentative sample top). Had two D.S.T.'s in beds that were too tight to produce, recovered mud. Junk in the hole caused 3/4 of a days drilling time to be lost. Baroid logging Unit moved onto location July 28th and started logging at 12:00 noon. Used water to drill with. Used 13 bits to drill 1,902 feet - from 513 to 2,425 feet.

August 2 Drilled 1,169 feet - from 2,425 to 3,594 feet. At 2,528' drill collars twisted off and left junk in the hole, one days' drilling time lost. (Junk was dropped Eastman Survey tool, drilled it up with three bits.) Collars twisted off again on the 5th at 3,052 feet, lost 7 hours drilling time. Had one D.S.T. - recovered 32 feet of oil and gas cut mud. The formation was tight.

August 9 Drilled from 3,594 to 4,480 feet, [illegible]86 feet. This includes 46 feet of coring. Core No. 1 3,841-3,[illegible]7'. Had one D.S.T., No. 4, recovered 6' of oil, black, has high pour point, estimated 80°, estimated gravity 28°. The oil was on top of 90 feet of oil and gas cut mud. This was recovered from a very tight sandstone and siltstone, and it is estimated that sand-frac and/or acid may give better test results. This zone is from 3,676 to 3,700 feet. The core barrel was dropped while in the derrick, two hours drilling time lost. The hole has required 32 bits to a depth of 4,400 feet.

August 16 Drilled from 4,480 to 5,500, 1,020 feet. Two D.S.T.'s No. 5 and 6, were taken. No. 5 from 4,568-4,60[illegible]' had oil and oil cut mud similar in every way to the results taken in D.S.T. No. 4, which is described above. D.S.T. No. 6 recovered mud. It is believed that test 5 would respond to completion methods of acid and sand-frac. The drill collars twisted off again at a depth of 4,521, lost 4 hours drilling time. Still drilling ahead in the Green River formation.

August 23 Drilled 1,000 feet, from 5,500 to 6,500 feet. D.S.T. No. 7 was taken from 5,736-5,780. Recovered 18 feet of dark green oil and 75 feet of oil cut mud. Oil has high pour point 10[illegible]°, but has a gravity of 42°. This zone should receive further attention in the geologist's opinion because it is the basal Tgr zone which is being produced at the Lambert No. 1 well (22-8S-16E). About 8 miles north of this location. The tentative sample top of the Wasatch was picked at 5,780'. This gives a Green River thickness of around 4,620 feet. The Schlumberger top is expected to vary somewhat from this as the two formations have a common transition zone between them. The Tgr required 42 bits which is an average of 120 feet per bit. The upper part of the Wasatch formation consists mainly of soft variegated shale, which drills at a rate of about 8 min. per foot, even with soft bits. Converted from water to mud in the top of the Wasatch.

August 30 — Twisted 900 feet, from 6,400 to 7300 feet. Had to increase the mud weight and viscosity in order to keep the hole in shape and to be prepared for any gas sands which might be present in the Wasatch formation. The upper part of the Wasatch has been rather barren of good sands. The good sand which was present in the Ouray #2 well (20-9-20) was not developed here. The drilling rate has slowed down due mainly to the increased depth of the hole. The well twisted off again at 7,287 feet and 12 hours drilling time was lost while fishing. This twisting off condition (4th time) has been in the collars each time and may be due to their worn condition. The pipe is new but the collars are not. The weight while drilling has not been excessive and thus should not be responsible for the twist offs. The Wasatch has been very low on gas content or stained cuttings.

September 6 — The hole was deepened from 7,300 to 8,004, which is 704 feet for the week. The Wasatch is still about the same lithology as last week, low on sandstone content. A bad storm required that the road to the location be regraded. The collars twisted off again at 7,920 which caused 10 hours of drilling time to be lost. Twisted off in the pins again, this still suggests that the collars are not in good condition. The hole is still fairly straight, and the weight is not excessive.

September 13 — The well was deepened from 8,004 to 8,380', some 376 feet. A combination of depth, hard quartzitic sandstone lenses, and some pyrite have been present in the Wasatch formation to slow the drilling rate down. Only two hours of drilling time were lost this week, broken hoisting chain. A boiler house and steam lines were erected to prepare for winter conditions. Average costs per day to Continental for drilling during this past 15 days have been $1,755.

September 20 — The well was deepened from 8,380 to 8,840, some 460 feet. Drillings costs are now about $1700 per day. The first 60 days of drilling cost around $135,000. The rig was down only 2 hours for repairs this week. Heavy rains washed out the road again, caused the over-all progress to be slowed down somewhat. The rig is completely winterized and is in excellent shape.

September 27 — Drilled from 8,840 to 9,200, some 360 feet. Junk in the hole and rig repairs caused 9 hours of drilling time to be lost. The tenative Mesaverde top is at 8,960 feet. The presence of much Wasatch caviars in the samples makes this top subject to speculation. The great amount of hard sandstone has made drilling progress rather slow. The depth of the hole is the main stopper, however. 42 bits were required to drill through the Wasatch formation. The Mesaverde formation seems to have lots of well developed sandstones as was expected.

October 4 — Drilled from 9,200 to 9,500, some 300 feet. The depth of the hole and the very hard nature of much of the abundant sand in the Mesaverde are responsible for the slow rate of penetration. D.S.T. No. 8 was taken from 9,360 to 9,399. Recovered 10 feet of mud. This test was taken in the first sign of petroleum being present in the Mav.

tober 11 — Drilled from 9,500 to 9,700, some 300 feet in the Mesaverde formation. The Mesaverde is composed of much hard sandstone, most of which has been tight; however, a friable and porous sandstone at 9,778-80 was encountered. It was a clean sand and looked as though it might have been a water carrier? Streaks of limestone have been found throughout this upper part of the Mesaverde, suggesting that the Mesaverde deposited here was placed in quiet waters. The sands are for the most part fine grained and well rounded, which tends to bear out this statement. Costs for everything through the 11th of October are $165,000.

October 18 — The hole was deepened from 9,800 to 10,078 feet, some 278 feet. The Mesaverde has begun to show some streaks of carbonaceous material in the shales, but the sandstones are still very fine and hard. A little green shale has been present which along with the carbonaceous material indicates that shore line sediments are being penetrated. The rigging up of ten lines on the block and some motor repairs caused some 10 hours of lost drilling time to occur.

October 25 — The hole was deepened from 10,078 to 10,200 feet, some 122 feet for the week. This included two cores and one D.S.T. Core No. 2 was a full hole core from 10,166 to 10,170. The core catcher back off causing the barrel to jam. The 3rd core was taken with a 6 1/8 barrel and cored 8 feet from 10,170 to 10,178', where it jammed also, due to being put together poorly. Thus, one days' time was lost trying to get cores. D.S.T. No. 9 was taken. (NOTE: Strapping of the pipe later showed that the hole was actually 5 feet shallower than records showed, so Core 2 should be recorded as 10,161-65; and No. 3 from 10,165 to 73, and the test No. 9 from 10,153 to 73.) The test recovered gas to the surface in 3½ hours and it burned with a 3 foot flame. Below this cored sandstone drilling was again resumed with a 9 inch bit. The formation is easier drilling and some coal is being penetrated as expected, this coal gives off good methane kicks which makes logging tricky.

November 1 — Drilled from 10,200 to 10,484, some 284 feet. 38.5 feet was cored (Core No. 4). The core was taken from 10,390-10,429 after a drilling break was received from 1085-90 and some gas and fluorescence was received. The core showed that the sands, shales and silts recovered are very hard and tight, the softes part being drilled. Only a little fluorescence was noted in the core, 10,411-13, and seemed to be related to the carbonaceous and coaly stringers in the sandstone, although, a slight increase in the gas was noted in the mud. No test was taken in the tight formation. To date, the well has had several small gas sands, which are good signs and show that porosity does exist. The gas zone tested in D.S.T. 9, 10,153-78 is still putting gas into the mud.

November 8 — Drilled from 10,484 to 10,800, some 316 feet, still in the Mesaverde formation. Received some good drilling breaks and several small methane gas kicks all of which seemed to be related to the coaly beds adjacent to the sands. The stratigraphy is very good with sharp shale and sandstone breaks, if we still have seis closure, then I expect to find something. Total costs through the 10th is $227,400. Much lost drilling time is being piled up due to the trip time now required.

vember 15 — Deepened the well from 10,800 to 11,050, some 250 feet, still in the Mav. Took one core, 38 feet. Core No. 5 from 10,992-11,030. Received several small gas kicks, of which two will be tested in D.S.T. No. 10. Costs through the 14th total $236,400. Much coal is being cut and this coal seems to be related to what little porosity is present.

..vember 22 — The well was deepened from 11,050 to 11,120, some 70 feet. D.S.T.'s No. 10, 11, 12 and 13 took up most of the time. No. 10, 12 were misruns and the packer would not hold. An electric log was run and a packer seat for test 13 was picked. Strong winds kept test 13 from being pulled when due and thus cost some 15 hours of lost drilling time. These tests were run because gas was being received in the mud from T.D. Some gas was received on the test, but in general the test was disappointing in that much gas was expected. The electric log indicated that several zones up the hole were still interesting and should be either tested or retested. The electric log does not correlate too well with Ouray #2 and Jack Canyon in the Mesaverde formation. We are still getting a lot of trip gas from some zone which is feeding into the hole.

November 29 — Deepened the well from 11,120 to 11,315, some 195 feet. Core No. 6 was taken from 11,287-11,313 and recovered gas cut sand and siltstone. D.S.T. No. 14 was taken from 11,228-11,315 and recovered 30 M.C.F./D. from this zone. The rig has had several breakdowns which have cost 18 hours of drilling time to be lost. Total costs through December 1 are $267,000.

December 6 — Deepened hole from 11,315 to 11,5hh, some 229 feet. Had 48 hours of lost drilling time due to repairs on the crown block. Took D.S.T. 15 from 11,319-11,hhh. This entire zone was in sandstone, and gas estimated at 30 M.C.F./D. on a 4 hour test. The gas was very rich and condensed to gasoline in the flow line. The gas is there but is in a tight sand that won't let it out. Some 200 sacks of weight material were needed to keep the mud under control in this zone while drilling. Costs through the 6th of December are $279,700.

December 13 — The hole was deepened from 11,5hh to 11,77h, some 230 feet. The Mesaverde sandstones are very hard and tight, mostly fine grained. Some gas is in the sands, but the tightness of the sands prevents it from coming out. Some vertical fractures are present, which tend to bind the bit. 200 units of gas in the mud is not uncommon to find. Expect the Mancos below 11,800 feet, probably closer to 12,000. Total costs through the 19th, $303,000.

December 20 — The hole was deepened from 11,77h to the total depth of 11,810, some 36 feet. The T. D. was reached at 8 a.m., December 21, 1954. Final logs were run which included electrical, microlog, caliper and gamma-ray,-neutron. The microlog showed several zones of porosity in the Green River between 2500 and 4200 feet. 5 inch casing and 2 3/8 inch tubing were run to 4195 and bottom plugs were set below this horizon. The intervals 4,232-60 and 2,550-70 are to be tested after shooting. I believe that the zones 3,963-82 and 3,052 to 75 and 3,095-3,116 should also be tested as long as the pipe has been set in this zone. Oil stain was noted in each of the sands listed, which show porosity on the microlog. The Garoid Unit was released December 21st. The well bottomed in the Mesaverde, estimated to be about 200 feet above the Mancos top.

December 27 — The well was plugged back to 4500 feet and 4195 feet of 5 1/2 inch casing was run. Perforated and tested the following zones in 5 D.S.T.'s 16 to 20. 4,032-4,060; 3,963-3982; 3,052-75; 3,095-3,116 and 3,353-72 and the fourth zone of 2,550-2,570. All the tests recovered water. The last test was completed on January 2, 1955. The well is being plugged to abandon. Total costs through December 31st are $337,400.

Well History (cont'd)

[illegible] 3, 1955 The well was placed in the two perforated zone and set [illegible] of 5½ liner casing was recovered after being shot off. The rig was released at 7:00 A.M. on the morning of January 4, 1955. Total costs for the well were $[illegible],000.

KRALOVEC NO. 1

WRITTEN LOG

Written log- Kralove[illegible] . 1.
SE¼ SW, [illegible], 29, T.9 S.- R.17 E. Duchesne Co. Utah

K.B. 5405', Gr. 5391'

Uinta form. on the surface.

0 - 50	alt. 2 to 5 foot beds of hard light gray and tan silstone with shale , light green, calc, trace of mica.
50-60	sandstone , grades into siltstone, light brown and tan, hard, fine grained, clean, tight, slightly calc., tr., mica.
60-100	shale and mudstone, light green with lenses of maroon, has streaks of siltstone and fine grained sandstone throughout. tr. biotite and pyrite.
100-120	sandstone grading to siltstone, light gray to light brown, brown color due mostly to limonite cement. grains are poorly sorted, well rounded, fine to medium grained, . hard, slightly calc, . lenses of mudstone and green shale are throughout. Traces of pyrite and mica, some glauconite.
120-30	siltstone, light gray with brown concretions , much iron stain. very hard.
130-170	alt . green shale and mudstone with thin gray sandstone lenses, sand is hard, silty, slightly porous, calc.
170-180	sandstone grading to silt., fine grained, gray to tan, fair porosity, trace of pyrite.
180-210	shale and mudstone with silt stringers, shale is green, silt stringers are brown , biotite, chert, and pyrite traces are present. some maroon shale is also.
210-230	sandstone, light gray to tan, tight, hard, pyrite and limonite, some biotite, fine grained , well sorted, rounded, clean, hard.
230-260	Shale and mudstone with thin layers of hard platy siltstone shale is green, silt is gray green, calc.
260-270	Shale, green very calc, with thin whitish gray lime streaks.
270-300	silt and sandstone , light gray, hard, dense , calc, fine grained, muscovite flakes.
300-310	Sandstone, cream colored, medium to coarse grained, porous, sorted, rounded, trace of mica.
310-340	alt. silt, grading to sandstone , and shale grading to mudstone, . silts and sands are brown to dull orange color, shale and mudstone are green reenish black. calc.
340-360	Shale , green with some maroon , calc,
360-400	alt. silty sand and shaly mudstone, thin beds. sand is gray, hard , fine grained, calc, pyritic, some mica, shale is green and gray with trace of maroon.

400-440	alt. silt and mudstone, thin bedded, silts are calc, hard, gray, pyritic, tight, . mudstones are brownish green with trace of maroon,
440-50	Shale, dark green, calc,
450-90	shale with siltstone throughout in thin beds. Shale is mostly maroon, some green, calc, Silts are gray, hard, trace of biotite and pyrite.
490-500	mudstone grading to siltstone in stringers, maroon and green
500-523	sandstone, gray, grades to siltstone, calc, very hard, tight fine, poorly sorted, trace of biotite and pyrite, some chert
523-555	shale, green, some maroon stringers, calc, with thin silty, fine grained sandstone stringersthroughout, gray.
555-585	mudstone, shaly, light green, lenses of thin sandstone fine to medium fine grained., rounded, poorly sorted, gray.
585-615	alternating green calc. shale and T.B. gray siltstone, mica specks, silt is hard, tight, calc.
615-665	shale grading to mudstone, green, silty, calc, lenses of fine grained silty sandstonethroughout. trace of mica and pyrite.
665-685	Siltstone, light gray to creamy, very hard, clean, tight, calcareous.
685-695	Shale, green and maroon, silty, slightly calc.
695-715	Alt. green shale and light gray sandy siltstone, calc,
715-745	Sandstone, light gray, slight porosity, interbedded with lenses of green shale, trace of pyrite. grains are rounded fine to medium grained, slight sorting, calc.
745-755	Shale, green silty.
755-775	Alt. thin beds of siltstone, gray, and shaly mudstone, green, calc,
775-795	siltstone, light gray, hard, slightly calc, hard, tight, clean.
795-800	marlstone, light creamy gray,
800-815	Shale, green, calc.
815- 835	Shale, light green interbedded with thin beds of light gray, siltstone and marlstone, calc.silt very hard.
835-840	Siltstone, tan, very hard, calc,
340- 865	alt. beds of green shale, and gray marlstone, stringer of limestone dense.
865-895	Shale, gray, and light green, trace of bentonite, and marlstone.

[illegible] Sandstone, and mudstone light gray green, thin limestone stringers.

[illegible] alt. shale light green, bentonite, gray, and thin siltand sandstone stringers, fine, sorted.

955-985 shale, light gray, green , with thin gray limestone, lense siltstone and sandstone toward the base

985-1015 bentonite, light gray to tan, with siltstone stringers.

1015-1065 Siltstone grading to fine sandstone, tan to white, rounded porous, some sorting., micaceous.

1065-1115 Bentonite and silty shale, light brown with some gray,, siltstone lenses, white.

1115-1130 Interbedded bentionite , silt and fine sandstone, white, trace of carbonaceous shale , fluorescence, blue no cut.

1130-1160 as above , with decrease in coaly material and in fluor- - escence.

1160-1180 siltstone, fine sandstone, silty shale, with very thin streaks of limestone , gray, mineral fluorescence., mica.

1180- 1190 alternating lime, and silt, very calc, light gray, streaks of coaly material.

1190-1200 siltstone, light gray, calc., harh ,tight, mineral fluor- escence due to calcite.

NOTE 1115 is tenative Uinta - Green River Transition boundary.
1160 tenatitve Green River top

1200
1200-1210 alternating sandstone and shale, light gray, , calcite and trace of pyrite, mineral fluorescence.

1210-20 limestone, tan hard and dense, trace of calcite.

1220-1260 limestone , tan to brown, dolomitic, dense, hard, silty. lenses of thin siltstone .

1260-1280 dolomitic lime, as above, with thin silt streaks , slight fluorescence.

1280-1320 Interbeded dolomitic lime, tan and brown, with thin silt and fine sand stringers, trace mica, silt is gray,good fluorescence, light blue, fair cut,

1320- 1350 As above with silt and fine sand content up to 50%, light gray, clean , porous, heavy fluorescence, continued gas kick after changing drilling fluid from water to mud.

D.S.T. No. 1 1280-1350, 20 feet, Open one hour, shut one half hour, Recovered 480 feet mud. One inch opening at bottom and gas surface. I.F.P.40; F.F.P.240 ; S.I. P.- 0; H.H.P-520

1350-60 Lime, light gray, some tan, crystalline, has scattered stringers of fine silt, calc.

1360-1400 Shale, grading into dolomite, calc, light tan to brown, pieces of calcite in crystal form suggesting fractures are presentin the formation, lenses of fine gray silt, black minerals. trace of light gray shale, calc.,

1400- 1420 Marlstone, brown, with siltstone lenses, hard, Marl grades into dolomite.

1420-1450 Shale, tan, calc, some dolomitic, trace of suggary lime gray,, trace of pyrite.

1450-1480 Shale, tan, calc, do dolomitic, has thin lime stringers in it.

1480-1490 Lime, brown, dolomitic, has fluorescence and gives slight cut, pyritic. dense.

1490-1520 Alternating T. B. shale, lime and silty sandstone,, calc, tan to gray, much pyrite, hard, tight.

1520-1550 Shale, and fine grained silty sandstone, tan and gray, calc, grades to dolomitic texture, pritic.

1550-1570 Shale, gray, calc, with light gray siltstone lenses, trace of pyrite.

1570-1770 marlstone, tan to light brown, calc, interbeded with thin shales and traces of siltstone, light gray, marl is of the lean oil grade. Trace of pyrite and analcite. tight.

1770-1790 Oil Shale, interbeded with marlstone, medium rich, dead oil droplets

1790-1830 Alternating marlstone and tan shale, calc, with streaks of white siltstone, pyritic, and trace of chert.

1830- 1870 interbedded shale, gray, and siltstone, white, hard, calc. pyritic, some thin marl stringers, very lean

1870-1900 Shale, gray, silty, some white silt, calc, tight, trace of oil shale and analcite, slight blue fluorescencein silt.

1900-1930 Shale, gray, silty, calc, with some gradding to marl, lenses of siltstone, white, hard, pyritic, clean.

1930-1940 Shale, gray, silty, calc, trade of white silt having blue fluorescence.

1940-2020 shale, gray and tan calc, grades into ~~marlstone~~, marlstone, lean, very calc, locally, lenses of light green siltstone, hard, trace of analcite,

2020-2110 Shale, gray , some light tan, calc, with lenses of white siltstone , hard , calc, trace of analcite, pyrite, and chert. and minor amounts of lean oil shale,

2110-2193- Shale, gray to dark gray, calc, graded into marl ,lean, interbeded with thin lean oil shales, and siltstone, white and light green, good fluorescence, in fine pin-point amounts, faint gas odor

D.S.T.#2 2118-2193, 75 feet, open 45 minutes, shut one hour, weak blow - died in 12 minutes, rec'd 15 feet of slightly gas cut mud. I.F.P- 0; F.F.P.-0; S.I.P-0; H.H.P.-1100.

2193-2210 Siltstone and fine grained sandstone, light gray to white, hard, rounded, tight, slight dead stain, glauconitic, calc.

2210-2220 Shale, gray to light brown, calc, lenses of medium rich, thin, oil shales , brown

2220-2230 shale, gray, to light brown, with lenses of silt, and fine sandstone, pyritic, trace of dead stain, trace of marlstone, light brown, lean.

2230-2250 shale and lean marlstone alternating, light brown.

2250-2260 shale as above with trace of volcanic ash , and trace of oil shale and analcite,

2260-2280 shale and mudstone, gray to light green, streaks of siltstone gradin g to very fine sandstone, light gray, , hard, tight, glauconitic.

2280- 2290 Siltstone , light gray, with black minerals, pyrite, hard, tight, calc,

2290 2320 alternating siltstone, and shale, light gray, with streaks of tan shale.calc.

2320-2370 Silt with thin shale streaks, calc, gray, hard tight, pyritic, some of silt is light greencolored.

2370-2380 shale and silt, with trace of gilsonite, light gray volcanic ash streaks in the gray shale. pyrite

2280-2430 thin beds of alternating silts, shale, some oil shale, silts are white to gray, hard , tight, calc, trace of dead stain, shales are gray , some are very silty.

2430-2440 Shale, tan, with layers of oil shale, dead stain in silts which are in fine stringers, some dead oil droplets.

2440- 2450 As above, with slight increase in greenish colored siltstone, pyritic,

2450- 2480 Oil shale, brown, medium rich to rich , papery, has thin silt streaks , saturated with dead oil, tight, hard, pyritic, calcareous.

2500-2510 silt , lkgnt gray, pyritic, hard, tight, [illegible] of limestone

2510-2530 Oil shale, interbeded with layers of marl and siltstone, brown, to light gray, calc. hard.

2530- 2570 siltstone, grading to fine sandstone toward the base, light gray, to white with some light green, poorly sorted rounded, slight porosity, dead stain , gives good fluorescence., calcareous, pyritic.

2570- 2580 shale, calc, gray, silty, pyritic, trace of volcanic ash.

2580- 2590 Lime , white, hard, fine textured, silty,

2590-2610 oil shale, shale, siltstone, and some marlstone, interbedded, gray to tan, dead stain in siltstone, calcareous.

2610-2620 Shale, gray and tan, pyritic, silty, calc, trace of chert,

2620-2650 Shale, and tan marlstone, shale gray, calc, trace volcanic ash, and pyrite,

2650-2660 Alt. gray shaleand gray thin limestone streaks., trace marlstone, tan.

2660- 2670 Siltstone, light gray, very calc, with tan shale layers tan, calc, trace chert and mica.

2670-2700 siltstone and mudstone , gray, very calc, with streaks of white limestone , silty. pyritic.

2700- 2710 mudstone and shale, calc, silty, light gray, pyritic.

2710- 2720 alt. sandstone, grading to siltstone , salt and pepper, calc, with greenish gray and tan shale, trace of dead oil stain, pyritic.

2720-2750 siltstone, light gray to creamy, calc, pyritic, basal part becomes fine sandstone, subrounded, slight porosity, with gray shale partings.

2750-2760 shale, gray, calc, with lenses of limestone, tan.

2760-2770 as above with cream to white lim stone

2770-2805 Shale, gray, calc, silty, pyritic.

2805-2820 Limestone, white ,silty.

2820-2830 Mudstone, and shale, gray to greenish, calc, pyritic, silty.

2830-2840 Silt, light gray,to white, calc, porous, pyritic, rounded.

2840-2850 shale, light gray, silty, calc.

2850-2860 shale, light gray, silty, trace of white lime.

2860-2870 silt and fine ss, gray, calc, hard, pyritic,

2870 2880 Shale, gray, with lenses of siltstone, white, calc, some oil shale, brown, streaks of silty lime, white.

2880-2920 mudstone, light green, and shale, gray, calc, with streaks of bentonite, white, basal part has some thin silts and tan marl lenses.

2920-2960 Silty gray shale, and gray siltstone, calc, trace of bentonite, and pyrite throughout. some light gray marlstone with dead stain at base.

2960-2970 Silt, light buff, and tan, shaly mudstone and marlstone, very lean, , calc, trace of lime.

2970-2990 marlstone, tan, and lime, tan, silty, trace of gilsonite, and bentonite,

2990-3020 Lime, tan, silty, with gray shale, and oil shale streaks, pyritic.

3020-3040 marlstone, tan, silty, oil shale, and buff lime, trace of chert, and gilsonite, saturated dead stain.

3040-3050 Alt. lime, creamy, and calc, gray shale, silty, trace of gilsonite. and dead stain.

3050-3060 SS. grading to siltstone, white to gray, rounded, some porosity, stained, trace of pyrite,, and gilsonite,

3060-3070 Creamy limestone, and silty sandstone, fine grained, rounded, calc, dead stain, trace of tan marlstone.

3070-3080 Shale, green and gray, calc, trace of chert.

3080-3110 Alternating fine ss. and oil marlstone, good stain as above, dead. rounded, only slightly porous.

3110-3130 Limestone, cream to white, with streaks of calc gray shale.

3130 - 3150 Alternating shale and siltstone , gray, calc, trace of oil shale, pyritic.

3150-3170 Siltstone, light gray, calc, pyritic, lenses of gray shale, silt grades to fine sandstone at base, trace of gilsonite,

3170- 3180 Sandstone, fine, gray, rounded, tight, to very slightly porous, hard, trace of gilsonite,

3180-3190 Sandstone, white, fine grained, very hard, tight, sorted.

3190-3200 Sandstone and shale, grading to siltstone , gray, calc, pyritic.

3200-3210 Shale, gray and tan, calc, pyritic, silty. hard.

3210-3220 Shale gray, calc, with trace of lime, tan, and oil shale pyrite. silty.

3220-3230 Alternating silty tan lime and calc tan siltstone, hard.

3240- 3260 Shale, gray, calc, silty, pyritic, with some oil shale stre-aks throughout.

3260- 3280 shale as above, with interbedded gray siltstone, hard, tight, dead stain.

3280-3320 Alternating thin beds of shale, gray, calc , silty, and limestone thinbedded, buff, silty, trace of siltstone, light gray, hard, tight.

3320-3350 Shale gray, and limestone, buff, silty, with lenses of oil shale, and silt, pyritic.

3350-3360 Siltstone, light gray to creamy, hard, tight, trace of gray shale, and tan marlstone .

3360-3370 Siltstone, grades to sandstone, with lenses of lime, buff, grains are rounded, tight.

3370-3380 Marl, tan, and oil shale with silt streaks, dead stain.

3380-3390 Shale, brown, silty, calc, trace of pyritic silt.

3390- 3400 Alt. silt and shale, hard, light gray to tan, calc.

3400-3430 Silt grading to fine sandstone, gray to white, rounded, calc. hard, tight, has thin tan marl streaks, dead stain

3430- 3440 Lime buff to tan, dense, has trace of oil marl .

3440-3470 Siltstone and brown marlstone , pyritic, trace of lime.

3470-3490 Siltstone and fine grained ss, light green to light gray, interbedded marlstone , brown, pyritic.

3490- 3510 Siltstone, white, hard, calc, with some marl lenses, trace of bentonite,

3510-3520 Silt , white, clean, bentonitic, oil shale, and some marl

3520- 3530 as above,with silts slightly porous, oil stained, , dead, shales are silty, green and gray.

3530- 3550 Silt, creamy and light gray, , hard, pyritic, and tan shale, trace of OOlitic lime.

3550- 3560 Oil marl, and siltstone and shale, trace of oolitic lime.

3560- 3570 as above with increase in siltstone, oil stain with good blue fluorescence,-

3570-3580 Siltstone grading to fine sandstone , clean,r ounded,hard, tight, live oil stain, cuttings smell gassy.

3580-3590 Siltstone and fine grained sandstone as above,

3594- D.S.T. No 2
3560-3594 - 34 feet, Open 1½ hours, shut ½ hour. Immediate weak blow . died in 11 minutes, Rec. 32 feet of oil and gas cut mud, I.F.P.-0; F.F.P.-0; S.I.P.-0 ; H.H.P.-1775. Temp.118.
(see D.S.T. section of this history for futher information on this test- live oil in mud.)

3594-3600 Siltstone and shale, light gray to light brown, some marl streaks, silty, pyritic, silt is hard and tight.

3600-3620 Sandstone, light gray, very fine grained, hard, pyritic, rounded, tight, calc, silty, trace of dead stain.

3620-3630 Shale, gray, silty, calc, hard, with streaks of silt, gray, trace mixed oolitic and ostracodal silty lime.

3630 3660 alternating siltstone and shale, silt is light gray, shale is gray, calc, silty, silt is very hard, silicious and calc, with few scattered ostracods.

3660-3670 Silt grading to fine sandstone, light gray, with lenses of gray calc shale , silt is tight.

3670-3690 Sandstone fine grained, light gray, silty, alt. hard and soft streaks, porous zones are saturated, trace of gilsonite, some fluorescence.

3690-3700 Sandstone, fine, calc, hard and soft lenses as above, but almost every piece of cutting fluoresceses bright blue, thoughly saturated, gas in cutting is down which suggests that some of oil is dead.

3700-3720 Silt grading to sand stone, light gray, calc, very hard, tight, with spotty saturation , dead stain, in streaks which have only slight porosity.

3720-3750 Sandstone, light gray, grading to silt, calc, very fine, rounded, very tight, spoty saturation, trace of pyrite.

D.S.T. No. 4 3675-3750, 75 feet, Open 2 hours, shut in ½ hour, immediate weak blow-died inone hour and 20 minutes, Received 90 feet of heavy oil and trace of water and gas cut mud, top 6" of fluid was black oil , estimatedto be about 28 gravity, and to have a pour point of 80 degrees ~~SIP~~ S.I.P.-0; I.F.P-0; F.F.P.-0; H.H.P.-1750. Temp. 118.

Note I recomend that this zone (3676-3700) be sand frac. if and when the Final T.D. is reached and nothing else is found. See the D.S.T. sheet for futher information.

3750-3760 Silt, hard, tight, light, gray, , calc.

3760-3770 Silt and fine sandstone, gray, with lenses of gray shale. trace of oil stained ostracodal limestone, tan.

3770-3780 alt. fine silt and silty sandstone streaks with gray shale, silty, hard, tight, streakes of tan lime slight fluorescence pyritic.

3790-3800 Sand and fine calcarenite, light gray, trace of black ostracodal lime in streaks of tan limestone, trace of stain.

3800-3810 Limestone, black ostracodal, with lenses of gray, calc, silty shale, trace of stain.

3810- 3830 Shale, gray, with some silt streaks and lime streaks, and trace of oil marl, tan to brown.

3830- 3841 Sandstone to fine silt, hard, tight, light gray, fluorescence has good live stain, rounded grains,

Core No. 3841-3887- 46 feet full recovery

3841-3849 Shale, dark gray, and mudstone, very silty, hard, with oolitic streaks, poorly sorted, oil stained, tight, fractured with coatings of live oil along fractures.

3849- 3853 Laminated, silt and silty shale, gray, silts saturated with dead oil, hard, tight, calc, pyritic and trace of mica.

3853-3856 Sandstone, fine grained, saturated, especially along vertical fractures, slight odor. good blue fluorescence.

3856-3859 Alternating mudstone and shale, dark gray, with silt inclusions, saturated with dead oil.

3859- 3864 Siltstone, gray, hard, tight, oil in fractures, oolitic, calc. to limy.

3864-3870 Shale, silty, oil saturated, fair odor, hard, tight, trace of oolitic silt. some silt and mudstone inclusions.

3870-3876 Silt and mudstone, gray to dark gray, calc, hard, tight, some carbonaceous, shale.

3876- 3881 Shale, mudstone, and lenses of silt, some silt inclusions in in the mudstone, gray to dark gray, inclusions are saturated with dead oil. very calcarerous. oil in fractures.

3881-3887 dark gray silty, calc, shale, with silt streaks, fractured, dead stain in silt, hard tight.

3887-3910 Shale and mudstone, dark gray, silty, calc, pyritic.

3910-3920 Shale, gray, calc, with stringers of white siltstone, hard, tight.

3920-3930 Siltstone, light gray, calc, hard, pyritic.

3930-3950 Alternating silt, white, with shale gray, hard, calc, some brown oil marl.

3950-3960 Shale, gray, and brown oil marl.

3960-3980 Sandstone grading to siltstone, fine, calc, rounded, hard, tight.

3980-3990 Alt. silt and shale, as above.

3990-4010 Marl, brown trace of tan limestone, and gray shale, calc,

4010-Marlstone and shale, gray to brown, silty, with white silt stringer throughout, trace of oolites, trace of oil stain.

4010-4040 As above.

4040-4050 Shale, gray, and siltstone, white, trace of stain, calc.

4050-4060 sandstone grading to silt, gray, hard, rounded, poorol sorted oil stained, oolitic limestone, tan in streaks.

4060-4080 Shale, gray, calc, and marlstone, brown, trace of siltstone, and lime, tan, hard,

4080-4100 Siltstone, white, calc, hard, tight, with lenses of gray shale. Some of silts grade into fine grained sandstone.

4100-4120 Silt, light gray to white and marlstone brown, with some gray, calc., shales in lenses, trace of oolitic limestone, tan

4120-4140 Marlstone, brown, and shale, gray, silty, trace of white bentonite. Thin siltstone streaks at the base, hard, calc.

4140-4160 Marl and gray shale as above, with lenses of silty sandstone, white to light gray, trace of tan limestone.

4160-4190 Shale, dark gray, calc, silty, pyritic, few mica flakes, little oil marlstone and lense of oil shale and tan limestone at the base.

4190- 4210 Alt. shale, gray, calc, silty, and siltstone, white to gray, pyritic, hard, tight, trace of thin lime streaks.

4210-4230 shale, gray, silty, calc, with lense of oil marl.

4230-4240 shale, gry, silty, with streaks of siltstone, light gray, and oolitic marlstone and shale, pyritic,

4240-4260 shale, gray, and oil marl medium to rich, calc, trace of oil shale,

4260-4310 Oil marlstone, brown, gray shale, silty, and streaks of siltstone, light gray, hard, tight, pyritic, oolitic, and trace of dead stain.

4310-4330 siltstone, gray, calc, hard, pyritic, trace of stain, and gray shale, and some brown marlstone, trace bentonite.

4330-4350 Marlstone, brown, lean, shale, gray, silty, calc, and stringers of siltstone, light gray, hard, pyritic, trace of volcanic ash and oolites.

4350-4360 As above with some mudstone lenses and trace of stain.

4360-4380 Shale, gray, calc, alt. with iol sahle and oil marl, brown, streaks of siltstone, light gray, hard.

[illegible] Shale, gray, and tan siltstone, pyritic, mica, some oil marl, brown.

4390-4400 Shale, gray, and dark tan siltstone and marlstone, calc .

4400-4420 Shale, gray, silty, calc, marl, tan, and siltstone in stringers pyritic, hard.

4420-4460 Alternating siltstone, light gray, and shale, gray, calc, lense of oil shale, brown, trace of tan limestone.

4460-4470 Oil marl, brown , and fine sandstone grading into siltstone,
*** light grey, porous, friable, has stain, (est. as to be under 4 feet in thickness), gas in the mud, did not test because of thinness, and the lack of stain in adjacent samples. of silt <u>This zone should be kept in mind when schlumberger is run.</u>

4470-4500 Oil marl, brown, and oil shale, brown, with lenses of fine sandstone and siltstone, light gray, hard tight , rounded, pyritic, trace of bentonite, and mica. Very slight trace of dead stain in upper part.

4500-4520 Shale, gray, calc, and marl, light, brown, silty.

4520-4550 alternating shale and siltstone. Shale is gray, calc, silty, some brown oil shale, Silt is light gray, hard, <u>tight</u>, has stain, cuts only with acid.

4550-4560 alt. shale and silt. as above, with oil shale and marl, brown

4560-4570 Oil shale with sandstone and silt stringers, hard, stain in basal part, silt is light gray, hard, tight.

4570-4580 Sandstone, light gray, fine grained, very slightly porous to tight, , good fluorescence, good cut, grains are rounded, gas in mud and some in cuttings.

4580-4600 Marlstone, brown, with thin siltstone streaks , spot of stain

4600-4608 Siltstone and marlstone alt. hard, light gray silt, hard.

<u>D.S.T. No. 5</u> 4568-4608- 40 feet, Open 1½ hours , shut ½ hour. Immediate weak blow, died in 27 minutes. [illegible] oil and gas cut mud with one foot of black oil [illegible] T.F.P.-48 ; F.F.P.-40 ; [illegible] [illegible] from a 14 foot [illegible]

4608-4640 [illegible]

4640 [illegible]

[illegible]

POOR COPY

4690-4700 Alternating gray shale and light gray silt-grading to fine grained sandstone, trace of bentonite

4700-4730 silt and sandstone, light gray, fine, rounded, tight, hard, trace of dead oil stain, lenses of gray shale and trace of marl-stone, brown. Stain isin lower part.

4730- 4746 Sandstone, light gray, fine grained, calc, rounded, saturated, strong gas odor, good cut and fluorescence.

4746-4750 Sandstone and siltstone, saturated as above.

4750-4770 Rich oil shale with thin lenses of siltstone, friable, saturated.

4770-4780 Rich black oil shale, dense, tight, good cut.

4780-4792 Oil shale, rich with lenses of silt and mudstone, stained, trace of gilsonite.

D.S.T. No.6 - 4708-4792- 84 feet, open 2 hours, shut ½ hour, Immediate weak blow, died in 10 minutes. Received 38 feet of mud. I.F.P.-0; F.F.P.-0; S.I.P.-0; H.H.P.-2150. Temp.122

4792-4800 Alternating oil shale, medium to rich, dark brown and mudstone light gray, and some gray shale, calc,

4800-4820 Shale, and mudstone, gray, with trace of marlstone and siltstone.

4820-4830 shale, gray, and marlstone, brown, lean.

4830-3840 Alternating gray shale and stiltstone, gray, saturated, good cut, tight,

4840-4860 Sandstone, light gray, grades to siltstone, very fine, tight, saturated, has lenses of oil shale and marl, saturation is spoty.

4860-4880 Alt. shale, gray, with oil shale, brown to black, thin silt lenses throughout, hard, tight.

4880-4890 Shale, gray, calc. silty.

4890-4910 Shale, gray, calc, and tan marl with lense of gray siltstone.

4910-4940 Shale, dark gray, silty, calc.

4940-4960 Shale, gray, silty, calc, and lenses of oil shale and tan marlstone, traces of tan lime and traces of gilsonite.

4960-4980 Shale, gray, calc, and oil shale, and marl with thin silts, light gray, hard, tight, stained, traces of lime, tan.

4980- 4990 Oil shale, medium rich, with lenses of siltstone, stained, trace of gilsonite, asphaltic (?)

4990-5000 Oil shale, and marl and gray shales in thin layers, with a 2 foot sand, white, hard, tight, rounded, fine, fluorescence,

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5000-5040 shale, gray, calc, silty, pyritic, and oil marl, brown, trace of white siltstone in fine streaks, and trace of ostracods in shale,

5040-5050 shale, gray, calc, some siltstone, with trace of oil marl, brown, silts are in lenses and grade to very fine sandstone, pyritic, trace of gilsonite and trace of tan lime.

5050- 5080 As above with some spoty dead stain in the silts and trace of oil shale .

5080-5100 Shale, gray, with trace of white volcanic ash streaks, some pyritic white siltstone in layers, hard, tight.

5100-5120 shale gray, calc, with white siltstone lenses, hard, trace of stain,

5120-5150 Shale, gray, calc, with white silty sandstone, lenses, very fine, hard, tight, angular to sub-rounded, trace of marlstone and medium rich oil shale, trace of fluorescence in silts.

5150-5160 Shale gray, with siltstone, light gray, streaks of bentonite, and trace of lime, scattered specks of stain in the silt.

5160-5185 Sandstone grading to silt, gray, tight, calc, hard, stained, good fluorescence, poor cut, unless acid was mixed in with sample then get fair cut. indicates poor porosity.

5185-5190 Shale, gray, calc, and oil marl , brown

5190-5230 Shale , gray, calc, slightly silty, with thin white silt streaks, hard, tight, and traces of bentonite, thin layer of brown oil marlstone towards the base.

5230-5240 shale, gray, calc, silty, some dark gray, lenses of lean oil shale, and hard , grey silt, spoty stain.

5240-5250 shale as above with thin layers of brown oil marland trace of tan limestone .

5250-5260 Shale, gray, calc, silty, with lens of oil shale.

5260-5290 Shale, gray, calc, with lenses of silt, gray, and spoty stain trace of oil shale.

5290-5300 alternating gray shale and light gray, sandy silt, tight, trace of oil shale.

5300-5310 Shale, [illegible] oil marl, brown, with streaks of silt.

5310-5330 shale , silt, and limy marl, with streak of gray lime, trace of marlon shale.

5330-5340 [illegible] light gray silt and brown marl streaks, trace of [illegible] shale, trace of pyrite.

5340-5350 shale , gray , with oil marl, brown, with lenses of gray silts .

5350-5360 Shale , gray, calc, trace of maroon shale, Silt and lime gray lime lenses , dead stain, trace of oil shale.

5360-5370 shale, gray, and limestone, gray, ostracodal, trace of maroon shale.

5370-5390 shale gray, with lenses of rich oil shale, streaks of lime and silt, gray, some ostracodal.

5390-5400 shale, with silt lenses, trace of oolitic lime streaks.

5400-5410 shale, gray, with some brown marlstone, lenses of silt, light gray, tight, hard, and streaks of oil shale.

5410-5430 shale, gray, and siltstone, hard, tight, light gray, some stain, dead, fluorescence, trace of rich oil shale.

5430-5440 shale , gray, calc, with streaks of silt, spoty stain, thin layers of oil shale, black, rich, trace of oolitic lime,gray

5440-5470 shale, gray, calc, with some oil shale layers, rich, black, gilsonite and tar, some stringers of gray silt with dead spoty stain, few thin streaks of lime and calcite, dark brown

5470-5500 Shale, gray, calc, silty, with streaks of brown ostracodal lime, lenses of oil marl, brown, trace of calcite and pyrite, layer of greenish gray mudstone, oil stained , good fluorescence.

5500-5510 gray shale,calc, silty, with fine gray siltstone lenses, ostracods and and shell fragments in lime and shale streaks, spoty dead stain and fragments of tar.

5510-5550 shale gray, as above, some oil marl and tan and gray lime streaks of gray green mudstone,dead stain,lenses of light gray siltstone,trace of bentonite and gilsonite and pyrite.

5550-5590 shale, gray, and mudstone gray green to gray, fractured with tar , gilsonite and some calcite filling,

5590-5600 shale, brown and gray, with some green- gray mudstone, calc, silty, trace of pyrite.

5600-5620 shale, gray, some layers of oil marl, streaks of ostracodal shale and gray limestone, streaks of siltstone, light gray, with spoty dead stain.

5620-5640 Shale, gray, with some brown marl, a little limestone, light gray, trace of pyrite.

5640-5650 shale, gray,, with lenses of gray silt, tight, and trace of maroon shale,, lens of gray lime.

5650-5680 shale, gray , silty, calc, with streaks of ostracodal gray lime,some brown shale, and trace of oolitic shale, trace pyrite

5680-5710 shale, gray and brown, silty, calc, with lens of silty sandstone gray, tight, hard, spoty dead stain, pyritic.

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5710-5730 shale, gray with some greenish - graymudstone, lenses of light brown shale, silty, traces of oil stained calcite, (possible fracture)

5730-5740 shae, gray, brown with trace of maroon, alternating with sandy siltstone, light gray, calc, hard , tight. sandy at the base.

5740-5750 ss, light gray, fine grained silty, slightly porous, good fluorescence and cut, some gray green ostrocadal lime in streaks, basal part of unit has brown and purple and gray shale. calc, silty.

5750-5760 shae, gray, calc, trace maroon, has silty sandstone, streaks , slightly porous, dead stain.

5760-5780 shale, gray, calc, silty, some tan, trace of maroon, micaceous trace of ostracodal lime and shale.

D.S.T. No.7 ; 5736-5780- 44 feet. Open 2¼ hours, shut ½ hour. Immediate blow, fair throughout test. Received 18 feet of green oil, P.P. 103 degrees, Gravity 42 degrees., sweet, received 75 feet of oil cut mud.Temp.141 degrees. I.F.P.- 75; F.F.P. - 75; S.I.P.-75; H.H.P. 2600.
The oil came from a 10 foot sanstone, 5736-46. probably fractured-see log above.

666 Transition zone at 5700 and Tentative Wasatch top at 5780

5780-5790 shale, gray, maroon, brown,variegated, silty, calc.

5790-5810 shale, gray, with variegated shale as above, some thin silts.

5810-5840 shale, gray, calc, with brown and purple silty shae streaks, lens of white siltstone, grades to fine sandstone, rounded, tr. of dead stain.

5840-5850 shie, gray, as above with little tan marl.

5850-5890 shae, gray, lensesof green lime-stone , some streaks of maroon and brown shaley trace of carbonaceous shale, lower part has increase in variegated shale, trace of dead stain in thin silts,

5890-5900 shae variegated as above with lens of tan and green mudstone

5900-5960 shae, silty, calc, mostly gray, with streaks of variegated, maroon, purple, some carbonaceous, has thin white silts and sandstone streaks, and trace of limestone, tan.

5960-5980 shale , maroon, purple, greenish -gray, variegated, grades to mudstone, thin silts, light gray, sl, calc. trace of carbonaceous shale,

5980-5990 Variegated shale, as above, with stringers of tan limestone.

5990-6000 shie, variegated, gray, maroon, with lenses of silt, and fine grained ss, gray, trace of oolitic gray limestone.

6000-6040 shale, variegated as above with white sandstone stringers, trace green mudstone, tang marlstone, and tan limestone streaks.

6040-6060 Shale, variegated, maroon, tan, gray, with streaks of tan marl, and tan to light gray limestone.

6060-6090 shale, maroon, gray, variegated, silty, with thin silts and fine grained sandstones, in stringers, light gray to pink, trace of chert, and tan marlstone, trace of ostracodal lime, tan, at the base.

6090-6130 shale, maroon, gray, some light brown, and a little green mudstone, lenses of brown and pink siltstone grading to fine grained sandstone, trace of tan limestone in streaks,

6130-6150 shale, maroon, gray, little, purple, with thin silts and very fine grained sands, gray and pink, slightly calc,

6150-6180 shale, maroon, brown, gray, with green mudstone lenses, some variegated, with silts and sands, in stringer form, pink, brown, and gray.

6180-6210 variegated shales as above , some purple, with sandstone layers, , arkosic, and glauconitic, trace of bentonite and thin limestone streaks, tan ,

6210-6260 shale, green, maroon, brown, variegated, with greenish siltstones some gray, trace of salt and pepper sandstone, trace of marlstone, tan.

6260-6320 shale, variegated, greenand maroon, silty, with thin streaks of silt, light gray to brown.

6320-6330 shale as above with dark green mudstone layers.

6330-6380 shale, mostly maroon and gray, with some purple, green variegated, with lenses of dark green mudstone, streaky traces of greenish and pinkish to gray siltstone, pyritic in places, -the overall picture is a rather soft shale which doesnot drill as fast or as wellas the harder Green River formation

6380-6410 shale, variegated, maroon, green, gray, with trace of pink silt.

6410-6420 shale, variegated, with pinkish gray, fine grained sandstone traces.

6420-6430 shale, variegated with a 4 foot sandstone, fine , gray- S. & P. type, rounded, silghtly porous, trace of brown limestone.

6430-6440 As above with 3 foot sandstone, dead stain, pyritic, rest of sample is variegated shale.

6440-6450 alternating maroon and green shale with streaks of silty sand as above.

6450-6490 variegated shale, maroon, green, gray, brown, with trace of carbonaceous shale, and trace of bentonite.

6490-6510 variegated shale, as above with thin streaks of pinkish gray siltstone, tight.

6510-6530 shale, variegated, maroon, green, dark gray, trace of bentonite.

6530-6540 Variegated shale, maroon , green, brown, gray, with streaks of greenish - gray silt tone, hard.

6540-6550 variegated shale, purple, maroon, gray, and brown.

6550-6590 shale variegated, maroon, purple, brown, gray,with lenses of mudstone, green, traces of thin siltstone beds, gray, tight, have dead stain.

6590-6620 shale, variegated, and some green mudstone, lenses of pink and brown siltstone, , trace of tan marlstone, trace of pyrite.

6620-6640 shale, variegated, slightly calcareous, with traces of pink and gray , fine grained sandstone. trace of gray limestone.

6640-6680 shale, variegated, slightly silty, purple, green, maroon, gray, and light brown, trace of black carbonaceous shale and gray siltstone.

6680-6710 shale, variegated, much maroon, trace of pink siltstone.

6710-6740 shale, variegated, purple, green, maroon, and green mudstone.

6740-6750 shale, variegated, with streaks of tan limestone, much brown shale.

6750-6780 shale, variegated, maroon, brown, gray, green and tan, with trace of pinkish gray siltstone, some fracture fill calcite.

6780-6800 shale, variegated, silty, with streaks of gray 'salt and pepper' fine grained sandstone. trace of pyrite.

6800-6820 variegated shale, maroon and gray, with streaks of thin pink silts and a trace of gray limestone.. trace of pyrite.

6820-6840 shale, variegated, maroon, gray and brown, trace of pyrite, streaks of tan limestone.

6840-6870 variegated shale, maroon, brown, purple, yellow, some ostracodal gray shale, lenses of carbonaceous shale,

6870-6900 shale, variegated, maroon, light green and gray, some carbonaceous streaks, lenses of silt grading to fine sandstone, gray.

6900-6910 shale, variegated, with a little gray limestone.

6910-6930 shale, varieg ted, maroon, green, with silstone, light brown , in streaks.

6930-6940 shale as above with gray siltstone at the base.

6940-6950 sandstone, light gray, fine grained, porous, friable, rounded, clean, grades to siltstone.

6950-6960 variegated shale, and green mudstone.

6960-6970 shale, variegated, with thin siltstone streaks, brown, and gray

6970-6990 shale, variegated, maroon, green, brown and gray.

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6990-7020 shale, variegated, maroon, gray, green, tanand brown, some silty, trace of pyrite.

7020-7040 shale as above with some green mud tone;and towards the base some thin silts , gray.

7040-7050 variegated shale as above with trace of carbonaceous gray shale, and a trace of calcite.

7050-7080 shale, variegated, some brown and silty, lenses of gray silty, fine grained sandstone.

7080-7090 shale,variegated.

7090-7120 shale, variegated, silty, with gray limestone traces , and traces of gray siltstone grading to fine sandstone, some carbonaceous.

7120-7130 variegated shae, with thin gray sandstone streaks.

7130-7140 variegated shale, with some tan and green mudstone, trace of gray lime and streaks of gray siltstone.

7140-7150 maroon, green and gray shale, interbeded with thin sandy siltstone, gray.

7150-7170 shale, variegated with lenses of fine grained sandstone and siltstone, gray, clean.

7170-7210 shale, variegated, silty in part, with some thin gray sandy siltstone lenses, light gray, trace is S.&P type.

7210-7230 shae, variegated, with thin lens of fine grained sandstone, gray, arkosic, rounded, trace of pyrite

7230-7250 shale, variegated, layers of gray and brown siltstone.

7250-7290 variegated shale and mudstone.

7290-7320 shale, variegated with stringers of silt and very fine grained sandstone, brown to gray, clean, hard, tight. trace of pyrite.

7320-7350 shae, mostly gray, rest variegated, with thin streaks of siltstone light gray, hard, tight. calc

7350-7370 shale, gray, maroon, variegated, calc, trace of brown siltstone, hard.

7370-7390 shale, variegated, with thin streaks of gray siltstone grading to sandstone, very fine.

7390-7400 shale, variegated and some mudstone.

7400-7420 shale, variegated, with thin gray sandstone lenses, rounded, clean, sorted, slightly porous.

7420-7430 shale, variegated, with trace of gray limestone.

7430- 7450 shale, variegated, with streaks of siltstone and fine grained sandstone, gray.

7450-7460 shale and mudstone, variegated, lens of yellowish lime.

7460-7470 shale as above with slight increase in lime, shale calc,

7470-7480 shale, variegated, with lenses of fine sandstone and siltstone, gray, hard, tight, streaks of gray to yellowish fine textured limestone.

7480-7490 shale as above with a little brown siltstone.

7490-7500 shale, variegated, with gray limestone layers.

7500-7510 shale and mudstone, variegated, slightly calc.

7510-7540 shale, variegated with lenses of silt and sandstone, gray, rounded slightly porous, hard.

7540-7550 shale, gray, maroon, brown with streaks of sandstone and silt, gray. as above.

7550-7560 shale, variegated with trace of mica.

7560-7570 shale, variegated with streaks of gray siltstone.

7570-7590 shale, variegated, with lenses of sandsrone and silt , gray clean and streaks of gray limestone.

7590-7610 shale, variegated, with brown mudstone pellets., lenses of gray siltstone.

7610-7620 shale, variegated, with lenses of gray , fine grained sandstone, , rounded, slightly porous., trace of carbonaceous matter.

7620-7630 shale, variegated, some yellowish, silty.

7630-7650 shale, variegated, with gray siltstone streaks.

7650-7660 shale, variegated, some yellow, with streaks of siltstone.

7660-7680 shale, variegated, with gray silty sandstone, rounded, hard, tight, trace of pyrite.

7680-7700 shale, variegated, withsandstone lenses, fine hard, clean, trace of pyrite,

7700-7710 variegated shale, silty.

7710-7720 shale, variegated, silty, slightly calc.,trace of oolitic gray limestone.

7720-7730 variegated shale, with trace of gastropod fragment.

7730-7760 shale, variegated with streaks of thin bedded gray siltstone and sandstone, clean, rounded.

7760-7770 Shale, variegated.

7770-7780 shale, variegated with fine grained sandstone and sitlstone, light gray, salt and pepper type, clean rounded, pyritic.

7780-7800 alternating thin beds of shale, variegated, mostly gray, and sandstone, light gray as above, pyritic, trace of oolitic shale.

7800-7820 shale, variegated, maroon, gray, green, brown, tan, and yellowish, with streaks of siltstone, and sandstone, gray, trace of pyrite, hard, clean.

7820-7840 shale, alternating with lenses of sandstone, gray, 'salt and pepper type', hard, clean, pyritic, The shale, is variegated.

7840-7850 shale, variegated, as above, with gray siltstone streaks.

7850-7860 alternating shale and sandstone, variegated, the sandstone is gray, fine grained, hard, slightly porous, rounded grains.

7860-7880 shale, variegated, with gray colored salt and pepper sandstone, fine grained, hard, tight, in thin layers, pyritic.

7880-7890 shale, variegated, with silt and mudstone streaks.

7890- 7920 shale, variegated, with lenses of fine grained sandstone, salt and pepper type gray. slightly porous, some spotty oil stain, trace of gray limestone.

7920-7940 shale, variegated, mostly maroon, silty, calc, withtrace of pyrite, lenses of gray, fine grained sandstone, some very tight

7940-7950 shale, variegated, with lenses of sandstone, some of which is very friable, and soft., rounded, calc.

7950-7960 shale and mudstone, variegated, with streaks of fine grained sandstone, gray.

7960-7970 shale, variegated, with streaks of fine grained sandstone, slightly porous, rounded, some carbonaceous shale, trace of coal, trace of grey lime., pyritic.

7970-7990 shale, variegated, with stringers of snadstone, hard, rounded, gray, silty, grading to silt.

7990-8010 shale, variegated, with thin sandstone streaks, trace of yellow lime, pyritic.

8010-8030 shale, variegated, silty, with streaks of gray siltstone.

8030/8040 shale, gray and maroon, with lenses of sandstone, hard, rounded, pyritic.

8040-8050 shale, gray, and maroon, some green, pyritic, with lenses of fine grained, gray sandstone and siltstone, with trace of buff lime, and has traces of dead stain.

8050-8060 shale, variegated, with trace of spotty stained sandstone, slightly porous, and friable.

8060-8070 shale, maroon and gray, some tan, with streaks of light gray, hard, fine grained sand and siltstone, pyritic.

80708080 as above with sandstone streaks.

8080-8090 alternating fine sandstone, gray, rounded, hard, with maroon and gray shale, pyritic.

8090-8110 shale, maroon, and gray, with scattered streaks of sandstone, and sitltstone, fine grained, gray, pyritic, some carbonaceous shale layers.

8110-8130 shale, gray maroon and green, with gray siltstone streaks, trace buff limestone.

8130-8140 variegated shale, with layers siltstone and sandstone, trace of calcite(fracture filling)

8140-8170 Shale, gray and maroon, with streaks of gray siltstone grading into arkosic sandstone.

8170-8186 Sandstone, light gray, salt and pepper type, hard, tight, fine grained, poorly sorted, arkosic some quartose.

8186-8190 alternating silty shale and gray siltstone.

8190-8200 shale, gray, maroon and tan, slightly calc, with streaks of siltstone and fine grained sandstone, gray, very hard, tight. arkosic and quartzitic.

8200-8210 sandstone gray, quartzitic, hard, tight, salt and pepper color in 2 and 4 foot beds interbedded with thin shales, grayand mar

8210-8220 alternating thin beds of sandtone and gray and maroon shale as above with increase in siltstone.

8220-8230 variegated shale, with streaks of siltstone, gray, trace of tan and buff limestone.

8230-8250 shale, gray and brownish tan, with sandstone lenses, brown, fine, hard, quartzitic.

8250-8270 shale, variegated, much gray-green, with thin streaks of fine sandstone and siltstone, gray, hard, quartizitic.

8270-8280 shale, maroon, gray, variegated, with trace of gray limestone, and trace of gray siltstone.

8280-8290 shale, variegated, with gray siltstone lenses, very hard and tight,

8290-8300 shale, gray, silty, with lenses of fine grained sandstone, hard, quartzitic, cherty, poorly sorted, trace of gray lime.

8300-8320 shale, gray and maroon, with sandstone stringers as above.

8320-8330 shale, gray, maroon, some tan, pyritic, with trace of black oolitic limestone.

8330-8340 shale, variegated, silty, pyritic, trace of free pyrite, has thin lenses of sandstone and siltstone throughout, gray.

8340-8360 shale, variegated, pyritic, silty, with siltstone streaks.

8360-8380 shale, variegated, with brown and gray siltstone lenses.

8380-8400 shale, maroon and gray, with sandstone streaks, gray, fine, hard, quartzitic, tight.

8400-8420 shale, gray, maroon, and tan, silty, with siltstone streaks brown and gray.

8420-8430 shale, gray and maroon, with lenses of brown siltstone, trace ostracodal gray limestone.

8430-8440 shale, gray and maroon, with lenses of siltstone grading to fine grained sandstone, slight porosity, brown and gray. Trace of(fracture fill gray calcite?). Trace of pyrite and ostracodal lime.

8440-8450 shale, variegated, maroon and gray, with siltstone streaks and trace of ostracodal limestone.

8450-8460 shale, variegated, silty.

8460-8470 shale, maroon and gray, silty.

8470-8500 shale, maroon and gray, silty, with gray and brown siltstone streaks grading to fine grained sandstone , hard, quartzitic.

8500-8520 shale, variegated with siltstone streaks, gray and brown, hard

8520-8530 shale, maroon, gray and variegated, with fine sandstone and siltstone lenses, hard, poorly sorted, quartzitic, tight.

8530-8550 alternating beds of sandstone, gray, hard, tight, quartzitic, and shale, maroon and gry some very silty.

8550-8570 shale, maroon, and gray, silty, with hard siltstone grading to fine sandstone, gray, tight, hard, trace of pyrite and calcite

8570-8580 sandstone with shale layers, sandstone is gray, fine grained, slightly porous, rounded, poorly sorted, shale is maroon, brown and gray.

8580-8610 shale, brown, gray, and maroon, with streaks of sandstone and siltstone , brown and gray, trace of pyrite.

8610-8630 shale, maroon, brown and gray, some variegated, trace of dark gray slightly calc. shale, with thin sailtstone streaks, brown and gry.

8630-8680 shale, maroon, brown, gray, silty, with thin streaks of siltstone grading into sandstone, light gray to light brown, hard, calc, traces of calcite.

8680-8690 shale, gray, maroon, brown, silty, traces of pyrite, with thin siltstones grading to finr sandstone, gray and brown, hard, slightly calcic, calc, traces of gray lime and calcite.

869[illegible]-8720 shale, gray, maroon, brown, and tan, silty, with lenses of siltstone, grading to sandstone, gray and brown, hard, streaks of gray ostracodas limestone.

8720-8730 alternating gray shale, and tan siltstone, calc, slightly porous has some brown shale,

8730-8740 brown and gray shale, with siltstone grading to fine sandstone salt and pepper gray, slightly calc, tight, arkosic.

8740-8750 alternating thin beds of shale and siltstone as above.

8750-8760 sandstone, grading to siltstone, gray- salt and pepper , hadd, calc, slightly porous,, rounded.

8760-8770 [illegible] thin bedded sandstone as above, with maroon and brown shale, [illegible] trace of dead stain.

8770-8780 shale, maroon, brown, and gray, with lenses of fine grained sandstone as above.

8780-8800 shale, maroon, gray, brown, silty, with streaks of brown silt.

8800-8830 shale, gray, greenish, brown, and some maroon, silty, calc, with streaks and lenses of sandstone, grading to silt, calc, gray, 'salt and pepper', slightly porous.

8830-8840 shale, gray, brown and some maroon, trace of variegated, with salt and pepper gray and brown silt, calc. in stringers.

8840-8850 shale, gray and brown, silty, with sandstone lenses, gray, S.P. type calc, slightly porous.

8850-8860 shale, brown, gray, maroon, silty, with sandstone and silt lenses, gray, salt and pepper, calc, hard, slightly porous.

8860-8880 sandstone, gray, arkosic, salt and pepper, calc, hard, medium to coarse grained, slightly porous.

8880-8900 shale, maroon and brown, with gray sandstone and silt lenses, some gray shale, also.

8900-8910 shale , gry, silty, slightly calc, with stringers of fine grained sand and silt, gray,

8910-8930 shale, maroon , brown, tan, with stringers of gray sandstone, trace of pyrite.

8930-8940 sandstone, light gray, salt and pepper, calc, slightly porous, rounded, same friable.

8940-8950 alternating brown and maroon shale, with sandstone, light gray, friable , rounded.

8950-8960 sandstone, gray, salt and pepper type, calc, slightly porous, rounded, medium to fine grained, arkosic, with [illegible] streaks maroon and brown.

8960-8990 shale, gray, calc, maroon some variegated, silty, trace is ostracodal; with lenses of gray silt and fine sandstone.

8990-9010 shale, variegated, some gray, with lenses of sandstone, gray trace of calcite and gray limestone.

9010-9020 shale, brown, silty, maroon, silty, with thin sandstone and silt streaks, gray and brown, trace of gray lime and calcite.

9020-9030 shale, gray and maroon, alternating with sandstone, fine, gray salt ad pepper, calc, trace of lime, and spot of dead stain.

9030-9050 sandstone gray, salt ad pepper type, slightly porous, calc, fine to medium grained, rounded, arkosic and glauconitic.

9050-9070 alternating sandstone and maroon and variegated shale, trace dead stain, ad a little white limestone.

9080

9070-/alternating shale, , gray, maroon, with sandstone, lenses, gray, salt and pepper type, fine grained, calc, slightly porous, trace of limonite cement.

9090-9100 sandstone , gray, salt and pepper,, calc, fine to medium grained hard, trace of chert, lenses of gray and maroon shale.SS is clean

9100- 9110 sandstone, gray, fine to coarse grained, sub-angular, hard, slightly porous, with lenses of gray shale,

9110-9120 shale, gray and maroon, trace of carbonaceous shale and lignite, with lens of silty fine grained sandstone.

9120-9130 shale, gray, calc, with sandstone lenses, hard, and soft streaks gray, and calc.

Tentative Top of the Mesaverde at 8960

9130-9160 sandstone, light gray, salt and pepper type, calc, fine to medium grained with a few coarse graines, hard, tight,, has a few streaks of gray shale and a traceof oolotic lime.

9160-9170 alternating sandstone and shale, light gray.calc.

9170-9190 shale, gray and maroom, silty,with a few streaks of thin sand.

9190-9210- alternating sandstone, gray, fine with shales gray, traceof pyrite.

9210-9220 shale, maroon and gray, silty, calc, fragments og chert.

9220-9250 shale, gray, calc, some silty, with streaks of sandstone , fine, gray , salt and pepper, slight porosity,

9250-9270 shale, gry and silty, some maroon, calc, trace of white ostracoda lime, trace of carbonaceous shale,

9270-9280 alternating gray shale, calc, fine sandstone, and white dense limestone.

92809290 sandstone, cream, limy, slightly porous, fine grained.

9290-9310 sandstone, light gray, Salt and Pepper type, hard, calc, fine to medium grained, with chertfragments, streaks of gray calc shale. slight porosity. Trace of carbonaceous shale.

9310-9320 sandstone as above with increase in the amount of shale.

9320-9360 shale, gray, calc, silty, with lenses of silt and fine grained sandstone, tight, hard, trace of limestone, gray, dense, trace of pyrite,

9360-9380 sandstone with thin shale streaks and breaks. SS. is light gray, salt and pepper type, calc, has porosity. Had good cut and fluorescence. but only fair stain- suggests that oil is inthe distillate class ?

9380-9399 alternating thin beds of sandstone, fine grained, gray Salt and pepper as above, with spotty stain. With shale layers, gray. calc, and streaks of gray dense limestone.

D.S.T.No. 8 in the Kmv.

9360-9399- 39 feet. Open 2 hours, shut in ½ hour. Immediate weak blow, died in 12 minutes. Had 2000 feet of water cushion. Received 10 feet of mud. I.F.P.-865; F.F.P.- 865; S.I.P.-915; H.H.P.*4875.

9399-9430 shale, gray, calc, some silty, with streaks of sandstone, gray, salt and pepper, fine, grained, rounded, calc, trace of gray limestone.

9430-9450 alternating sandstone and gray shale as above with increased amount of limestone, gray, dense, hard,

9450-9480 alternating thin beds of sandstone, shale, and limestone as above streaks of carbonaceous shale, shale is very silty.

9480-9490 shale, gray, calc, with lenses of siltstone, gray, hard, tight, layers of gray hard and dense limestone.

9490-9510 alternating fine siltstone grading to fine sandstone, gray, hrd, with shale, gray, calc, streaks of carbonaceous shale.

9510-9520 siltstone grading to fne sandstone, gray, well sorted, hard, calc, streaks of gray hard, dense lime.

9520-9550 sandstone gray, fine grained, salt and pepper type, slightly porous, calc, woth streaks of gray calc, shae, and lime as above

9550-9560 sandstone, gray salt and pepper type, calc, silty, silghtly porous, with shale layers gray, calc, some of which have carbonaceous shale and a trace of lignite.

9560-9570 sandstone gray, fine to medium graine, mostly hard and tight, trace wit some porosity, with shale streaks some are sandy, mostly carbonaceous.

9570-9600 sandstone, gray, salt and pepper type, fine to medium grained, poorly sorted. hard, calc, with lenses of shale and limestone, gray, trace of mica, some of the sandstone at the base has slight porosity.

9600-9630 alternating siltstone which grades to sandstone, and shale, gray to greenish gray, calc.

9630-9640 sandstone, gray, fine, hard, calc, some is slightly porous, with lenses of shale, gray, calc some carbonaceous.

9640-9650 alternating shale and siltstone, gray, calc, with trace of limestone, gray.

9650-9660 shale, gray, silty, calc, with streaks of lime gray, trace of siltstone.

9660-9680 shale, gray, to dark gray some greenish, calc, with streaks of pyrite in the shale, and thin lenses of sandstone, gray. silty.

9680-9690 shale, dark gray, with a little carbonaceous material, streaks of light graylimestone, and thin siltstones.

96909700 alternating shale, gray, silty, and fine grained sandstone, calc, slightly porous.

9700-9720 sandstone, gray, salt and pepper type, fine to medium grained, calc, porous, rounded.

9720-9730 alternating sandstone, gray, silty, and shale, silty, calc, and dark gray.

9730-9760 sandstone, gray, fine grained, pyritic, hard, tight, calc, with lenses of shale, gray, some lignetic and carbonaceous, and some thin gray limestone streaks.

9760-9770 alternating thin beds of limestone and carbonaceous gray shale, with thin siltstone streaks.

9770-9780 alternating shale and lime as above wth lens of soft gray porous water sandstone at the base.

9780-9790 sandstone, light gray, calc, fine grained, hard, tight, with alternating streaks of dark gray shale, and light gray limestone.

9790-9800 alternating shale, and sandstone, arcalcareous, with streaks of limestone, gray as above.

9800-9810 shale, gray, calc, some carbonaceous, siltstone grading to fine sandstone, gray, in lenses, some limestone streaks.

9810-9820 shale, gray and greenish gray, silty, calcareous, with lenses of siltstone gray, and streaks of gray limestone.

9820-9840 shale, gray, some carbonaceous streaks, calc, wit streaks of lime gray, and limestone tan, wittle sandstone with limonite cement.

9840-9850 shale, alternating with thin limestone streaks and gray siltstone lenses, calc. fine to medium grained.

9850-9870 shale, hard and greenish gray, [illegible]
silty sandstone lenses, hard, [illegible]

9870-9880 alternating shale, and siltstone, gray calc, silty, and [illegible] some sandy streaks.

9880-9900 shale, gray, silty, some greenish colored, trace of carbonaceous shale, has streaks of creamy gray colored siltstone, hard.

9900-9910 alternating streaks of silty shale, and lenses of hard siltstone, some of which has slight porosity.

9910-9920 shale, gray, silty, calc.

9920-9930 sandstone, gray, fine grained, silty, hard, calc, with lenses of gray shale.

9930-9940 alternating stringers of sandstone and gray silty shale, gray, calc. sand is salt and pepper type, hard. tight.

9940-9960 shale, dark gray , greenish gray, some brown and alittle carbonaceous, streaks of sandstone silty, gray.

9960-9970 shale, gray, with creamy sandstone, streaks, hard, tight, claan.

9970-9990 shale, greenish gray, to gray with some carbonaceous material, alternating with creamy gray sandstone, silty, hard, tight.

9990-10000 alternating sandstone and shale, , gray to dark gray, silty.

10000-10020 sandstone, gray salt and pepper type, clean, hard, calc, fine grained, rounded, well sorted, tight, trace of shale with a bare trace of grey lime/

10020-10040 shale, gray to greenish gray, some mudstone, silty, hard, with streaks of siltstone gray. Some carbonaceous shale.

10040-10050 Shale, as above with increase in carbonaceous material and has some thin silty fine grained sandstone streaks.

10060-10070 Shale, gray, with carbonaceous streaks, has thin siltstone , layers, gray, and trace of gray limestone.

10070-10080 Shale as above with more siltstone which grades into fine grained sandstone, gray, hard.

10080-10090 shale, gray, silty, carbonaceous in part and calc.

10090- 10100 sandstone, gray salt and pepper type, hard, fine grained, calc, tight.

10100-10130 shale, gray some greenish gray, calc, silty, with streaks of carbonaceous material, and streaks of silt and gray sandstone.

10130-10150 shale, gray, silty, some carbonaceous. with lenses of siltstone and silty fine gray sandstone.

10150-10160 alternating shale and silty sandstone, hard, fine traces of pyrite

10160-10166 sandstone, gray, fine hard, fluroesence and much gas.

Core No 2 10166-10170 4 feet full recovery

10166-10170 sandstone, grey salt and pepper type, fine grained, well sorted, hard, slightly calc, hard, clean, rounded graines, tight, locally silty, trace of pyrite, scatered hair - like fractures. porosity is 7% and the permeability is nil. no fluorescence or odor in the core.

Core No. 3 10170-10178 - 8 feet - full recovery

10170-10178 sandstone gray, salt and pepper, fine grained, well sorted, hard, slightly calc, hard, clean, rounded graines, tight, slightly silty in spots, trace of pyrite, no fluorescence and no odor. inclusions of lignitic shale at the base.

10172-10178 shale, gray, silty, hard, tight, few silt inclusions at the top. no fluorescence or odor.

D.S.T. No 9 in Kmv. 10158-78 Open 4½ hours and shut 1 hour. Had 1980 feet of water cushion. Weak blow at the start increased to strong blowin 50 minutes. Gas to the surface in 3½ hours, burned with 3 foot flame. Received 6 feet of mud. The water cushion was heavily cut with gas. I.F.P and the F.F.P. were 940: S.I.P. 2150: H.H.P. 5700. Temp. 200 degrees.

10178-10190 shale, gray, silty, traces of pyrite, some streaks of siltstone with coaly inclusions.

10190-10207 shale, dark gray, carbonaceous, silty, with silty sandstone strea throughout.

10207-10210 coal, hard , medium grade bituminous type. has methane gas associated with it.

10210-10220 alternating shale and sandstone as above with coaly streaks throughout.

10220-10230 shale, in upper part with sand in the base, shale, is gray, and coaly, sand is friable, and porous, gray.

10230-10250 sandstone. gray, fine silty, slightly porous, with shale lenses gray to dark gray.

10250-10260 shale, alternating with silty sandstone, gray, calc, streaks of lime and coaly shale.

10260-10280 sandstone, salt and pepper fine grained rounded, slightly porous

10280-10290 shale, gray, with coaly streaks, and thin silt layers, lime gray at the base,

10290-10300 sandstone, salt and pepper, medium grained, rounded, porous, has gas content as shown by mud anylizer.

10300-10330 sandstone, gray, salt and pepper type, fine to medium grained, porous, traces of gas in samples and mud, has lenses of shale and lime streaks throughout, gray to greenish gray .

10330-10340 shale, gray, silty, with streaks of siltstone .

10340-10360 alternating shale gray to greenish gray, silty, with sandstone, fine grained, calc, grades to siltstone.

10360-10386 sandstone, gray salt and pepper type, hard, tight, fine grained, slightly calc,

10386-10390 sandstone, gray salt and pepper type, calc, fine grained, soft, porous, has floure-scence, and slight cut , coaly.

core No. 4-10390-10428.5- 38.5 feet - full recovery.

10390-94.5 shale, gray, carbonaceous, hard, tight, has faint odor, has few coaly streaks, and siltstone streaks.

10394.5-96 sandstone, light gray, hard, tight, with coaly inclusions, calc, grains are rounded, and well sorted.

10396-10401 siltstone , grading to very silty shale, gray, hard, tight, dense.

10401-05 shale, dark gray, carbonaceous, with thin coal laminations, and some thin silt tone streaks, hard.

10405-11 siltstone, light gray, with shale laminations, hard and tight,

10411-13 sandstone light gray, with coaly inclusions and laminations, calc, hard, has faint fluorescence , some pyrite, very tight.

10413- 16 siltstone, and silty gray shale, grading into each other, hard, tight and dense.

10416-19 shale, silty, dense, silicious, with coaly inclusions.

10419-20 coaly shale grading to coal,

10420-26 shale, coaly with small coal inclusions. and laminations, has thin silts and stringers of fine sand.

10426-28.5 shale, dark gray, carbonaceous.

Note: the small amount of gas which was recorded inthe mud analyzer while coring seams to be related to coal . A porosity test was run on the sand at 10411-13 , and found to be 5.6 , The rest of the core was much tighter so no test was taken in this cored interval.

10430-10440 shale, gray , hard, dense, silty, with lenses of sandstone. gray.

10440-10450 sandstone, light gray, hard, silty, with shale, partings, the sa is rounded, slightly porous, medium grained.calc.

10450-10460 sandstone, grades to silt, light gray , fine grained, S&P type with carbonaceous streaks, gray, calc, porous

10460-10480 alternating sandstone, gray, S.&.P. type, with silty . carbon- aceous shale,

10480-10520 sandstone, light gray, S.&.P. type, medium grained, porous, clean, rounded, well sorted, trace of pyrite.

10520-10540 alternating silty sandst ne, gray, and dark gray shale, streaks coal, the sand is hard and tight.

10540-10550 shale, gray , silty, with sandstone streaks, gray, salt and pepper type, fine grained, well sorted, slightly porous.

10550-10560 shale, gray, carbonaceous, with hard siltstone streaks, gray.

10560-10600 siltstone , light grey, hard, grades to fine sandstone, has carbonaceous streaks of shale, the sandy lenses are slightly porous and poorly sorted.

10600-10620 sandstone, light gray, salt and pepper type, calc, slightly porous hard coaly shale stringers and lenses of limy shale.

10620-10640 siltstone light gray, salt and pepper type, with dark gray shale layers, and coaly inclusions.

10640-10650 shale, dark gray, carbonaceous, with thin limy sand and silt streaks.

10650-10660 shale, gray , silty, calc, with thin streaks of gray lime and gray siltstone, hard.

10660-10670 alternating dark gray shale, and siltstone, with trace of coal.

10670-10710 sandstone, light gray, salt and pepper type, slight porous, rounded, clean, medium grained to fine grained, with streaks of carbonaceous gray shale ,

10710-10720 alternating shale, and fine grained sandstone, hard, clean.

10720-10730 shale,gray, carbonaceous, silty, hard.

10730-10740 shale, gray, silty, hard.

10740-10750 shale, dark gray, coaly and carbonaceous, with thin siltstone, gray in streaks.

10750-10770 alternating dark gray shale, and gray salt and pepper type sandstone, sands are hard some friable, rounded, calc, have faint mineral fluorescence, and traces of carbonaceous material

10770-10780 sandstone, gray, salt and pepper type, fine grained, rounded.

10780-10800 sandstone, as above with shale, stringers, trace of coal, slightly porous.

10800-10810 - sandstone gray, as above fine to medium grained, hard, tight, rounded, well cemented.

10810-10830 alternating layers of gray carbonaceous and silty shale, with sandstone, light gray, salt and pepper type, hard, silty, tight.

10830-10850 sandstone, light gray salt and pepper type, friable, porous, rounded, calc, well sorted, clean, with thin shale stringers.

10850-10870 shale, gray, silty , hard, with lenses of silty sandstone.

10870-10900 sandstone, light gray , salt and pepper type, clean, hard, tight, calc, well sorted.

10900-10910 sand as above, but soft, porous, with trace of gas.

10910- 10940 alternating sandstone, fine to mediumgrained, hard, slightly porous, with thin layers of carbonaceousm dark gray shale.

10940-10950 Coal, carbonaceous shale, and thin stringers of friable sandstone.

10950-10980 interbedded coal grading to carbonaceous shale, and sandstone, fine to medium grained, soft, porous, has some gas in the mud, Sand is salt and pepper type sand, well rounded.

10980-10992 As above with much more sand and trace of wet gas, some of sand is friable.

Core No. 5- 10992-11030- 38 feet full recovery.

10992-10996 sandstone, grades to siltstone, light gray, salt and pepper type, has carbonaceous inclusions and streaks, trace of coal.

10996-11020 alternating layers of siltstone, and silty ,carbonaceous, dark gray shale, streaks and lenses of coal, and coaly shale, Shale, is mostly very dense and hard,. The silt is hard, and tight.

11030-11040 alternating layers of coaly shale, and salt and pepper type fine grained sandstone, hard.

11040-11050 ss,gray as above, soft, slight stain, becomes hard and tight at the base.

D.S.T. No. 10- 10966-11050- 84 feet. Packer failed to hold no test.

D.S .T. No.11 - 10906-11050 -144 feet Open 1 hour shut ½ hour(poor test- but the packer started to leak after 1 hour. Weak blow- died in 45 minutes) Received 1170 feet of fluidof which 180 feet were gas cut. I.F.P 1450: F.F. 4410 : S.I.P. 2750: H.H. 6100. Temp . 210 degrees.

11050-11070 alternating coaly shale, , silty shale, and stringers of sand and silt-stone. hard, light gray.

11070-11090 alternating beds of sandstone, light gray, salt and pepper type, porous, with some gas, and streaks of carbonaceous shale,.

11090-11108 layers of sandstone, whited fine grained, soft, porous, with lense of coaly shale, and thin streaks of coal.

D.S.T. No. 12- 10936-11106 - 170 feet- packer failed- no test. the mud in the tool was very heavily g s cut.

D.S.T No.13- 11044-11108 some 44 feet.Open 6 hours, shut 1 hour. Had weak blow which died in ½ hour. The blow started again after 3 hours and increased to fair blow and lasted throughout the remaining 3 hours. Had 3150 feet of water cushion. Received the water cushion , which was heavily gas cut, and also got 60 feet of very heavily gas cut mud. I.F.P. 1475; F.F.P 1475; S.I.P. 1650; H.H.P. 6240.

11108-11130 sandstone, gray, salt and pepper type, hard, well rounded, and sorted, porous,

11130-11150 sandstone, light gray, salt and pepper type, medium to coarse grained, hard, slightly porous, with streaks of gray silty and sandy shale, calc, some carbonaceous dark gray shale,

11150-11160 alternating beds of sandstone as above and dark gray carbonaceous shale, silty.

11160-11170 shale, carbonaceous, with coaly streaks and inclusions, has streaks of salt and pepper sands.

11170-11210 shale, gray, to dark gray, silty, some carbonaceous, with streaks of coal, has stringers of sandstone grading to siltstone, fine, salt and pepper type gray, rounded.

11210-11220 alternating shale, gray, carbonaceous and coaly with sandstone, fine , hard , salt and pepper type.

11220-11240 sandstone, light gray, fine grained, well rounded, silghtly porous, has small amount of gas,

11240-11260 shale, gray, silty, with carbonaceous streaks. some silt,

11260-11270 alternating shale and siltstone grading to sandstone. gray.

11270-11280 sandstone, light gray salt and pepper type, perous, soft has heavy gas cut.

11280-11287 layers of shale and soft sand as above, heavy gas cut

Core no 6- 11287-11313 - 26 feet of recovery.

11287011301 shale, gray hard, dense silty, with coaly inclusions some streaks of siltstone,

11301-11310 siltstone grading to fine sandstone, light gray, hard, tight, has strong gas odor.

11310-11313 sandstone, light gray, salt and pepper type, hard tight, has strong gas odor, porosity 10% and permeability nil.

D.S.T. No. 14- 11228-11315 Open 3 hours shut 1 hour, immediate weak blow, increased to strong in 70 minutes and lasted to end of test. Gas to the surface in 2 hours and 20 minutes, burned with a 3 foot flame, estimated to be 30 M.C.F/day. Received 3060 feet of gas cut water cushion and 85 feet of gas cut mud. Bottom hole temp 208 degrees, I.F.P. 0; F.F.P 1490; S.I.P. 1630 and H.H.P. 6500.

11315-11330 alternating beds of sandstone, shale, and coaly shale. the sands are carbonaceous and dirty, have porosity and are firm, contain much methane gas, fine grained,

11330-11340 sandstone, salt anad pepper type, gray, dirty, carbonaceous, firm porous, rounded, very high in gas in mud, over 400 units in the mud anylizer

11340-11330 sandstone, salt and pepper type, coaly and carbonaceous, hard, rounded, porous, gassy, has thin coaly and shale streaks.

11330-11300 alternating sandstone and shale, gray, salt and pepper type sand porous, hard, fine grained, trace of glauconite, has much gas in the mud.

11300-11410 sandstone, light gray hard some soft, fine to medium grained, slightly calc, porous, has gas in the mud.

11410-11440 sandstone, light gray hard, tight, rounded finr t medium grained, gassy, has streaks of coaly shale.

D.S.T. No 15-113190--11444 - 125 feet Open 4 hours and shut 1 hour. 3500 foot water cushion. Immediate weak blow for 73 minutes increased to strong blow for rest of test. Gas to surface in 2¼ hours. burned with 5 foot flame - estimated to be 30 m.c. f./ Day. Redeived gas cut water cushion and 30 feet of gas cut mud. I.F.P.-0 ; F.F.P.-0-; S.I.P.- 2300: H.H.P. 6710: Temp. 216. Test showed that only slight permeability is present.

11440-11470 sandstone, light gray, salt and pepper type, with coaly shale streaks. the sand is rounded , hard, tight, fine to medium grained

11470-11490 sandstone, light gray , salt and pepper type, hard, tight, rounded, well sorted, has slight gas content.

11490-11500 sandtone as above with slight porosity and increase in gas, has lenses of silty shale and siltstone , hard.

11500-11540 sandstone, light gray, hard, tight, slightly calc, fine grained, well rounded. with small stringers of coaly shale, throughout.

11540- 11570 sandstone, light gray, salt and pepper type, hard, tight, slightly calc. fine grained, rounded, with thin shale, streaks, carbonaceous.

11570-11600 sandstone, light gray , salt and pepper type, hard, tight, mediumm grained, coaly inclusions in the sand.

11600-11610 sandstone, light gray as above, with shale streaks, silty and carbonaceous, hard and dense. sand is hard and tight.

11610-11630 sandstone, light gray, salt and pepper type, hard, coaly medium grained, tight, with thin carbonaceous shale streaks.

11630-11650 alternating sand as above with silty carbonaceous gray shale.

11650-11660 silt tone, and fine sandstone, with silty gray shale, dense has a small amount of gas in the mud.

11660-11670 shale, dark gray, dense, with silt and fine sandstone, stringers

11670-11690 alternating sandstone which grades to siltstone and shale, the sand is hard, light gray, tight, fine grained, coaly, the shale is silty and coaly.

11690-11700 shale, gray to dark gray carbonaceous and coaly has sandstone lenses as above.

11700-11730 sandstone, light gray, salt and pepper type, hard, tight, carbonaceous streaks, has thin shaly lenses , coaly and silty

11730-11770 Sandstone, light gray, salt and pepper type, hard, tight, carbonaceous streaks, with thin shaly lenses, coaly and silty, increase in shale between 11760-70

11770-11790 sandstone, light gray, salt and pepper type, hard, tight, with coaly streaks and lenses of carbonaceous shale,, some silty shale.

11790-11810 sandstohe as above alternating with very thin beds of shale and coal layers, little silty shale.
Total depth of hole is at 11810 in the Mesaverde formation

KRALOVEC NO. 1

Well Deviation from the Vertical

DEPTH	DEGREES OFF	DEPTH	DEGREES OFF
103	1/2	5,490	1
223	1/2	5,654	2
[illegible]4	3/4	5,780	1 1/2
434	1	5,881	1 3/4
727	1/4	6,001	1 1/2
1,029	1/4	6,132	1 1/4
1,272	1/4	6,266	1
1,591	3/4	6,352	1
1,750	1	6,451	1
1,870	1/2	6,593	1
2,193	1 1/4	6,724	1
100	1 1/4	6,834	1
3,094	1 1/4	6,927	1
3,339	1/4	7,185	3/4
3,629	1 1/2	7,370	1
3,781	1 1/2	7,652	3/4
3,840	1 1/4	7,762	1
4,058	1 3/4	7,862	3/4
4,160	1	8,221	3/4
4,281	3/4	8,623	1
4,408	1 1/4	9,290	3/4
4,656	1 1/4	9,590	1/2
4,797	1 1/2	9,808	1/2
5,093	1	10,370	1/4
[illegible]	1 1/4	[illegible]	1/4

KRALOVEC NO. 1

DRILL STEM TESTS

Drill Stem Tests

D.S.T. #1 1,280-1,350, 70 feet. Open one hour, shut one-half hour. Recovered 480 feet mud. One inch opening at bottom and at surface. IFP 0; FFP 0; SIP 0; HHP 520.

D.S.T. #2 2,118-2,193, 75 feet. Open 45 minutes, shut 15 minutes. Weak blow, died in 12 minutes, recovered 15 feet of slightly gas cut mud. IFP 0; FFP 0; SIP 0; HHP 1100.

D.S.T. #3 3,560-3,594, 34 feet. Open 1½ hours, shut 1/2 hour. Immediate weak blow, died in 11 minutes, Recovered 32 feet of oil and gas cut mud. IFP 0; FFP 0; SIP 0; HHP 1775. Temp. 112.

Note: Ran mud through gas tester in Baroid Unit, recovered 200 units of gas of which 180 were wet and 20 were methane.

The cuttings recovered while drilling this section retained a good gas odor for a long time which indicated that the zone would be tight when tested. It is felt that acid or other methods of opening up this sand and silt section might give much better test results. The oil droplets which were recovered in the mud were of the typical Green River oils - black - and appeared to have a high paraffin and pour point content. The oil droplets were from live oil, but in a non-permeable bed.

D.S.T. #4 3,675-3,750, 75 feet. Open 2 hours, shut in 1/2 hour. Immediate weak blow, died in one hour and 20 minutes. Recovered 90 feet of fluid of which 6 inches was black oil, estimated to be about 28 degree gravity, and to have about 80 degree pour point. The rest of the fluid was heavy oil cut mud with trace of water and some gas. IFP 0; FFP 0; SIP 0; HHP 1750; Temp. 115°.

Note: I recommend that this zone (3,676-3,700) be sand fracted if further drilling does not produce. This sand is very hard and tight, thus, the chances of mud spoiling this zone is not serious, furthermore, this same tightness might give excellent sand frac results. I ran the mud from the test through the Baroid Unit and the test showed that of 200 units of gas in the mud 160 units were wet, and 40 units were methane.

D.S.T. #5 4,568-4,608, 40 feet. Open 1 3/4 hours, shut 1/2 hour. Immediate weak blow, died in 27 minutes. Recovered 82 feet of oil and gas cut mud, with one foot of black oil on top. Estimated to be 80 degree pour point and 28 gravity oil. I believe that this zone of 14 feet of tight sandstone (interval of 4,568-4,582) should be worked over by the production department if nothing else is found at depth. I say this because the tightness of the horison keeps the results of the test down. SIP 40; FFP 40; IFP 40; HHP 2100. The drilling mud had 30 units of wet gas in it when taken from the tool.

D.S.T. #6 4,708-4,792, 84 feet. Open 2 hours, shut 1/2 hour. Immediate weak blow, died in ten minutes. Recovered 38 feet of mud. IFP 0; SIP 0; FFP 0; HHP 2150. Temp 122°.

D.S.T. #7 5,736-5,780, 44 feet. Open 2 1/4 hours, shut 1/2 hour. Immediate blow, fair throughout test. Recovered 18 feet of green oil, high pour point, 103° gravity 42° sweet, recovered 75 feet of oil cut mud. Temp 111° IFP 75; FFP 75; SIP 75; HHP 2600. The oil came from a 10' sandstone section 5,736-46. The sand is fine with silt at the top, slight to fair porosity, fractured, see written log. Acid on the samples made a lot of increase cut and fluorescence.

D.S.T. #7 (Cont'd)

Thus, I believe that this zone would respond to treatment of production methods, and I recommend that this zone receive further attention if better results are not obtained at depth. This zone is in the Wasatch-Green River transition zone, same as the Ashcraft field.

D.S.T. #8 In Knv. 9,360-9,399, 39 feet. Open 2 hours, shut in 1/2 hour. Immediate weak blow, died in 12 minutes. Had 2000 foot water cushion. Recovered 10 feet of mud. IFP 865; FFP 865; SIP 915; HHP 4875.

D.S.T. #9 In Knv. 10,153-10,173, 20 feet. Open 4 1/2 hours and shut in 1 hour. Had 1980 feet of water cushion. Weak blow at start, died in ten minutes. Started in 50 minutes again, increased to strong blow, lasted throughout test, gas to surface in 3 1/2 hours, burned with 3 foot flame. Recovered 6 feet of mud. The water cushion was heavily cut with gas. IFP 940; FFP 940; SIP 2150; HHP 5700; Temp. 200°. This test was very disappointing as all indications indicated that much more gas was present. The gas may be mudded off or the lag timing is off 1000 strokes (doubtful) such that the gas is at the interval 10,154-58'. Further drilling will tell the story.

The gas pressure dropped down with further drilling, so my conclusion is that the test was taken in the right zone and that the test was a fair evaluation of the zone, unless the tight sand was mudded off.

The new interval 10,153-73 tested instead of 58-78 is the same zone in either case as 20 feet was tested from the bottom of the hole. So bottom was wrongly reported and recorded, but the test was still good.

D.S.T. #10 10,966-11,050, 84 feet. The packer failed to hold so no test.

D.S.T. #11 10,906-11,050-144 feet. Open 1 hour, shut 1/4 hour (poor test) but the packer started to leak after one hour. Weak blow, died in 45 minutes. Recovered 1,170 feet of drilling fluid of which 180 feet were gas cut. IFP 1450; FFP 4410; SIP 2750; HHP 6100; Temp 210°.

D.S.T. #12 10,936-11,106, 170 feet. The packers failed, no test. What mud that was present in the tool was very heavily gas cut.

D.S.T. #13 11,044-11,108, 64 feet. Open 6 hours, shut 1 hour. Had weak blow which died in 1/2 hour. The blow started again after 3 hours and increased to fair and lasted throughout the remaining three hours. Had 3,150 feet of water cushion. Recovered the water cushion which was heavily gas cut, and also recovered 60 feet of very heavily gas cut mud. IFP 1475; FFP 1475; SIP 1650; HHP 6240.

D.S.T. #14 11,228-11,315. Open three hours, shut 1 hour, immediate weak blow increased to strong in 70 minutes to the end of the test. Gas to surface in 2 hours and 20 minutes, burned with a 3 foot flame, estimated to be 30 MCF/D. Temp. 208°, bottom hole. Recovered 3,060 feet of gas cut water cushion and 85 feet of gas cut mud. IFP 0; FFP 1490; SIP 1630; HHP 6500.

D.S.T. #15 — 11,319-11,444, some 125 feet. Open 4 hours, shut in 1 hour. Had 3500 foot water cushion. Immediate weak blow and lasted for 73 minutes then increased to strong blow which lasted throughout the test. Gas to surface in 2 1/4 hours, sweet, rich, burned with a five foot flame. Estimated to be 30 MCF/D. The gas was so rich that it condensed into gasoline in the flow line. This gas came from a thick sandstone section which is very hard and very tight, thus the gas is there, but cannot get out. Recovered the water cushion, very gas cut and 30 feet of gas cut mud. IFP 0; FFP 0; SIP 2300; HHP 6710. Temp. 216°. The 3500 foot water cushion has a pressure of about 1700 pounds which was greater than the gas pressure, thus, the zero pressure reading, however, the 2300 pound SIP showed that some permeability does exist.

Plug back to 4,545 and run 5 1/2 inch casing to 4,195'.

D.S.T. #16 — 4,009-4,133, Open 6 hours, shut 1 1/2 hours. Immediate good blow, decreased to fair blow in 10 minutes, then slowly decreased to weak blow and lasted throughout the test. Gas to the surface in approximately 3½ hours, burned with very small flame. Estimated to be under 10 MCF/D. Has bitter odor. Recovered, in 2 3/8 inch tubing, 2,990 feet of fluid of which 100 foot was gas cut muddy water with a bare trace of oil in specks, black colored, and 2,890 feet of gas cut water, smells like carbide. Tool was partly plugged the first hour. IFP 300; FFP 1260; SIP 1390; HHP 2100; Temp 123°.

The tested zone - 4,032-60 was shot with jet-shots-6/foot.

D.S.T. #17 — Plug back to 4002. Shot interval 3,963-82 with 6 jets/foot. Tested interval 3,946-4,002. Open 6 hours and shut 1½ hours. Immediate good blow, lasted 15 minutes then decreased to fair blow for 1½ hours, then died to weak blow for the remainder of the test. Recovered 150 feet of gas cut muddy water, 1200 feet of gas cut water and 50 feet of gas cut mud. total of 1400 feet of fluid. IFP 140; FFP 500; SIP 620; HHP 2025. The tool was partly plugged the first hour.

D.S.T. #18 — Plug back to 3400. Perforate with 6 jet shots/foot in the interval 3353-3372, 19 feet.
Packer set at 3,332- tested the interval 2700 to 3372, outside the casing. Open 6 hours and shut 1 1/2 hours. Immediate strong blow for 15 min. slowly died down and dead in 1 3/4 hours. No gas to the surface. Recovered 2140 feet of gas and water cut mud, which had a slight oil stain in it. The tool was plugged during the test. IFP 600; FFP 1400; SIP 1400; HHP 1600; Temp 116°.

D.S.T. #19 — 2700-3372. Open 7 3/4 hours and shut 2 hours. Fair blow for 50 minutes, then died. Recovered 2,660 feet of gas cut mud and water cut mud. IFP 550; FFP 1400; SIP 1400; and HHP 1600; Temp. 118°.

D.S.T. #20 — Plug back to 2620 with bridge plug. Perforate with 6 jet shots per foot, the interval 2550-2570, 20 feet. Packer set at 2530 with the interval 2550 to 2570 tested. Open 7 3/4 hours and shut in 2 hours. Immediate weak blow which died in 40 minutes. Recovered 917 feet of mud cut water. IFP 0; FFP 350; SIP 450; HHP 1200; Temp 113°.

KRALOVEC NO. 1

CORE DESCRIPTIONS

Core Descriptions

Core No. 1 - 3,841-3887, 46' full recovery

3841-3849 Shale, dark gray, and mudstone, very silty, hard with calitic streaks, poorly sorted, oil stained, tight, hard, with fractures throughout, oil stained along sides.

3849-3853 Laminated silt and silty shale, gray. Silts are saturated with dead oil, hard, tight, calc, pyritic and traces of mica.

3853-3856 Sandstone, fine grained, especially along the vertical fractures. Slight odor, good blue fluorescence.

3856-3859 Alternating sandstone and shale, dark gray with silt inclusions saturated with dead oil.

3859-3864 Siltstone, gray, hard, tight, oil in fractures, calitic, calc, to very lime.

3864-3870 Shale, silty, oil saturated, fair odor, hard, tight, trace of calitic silt, some silt and sandstone inclusions.

3870-3876 Silt and sandstone, gray to dark gray, calc hard tight, some carbonaceous shale.

3876-3881 Shale, sandstone and lenses of silt. Some silt inclusions in the sandstone, gray to dark gray, inclusions are saturated with dead oil, very calc, oil in fractures.

3881-3887 Dark Gray shale, silty, calc, with silt streaks, fractured, dead stain in silt, hard and tight.

Flat dip in the core, too flat to measure

Core No. 2 - 10,161-10,165, 4' full recovery

10,166-10,170 Sandstone, gray, salt and pepper type, fine grained, well sorted, rounded grains, tight, hard, slightly calcareous, mostly clean with local silty streaks, trace of pyrite, scattered hair-like fractures. The porosity is from 7 to 8% and the permeability is nil. No fluorescence and no odor in the core.

Core No. 3 - 10,165-10,173, 8' full recovery

10,170-10,172 Sandstone, gray, salt and pepper type, fine grained, well sorted, hard, slightly calc, hard, tight, clean rounded grains, tight, slightly silty in spots, trace of pyrite, no fluorescence and no odor. Inclusions of lignitic shale at the base.

10,172-10,178 Shale, gray, silty, hard, tight, few siltstone inclusions at the top. No fluorescence and no odor.

The dip in the core is too flat to measure.

Core No. 4 - 10,390-10,428.5, 38.5' of recovery

10,390-94.5 Shale, gray, carbonaceous, hard, tight, has faint odor, few coaly streaks and siltstone streaks.

10,394.5-96 Sandstone, light gray, hard, tight, with coaly inclusions, calc, grains are rounded and well sorted.

Enclosure #1 Core Descriptions (Cont'd)

10,396-10,401 Siltstone, grading to very silty shale, gray, hard, tight, dense.

10,401-10,405 Shale, dark gray, carbonaceous, with thin coal laminations, and some thin siltstone, streaks, very hard.

10,405-10,411 Siltstone, light gray, with shale, laminations, hard and tight.

10,411-10,413 Sandstone, light gray with coaly inclusions and laminations calc, hard, has faint fluorescence, some pyrite, very tight.

10,413-10,416 Siltstone, silty shale, grading into each other, hard, tight and dense.

10,416-10,419 Shale, silty dense, siliceous and dense, with coaly inclusions.

10,419-10,420 Coaly shale, grading to coal.

10,420-10,426 Shale, coaly, with small coal inclusions and laminations, has thin silts and stringers of fine sandstone.

10,426-10,428.5 Shale, dark gray, carbonaceous.

Note: The small amount of gas which was recovered in the mud analyzer while coring, seems to be related to the coal and coaly material in the formation. A porosity test was run on the most likely section of the core (10,411-10,413' having fluorescence) and was found to be only 5.6%. Thus, no test was taken of this cored interval.

Core No. 5 - 10,992-11,030, 38' recovered

10,992-10,996 Sandstone, light gray, salt and pepper type, grades to hard siltstone, has carbonaceous inclusions and streaks, trace of coal. Porosity is 13%.

10,996-11,030 Alternating layers of siltstone and silty, carbonaceous dark gray shale, streaks and lenses of coal and coaly shale, shale mostly very dense and hard. The silt is hard and tight. Porosity in the silts seems to be related to the contacts between the coal and the silts. Porosity of the silt is 6%.

Core No. 6 - 11,287-11,313; 26' of full recovery

11,287-11,301 Shale, gray, hard, dense, silty, with coaly inclusions and some siltstone streaks.

11,301-11,310 Siltstone grading to fine sandstone, light gray, hard and tight has strong gas odor.

11,310-11,313 Sandstone, light gray, salt and peppery, hard, tight, has strong gas odor. Porosity 10% and permeability nil.

THE STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION
348 EAST SOUTH TEMPLE
SUITE 301
SALT LAKE CITY, UTAH 84111

April 26, 1965

Continental Oil Company
1755 Glenarm
Denver, Colorado

Re: Well No. Kralovec #1
Sec. 29, T. 9 S., R. 17 E.,
Duchesne County, Utah

Gentlemen:

Upon checking our files we find that we do not have electric and/or radioactivity logs for the above mentioned well. This well was drilled prior to the establishment of the Commission, however, we are making an attempt to complete our records on wells that have been drilled in the state.

It would be appreciated if you could forward said logs to this office as soon as possible.

Thank you for your assistance in this request.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

KATHY G. WARNER
RECORDS CLERK

kgw

The Electrical Log was the only log run on the above subject well.
One print of this log is enclosed for your records.

JJJ