Form 3160-3
(December 1990)

RECEIVED
OCT 30 1996
DIV. OF OIL, GAS & MINING

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires: December 31, 1991

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

CONFIDENTIAL

1a. TYPE OF WORK: DRILL [XXX] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [XX] OTHER SINGLE ZONE [XX] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: GCRL Energy, Ltd.

3. ADDRESS AND TELEPHONE NO. (403) 233-4000
P.O. Box 130, Calgary, Alberta, CANADA, T2P 2H7

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 92' FNL 2,320' FEL (NW/4 NE/4) Sec. 20 T21S R20E
At proposed prod. zone

5. LEASE DESIGNATION AND SERIAL NO.: U-55509

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---

7. UNIT AGREEMENT NAME: ---

8. FARM OR LEASE NAME, WELL NO.: GCRL Seismosaur Federal #1

9. API WELL NO.:

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 20 T21S R20E

12. COUNTY OR PARISH: Grand

13. STATE: UT

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
1 mile northwest of Thompson Spring, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 92' S of Sec line; 996' W of Lse line

16. NO. OF ACRES IN LEASE: 6,717.78

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40

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

19. PROPOSED DEPTH: 16,000'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 5,137' GR

22. APPROX. DATE WORK WILL START*: December 16, 1996

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26" Conductor	20" K-55	94#	300'	To surf ±391 sxs G
17 1/2" Surf	13 3/8" L-80	72#	5,350'	To surf ±1,180 sxs Lite ±827 sxs G
12 1/4" Int	9 5/8" L-80	53.5#	12,600'	Above salt ±543 sxs G
8 1/2" Liner	7" L-80	32#	12,600' - T.D.	±264 sxs G

See attached Drilling Program and Surface Use Plan.

Please keep this information CONFIDENTIAL for the maximum time possible.

Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided for by GCRL Energy, Ltd. under nationwide bond as applied for.

GCRL Energy, Ltd. will be responsible for compliance with all of the lease conditions for that portion of the lease associated with this application.

A Utah Spacing Exception, if necessary, will be applied for separately. Note that the drillsite location is 92' from the section line but is 996' from the lease line at its nearest lease boundary.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED: David F. Banko TITLE: Agent for GCRL Energy, Ltd DATE: October 28, 1996

(This space for Federal or State office use)

PERMIT NO. 43-019-31357 APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

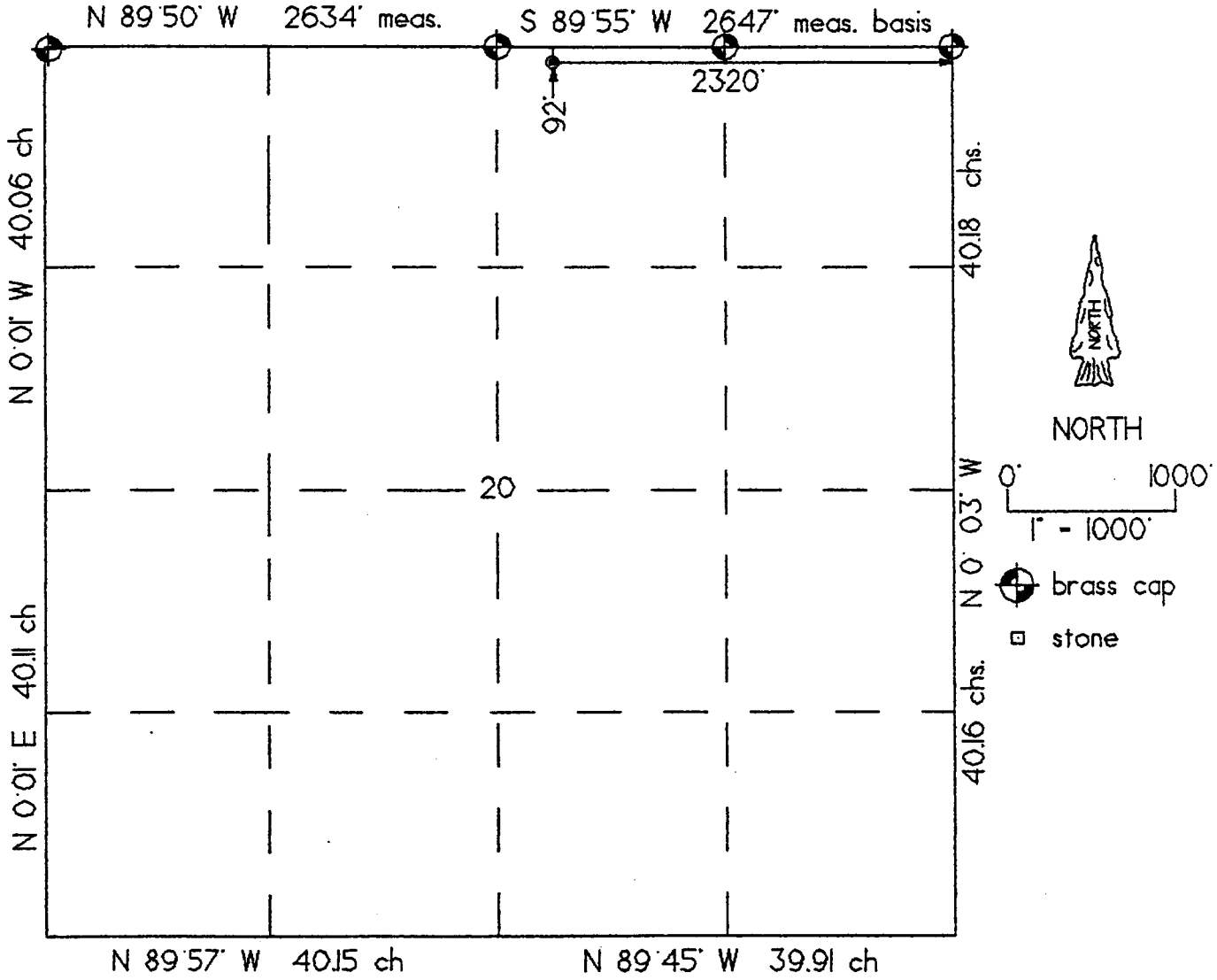
CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY: T.A. Matthews TITLE: Petroleum Engineer DATE: 12/11/96

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Well Location Plat



Well Location Description

GCRL Energy. LTD
GCRL Seismosaur Federal # 1
92' FNL & 2320' FEL
Section 20. T.21 S.. R.20 E.. SLM
Grand County. UT
5137' grd. el. (from BM in Thompson 5145')

REGISTERED LAND SURVEYOR
GERALD G. HUDDLESTON
No. 161297
STATE OF UTAH

14 October 1996

Gerald G. Huddleston. LS

The above is true and correct to my knowledge and belief.

HUDDLESTON LAND SURVEYING - BOX KK - CORTEZ. CO - (970) 565 -3330

GCRL

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

ENERGY LTD.

Federal Express

Ms. Kate Kitchell
Bureau of Land Management
Moab District Office
82 E. Dogwood
Moab, UT 84532

October 28, 1996

RECEIVED
OCT 30 1996
DIV OF OIL, GAS & MINING

RE: Application for Permit to Drill
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
92' FNL 2,320' FEL (NW/4 NE/4)
Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

Dear Ms. Kitchell:

Enclosed please find four (4) original copies of the Application for Permit to Drill, filed on behalf of GCRL Energy, Ltd. for the above captioned well. Separately, we have sent two copies of this application to the Utah Department of Natural Resources, Division of Oil, Gas and Mining in Salt Lake City. We understand that a Utah filing fee is not required.

The Federal Designation of Agent (for Permitting) was submitted to the Moab office of the B.L.M. and is on file. A copy is attached.

Upon approval of this permit, please send one approval copy directly to GCRL Energy, Ltd. in Calgary and keep one in your office to be picked up by the dirt contractor for use on location.

If there are any questions or additional requirements, please immediately contact Barry McClure at GCRL Energy, Ltd. (403) 233-4000 or the permit agent, David F. Banko at (303) 820-4480 ext. 12, fax (303) 820-4124. Your early approval of this permit is greatly appreciated, thank you for your concern.

Very truly yours,

David F. Banko
Agent for GCRL Energy, Ltd.

DFB:jb

Enclosure

cc: Utah Division of Oil, Gas and Mining
GCRL Energy, Ltd.

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7. UNIT AGREEMENT NAME: --------

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CONFIDENTIAL

See attached Drilling Program and Surface Use Plan.

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24. SIGNED David F. Banko TITLE Agent for GCRL Energy, Ltd DATE October 28, 1996

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CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY J.P. Matthews TITLE Petroleum Engineer DATE 12/11/96

*See Instructions On Reverse Side

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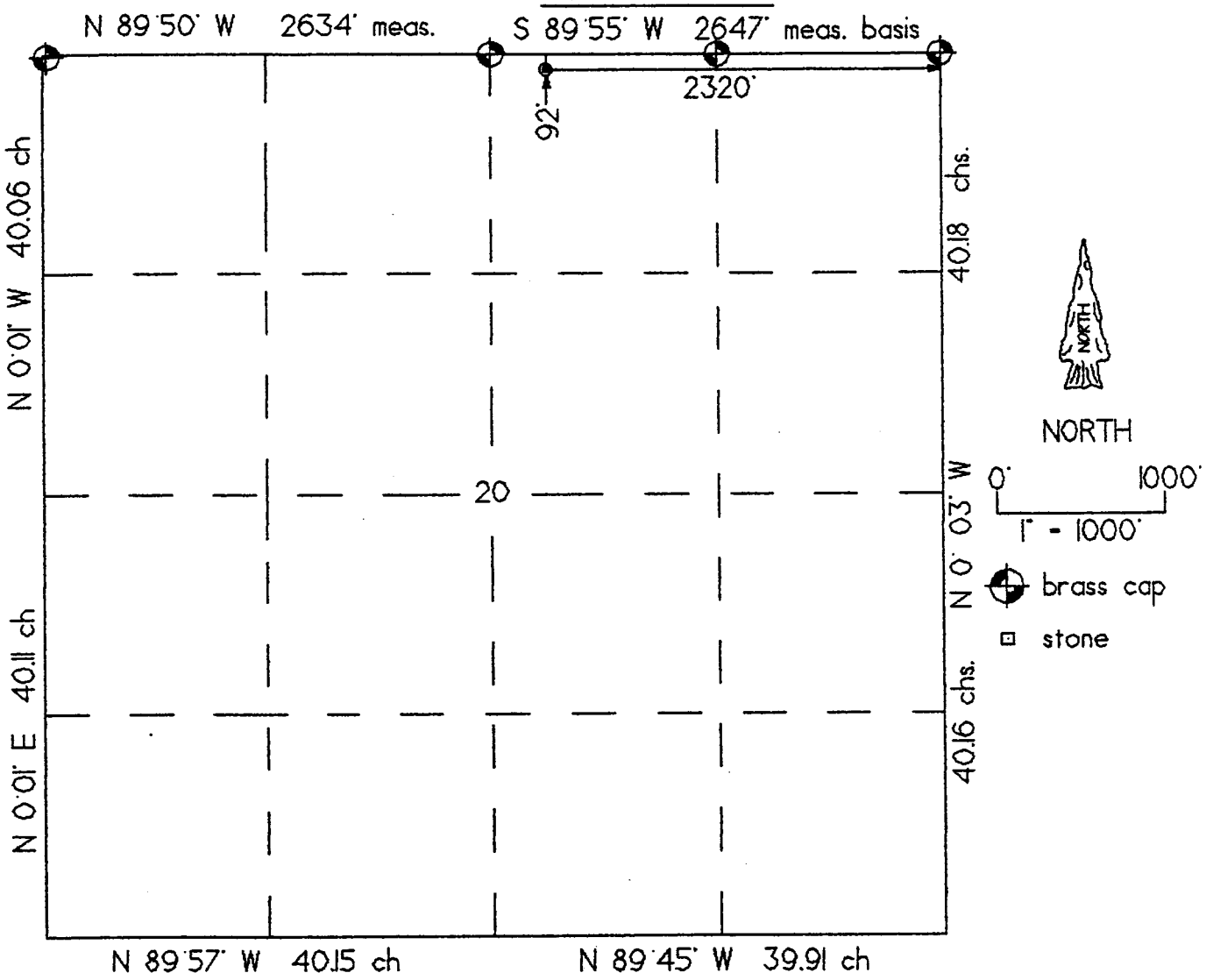
Well Location Plat



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GCRL Energy. LTD
GCRL Seismosaur Federal # 1
92' FNL & 2320' FEL
Section 20. T.21 S.. R.20 E.. SLM
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Gerald G. Huddleston. LS

The above is true and correct to my knowledge and belief.

HUDDLESTON LAND SURVEYING - BOX KK - CORTEZ. CO - (970) 565 -3330

GCRL

ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

October 9, 1996

Ms. Kate Kitchell
Bureau of Land Management
Moab District Office
82 E. Dogwood
Moab, UT 84532

RECEIVED
OCT 30 1996
DIV. OF OIL, GAS & MINING

Dear Ms. Kitchell:

Re: Drilling Permit and Right of Way
Authorized Agency

GCRL Energy, Ltd. Hereby designates Banko Petroleum Management, Inc. c/o David F. Banko or Keith Dana as authorized agent for matters relative to Applications for Permits to Drill, Rights of Way, Access Agreements and regulatory matters associated with GCRL Energy, Ltd.'s oil and gas drilling, completion and production activities.

Should you have any questions relative to this authorization, please feel free to contact the undersigned at your convenience at (403) 233-3619.

Yours very truly,

B. M. McClure

B.M. McClure
Director - Drilling Operations

BMM/ml

cc: Banko Petroleum Management, Inc.

GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
92' FNL 2,320' FEL (NW/4 NE/4)
Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

DRILLING PROGRAM

All operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil & Gas Orders, the approved plan of operations and the conditions of approval. The operator is fully responsible for the actions of its subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

SURFACE FORMATION - Mancos Shale - Fresh water intervals possible to 250'.
ESTIMATED FORMATION TOPS (Water, oil, gas and/or other mineral-bearing formations).

Dakota	2,700'	Sandstone, shales & siltstones, some water bearing
Entrada	3,300'	Sandstone, shales & siltstones, some water bearing
Chinle	4,300'	Shales & siltstones
Navajo	4,320'	Sandstone, shales & siltstones, some water bearing
Cutler	5,300'	Sandstone, shales & siltstones, some water bearing
Elephant Canyon	9,000'	Sandstone, shales & siltstones, some water bearing
Honaker Trail	10,600'	Sandstone, shales & siltstones, some water bearing
Top Paradox	12,000'	Anhydrite and limestones
Paradox Salt	12,100'	Interbedded salt stringers, anhydrite and limestones
Porous Dolomite	12,600'	Dolomites, limestones and anhydrite, some water oil and/or gas bearing
Barker Creek	13,800'	Dolomites, limestones and anhydrite, some water oil and/or gas bearing
Leadville	15,900'	Limestones and siltstones, some water oil and/or gas bearing

TOTAL DEPTH 16,000'

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and will be cased and cemented. When possible, water flow rates will be measured, and samples taken and analyzed with the results being submitted to BLM. All oil and gas shows will be tested to determine commercial potential.

CASING PROGRAM

Depth	Hole Dia.	Cas.Dia.	Casing Wt. & Grd.	Cement (See below)
0 - 300' (Conductor)	26"	20"	K-55 94# BTC New	To surface (±391 sxs "G")
0 - 5,350' (Surface Csg)	17-1/2"	13-3/8"	K-55 68# STC New L-80 72# STC New	To surface (±1,180 sxs Lite ±827 sxs "G")
0 - 12,600' (Int. Csg.)	12-1/4"	9-5/8"	L-80 53.5# LTC New	Cmt to 1,200' above top of salt (±10,900')
12,600' - T.D. (Prod. Liner)	8-1/2"	7"	L-80 32# LTC New	TD to top of liner (±1,100)

CEMENT & ADDITIVES

Conductor Cement: 0:1:0 G + 2% $CaCl_2$ 15.8 ppg
Yield 1.15 ft^3/sack
Usage ±391 sxs @ 75% excess

Surface Cement: Lead: Halliburton Blend Fill Cement 11.0 ppg
Yield 3.82 ft^3/sack
Usage ±1,180 sxs @ 50% excess

Tail: 1:1:2 G + 0.5% CFR-3 14.3 ppg
Yield 1.23 ft^3/sack
Usage ±827 sxs @ 50% excess

Int. Cement: 1:1:2 G + 18% Salt + 0.4% Halad 344 + 0.3% CFR-3 + 0.2% HR5
14.3 ppg, Yield 1.19 ft^3/sack
Usage ±543 sxs @ 20% excess

Prod. Cement: 1:1:2 G + 35% SSA-1 +0.5% HR5 +0.3% CFR-3 +0.4% Halad 344
14.3 ppg, Yield 2.01 ft^3/sack
Usage ±264 sxs @ 20% excess

SURFACE CASING, BOP & CENTRALIZER DESIGN
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
92' FNL 2,320' FEL Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

Proposed Total Depth - 12,600' (Intermediate hole)
Proposed Depth - Surface Casing - 5,350'
Estimated Pressure Gradient - 0.53 psi/ft.
Bottom Hole Pressure at 12,600' (T.D.)
0.53 psi/ft x 12,600' = 6,678 psi

Hydrostatic head - gas/oil cut mud - 0.22 psi/ft
0.22 psi/ft x 12,600' = 2,772 psi

Maximum Design Surface Pressure

Bottom Hole Pressure - hydrostatic head
(0.53 psi/ft x 12,600') - (0.22 psi/ft x 12,600') =
6,678 psi - 2,772 psi = 3,906 psi

Casing Strengths - 13 3/8" K-55 68# STC & L-80 72# STC

Grd & Wt.	Tension(lbs)	Burst(psi)	Collapse(psi)
K-55 68#	718,000	3,450	1,950
L-80 72#	1,029,000	5,380	2,670

Safety Factors
Tension (Dry) - 1.60 Burst - 1.10 Collapse - 1.00

Tension (Dry) - (72#/ft x 5,350') = 385,200#

S.F. $\frac{1,029,000}{385,200}$ = 2.67

Burst - S.F. = $\frac{5,380 \text{ psi}}{3,906 \text{ psi}}$ = 1.377

Collapse - Hydrostatic = 0.052 x 9.0 x 5,350= 2,504 psi
S.F. = $\frac{2,670 \text{ psi}}{2,504 \text{ psi}}$ = 1.06 @ 5,350'

- Use 5,350' 13 3/8" L-80 72# STC or better
- Use 5,000 p.s.i., w.p B.O.P. stack

Centralizers - 5 Total
1 - near surface @ 160'
1 - middle of bottom joint
3 - every other joint, ± 80'
Total Centralized = ± 280' (5,070' - 5,350')

Based on previous experience additional centralizers substantially increase the risk of the casing sticking prior to reaching bottom.

INTERMEDIATE CASING, BOP & CENTRALIZER DESIGN
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
92' FNL 2,320' FEL Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

Proposed Well Total Depth - 16,000'
Proposed Depth - Intermediate Casing - 12,600'
Estimated Pressure Gradient - 0.53 psi/ft.
Bottom Hole Pressure at 16,000' (T.D.)
0.53 psi/ft x 16,000' = 8,480 psi

Hydrostatic head - gas/oil cut mud - 0.22 psi/ft
0.22 psi/ft x 16,000' = 3,520 psi

Maximum Design Surface Pressure

Bottom Hole Pressure - hydrostatic head
(0.53 psi/ft x 16,000') - (0.22 psi/ft x 16,000') =
8,480 psi - 3,520 psi = 4,960 psi

Casing Strengths - 9 5/8" L-80 53.5# LTC & BTC (Buttress)

	Grd & Wt.	Tension(lbs)	Burst(psi)	Collapse(psi)
LTC	L-80 53.5#	1,047,000	7,930	6,620
BTC	L-80 53.5#	1,244,000	7,930	6,620

Safety Factors
Tension (Dry) - 1.60 Burst - 1.10 Collapse - 1.00

Tension (Dry) - (53.5#/ft x 12,600') = 674,903# S.F. $\frac{1,047,000}{674,100}$ = 1.6 (Note:Buoyed wt. S.F. = 1.8)

Burst - S.F. = $\frac{7,930 \text{ psi}}{4,960 \text{ psi}}$ = 1.60

Collapse - Hydrostatic = 0.052(10.1 ppg)(12,600')= 6,617 psi
S.F. = $\frac{6,620 \text{ psi}}{6,617 \text{ psi}}$ = 1.00 @ 12,615'

- Use 12,600' 9 5/8" L-80 53.5#/ft LTC or better
- Use 5,000 p.s.i., w.p B.O.P. stack

Centralizers - 5 Total
1 - near surface @ 160'
1 - middle of bottom joint
3 - every other joint, ± 80'
Total Centralized = ± 280' (12,320' - 12,600')

Based on previous experience additional centralizers substantially increase the risk of the casing sticking prior to reaching bottom.

PRESSURE CONTROL (See attached schematic diagram)

For the 17 1/2" hole a 2M annular preventer and diverter are proposed. B.O.P.'s and choke manifold will be installed and pressure tested before drilling out under conductor casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. B.O.P.'s will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or to 70% of the minimum internal yield of the casing, whichever is less. Annular type preventors will be pressure tested to 50% of their rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1500 psi, whichever is greater, not to exceed 70% of internal yield.

For 12 1/4" and 8 1/2" holes a 5 M System is proposed B.O.P.'s and choke manifold will be installed and pressure tested before drilling out under surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. B.O.P.'s will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or to 70% of the minimum internal yield of the casing, whichever is less. Annular type preventors will be pressure tested to 50% of their rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1500 psi, whichever is greater, not to exceed 70% of internal yield. Casing shoe will be tested by drilling out 5'-20' under shoe and pressure testing to maximum expected mud weight equivalent as shown in Mud Program below. A manual locking device (i.e. hand wheels) or automatic locking devices shall be installed on the BOP stack. Remote controls capable of both opening and closing all preventors shall be readily accessible to the driller.

MUD PROGRAM

0' - 300'	Conductor hole to be dry drilled if conditions allow. Water and/or spud mud will be used if hole conditions dictate.
300' - 5,350'	* Air or air mist. If hole conditions dictate, treated water w/polyacrylimide will be used.
5,350'-12,600'	** Oil based (invert) mud M.W.:9.2 - 10.1 ppg, Vis.: 35-50 sec, W.L.: 15cc or less
12,600'- T.D.	** Oil based (invert) mud M.W.:9.2 - 10.1 ppg, Vis.: 35-50 sec, W.L.: 15cc or less

Sufficient mud materials to maintain mud properties, control lost circulation and to contain "kick" will be available at wellsite.

* "Blooie" pit to be located at least 100' from well adjacent to the reserve pit. Auto ignitor and deduster equipment to be standard for the area.

** A "closed" mud system is proposed for drilling with oil based mud. Oil based fluids will be removed from the solids to the extent possible prior to placing them in the invert reserve pit. It is anticipated that oil based fluids will be reduced to 15% or less by volume with the solids control system to be utilized.

AUXILIARY EQUIPMENT

A) Upper kelly cock and lower kelly cock to be used in drill string.
B) Inside B.O.P. and stab-in valve (available on rig floor). Float valve to used in the drill string during air/air mist drilling.
C) Mud monitoring will be with a flowing sensor, pit level indicator, and visually observed.

A) LOGGING, CORING, TESTING PROGRAM

Logging: IL-GR: TD to BSC (GR to surface)
CNL-FDC-GR: TD to 10,600'
Sonic-GR : TD to BSC

B) Coring: None Anticipated

C) Testing: No DST's are anticipated, however, drill stem tests may be run on shows of interest.

ABNORMAL CONDITIONS

A) Pressures: No abnormal conditions are anticipated
Barker Creek/Leadville pressure gradient - 0.53 psi/ft (based on offset well data.) All offset wells were drilled through this interval with salt saturated mud (10.6-11.2 ppg), mud weights were based on salt saturation rather than a need for well control.

B) Temperatures: No abnormal conditions are anticipated. Bottomhole temperature anticipated to be $\pm 305^{\circ}$ at 16,000'

C) H_2S: H_2S and CO_2 are anticipated below the top of the Porous Dolomite at 12,600'. H_2S safety equipment will be in place on location prior to that point. An H_2S Contingency Plan is being prepared by Oilind Safety and will submitted separately.

D) Estimated bottomhole pressure: 8,480 psi

ANTICIPATED START DATE

December 16, 1996

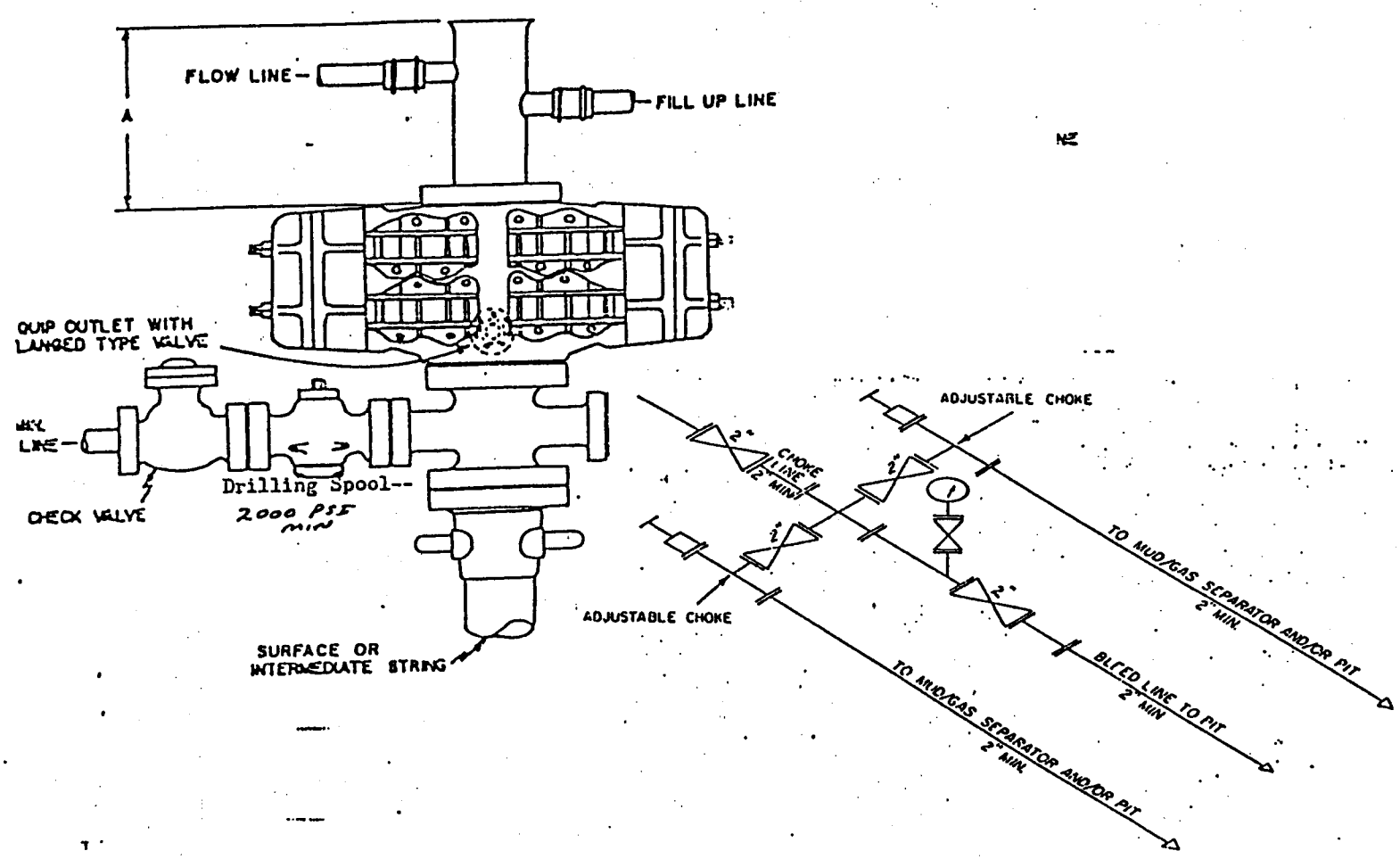
COMPLETION

The location pad will be of sufficient size to accommodate all completion activities and equipment. A Sundry Notice will be submitted with a completion program if the well is cased.

2 M BOP & CHOKE SYSTEM

ANNULAR PREVENTOR MAY BE SUBSTITUTED FOR DOUBLE GATE PREVENTORS

DIVERTER WILL BE USED ABOVE ANNULAR PREVENTER FOR AIR/AIR-MIST DRILLING



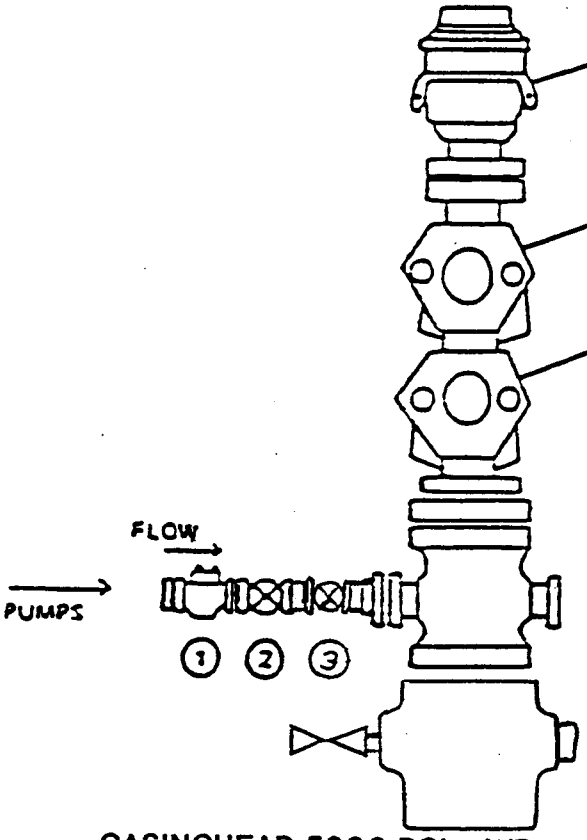
2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

BLOWOUT PREVENTER

MINIMUM BOP Requirements

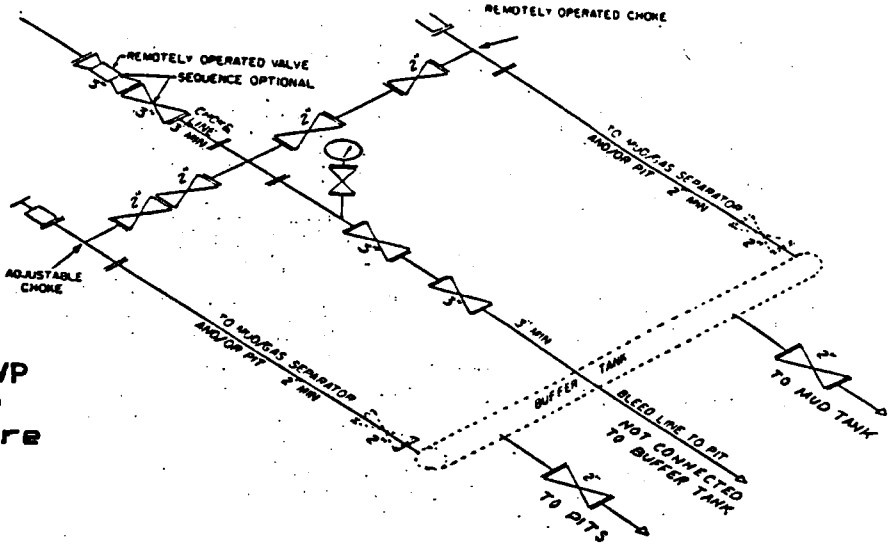
5000 PSI

FILL LINE ABOVE THE UPPERMOST PREVENTER



CSG HEAD AND VALVES
5000 PSI W.P.

CASINGHEAD 5000 PSI - WP



KILL LINE 5,000 PSI - WP

Valve #1 - Flanged check valve
Full working pressure of BOP

Valve #2-3 Flanged, minimum 2" bore
Full working pressure of BOP

5M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

GENERAL RULES AND RECOMMENDATIONS

All lines to manifold are to be at right angles (90 deg.). No 45 deg. angles are to be used.
Blind flanges are to be used for blanking.
All studs and nuts are to be installed on all flanges.
Choke manifold may be screwed connections down stream of choke.

GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
(NW/4 NE/4)
92' FNL 2,320' FEL Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

SURFACE USE PLAN

WELL LOCATION AND INTRODUCTION:

The proposed location is 92' FNL 2,320' FEL of Sec. 20. The wellsite was surveyed and staked on October 14, 1996, by Gerald Huddleston, Surveyor, on a site that was legally, geologically, and topographically acceptable at 92' FNL 2,320' FEL. An on-site meeting was held on October 15, 1996. Attending were Rich McClure - B.L.M., Jim Boulden - Boulden Construction and David Banko - Agent for GCRL Energy, Ltd.
* Specific stipulations arising from the on-site meeting are shown as starred.

DIRECTIONS TO LOCATION:

From Moab, Utah, travel northwest 30 miles to Crescent Junction, then east 5.2 miles on the County Highway (North of I-70), northwest 0.6 mile to location.

1) EXISTING ROADS

A) The well is an Exploratory well.
B) Existing roads within 2 mile - Paved county road 0.6 mile south of location. Two track trail to the edge of location.
* C) Plans for improvement and/or maintenance of existing roads are to maintain in as good or better conditions than at present. Grand County may require bypasses to be constructed around certain bridges that have weight restrictions. The two track trail will be discussed in "Planned Access" below.

2) PLANNED ACCESS ROADS - 0.6 miles new construction (on lease)

* A) Subgrade (Running surface) width to be approximately 16'-18', total disturbed width to be 45'-50'.
B) Borrow ditches to be backsloped 3:1 or shallower.
C) Maximum grades - 2% for 400'.
* D) Drainage to consist of borrow ditches on both sides. Low water crossings will be used during drilling, as conditions dictate, and upon completion, crossings will be upgraded w/corrugated metal pipes and/or gravel bottomed low water crossings, if necessary. Culvert sizes to be a minimum of 18" diameter.
2 gravel bottom crossings will be constructed in existing natural drainages. 2 - 18" X 50' culverts will be installed in those drainages if conditions warrant.
* E) Surfacing material to consist of native material from borrow ditches, topsoil will be buried in road crown. Gravel surfacing will be applied prior to commencing drilling operations. Gravel will be obtained from permitted commercial sources.
F) No major road cuts are necessary.
* G) Fence cuts, gates and cattleguards will not be required. A main railroad line will be crossed to access location. The Southern Pacific Railroad will be contacted prior to commencing operations. Two above ground electric power lines cross the proposed access. The height clearance appears to be adequate, however, Utah Power and Light will be contacted prior to commencing operations.
* H) An alternate exit off of location will be constructed on the northwest edge of location to connect with the proposed access as an H_2S emergency exit.

2) PLANNED ACCESS ROADS - (con't)

* I) Surface disturbance and vehicular travel will be limited to the approved location and access road. Any additional area needed must be approved by the area manager in advance.

* J) If a right-of-way is necessary, no surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The holder will adhere to conditions of approval of the Surface Use Program of the approved APD, relevant to any right-of-way facilities.

* K) If a right-of-way is secured, boundary adjustments in the lease or unit shall automatically amend the right-of-way to include the portion of the facility no longer contained within the lease or unit. In the event of an automatic amendment to this right-of-way grant, the prior on lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.

* L) If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligations determined by the authorized officer.

* M) If the well is productive, the access road will be rehabilitated or brought to Resource (Class III) Road Standards within 60 days of dismantling the rig. If upgraded, the access road must be maintained at these standards until the well is properly abandoned. If this time frame cannot be met, the Area Manager will be notified so that temporary drainage control can be installed along the access road.

3) LOCATION OF EXISTING WELLS

Within a 2-mile radius

Drilling	None	
Abandoned -	T21S R20E	Sec. 16: NE/4NE/4
		Sec. 17: SE/4SW/4 & SW/4NW/4
		Sec. 18: NW/4SE/4
Proposed -	None	
Disposal injection -	None	
Shut-In -	None	
Producing -	None	
		Sec. 14: NE/4

4) LOCATION OF EXISTING PRODUCING FACILITIES OPERATED BY *GCRL Energy, Ltd.*

Within two miles: None

NEW PRODUCTION FACILITIES PROPOSED

* A) Facilities to be constructed on location will be applied for separately. Production equipment will be placed away from edge of "fill."

* B) Dimension of Proposed Facility is approximately 300' x 200'. Pad size will be reduced to minimum size necessary to conduct safe operations cuts and fills will be reduced to 2:1 or shallower.

C) Site preparation for production will be done with standard excavation equipment using native materials. Additional surface material will be obtained from commercial sources or an approved borrow area.

NEW PRODUCTION FACILITIES PROPOSED (con't)

* D) All above ground permanent structures including production equipment will be painted to blend with the surrounding landscape. The color specified is given with the Munsell Color Reference Number as agreed to with BLM. Efforts will be made to chose environmental colors which are as light reflective as possible to limit evaporation and waste of liquid hydrocarbons.

* E) Production facilities may vary according to actual reservoir discovered and will be engineered upon completion of well tests.

* If well is a producer, all production facilities will be authorized by Sundry Notice.

F) All pits will be fenced on all sides.

G) No facilities will be constructed off location.

H) Rehabilitation of unneeded, previously disturbed areas will consist of backfilling and contouring the reserve pit area, back sloping and contouring all cut and fill slopes. These areas will be re-seeded. Refer to plans for restoration of surface for additional details.

I) Pits which contain oil will be overhead flagged.

* J) All site security guidelines identified in 43 CFR 3162.7-5 and Onshore Order No.3 shall be followed.

* K) If a gas meter is constructed, it will be located on lease within 500' of the wellhead. The gas flowline will be buried form the wellhead to the meter and will be buried downstream of the meter until it leaves the wellpad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR 3162.7-3, Onshore Oil & Gas Order No. 5 and American Gas Association (AGA) Report No. 3.

* L) If a tank battery is constructed on this lease, it will be surrounded by a berm of sufficient capacity to contain 1 1/2 times the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All oil production and measurement shall conform to the provisions of 43 CFR 3162.7-3 and Onshore Oil & Gas Order No. 4.

* M) Production facilities on location may include a lined or unlined water pit as specified in NTL-2B. If water is produced from the well, an NTL-2B application must be submitted.

5) LOCATION OF WATER SUPPLY

Water will purchased from the town of Thompson Spring and be transported by truck. Alternatively, a surface pipeline with no surface disturbance may be placed alongside of the access road.

6) SOURCE OF CONSTRUCTION MATERIALS

A) Construction materials will consist of native materials from borrow ditches and location areas.

B) Surfacing materials will be obtained from available permitted sources and consist of pit gravel.

7) WASTE DISPOSAL

A) Drill cuttings will be buried in reserve pit. Two pits will be used, one for fresh water mud and a second pit for oil based mud.

B) Fresh water drilling fluids will be evaporated then buried in the reserve pit when dry. Oil based fluids will be removed from drill cuttings to the maximum extent possible, then the cuttings solidified and buried in a separate pit.

C) Produced fluid will be contained in test tanks during completion and testing.

* D) Sewage disposal facilities will be in accordance with State and Local Regulations. Sewage will not be buried on location or put in a borehole. Chemical toilets and/or holding tanks will be utilized and the contents hauled to an approved disposal site.

* E) Garbage and other waste - burnable waste will be contained in a portable trash cage which will be totally enclosed with small mesh wire. Cage and contents will be transported to an trash dumped at a D.E.Q. approved Sanitary Landfill upon completion of operations.

F) Trash will be picked up if scattered and contained in trash cage as soon as practical after rig is moved off.

G) Reserve pit will be fenced "stock tight" on three sides during drilling operations, and on fourth side at time of rig release. Pit will remain fenced until backfilled.

H) Upon release of the drilling rig, rathole and mousehole will be filled. Debris and excess equipment will be removed.

8) ANCILLARY FACILITIES

No ancillary facilities will be necessary.

9) * WELLSITE LAYOUT

A) See attached drillsite plat and cut/fill diagram.

* B) Fresh water reserve pit will be unlined. The oil mud reserve pit will be lined with a pit liner 12 mil or thicker.

* C) A liner and spill containment dike will be used to prevent soil contamination by oil based mud at the rig and steel mud pits.

* D) "Blooie" pit will be located adjacent to the reserve pit at least 100' from the wellbore. The "blooie" line outlet will have a diffuser.

10) SURFACE RESTORATION

* A) Topsoil will be removed prior to location construction from all disturbed areas that will be in "cut" and from the reserve pit area. Topsoil depth to be removed as stipulated by BLM.

* Topsoil Depth 6". Topsoil from fill areas will be not be removed but will be stockpiled with any excess material.

B) Backfilling, leveling and contouring are planned as soon as all pits have dried. Waste and spoils materials will be buried immediately after drilling is completed. If production is obtained, the unused area will be restored as soon as possible.

C) The soil banked material will be spread over the area. Revegetation will be accomplished by planting mixed grasses as per formula by BLM. Revegetation is recommended for road area as well as around drill pad.

D) The rehabilitation will begin after the drilling rig is removed. Removal of oil or other adverse substances will begin immediately or area will be flagged and fenced. Other cleanup will be done as needed. Planting and revegetation is considered best in Fall, unless requested otherwise.

E) A proposed seed mixture for this location is:
2#/acre PLS - Western Wheatgrass (Rosanna)
2#/acre PLS - Indian Rice Grass (Nexpar)
3#/acre PLS - Pubescent Wheatgrass (Luna)
1#/acre PLS - Fourwing saltbush (Wytana)
1#acre PLS - Crested Wheatgrass (Nordan)
1#/acre PLS - Russian Wildrye (Vinall)
10#/acre PLS - TOTAL

F) An above-ground tubular metal dry-hole marker will be erected over the drill-hole upon cessation of drilling and/or testing operations. The marker will be inscribed with the operator's name, well number, well location, and federal lease number. Upon request of the surface owner, the casing may be cut off three (3) feet below reclaimed ground surface (or below plow depth) with a metal plate affixed to the top providing the same well information as stated above. This must consist of a piece of pipe not less than four inches in diameter and ten feet in length, of which four feet shall be above the general ground level and the remainder being imbedded in cement. The top of the pipe must be closed by a welded or screw cap, cement or other means.

11) GENERAL INFORMATION

A) Project area is situated in the undulated uplands east of the Green River and north of the Colorado River.

B) Topographic and geologic features - low relief area, moderately drained, silt deposition, surrounded by cliffs and rolling uplands with highly eroded drainages.

C) Soil characteristics - clay.

D) Flora consists of Shadscale, Fourwing saltbush, Snakeweed, Rabbitbrush, Crested wheat, Russian thistle, Pricklypear cactus and Indian ricegrass.

E) Fauna - none observed, assume antelope, coyotes, rabbits, raptors, and rodents.

F) Concurrent surface use - grazing and hunting.

G) Mineral Lessor - Bureau of Land Management.

H) Surface Owner - Drillsite - Bureau of Land Management
- Access - Bureau of Land Management

I) Proximity of water, occupied dwellings or other features - Thompson Wash, an intermittent drainage - 1.0 miles east of location.

J) Archaeological, cultural and historical information has been submitted separately by 4 Corners Archaeology.

K) <u>Historic, Cultural, and Paleontological Resources</u>

The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within 5 working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;

- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,

- a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

K) Historic, Cultural, and Paleontological Resources
"The holder of this authorization shall immediately bring any paleontological resources or fossils discovered as a result of operations under this authorization to the attention of the authorized officer. The holder shall suspend all activities in the vicinity of such discovery until notified to proceed by the authorized officer. The authorized officer will evaluate, or will have evaluated, such discoveries not later than 5 working days after being notified, and will determine what action shall be taken with respect to such discoveries. The decision as to the appropriate measures to mitigate adverse effects to significant paleontological resources will be made by the authorized officer after consulting with the holder. The holder may be responsible for the cost of any investigations necessary for the evaluation, and for any mitigative measures."

12) LESSEE'S OR OPERATOR'S REPRESENTATIVE

Operator

GCRL Energy, Ltd.
P.O. Box 130
401 9th Ave. SW
Calgary, Alberta T2P 2H7
CANADA
(403) 233-4000 Office
(403) 233-3000 24 hr Emergency #

Barry McClure - Director of Drilling
Tim Wood - Drilling Engineer
Bill Rockney - Drlg. Superintendent
Garth Ternes - Health, Safety & Env. Mngr.

Agent

*Banko Petroleum Management, Inc.
1200 17th Street
Suite 2330
Denver, CO 80202

David F. Banko - Cons. Engr./Reg. Spec.
(303) 820-4480 - Phone
(303) 820-4124 - Fax

Keith Dana - Surface Use Specialist
(307) 362-5822

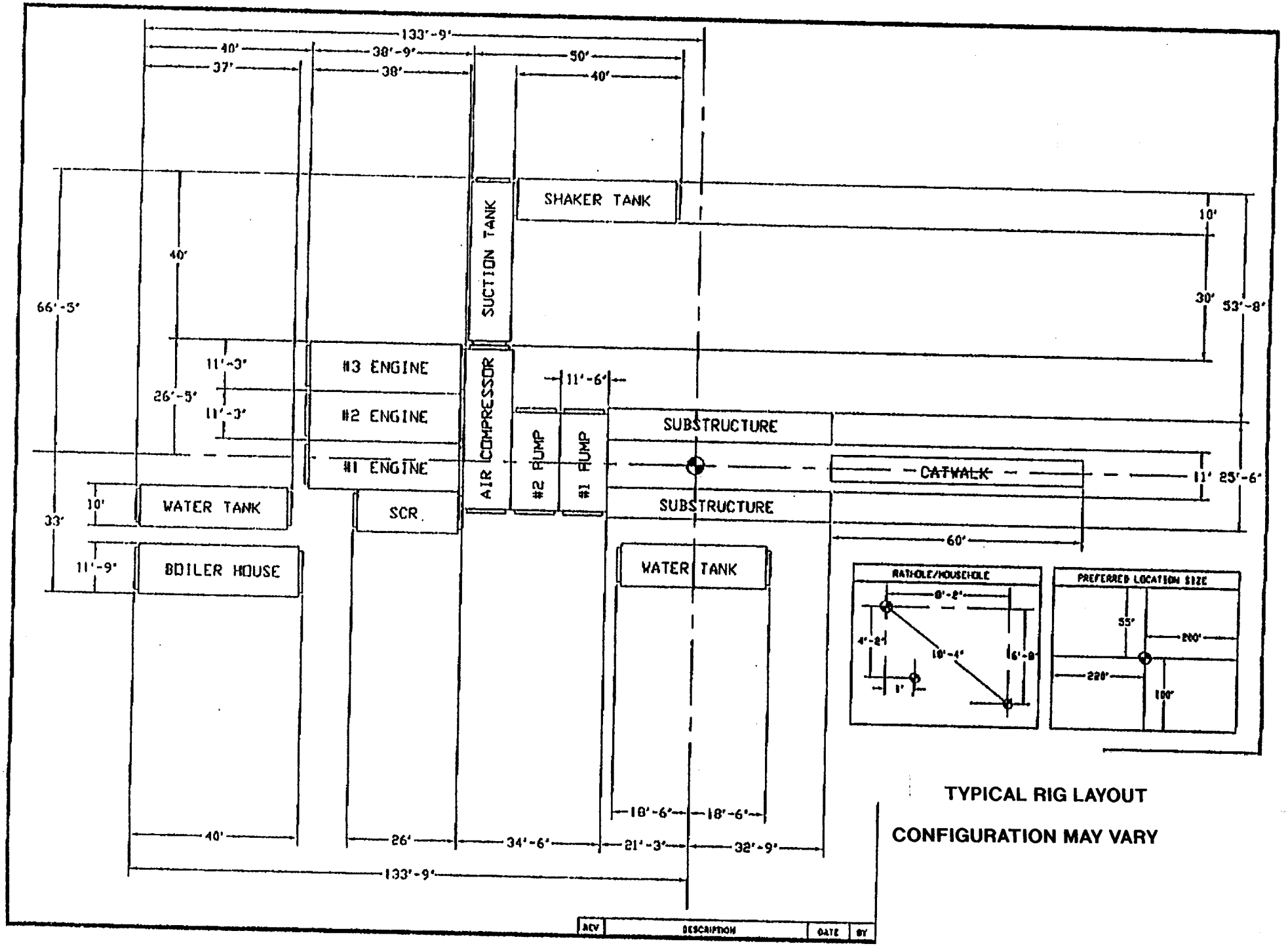
* Contact to arrange on-site meeting and for any questions or comments regarding this permit.

13) CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drillsite and access road; that I am familiar with the conditions which presently exist; that the statements made in this plan area, to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed by GCRL Energy, Ltd. and its contractors and sub-contractors in conformity with this plan and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application, with bond coverage being provided under a letter of credit as submitted to the BLM for nationwide bond coverage. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

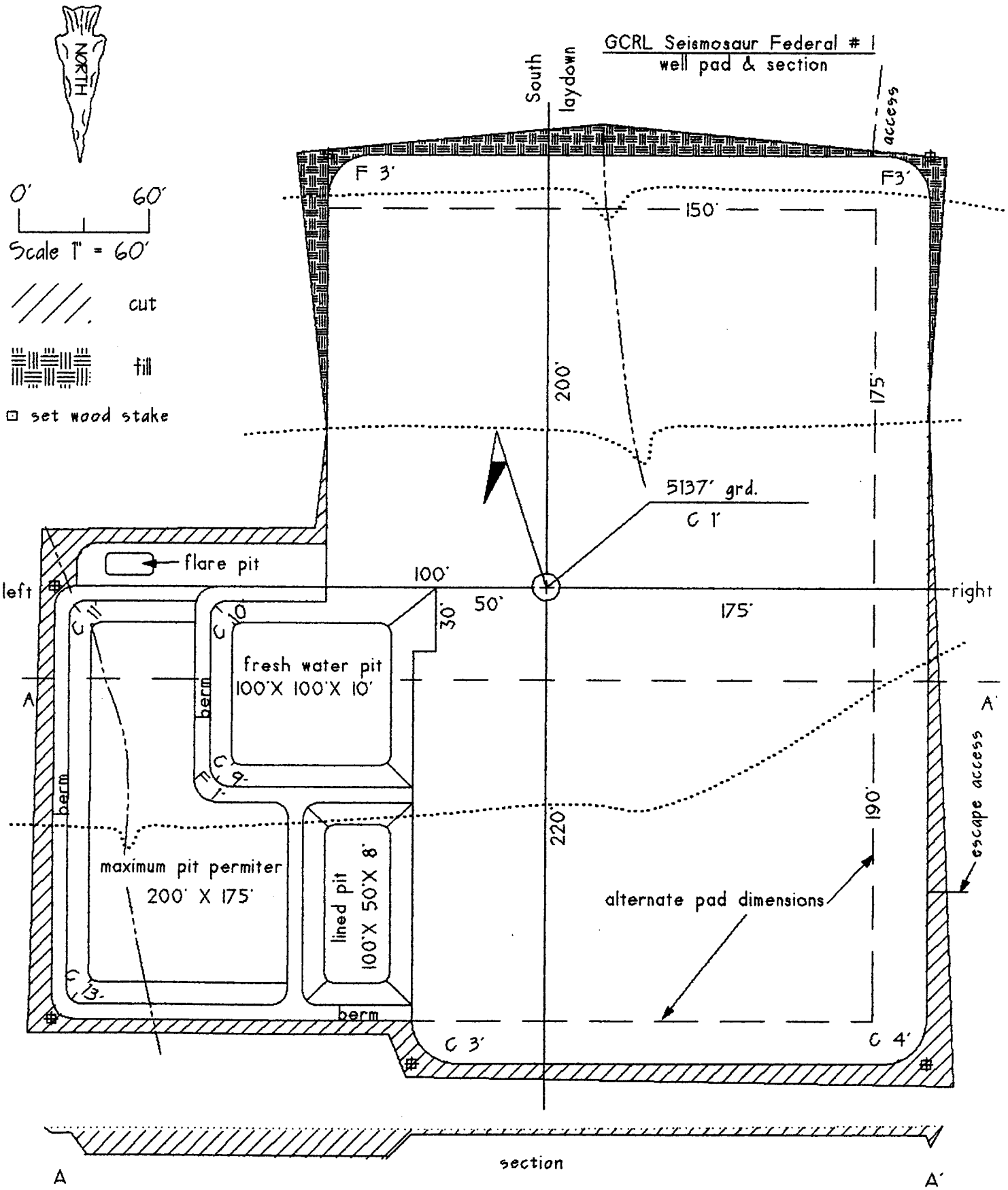
October 28, 1996

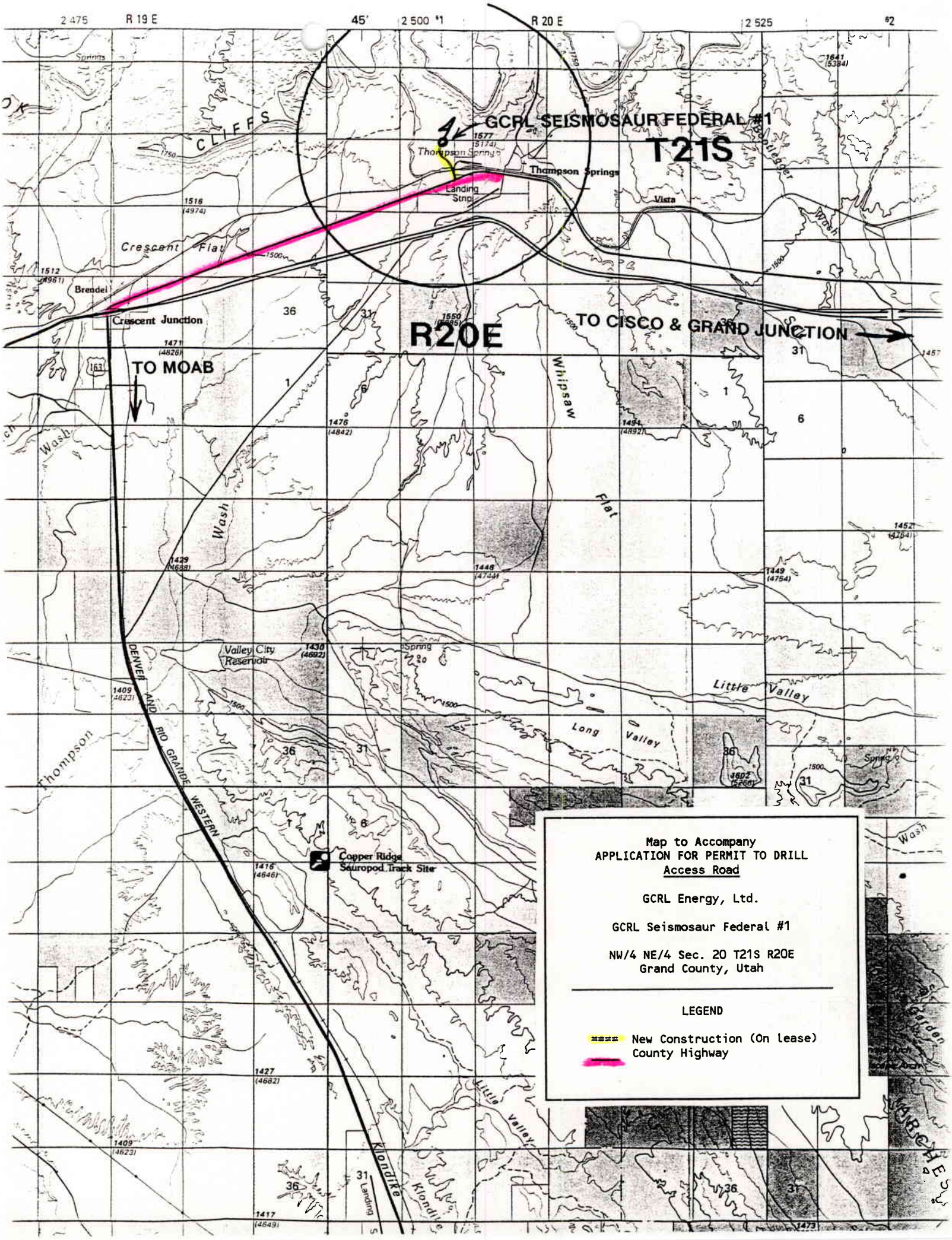
David F. Banko
Agent for GCRL Energy, Ltd.
Consulting Petroleum Engineer



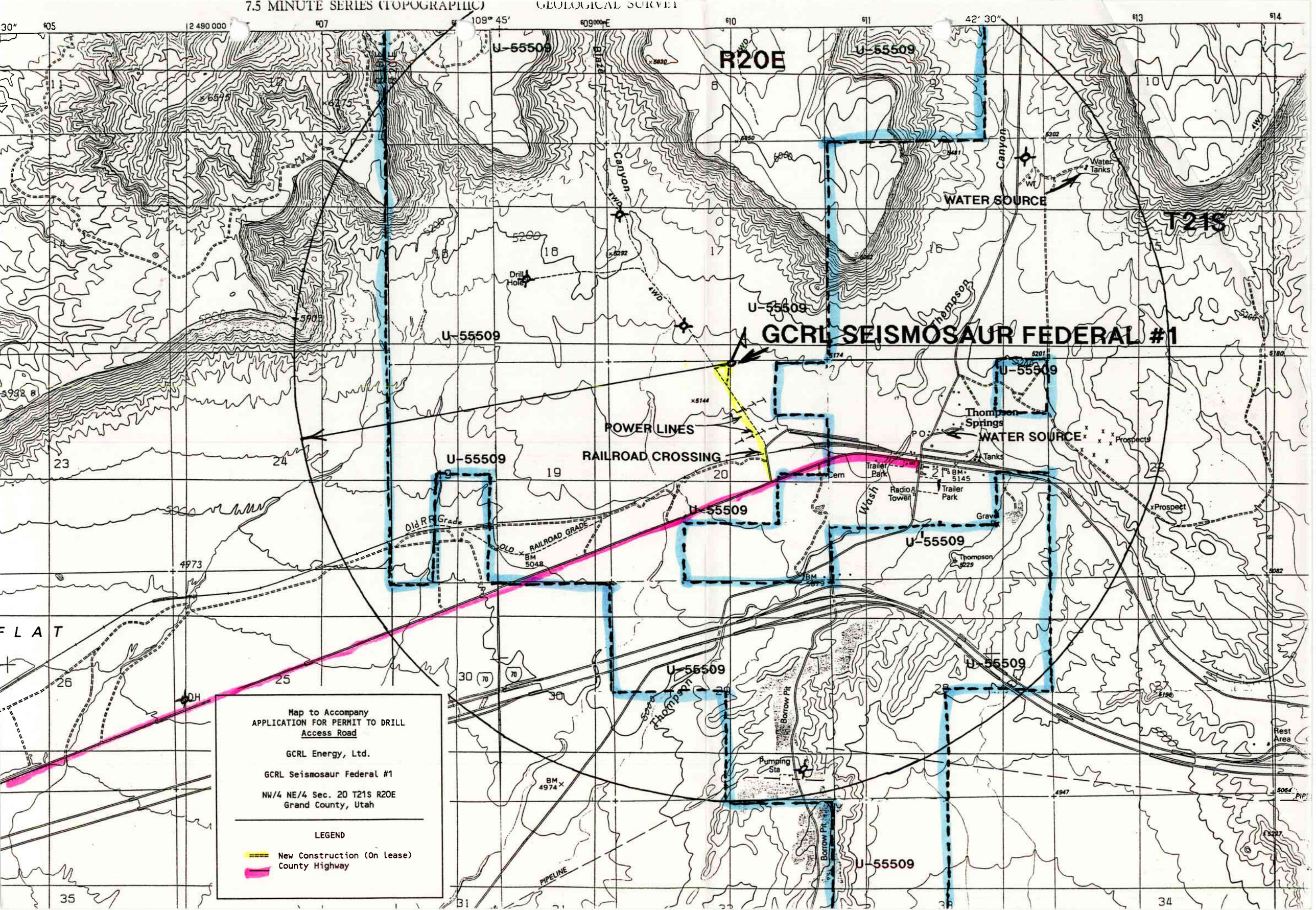
TYPICAL RIG LAYOUT

CONFIGURATION MAY VARY


GCRL Seismosaur Federal # 1
well pad & section
NORTH
0'
60'
Scale 1" = 60'
cut
till
set wood stake
South
laydown
access
F 3'
F3'
150'
200'
175'
5137' grd.
C 1'
flare pit
left
100'
50'
30'
175'
right
C 11'
C 10'
fresh water pit
100'X 100'X 10'
berm
A
A'
C 9'
F 1'
berm
220'
190'
escape access
maximum pit permiter
200' X 175'
lined pit
100'X 50'X 8'
alternate pad dimensions
C 13'
berm
C 3'
C 4'
section
A
A'



GCRL SEISMOSAUR FEDERAL #1
T21S
R20E
TO CISCO & GRAND JUNCTION
TO MOAB
Thompson Springs
Landing Strip
Vista
Crescent Flat
Brendel
Crescent Junction
Whipsaw Flat
Valley City Reservoir
Little Valley
Long Valley
Copper Ridge Sauropod Track Site
DENVER AND RIO GRANDE WESTERN
Klondike
Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
NW/4 NE/4 Sec. 20 T21S R20E
Grand County, Utah
LEGEND
New Construction (On lease)
County Highway


7.5 MINUTE SERIES (TOPOGRAPHIC)
GEOLOGICAL SURVEY
R20E
T21S
U-55509
GCRL SEISMOSAUR FEDERAL #1
WATER SOURCE
POWER LINES
RAILROAD CROSSING
Thompson Springs
Thompson Canyon
Blaze Canyon
Old R R Grade
OLD RAILROAD GRADE
Wash
Trailer Park
Radio Tower
Gravel Pit
Prospects
Prospect
Water Tanks
Drill Hole
Borrow Pit
Pumping Sta
Rest Area
PIPELINE
FLAT
Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
NW/4 NE/4 Sec. 20 T21S R20E
Grand County, Utah
LEGEND
New Construction (On lease)
County Highway

HYDROGEN SULFIDE CONTINGENCY PLAN

GULF CANADA
GCRL SEISMOSAUR FEDERAL #1
NW4 NE4, SECTION 20 T21S R20E
GRAND COUNTY, UTAH
OCTOBER 1996

92' FNL 2320' FEL

RECEIVED
NOV 01 1996
DIV. OF OIL, GAS & MINING

CHECKLIST FOR DRILLING OR WORKOVER IN H_2S ENVIRONMENT

* Items 1-4 to be shown on site layout diagram

1. Two Safe Briefing areas 200 feet from wellhead, arranged so that at least one area will always be upwind of the well at all times -- **Site Plan**

2. Direction of prevailing winds -- **Site Plan** *Note: Prevailing winds from north or south. Safety equipment in place for either condition.

3. Wind sock location (Minimum of 2) -- **Site Plan**

4. A secondary emergency escape route from the location (Flagged trail minimum) -- **Page 12 and Site Plan**

5. Number, types, and storage location of H_2S respirators for personnel, and number of personnel to be expected at any one time -- **Page 8 and Site Plan**

6. H_2S detector locations (should at least include cellar or bell nipple and mud tanks at shale shaker). Type and location of audible, visual alarm to be used -- **Page 11 and Site Plan**

7. H_2S evacuation and emergency training procedures and frequency -- **Pages 7, 8, 9 & 10**

8. Area residents within 3000 foot radius, and agencies to be notified in an emergency (Contingency plan)--**Page 20**

9. Necessary types and quantities of mud additives and scavengers will be available at location for H_2S operations

10. Design features and operational procedures will be implemented to protect the drill string, casing strings, wellhead, BOP's, choke lines and manifold and other well-killing equipment in H_2S environments.

11. Appropriate warning signs and flags on all access roads to location -- **Site Plan**

12. Provision for blocking or monitoring access to location during critical operations -- **Page 13**

13. Ventilation fan under rig floor -- **Page 13**

14. In event of an uncontrolled blowout, on-site personnel are authorized to ignite flow.--**Page 17**

15. Swabbing or drillstem testing of fluids containing H_2S should be through a separator to permit flaring of gas. Flare should have continuous pilot to ensure ignition of all such gas -- **Page 12**

16. H_2S Training: To begin 1000 feet and/or three days before H_2S zone. Rule 36: Compliance depth will be approximately 15,000 feet) -- **Page 9**

GENERAL

DESCRIPTION OF HYDROGEN SULFIDE GAS:

H_2S is a colorless gas which smells similar to rotten eggs in low concentrations. In large concentrations or over long periods of exposure, the sense of smell may be paralyzed. H_2S is extremely toxic gas that must be treated with extreme care to prevent injury to people. H_2S is heavier than air (specific gravity = 1.19) and on still days tends to accumulate in low places. This accumulation could build up and lead to dangerous concentrations. However, if the H_2S gas is warmer than air, it will tend to rise until cooled off and could affect workers above the escaping source.

TOXICITY

Hydrogen sulfide is extremely toxic (poisonous). It is almost as toxic as hydrogen cyanide. It produces irritation to the eyes, throat and respiratory tract. The sense of smell can be lost in 2-15 minutes in low concentrations due to paralysis of the olfactory nerve. The sense of smell can be lost in 60 seconds or less, at higher concentrations. Susceptibility to H_2S poisoning varies according to the number of exposures. The second exposure being more dangerous than the first.

The result of inhalation of H_2S may be strangulation in a few seconds of exposure to high H_2S concentrations. This produces symptoms such as panting, pallor, cramps, paralysis of the pupil, and loss of speech. This is generally followed by immediate loss of consciousness. Death may occur quickly from respiratory and cardiac paralysis. One deep sniff of high concentration can cause death. Coughing, eye burning and pain, throat irritation, and sleepiness come from exposure to low concentrations.

The two following chart list some of the toxic characteristics of H_2S.

(See following page)

TOXICITY OF HYDROGEN SULFIDE GAS

Part Per Million	Grains/100 Std. Cu. Ft.	
10 PPM = 1/1,000 of 1%	0.65	Can smell Safe for 8 hours exposure
100 PPM = 1/100 of 1%	6.48	Kills smell in 3-15 Minutes May sting eyes and throat
200 PPM = 2/100 of 1%	12.96	Kills smell shortly Sting eyes and throat
500 PPM = 5/100 of 1%	32.96	Loses sense of reasoning Respiratory paralysis in in 30-45 Minutes Needs prompt artificial resuscitation Will become unconscious quickly (15 min. max)
700 PPM = 7/100 of 1%	45.36	Breathing will stop, death will result if not rescued promptly Immediate artificial resuscitation
1,000 PPM = 1/10 of 1%	64.80	Unconscious at once PERMANENT BRAIN DAMAGE MAY RESULT UNLESS RESCUED PROMPTLY

ARTIFICIAL RESPIRATION

Recommended by the American National Red Cross

1

2

3

4

If victim is not breathing, some form of artificial respiration at once. Wipe out quickly any foreign matter visible in the mouth, using your finger or a cloth wrapped around your finger.

Mouth-to-Mouth(Mouth-to-Nose)Method

Tilt victim's head back (Fig. 1). Pull or push the jaw into a jutting-out position (Fig. 2).

If victim is a small child, place your mouth tightly over his mouth and nose and blow gently into his lungs about 20 times a minute. If victim is an adult (See Fig. 3), cover the mouth with your mouth, pinch his nostrils shut, and blow vigorously about 12 times a minute.

If unable to get air into lungs of victim, and if head and jaw positions are correct, suspect foreign matter in throat. To remove it, suspend a small child momentarily by the ankles or place child in position shown in Fig. 4, and slap sharply between shoulder blades.

If the victim is an adult, place in position shown in Fig. 5, and use same procedure.

5

H_2S FIRST AID PROCEDURES

TREATMENT

1. Victim should be removed to fresh air immediately by rescuers wearing respiratory protective equipment. Protect yourself while rescuing.

2. If the victim is not breathing, begin immediately to apply artificial respiration. (See page 6 for the chances for life after breathing has stopped.) If a resuscitator is available, let another employee get it and prepare for use.

3. Treat for shock, keep victim warm and comfortable.

4. Call a doctor. In all cases, victims of poisoning should be attended to by a physician.

TOXICITY OF HYDROGEN SULFIDE TO MEN

H2S% (PPM)**	0-2 Minutes	2-15 Minutes	15-20 Minutes	30 Minutes 1 Hour	1-4 Hours	4-8 Hours	8-48 Hours
0.005(50) 0.020(100)				Mild conjunctivitis: respiratory tract irritation			
0.10(100) 0.015(150)		Coughing: Irritation of eyes: loss of sense of smell.	Disturbed respiration: pain in eyes, sleepiness.	Throat irritation.	Salivation and mucous discharge: Sharp pain in eyes: coughing.	Increased symptoms*	Hemorrhaging and death.
0.015(150) 0.020(200)		Loss of sense of smell.	Throat and eye irritation.	Throat and eye irritation.	Difficult breathing: blurred vision light shy.	Serious irritation effects.	Hemorrhaging and death.
0.025(250) 0.035(350)	Irritation of eyes: loss of sense of smell.	Irritation of eyes.	Painful secretion of tears: weariness.	Light shy: nasal catarrh pain in eyes: difficult breathing.	Hemorrhaging and death.*		
0.035(350) 0.045(450)		Irritation of eyes: loss of sense of smell.	Difficult respiration coughing: irritation of eyes.	Increased irritation of eyes and nasal tract: dull pain in head: weariness: light shy.	Dizziness: weakness: increased irritation: death.	Death.*	
0.050(500) 0.060(600)	Coughing: collapse and unconscious-ness.	Respiratory disturbances: irritation of eyes: collapse.	Serious eye irritation: palpitation of heart: few causes of death.	Severe pain in eyes and head: dizziness: trembling of extremities: great weakness and death.			
0.060(600) 0.070(700) 0.080(800) 0.100(1000) 0.150(1500)	Collapse* unconscious-ness: death*	Collapse* unconsciousness: death*					

***Data secured from experiments of dogs which have a susceptibility similar to men.** ****PPM-parts per million**

DO YOU KNOW

THERE IS NO TIME TO WASTE WHEN BREATHING STOPS!

RESCUE BREATHING MUST BE STARTED FAST!

AFTER BREATHING HAS STOPPED FOR:	THE CHANCES FOR LIFE ARE:
1 Minute	98 out of 100
2 Minutes	92 out of 100
3 Minutes	72 out of 100
4 Minutes	50 out of 100
5 Minutes	25 out of 100*
6 Minutes	11 out of 100*
7 Minutes	8 out of 100*
8 Minutes	5 out of 100*
9 Minutes	2 out of 100*
10 Minutes	1 out of 100*
11 Minutes	1 out of 1000*
12 Minutes	1 out of 10000*

*Irreparable brain damage starts at about the fifth minute.

LEARN HOW TO USE LIFE SAVING EQUIPMENT!

HYDROGEN SULFIDE CONTINGENCY PLAN

GULF CANADA

This plan provides for personnel safety programs, precautionary measures, safety equipment and emergency procedures, and sets forth responsibilities and duties pertaining to drilling in a sour gas area.

To be effective, the plan requires the cooperation and effort of each person participating in the drilling of an H_2S well. Each person must know his responsibilities and duties in regard to normal drilling operations as well as emergency and safety procedures. He should thoroughly understand and be able to use with accuracy all safety equipment while performing his normal duties, if the circumstance should arise. He should therefore, familiarize himself with the location of all safety equipment and check to see that it is properly stored, easily accessible at all times, and routinely maintained.

It is the intention of Gulf Canada and the drilling contractor to make every effort to provide adequate safeguards against harm to persons on the rig and in the immediate vicinity from the effects of hydrogen sulfide, which may be released into the atmosphere under emergency conditions. However, the initiative rests with the suggestions of the individuals involved in the drilling of these wells are highly welcomed and act as a fundamental tool for providing the safest working conditions possible.

The drilling foreman is required to enforce these procedures. They are set up for your safety and the safety of all others.

PURPOSE

It is Gulf Canada's intent to provide a safe working place, not only for its employees, but also for those of other firms who are aiding in the drilling of this well.

There is a possibility of encountering toxic hydrogen sulfide gas. Safety procedures must be adhered to in order to protect all personnel connected with the operation, as well as people living within the area.

Gulf Canada's drilling foreman must enforce what may seem to be stringent requirements. This job will become easier by a careful study of the following pages and the use of COMMON SENSE.

OPERATING PROCEDURES

GENERAL

Before this H_2S contingency plan becomes operational, the drilling contractor's personnel, necessary service company personnel, and the operator's personnel shall be thoroughly trained in the use of breathing equipment*, emergency procedures, and H_2S procedures. Initial H_2S training shall be completed and all H_2S related safety equipment shall be installed, tested and operational when drilling reaches a depth of 1000 feet above, or three days, whichever is sooner, prior to penetrating the first zone containing or reasonably expected to contain H_2S. Gulf Canada shall keep a list of all personnel who have been through the special training programs on the drill site. This list shall be supplied by the safety company as personnel are trained.

* THROUGHOUT THIS CONTINGENCY PLAN, BREATHING APPARATUS SHALL BE UNDERSTOOD TO MEAN:

1) Self Contained Breathing Apparatus (Scott IIA or equivalent).

2) Scott Ska-Pak Airline -5 Min. Egress or equivalent.

The area within a 3000 foot radius will be checked and phone numbers of residents will be recorded--See emergency phone numbers, Page 20.

A list of emergency stations and phone numbers of company personnel to be contacted in case of an emergency will be posted at the following locations:

1) Gulf Canada's Drilling Foreman's trailer on the rig:

2) Drilling Contractor's Toolpusher Office.

All safety equipment and H_2S related hardware must be set up as required by Gulf Canada, such as location of briefing areas, breathing equipment, etc. All safety equipment must be inspected periodically with particular attention to resuscitators and breathing air facilities.

All personnel on the drill site will be assigned breathing apparatus and if needed, personal detection devices. Operator and drilling contractor personnel required to work in the following areas will be provided with breathing equipment connected to a cascade air supply:

A. Rig Floor
B. Mud Pit
C. Derrick
D. Shale Shaker
E. Mud Hopper and Bulk Hopper
F. Any hazardous location will be accessible by hose & work pack

All service companies to be used on the drill site will be notified of the potential hazard and will furnish safety equipment for their personnel. No service company employee will be allowed to work on the drill site without having breathing equipment and training.

The Oilind Safety advisor will be responsible for installing the H_2S continuous gas monitor detection system. In the event that H_2S is detected, or when drilling in a zone containing H_2S, the units will be tested at least once every 12 hours. This monitor will be maintained and tested as required by the Oilind advisor.

DRILLS

Drills will be held as often as necessary to acquaint the crews and service company personnel with their responsibilities and the proper procedures to shut-in a well. After Gulf Canada's drilling foreman is satisfied with drill procedures, a drill be conducted weekly for all personnel in each working crew. The initial training session shall include a review of the drilling operations plan.

An Oilind Safety advisor will be on duty when drilling begins or as otherwise deemed necessary. He will conduct safety talks and instructions of the drilling foreman. All personnel allowed on the drill site during drilling or testing operations will be instructed in the use of breathing equipment until supervisory personnel are satisfied that they are capable of using it.

After familiarization, each rig crew should perform a drill with breathing equipment. The drill should include getting the breathing equipment, putting it on, and a short work period. A record shall be kept of the crew members drilled and the date of the drill in the driller's log or equivalent.

Proper protective breathing apparatus shall be readily accessible to all essential personnel. Escape and pressure-demand type working equipment shall be provided for essential personnel in the H_2S environment to maintain or regain control of the well. Rig crews and service company personnel shall be made aware of the location of spare air bottles, the resuscitation equipment, portable fire extinguishers, and H_2S detectors. Knowledge of the location of the H_2S monitor is vital in determining a sour gas location and the severity of the emergency situation. In addition, key personnel shall be trained in the use of a resuscitator.

Personal H_2S detection devices shall be available for use by all working personnel. After H_2S has been initially detected by any device, periodic inspections of areas of poor ventilation shall be made with a portable H_2S detection instrument.

PROCEDURE PROGRAM

SAFETY PROGRAM

A. DRILL SITE

1. The drilling rig should be located to allow prevailing winds to blow across the rig toward the reserve pit.

2. Two briefing areas shall be designated for assemble of personnel during emergency conditions. The briefing areas will be located a minimum of 150 feet from the well bore and one of the briefing areas shall be upwind of the well at all times. The briefing area located most normally upwind shall be designated as the "Primary Briefing Area." Personnel will assemble at the most upwind station under alarm conditions, or when so ordered by Gulf Canada's Foreman or the Oilind Safety advisor.

   Windsocks shall be installed at prominent locations and shall be visible from all principal working area at all times so that wind direction can be easily determined.

3. Warning signs will be posted on the access road to the location. "No Smoking" signs will be posted as well. The condition sign shall be placed a minimum of 200 feet but no more than 500 feet from the well site. When H_2S is detected in excess of 10 PPM at any detection point, a red flag shall be displayed.

4. Swabbing or drillstem testing fluids containing H_2S will flow through a separator to permit flaring of gas. There will be a pilot light for any possible flared gas.

5. One multi-channel automatic H_2S monitor will be provided by Oilind Safety and the detector heads will be at the shale shaker, bell nipple, rig floor, and other hazardous areas. The $_{H2}S$ continuous monitor system shall automatically activate visible and audible alarms when the ambient air concentration H_2S reaches the threshold limits of 10 and 20 PPM in air, respectively. Should the alarm be shut off to silence the siren, the blinker light must continue to warn of H_2S presence. The safety representative will continuously monitor the detectors and will reactivate the alarm, if H_2S concentrations increase to a dangerous level.

6. An escape road should be provided which is to be used only in an emergency.

7. Explosion proof electric fans (bug blowers) will be positioned to insure adequate circulation at all critical locations if necessary.

8. If available, commercial telephone service will be provided.

9. Road barricades will be used if necessary to block access to the location at all entrances at a safe distance from the well site. Under critical drilling and testing operations, gate guards will be used.

B. GENERAL

1. Gulf Canada's drilling foreman, residing at the well site, will have complete charge of the rig operation and will take whatever action is deemed necessary to insure personnel safety to protect the well, and to prevent property damage.

2. An Oilind Safety advisor should be on location at all times when drilling at the depth H2S may be expected.

Gulf Canada's H_2S EMERGENCY PROCEDURES

OCCURRENCE:

Light and siren are activated by H_2S release.

PRIMARY PROCEDURE

All rig crew personnel and all auxiliary personnel are to **IMMEDIATELY** go to the nearest respiratory equipment and **MASK UP!**

Rig crew should preferentially mask-up with work packs if feasible. ALL auxiliary personnel are to immediately proceed to upwind briefing area. When H_2S is detected in excess of 10 PPM at any detection point, all non-essential personnel shall be moved to a safe area. ALL essential personnel necessary to maintain control of the well shall immediately mask up with protective breathing apparatus.

SECONDARY PROCEDURE

A. SUPERVISORY PERSONNEL

1. Gulf Canada's FOREMAN

   a. Proceed to cascade trailer and check for safe operation of cascade system.

   b. Proceed to upwind briefing area and consult with wardens to insure all personnel area safe and accounted for.*

   c. Proceed to drilling floor to supervise operations.

*NOTE: If auxiliary personnel are not accounted for, institute an appropriate search utilizing one of the wardens and a volunteer.

2. Toolpusher:

   a. Check to see if Gulf Canada's Foreman is checking cascade trailer if Gulf Canada's Foreman is NOT checking trailer, then check it yourself to insure safe operation.

   b. Proceed to drilling floor to supervise rig crew and aid driller. Insure all crew members are accounted for and institute a "buddy system" if necessary.

B. RIG PERSONNEL

1. Driller:

a. If drilling:

1. Proceed to console and raise kelly to slip-set position.

2. Shut down the mud pumps.

3. Monitor well flow-remain at console.

4. Use hand signals to determine if all personnel are at stations (including company man and tool pusher). Initiate search using "buddy system" if well is not flowing.

b. If tripping:

1. Put pipe in the slip-set position.

2. Stab the safety valve. Close the valve.

3. Monitor well flow-remain at console.

4. Watch derrickman descend from derrick and determine whereabouts of all hands, including company man and toolpusher. Initiate search using "buddy system" if well is not flowing.

c. If well is flowing:

1. Shut well in HARD.

2. Determine whereabouts of all hands and company man and toolpusher. Initiate search using "buddy system" if necessary.

3. Obtain necessary pressures for well control.

4. Proceed to upwind briefing area to plan well control operations with supervisors and crew.

2. Derrickman:

a. Go to the pit-side window on the floor whether drilling or tripping (descend derrick).

b. Maintain visual contact with the driller and monitor flow.

c. If mud properties are needed, then proceed to shaker utilizing the "buddy system".

d. Monitor hands on pit-side of rig visually.

e. Proceed to open manual well-head valve on "buddy system" if so ordered.

3. Motorman:

a. Go to the accumulator house/cascade trailer site and check the cascade trailer for proper operation.

b. Maintain visual contact with chain hand at doghouse side of floor.

4. Chainhand:

a. Stab the safety valve if tripping.

b. Go to the doghouse/piperack door on floor and maintain visual contact with the driller and the motorman.

5. Floorman:

a. Stab the safety valve if tripping.

b. Assist the driller and maintain visual contact with the driller, derrickman, and chainhand as necessary.

C. Auxiliary Personal:

1. Gulf Canada's geologist and the mud engineer are the designated wardens. They are responsible for accounting for ALL auxiliary personnel on location.

2. ALL auxiliary personnel are to REMAIN at the upwind briefing area and obey the directions of the wardens.

3. The wardens are to organize, with the company mans' concurrence, such personnel searches, using the "buddy system", as are necessary. The geologist warden should remain at the briefing area. The mud engineer warden and a volunteer should conduct necessary searches.

IGNITING THE WELL

A. RESPONSIBILITY

1. The decision to ignite the well is the responsibility of Gulf Canada's drilling foreman. In his absence or incapacity, the contractor's toolpusher will assume his responsibilities. In their absence or incapacity, the contract driller will be in charge.

2. The decision to ignite the well is to me made as a last resort when it is clear that . . . . . .

   A. There is a definite threat to human life and property.

   B. There is no hope of containing the well under prevailing conditions.

   C. Time and circumstances permitting, an attempt should be made to notify the area office. If human life is threatened, the decision must not be delayed.

C. INSTRUCTIONS FOR IGNITING THE WELL

1. Two people are required for the actual igniting operation. Both men will wear self-contained breathing units and will have 200 foot retrieval ropes tied around their waists. One man is responsible for checking the atmosphere for explosive gases with an explosion meter. The other is assigned special duties within the "Safe Briefing Area". Those in the "Safe Briefing Area", will be alert to the need of the two men assigned to ignite the well. Should either of these men be overcome by fumes, they will immediately pull him to safety by the retrieval ropes.

2. The primary method for igniting the well is a 25mm meteortype flare gun. It has a range of approximately 500 feet. If this method fails or well conditions are such that a safer or better method is apparent, then the alternate should be used.

3. If the well is ignited, the burning hydrogen sulfide will be converted to sulfur dioxide which is also poisonous. Therefore, DO NOT ASSUME THAT THE AREA IS SAFE AFTER THE GAS IS IGNITED. CONTINUE TO OBSERVE EMERGENCY PROCEDURES AND FOLLOW THE INSTRUCTIONS OF SUPERVISORS.

SAFETY EQUIPMENT TO BE PROVIDED

1	Safety trailer with cascade system of 10/300 cuft. bottles of compressed breathing air complete with high pressure manifolds.
6	45 cuft. self-contained breathing apparatus (SCOTT).
5	Airline breathing apparatus complete with 7 cuft. egress cylinders.
2	300 cuft. bottles for one briefing area with refill equipment for 30-minute bottles.
1	H_2S pump type detector (Draeger).
2	Wind socks.
1	Flare gun with cartridges.
1	Stretcher.
1	First Aid Kit.
*	H_2S warning signs-briefing area signs.
1	4'x4' condition warning signs with warning flags.
1	Three channel continuous H_2S monitor c/w sensing heads and cables.
1	Siren-Explosion Proof.
1	Warning light-Explosion Proof.
1	Resuscitator.

MAXIMUM NUMBER OF PEOPLE 11 AT ANY ONE TIME.

EMERGENCY PHONE NUMBERS

Gulf Canada
P.O. Box 130
Calgary, Alberta, Canada
T2P 2H7
(403) 660-3902

COMPANY PERSONNEL TO BE NOTIFIED IN CASE OF EMERGENCY:

Bill Rockney	Superintendent	(403) 233-3460
Peter Pandachuck	Alternate Superintendent	(403) 233-3212
Barry McClure	Director	(403) 233-3619
Tim Wood	Engineer	(403) 233-3902

OILIND SAFETY

Denver, Colorado

Bill Myers
Gary Rasmussen

(303) 399-3319
24 Hour Service

Worland, Wyoming

Fred Frandson
Scott Poulos

(307) 347-4293
24 Hour Service

EMERGENCY NUMBERS

Grand County, Utah

Sherriff	(801) 259-8115
Ambulance	(801) 259-7191
Fire	(801) 259-5557
Veterinarian	(801) 259-8710

GOVERNMENT AGENCIES TO BE NOTIFIED IN CASE OF EMERGENCY:

National Response Center	(800) 424-8802
EPA Region VIII	(303) 837-3880
U.S. Forest Service	(801) 259-7155
Utah Highway Patrol	(801) 637-0893
Utah State Department Of Health	(801) 259-5602

AREA RESIDENTS

There Are No Area Residents Within A 3000 Foot Radius.

NOTES

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 10/30/96

API NO. ASSIGNED: 43-019-31357

WELL NAME: GCRL SEISMOSAUR FEDERAL #1
OPERATOR: GCRL ENERGY LTD (N5080)

PROPOSED LOCATION:
NWNE 20 - T21S - R20E
SURFACE: 0092-FNL-2320-FEL
BOTTOM: 0092-FNL-2320-FLE
GRAND COUNTY
WILDCAT FIELD (001)

LEASE TYPE: FED
LEASE NUMBER: U - 55509

PROPOSED PRODUCING FORMATION: LDLL

INSPECT LOCATION BY: / /		
TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

RECEIVED AND/OR REVIEWED:

✓ Plat
✓ Bond: Federal [✓] State [] Fee []
(Number _____)
N Potash (Y/N)
N Oil shale (Y/N)
✓ Water permit
(Number _____)
✓ RDCC Review (Y/N)
(Date: _____)

LOCATION AND SITING:

___ R649-2-3. Unit: _____

___ R649-3-2. General.

✓ R649-3-3. Exception.

___ Drilling Unit.
Board Cause no: _____
Date: _____

COMMENTS: _____

STIPULATIONS: _____

BANKO
PETROLEUM
MANAGEMENT INC.

Mr. Mike Hebertson
State of Utah - Department of Natural Resources
Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, UT 84114-5801

November 1, 1996

RE: Well Spacing Exception
Application for Permit to Drill
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
92' FNL 2,320' FEL (NW/4 NE/4)
Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

RECEIVED
NOV 0 4 1996
DIV. OF OIL, GAS & MINING

Dear Mr. Hebertson:

Per our telephone discussion, enclosed please find a letter and map from GCRL Energy, Ltd. which explains the need for an Exception to Rule R649-3-2(Location and Siting of Wells) for the above captioned well. The well location is 92' south of the north section line of Section 20, however, the lease is contiguous into Section 17 and is held by GCRL Energy, Ltd. The well location is greater than 460' from all lease boundaries as shown on the enclosed map.

As stated in the attached letter, the need for the location as proposed is based on seismic control.

If there are any questions or additional requirements, please immediately contact Barry McClure at GCRL Energy, Ltd. (403) 233-4000 or the permit agent, David F. Banko at (303) 820-4480 ext. 12, fax (303) 820-4124. Your early approval of this permit is greatly appreciated, thank you for your concern.

Very truly yours,

David F. Banko
Agent for GCRL Energy, Ltd.

DFB:jb

Enclosure

cc: Bureau of Land Management - Moab District
GCRL Energy, Ltd.

1200 17th Street • Suite 2330 • Denver, CO 80202-5823 • USA • 303 820-4480 • Fax 303 820-4124

GCRL

ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

David F. Banko, P.E.
Principal - Petroleum Engineer

BANKO PETROLEUM MANAGEMENT

1200 17th St. • Suite 2330
Denver, CO 80202-5823 • USA
303 820-4480 • Fax 303 820-4124

Bureau of Land Management
82 East Dogwood
Moab, Utah 84532

RECEIVED
NOV 04 1996
DIV. OF OIL, GAS & MINING

Attn: Mr. Eric Jones

Re: Exception Location Application #1 GCRL Seismosaur
Sec. 20, T21S R20E
Grand Co., Utah

Dear Sir:

In support of the exception location application for GCRL Seismosaur #1 please find enclosed a seismic location map with the annotated well location.

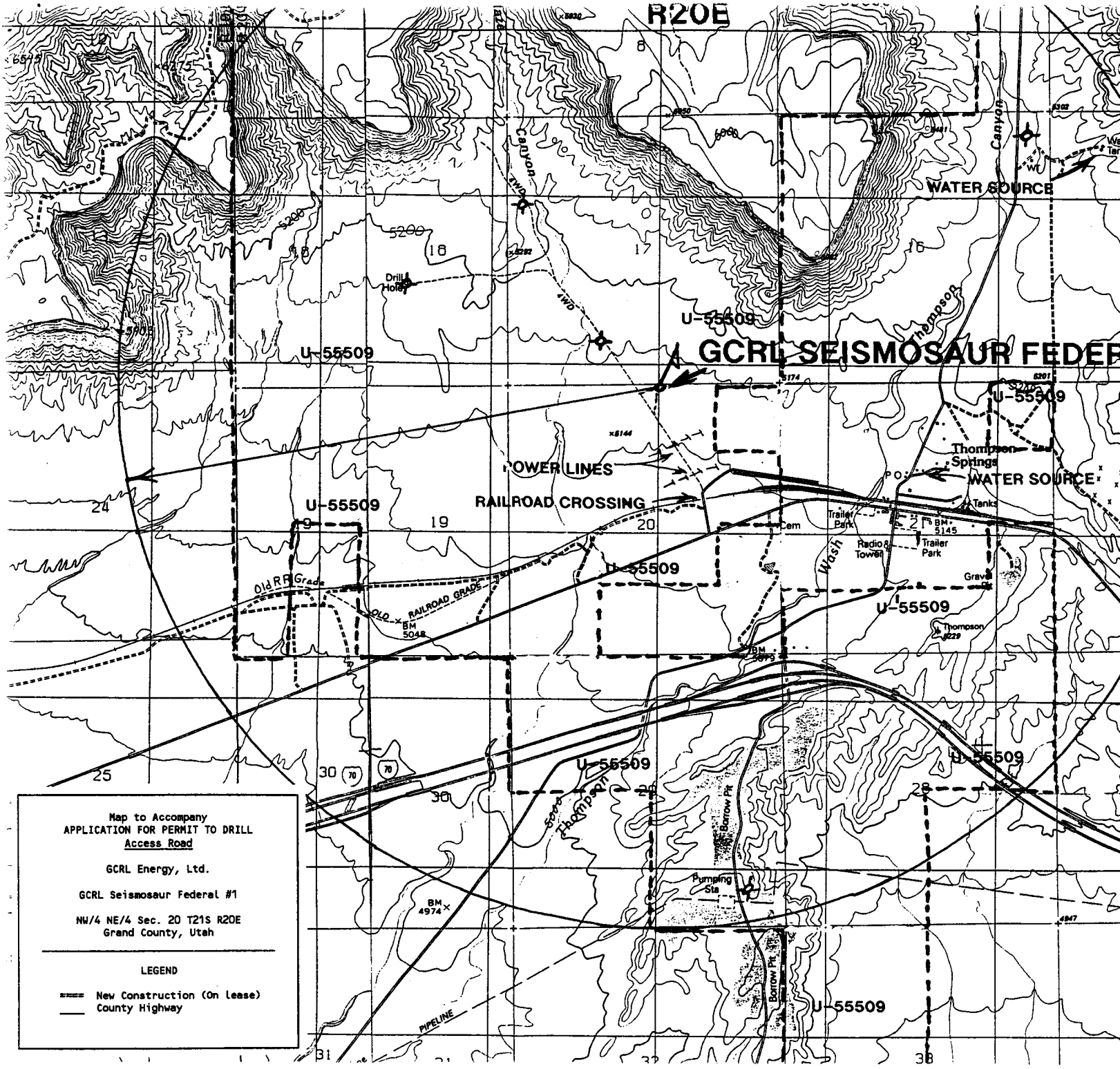
In view of the depth of this well it is our aim to highgrade the drilling location to the greatest extent possible. Optimal drilling positions are indicated on seismic line #3 between shotpoints 225 and 230 and on seismic line # 5 between shotpoints 134 and 137. This defines an optimal polygon.

Because of a drilling accuracy radius of 200 feet it was deemed preferable to be 200 feet south of the line 3 location and within the polygon defined by lines 3 and 5. This results in a drilling location in Section 20; 92' fnl and 2340' fel.

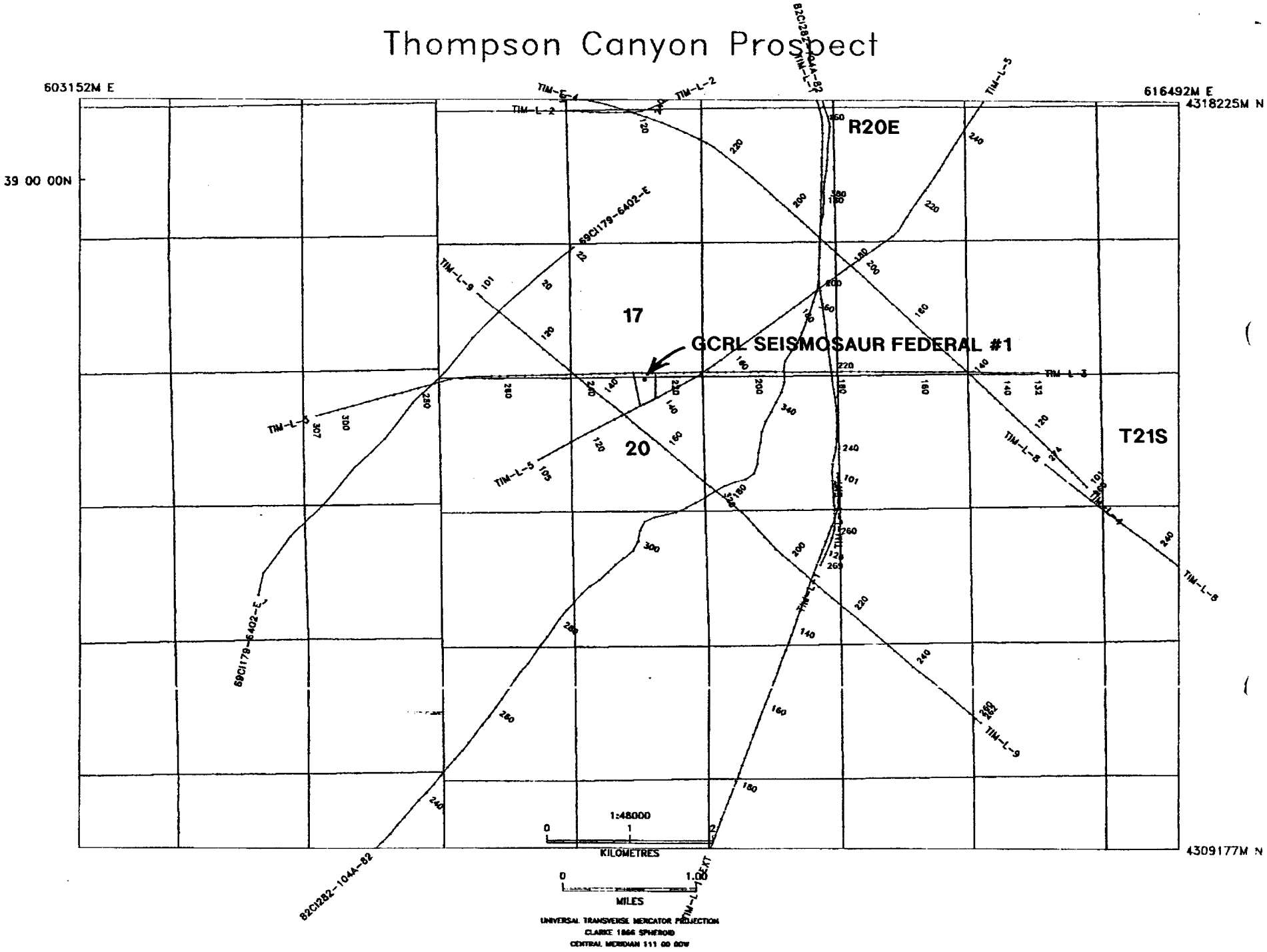
Thank you for your consideration of this matter.

Yours truly,

Timothy Leslie.


R20E
WATER SOURCE
Drill Hole
U-55509
GCRL SEISMOSAUR FEDER
Thompson Springs
WATER SOURCE
POWER LINES
RAILROAD CROSSING
Trailer Park
Tanks
Cem
Radio Tower
Trailer Park
Gravel Pit
Old RR Grade
OLD RAILROAD GRADE
BM 5048
Thompson
Borrow Pit
Pumping Sta
BM 4974
PIPELINE
Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
NW/4 NE/4 Sec. 20 T21S R20E
Grand County, Utah
LEGEND
New Construction (On lease)
County Highway

Thompson Canyon Prospect



Form 3160-3
(December 1990)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires: December 31, 1991

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

CONFIDENTIAL

1a. TYPE OF WORK: DRILL [XX] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [XX] OTHER SINGLE ZONE [XX] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: GCRL Energy, Ltd.

3. ADDRESS AND TELEPHONE NO. (403) 233-4000
P.O. Box 130, Calgary, Alberta, CANADA, T2P 2H7

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 92' FNL 2,320' FEL (NW/4 NE/4) Sec. 20 T21S R20E
At proposed prod. zone:

5. LEASE DESIGNATION AND SERIAL NO.: U-55509

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: --------

7. UNIT AGREEMENT NAME: --------

8. FARM OR LEASE NAME, WELL NO.: GCRL Seismosaur Federal #1

9. API WELL NO.:

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 20 T21S R20E

12. COUNTY OR PARISH: Grand

13. STATE: UT

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 1 mile northwest of Thompson Spring, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 92' S of Sec line; 996' W of Lse line

16. NO. OF ACRES IN LEASE: 6,717.78

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40

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

19. PROPOSED DEPTH:

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.):

22. APPROX. DATE WORK WILL START*: December 16, 1996

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26" Conductor	20" K-55	94#	300'	To surf ±391 sxs G
17 1/2" Surf	13 3/8" L-80	72#	5,350'	To surf ±1,180 sxs Lite ±827 sxs G
12 1/4" Int	9 5/8" L-80	53.5#	12,600'	Above salt ±543 sxs G
8 1/2" Liner	7" L-80	32#	12,600' - T.D.	±264 sxs G

See attached Drilling Program and Surface Use Plan.

Please keep this information CONFIDENTIAL for the maximum time possible.

Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided for by GCRL Energy, Ltd. under nationwide bond as applied for.

GCRL Energy, Ltd. will be responsible for compliance with all of the lease conditions for that portion of the lease associated with this application.

A Utah Spacing Exception, if necessary, will be applied for separately. Note that the drillsite location is 92' from the section line but is 996' from the lease line at its nearest lease boundary.

RECEIVED DEC 1 1996 DIV. OF OIL, GAS & MINING BUREAU OF LAND MANAGEMENT

CONDITIONS OF APPROVAL ATTACHED

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO ATTACHED GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS

NTL 4-A Dated 1/1/80

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED David F. Banko TITLE Agent for GCRL Energy, Ltd DATE October 28, 1996

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

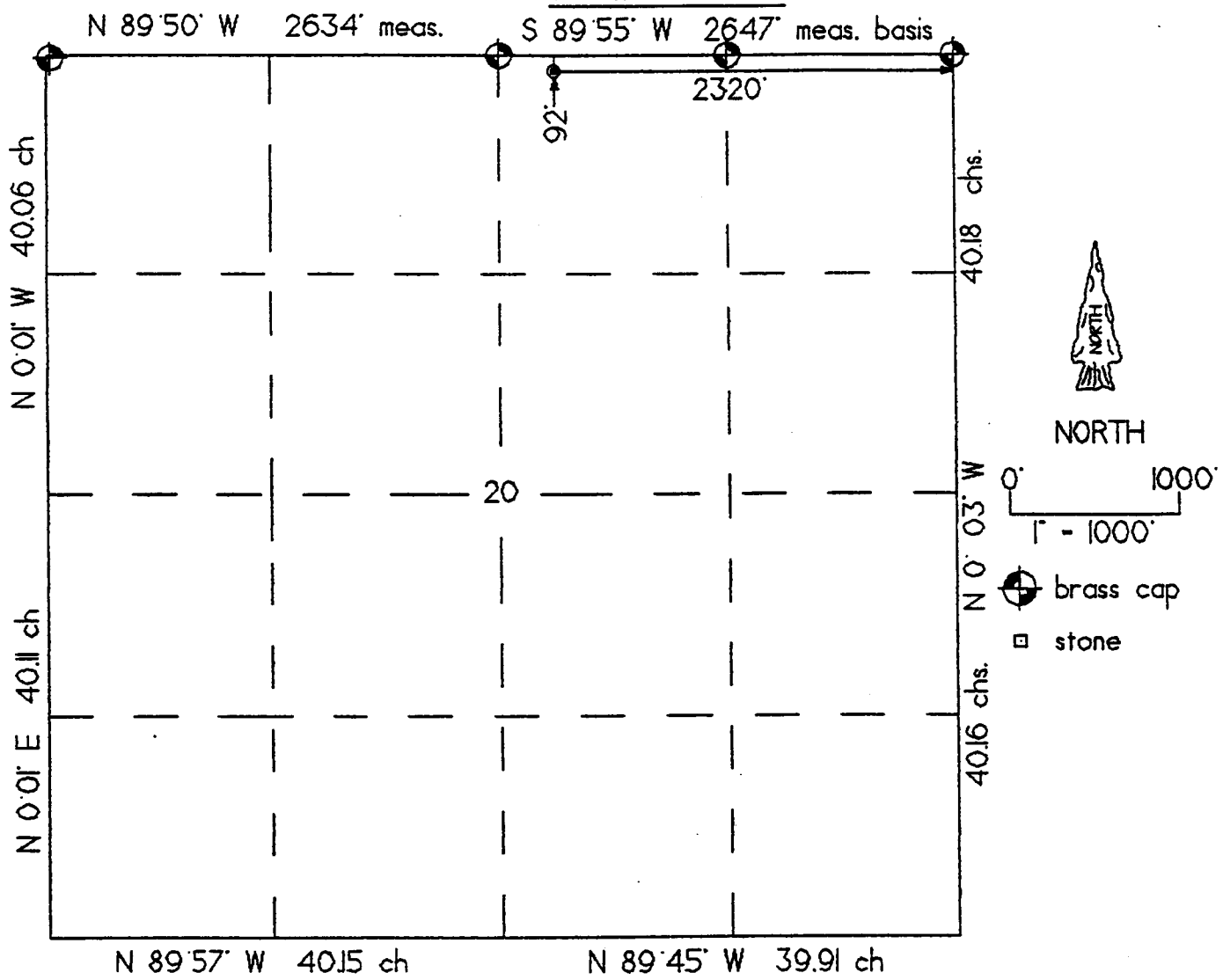
APPROVED BY /s/ Brad D. Palmer TITLE Assistant Field Manager, Resource Management DATE DEC - 6 1996

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Dolm

Well Location Plat



Well Location Description

GCRL Energy. LTD
GCRL Seismosaur Federal # 1
92' FNL & 2320' FEL
Section 20. T.21 S.. R.20 E.. SLM
Grand County. UT
5137' grd. el. (from BM in Thompson 5145')

REGISTERED LAND SURVEYOR
GERALD G. HUDDLESTON
No. 161297
STATE OF UTAH

14 October 1996

Gerald G. Huddleston. LS

The above is true and correct to my knowledge and belief.

HUDDLESTON LAND SURVEYING - BOX KK - CORTEZ. CO - (970) 565 -3330

AS OF 11/05/96 UNITED STATES DEPT OF THE INTERIOR PAGE 1
BUREAU OF LAND MANAGEMENT
BOND ABSTRACT

BLM BOND NO: UT1064 PART NO:

SURETY BOND ID: L.O.C No. G691144

CASE TYPE: 310434 O&G BOND ALL LANDS

NAME AND ADDRESS OF BONDED PARTIES

B96000003001 BONDED PRINCIPAL
GCRL ENERGY LTD
401 9TH AVE SW
PO BOX 130
CALGARY ALBERTA AB P2P2H7

BOND-AREA: NATIONWIDE

TYPE OF LAND: FEDERAL-ALL RIGHTS

BOND TYPE: LETTER OF AMOUNT OF BOND: $150,000

BONDED ACTIVITY/PURPOSE		COMMODITY(IES)	
GENERAL LSE/DRILLING		OIL & GAS	L
OPERATOR			
UNIT OPERATOR			

ACTION CODE	ACTION DATE	ACTION TAKEN	ACTION REMARKS
468	11/01/1996	BOND FILED	6/88 EDITION (3000-4)
469	11/06/1996	BOND ACCEPTED	EFF 11/01/96;

Post-it™ brand fax transmittal memo 7671 # of pages ▸ 1

To Verlene Butts	From Irene Anderson
Co. Moab	Co. Utah SO
Dept.	Phone # 539-4108
Fax # 801-259-2106	Fax # 801-539-4200

GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
Lease U-55509
NW/NE Section 20, T21S, R20E
Grand County, Utah

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that GCRL Energy, Ltd. is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UT 1064 (Principal - GCRL Energy, Ltd.) via surety consent as provided for in 43 CFR § 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR § 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions and the approved plan will be made available to field representatives to insure compliance.

A. DRILLING PROGRAM

1. Daily drilling and completion progress reports shall be submitted to the Moab BLM Office on a weekly basis.

2. A 2M BOP system, including a rotating head will be used while drilling from 300 feet to 5350 feet. A 5M system, including a rotating head, will be used from 5350 feet to TD.

3. A geologic sample log shall be submitted with the completion report.

4. If a gas meter run is constructed, it will be located on lease, within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and will be buried downstream of the meter until it leaves the pad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR § 3162.7-3, Onshore Oil and Gas Order No. 5, and American Gas Association (AGA) Report No. 3. Any deviation from this will require specific approval.

B. SURFACE USE PLAN

1. No construction or drilling operations will be authorized between February 1 and July 15, unless additional raptor surveys are completed prior to initiating operations to identify and avoid raptor nesting sites within 1/2 mile of the proposed action. Any peregrine falcon nesting areas identified within the project area will be avoided by 1 mile. These limitations do not apply to maintenance and operation of existing wells, and these limitations do not apply to wells where drilling was initiated between July 16 and January 31.

2. At the end of drilling operations and prior to reclamation of the reserve pit, the fourth side of the pit will be fenced and the top of the pit will be covered with netting of one inch or less to prevent access by birds.

3. In addition to procedures identified in the APD, these requirements will be followed during construction and reclamation of the reserve pit:

   a. If a synthetic liner is used, liner will be designed and installed in such a manner to assure it will not be punctured during installation or drilling operations.

   b. Upon completion of drilling operations, the reserve pit will be de-watered. Depending on the conditions at the time of disposal, the waste water will be (a) disposed of off-site at an approved disposal facility, (b) reinjected with the appropriate Underground Injection Control Permit from the State Division of Oil, Gas and Mining with concurrent approval by the Bureau of Land Management, Moab District Office, or (c) allowed to evaporate.

   c. The remaining reserve pit solids will be tested prior to stabilization. At least three samples will be taken from different areas of the pit. These samples will be analyzed by an independent laboratory for salt properties (electrical conductivity, sodium adsorption ratio and exchangeable sodium percentage), heavy metal content and oil and grease content. The results of these tests will be provided to the Moab District Office within 30 days of analysis.

   d. The reserve pit contents will then be mixed with fly ash, kiln dust, or bentonite to stabilize the salt adhered to the cuttings. Quantities of the mixing agent will be sufficient to assure the physical properties of the stabilized pit are similar to the physical properties of the native subsoils.

   e. The mixed contents will be sampled and tested for leachability of salts and heavy metals. There will be a minimum of 5 samples taken from the mixed pit remains. The samples will come from each corner section of the pit and from the middle. These samples will also be analyzed by an independent laboratory. The results of this testing will be provided to the Moab District Office within 30 days of analysis.

   f. If a synthetic liner is used, the remaining liner material will be folded over the edges of the mixed contents of the pit.

g. The mixed pit contents will be covered by a minimum of one foot of native subsoils. If required, a thicker application may be allowed to bring the top of this cap nearly up to grade. The pit will then be allowed to set up for a minimum of 5 days prior to additional work on the pit involving the bentonite cap.

h. A bentonite cap will be applied to the top of the pit. The bentonite will be a commercial grade and will be mixed with the native subsoils at the rate of 2-4 pounds per square foot of coverage. The cap will be at least 1 foot thick in the middle and grade to no less than 6 inches on the sides. The bentonite and subsoil mixture will be disked in to assure maximum effectiveness of the impervious cap. The cap will be crowned at the middle to allow proper drainage. The cap will extend at least 10 feet beyond the original pit boundaries to allow drainage away from the pit and prevent leaching of salts and heavy metals.

i. The bentonite cap will then be covered with approximately 2 feet of subsoil and topsoil. The intent is to bring the topsoil and subsoil mixture including the cap slightly above grade with enough soil to allow for revegetation and compensate for settling.

j. The Moab District Office will be kept informed of the timetables for all operations described above so that they can be witnessed.

k. Alternate closure procedures methods using similar techniques that would meet the BLM objectives for pit closure may be submitted for review. No alternate pit closure techniques will be initiated prior to BLM review and approval.

4. The reclaimed areas will be broadcast seeded between October 1 and December 15 with the following mixture of pure live seed:

Crested wheatgrass	3 pounds/acre
Indian ricegrass	3 pounds/acre
Fourwing saltbush	3 pounds/acre
Winterfat	3 pounds/acre
Yellow sweetclover	1 pound/acre

C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location- Contact the BLM, Natural Resource Protection Specialist at least 48 hours prior to commencing construction of location.

Spud- The spud date will be reported 24 hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab BLM Office within 24 hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab BLM Office on a weekly basis.

Monthly Reports of Operations- In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval from the Moab BLM Office. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR § 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab BLM Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the BLM is to be notified.

First Production- Should the well be successfully completed for production, the Moab BLM Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five (5) business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the local BLM office.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab BLM Office not later than thirty (30) days after completion of the well or after completion of operations being performed, in accordance with 43 CFR § 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab BLM Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- Produced waste water may be confined to an unlined pit for a period not to exceed 90 days after initial production. During the 90 day period, an application for approval of a permanent disposal method and location, along with a water analysis, if required, will be submitted to the Moab BLM Office for approval pursuant to Onshore Oil and Gas Order No. 7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab BLM Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab BLM Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Moab BLM Office within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR § 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the local BLM office or the appropriate surface managing agency.

TABLE 1

NOTIFICATIONS

Notify Rich McClure of the Moab BLM Office in Moab, Utah, at (801) 259-2127 for the following:

2 days prior to commencement of dirt work, construction and reclamation;

Upon converting to invert mud system.

Notify Jack Johnson of the Moab BLM Office in Moab, Utah at (801) 259-2129 for the following:

1 day prior to spudding;

3 hours prior to running surface casing (13-3/8");

3 hours prior to testing BOPE.

If the above cannot be reached, notify the Moab Field Office at (801) 259-6111. If unsuccessful, notify the person listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at (801) 259-6111. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer	Office: (801) 259-2117 Home: (801) 259-2214
Gary Torres, Petroleum Engineer	Office: (801) 587-2141 Home: (801) 587-2705

STATE OF UTAH, DIV OF OIL, GAS & MINERALS

Operator: GCRL ENERGY LTD	**Well Name: GCRL SEISMOSAUR FED**
Project ID: 43-019-31357	**Location: SEC. 20 - T21S - R20E**

Design Parameters:

Mud weight (8.50 ppg)	: 0.442	psi/ft
Shut in surface pressure	: 4408	psi
Internal gradient (burst)	: 0.112	psi/ft
Annular gradient (burst)	: 0.000	psi/ft

Tensile load is determined using air weight

Service rating is "Sweet"

Design Factors:

Collapse	: 1.125	
Burst	: 1.00	
8 Round	: 1.80	(J)
Buttress	: 1.60	(J)
Other	: 1.50	(J)
Body Yield	: 1.50	(B)

*** WARNING *** Design factors for collapse and burst exceeded in design!

	Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost
1	2,000	13.375	72.00	L-80	ST&C	2,000	12.250	
2	2,000	13.375	68.00	K-55	ST&C	4,000	12.259	
3	1,350	13.375	72.00	L-80	ST&C	5,350	12.250	

	Collapse Load (psi)	Collapse Strgth (psi)	Collapse S.F.	Burst Load (psi)	Min Int Yield Strgth (psi)	Min Int Yield S.F.	Tension Load (kips)	Tension Strgth (kips)	Tension S.F.
1	883	2548	2.886	4633	5380	1.16	377.20	1029	2.73 J
2	1766	1896	1.074	4858	3450	0.71	233.20	718	3.08 J
3	2362	2670	1.130	5010	5380	1.07	97.20	1029	10.59 J

Prepared by : MATTHEWS, Salt Lake City, Utah
Date : 12-11-1996
Remarks :

LEADVILLE

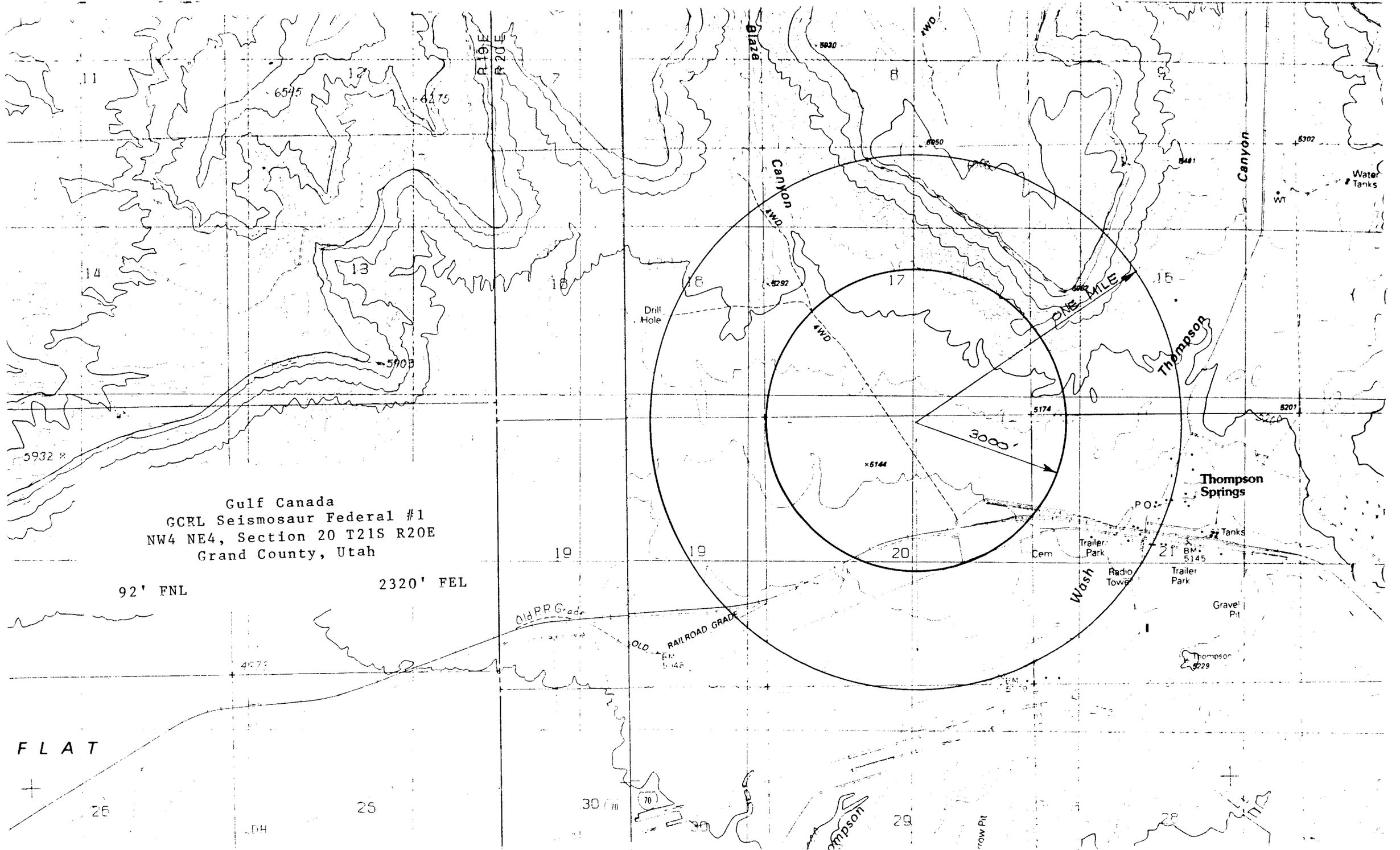
Minimum segment length for the 5,350 foot well is 1,500 feet.

SICP is based on the ideal gas law, a gas gravity of 0.69, and a mean gas temperature of 175°F (Surface 74°F , BHT 250°F & temp. gradient 1.400°/100 ft.)

String type: Surface

Next string will set at 12,600 ft. with 8.90 ppg mud (pore pressure of 5,825 psi.) The frac gradient of 1.000 psi/ft at 5,350 feet results in an injection pressure of 5,350 psi Effective BHP (for burst) is 5,010 psi.

NOTE: The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - collapse (with evacuated casing), 1.0 - (uniaxial) burst, 1.8 - API 8rd tension, 1.6 - buttress tension, 1.5 - body yield tension, and 1.6 - EUE 8rd tension. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser.
Costs for this design are based on a 1987 pricing model. (Version 1.07)


Gulf Canada
GCRL Seismosaur Federal #1
NW4 NE4, Section 20 T21S R20E
Grand County, Utah
92' FNL
2320' FEL
ONE MILE
3000'
Thompson Springs
Thompson Canyon
Blaze Canyon
Wash
Drill Hole
Water Tanks
Trailer Park
Radio Tower
Gravel Pit
Cem
Tanks
Old R.R. Grade
OLD RAILROAD GRADE
FLAT
R 19 E
R 20 E
4WD
5174
5144
5201
5302
5930
5932
5903
6545
6275
6950
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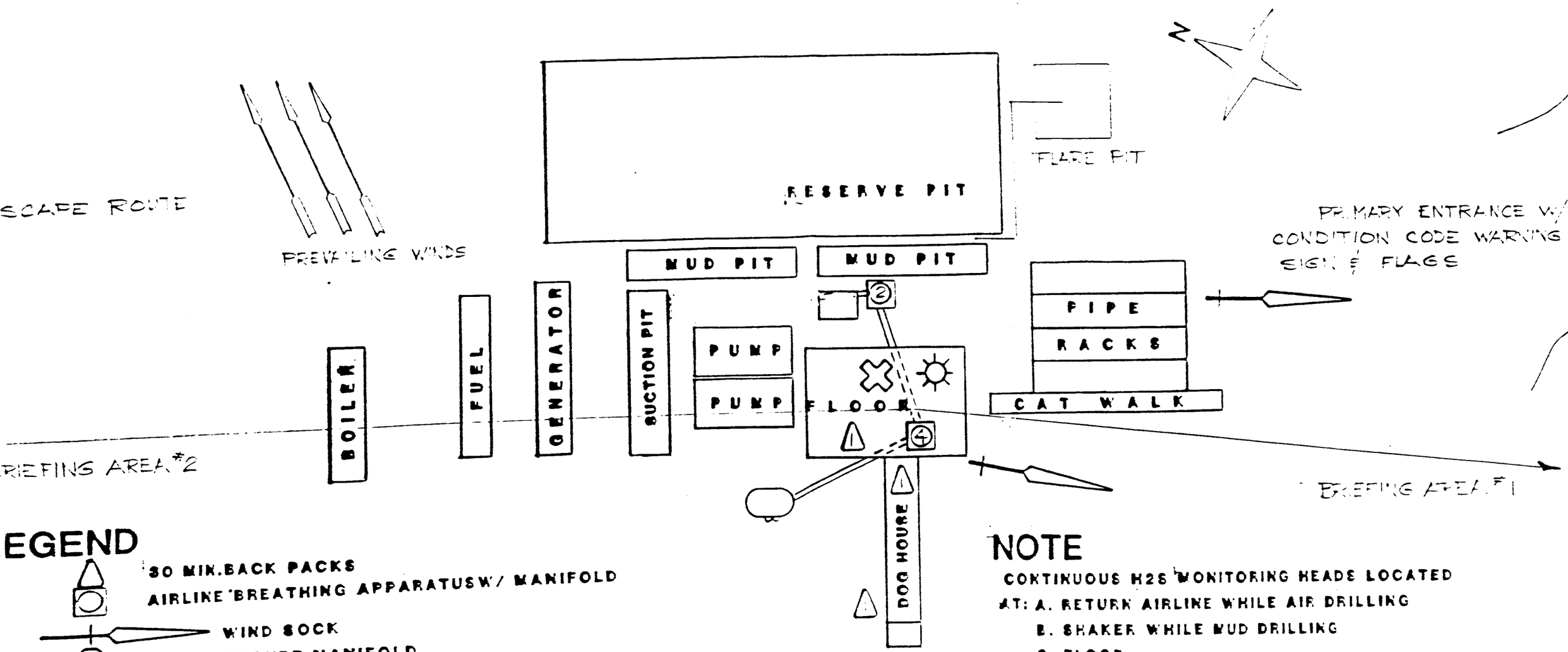


EGEND

- 30 MIN. BACK PACKS
- AIRLINE BREATHING APPARATUS W/ MANIFOLD
- WIND SOCK
- LOW PRESSURE MANIFOLD
- 1/2" LOW PRESSURE HOSE W/ HOOK TO CASCADE
- SAFETY TRAILER W/ CASCADE AIR SYSTEM
- ALARM SIREN
- ALARM FLASHING LIGHT
- AIR MOVERS
- RESUSCITATOR
- ALTERNATE OR ADDITIONAL CASCADE AIR SUPPLY

TOOLPUSH | CO.REP

NOTE

CONTINUOUS H2S MONITORING HEADS LOCATED
AT: A. RETURN AIRLINE WHILE AIR DRILLING
B. SHAKER WHILE MUD DRILLING
C. FLOOR
D. SUBSTRUCTURE, BELL NIPPLE
READOUT INSTRUMENT IN DOG HOUSE

GULF CANADA Ltd.

NAME GCR SEISMOSAUR FED #1
LOC. SEC. 20 T 21S R 20E
STATE UT CO. GRAND

OILIND SAFETY

Site Plan of Safety Equipment

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

December 11, 1996

GCRL Energy, Ltd.
P.O. Box 130
Calgary, Alberta, Canada T2P 2H7

Re: GCRL Seismosaur Federal #1 Well, 92' FNL, 2320' FEL, NW NE, Sec. 20, T. 21 S., R. 20 E., Grand County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. 40-6-1 et seq., Utah Administrative Code R649-3-1 et seq., and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-019-31357.

Sincerely,

R. J. Firth
Associate Director

lwp
Enclosures
cc: Grand County Assessor
Bureau of Land Management, Moab District Office

Operator: GCRL Energy, Ltd.

Well Name & Number: GCRL Seismosaur Federal #1

API Number: 43-019-31357

Lease: U-55509

Location: NW NE **Sec.** 20 **T.** 21 S. **R.** 20 E.

Conditions of Approval

1. General
   Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for Permit to Drill.

2. Notification Requirements
   Notify the Division within 24 hours following spudding the well or commencing drilling operations. Contact Jimmie Thompson at (801)538-5336.

   Notify the Division prior to commencing operations to plug and abandon the well. Contact Frank Matthews at (801)538-5334 or Mike Hebertson at (801)538-5333.

3. Reporting Requirements
   All required reports, forms and submittals shall be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

CONFIDENTIAL

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: GCRL ENERGY LTD

Well Name: GCRL SEISMOSOUR FEDERAL # 1

Api No. 43-019-31357

Section 20 Township 21S Range 20E County GRAND

Drilling Contractor

Rig #

SPUDDED:

Date 1/5/97

Time

How DRY HOLE

Drilling will commence

Reported by DAVID BANKO

Telephone #

Date: 1/6/97 Signed: FRM

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other
2. Name of Operator: GCRL Energy, Ltd. - Drilling Department
3. Address and Telephone No.: P.O. Box 130 Calgary, Alberta, Canada T2P 2H7 (403) 233-4000
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): 92' FNL, 2,320' FEL (NW/4NE/4) Sec. 20, T21S, R20E
5. Lease Designation and Serial No.: U-75828
6. If Indian, Allottee or Tribe Name: -------
7. If Unit or CA, Agreement Designation: -------
8. Well Name and No.: Seismosaur Federal #1
9. API Well No.: 43-019-31357
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Grand County, Utah

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☐ Change of Plans
	☐ Recompletion	☐ New Construction
☐ Subsequent Report	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
☐ Final Abandonment Notice	☐ Altering Casing	☐ Conversion to Injection
	☒ Other Revise APD	☐ Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Note new lease # as the original lease U-55509 was segregated. This well now is on Lease # U-75828. Surface use plan is amended and shown as attached.

Road route followed a Grand County Class B Road through the town of Thompson Springs, crossed the railroad tracks and parallelled the railroad westerly to intersect the existing 2 track road that was upgraded for wellsite access.

The road was gravelled to provide a travel surface of 20-22 feet wide.

Topsoil from the wellsite was stockpiled in a windrow along the north edge of the wellsite.

Two reserve pits were constructed parallel to the wellsite in the area identified for the pits. The pits were lined with the native Mancos shale soil materials.

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

Signed David F. Banko Title Agent for GCRL Energy, Ltd. Date January 8, 1997

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
(NW/4 NE/4)
92' FNL 2,320' FEL Sec. 20 T21S R20E
Grand County, Utah
Fed. Lse. #U-55509

SURFACE USE PLAN - REVISED 1/8/97

1) EXISTING ROADS

A) The well is an Exploratory well.

B) Existing roads within 2 mile - Paved county road 0.6 mile south of location *and dirt / gravel surfaced county road within 0.3 miles of location.* Two track trail to the edge of location.

* C) Plans for improvement and/or maintenance of existing roads are to maintain in as good or better conditions than at present. Grand County may require bypasses to be constructed around certain bridges that have weight restrictions. The two track trail will be discussed in "Planned Access" below. *County road southeast of location through Thompson Wash is regularily used by residents of Thompson Spring. Local residents and Grand County encourage upgrading the Thompson Wash crossing by reducing the grade and constructing a rock bottom crossing. These improvements are planned to be constructed at GCRL expense.*

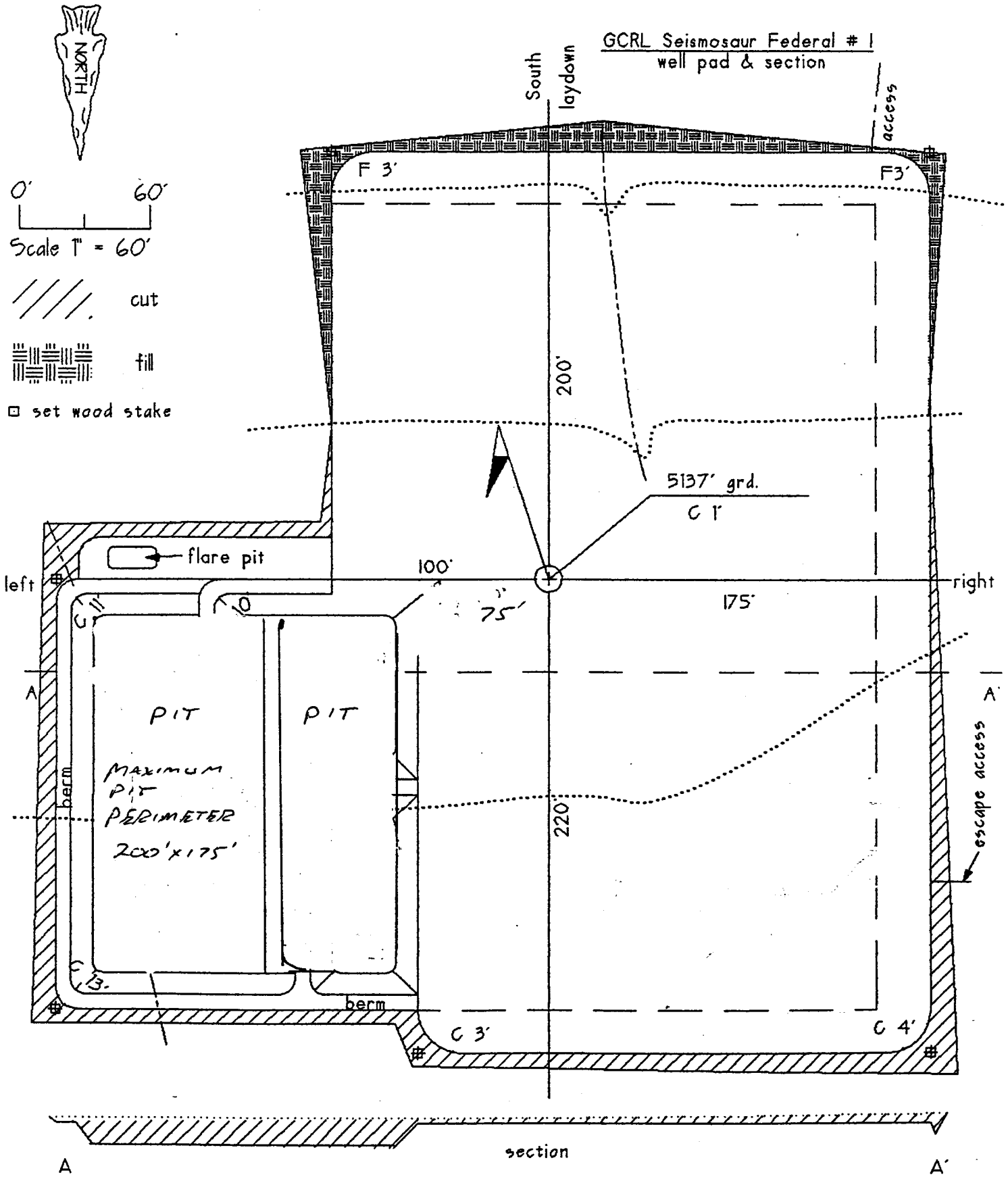
2) PLANNED ACCESS ROADS - 0.6 miles new construction (on lease)

* A) Subgrade (Running surface) width to be approximately *20'-22'*, total disturbed width to be 45'-50'.

9) * WELLSITE LAYOUT

* B) *Reserve pit will be separated into two separate pits, one for fresh water drilling fluids and another for oil based mud and cuttings. Both pits may be used for fresh water during drilling of the upper part of the hole.* Fresh water reserve pit will be unlined. The oil mud reserve pit will be lined with a pit liner 12 mil or thicker *unless otherwise agreed to by BLM and GCRL. Oil mud pit will be lined after drilling and casing the surface hole..*

* C) *A temporary spill containment dike will be constructed around storage tanks to be used to store diesel fuel or other hydrocarbon liquids which will be used to in oil based mud. The diked volume will be minimum 110% of the volume of the largest tank per EPA SPCC requirements. Diversion trenches will be constructed around rig and steel mud pits to divert any potential oil spills into the reserve pit. Rig fuel tanks will be protected with the trenches. A liner will not be used under the actual drilling rig.*


GCRL Seismosaur Federal # 1
well pad & section
NORTH
0'
60'
Scale 1" = 60'
cut
fill
set wood stake
South
laydown
access
F 3'
F3'
200'
5137' grd.
C 1'
flare pit
left
100'
75'
175'
right
C 1'
0
A
A'
PIT
PIT
MAXIMUM
PIT
PERIMETER
200'x175'
berm
220'
escape access
C 3'
berm
C 3'
C 4'
section
A
A'

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

CONFIDENTIAL

5. Lease Designation and Serial No.: U-75828
6. If Indian, Allottee or Tribe Name: ----------
7. If Unit or CA, Agreement Designation: ---------
8. Well Name and No.: Seismosaur Federal #1
9. API Well No.: 43-019-31357
10. Field and Pool, or Exploratory Area: Wildcat
11. County or Parish, State: Grand County, Utah

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2. Name of Operator: GCRL Energy, Ltd. - Drilling Department
3. Address and Telephone No.: P.O. Box 130 Calgary, Alberta, Canada T2P 2H7 (403) 233-4000
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12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

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☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing	
	☐ Casing Repair	☐ Water Shut-Off	
	☐ Altering Casing	☐ Conversion to Injection	
	☒ Other Notification of Spud Weekly update of operations	☐ Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Well spudded January 4, 1997 at 10:00 a.m. Conductor hole initiated by drilling 20' of 20" hole and placing 20' of 20" divertor pipe into hole.

January 5, 1997 drilled 12-1/4" pilot hole to 308' KB.

January 6, 1997 operation reaming out to 17 1/2" diameter with air rotary rig.

Note new lease # as the original lease U-55509 was segregated. This well now is on Lease # U-75828.

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

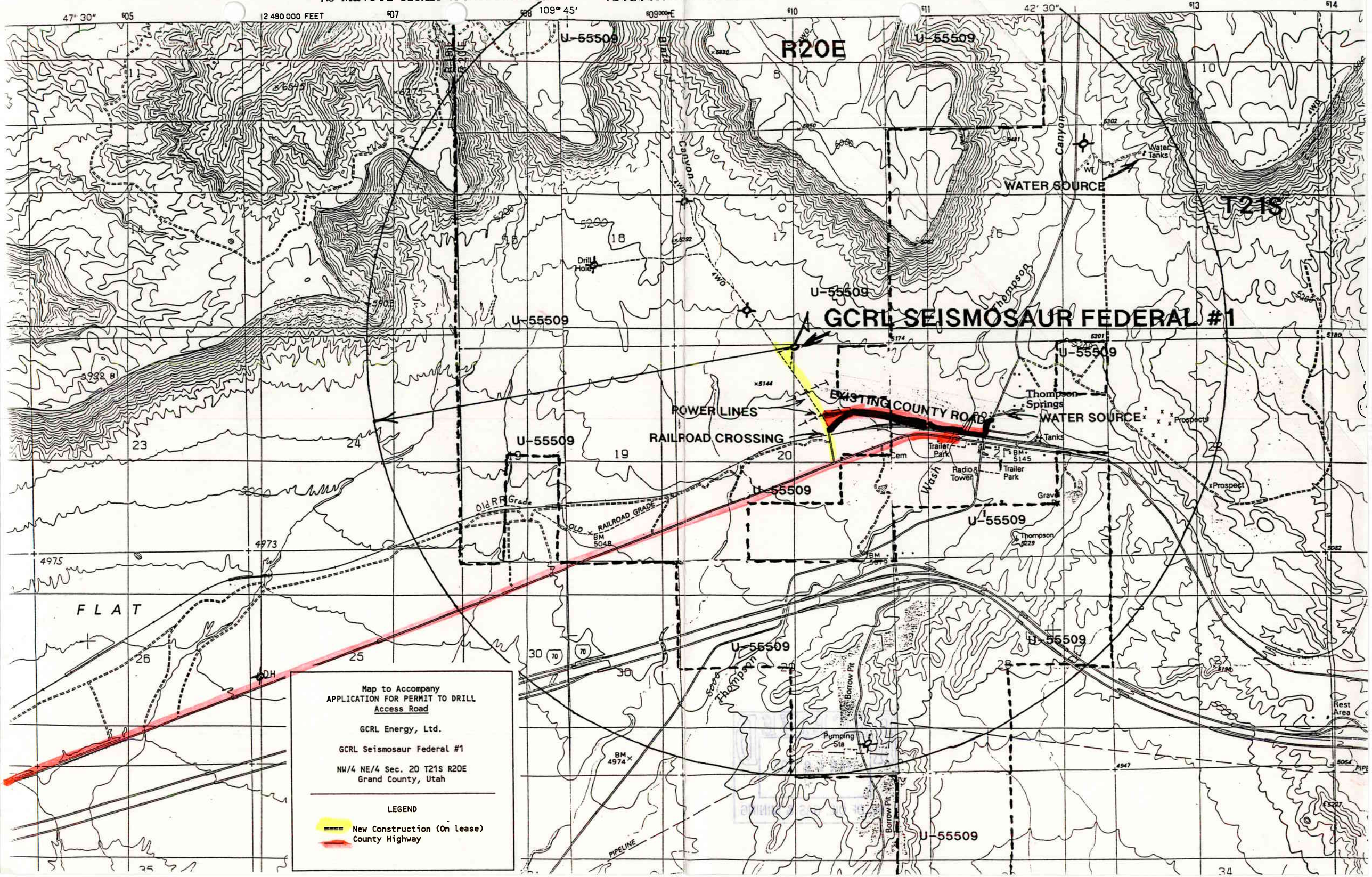
Signed: David F. Bunko Title: Agent for GCRL Energy, Ltd. Date: January 8, 1997

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side


7.5 MINUTE SERIES (TOPOGRAPHIC)
GEOLOGICAL SURVEY
R20E
T21S
U-55509
GCRL SEISMOSAUR FEDERAL #1
WATER SOURCE
EXISTING COUNTY ROAD
POWER LINES
RAILROAD CROSSING
Thompson Springs
Water Tanks
Drill Hole
Trailer Park
Radio Tower
Gravel Pit
Thompson
Prospects
Prospect
Rest Area
Borrow Pit
Pumping Sta
Old RR Grade
OLD RAILROAD GRADE
Thompson Canyon
Wash
FLAT
PIPELINE
Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road
GCRL Energy, Ltd.
GCRL Seismosaur Federal #1
NW/4 NE/4 Sec. 20 T21S R20E
Grand County, Utah
LEGEND
New Construction (On lease)
County Highway

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
JAN 21 1997
DIV. OF OIL, GAS & MINING

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

5. Lease Designation and Serial No. U-75828

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

CONFIDENTIAL

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
GCRL ENGERY, LTD. (403) 233-4000

3. Address and Telephone No.
P.O. BOX 130 CALGARY, ALBERTA, CANADA T2P 2H7

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
92' FNL 2,320' FEL (NW/4) (NE/4) SEC. 20 T21S R20E

8. Well Name and No.
SEISMOSAUR FEDERAL #1

9. API Well No.
43-019-31357

10. Field and Pool, or Exploratory Area
WILDCAT

11. County or Parish, State
GRAND COUNTY, UTAH

2. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☒ Altering Casing	☐ Conversion to Injection
	☐ Other _____	☐ Dispose Water (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

3. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

IN THE PROCESS OF DRILLING CONDUCTOR HOLE WITH THE RAT HOLE RIG WE WERE UNABLE TO OPEN THE HOLE TO 26".

WE WILL OPEN THE CURRENT HOLE TO 42" FROM 0 TO 40' AND RUN 30" CONDUCTOR.

AFTER THE DRILL RIG HAS MOVED ON AND RIGGED-UP WE WILL OPEN THE HOLE TO 26" FROM 0 TO 300' AND RUN AND CEMENT PIPE AS IN THE DRILLING PLAN.

NO WATER WAS ENCOUNTERED DURING DRILLING OPERATIONS

THE ABOVE IS AS WAS DISCUSSED WITH LARRY ARNOLD AND JACK JOHNSON.

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

Signed _____ Title DRILLING ENGINEER Date JANUARY 17, 1997

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

GCRL
ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

March 17, 1997

RECEIVED
MAR 18 1997
DIV. OF OIL, GAS & MINING

Mr. Jimmie Thompson
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

RE: GCRL Seismosaur Federal #1 Sec. 20 T21S R20E,
Surface Casing Revision Sundry Notice

Enclosed please find two (2) original copies of the Sundry Notice to Amend the Surface Casing design.

Upon approval of this Sundry Notice, please send one approval copy directly to GCRL Energy, Ltd. in Calgary. If there are any questions or additional requirements, please contact Tim Wood at 403 233-3902.

Sincerly,
Tim Wood

Drilling Engineer

P.O. BOX 130, CALGARY, ALBERTA, CANADA T2P 2H7

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

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SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.
U-75828

6. If Indian, Allottee or Tribe Name
---

7. If Unit or CA, Agreement Designation
---

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
GCRL Energy, Ltd. - Drilling Department

3. Address and Telephone No.
P.O. Box 130 Calgary, Alberta, Canada T2P 2H7 (403) 233-4000

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

92' FNL, 2,320' FEL (NW/4 NE/4) Sec. 20 T21S, R20E

CONFIDENTIAL

8. Well Name and No.
Seismosaur Federal #1

9. API Well No.
43-019-31351

10. Field and Pool, Exploratory Area
Wild Cat

11. County or Parish, State
Grand County, Utah

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
	☐ Recompletion	☐ New Construction
✓ ☒ Subsequent Report	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	✓ ☒ Altering Casing	☐ Conversion to Injection
☐ Final Abandonment Notice	☐ Other	☐ Dispose Water (Note: Report Results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state of pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

As of March 11, 1997 The casing has been run and cemented in place. The casing design was modified from the APD to account for the Additional depth drilled to reach the Cutler. The casing that was run is listed below:

0ft -2085ft, 13 3/8", 72lb/ft, L-80, BT&C,
2085ft - 2700ft, 13 /38", 68 lb/ft, K-55, BT&C
2700ft Stage Collar
2700ft - 3808ft, 13 3/8", 68 lb/ft, K-80, BT&C
3808ft - 5471ft, 13 3/8", 72 lb/ft, L-80, BT&C
5471ft - 5800ft, 13 5/8", 88.2 lb/ft, HCL-80, BT&C

CONFIDENTIAL

RECEIVED
MAR 18 1997
DIV. OF OIL, GAS & MINING

This casing was the same as submitted in our APD except the 5471-5800' section which was added due to the high collapse requirements of this depth.

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

Signed _____ Title Drilling Engineer Date March 11, 1997

(This space of Federal State Office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY

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See Instruction on Reverse Side

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

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6. If Indian, Allottee or Tribe Name
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7. If Unit or CA, Agreement Designation
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8. Well Name and No.
Seismosaur Federal #1

9. API Well No.
43-019-31357

10. Field and Pool, Exploratory Area
Wild Cat

11. County or Parish, State
Grand County, Utah

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	☒ Altering Casing	☐ Conversion to Injection
☐ Final Abandonment Notice	☐ Other	☐ Dispose Water (Note: Report Results of multiple completion on Well Completion or Recompletion Report and Log form.)

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3808ft - 5471ft, 13 3/8", 72 lb/ft, L-80, BT&C
5471ft - 5800ft, 13 5/8", 88.2 lb/ft, HCL-80, BT&C

RECEIVED
MAR 18 1997
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FOR RECORD ONLY

*** See Instruction on Reverse Side**

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-07-12

WELL NAME: G C R L Seismosaur Federal #1
CURRENT DEPTH: ft FORMATION: Paradox DFS: 172
PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
PROGRESS ft AUTHORIZED T.D.: 17,600 RIG: Nabors 280
HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @ 13,339 ft

SUMMARY:
0400 - 1600 Wait On Test Tools
1600 - 1830 Pick Up Perf. Gun Assembly, 2 7/8 Tubing + Packer
1830 - 0100 Wait On Halliburton X.O.
0100 - 0600 R.I.H w/ Gun + Packer

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	206	
MUD SYSTEM	208	1036
DIRECTIONAL	213	
OTHERS	224	455
BARIOD	207	605
SAFETY	218	
Hall Tek	303	500
JTJ Tek	301	195
TOTALS: DAILY		11,020
PREVIOUS		4,812,156
CUMULATIVE		4,823,176

INCIDENTS: TODAY 0 LTM 0 MONTH TO DATE 176
OPERATION @ 0600 HR R.I.H
GAS UNITS DRAG lb ROTARY TORQUE

MUD: Time | Density | Vis | pH | Wl | Gel | PV | YP | Ph | Sol | Sand | Chlor | Ca | Mf

EQUIPMENT: SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
DESANDER: OF PPE UF PPE UF UPM HRS
DESILTER: PP DSIL UF PPE UF GPM HRS
CENTRIFUGE: OF PPE UF PPE UF GPM HRS
DAILY, bbl
CUMULATIVE, bbl

MATERIALS USED: TYPE | AMOUNT | TYPE | AMOUNT | TYPE | AMOUNT
GEL
CAUSTIC SODA
BARITE

CONSUMPTION: INVERT bbl; GEL bbl; BARITE bbl; DIESEL bbl

PUMPS: PUMP | DESCRIPTION | BORE X STROKE | SPM | PRESSURE psi | GPM | Mfr | HOURS

BIT INFO: NO. | SERIAL # | SIZE | TYPE | JETS | IN | OUT | DRILLED | HRS | T | B | G | O | WEAR

BHA: DC size in Connection ; Souyed DC WT
DP SIZE in; WT lb/ft; Grade ; No of Jts
DP CONNECTION Ratings lb; Hook Load lb; Margin lb

SURVEY:

TIME: DRLG | RIG SERV | LOGGING | CEMENT | WAIT/TEST
TRIP 5 | CIRC | RUN CSG | Abandon | SURF EQP | Wait On Tools 16 1/2
SURVEY | SERVICE | SKID | BIT | DOWNHOLE EQP | Wait On Tools 16 1/2

BOP: Pit Drill: Day Tour sec; Afternoon Tour sec; Nite Tour sec; BOP Test: CSG. Pipe 5000 psi
Closing Time Seconds: Annular Blind ; Pipe ; Pipe CSG. Arm Pipes psi

Equipment:
Personnel Rig 12 Service 2 GCRL 1 Total 15 Weather Overcast Temp 68
Reported By: L Arnold Mobile 1-801-259-9570
Time Reported: 0630 Superintendent D Salamandick

GORL ENERGY LTD.
DRILLING REPORT
(USA Operations)

1. WELL NAME: L. U. R. L. SEESHOLTZ FEDERAL 1-1 — UWI: 37-07-12
2. CURRENT DEPTH: _____ R. FOUNDATION: PARADOX — UPH: 178
3. PREVIOUS DEPTH: 10,488 — R. AFE NO.: 07070 — $: 1,171,100
4. FOOTAGE: _____ — R. ESTIMATED C.O.: 17 days — PRO: 10,000,000
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @: 13,339 ft
6. SUMMARY:
7. 0600 - 0730 R.I.H. w/ Packer & Gun Assembly
8. 0930 - 1130 Rig Up Loggers. Tubing
9. Staing Full of Mud
10. 1130 - 1145 Pick up Kelly & C.O. Rubber Thread
11. Tubing Staing
12. 1145 - 1800 P.O.H. Find Circ Valve Out
13. R.I.T.S Packer Open. Close
14. 1800 - 2000 Check Tools, R.I.H. To Packer
15. 2000 - 2200 Wait On Circ. Valve
16. 2200 - 0600 R.I.H w/ Packer + Gun Assembly
17.
18.
19.
20.
21.
22.
23.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
[illegible]	[illegible]	7100
SAFETY BONUS	214	100
WATER	216	
SUPERVISOR	300	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	330	
MUD SYSTEM	208	1035
DIRECTIONAL	313	
OTHERS	224	456
Barlod		605
Safety		650
Rocket	221	330
TOTAL DAILY		11,306
TOTAL PREVIOUS		4,823,176
TOTAL CUMULATIVE		4,834,482

24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 176
25. OPERATION @ 0600 HR R.I.H
26. BHA UNITS _____ DRWG _____ lb ROTARY TORQUE _____

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL lbs/100ft²	PV cp	YP lb/100ft²	PC vol%	SOLIDS %	SAND %	OIL Ratio	$CaCO_3$ ppm	Cl ppm	Ca ppm

MUD TREATMENT

SHAKER SCREEN SIZE #1 TOP _____ BTM _____ #2 TOP _____ BTM _____

DEGASSER:	OP	PPG: UF	PPG: UF	GPM	HRS
DESILTER:	OP	PPG: UF	PPG: UF	GPM	HRS
CENTRIFUGE:	OP	PPG: UF	PPG: UF	GPM	HRS

DAILY, $: _____ CUMULATIVE, $: _____

MATL USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

CONDITIONING

INVERT	bbl	
GEL	bbl	
BARITE	sks	
DIESEL	bbl	

HYD

PUMP	DESCRIPTION	BORE x STROKE	SPM	THEORETICAL gpm	SPM	PSIG	HOLE DATA MD	TVD

BITS/NOZ

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FOOT DRILLED	HRS	T	B	G	in	RPM	JV fpm	SR

BHA

DC size _____ / _____ in; Connection _____ / Bouyed DC WT _____

PIPE

DP SIZE _____ / _____ in; WT _____ / _____ lb/ft; Grade _____ / _____; No of Jts _____ / _____

DP CONNECTION _____ / _____ Ratings _____ / _____ lb; Hook Load _____ lb; Margin _____ lb

SURVEY

TIME HRS

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		WAITING			
TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT					
—		—		—		—		DRILL LINE REPAIR					

BOP

PM Drills: Day Time _____ Alarm Time _____ Mins Time _____ Mins Last CSG Press 5000 psi

Drills This Month: _____, DRW _____, FIR _____, FIR _____ Crit. Air Press _____ lb

Equipment:

Personnel Rig 12 Service 5 GORL 1 Total 18 Weather Clear Temp 58

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported 0630 Tour Pusher P. Pandachuk

P-711A (12-88)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

1. WELL NAME: G.C.R.L. Seismosaur Federal — DATE: 97-07-14
2. CURRENT DEPTH: ____ ft FORMATION: Paradox DFS: 174
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 678 $ 4,195,700
4. PROGRESS ____ ft AUTHORIZED T.D. ____ RIG: ____
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @ 13,839 ft
6. SUMMARY:
7. 0600 - 0700 R.I.H w/ Packer + Gun Assembly
8. 0700 - 1030 Sudden Increase in String wt
9. 4 Stds + 1 Single Off Btm. Fluid
10. Level Dropped in Annulus. Set
11. Packer + Fill Hole. Pick Up
12. Kelly + Cir. Tubing.
13. 1030 - 1245 P.O.H.
14. 1245 - 1430 Annulus Flowing. Pick Up Kelly
15. + Cir.
16. 1430 - 1930 P.O.H. Found 10th JT of 2 7/8
17. Tubing Split + Collapsed For 5 Ft.
18. 1930 - 2100 Lay Down 6.5 lb 2 7/8 Tubing
19. 2100 - 0300 Wait On Tubing
20. 0300 - 0500 Pick Up 8.5 lb 2 7/8 Tubing + Packer
21. 0500 - 0600 RIH w/ Packer + Gun Assembly
22.
23.
24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 177
25. OPERATION @ 0600 HR R.I.H
26. GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	209	605
Safety	213	650

TOTALS	
DAILY	10,975
PREVIOUS	4,834,482
CUMULATIVE	4,845,457

MUD

TIME	DENSITY ppg	VIS	pH	WL	GEL	PV	YP	FC	SOLIDS	SAND	OWC	$CaCO_3$	Cl	Ca

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM

DEGANDER:	OF	ppg: UF	ppg: UF	GPM	HRS
DESILTER:	OF	ppg: UF	ppg: UF	GPM	HRS
CENTRIFUGE:	OF	ppg: UF	ppg: UF	GPM	HRS

DAILY, bbl
CUMULATIVE, bbl

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

OR LOCATION

INVERT bbl	
GEL bbl	
BARITE bbl	
DIESEL bbl	

HYD

PUMP	DESCRIPTION	SPM X STROKE	SPM	PRESSURE psi	GPM	BHA	HOLE SIZE SPM	HOLE SIZE

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS	Y	B	G	R	RPM	TY	SR

BHA

DC size ____ / ____ / ____ in; Connection ____ ; Bouyed DC WT ____

PIPE

DP SIZE ____ / ____ in; WT ____ / ____ lb/ft; Grade ____ / ____ ; No of Jts ____ / ____

DP CONNECTION ____ / ____ Ratings ____ / ____ lb; Hook Load ____ lb; Margin ____ lb

SURVEY

TIME

DRLG		RIG SERV		LOGGING		CLEANING		DEMENTING		MIRT/TORT	
TRIP	9 1/4	CIRC	5 1/4	RUN CSG		REAMING		SLIP & CUT		Handle Tools	3 1/2
SURVEY		CORING		WOC		DST		MIRRLE MIX PRESS TEST		Wait On Tubing	6

BOP

Pit Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max CSG. Press 5000 psi

Closing Time Seconds: Annular ____ ; Blind ____ ; Pipe ____ ; Pipe ____ CSG. Ann Press ____ psi

34. Equipment:
35. Personnel Rig 12 Service 4 GCRL 1 Total 17 Weather Clear Temp 60
36. Reported By: L Arnold Mobile 1-801-259-9570
37. Time Reported: 0630 Superintendent D Salamandick

HALLIBURTON

Vanngun Installation

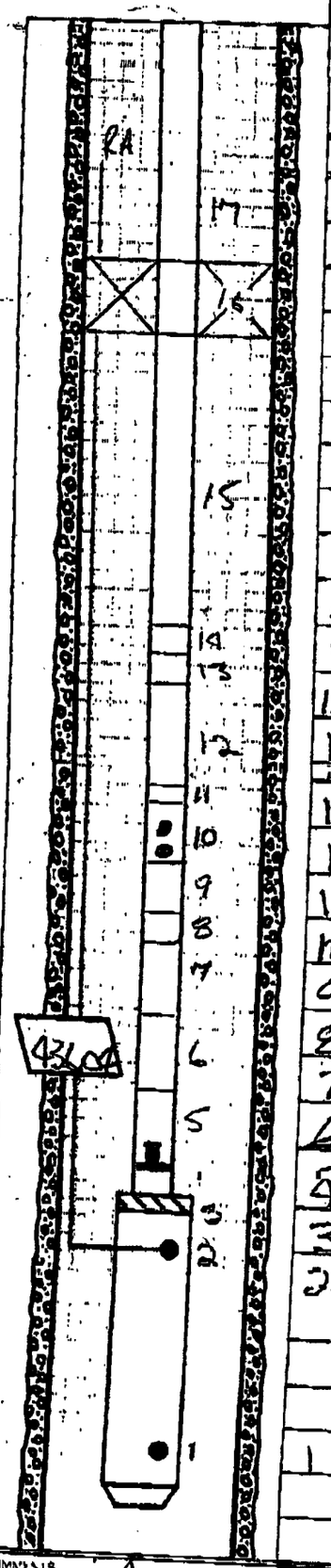
COMPANY	CO. REPRESENTATIVE	DATE
GULF CANADA	LARRY ARNOLD	7-14-97

WELL NAME	FIELD NAME	COUNTY	STATE
SEIMOSAUR FED 1	WILDCAT	GRAND	UTAH

CASING	SIZE	WEIGHT	DEPTH	ALL TO TOP SHOT	STAGE	RVD
				436.04	1	

13648-13680 4

☐ COMPLETION
☐ WORKOVER



ITEM	DESCRIPTION	I.D.	O.D.	LENGTH	DEPTH
17	2 7/8 N-80 JOINT	2.44	3.67	29.71	13222
16	9 5/8 PTTS PACKER	3.75	8.25	8.95	13252
15	10 JOINTS 2 7/8 N-80 T&G	2.44	3.67	312.39	13261
13	X NIPPLE	2.313	3.67	1.22	13574
12	2 7/8 N-80 JOINT	2.44	3.67	31.66	13576
11	2 3/8 P X 2 7/8 B X-O	1.99	3.67	.44	13607
10	MAX DIFF VENT	2.25	3.88	2.32	13608
9	6' 2 3/8 N-80 PUP	1.99	3.06	6.05	13610
8	2 3/8 MECH TUBING RELEASE	1.81	3.06	1.56	13616
7	8' 2 3/8 N-80 PUP	1.99	3.06	8.15	13618
6	8' 2 3/8 N-80 PUP	1.99	3.06	8.20	13626
5	8' 2 3/8 N-80 PUP				
4	4' 2 3/8 PUP + MECH F.H.	1.56	3.06	4.96	13642
3	3 3/8 GUN BLANK	—	3 3/8	.42	13647
2	TOP SHOT	—	3 3/8	0	13648
1	BOTTOM SHOT				13680

COMMENTS: ALL ITEMS ARE MEASURED TO THE TOP OF THAT ITEM

PREPARED BY: LARRY R CARLISLE | OFFICE: CASPER WY | PHONE: 307473-8220

COPIES: WHITE-WELLSITE, GREEN-DISTRICT, YELLOW-DIVISION, PINK-HOUSTON, ORANGE-ENG.

P-711A (12-85)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

1. WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: 97-07-15
2. CURRENT DEPTH: ft FORMATION Paradox DPS: 175
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
4. PROGRESS ft AUTHORIZED T.D. 17,600 RIG: Nabors 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft
6. SUMMARY:
7. 0600-1400 R.I.H. Tubing Started Taking mud
8. 1400-1500 monitor well
9. 1500-2000 P.O.H
10. 2000-2030 circ gas out of tubeing
11. 2030-2100 work on S.C.R.
12. 2100-2400 Repair Down hole Tools
13. 2400-0600 R.I.H.
14.
15.
16.
17. Found Mechanical Tubeing release
18. had Failed causing mud to enter Tubing
19.
20.
21.
22.
23.
24. ACCIDENTS: TODAY 0 DUM 0 SAFETY DAYS 178
25. OPERATION @ 0600 HR R.I.H.
26. GAS UNITS DRAG lb ROTARY TORQUE

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	1200
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	209	605
Safety	211	650

TOTALS	
DAILY	11724
PREVIOUS	4,845,457
CUMULATIVE	4857182

MUD

	TIME	DENSITY ppg	VIS	pH	WL	GEL	PV	YP	FC	SOLIDS %	SAND %	O/W	CaCO3	Cl	ES
27.															
28.															

SOLIDS CONT.

29.	SHAKER SCREEN SIZE #1 TOP	BTM	#2 TOP	BTM		
30.	DESANDER: OF	ppg; UF	ppg; UF	GPM	HRS	
31.	DESILTER: OF	ppg; UF	ppg; UF	GPM	HRS	
32.	CENTRIFUGE: OF	ppg; UF	ppg; UF	GPM	HRS	

MUD LOCATION: DAILY, bbl; CUMULATIVE, bbl

MATLS USED

	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
33.	GEL					
34.	CAUSTIC SODA					
35.	BARITE					
36.						

ON LOCATION: INVERT bbl; GEL bbl; BARITE bbl; DIESEL bbl

HYD

	PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	t/min	HOLE RATE SPM	HOLE RATE psi
37.									
38.									

BIT INFO

	NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV	S/N
39.																
40.																
41.																

BHA

42.
43.
44. DC size / / in; Connection ; Bouyed DC WT
45. DP SIZE / in; WT / lb/ft; Grade / ; No of Jts /
46. DP CONNECTION / Ratings / lb; Hook Load lb; Margin lb

SURVEY

47.
48.

TIME

49.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIRT/TORT		monitor well 1
50.	TRIP	19	CIRC	1/6	RUN CSG		REAMING		SLIP & CUT		Tools	3	
51.	SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST		Repair	3	

BOP

52. Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 5000 psi
53. Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

54. Equipment:
55. Personnel Rig 12 Service 4 GCRL 2 Total 18 Weather Clear Temp +64
56. Reported By: L. Arnold + D. Snydmiller Mobile 1-801-259-9570
57. Time Reported: 0630 Superintendent D. Salamandick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-PITA (12-90)

1. WELL NAME: Fo C.R.L. Seismosaur Federal #1 — DATE: 97-07-16
2. CURRENT DEPTH: _____ ft FORMATION: Paradox DFR: 176
3. [illegible]
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @ 12339 ft
6. SUMMARY: 0600 - 1300 RIH to 13614' Ft
7. 1300 - 1800 Check tool Depth with wire Line
8. 1800 - 1830 Run in to 13655' String hung up
9. unable to get to Perforation Depth
10. 1830 - 1900 Servicing check B.O.P
11. 1900 - 0230 P.O.H
12. 0230 - 0330 Lay down Perforating tools
13. 0330 - 0600 Pick up B.H.A Run in hole
14.
15.
16.
17. Had to make two runs with wire Line
18. to check Perf tool Depth Gamma ray
19. failed on first run
20.
21. Could not get Past 13655 with Perforating
22. Tool
23.
24.

DAILY COST SUMMARY		
	est	
SAFETY BONUS	214	1880
WATER	216	100
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	208	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	209	605
Safety	212	650
TOTAL DAILY		11910
PREVIOUS		1257182
CUMULATIVE		1268092

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 179

OPERATION @ 0600 HR run in

MUD															
1823	13.1	55		5.6	11.15	24	13	2	25.5	2.5	84-14				397

SOLIDS CONTROL								
SHAKER SCREEN SIZE #1 TOP	BTM	#2 TOP	BTM					
DESANDER:	OF	PPG: UF	PPG: UF	GPM	HRS			
DESILTER:	OF	PPG: UF	PPG: UF	GPM	HRS			
CENTRIFUGE:	OF	PPG: UF	PPG: UF	GPM	HRS			

DISCARD	
DAILY, bbl	
CUMULATIVE, bbl	

MATERIALS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	GEL					
	CAUSTIC SODA					
	BARITE					
					Cum # 607273	

ON-SITE INVENTORY		
INVERT	bbl	
GEL	sk	
BARITE	sk	
DIESEL	bbl	

MUD PUMPS	PUMP	DESCRIPTION	SIZE X STROKE	SPM	PRESSURE psi	GPM	SPM	PRESSURE psi
	1	12 - P 160	6 1/2 X 12					
	2	12 - P - 160	6 1/2 X 12					

BIT RECORD	NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FOOT DRILLED	HRS	T	B	G	in	RPM	WT 1000 lbs	SPM
	22	PLB40B	8 1/2	HP13	open											

BHA: Bit Bit Sub X.O 2 - H.W X.O. 5 1/2 Hydril tubing

DRILL STRING: 1 1 in Tension — Hooked DC WT

SURVEY

TIME															
DRLG		RIG SERV	1/2	LOGGING		CLEANING		CEMENTING		WAIT/TEST					
TRIP	15.5	GIRE		RUN CSG		REMARKS		SLIP & CUT		Handle Tools	3				
SURVEY		CORING		WOC		DST		NIPPLE UP BOPE/TEST		Wire Line	5				

BOP: Pit Drills: Day Tour _____ sec; Afternoon Tour _____ sec; Nite Tour _____ sec; Max CSG. Press 5000 psi
Closing Time Seconds: Annular 40 ; Blind _____ ; Pipe 10 ; Pipe 10 CSG.Ann Press _____ psi

Equipment:

Personnel Rig 12 Service 4 GCRL 1 Total 17 Weather Clear Temp +72

Reported By: D. Snydmiller Mobile 1-800-225-9520

Time Reported: 0630 Superintendent D. Salamendick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-89)

1. WELL NAME: G.C.R.L. Salmasaire Federal #1 DATE: 97-07-17
2. CURRENT DEPTH: _____ 3. FORMATION _____ DFS: 177
4. FOOTAGE MOVED: 14182 5. BIT SET: 8 1/2 6. MW: 10.0
7. HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @ 12339 ft
8. SUMMARY: 0600 - 1200 R.I.H.
1200 - 0600 Ream from 13522 to 13600

DAILY COST SUMMARY		
ITEM	#	AMOUNT
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	305	
MUD SYSTEM	309	1035
DIRECTIONAL	212	
OTHERS	224	455
Barroid	209	605
Safety	213	650
Rocket	201	355
Rocket	215	330

13515 - 13615 SALT STRINGER
13615 - 13700 SHALE

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 180
OPERATION @ 0600 HR Ream @ 13600
GAS UNITS _____ DRAG _____ ROTARY TORQUE _____

TOTALS	
DAILY	11660
PREVIOUS	4869092
CUMULATIVE	4880752

MUD	TYPE	DENSITY	VIS	pH	WL	MBT	PV	YP	Gels	Solids	Oil	Water	Chlorides	Ca	K
	1915	12.3	53		5.2	6.9	25	10	2	25.6	19	50-10		29500	42.6

DESILTER:	OF	PPG: UF	PPG: UF	GPM	HRS	
CENTRIFUGE:	OF	PPG: UF	PPG: UF	GPM	HRS	

CHEMICALS	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	GEL		Invertrol	1		
	CAUSTIC SODA		Ezmul	1		
	BARITE				Daily	1056
					Cum	10329

ON LOCATION		
INVENT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

PUMP	DESCRIPTION	SPM & STROKE	MW	PRESSURE psi	GPM	Mem	SCOURING	
1	12-P-160	60 - 12	36	1500	1200			

BIT	NO.	SERIAL #	SIZE	TYPE	JETS	WT	OUT	FOOTAGE	HRS.	T	B	G	O	R	HRS	IN	OUT
	22	DLR408	8 1/2	HP13	open	Ream			18					2-3	LO		

BHA: Bit Bit sub XO 7 H.W. XO 5 1/2 Hydwell Tubing

DC size _____ in; Connection _____; Bouyed DC WT _____

DP SIZE 3 1/2 in; WT 12.95 lb/ft; Grade G 105 ; No of Jts 432

DP CONNECTION _____ Ratings _____ lb; Hook Load _____ lb; Margin _____ %

REMARKS

TIME	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		SURVEY	
					RUN CSG		REAMING	18	SLIP & CUT			

TOP: Pit Drills: Day Tour _____ sec; Afternoon Tour _____ sec; Night Tour _____ sec; Max CSG. Press _____ psi
Closing Time Seconds: Annular _____; Blind _____; Pipe _____; Pipe _____ CSG. Ann Press _____ psi

14. Equipment: _____
15. Personnel Rig _____ Service _____ GCRL _____ Total _____ Weather _____ Temp _____
16. Reported By: D. Saydmiller Mobile 1-801-259-9520
17. Time Reported: 0630 Superintendent D. Salamandick

FROM : Panasonic FAX SYSTEM PHONE NO. : Jul. 18 1997 06:13AM

GORL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-

1. WELL NAME: G. C. R. L. Saismosaur Federal # 1 DATE: 97-07-18
2. CURRENT DEPTH: ft FORMATION: UPM: 178
3. PREVIOUS DEPTH: 13482 ft AFE NO: 67896 $ 4195700
4. PROGRESS ft AUTHORIZED T.D. 17600 RIG: Nabors 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13339 ft

1. 1645 - 0100	P.O.H	
2. 0100 - 0430	Pick up Perforating Tools	
3. 0430 - 0600	R.I.H.	

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	208	1015
DIRECTIONAL	212	
OTHERS	224	455
Aerovid	209	605
Safety	213	650

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 181
OPERATION @ 0600 HR Running with Perf. guns.
GAS UNITS: DRAG lb ROTARY TORQUE

TOTALS	
DAILY	10975
PREVIOUS	4869092
CUMULATIVE	4880067

MUD	TIME	DENSITY	VIS	pH	WL	GEL	PV	YP	FC	SOLIDS	SAND	CHV	H2O2	Ca	Cl
	1510	13.1	47		16.4	11 / 15	35	18	2	21.2	3.25	22-29		1470mg	212

SOLIDS CONTROL	DESILTER:	OF	PPG: UF	RPM	GPM	PPG: UF	RPM	GPM
	CENTRIFUGE:	OF	PPG: UF			RPM: UF	GPM	HRS

MATERIALS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	RPI		Czall	2		
	CAUSTIC SODA		Invermul	2		
	BARITE				Daily	1046
					Cum	609275

ON LOCATION		
INVENT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD	PUMP	DESCRIPTION	SCRS X STROKE	SPM	PRESSURE psi	GPM		
	1	12-P-160	6 1/2 X 12	36	1500	1200		

BIT INFO	NO.	SERIAL #	SIZE	TYPE	JETS	IN	OUT	FOOTAGE DRILLED	HRS	T	B	G	R	RPM	W	SN
	22	PLR 408	8 1/2	MP13	open		Ream	13522 ft			13721					

BHA: Bit Bit Sub XO 2 H.W XO 3 1/2" Hydril Tubing

DC size / / in; Connection ; Bouyed DC WT

DP SIZE 3 1/2 / in; WT 13.95 / in; Grade 1.80 / ; No of Jts 435 /
DP CONNECTION Hydril 503 Rating 12 K / lb; Hook Load 150 lb; Margin 100 lb

SUMMARY												
DRLG		RIG SERV	1/2	LOGGING								
TRIP	9 3/4	CIRC	1	RUN CSG		REAMING	9 1/4	REPAIR		Handle Tools	3 1/2	
SURVEY		CORING		WOC		SLIP		MISC (INCL. NPT)				

BOP: Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2000 psi
Closing Time Seconds: Annular ; Blind ; Pipe 10 ; Pipe 10 CSG. Ann Press psi

14. Equipment:
15. Personnel Rig 12 Service 4 GORL 1 Total 17 Weather Scattered Cloud Temp +74
16. Reported By: D. Saydmiller Mobile 1-801-259-5570
17. Time Reported: 0630 Superintendent Dave Salamandick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-89)

1. WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: 97-07-19
2. CURRENT DEPTH: ft FORMATION DFS: 179
3. PREVIOUS DEPTH: 13482 ft AFE NO: 67896 $ 419,700
4. FOOTAGE ft SHIMEDOAR: 1780 Shubert 280
5. HOLE SIZE: 8½ in LAST CSG SIZE: 8⅝ in SET @ 13339 ft
6. SUMMARY: 0600 - 1430 R.I.H.
7. 1430 - 1730 Log Perforating Depth
8. 1730 - 1915 Set Packer + Perforate
9. 1915 - 0430 Test well
10. 0430 - 0600 Run Slick Line
11. Faint air blow on test
12. remaining for 4 hrs then
13. Dying
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY REPAIR	914	180
WATER	216	
SUPERVISOR	303	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	209	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	209	605
Safety	213	650
Halliburton	303	61109
CUDD	303	28673
TOTAL DAILY		100757
TOTAL PREVIOUS		4880067
TOTAL CUMULATIVE		4980824

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 182
OPERATION @ 0600 HR Run Slick Line
GAS UNITS DRAG lb ROTARY TORQUE

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL lbs/100ft²	PV cp	YP lb/100ft²	FC 32nds	SOLIDS %	SAND %	O/W Ratio	$CaCO_3$ ppm	Cl ppm	Ca ppm

SOLIDS CONTROL

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
DESANDER: OF ppg: UF ppg: UF GPM HRS
DESILTER: OF ppg: UF ppg: UF GPM HRS
CENTRIFUGE: OF ppg: UF ppg: UF GPM HRS

DAILY, bbl	
CUMULATIVE, bbl	

MATERIALS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					

DAILY COST	
INVERT	bbl
GEL	bbl
BARITE	bbl
FUEL	bbl

HYD

PUMP	DESCRIPTION	BORE & STROKE	SPM	PRESSURE psi	GPM	Rpm	DAILY HRS SPS	lb
1	12-P-160	6½ X 12						

BIT INFO

NO.	SERIALS	SIZE in	TYPE	NOZ. in	IN ft	OUT ft	TOTAL FOOTAGE	HRS	T	B	G	in	WOB	RPM	PP psi	SPM

BHA

Test String

DC size / / in; Connection ; Bouyed DC WT

PIPE

DP SIZE 3½ / in; WT / lb/ft; Grade / ; No of Jts /
DP CONNECTION 2⅞ IF / Hardbands / Bit to Length lb

SURVEYS

TIMES

DRILL		DRILL CEMENT		CORING		REPAIRS		SLIP & CUT		SERVICE RIG			
TRIP	8½	DIRS		RUN CSG		REAMING		NIPPLE UP BOPE TEST		Slick Line	1½		
SURVEY		CORING		MUD		SET	9						

BOP

52. Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 5500 psi
53. Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi
54. Equipment:
55. Personnel Rig 12 Service 4 GCRL 1 Total 17 Weather Cloudy Temp +68
56. Reported By: D. Snyder Mobile 1-801-255-9570
57. Time Reported: 0638 Superintendent Dave Salamandick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (10-88)

1. WELL NAME: G.C.R.L. Saismosaur Federal # 1 DATE: 97-07-20
2. CURRENT DEPTH: ft FORMATION: DFS: 179
3. PREVIOUS DEPTH: 12,982 ft AFE NO: 67876 $ 419,570
4. PROGRESS: ft AUTHORIZED T.D. 12,600 RIG: Nabors 250
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 12,839 ft
6. SUMMARY: 0600 - 0800 Run Slick Line Sampler
7. [illegible] Target Not [illegible]
8. 0800 - 1830 Work Stuck Pipe Fill Pipe with mud
9. 1830 - 1930 Lay down Halliburton head
10. 1930 - 2030 Trip up to Casing shoe
11. 2030 - 2130 Attempt to Break circ.
12. 2130 - 0600 P.O.H.
13.
14.
15.
16. Work Stuck Pipe up 220,000
17. Down 100,000
18.
19. Trip wet Due to Plugged Pipe
20.
21. Slick Line Picked up flaid level @ 8000'
22.
23.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	216	450
SUPERVISOR	205	600
GEOLOGIST	204	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	208	1035
DIRECTIONAL	212	
OTHERS	224	455
Barcid	201	603
Safety	213	650
Halliburton	203	6674
D.C. Prod	203	12,725
TOTALS: DAILY		20824
PREVIOUS		4980824
CUMULATIVE		5016476

24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 183
25. OPERATION @ 0600 HR P.O.H
26. GAS UNITS DRAG lb ROTARY TORQUE

MUD

	TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL (10min/10min)	PV cp	YP lb/100ft²	FC 32nd	SOLIDS %	SAND %	OWR Ratio	CaCO3 lb/bbl	Cl mg/l	Ca mg/l
7.															
8.															

9. SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
10. DESANDER: OF PPG: UF PPG: UF GPM HRS
11. DESILTER: OF PPG: UF PPG: UF GPM HRS
12. CENTRIFUGE: OF PPG: UF PPG: UF GPM HRS

DAILY, bbl
CUMULATIVE, bbl

MATERIALS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
13.	GEL					
14.	CAUSTIC SODA					
15.	BARITE					
16.						

ON LOCATION: INVENT bbl; GEL bbl; BARITE bbl; DIESEL bbl

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	Slow	BELOW BIT psi	SD
17. 1	12-P-160	6 1/2 X 12						
18.								

BIT INFO	NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	ft	RPM	JV	SD
19.																
20.																
21.																

22. BHA: Test string
23.
24. DC size / / in; Connection ; Bouyed DC WT
25. PIPE: DP SIZE 3 1/2 / in; WT 13.65 / lb/ft; Grade 280 / ; No of Jts /
26. DP CONNECTION 503 Hy. Ratings 750 / ft; Hook Load 150 ft; Margin 140 lb
27. SURVEY
28.

TIME															
29.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		WAIT/TOUR		Stand up to Stump	1
30.	TRIP	9 1/2	CIRC		RUN CSG		REAMING		SLIP & CUT		Slick Line	2	Tools	1
31.	SURVEY		CORING		WOC		DST		NIPPLE UP PRESS TEST		Work Stuck P.P.	10 1/2		

32. BOP: PR Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 5000 psi
33. Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe 10 CSG. Arm Press psi
34. Equipment:
35. Personnel Rig 12 Service 2 GCRL 1 Total 17 Weather Clear Temp +68
36. Reported By: D. Snydmiller Mobile 1-801-259-9270
37. Time Reported: 0630 Superintendent Dave Salamandick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P.711A (12-95)

1. WELL NAME: G.C.R.L Seismosaur Federal # 1 — DATE: 97-07-21
2. CURRENT DEPTH: ____ ft FORMATION ____ DFS: 180
3. PREVIOUS DEPTH: 15482 ft AFE NO: 67896 $ 4125700
4. PROGRESS ____ ft AUTHORIZED T.D. 17600 RIG: Nabors 280
5. HOLE SIZE: 8 1/2 in LAST CSG: 9 5/8 p.w.h.
7. 0800 - 0900 - Packer hanging up &
8. Swabbing well, Check Pipe
9. @ 5000 ft.
10. 0900 - 1130 - Circ out Test Fluid
11. 1130 - 1700 P.O.H
12. 1700 - 1900 Lay down Tools
13. 1900 - 0330 R.I.H.
14. 0330 - 0430 Clean bridge @ 12120
15. 0430 - 0600 Pick up Singles
16.
17.
18. Left 105' of Perf. String in the
19. Hole Top of fish = 13575'
20.
21.
22. 13575 → W/O CSG.
23.
24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 184
25. OPERATION @ 0600 HR Pick up Singles @ 13220
26. GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

DAILY COST SUMMARY

ITEM	#	AMOUNT
RIG	207	7680
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	206	
MUD SYSTEM	208	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	209	600
Safety	213	650
C.W.D	303	13173
Halliburton	303	8752
TOTALS DAILY		22900
PREVIOUS		5011648
CUMULATIVE		5044548

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL ml	GEL 10sec/10min	PV cp	YP lb/100ft²	FC 1/32	SOLIDS %	SAND %	O/W Ratio	CaCO3 ppm	Cl ppm	ES volts
0331	12.2	16		6.8	13/16	26	17	1	3.1/7.7/17	2/2/2	91/7/2		18511	100

SOLIDS CONT

29. SHAKER SCREEN SIZE #1 TOP 110 BTM 110 #2 TOP 110 BTM 110
30. DESANDER: OF ppg; UF ppg; UF GPM HRS
31. DESILTER: OF ppg; UF ppg; UF GPM HRS
32. CENTRIFUGE: OF ppg; UF ppg; UF GPM HRS

MUD LOCATION: DAILY, bbl ____ CUMULATIVE, bbl ____

MATLS USED

	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
33.	GEL					
34.	CAUSTIC SODA					
35.	BARITE					
36.						

ON LOCATION: INVERT bbl ____ GEL bbl ____ BARITE bbl ____ DIESEL bbl ____

HYD

	PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	ft/min	HOLE RATH SPM	HOLE RATH psi
37.	1	12-P-160	6 1/2 - 12	36	1500	1200			
38.									

BIT INFO

	NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV ft/sec	B/ft
39.	22	PLR408	8 1/2	HP13	open	Clean out										
40.																
41.																

BHA

42. Bit Bit sub, X.O. 6 H.W. X.O. Pipe
43. DC size ____ / ____ in; Connection ____ ; Bouyed DC WT ____

PIPE SURV

44. DP SIZE 3 1/2 / ____ in; WT 12.67 / ____ lb/ft; Grade L80 / ____ ; No of Jts ____ / ____

TIME HRS

DRLG		RIG SERV		LOGGING		CLEANING	1	CEMENTING		MIRT/TORT					
TRIP	17 1/2	CIRC	2 1/2	RUN CSG		REAMING		SLIP & CUT		Lay Down Pipe	1				
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST		Handle Tools	2				

BOP

Pit Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max OSG. Press 5000 psi
Closing Time Seconds: Annular ____ ; Blind 10 ; Pipe ____ ; Pipe ____ OSG. Ann Press ____ psi

Equipment:

Personnel Rig 12 Service 3 GCRL 1 Total 17 Weather clear Temp 66

Reported By: D. Snydriller Mobile 1-801-259-9570

Time Reported: 0630 Superintendent Dave Salamandick

P-711A (12-95)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-07-22

1. WELL NAME: G.C.R.L Seismosaur Federal
2. CURRENT DEPTH: ft FORMATION DES:
3. PREVIOUS DEPTH: 15482 ft AFE NO: L7896 s 419570
5. HOLE SIZE: 8½ in LAST CSG SIZE 9 3/8 in SET @ 13329
6. SUMMARY: 0600 - 0600 Ream from 13269 to 133[illegible]
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24. ACCIDENTS: TODAY ○ CUM ○ SAFETY DAYS 185
25. OPERATION @ 0600 HR Ream @ 13341
26. GAS UNITS DRAG lb ROTARY TORQUE

DAILY COST SUMMARY		
ITEM	#	AMOUNT
SAFETY BONUS	214	[illegible]
WATER	215	
SUPERVISOR	223	[illegible]
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	[illegible]	450
Baroid	[illegible]	605

TOTALS
DAILY 10325
PREVIOUS 5044548
CUMULATIVE 5054873

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft	PC 1/32	SOLIDS %	SAND Lime	O/W Ratio	Ca/CO3 ppm	Cl ppm	[illegible]
1901	13.2	53		16.8	13.17	37	19	2	21.2	338	72-28		386[illegible]	[illegible]

27.
30. DESILTER: OF ppg; UF ppg; UF GPM HRS
31. CENTRIFUGE: OF ppg; UF ppg; UF GPM HRS
32.

CUMULATIVE, bbl

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL		Ezmul	2		
CAUSTIC SODA		Inverml	1		
BARITE		Lime	10	Daily	$1620
				Cumm.	$610995

ON LOCATION
INVERT bbl
GEL bbl
BARITE bbl
DIESEL bbl

33.
34.
35.
36.

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	ft/min	HALF RATE SPM	HALF RATE psi
1	12-P-160	6½ X 12						

37.
38.

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV ft/sec	ft
22	PLR408	8½	HP13	open		Clean	out								

39.
40.
41.

BHA
42. Bit Bit Sub X.O. 6 H.W X.O Tubeing
43.
44. DC size / / in; Connection ; Bouyed DC WT
45. DP SIZE 2½ in; WT 12.65 lb/ft; Grade L80 ; No of Jts 430
46. DP CONNECTION 503 Hy Ratings 290 lb; Hook Load 150 lb; Margin 140 lb

PIPE

SURVEY
47.
48.

TIME Hrs

DRLG		RIG SERV	1/2	LOGGING		CLEANING		CEMENTING		MIRT/TORT			
TRIP		CIRC		RUN CSG		REAMING	23½	SLIP & CUT					
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST					

49.
50.
51.

BOP
52. Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 5000 psi
53. Closing Time Seconds: Annular ; Blind ; Pipe 10 ; Pipe CSG. Ann Press psi

56. Reported By: [illegible]
57. Time Reported: 0630 Superintendent Bill Rockney

FROM : Panasonic FAX SYSTEM PHONE NO. : Jul. 22 1997 06:25AM P1

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-95)

1. WELL NAME: G.C.R.L Seismosaur Federal # 1 DATE: 97-07-22
2. CURRENT DEPTH: ____ ft FORMATION ____ DFS: 182
3. PREVIOUS DEPTH: 15482 ft AFE NO: 67856 $ 4195700
4. PROGRESS ____ ft AUTHORIZED T.D. 17600 RIG: Nabors 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13339 ft
6. SUMMARY: 0600 - 0700 ream
7. 0700 - 1100 P.O.H
8. 1100 - 1330 Well Flowing R.I.H.
9. 1330 - 0400 mix Anvil
10. 0400 - 0500 monitor well well started
11. to flow after 20 min
12. 0500 - 0600 Pull one std & close Hydrill
13. mix barite
14.
15.
16. raised mud wt from 13.2 to 14.1#
17.
18. with pump stopped and well turned
19. to trip tank well started Flowing
20. 3/4" Stream after 30 min
21.
22.
23.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	218	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS		
DRILL STRING	205	
MUD SYSTEM	206	1025
DIRECTIONAL	212	
OTHERS	224	455
Baroid	224	605
Trucking	206	945
Fuel	208	2042
Trucking	205	545
Hot Shot	201	454
TOTALS DAILY		15,313
PREVIOUS		505 4873
CUMULATIVE		5,070,184

24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 186
25. OPERATION @ 0600 HR Shut in monitor well
26. GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	PG 1/32	SOLIDS %	SAND %	O/W Ratio	Cl/CO3 ppm	Cl ppm	ES volts
0250	14	60		18	16/21	45	40	2	23	2.34	63-38		39/000	142

SOLIDS CONT.

SHAKER SCREEN SIZE #1 TOP 110 BTM 110 #2 TOP 110 BTM 110

DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS
DESILTER:	OF	ppg; UF	ppg; UF	GPM	HRS
CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS

MUD LOSS: DAILY, bbl ____ CUMULATIVE, bbl ____

MATS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL		Invermul	5		
CAUSTIC SODA		E-mud	1		
BARITE	466	Lime	5	Daily	4608
		P		Cum	615602

ON LOCATION

INVERT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD

PUMP	DESCRIPTION	SURF & INTERMS	SPM	PRESSURE psi	GPM	ft/min	NOZZLE SIZE 32nds	psi
1	12-P 160	6 1/2 X 12	35	1650	1200			

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	D	RPM	JV ft/sec	SFI
22	P1R408	8 1/2	HP13	open	Cleanout										

BHA

DC size ____ / ____ in; Collection ____ ; Buoyed DC WT ____

PIPE

DP SIZE 3 1/2 / in; WT / lb/ft; Grade E 80 / ; No of Jts 430 /

DP CONNECTION 5 1/2 IF; Rating 3.90 / lb; Hook Load 155 lb; Weight 135 lb

SURVEY

TIME

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIT/TORT			
TRIP	6 1/2	CIRC		RUN CSG		REAMING	1	SLIP & CUT		mix mit	18 1/2		
SURVEY		CORING		WOC		BOP		NIPPLE UP/ PRESS TEST		monitor well	1		

BOP

Pit Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max CSG. Press 5000 psi

Closing Time Seconds: Annular ____ ; Blind ____ ; Pipe 10 ; Pipe ____ CSG. Ann Press ____ psi

Equipment: ____

Personnel Rig 12 Service 2 GCRL 1 Total 16 Weather Cloudy Temp 62

Reported By: D. Snydmiller Mobile 801-259-9570

Time Reported: 0630 Superintendent Bill Rackney

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-96)

1. WELL NAME: G.C.R.L Seismosaur Federal #1 DATE: 97-07-24
2. CURRENT DEPTH: ft FORMATION: DFS: 18.3
3. PREVIOUS DEPTH: 15482 ft AFE NO: 67896 $ 4195700
4. PROGRESS ft AUTHORIZED T.D. 17600 RIG: Nabors 25TO
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13239 ft
6. SUMMARY: 0600 - 0600 mix Barite Build volume
7. Raise mud wt to 18.8 lbs
8.
9.
0.
1. SIDPP SICP
2. 3500 psi 3650 psi
3.
4. Pressure built to these
5. figures in 10 hrs.
6.
7.
8.
9.
0.
1.
2.
3. DITO
4. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 187
5. OPERATION @ 0600 HR mix barite mud wt 18.8 lb.
6. GAS UNITS DRAG lb ROTARY TORQUE

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	1200
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	209	1035
DIRECTIONAL	212	
OTHERS	224	455
Baroid	207	603
Rocket	201	330

TOTALS	
DAILY	11405
PREVIOUS	5070184
CUMULATIVE	5081589

MUD	TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	FC 1/32	SOLIDS %	SAND %	O/W Ratio	H_2S ppm	Cl ppm	Ca mg/L
7.	0300	18.3	165		7	18 23	92	49	2	31.8	2.99	69-31		78400	166
8.															

SOLIDS CONTROL							MISLOGGER	
9.	SHAKER SCREEN SIZE #1 TOP 110 BTM 110 #2 TOP BTM							DAILY, bbl
0.	DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS		
1.	DESILTER:	OF	ppg; UF	ppg; UF	GPM	HRS		CUMULATIVE, bbl
2.	CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS		

MATLS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT	ON LOCATION	
3.	GEL		EZmul	11	Lime	31	INVERT	bbl
4.	CAUSTIC SODA		Drill Treat	8			GEL	bbl
5.	BARITE	5200	Invermul	5	Daily	33815	BARITE	bbl
6.			DMC	1	Cum	649417	DIESEL	bbl

HYD	PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	l/min	HOLE GATE SPM	psi
7.	1	6 1/2 X 12	12 @ 160						
8.									

BIT INFO	NO. P.R.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS	T	B	G	ft	RPM	JV l/min	SPI
9.	22	PLR 468	8 1/2	HP13	OPEN		Clean out									
0.																
1.																

2. SHA
3.
4. DC size / / in; Connection ; Bouyed DC WT
5. DP SIZE 3 1/2 / in; WT 12.65 / lb/ft Grade G 80 / ; No of Jts 430 /
6. DP CONNECTION 5 0 3 Hy. Ratings 290 / lb; Hook Load 145 lb; Margin 145 lb

7. SURVEY
8.

TIME HRS														
9.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIXT/TEST			
0.	TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT		mix mud	24		
1.	SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST					

BOP	
2.	Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 5000 psi
3.	Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Anl. Press psi

4. Equipment:
5. Personnel Rig 12 Service 5 GCRL 2 Total 19 Weather Clear Temp 64
6. Reported By: Sngdmiller + Arnold Mobile 801-259-957
7. Time Reported: 0630 Superintendent Bill Rackley

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-88)

WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: 97-07-25

CURRENT DEPTH: ft FORMATION: Paradox DFS: 184

PREVIOUS DEPTH: 15487 AFE NO: 6789L - 4105700

HOLE SIZE: 8 1/2 in LAST CSG SIZE: 9 5/8 in SET @ 13339 ft

SUMMARY:

0600 - 1015 Mix Mud Raise wt To 19 lb/Gal
1015 - 1330 Pump wt. Mud w/ B.J.
1330 - 2330 Mix + Build Volume, Well Shut In w/ 800 On DP + 1500 On Csg.
2330 - 0030 Pump 19 lb Mud
0030 - 0600 Mix wt + Build vole
Well Shut In @ 00:30 Hrs.
Built To 900 P.S.I. On Csg.
By 0330 Hrs. 0 On DP.
0600 Hrs - 1080 STOP - 0 DPP.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	1200
GEOLOGIST	504	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
Mud + Tank	209	36000
Barite	209	605

ACCIDENTS TODAY 0 DUM 0 SAFETY SAYS 188

OPERATION @ 0600 HR Mix Barite wt. 17.8 in Tank.

GAS UNITS

COSTS	
DAILY	47,075
PREVIOUS	5,081,589
CUMULATIVE	5,128,664

MUD			DRAG				TORQUE										
2200	18.7	98	14.8	7.4	16	.20	95	40	22	41.4	2.26	7.64	0/200	298/mm	.02

SOLIDS CONTROL							
SHAKER SCREEN SIZE #1 TOP	BTM	#2 TOP	BTM				
DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS		
DESILTER:	OF	ppg; UF	ppg; UP	GPM	HRS		
CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS		

MUD COST	
DAILY, bbl	
CUMULATIVE, bbl	

MATERIALS USED							
TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT		
Gel		Soda Ash	2				
CAUSTIC SODA		OMC	1				
BARITE	39 1/6	Pert Soap	3				
Dri Treat	2	Diesel	30	D-31,503	C-680,520		

ON LOCATION		
INVENT.	USE	
GEL	sk	
BARITE	bbl	
DIESEL	bbl	

HYD	PUMP	DESCRIPTION	SPM X STROKE	SPM	PRESSURE psi	GPM	Nozzle	HOLE DATA	
								MW	psi
	1	12-P-160	6 1/2 X 12						

BIT INFO	NO.	SERIAL	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV Stroke	WT

BHA

BP CONNECTION Hoisting Mud Line Tr. Mud Line Tr. Mud Line

SURVEY

TIME	DRLG		RIG SERV		LOGGING		CLEARING		CEMENTING		MIX/TORY			
	TRIP			4 1/4							Mix Mud	14 3/4		
	SURVEY		REAM		WOO		DST		NIPPLE UP/ PRESS TEST					

BOP

Fill Drillers Day Tour ____ Afternoon Tour ____ Night Tour ____ Max Pump Press 2600 psi

Closing Time Seconds: Annular ____ BHU ____ Pipe ____ Pipe ____ CSG. Ann Press ____ psi

Equipment

Personnel Rig 12 Service 3 GCRL 1 Total 16 Weather Clear Temp 67

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent B. Rockney

DRILLING REPORT
(USA Operations)

DATE: 97-07-26

WELL NAME: G.C.R.1 Seismosaur Federal #1
CURRENT DEPTH: ft FORMATION: Paradox DFS: 185
PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
PROGRESS ft AUTHORIZED T.D. 17,600 RIG: Nabors 280
HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft

SUMMARY:
0600 - 1330 Mix Barite + Cond. Mud
1330 - 1930 Attempt To Cir. Tubing String Plugged
1930 - 0200 Rig In Wire Line + R.I.H w/ Collar Locator + 4 Shot Perf. Gun. Bridged @ 6500 FT.
0200 - 0400 P.O.H. + Add Sinker Bar Bridge @ 5600.
0400 - 0600 P.O.H. Lay Down Gun Assembly + Screw On Point. R.I.H To 5600 Spud Down To 5830

Csg Pressure 1200 P.S.I.

Fish @ 13575 m - 6440 ft
Pump 800 BBL
14 → 19 #/gal Hole 840 BBL
- 165 ft Bottom Pump

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
Bariod	209	605
Rig Fuel	203	11,026
Mud Diesel	209	5482
Bagon		

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 189
OPERATION @ 0600 HR Wire Line
GAS UNITS DRAG lb ROTARY TORQUE

TOTALS	
DAILY	26,833
PREVIOUS	5,128,664
CUMULATIVE	5,155,497

MUD	TIME	DENSITY ppg	VIS sec/qt	HT-HP pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	PO	SOLIDS %	SAND %	O/W Ratio	Cs/CO₂	Cl ppm	Ca ppm
	0235	17	65	14	6.8	14, 19	88	22	2.2	35.6	2.86	84/16	15/13	339,000	273

SOLIDS CONTROL						
SHAKER SCREEN SIZE	#1 TOP	BTM	#2 TOP	BTM		
DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS	
DESILTER:	OF	ppg; UF	ppg; UF	GPM	HRS	
CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS	

MUD LOCATION	
DAILY, bbl	
CUMULATIVE, bbl	

MATLS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	GEL		EZ Mul	3		
	CAUSTIC SODA		Gravermul	5		
	BARITE					
	Drill Treat	5				

ON LOCATION		
INVERT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD	PUMP	DESCRIPTION	BORE X STROKE	GPM	PRESSURE psi	GPM	ft/min	HALF RATE BPM	HALF RATE psi

BIT INFO	NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	S	G	lb	RPM	JV ft/sec	S/C

BHA
DC size / / in; Connection ; Bouyed DC WT

PIPE
DP SIZE 3 1/2 / in; WT 12.65 / lb/ft; Grade L-80 / ; No of Jts /
DP CONNECTION 503 HYD Ratings 290 / lb; Hook Load lb; Margin lb

SURVEY

TIME HRS													
DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIRY/TORT			
TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT					
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST					

BOP
Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi
Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

Equipment:
Personnel Rig 12 Service 4 GCRL 1 Total 17 Weather Clear Temp 70
Reported By: L. Arnold Mobile 1-801-259-9570
Time Reported: 0630 Superintendent P. Pandachuck

F-T11A (18 88)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

1. WELL NAME: G.C.R.L. SEISMOSAUR Federal #1 DATE: 97-07-28
2. CURRENT DEPTH: ft FORMATION PARADOX DFS: 187
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 6726 $ 7,195,700
4. PROGRESS ft AUTHORIZED T.D. 17,600 RIG: NABORS 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft
6. SUMMARY:
7. 0600 - 0600 WAIT ON COILED TUBING
8. MIX + CONDITION SURFACE MUD

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	297	605
TOTALS DAILY		10,325
PREVIOUS		5,211,173
CUMULATIVE		5,221,498

14. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 191
15. OPERATION @ 0600 HR WAIT ON TUBING
16. GAS UNITS DRAG lb ROTARY TORQUE

MUD	TIME	DENSITY ppg	VIS sec/qt	1-MIN HT	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	pH	SOLIDS %	SAND %	O/W Ratio	Salinity mg/L	Ca mg/L	Cl mg/L
17.	1730	19.1	119	122.4	5	18 / 22	121	43	3.8	44.1	4.94	78/22	20/18	36,000	325
18.															

19. SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
20. DESANDER: OF PPG: UF PPG: UF GPM HRS
21. DESILTER: OF PPG: UF PPG: UF GPM HRS
22. CENTRIFUGE: OF PPG: UF PPG: UF GPM HRS

DISCARD: DAILY, bbl / CUMULATIVE, bbl

MATLS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
33.	GEL		FZ MIX	6		
34.	CAUSTIC SODA		NAUBAMUL	4		
35.	BARITE	1400	DIESEL	45		
36.	DAILY TOTAL	2	LIME	25	D-14,811	C-725,921

ON LOCATION: INVENT bbl; GEL bbl; BARITE bbl; DIESEL bbl

HYD	PUMP	DESCRIPTION	SPRK STRKS	SPM	PRESSURE psi	GPM	DYNA	NOZ SIZE	JET
37.	1	16-P-160	6 1/2 x 16						
38.									

BIT INFO	NO.	SERIALS	SIZE in	TYPE	Jets in	IN ft	OUT ft	FOOTAGE	HRS	T	B	G	ft	GRAD	WOB	RPM
39.	1															
40.																
41.																

42. BHA
43.
44. DC size / in Connection ; Bouyed DC WT

45. PIPE DP SIZE 3 1/2 in; WT 12.65 lb/ft; Grade L-80 ; Nb of Jts
46. DP CONNECTION 503 IUPC Range 420 ; lb; Hook Load lb; Margin lb

47. REMARKS
48.

TIME													
49.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIRT/DOWT		
50.	TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT				
51.	SURVEY		CORING		WOC		DST		NIPPLE UP BOPE				

52. SOP Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi
53. Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

54. Equipment
55. Personnel Rig 12 Service 2 GCRL 1 Total 15 Weather DCAST Temp 68
56. Reported By: L. ARNOLD Mobile 1-801-259-9570
57. Time Reported: 0630 Superintendent P. PANDACHUCK

F-711A (12-95)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-07-29

CURRENT DEPTH: ft FORMATION: Paradox OFF: 188
PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
PROGRESS ft AUTHORIZED T.D. 17,600 RIG: NABORS 280
HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft

SUMMARY:
0600 - 1300 WAIT ON COILED TUBING
1300 - 1800 RIG IN COILED TUBING EQU. AND TRY FILL COIL. CUDD'S PUMP UNABLE TO PUMP HEAVY MUD
1800 - 0515 RIG IN BJ PUMP, THIN MUD BACK TO 16.5-17. CLEAN TO 13,422 FT.
0515 - 0600 CIR TUBING @ 13,422.

- 6310 ft PLUGS

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	216	500
SUPERVISOR	223	450
GEOLOGIST	204	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	208	1035
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	209	605
BJ	221	17203
RIG FUEL	203	5559

ACCIDENTS, TODAY 0 CUM 0 SAFETY DAYS 192
OPERATION @ 0600 HR CIR TUBING @ 13,422
GAS UNITS DRAG lb ROTARY TORQUE

TOTALS: DAILY 33,597; PREVIOUS 5,221,498; CUMULATIVE 5,255,085

MUD

TIME	DENSITY ppg	VIS sec/qt	MHP psi	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	FC/AK	SOLIDS %	SAND LIME	O/W Ratio	Cs/Cs GPM	Cl ppm	Es volts
1800	19	89	12.8	4.8	16, 18	95	27	3.6	43	4.68	80/20	15/12	390000	348

SOLIDS CONT.
SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
DESANDER: OF ppg; UF ppg; UF GPM HRS
DESILTER: OF ppg; UF ppg; UF GPM HRS
CENTRIFUGE: OF ppg; UF ppg; UF GPM HRS

DISCHARGE: DAILY, bbl; CUMULATIVE, bbl

MAILS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL		EZ Mul	1		
CAUSTIC SODA		Invermul	1		
BARITE	900	OMC	2		
Drill Treat	1	Diesel	42	D-8443	C-734364

ON LOCATION: INVERT bbl; GEL bbl; BARITE bbl; DIESEL bbl

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	g/min	HALF RATE SPM	HALF RATE bbl

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV ft/min	Bft

BHA
DC size / / in; Connection ; Bouyed DC WT

PIPE
DP SIZE 3 1/2 / in; WT 12.65 / lb/ft; Grade L-80 / ; No of Jts /
DP CONNECTION 503 HYD Ratings 290 / lb; Hook Load lb; Margin lb

SURVEY

TIME HRS

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIRT/TORT		Clean	11 1/4
TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT	Wait On Tubing	7	CIR	3/4
SURVEY		CORING		WOC		DST		RIPPLE UP/PRESS TEST	Rig In	5		

BOP
Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi
Closing Time Seconds: Annular ; Sand ; Pipe ; Pipe CSG. Ann Press psi

Equipment:
Personnel Rig 12 Service 9 GCRL 1 Total 22 Weather OCAST RAIN. Temp 62
Reported By: L. ARNOLD Mobile 1-801-259-9570
Time Reported: 0630 Superintendent P. PANDACHUCK

P-711A (12-95)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-07-30

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1

CURRENT DEPTH: ft FORMATION: PARADOX DFE: 189

PREVIOUS DEPTH: 15482 ft AFE NO: 67896 $ 4,195,700

BOP SIZE: 12" ft CASING SIZE: 17.6" ft SET: 23,357.300 ft

SUMMARY:

0600-1300 Cir. Coiled Tubing. Close Surface Choke + Cir. Through Bit. Pull Coiled Tubing + Blow w/ Nitrogen

1300-1400 Tear Out Head

1400-0600 Cir. Through Choke Tight Spots + Water Contaminated Spots. Holding 600 PST On Csg. Side. Flow Check @ 2000. 0 PSI On Csg. 450 PST On Drill Pipe After 10 Min

0600 Has Mud Wt Out 19.1 Out 18.8

DAILY COST SUMMARY		
ITEM	#	AMOUNT
BIT	207	7,095
WATER	218	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	218	
OTHERS	224	455
Baroid	209	1,308
Cudd Pressure C	201	37,221
BJ	201	5829
Mud + Talk	209	31,034
TOTALS DAILY		85,112
PREVIOUS		5,255,085
CUMULATIVE		5,840,197

ACCIDENTS: TODAY ____ CUM ____ SAFETY DAYS ____

OPERATION @ 0600 HR ____

GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

MUD	TIME	DENSITY ppg	VIS sec/qt	HT/HP	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	PH	SOLIDS %	SAND Lb/Gal	O/W Ratio	Cl ppm	Ca ppm	CL ppm	SP vol
	2039	18.8	100	12.6	9.8	17, 19	104	32	2.2	43.7	2.86	76/24	17/14	38,000		265

SOLIDS CONT.: SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM

DESANDER: OF ppg: UF ppg: UF GPM HRS

DESILTER: OF ppg: UF ppg: UF GPM HRS

CENTRIFUGE: OF ppg: UF ppg: UF GPM HRS

DISCARD: DAILY, bbl ____ CUMULATIVE, bbl ____

MAT'L USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	Gel		Industrial	2		
	Baritf	220				
	Drill Treat	3			D 5646	

DIESEL: INVENT bbl ____ CRUDE bbl ____ DIESEL bbl ____

HYD	PUMP	DESCRIPTION	SPRS X STROKE	SPM	PRESSURE psi	GPM	Vm/n	HALF RATE SPM	psi
	1	12-P-160	6 1/2 X 12						

BIT INFO	NO.	SERIAL #	SIZE in	TYPE	JETS 32	IN ft	OUT ft	FEET DRILLED	HRS	T	I	O	ft	RPM	JV Nozzle	BR

BHA: DC size ____ in; Connection ____ ; Bouyed DC WT ____

PIPE: DP SIZE 3 1/2 in; WT 12.65 lb/ft; Grade L-80 ; No of Jts ____

DP CONNECTION 503 HYD Ratings 290 lb; Hook Load ____ lb; Margin ____ lb

SURVEY:

TIME		RIG REPAIR		LOGGING		CLEANING		COMPLETION	MISCELLANEOUS			
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST	Use Coiled Tubing Fish Tool Hanole Tools			

BOP: FR Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max CSG. Press 2600 psi

Closing Time Seconds: Annular ____ ; BHR ____ ; Pipe ____ ; Blind ____ CSG. Ann Press ____ psi

Equipment: ____

Personnel Rig 12 Service 3 GCRL 1 Total 16 Weather COAST Temp 70

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent P. Pandachuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-07-31

1. WELL NAME: G.C.R.L SEISMOSAUR FEDERAL #1
2. CURRENT DEPTH: ____ ft FORMATION PARADOX DFS: 190
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
4. PROGRESS ____ ft AUTHORIZED T.D. 17,600 RIG: NABORS 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft
6. SUMMARY:
7. 0600 - 1000 C/O Through Choke Holding 600
8. P.S.I Back pressure, Cond. Mud
9. 1000 - 1030 Flow Check, Well Dead
10. 1030 - 1130 Pull 23 Stds
11. 1130 - 1330 Cut + Slip Drlg Line
12. 1330 - 2200 P.U.H
13. 2200 - 2300 Lay Down H.W.D.P.
14. 2300 - 0600 R.I.H. Open End
15.
16.
17.
18.
19.
20.
21.
22.
23.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	209	1868
TOTALS DAILY		11,588
PREVIOUS		5,340,197
CUMULATIVE		5,351,785

24. ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 194.
25. OPERATION @ 0600 HR R.I.H. Open End
26. GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

	Time	Weight	Visc	pH	Fluid loss	Temp	Cl	Ca	PV	YP	Gels	Solids %	Oil %	Water %	Sand %	MBT	Ph	Pm
27. MUD	19.02	19	112	12	4.6	19.22	120	50	2.1	43.7	2.73	70/30	25/22	346,000	196			
28.																		

29. SOLIDS CONTROL: SHAKER SCREEN SIZE #1 TOP ____ BTM ____ #2 TOP ____ BTM ____
30. DESANDER: OF ppg: UF ppg: UF GPM ____ HRS ____
31. DESILTER: OF ppg: UF ppg: UF GPM ____ HRS ____
32. CENTRIFUGE: OF ppg: UF ppg: UF GPM ____ HRS ____

DILUTION: DAILY, bbl ____ CUMULATIVE, bbl ____

MATLS USED	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
33.	GEL		EZ Mud	5		
34.	CAUSTIC SODA		Flood Dry	2		
35.	BARITE	2200	Innermul	4		
36.	DrilTreat	3	Lime	20	D - 14,977	C - 754987

ON LOCATION: INVERT bbl ____ GEL bbl ____ BARITE bbl ____ DIESEL bbl ____

HYD	PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	Vmin	HALF RATE SPM	bbl
37.									
38.									

BIT INFO	NO.	SERIAL#	SIZE in	TYPE	JETS 32nds	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	D	RPM	JV Bears	S/N
39.																
40.																
41.																

42. BHA
43.
44. DC size / / in; Connection ____ ; Bouyed DC WT ____
45. PIPE DP SIZE 3 1/2 / in; WT 12.65 / lb/ft; Grade L-80 / ; No of Jts ____ /
46. DP CONNECTION 503 HYD. Ratings 290 / lb; Hook Load ____ lb; Margin ____ lb
47. SURVEY
48.

TIME Hrs															
49.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIRU/TOUR				
50.	TRIP	16 1/2	CIRC	4	RUN CSG		REAMING		SLIP & CUT	2	Flow ✓	1/2			
51.	SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST		Handle BHA	1			

52. BOP Pit Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max CSG. Press 2600 psi
53. Closing Time Seconds: Annular ____ ; BlnR ____ ; Pipe ____ ; Pipe ____ CSG. Ann Press ____ psi
54. Equipment:
55. Personnel Rig 12 Service ____ GCRL 1 Total ____ Weather Coast Temp 62
56. Reported By: L. Arnold Mobile 1-800-259-9570
57. Time Reported: 0630 Superintendent P. Panoachuck

GCRL
ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

July 23, 1997

Mr. Jimmie Thompson
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

RE: GCRL Seismosaur Federal #1 Sec. 20 T21S R20E,
Entity Action Form

Enclosed please find one original copy of the Entity Action form 6.

If there are any questions or additional requirements, please contact Tim Wood at 403 233-3902.

Sincerely,
Tim Wood

Drilling Engineer

RECEIVED
JUL 31 1997
DIV. OF OIL, GAS & MINING

P.O. BOX 130, CALGARY, ALBERTA, CANADA T2P 2H7

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

ENTITY ACTION FORM - FORM 6

OPERATOR GCRL Energy Ltd.
ADDRESS P.O. Box 130, 401-9th Ave S.W.
CALGARY, AB T2P 2H7

OPERATOR ACCT. NO. N 5080

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION QQ	SC	TP	RG	COUNTY	SPUD DATE	EFFECTIVE DATE
A	99999	12172	43-019-31357	GCRL Seismosaur Federal #1	NW NE	20	21S	20E	GRAND	97-01-21	97-07-23

WELL 1 COMMENTS: Entity added 8-1-97. Lee (Spud 1-5-97)

WELL 2 COMMENTS:

WELL 3 COMMENTS:

WELL 4 COMMENTS:

WELL 5 COMMENTS:

RECEIVED JUL 31 1997 DIV. OF OIL, GAS & MINING

ACTION CODES (See instructions on back of form)
- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (explain in comments section)

NOTE: Use COMMENT section to explain why each Action Code was selected.

(3/89)

Signature: Z [illegible]
Title: Drilling Engineer
Date: July 23, 97
Phone No. (403) 233-3902

P-711A (12-88)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L SEISMOSAUR FEDERAL #1 DATE: 97-08-01

CURRENT DEPTH: ft FORMATION PARADOX DFS: 191

PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700

PROGRESS ft AUTHORIZED T.D. 17,600 RIG: NABORS 280

HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft

SUMMARY:

0600 - 0730 C.R OPEN END, RIG UN BJ
0730 - 0930 CEMENT PLUG #3
0930 - 1030 PULL 8 STDS
1030 - 2330 W.O.C
2330 - 0030 FEEL PLUG # 3 @ 13010 FT
0030 - 0600 PUMP PILL + P.O.H

PLUG #3 13,410 - 14,745 w/ 1100 SKS G + 7% Gel + BARITE + .8% CD32 + .3% R3
FELT PLUG w/ TUBING @ 13010 FT

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	225	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	208	1035
DIRECTIONAL	212	
OTHERS	224	455
Bigg'oo	801	935
Rocket Tak	224	710
Mud+Tak	209	6898
TOTALS DAILY		18,163
PREVIOUS		5,351,785
CUMULATIVE		5,369,948

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 195

OPERATION @ 0600 HR P.O.H

GAS UNITS UNITS IN MILLIONS IN

MUD

TYPE	DENSITY PPG	VIS sec/qt	pH	WL cc	API Filtrate/min	PV cp	YP lb/100ft²	Gels 1/10	Solids %	Oil %	Oil Ratio	Chlorides mg/l	Ca ppm	MBT lb/bbl

SOLIDS CONTROL

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM

DESANDER:	OF	ppg: UF	ppg: UF	GPM	HRS
DESILTER:	OF	ppg: UF	ppg: UF	GPM	HRS
CENTRIFUGE:	OF	ppg: UF	ppg: UF	GPM	HRS

DISCARD DAILY, bbl / CUMULATIVE, bbl

MATERIALS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL		Vermiul	2		
CAUSTIC SODA		LIME	10		
BARITE	460				
DrilTreat	1			D-3491	C-7-D478

ON LOCATION

INVERT	bbl
GEL	bbl
BARITE	bbl
DIESEL	bbl

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	Eff%	HALF STROKE SPM	psi

BIT USED

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV fpm	GR

BH

Bit Wt: Collar Wt: ; Squeezed DC Wt

PIPE

DP SIZE 3 1/2 in; WT 12.65 ; in/ft Grade L-80 ; No of Jts

DP CONNECTION 5D3 Hyd Ratings 290 ; lb; Hook Load lb; Margin lb

SURVEY

TIME

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIX/TORT				
TRIP		DIRD		RUN CSG		REAMING		SLIP & CUT						
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST						

BOP

Fit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi

Closing Time Seconds, Annular ; DIRD ; Pipe ; Pipe CSG. Ann Press psi

Equipment:

Personnel Rig 12 Service 3 GCRL 1 Total 16 Weather CLEAR Temp 65

Reported By: L. ARNOLD Mobile 1-800-259-9570

Time Reported: 0630 Superintendent P. PANDACHUCK

P-711A (12-95)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L SEISMOSAUR FEDERAL #1 DATE: 97-08-02

CURRENT DEPTH: ft FORMATION: DFS: 192

PREVIOUS DEPTH: 15,482 ft AFE NO: 17,600 $ 4,195,700

PROGRESS: ft AUTHORIZED T.D. 17,600 RIG: NABORS 280

HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft

SUMMARY:

0600 - 1000 P.O.H
1000 - 1100 MAKE UP BRIDGE PLUG
1100 - 1630 R.T.H W/ BRIDGE PLUG UNABLE TO GET PAST 11,990 FT. ERIC JONES WITH BLM SETTING PACKER @ 11,990 FT. SET PACKER
1630 - 1800 CIR 3 FT ABOVE PACKER RIG T/N B.J
1800 - 2000 RUN PLUG # 4
2000 - 2200 P.O.H TO 10,200 FT
2200 - 0300 CIR WORK ON BRAKES
0300 - 0430 RUN PLUG # 5
0430 - 0530 P.O.H 12 STDS. 4 STDS BACK FLOW 8 WET
0530 - 0600 ATTEMPT TO BREAK CIR. UNABLE TO CIR.
PLUG # 4 11,990 TO 11390 175 sks G + 97 lbs/sk BARITE + 8% CD32 + .3% R3 PLUG DOWN 1920 HRS. PLUG # 5 10,200-9800 153 sks G + 2% R-3. PLUG DOWN 0700 HRS.

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 196

OPERATION @ 0600 HR

GAS UNITS DRAG lb ROTARY TORQUE

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	500
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS		
DRILL STRING	205	1035
MUD SYSTEM	206	
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	209	605
HALLIBURTON	221	3052

TOTALS	
DAILY	13,877
PREVIOUS	5,369,948
CUMULATIVE	5,383,825

MUD

TIME	DENSITY	VIS	PH	WL	GEL	PV	YP	PO	SOLIDS	SAND	O/W	Cl	Ca	Cl	Ca

SOLIDS CONT

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM

DESANDER: OF ppg; UF ppg; UF GPM HRS

DESILTER: OF ppg; UF ppg; UF GPM HRS

CENTRIFUGE: OF ppg; UF ppg; UF GPM HRS

HOLE LOCATION: DAILY, bbl; CUMULATIVE, bbl

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

ON LOCATION

INVERT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD

PUMP	DESCRIPTION	BORE X STROKE	GPM	PRESSURE psi	GPM		HALF RATE GPM	HALF RATE psi

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV	$/ft

BHA

DC size / / in; Connection ; Squyed DC WT

PIPE

DP SIZE / in; WT / lb/ft; Grade / ; No of Jts /

DP CONNECTION / Ratings / lb; Hook Load lb; Margin lb

SURVEY

TIME Hrs

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIST/TORT			
TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT		ABANDONMENT	24		
SURVEY		SCRING		WOC		DST		NIPPLE UP/ PRESS TEST					

BOP

Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2500 psi

Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

Equipment:

Personnel Rig 12 Service CORL 1 Total Weather Temp

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent D Salamandick

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

F-711A (12-84)

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-08-03

CURRENT DEPTH: ft FORMATION: PARADOX DFS: 193

PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700

PROGRESS ft AUTHORIZED T.D. 17,600 RIG: NABORS 280

HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft

SUMMARY:

0600 - 1300 P.O.H FOR PLUGGED TUBING
1300 - 1500 LAY DOWN 29 JTS. TUBING PLUGGED w/CEMENT
1500 - 2000 R.I.H OPEN END.
2000 - 2030 C.R.
2030 - 2130 RUN PLUG #6
2130 - 2200 PULL 10 STDS.
2200 - 2330 C.R.
2330 - 0600 LAY DOWN PIPE

PLUG #6 6000-5600 153 SKS G + 2% R3 PLUG DOWN 97-08-02 2100 HRS

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	500
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	206	
MUD SYSTEM	209	1035
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	209	605
BJ	221	30,928
TOTALS DAILY		41,753
TOTALS PREVIOUS		5,383,825
TOTALS CUMULATIVE		5,425,578

ACCIDENTS: TODAY CUM SAFETY DAYS

OPERATION @ 0600 HR

GAS UNITS DRAG lb ROTARY TORQUE

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	FC 1/32	SOLIDS %	SAND %	O/W Ratio	$CaCO_3$ ppm	Cl ppm	ES volts

SOLIDS CONTROL

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM

DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS	
DESILTER:	OF	ppg; UF	ppg; UF	GPM	HRS	
CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS	

MOVEMENT DAILY, bbl / CUMULATIVE, bbl

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

ON LOCATION

INVERT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	HALF RATE GPM	HALF RATE psi

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS 32	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	lb	RPM	JV ft/sec	SR

BHA

DC size / / in; Connection ; Bouyed DC WT

PIPE

DP SIZE / in; WT / lb/ft; Grade / ; No of jts /

DP CONNECTION / Ratings / lb; Hook Load lb; Margin lb

SURVEY

TIME

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MISCELLANEOUS					
TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT		BOP DRILL		23 1/2			
SURVEY		CORING		WOC		DST		NIPPLE UP/PRESS TEST		REPAIR		1/2			

BOP

Fit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi

Closing Time Seconds, Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

Equipment:

Personnel Rig 12 Service 4 GCRL 1 Total 17 Weather OCAST Temp 70

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent D. SALAMANDICK

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

P-711A (12-89)

1. WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-08-04
2. CURRENT DEPTH: ft FORMATION DFS: 194
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
4. PROGRESS ft AUTHORIZED T.D. 17,606 RIG: NABORS 280
5. HOLE SIZE: 8 1/2 in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft
6. SUMMARY:
7. 0600 - 1800 Lay Down Tubing, Break Kelly
8. 1800 - 1900 Cement Plug #7
9. 1900 - 2000 Lay Down Tubing, Tear Out Lay Down
10. 2000 - 0600 Nipple Down

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	1035
DIRECTIONAL	212	
OTHERS	224	455
BARIOD	206	605
WETATES CSG	201	7710
B.J.		1134

Move Rig THURSDAY OR FRIDAY

Plug: #7 100 - 0 FT 40 sks G + 2% R3 Plug Down 97-08-03 1854 Hrs

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 198
OPERATION @ 0600 HR TEAR OUT
GAS UNITS DRAG lb ROTARY TORQUE

TOTALS	
DAILY	19,169
PREVIOUS	5,425,578
CUMULATIVE	5,444,747

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100ft²	FC 1/32	SOLIDS %	SAND %	O/W Ratio	$CaCO_3$ ppm	Cl ppm	Ca ppm

SOLIDS CONT

SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
DESANDER: OF ppg; UF ppg; UF GPM HRS
DESILTER: OF ppg; UF ppg; UF GPM HRS
CENTRIFUGE: OF ppg; UF ppg; UF GPM HRS

MUD LOCATION	
DAILY, bbl	
CUMULATIVE, bbl	

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

ON LOCATION		
INVERT	bbl	
GEL	bbl	
BARITE	bbl	
DIESEL	bbl	

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	ft/min	HALF RATE SPM	HALF RATE psi

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	O	RPM	JV ft/sec	gm

BHA

DC size / / in; Connection ; Bouyed DC WT
DP SIZE / in; WT / lb/ft; Grade / ; No of Jts /
DP CONNECTION / Ratings / lb; Hook Load lb; Margin lb

SURVEY

HRS													
DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MIXT/TORT	Lay Down Tubing	13
TRIP		CIRC		RUN CSG		REAMING		SUP & CUT		Nipple Down	10	
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST				

Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press 2600 psi
Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

Equipment:
Personnel Rig 12 Service 3 GCRL 1 Total 16 Weather RAIN Temp 60
Reported By: L. Arnold Mobile 1-801-259-9570
Time Reported: 0630 Superintendent D. SALAMANDICK

F-711A (12-85)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

1. WELL NAME: G. C. R. L. Seismosaur Federal #1 DATE: 97-08-05
2. CURRENT DEPTH: ft FORMATION DFB: 195
3. PREVIOUS DEPTH: 15,482 ft AFE NO: 67896 $ 4,195,700
4. PROGRESS ft AUTHORIZED T.D. RIG: Nabors 280
5. HOLE SIZE: in LAST CSG SIZE 9 5/8 in SET @ 13,339 ft
6. SUMMARY:
7. 0600 - 0600 Tear out BOP Equ Centrifuge
8. Mud
9.
10.
11.
12.
13. - 1900 gal down to 12 #/gal.
14.
15. - Move kill back to rack & prime
16. Wyoming & flush lath 128,800
17.
18.
19. - Tear out BOP
20. - Steam clean rig
21. - 5-6 days to tear out rig.
22.
23.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	855
DIRECTIONAL	212	
OTHER	994	275
Barid	206	
Western Chc	201	89,416
TOTALS DAILY		98,776
TOTALS PREVIOUS		5,444,747
TOTALS CUMULATIVE		5,543,523

24. ACCIDENTS: TODAY CUM SAFETY DAYS
25. OPERATION @ 0600 HR Tear out BOP Equ
26. GAS UNITS DRAG lb ROTARY TORQUE

MUD

	TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cp	YP lb/100f	FC 1/32	SOLIDS %	SAND %	O/W Ratio	Ca/CO3 ppm	Cl ppm	MB lb/bbl
27.															
28.															

29. SOLIDS CONTROL — SHAKER SCREEN SIZE #1 TOP BTM #2 TOP BTM
30. DESANDER: OF ppg: UF ppg: UF GPM HRS
31. DESILTER: OF ppg: UF ppg: UF GPM HRS
32. CENTRIFUGE: OF ppg: UF ppg: UF GPM HRS

MUD COST: DAILY, $bbl — CUMULATIVE, $bbl

MATLS USED

	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
33.	Gel					
34.	Caustic Soda					
35.	Barite					
36.						

ON LOCATION

Invent	bbl	
Gel	bbl	
Barite	sbl	
Diesel	bbl	

HYD

	PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	(mm)	HALF PASTE SPM	psi
37.									
38.									

BIT INFO

	NO.	SERIAL #	Size in	TYPE	JETS in	W ft	OUT ft	FEET DRILLED	HRS	T	G	cr	to	RPM	JV Wave	SR
39.																
40.																
41.																

42. BHA
43.
44. DC size / / in; Connection ; Bouyed DC WT
45. DP SIZE / in; WT / lb/ft; Grade / ; No of Jts /
46. DP CONNECTION / Range / lb; Hook Load lb; Margin lb

47. SURVEY
48.

TIME HRS

49.	DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		NUT/TORT			
50.	TRIP		CIRC		RUN CSG		REAMING		SLIP & CUT					
51.	SURVEY		CORING		WOB		DST		NIPPLE UP BOPE TEST					

52. BOP Pit Drills: Day Tour sec; Afternoon Tour sec; Nite Tour sec; Max CSG. Press psi
53. Choke Line Bleeds: Annular ; Blind ; Pipe ; Pipe CSG. Arm Press psi

54. Equipment:
55. Personnel Rig 12 Service 1 GCRL 1 Total 14 Weather Rain Temp 60
56. Reported By: L. Arnold Mobile 1-801-259-9570
57. Time Reported: 0630 Superintendent P. Pandachuck

P-711A (12-85)

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-08-06

CURRENT DEPTH: ____ ft FORMATION ____ DFS: 196

PREVIOUS DEPTH: 15482 ft AFE NO: 67896 $ 4,195,700

PROGRESS ____ ft, AUTHORIZED T.D. ____ RIG: NAADAS 280

HOLE SIZE: 8½ in LAST CSG SIZE: 9⅝ in SET @ 13,339 ft

SUMMARY:

0600-2000 TEAR OUT, STEAM CLEAN RIG, CENTRIFUGE MUD. LOAD OUT 3½ TUBING ON V.D.M FOR CANADA

RIG RELEASED 97-08-05 2000 HRS

- NO SCRUBBING WHILE WAITING ON ORDERS OR SPOTTING H2O WHILE SPECIAL IN SALT.
- SAFTY AND PERFORMANCE BONUS GONE DUE TO VERY POOR PERFORMANCE ON TEAR-OUT.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	7680
SAFETY BONUS	214	100
WATER	215	500
SUPERVISOR	223	450
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	206	855
DIRECTIONAL	212	
OTHERS	224	275
BARIOD	206	605
MUD + TRK	209	1304

ACCIDENTS: TODAY ____ CUM ____ SAFETY DAYS ____

OPERATION @ 0600 HR ____

GAS UNITS ____ DRAG ____ lb ROTARY TORQUE ____

TOTALS	
DAILY	11,769
PREVIOUS	5,543,523
CUMULATIVE	5,555,292

MUD

TIME	DENSITY ppg	VIS sec/qt	pH	WL cc	GEL 10sec/10min	PV cc	YP lb/100ft²	FC 1/32	SOLIDS %	SAND %	O/W Ratio	$CaCO_3$ ppm	Cl ppm	Ca ppm

SOLIDS CONT

SHAKER SCREEN SIZE	#1 TOP	BTM	#2 TOP	BTM	
DESANDER:	OF	ppg; UF	ppg; UF	GPM	HRS
DESILTER:	OF	ppg; UF	ppg; UF	GPM	HRS
CENTRIFUGE:	OF	ppg; UF	ppg; UF	GPM	HRS

MUD LOCATION: DAILY, bbl ____ CUMULATIVE, bbl ____

MATLS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
RARITE					
Barrcleen	1			D-674	C-760,364

ON LOCATION: INVERT bbl ____ GEL ppm ____ BARITE bbl ____ DIESEL bbl ____

HYD

PUMP	DESCRIPTION	BORE X STROKE	SPM	PRESSURE psi	GPM	lb/min	HALF RATE GPM	HALF RATE psi

BIT INFO

NO.	SERIAL #	SIZE in	TYPE	JETS in	IN ft	OUT ft	FEET DRILLED	HRS.	T	B	G	In	RPM	JV ft/min	Sft

BHA

DC size ____ / ____ / ____ in; Connection ____; Bouyed DC WT ____

PIPE

DP SIZE ____ / ____ in; WT ____ / ____ lb/ft; Grade ____ / ____; No of Jts ____ / ____

DP CONNECTION ____ / ____ Ratings ____ / ____ lb; Hook Load ____ lb; Margin ____ lb

SURVEY

TIME HRS

DRLG		RIG SERV		LOGGING		CLEANING		CEMENTING		MAT/TORT			
TRIP		CIRC		RUN CSG		REAMING		CLIP & CUT					
SURVEY		CORING		WOC		DST		NIPPLE UP/ PRESS TEST					

BOP

Pit Drills: Day Tour ____ sec; Afternoon Tour ____ sec; Nite Tour ____ sec; Max CSG. Press ____ psi

Closing Time Seconds: Annular ____; Blind ____; Pipe ____; Pipe ____ CSG, Ann Press ____ psi

Equipment: ____

Personnel Rig 12 Service 1 GCRL 1 Total 14 Weather OCAST Temp 62

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent P. Pandachuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L Sarismosaur Federal #1 DATE: 97-08-07

CURRENT DEPTH: FORMATION: DFN:
PREVIOUS DEPTH: AFE NO: 67896
PROGRESS: AUTHORIZED T.D.: RIG: Nabors 28D
HOLE SIZE: LAST CSG SIZE: SET @

0600-0600 Clean Rig, Tear Out, Clean Mud Tanks

- Finish Centrifuging Mud @ 1800 Hr 8/08/96

- Some Trucks - For Today

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY SERVICE	214	
SUPERVISOR	215	450
GEOLOGIST	204	
RENTALS:		
DRILL STRING	202	
MUD SYSTEM	203	865
DIRECTIONAL	212	275
Roading	209	650
Tubing Rental	207	34,000
V.D.M	303	34,779
V.D.M	301	1860
Mullens	301	78.00
Fontana	302	992.00
Weatherford	303	7202
Double D	306	1330
Lindsey	301	2945
DAILY		102,068
PREVIOUS		5,555,292
CUMULATIVE		5,657,360

ACCIDENTS TODAY: 0 CUM: 0 SAFETY DAYS: 201
OPERATION @ 0600 HR: Tear Out
GAS UNITS: DRAG: in HOLIANY TORQUE:

DEVIATION															
TIME															

MUD PROPERTIES							
SHAKER SCREEN SIZE #1 TOP		BTM	#2 TOP	BTM			DAILY MI
MANUFACTURER:							
DESILTER:	CP	PSI UP	PSI UP	GPM	HRS		CUMULATIVE MI
CENTRIFUGE:	CP	PSI UP	PSI UP	GPM	HRS		

CHEMICALS & MATERIALS							ON LOCATION		
TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT		DIESEL	GAL	
DIESEL							GEL	SK	
CALCIUM SODA							BARITE	SK	
BARITE							CEMENT	SK	

BIT									
NUMBER	DESCRIPTION	SERIAL NUMBER	SIZE	MANUFACTURER	SIZE	DEPTH			

BIT RECORD																	
NO.	MAKE	TYPE	SIZE	JETS	IN	OUT	FOOTAGE	HOURS	WOB	RPM	T	B	G	O	L	TFA	GRADE

BHA
DC size / / In Connection / Grouped DC WT

DRILL PIPE					
DP SIZE /	In WT /	Drift Grade /	No of Jts /		
DP CONNECTION /	Rating /	In Hole Load	In Weight		

DEVIATION

TIME															
DRIG		RIG SERV		LOGGING		CUTTING		CIRC BOTTOM		REPAIRS	24				
TRIP		WOB		RUN CSG		REAMING		SURV & DEV							
SURVEY		CORING		WOC		SKIP									

BOP
PR Drills: Day Tour / Afternoon Tour / Night Tour / Mon Crew Press / psi
Closing Time Secondary Accumulator / Blind / Pipe / Pipe / CSG. Arm Press / psi

Equipment:

Prepared By: 12 Service 1 SCR 1 Total 14 Weather Clear Temp 65
Reported By: L. Arnold Mobile 1-801-259-9670
Time Reported: 0630 Superintendent: P. Panorchuck

GOIL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G. G. R. L. Seismosaur Federal #1 DATE: 97-08-08

CURRENT DEPTH: ft FORMATION: DTS:
PREVIOUS DEPTH: ft API NO: 4785L S
PROGRESS: ft AUTHORIZED T.D.: MWD NABORS 280
HOLE SIZE: in LAST CSG SIZE: in SET @ ft

0600- 0600 . Clean Mud Tanks, Clean Rig
Steam Clean 400 Bbls Storage Tanks + Pre-Mix Tank

- No Trucks Till Monday or Tuesday

DAILY COST SUMMARY		
ITEM	#	AMOUNT
TWD	MW	
SAFETY BONUS	314	
SUPERVISOR		500 / 460
GEOLOGIST	304	
RENTALS		
DRILL STRING		
MUD SYSTEM		
DIRECTIONAL	312	
OTHER	204	495
Bonied	206	605
Rig Move		123,800
Rig Fuel	203	1904
Hot Tank	201	500
Smith	206	3315
Mud Cost	209	5768
TOTALS: DAILY		126,499
PREVIOUS		5,657,360
CUMULATIVE		5,782,859

ACCIDENTS TODAY: 0 CUM: 0 SAFETY DAYS: 202
OPERATION @ 0600 HR: Rig Released
GAS UNITS: DRAG: W/HOLIAN TOPSIDE:

BIT | SHAKER SCREEN SIZE: #1 TOP BTM #2 TOP BTM | DAILY MW | CIRCULATING MW

CHEMICAL INVENTORY	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT	DIESEL TRANSPORTATION	INVENT	USE
	GEL							GEL	
	CAUSTIC SODA							INVERT	
	BARITE							DIESEL	

DAILY | PUMP | DESCRIPTION | SPECIFICATIONS | GPM | PRESSURE | SPM | SPM | DEVIATION

DRILL STRING | SIZE | GRADE | WT | TYPE | CONN | BHA | WT | PIPE | COLL | T | B | G | L | TYPE | SN | OD

BHA: DC size / / In: Deviation: Stayed DC WT

DP: DP size / / Inv WT / / Inv Grade / / Hrs of use

DP CONNECTION / Fishing / In: Hook Load: In: Weight:

REMARKS

BIT RECORD | SIZE | MAKE | TYPE | JETS | IN | OUT | FOOTAGE | HOURS | ROP | WOB | RPM | PUMP PRESS | SPM | GPM | DULL | LOC | B | G | O | R

BOP: Pit Drills: Day Tour: Afternoon Tour: Night Tour: Last Max Csg. Press: psi
Closing Time Seconds Annular: Blind: Pipe: Pipe: Csg. And Press: psi

Comments:

Personnel Rig: 12 Service: 1 Goil: 1 Total: 14 Weather: Clear Temp: 65
Reported By: L. Arnold Mobile: 1-801-259-9570
Time Reported: 0830 Superintendent: P. Pandachuck

GORL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: 97-08-09

CURRENT DEPTH: _____ @ FORMATION _____ DFE: _____
PREVIOUS DEPTH: _____ @ API# NO: 67896 $ _____
PROGRESS _____ @ AUTHORIZED TD _____ RIG: Noaros 280
HOLE SIZE _____ in LAST CSG SIZE _____ in SET @ _____ ft

0600-0600 Clean Rig

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY SCHLB	214	
WATER SUPERVISOR	215	450
GEOLOGIST	204	
RENTALS:		
DRILL STRING	202	
MUD SYSTEM	203	
DIRECTIONAL	213	
Other	221	195
Mud Cont	209	20,266
TOTAL DAILY		19,621
TOTAL PREVIOUS		5,782,859
TOTAL CUMULATIVE		5,763,238

ACCIDENTS TODAY 0 CUM 0 SAFETY DAYS 203
OPERATION @ 0600 HR Rig Released
GAS UNITS _____ DRAG _____ @ HOLANY TORQUE _____

BIT | TYPE | SERIAL NO | WO | RPM | WOB | PP | SPM | JET | DEPTH IN | DEPTH OUT | HRS | FT/HR | CUMULATIVE FT | CUMULATIVE HRS

SHAKERS: SCREEN SIZE #1 TOP _____ BTM _____ #2 TOP _____ BTM _____
DESANDER: ___ in ___ HRS UP ___ HRS UP ___ GPM ___ HRS
DESILTER: ___ CP ___ HRS UP ___ HRS UP ___ GPM ___ HRS
CENTRIFUGE: ___ CP ___ HRS UP ___ HRS UP ___ GPM ___ HRS

DAILY MI
CUMULATIVE MI

CHEMICAL SUPPLIES

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CALCIUM CHLORIDE					
BARITE					

RECEIVED		
CEMENT	sk	
GEL	sk	
BARITE	sk	
DIESEL	sk	

DRILL PIPE

SIZE	GRADE	TYPE	JOINTS	WT	CONDITION	FROM	TO	FEET

DRILL COLLARS

SIZE	GRADE	TYPE	JOINTS	WT	CONDITION	FROM	TO	FEET

BHA

DC SIZE _____ / _____ in Connection _____ Stayed DC WT _____
DP SIZE _____ / _____ in WT _____ / _____ in/R Grade _____ / _____ No of Jts _____ / _____
DP CONNECTION _____ / _____ Footage _____ / _____ in Hook Load _____ in Margin _____ %

BIT HRS

BRAND		PUMP SERIAL		LINERS		SLOW RPM		CONDITION		REMARKS			
TYPE		MODEL		PUMP SIZE		PUMP SIZE		MAP & DIST					
SERIAL		CAPACITY		WOB		RPM		TOTAL HRS					

TOOL

PIT DRILLER Day Tour _____ AMOUNT Afternoon Tour _____ AMOUNT Mid Tour _____ AMOUNT Mud CONN. Press _____ psi
Closing Time Seconds: Annular _____ / Blind _____ / Pipe _____ / Pipe _____ CSG. Ann Press _____ psi

Equipment

Personnel Rig 12 Service 9 OCS 1 Total 16 Weather Clear Temp 60
Reported By L Arnold Mobile 1-801-259-9670
Time Reported 0630 Superintendent P. Pomorchuk

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. Seismograph Borehole #1 DATE: 97-08-11

CURRENT DEPTH: ____ @ FORMATION: ____ DFR: ____
PREVIOUS DEPTH: ____ @ AFE NO: 62896 $ ____
PROGRESS: ____ @ AUTHORIZED TD: ____ FOR: Nabors 240
HOLE SIZE: ____ in LAST CSG SIZE: ____ in SET @ ____ ft

0600 - 1800 Tear Out, Spool Lines.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
SUPERVISOR	[illegible]	450
GEOLOGIST	201	
RENTALS:		
DRILL STRING	202	
MUD SYSTEM	203	
DIRECTIONAL	212	
Other	204	196
TOTALS: DAILY		646
PREVIOUS		5,763,883
CUMULATIVE		5,764,528

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 205
OPERATION @ 0600 HR Rig Released
BHA UNITS ____ DRAG ____ in NO MAN TORQUE ____

BIT DATA

NO.	TYPE	SERIAL NO.	SIZE	IN	OUT	FOOTAGE	HRS	WT	RPM	PUMP	JETS	DULL	LOCATION	B	G	O

SHAKER SCREEN SIZE 01 TOP ____ BTM ____ 02 TOP ____ BTM ____

DESANDER	CP	PSI UP	PSI UP	GPM	PSI
DESILTER	CP	PSI UP	PSI UP	GPM	PSI
CENTRIFUGE	CP	PSI UP	PSI UP	GPM	PSI

DAILY MM
CUMULATIVE MM

MUD DATA

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
DRILLING SODA					
BARITE					

MUD PROPERTIES

WEIGHT	lbs		
VIS.	sec		
WATER	cc		
SOLIDS	%		

MUD

PUMP	DESCRIPTION	SERIAL NO.	SPM	PRESSURE psi	GPM	Gals	DAILY	CUMULATIVE

DRILL STRING

NO.	DESCRIPTION	O.D.	I.D.	THREAD	LENGTH	CUM. LENGTH	FACE ELEVATION	DEV.	T	D	B	L	RPM	Q	DA

BHA

DC size ____ / ____ / ____ in Connection ____ ; Grade DC WT ____

DP SIZE ____ / ____ in WT ____ / ____ lb/ft Grade ____ / ____ ; No of Jts ____ / ____

DP CONNECTION ____ / ____ Fatigue ____ / ____ in Hook Load ____ in Margin ____ %

REMARKS

TIME

DRILL		RIG REPAIR		LOGGING		CEMENT		WORKING							
TRIP		RIG UP		RUN CSG		WELDING		S.P.A. DAY							
SURVEY		DRAGS		WOC		SKIP									

BOP TEST

PR Safety Day Year ____ min. Afterburn Test ____ min. Nite Tour ____ min. Last CSG. Press ____ psi
Blowing Time Seconds Annular ____ ; BSW ____ ; Pipe ____ ; Pipe ____ CSG. Aux Press ____ psi

Comment: ____

Personnel Rig 12 Driver ____ SCR. 1 Total 13 Weather Overcast Temp 65
Reported By L. Arnold Mobile 1-801-259-9570
Time Reported 0630 Superintendent P. Pandachuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-08-10

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1

CURRENT DEPTH: _____ ft FORMATION _____ DFE: _____ ft

PREVIOUS DEPTH: _____ ft API NO: 42876 S _____

PROGRESS _____ ft AUTHORIZED T.D. _____ RIG: NABORS 280

HOLE SIZE: _____ in LAST CSG SIZE _____ in SET @ _____ ft

0600-0600 TOOH OUT, Lay Down Derrick,

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
SITE SUPERVISOR	215	450
GEOLOGIST	224	
RENTALS		
DRILL STRING	225	
MUD SYSTEM	226	
DIRECTIONAL	218	
Other		195
TOTALS DAILY		645
TOTALS PREVIOUS		5,763,238
TOTALS CUMULATIVE		5,763,883

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 204

OPERATION @ 0600 HR Rig Released

GAS UNITS _____ BRAG _____ in HO MAX TORQUE _____

BITS																

SHAKERS									
SHAKER SCREEN SIZE #1 TOP		BTM		#2 TOP	BTM				
SHAKER	#/hr	MW UP	MW UP	WPM	FPHR			DAILY, bbl	
DESILTER	GP	MW UP	MW UP	GPM	HRS				
DESANDER	GP	MW UP	MW UP	GPM	HRS			CUMULATIVE, bbl	

CHEMICALS							DAILY CONSUMPTION		
TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT		BENTONITE	sk	
GEL							GEL	sk	
GUMBO SODA							BARITE	sk	
BARITE							CEMENT	sk	

PUMPS									
PUMP	DESCRIPTION	SPEC. GRADE	SPM	PRESSURE psi	GPM	SWA			

BHA																

DRILL STRING	
DS size	/ / In Connection / Beyond DC WT
DP SIZE	/ In WT / / BR Grade / / No of Jts /
DP CONNECTION	/ Rating / / Hook Load / Hook Margin /

REMARKS

BOP TEST															
SEAL		PIPE RAM		UNIONS		MANIFOLD		CHOKE LINE		KELLY VALVE					
TOP		BLIND		FLOWLINE		FLOWLINE		KILL & DIV							
SUPER		CHOKE		VALVE		VALVE									

TOUR	
PR Drills: Day Tour _____ Wed Afternoon Tour _____ Night Tour _____ Max Gas Peak _____ psi	
Closing Time Seconds: Annular _____ ; Blind _____ ; Pipe _____ ; Pipe _____ CSG. Ave Press _____ psi	

Comments _____

Personnel Rig 12 Service 3 Mud 1 Tool 16 Weather Rain Temp 60

Reported By L. Arnold Home 1-801-259-9570

Time Reported 0630 Superintendent P. Parraschuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-08-14

CURRENT DEPTH: _____ @ FORMATION _____ DTM: _____

PREVIOUS DEPTH: _____ @ AFE NO: 6789L $ _____

FOOTAGE _____ @ AUTHORIZED TD _____ MD: _____

HOLE SIZE: _____ in LAST CSG SIZE _____ in SET @ _____ ft

0600 - 1800 WAIT ON TRUCKS
- FINISH ON SAT TRUCKS

- ALLEATING SCAMP
- WAIT UNTIL OCT. TO DO DIRT WORK
- FENCE THE SCAMP.

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
SUPERVISOR	202	500
GEOLOGIST	204	
RENTALS:		
DRILL STRING	208	
MUD SYSTEM	209	
DIRECTIONAL	210	
Other	241	165
TJ Transport	216	2256

TOTAL	
DAILY	2921
PREVIOUS	5,776,327
CUMULATIVE	5,779,248

ACCIDENTS TODAY 0 CUM 0 SAFETY DAYS 298

OPERATION @ 0600 HR Rig Released

BAR UNITS _____ DRAG _____ TO HOLD/ANY TORQUE _____

DRILL STRING

TIME	SURVEY DEG	TOT HRS	BIT	WOB	RPM	PUMP	SPM	PP	SPM	PUMP	PP	SPM	PUMP	PP	SPM	PUMP	PP

SHAKER SCREEN SIZE #1 TOP _____ BTM _____ #2 TOP _____ BTM _____

DESANDER:	GP	PRS UP	PRS UP	GPM	HRS
DESILTER:	GP	PRS UP	PRS UP	GPM	HRS
CENTRIFUGE:	GP	PRS UP	PRS UP	GPM	HRS

DAILY MM

CUMULATIVE MM

CHEMICAL & FUEL USAGE

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

DIRECT	MI	
GEL	MI	
BARITE	MI	
DIESEL	MI	

BIT

BIT #	SIZE	MAKE	TYPE	JETS	IN	OUT	FOOTAGE	HRS	WOB	RPM	PUMP	PP	SPM	PUMP	PP	SPM

DRILL PIPE

TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH	TYPE	LENGTH

DRILL COLLARS

DC size _____ / _____ in: Connection _____ Shaped DC WT _____

DP SIZE _____ / _____ in: WT _____ / _____ Grade _____ / _____ No of Jts _____ / _____

DP CONNECTION _____ / _____ Ratings _____ / _____ in: Rack Load _____ in: Margin _____ %

REMARKS

PUMPS															
MAKE		MODEL		LINERS		SURVEYS		DEVIATIONS							
TYPE		GPM		SPM/GPM		TRUE/MAG		MAX/LAST							
SERIAL		STROKE		PSC		INT									

TIME

PR DRILL Stop Time _____ Start Afternoon Tour _____ Start Mid Tour _____ Start Day Crew Prep _____ psi

Closing Time Seconds: Annular _____ : Blind _____ : Pipe _____ : Pipe _____ CSG. Arm Press _____ psi

Equipment: _____

Personnel Rig 12 Service _____ GCRL 1 Total 13 Weather OCT Temp 60

Reported By: L. Arnold Mobile 1-801-259-9570

Time Reported: 0630 Superintendent: P. Pandoahuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1 DATE: 97-08-16

CURRENT DEPTH: _____ @ FORMATION _____ DFE: _____

PREVIOUS DEPTH: _____ @ API NO. 67896 @ _____

PROGRESS _____ @ AUTHORIZED T.D. _____ FEE: _____

HOLE SIZE: _____ IN LAST CSG SIZE _____ IN SET @ _____

0600 - 1800 LOAD OUT TWO LOADS, WAIT ON TRUCK

DAILY COST SUMMARY		
ITEM	#	AMOUNT
FEE	200	
SAFETY SERVICE	214	
WATER SUPPERVISION	215	500
GEOLOGIST	304	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	209	
DIRECTIONAL	210	
OTHER	204	165

ACCIDENTS TODAY 0 CUM 0 SAFETY DAYS 209

OPERATION @ 0600 HR Rig Released

GAS UNITS _____ BPM _____ IN HO WAY TORQUE _____

COST	
DAILY	665
PREVIOUS	5,779,258
CUMULATIVE	5,779,923

BIT

NO.	SIZE	MAKE	TYPE	JETS	IN	OUT	FOOTAGE	HRS	WOB	RPM	PUMP PRESS	SPM	GPM	DULL	LOCATION	B	G

SHAKER SCREEN SIZE: #1 TOP BTM #2 TOP BTM

GRAVITY:	SP	PVS UP	PVS UP	SPM	FPM	DAILY, bbl
DENSITY:	CP	YPS UP	YPS UP	GPM	HPM	CUMULATIVE, bbl
CENTRIFUGE:	CP	YPS UP	YPS UP	GPM	HPM	

CHEMICAL INVENTORY	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
	OIL					
	CAUSTIC SODA					
	BARITE					

DAILY CONSUMPTION		
DIESEL	bbl	
OIL	bbl	
BARITE	sx	
DIESEL	bbl	

DEVIATION	DEPTH	INCLINATION	DIRECTION	SPM	PRESSURE	GPM	DATE	TVD	DEPTH

DRILL PIPE	SIZE	WEIGHT	GRADE	TOOL	JOINTS	SIZE	GRADE	WEIGHT	CONN.	T	B	S	L	GRADE	JOINTS	WT

DRILL COLLARS

DC size _____ / _____ / _____ IN: Connection _____ ; Drayed DC WT _____

DRILL PIPE

DP SIZE _____ / _____ IN: WT _____ / _____ DP: Grade _____ / _____ ; Hp of Jts _____ / _____

DP CONNECTION _____ / _____ Range _____ / _____ IN: Hook Load _____ IN: Margin _____ lb

REMARKS

PERSONNEL													
DRILLER		TOOLPUSHER		LOGGER		CASING		CEMENTER		TRUCKING			
TOP		BOP		FISH CSG		CEMENT		BOP & INT					
GAUGE		CROWN		TYPE		SET							

TOK

PR Drilling Day Hour _____ USC Alternate Tm r _____ USC MW Hour _____ USC Mis CSG. Press _____ psi

Checking Times Stopwatch Accurate _____ ; Blind _____ ; Slips _____ ; Slips _____ CSG. Area Press _____ psi

Equipment _____

Personnel Rig 11 Service GCRL 1 Total 12 Weather CLEAR Temp 65

Reported By L. ARNOLD Mobile 1-801-259-9570

Time Reported 0630 Superintendent P. PANDACHUCK

file

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-08-18

WELL NAME: G.C.R.L. Seismosaur Federal #1
CURRENT DEPTH: ft FORMATION: DFN:
PREVIOUS DEPTH: ft API NO: 67896 s
PROGRESS: ft AUTHORIZED T.D.: RIG:
HOLE SIZE: in LAST CSG SIZE: in SET @ R

0700 - 1900 TEAR OUT RIG W/ TWO CARRIES + TWO BED TRUCKS

Spudded Has Gas Buster Lines
Rack Rig in Rock Springs
Drill Pipe in Gasper.

ACCIDENTS TODAY: 0 CUM: 0 SAFETY DAYS: 212
OPERATION @ 0600 HR: Rig Released
GAS UNITS: DRAG: to HOLD/ANY TORQUE:

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
WELLSITE SUPERVISOR	216	500
GEOLOGIST	224	
RENTALS:		
DRILL STRING	225	
MUD SYSTEM	226	
DIRECTIONAL	232	
OTHER	275	165
Colt Tak	206	1400

TOTALS	
DAILY	2065
PREVIOUS	5,781,253
CUMULATIVE	5,783,318

MUD

TIME	WEIGHT	VIS	pH	WL	HTHP	PV	YP	PS	SOLIDS %	SAND %	CEC	CHLORIDES	Ca	Mg

SOLIDS CONTROL

SHAKER SCREEN SIZE #1 TOP STM #2 TOP STM
DESANDER: OF HAV UF PRG UF GPM HRS
DESILTER: OF PRG UF PRG UF GPM HRS
CENTRIFUGE: OF PRG UF PRG UF GPM HRS

DAILY MM
CUMULATIVE MM

MATERIALS USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

ON LOCATION

DIESEL	bbl
GEL	bbl
BARITE	sk
DIESEL	bbl

HYD

PUMP	DESCRIPTION	SPM X STROKE	SPM	PRESSURE psi	SPM	GPM	CIRCULATING PRESS	psi

BIT INFO

BIT	MANUF	SIZE in	TYPE	JETS in	IN ft	OUT ft	FOOT CUMULATIVE	HRS	T	B	G	L	WOB	RPM	GPM

BHA

DC size / / In: Connection : Request DC WT

FILE

DP SIZE / In: WT / In: Grade / : No of Jts /
DP CONNECTION / Rating / In: Hook Load In: Margin lb

SURVEY

TIME

HRS													
DRLG		RIG SERV		LDG/PU		CUT/RIG		CIR/TRIP		INSPECT			
TRIP		DIRC		RUN CSG		REPAIR		SLIP & CUT					
SURVEY		CORING		WOB		DEV		SLIP & CUT DRILL LINE					

TOUR

Pit Drilled Day Tour: Afternoon Tour: Nite Tour: Max CSG. Press psi
Closing Time Seconds: Annular: Blind: Pipe: Pipe: CSG. Ann Press psi

Equipment:

Personnel Rig 11 Service 5 SOFL 1 Total 17 Weather Coast Temp 60
Reported By: L. Arnold Mobile 1-801-259-9570
Time Reported: 0630 Superintendent: P. Pandachuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-08-17

WELL NAME: G.C.R.L. Seismosaur Federal #1

CURRENT DEPTH: _____ ft FORMATION _____ DFR: _____

PREVIOUS DEPTH: _____ ft API NO: 67896 ft

PROGRESS _____ ft AUTHORIZED T.D. _____ RIG: _____

HOLE SIZE: _____ in LAST CSG SIZE _____ in SET @ _____ ft

0700 - 1900 WAIT ON Trucks

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
WELLSITE SUPERVISOR	202	500
GEOLOGIST	204	
RENTALS:		
DRILL STRING	208	
MUD SYSTEM	209	
DIRECTIONAL	212	
Other	238	165
TOTALS: DAILY		665
PREVIOUS		5,780,588
CUMULATIVE		5,781,253

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 211

OPERATION @ 0600 HR: Rig Released

GAS UNITS _____ DRAG _____ in HO IAN'Y TORQUE _____

MUD

TIME	DENSITY	VIS	pH											

SOLIDS CONTROL

SHAKER SCREEN SIZE #1 TOP _____ STM1 _____ #2 TOP _____ STM _____

DESILTER: OF _____ UF _____ UF _____ GPM _____ HRS

CENTRIFUGE: OF _____ UF _____ UF _____ GPM _____ HRS

DAILY, bbl

CUMULATIVE, bbl

MATERIAL USED

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

CONSTRUCTION

INVENT	bbl
GEL	bbl
BARITE	bbl
DIESEL	bbl

HYD

PUMP	DESCRIPTION	SPEED STROKE	SPM	PRESSURE psi	GPM			

BIT INFO

BIT	MANU #	SIZE in	TYPE	JETS in	IN	OUT	FOOTAGE	HRS	T	B	G	L	TFU		

BHA

DC size _____ / _____ in; Connection _____ ; Beyond DC WT _____

PIPE

DP SIZE _____ / _____ in; WT _____ / _____ lb/ft; Grade _____ / _____ ; No of Jts _____ / _____

DP CONNECTION _____ / _____ Rating _____ / _____ lb; Hook Load _____ lb; Margin _____

SURVEY

TIME

SPUD													
TRIP		RIG		RIG SER		REMED							
SAFETY		CORING		WOC		BIT							

TOP

FR Delta: Day Tour _____ sec; Afternoon Tour _____ sec; Mid Tour _____ sec; Max CSG. Press _____ psi

Closing Time Seconds: Annular _____ ; Blind _____ ; Pipe _____ ; Pipe _____ CSG. Ann Press _____ psi

Equipment _____

Personnel Rig 11 Service _____ GCRL 1 Third 12 Weather OCAST Temp 60

Reported By: L. Arnold Mobile 1-801-259-957

Time Reported: 0700 Superintendent P. Panorchuck

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-08-16

WELL NAME: G.C.R.L. Seismosaur Federal #1

CURRENT DEPTH: ft FORMATION: DFN:

PREVIOUS DEPTH: ft API NO: 43-037-31636

PROGRESS: ft AUTHORIZED T.D.: FEE:

HOLE SIZE: in LAST CSG SET: in SET @: ft

0700 - 1900 Wait On Trucks

DAILY COST SUMMARY		
ITEM	$	AMOUNT
PPG	107	
SAFETY SCALE	214	
WELL SUPERVISOR	215	500
GEOLOGIST	304	
RENTALS:		
DRILL STRING	208	
MUD SYSTEM	209	
DIRECTIONAL	212	
OTHER	224	165

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 210

OPERATION @ 0600 HR: Rig Released

GAS UNITS: DRAG: % NO-WAY TORQUE:

TOTALS	
DAILY	665
PREVIOUS	5,779,923
CUMULATIVE	5,780,588

BIT RECORD															
NO.	SIZE	MFG	TYPE	JETS	IN	OUT	FOOTAGE	HRS	WOB	RPM	PP	SPM	VEL	AV	AC

MOTOR RECORD											

DAILY COST	
DAILY	
CUMULATIVE	

MUD CHEMICALS									
	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT			
	GEL								
	CALCIUM SODA								
	BARITE								

DAILY MUD COST		
	BARITE	$/t
	GEL	$/t
	BARITE	$/t
	DIESEL	$/t

MUD PROPERTIES										
TIME	DEPTH	WT	VIS	PV	YP	GEL	PH	CL	SAND	MBT

BIT RECORD																
NO.	SIZE	MFG	TYPE	JETS	IN	OUT	FOOTAGE	HRS	WOB	RPM	T	B	G	C	PP	SPM

DRILL STRING	
DC size / / In: Connection / Ranged DC WT /	
DP SIZE / In: WT / Drill Grade / / No of Jts /	
DP CONNECTION / Rating / In: Hook Load / In: Margin /	

DEVIATION															
DEPTH		DEG		DEPTH		DEG		DEPTH		DEG		DEPTH		DEG	

PUMPS															
MFG		TYPE SERV		LINERS		GAUGES		SUCTIONS		DISCHARGE					
TYP		SIZE		PUMP SIZE		SERIAL		SUCTION							
SERIAL		STROKE		WOC		SPT		DISCH							

BOP	
PS Drill Day Tour / Min Alternate Tour / Min Night Tour / Min Crew Press / psi	
Closing Time Seconds Annular / Blind / Pipe / Pipe / CSG. Ann Press / psi	

Remarks:

Personnel Rig: 11 Service: GCRL: 1 Total: 12 Weather: Clear Temp: 65

Reported By: L. Arnold Mobile: 1-801-259-9570

Time Reported: 0630 Superintendent: R. Pondschuck

43-019-31357

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: 97-08-19

CURRENT DEPTH: ft FORMATION: DFR:
PREVIOUS DEPTH: ft AFE NO: 67896
PROGRESS: ft AUTHORIZED T.D.: FOR:
HOLE SIZE: in LAST CSG SIZE: in SET @: ft

0700 - 1900 Terr Out + Package Rig

DAILY COST SUMMARY		
ITEM	#	AMOUNT
FEE	207	
SAFETY BONUS	214	
SUPERVISOR	215	500
GEOLOGIST	204	
RENTALS:		
DRILL STRING	208	
MUD SYSTEM	209	
DIRECTIONAL	212	
OTHER	224	165
Chlorine Tab	206	2615

ACCIDENTS: TODAY 0 CUM 0 SAFETY DAYS 815
OPERATION @ 0600 HR: Rig Released
BAS UNITS: DRAG: IN NO (ANY TORQUE):

TOTALS	
DAILY	3280
PREVIOUS	5,783,318
CUMULATIVE	5,786,598

BIT

TIME	BIT NO.	WO WEIGHT	RM	WT. ON BIT	ROT. VELOCITY	FT	TP PRESSURE	FC	SCR	GPM	CAP	CUMUL. CAP	CI	BR

SHAKER SCREEN SIZE #1 TOP STM #2 TOP STM

DEGASSER:	OF	PSIG UF	PSIG UF	GPM	HRS
DESILTER:	OF	PSIG UF	PSIG UF	GPM	HRS
CENTRIFUGE:	OF	PSIG UF	PSIG UF	GPM	HRS

DAILY, bbl
CUMULATIVE, bbl

CHEMICAL USAGE

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
GALETE 550A					
BARITE					

ON LOCATION	
INVERT bbl	
GEL bbl	
BARITE sk	
DIESEL bbl	

PUMP

PUMP	DESCRIPTION	STROKE	SPM	PRESSURE psi	GPM	NOZ	BULK DENS.	

DRILL PIPE

WT	GRADE	SIZE	TYPE	JOINTS	MAKE	BUTT	PRST	TOR	T	B	G	L	DRIFT	JT	BR

DRILL COLLARS

DC size: / / In; Connection: ; Bouyed DC WT:

DRILL STRING

DP SIZE: / In; WT: / Drill Grade: / ; No of Jts: /
DP CONNECTION: / Fittings: / lb; Hook Load: lb; Margin: lb

REMARKS

BIT HRS

DRLG		RIG SERV		LOGGING		CEMENT		CORING		MOVING			
TRIP		CIRC		RUN CSG		REAMING		TEST & BOP					
SURVEY		REPAIR		WOB		RIP		DRILL OUT FLOAT EQ					

TOUR

Pit Drills: Day Tour psi; Afternoon Tour psi; Nite Tour psi; Max CSG. Press psi
Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Arm Press psi

Equipment:

Personnel Rig 11 Service 7 GCRL 1 Total 19 Weather Clear Temp 70
Reported By: L. Arnold Mobile 1-801-259-9570
Time Reported: 0630 Superintendent B. Rockney

GCRL ENERGY LTD.
DRILLING REPORT
(USA Operations)

WELL NAME: G.C.R.L. Saismosaur Federal #1 DATE: 97-08-20

CURRENT DEPTH: ft FORMATION: DFN:

PREVIOUS DEPTH: ft AFE NO: 67896 $

PROGRESS: ft AUTHORIZED T.D.: FBI:

HOLE SIZE: in LAST CSG SIZE: in SET @: ft

0700- 1800 Load Out Six Loads

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
WELL SUPERVISOR	215	500
GEOLOGIST	204	
RENTALS:		
DRILL STRING	205	
MUD SYSTEM	209	
DIRECTIONAL	212	
OTHER		100

TOTALS	
DAILY	600
PREVIOUS	5,786,598
CUMULATIVE	5,787,198

ACCIDENTS TODAY: 0 CUM: 0 SAFETY DAYS: 214

OPERATION @ 0600 HR: Rig Released

GAS UNITS: DRAG: @ HO (ANY TORQUE):

DEVIATION

TIME	DEVIAT. DEG	TVD FEET	DIR	DL	DIST. 100'/FEET	PV CP	YP DYN/CM	RS VIS	DEVIAT. %	SAND %	SOLIDS %	PH	CL PPM	CA PPM

SHAKER SCREEN SIZE: #1 TOP BTM #2 TOP BTM

DESANDER:	CF	PSIG UF	PSIG UF	GPM	HPS	
DESILTER:	CF	PSIG UF	PSIG UF	GPM	HPS	
CENTRIFUGE:	CF	PSIG UF	PSIG UF	GPM	HPS	

TOTAL	
DAILY, bbl	
CUMULATIVE, bbl	

CHEMICAL STORAGE

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CAUSTIC SODA					
BARITE					

CONSUMPTION	
DIVERT bbl	
GEL bbl	
BARITE bbl	
DIESEL bbl	

PUMP

PUMP	DESCRIPTION	SPEED STROKE	SPM	PRESSURE psi	SPM	Shale	Sand	Silt

BIT RECORD

BIT	SIZE inch	MFR	TYPE	JETS	IN	OUT	FOOT DRILLED	HRS	T	B	G	O	L	TIME	IN DATE	IN

BHA

DC size: / / in; Connection: ; Bouyed DC WT:

DP

DP SIZE: / in; WT: / lb/ft; Grade: / ; No of Jts: /

DP CONNECTION: / Footage: / ft; Hook Load: lb; Margin: lb

REMARKS

TIME

TIME		RIG SERV		LOGGING		CUTTING		WORKING		MOVEMENT			
TRIP		DRILL		RUN CSG		REMARK		SUP & OUT					
SURVEY		CORING		WOC		MIT		TOTAL HRS					

MUD

Pit Drills: Day Tour min; Afternoon Tour min; Nite Tour min; Max CSG. Press psi

Closing Time Seconds: Annular ; Blind ; Pipe ; Pipe CSG. Ann Press psi

Equipment:

Personnel Rig: 5 Service: 3 GCFL: 1 Total: 9 Weather: Clear Temp: 68

Reported By: L. Arnold Mobile: 1-801-259-9570

Time Reported: 0630 Superintendent: B. Rockney

GORL ENERGY LTD.
DRILLING REPORT
(USA Operations)

DATE: 97-08-21

WELL NAME: G. C. R. L. Seismosaur Federal #1

PRESENT DEPTH: _____ @ FORMATION: _____ MPH: _____

PREVIOUS DEPTH: _____ @ AFE NO: 67896 $

CONTRACTOR: _____ @ AUTHORIZED T.D. _____ FOR: _____

HOLE SIZE: _____ in LAST CSG SIZE _____ in SET @ _____ ft

0800 1800 Load Out Five Loads

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY SCHLB	214	
SUPERVISOR	210	500
GEOLOGIST	204	
RENTALS		
DRILL STRING	203	
MUD SYSTEM	205	
DIRECTIONAL	212	
Other	24	100

TOTALS	
DAILY	600
PREVIOUS	5,787,198
CUMULATIVE	5,787,798

ACCIDENTS TODAY _____ CUM _____ SAFETY DAYS 214

OPERATION @ 0600 HR Rig Released

MUD UNITS _____ DRAW _____ in HOHANY TERRACE

BIT RECORD

TYPE	SERIAL NO.	SIZE	JET	IN	OUT	FOOTAGE	HOURS	WOB	RPM	PUMP PRESS	SPM	GPM	DULL	LOCATION	B	G

MUD MOTOR

SHAKER SCREEN SIZE: #1 TOP _____ BTM _____ #2 TOP _____ BTM _____

AGITATOR:	OP	PSIG UP	PSIG UP	GPM	TYPE	DAILY $
DESILTER:	OP	PSIG UP	PSIG UP	GPM	TYPE	CUMULATIVE $
CENTRIFUGE:	OP	PSIG UP	PSIG UP	GPM	TYPE	

CHEMICAL & FUEL USAGE

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
BIT.					
GRADE-SEAL					
BARITE					

CONSUMED		
DIESEL	GAL	
GEL	SKS	
BARITE	SKS	
CEMENT	SKS	

DRILL PIPE

PIPE	DESCRIPTION	SERIAL NUMBER	GRADE	PREMIUM	SPM	SIZE	DEPTH	

DRILL COLLARS

QTY	DESCRIPTION	SIZE	TYPE	ID	BELL	BOX	PIN	TPI	T	B	U	L	SERIAL	DEPTH	SA

BHA

DC size _____ / _____ in Connection _____ ; Stayed DC WT _____

DP SIZE _____ / _____ in WT _____ / _____ lb/ft Grade _____ / _____ ; No of Jts _____ / _____

DP CONNECTION _____ / _____ Fishing _____ / _____ in Hook Load _____ in Weight _____ lb

REMARKS

BULK		MUD MOTOR		DRILLING		CLEANING		CIRCULATION		AMOUNT			
TRIP		SPM		ROP (AVG)		Washing		SLPM DIFF					
SURVEY		CIRCULATE		WOB		DIFF		MUD WT IN / MUD WT OUT					

TOOL

Pit Drills: Day Time _____ Drill/Afternoon Tour _____ Night Time _____ Min. Nozzle Circ. Press _____ psi

Closing Time Between Anular _____ ; Blind _____ ; Pipe _____ ; Flips _____ CSG. Arm Press _____ psi

Equipment: _____

Personnel Rig 0 Service 3 SCS 1 Total 4 Weather CLEAR Temp 65

Reported By L. Oswald Mobile 1-801-259-9570

Time Reported 0630 Superintendent B. Rockney

GCRL ENERGY LTD.

DRILLING REPORT

(USA Operations)

WELL NAME: G.C.R.L. Seismosaur Federal #1 DATE: August 22/97

CURRENT DEPTH: ft FORMATION: DFS:

PREVIOUS DEPTH: ft AFE NO: 62896 ft

PROGRESS: ft AUTHORIZED TD: RIG:

HOLE SIZE: in LAST CSG SIZE: in SET @ ft

0800- 1800 Load Out 4 Loads

20 loads left on leave.

ACCIDENTS TODAY: DUM: SAFETY DAYS:

OPERATION @ 0600 HR: Rig Released

GAS UNITS: DRAG: HO LAST TOPDUB:

DAILY COST SUMMARY		
ITEM	#	AMOUNT
RIG	207	
SAFETY BONUS	214	
[illegible] SUPERVISION	[illegible]	1500
GEOLOGIST	204	
RENTALS		
DRILL STRING	[illegible]	
MUD SYSTEM	[illegible]	
DIRECTIONAL	212	
OTHER	241	100
Restoration - Cost	[illegible]	30,000
Roadtaxes	241	6789
Sump Disp Net	241	5000
Turbine Repair	241	20,000
BIT CREDIT	211	12,500
MUD CREDIT	209	18,500
TOTAL DAILY		32,389
TOTAL PREVIOUS		5,787,798
TOTAL CUMULATIVE		5,820,187

DEVIATION

MD	Angle	TVD	Dir	Vs	Dl	N/S	E/W	Dl	Build	Turn	Dogleg	Closure Dist	Closure Dir	Tool Face	Comments

SHAKERS

SHAKER screen size #1 TOP BTM #2 TOP BTM

SHAKERS:	Gr	RPM UP	RPM DN	SPM	TYPE
DESILTER:	CP	RPM UP	RPM UP	GPM	HRS
CENTRIFUGE:	CP	RPM UP	RPM UP	GPM	HRS

DAILY MI

CUMULATIVE MI

CHEMICAL ADDITIVES

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
GEL					
CHEMS SODA					
BARITE					

WEIGHT	lbs	
GEL	lbs	
BARITE	lbs	
DIESEL	bbl	

PUMPS

PUMP	DESCRIPTION	SPECIFICATIONS	SPM	PRESSURE	GPM	SPM	[illegible]	[illegible]

BIT RECORD

NO	SIZE	MFG	TYPE	JETS	IN	OUT	FOOTAGE	HRS	ROP	T	B	G	O	DULL	[illegible]	[illegible]

BHA

DS size / / in: Connection ; Stowed DS WT

DP size / in: WT / Grade / ; No of Jts /

DP CONNECTION / Rating / lb: Hoist Load lb: Margin lb

REMARKS

Item		Item		Item		Item		Item		Item			
TRP		GRR		RR GSR		RRGSR		SLP & SR					
WWRF		GRPRS		BOP		RIP		[illegible]					

TOT

Fill Drills: Day Tour sec; Afternoon Tour sec; Night Tour sec; Last Test Chkd. Press psi

Closing Time Seconds: Annular ; Blind ; Pipe ; Flpt ; CSG. Anc Press psi

Statement:

Personnel Rig 0 / Service 4 / SCR 1 / Total 5 / Weather Ocast / Temp 60F

Reported By: L. Arnold Mobile

Time Reported: 0630 Superintendent: B Rockney

GCRL
ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

RECEIVED
AUG 25 1997
DIV. OF OIL, GAS & MINING

July 23, 1997

Mr. Jimmie Thompson
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

RE: GCRL Seismosaur Federal #1 Sec. 20 T21S R20E,
Report of Water Encountered During Drilling

Enclosed please find one original copy of the Report of Water Encountered During Drilling.

If there are any questions or additional requirements, please contact Tim Wood at 403 233-3902.

Sincerely,
Tim Wood

Drilling Engineer

P.O. BOX 130, CALGARY, ALBERTA, CANADA T2P 2H7

FORM 7

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

RECEIVED
AUG 25 1997
DIV. OF OIL, GAS & MINING

REPORT OF WATER ENCOUNTERED DURING DRILLING

1. Well name and number: GCRL Seismosaur Federal #1

API number: 43-019-31357

2. Well Location: QQ NW/4 NE/4 Section 20 Township 21S Range 20E County GRAND COUNTY

3. Well operator: GCRL Energy Ltd

Address: P.O. Box 130, 401-9th Ave S.W.
CALGARY, AB T2P 2H7 Phone: 403 233-4000

4. Drilling contractor: Nabors Drilling, Western Divison

Address: 1670 Broadway, Suite 3355
Denver, Colorado 80202 Phone: 303 832-2898

5. Water encountered (attach additional pages as needed):

DEPTH		VOLUME (FLOW RATE OR HEAD)	QUALITY (FRESH OR SALTY)
FROM	TO		
2700	unknown	Unknown	Fresh
15482	15482	70 bbls/hr	Salt

6. Formation tops: See Attached

If an analysis has been made of the water encountered, please attach a copy of the report to this form.

I hereby certify that this report is true and complete to the best of my knowledge. Date: July 22, 1997

Name & Signature: Tim Wood Title: Drilling Engineer

(5/93)

GCRL
ENERGY LTD.

A Wholly Owned Subsidiary of
GULF CANADA RESOURCES LIMITED
CALGARY, ALBERTA, CANADA

RECEIVED
AUG 25 1997
DIV. OF OIL, GAS & MINING

August 21, 1997

Mr. Jimmie Thompson
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

RE: GCRL Seismosaur Federal #1 Sec. 20 T21S R20E,
Well Completion Report

Enclosed please find three (2) original copies of the Well Completion Report. I have also sent two copies of this Well Completion Report to the Bureau of Lands and Minerals in Moab Utah.

If there are any questions or additional requirements, please contact Tim Wood at 403 233-3902.

Sincerly,
Tim Wood

Drilling Engineer

P.O. BOX 130, CALGARY, ALBERTA, CANADA T2P 2H7

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: U-75828

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: - - - - - -

7. UNIT AGREEMENT NAME: - - - - - -

8. FARM OR LEASE NAME, WELL NO.: SEISMOSAUR FEDERAL #1

9. API WELL NO.: 43-019-31357

10. FIELD AND POOL, OR WILDCAT: WILDCAT

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec 20 T21S R20E

1a. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] DRY [X] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: G.C.R. ENERGY LTD.

3. ADDRESS AND TELEPHONE NO.: P.O. BOX 130 CALGARY, ALBERTA, CANADA T2P 2H7 (403) 233-4000

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 92' FNL 2,320 ' FEL (NW/4 NE/4) SEC 20-T21S-R20E
At top prod. interval reported below: AS ABOVE
At total depth: AS ABOVE

14. PERMIT NO.: 43-019-31357 DATE ISSUED: 12/6/96

12. COUNTY OR PARISH: Grand County 13. STATE: Utah

15. DATE SPUDDED: 1/4/97 16. DATE T.D. REACHED: 06/18/97 17. DATE COMPL. (Ready to prod.): N/A 8·2·97 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: KB=5168.5 ft. Ground=5137' 19. ELEV. CASINGHEAD: 5137'

20. TOTAL DEPTH, MD & TVD: 15482 21. PLUG, BACK T.D., MD & TVD: 0 22. IF MULTIPLE COMPL., HOW MANY*: N/A 23. INTERVALS DRILLED BY: → ROTARY TOOLS: 0-15,482 CABLE TOOLS: 0

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: NONE

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: PHASOR, INDUCTION BHC SONIC, GR, SIR ARM CALIPER, GR (COMP DEN/LITHO DEN) HYDROCARBON LOG MUD LOG 8-25-97 RUN 2,3

27. WAS WELL CORED: NO

CONFIDENTIAL

28. CASING RECORD (Report all strings set in well) (SEE ATTACHED)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED

CONFIDENTIAL PERIOD EXPIRED ON 9-2-98

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT	SCREEN (MD)
	N/A			

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
	N/A	

RECEIVED AUG 25 1997 DIV. OF OIL, GAS & MINING

31. PERFORATION RECORD (Interval, size and number): N/A

CONFIDENTIAL

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
N/A	

33. PRODUCTION

DATE FIRST PRODUCTION: NONE PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump): N/A WELL STATUS (Producing or shut-in): N/A P&A

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
NONE	N/A	N/A	→				

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
N/A	N/A	→				

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): N/A

TEST WITNESSED BY: N/A

35. LIST OF ATTACHMENTS: CASING RECORD, SURVEY LISTING, LOG'S, TEST REPORTS, GEOLOGIC SUMMARIES, Plugging Program

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Jim Wood TITLE Drilling Engineer DATE Aug 21, 97

*(See Instructions and Spaces for Additional Data on Reverse Side)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
PARADOX	13648	13680	FRACTURED SHALE, DRILL STEM TESTED. SEE ATTACHED DRILL STEM TEST REPORT, RECOVERED 4,193 ft. OF 16 lb/gal GAS CUT MUD.

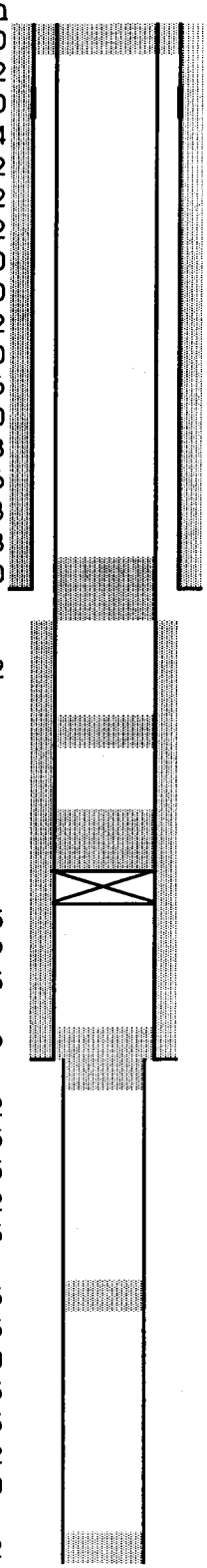
38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH
SEE ATTACHED ABANDONMENT DIAGRAMS		

☆ U.S. GOVERNMENT PRINTING OFFICE: 1992—774-672

GCRL Seismosaur Federal #1 Plugging Program

Tops	Depth
Mancos Shale	0
Dakota	2652
Stage Collar	2700
Cedar Mtn	2754
Bushy Basin	3162
Summerville	3372
Moab Tongue	3462
Entrada	3520
Carmel	3980
Navajo	4192
Kayenta	4420
Wingate	4596
Chinle	4950
Moss Back	5138
Shinarump	5186
Moenkopi	5193
Cutler (White Rim)	5718
Surface Shoe 13 3/8"	5800
Elephant Canyon	9232
Paradox	12865
Top of Salt 1	12949
Base of Salt 1	13305
Intermediate Shoe 9 5/8"	13339
Top Salt 2	13512
Base Salt 2	13615
Top Salt 3	13735
Base Salt 3	13802
Top Salt 4	14145
Base Salt 4	14345
Top Salt 5	14425
Base Salt 5	14660
Top Salt 6	14795
Base Salt 6	14945
Top Salt 7	15102
Base Salt 7	15320
T.D. 8.5" Open Hole	15482



Plugs	Top	Bottom	Length	Notes
#7	0	100	100	40 Sacks 0:1:0 G+0.2% R-3 Well head left at surface
#6	5600	6000	400	153 Sacks 0:1:0 G+0.2% R-3
#5	9800	10200	400	153 Sacks 0:1:0 G+0.2% R-3
#4	11390	11990	600	175 Sacks 0:1:0 G+ 97 lbs/sack Barite + 0.8% CD-32 + 0.3% R-3
	11990			Halliburton EZ-SV Bridge Plug
				152 Sacks 0:1:0 G+ 97 lbs/sack Barite + 0.8% CD-32 + 0.3% R-3
#3	13010	13575	565	Felt plug at 13,010' Fish in hole at 13575'
				100 Sacks 0:1:0 G+ 107 lbs/sack Barite + 0.3% CD-32 + 0.6% R-3
#2	14250	14315	65	Tagged with 10,000 lbs
				50 Sacks 0:1:0 G+ 107 lbs/sack Barite + 0.3% CD-32 + 0.8% R-3
#1	15239	15482	243	Tagged with 10,000 lbs

Legend
Cement

SURVEY LISTING

GULF CANADA RESOURCES LTD.
DIRECTIONAL DRILLING PACKAGE
MINIMUM CURVATURE METHOD
WELL: Seismosaur #1
Azimuth not available so set to 0 degrees
N/S departure indicates total deviation in one direction.

AZI TO TARGET = 0.0 deg

	MEASURED DEPTH	DRIFT	AZMTH				TVD	N/S	E/W	DLS	ClsDisp	ClsAz	VSectn
1	0.00	0.00	0.0	N	0	E	0.00	0.00 S	0.00 E	0.00	0.00	0.0	0.00
2	469.00	1.00	0.0	N	0	E	468.98	4.09 N	0.00 E	0.21	4.09	0.0	4.09
3	552.00	0.75	0.0	N	0	E	551.97	5.36 N	0.00 E	0.30	5.36	0.0	5.36
4	798.00	1.00	0.0	N	0	E	797.94	9.12 N	0.00 E	0.10	9.12	0.0	9.12
5	972.00	1.25	0.0	N	0	E	971.90	12.53 N	0.00 E	0.14	12.53	0.0	12.53
6	1224.00	1.50	0.0	N	0	E	1223.83	18.58 N	0.00 E	0.10	18.58	0.0	18.58
7	1413.00	1.50	0.0	N	0	E	1412.77	23.53 N	0.00 E	0.00	23.53	0.0	23.53
8	1661.00	1.50	0.0	N	0	E	1660.68	30.02 N	0.00 E	0.00	30.02	0.0	30.02
9	1905.00	1.00	0.0	N	0	E	1904.62	35.34 N	0.00 E	0.20	35.34	0.0	35.34
10	2171.00	0.75	0.0	N	0	E	2170.59	39.40 N	0.00 E	0.09	39.40	0.0	39.40
11	2419.00	1.00	0.0	N	0	E	2418.56	43.19 N	0.00 E	0.10	43.19	0.0	43.19
12	2698.00	1.25	0.0	N	0	E	2697.51	48.67 N	0.00 E	0.09	48.67	0.0	48.67
13	2955.00	2.00	0.0	N	0	E	2954.40	55.96 N	0.00 E	0.29	55.96	0.0	55.96
14	3165.00	2.00	0.0	N	0	E	3164.28	63.29 N	0.00 E	0.00	63.29	0.0	63.29
15	3232.00	1.88	0.0	N	0	E	3231.24	65.55 N	0.00 E	0.19	65.55	0.0	65.55
16	3365.00	2.25	0.0	N	0	E	3364.15	70.34 N	0.00 E	0.28	70.34	0.0	70.34
17	3450.00	2.00	0.0	N	0	E	3449.09	73.49 N	0.00 E	0.29	73.49	0.0	73.49
1[illegible]	3608.00	2.50	0.0	N	0	E	3606.97	79.69 N	0.00 E	0.32	79.69	0.0	79.69
19	3763.00	2.50	0.0	N	0	E	3761.82	86.45 N	0.00 E	0.00	86.45	0.0	86.45
20	3922.00	2.25	0.0	N	0	E	3920.69	93.04 N	0.00 E	0.16	93.04	0.0	93.04
21	4077.00	2.75	0.0	N	0	E	4075.54	99.80 N	0.00 E	0.32	99.80	0.0	99.80
22	4275.00	2.50	0.0	N	0	E	4273.33	108.87 N	0.00 E	0.13	108.87	0.0	108.87
23	4418.00	3.00	0.0	N	0	E	4416.16	115.73 N	0.00 E	0.35	115.73	0.0	115.73
24	4530.00	2.50	0.0	N	0	E	4528.03	121.11 N	0.00 E	0.45	121.11	0.0	121.11
25	4592.00	2.50	0.0	N	0	E	4589.98	123.81 N	0.00 E	0.00	123.81	0.0	123.81
26	4654.00	2.50	0.0	N	0	E	4651.92	126.52 N	0.00 E	0.00	126.52	0.0	126.52
27	4699.00	2.50	0.0	N	0	E	4696.87	128.48 N	0.00 E	0.00	128.48	0.0	128.48
28	4793.00	2.00	0.0	N	0	E	4790.80	132.17 N	0.00 E	0.53	132.17	0.0	132.17
29	4884.00	3.00	0.0	N	0	E	4881.71	136.14 N	0.00 E	1.10	136.14	0.0	136.14
30	4915.00	3.00	0.0	N	0	E	4912.67	137.76 N	0.00 E	0.00	137.76	0.0	137.76
31	5031.00	2.75	0.0	N	0	E	5028.52	143.58 N	0.00 E	0.22	143.58	0.0	143.58
32	5091.00	2.00	0.0	N	0	E	5088.47	146.06 N	0.00 E	1.25	146.06	0.0	146.06
33	5154.00	1.25	0.0	N	0	E	5151.45	147.85 N	0.00 E	1.19	147.85	0.0	147.85
34	5211.00	1.50	0.0	N	0	E	5208.43	149.22 N	0.00 E	0.44	149.22	0.0	149.22
35	5271.00	1.25	0.0	N	0	E	5268.41	150.66 N	0.00 E	0.42	150.66	0.0	150.66
36	5334.00	0.75	0.0	N	0	E	5331.40	151.76 N	0.00 E	0.79	151.76	0.0	151.76
37	5416.00	1.00	0.0	N	0	E	5413.39	153.01 N	0.00 E	0.30	153.01	0.0	153.01
38	5579.00	1.00	0.0	N	0	E	5576.37	155.86 N	0.00 E	0.00	155.86	0.0	155.86
39	5713.00	1.50	0.0	N	0	E	5710.34	158.78 N	0.00 E	0.37	158.78	0.0	158.78
4[illegible]	5749.00	1.50	0.0	N	0	E	5746.32	159.72 N	0.00 E	0.00	159.72	0.0	159.72
41	5929.00	0.75	0.0	N	0	E	5926.29	163.25 N	0.00 E	0.42	163.25	0.0	163.25
42	6051.00	1.00	0.0	N	0	E	6048.27	165.12 N	0.00 E	0.20	165.12	0.0	165.12
43	6272.00	0.50	0.0	N	0	E	6269.25	168.01 N	0.00 E	0.23	168.01	0.0	168.01
44	6585.00	0.25	0.0	N	0	E	6582.25	170.06 N	0.00 E	0.08	170.06	0.0	170.06

LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
20 - 21 S - 20 E	WILDCAT	GRAND	UTAH

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
SEISMOSAUR FEDERAL	1	1	13258.0 - 14250.0	GULF CANADA RESOURCES LTD.

GULF CANADA RESOURCES LTD.

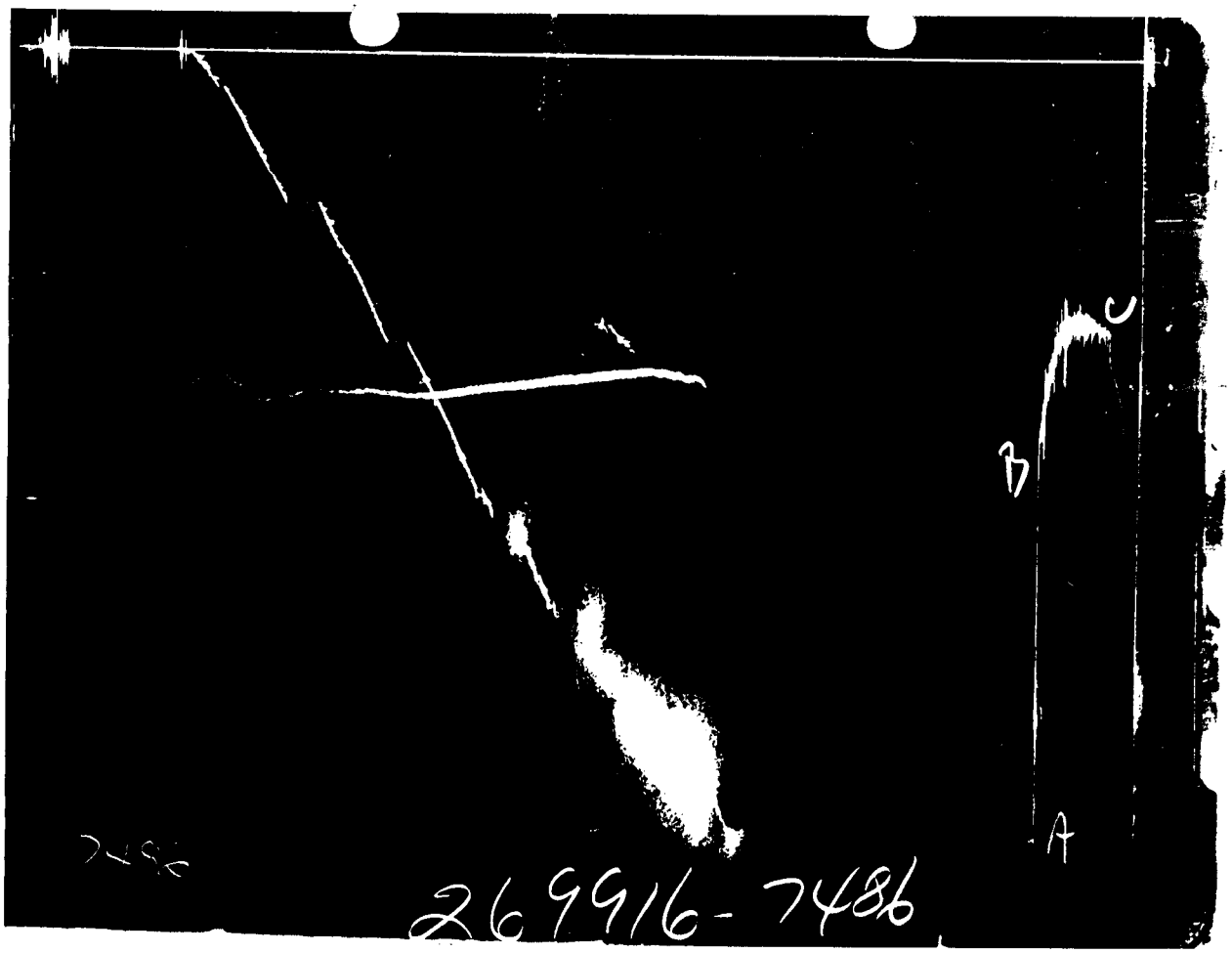
LEASE : SEISMOSAUR FEDERAL

WELL NO.: 1

TEST NO.: 1

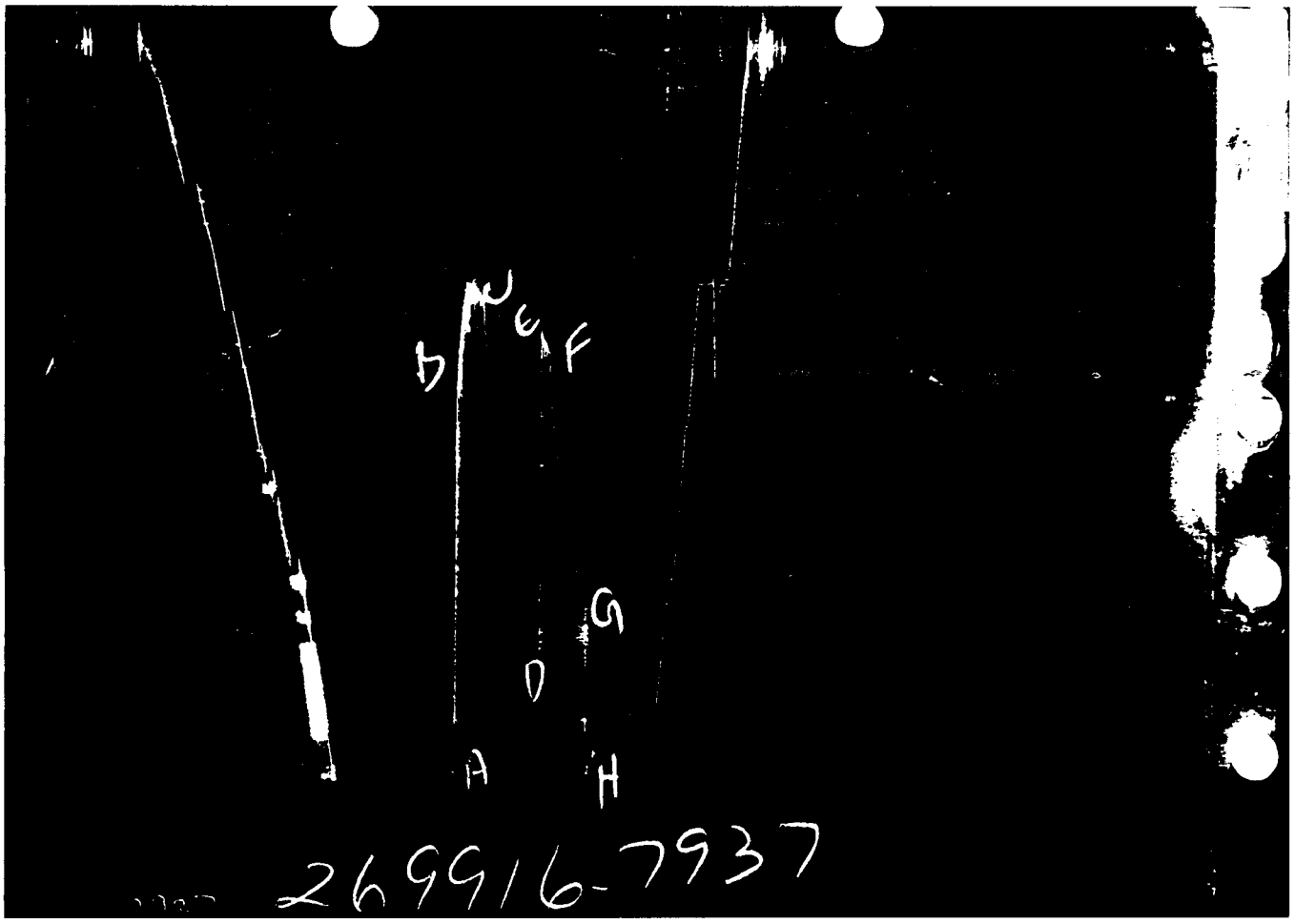
TICKET NO. 26991600
11-JUL-97
VERNAL

DST REPORT PRODUCED BY HRS
A DIVISION OF HALLIBURTON COMPANY



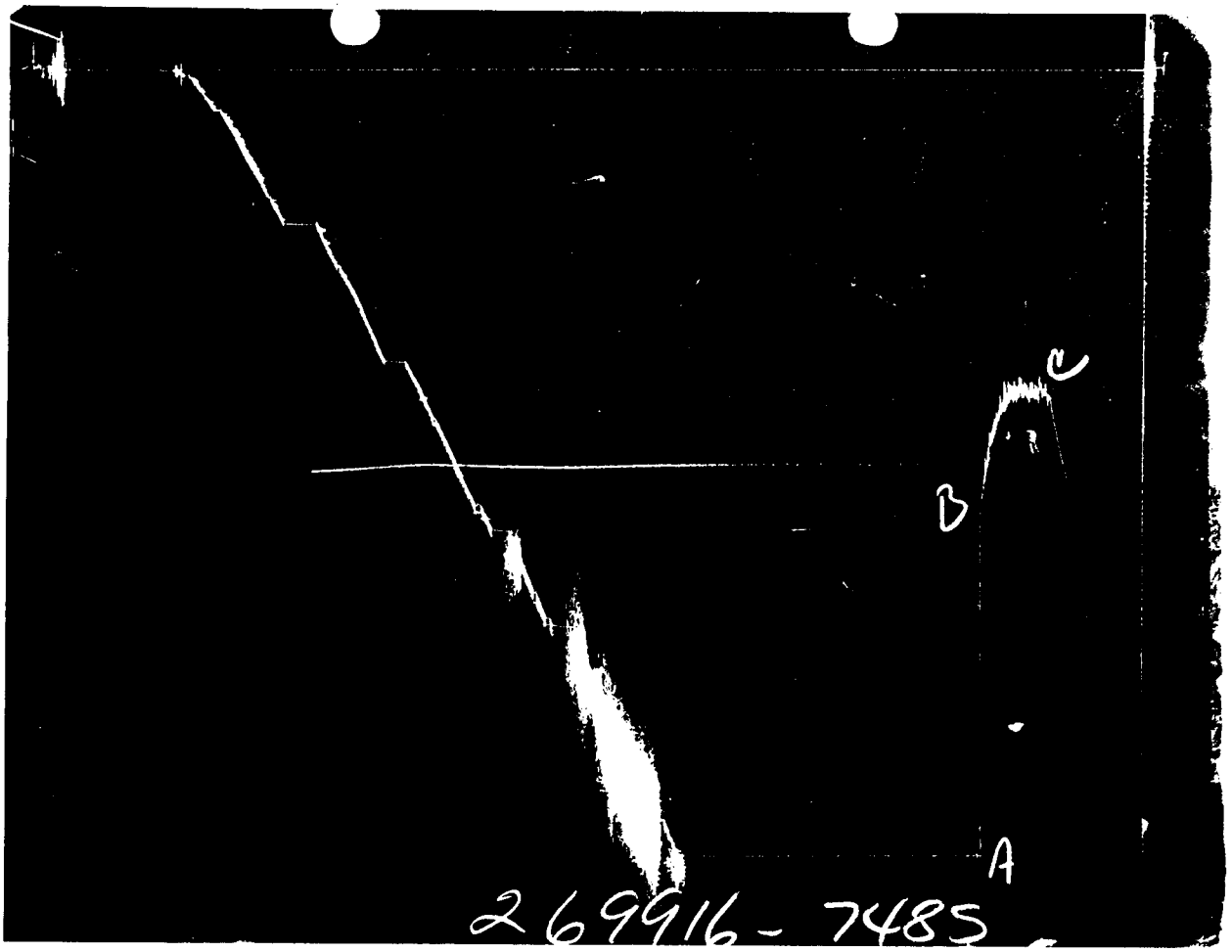
GAUGE NO: 7486 DEPTH: 12251.3 BLANKED OFF: NO HOUR OF CLOCK: 48

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC		9077.8			
B	INITIAL FIRST FLOW		4468.7	182.0	179.5	F
C	FINAL FIRST FLOW		3122.6			
C	INITIAL FIRST CLOSED-IN		3122.6	364.0		C
D	FINAL FIRST CLOSED-IN					
E	INITIAL SECOND FLOW			60.0		F
F	FINAL SECOND FLOW					
F	INITIAL SECOND CLOSED-IN			240.0		C
G	FINAL SECOND CLOSED-IN					
H	FINAL HYDROSTATIC					



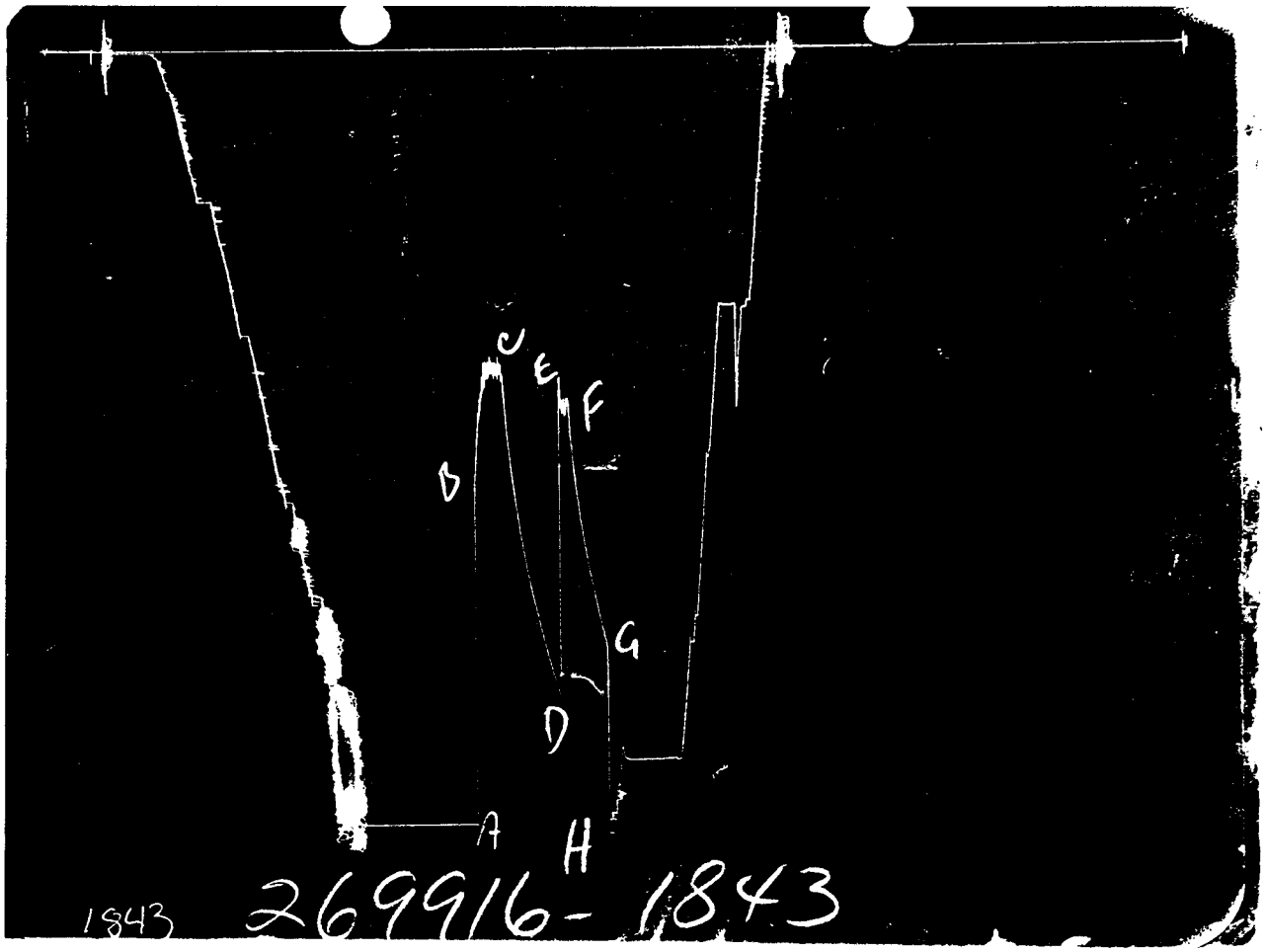
GAUGE NO: 7937 DEPTH: 12255.4 BLANKED OFF: NO HOUR OF CLOCK: 120

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	9083	9115.7			
B	INITIAL FIRST FLOW	2954	4357.9	182	180	F
C	FINAL FIRST FLOW	3909	3132.3			
C	INITIAL FIRST CLOSED-IN	3909	3132.3	364	363	C
D	FINAL FIRST CLOSED-IN	7633	7642.6			
E	INITIAL SECOND FLOW	3669	3539.6	60	61	F
F	FINAL SECOND FLOW	3869	3788.2			
F	INITIAL SECOND CLOSED-IN	3869	3788.2	240	242	C
G	FINAL SECOND CLOSED-IN	7073	7046.3			
H	FINAL HYDROSTATIC	9056	9087.1			



GAUGE NO: 7485 DEPTH: 12294.7 BLANKED OFF: YES HOUR OF CLOCK: 48

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC		9141.9			
B	INITIAL FIRST FLOW		5269.5	182.0	179.5	F
C	FINAL FIRST FLOW		3727.7			
C	INITIAL FIRST CLOSED-IN		3727.7	364.0		C
D	FINAL FIRST CLOSED-IN					
E	INITIAL SECOND FLOW			60.0		F
F	FINAL SECOND FLOW					
F	INITIAL SECOND CLOSED-IN			240.0		C
G	FINAL SECOND CLOSED-IN					
H	FINAL HYDROSTATIC					



GAUGE NO: 1843 DEPTH: 13303.1 BLANKED OFF: YES HOUR OF CLOCK: 120

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	9173	9240.4			
B	INITIAL FIRST FLOW	3854	5026.2	182	180	F
C	FINAL FIRST FLOW	3240	3796.8			
C	INITIAL FIRST CLOSED-IN	3240	3796.8	364	363	C
D	FINAL FIRST CLOSED-IN	7754	7717.5			
E	INITIAL SECOND FLOW	3909	3987.0	60	61	F
F	FINAL SECOND FLOW	4184	4139.3			
F	INITIAL SECOND CLOSED-IN	4184	4139.3	240	242	C
G	FINAL SECOND CLOSED-IN	7133	7105.7			
H	FINAL HYDROSTATIC	9120	9192.3			

EQUIPMENT & HOLE DATA

FORMATION TESTED: _____
NET PAY (ft): OPEN HOLE BELOW CSG.
GROSS TESTED FOOTAGE: 982.0 PACKER TO T.D.
ALL DEPTHS MEASURED FROM: K.B.
CASING PERFS. (ft): 911' OPEN HOLE
HOLE OR CASING SIZE (in): 9.875 TO 13339'
ELEVATION (ft): 5137.0 AT GROUND LEVEL
TOTAL DEPTH (ft): 14250.0
PACKER DEPTH(S) (ft): 13268
FINAL SURFACE CHOKE (in): 0.25000
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 12.80
MUD VISCOSITY (sec): 50
ESTIMATED HOLE TEMP. (°F): _____
ACTUAL HOLE TEMP. (°F): 234 @ _____ ft

TICKET NUMBER: 26991600

DATE: 07-08-97 TEST NO: 1

TYPE DST: CASED HOLE

FIELD CAMP: VERNAL

TESTER: RANDY RIPPLE

WITNESS: LARRY ARNOLD

DRILLING CONTRACTOR: NABOR RIG #280

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE: 200.0
cu.ft. OF GAS: 1.290
cc OF OIL: _____
cc OF WATER: 25.0
cc OF MUD: 175.0
TOTAL LIQUID cc: 200.0

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): _____ @ ___ °F
GAS/OIL RATIO (cu.ft. per bbl): _____
GAS GRAVITY: _____

CUSHION DATA

TYPE	AMOUNT	WEIGHT
NITROGEN (PSI)	2100.0	

RECOVERED:

4193 FT OF 16 LB/FT GAS CUT DRILLING MUD

MEASURED FROM TESTER VALVE

REMARKS:

THE CHART TIME FOR GAUGES 7485 AND 7486 EXPIRED DURING THE FIRST CLOSED IN PERIOD. COMPLETE READINGS ARE THEREFORE NOT AVAILABLE.

CHARTS INDICATE POSSIBLE PLUGGING DURING THE FLOW PERIODS.

TYPE & SIZE MEASURING DEVICE: 6" POSITIVE CHOKE NIPPLE					TICKET NO: 26991600
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
07-06-97					
1310					ON LOCATION
1330					PICKED UP TOOLS FOR TEST #1
1526					STARTED EMR GAUGE #77431
1547					STARTED EMR GAUGE #76679
1600					WAITED ON CROSSOVER
2100					CROSSOVER ARRIVED; RUN IN HOLE
07-07-97					
1845					RIGGED UP LT-20 SWIVEL AND MANIFOLD;
					PRESSURE UP TUBING WITH NITROGEN TO
					2100 PSI FOR CUSHION, THEN WAITED ON
					DAYLIGHT
07-08-97					
0705	SHUT-IN	2100			OPENED TOOL WITH MANIFOLD CLOSED
0707	.25	2450			OPENED MANIFOLD THRU A 1/4" CHOKE;
					SURFACE PRESSURE READINGS AS PER
					3000 PSI GAUGE AT SURFACE
0712	.25	2225			
0717	.25	2025			
0722	.25	1800			
0727	.25	1600			
0732	.25	1425			
0737	.25	1275			
0742	.25	1150			
0747	.25	1015			
0752	.25	925			
0757	.25	825			
0802	.25	725			
0807	.25	650			
0812	.25	575			
0817	.25	515			
0822	.25	460			
0827	.25	415			
0832	.25	375			
0837	.25	350			
0842	.25	300			
0847	.25	260			

TYPE & SIZE MEASURING DEVICE: 6" POSITIVE CHOKE NIPPLE | TICKET NO: 26991600

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
0852	.25	245			
0857	.25	230			
0902	.25	225			
0907	.25	200			
0912	.25	190			
0917	.25	165			
0922	.25	160			
0927	.25	150			
0932	.25	135			
0937	.25	110			
0942	.25	35			SWITCHED TO 100 PSI GAUGE AT SURFACE
0947	.25	30			SWITHCED TO 30 PSI GAUGE AT SURFACE
0952	.25	27.5			
0957	.25	22.5			
1002	.25	19			
1007	.25	16			CLOSED TOOL
1611	B.H.				OPENED TOOL THRU 1/8" BUBBLE HOSE
					AND BLOW 1/8" IN WATER
1616	B.H.	5.0 OZ.			BLOW 9" IN WATER
1621	B.H.	5.0 OZ.			BLOW 9" IN WATER
1626	B.H.	5.0 OZ.			BLOW 9" IN WATER
1631	B.H.	5.0 OZ.			BLOW 9" IN WATER
1636	B.H.	5.0 OZ.			BLOW 9" IN WATER
1641	B.H.	5.0 OZ.			BLOW 9" IN WATER
1651	B.H.	5.0 OZ.			BLOW 9" IN WATER
1701	B.H.	5.5 OZ.			BLOW 9 1/2" IN WATER
1711	B.H.	5.5 OZ.			BLOW 9 1/2" IN WATER; CLOSED TOOL
2111					OPENED BYPASS; RELEASED PACKER;
					PULLED 12 STANDS, SHUT DOWN FOR NIGHT
07-09-97					
0500					STARTED PULLING PIPE
1059					SET PACKER; ROTATED DCIP TO OPEN
					REVERSING PORTS
1500					DRAINED SAMPLER; BROKE OUT AND LAID
					DOWN TOOLS; WAITED ON ORDERS
1730					THRU WITH JOB

TICKET NO: 26991600	GAUGE NO: 7486
CLOCK NO: 10118 HOUR: 48	DEPTH: 12251.3

FIRST FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
B	1	0.0	4468.7			
	2	15.0	3900.5	-568.2		
	3	30.0	3502.1	-398.4		
	4	45.0	3159.8	-342.3		
	5	60.0	3041.4	-118.4		
	6	75.0	2968.6	-72.8		
	7	90.0	3001.8	33.2		
	8	105.0	2941.6	-60.3		
	9	120.0	2950.0	8.4		
	10	135.0	2977.5	27.5		
	11	150.0	3017.8	40.3		
	12	165.0	3069.8	52.0		
C	13	179.5	3122.6	52.8		

FIRST CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
C	1	0.0	3122.6			
	2	1.0	3465.4	342.8	1.0	2.248
	3	2.0	3477.6	355.0	2.0	1.963
	4	3.0	3483.9	361.3	2.9	1.784
	5	4.0	3494.5	371.9	3.9	1.660
	6	5.0	3513.0	390.4	4.8	1.569
	7	6.0	3523.9	401.3	5.8	1.491
	8	7.0	3545.7	423.1	6.7	1.428
	9	8.0	3559.9	437.3	7.6	1.371
	10	9.0	3571.8	449.2	8.6	1.321
	11	10.0	3588.2	465.6	9.5	1.277
	12	12.0	3614.3	491.7	11.2	1.203
	13	14.0	3639.9	517.3	13.0	1.141
	14	16.0	3668.5	545.9	14.7	1.087
	15	18.0	3702.3	579.6	16.4	1.039
	16	20.0	3727.0	604.4	18.0	1.000
	17	22.0	3789.9	667.3	19.6	0.962
	18	24.0	3816.6	694.0	21.2	0.929
	19	26.0	3846.6	723.9	22.7	0.898
	20	28.0	3878.1	755.5	24.2	0.870
	21	30.0	3905.4	782.8	25.7	0.844
	22	35.0	4008.8	886.2	29.3	0.787
[1]	23	38.9	4075.3	952.6	32.0	0.749
D	24	NO DATA FOR THIS POINT				

SECOND FLOW

REF		
E	1	NO DATA FOR THIS POINT
F	2	NO DATA FOR THIS POINT

SECOND CLOSED-IN

REF		
F	1	NO DATA FOR THIS POINT
G	2	NO DATA FOR THIS POINT

LEGEND:
[1] CHART TIME EXPIRED

REMARKS:

TICKET NO: 26991600	GAUGE NO: 7937
CLOCK NO: 21687 HOUR: 120	DEPTH: 12255.4

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0	4357.9			
	2	15	3873.2	-484.7		
	3	30	3446.5	-426.6		
	4	45	3247.8	-198.7		
	5	60	3109.5	-138.3		
	6	75	2978.9	-130.7		
	7	90	3053.2	74.4		
	8	105	3096.2	43.0		
	9	120	3074.0	-22.3		
	10	135	3079.8	5.9		
	11	150	3098.9	19.0		
	12	165	3110.6	11.7		
C	13	180	3132.3	21.7		
			FIRST CLOSED-IN			
C	1	0	3132.3			
	2	1	3501.4	369.1	1.0	2.245
	3	2	3511.3	379.1	1.9	1.978
	4	3	3531.0	398.7	2.9	1.793
	5	4	3548.2	416.0	4.0	1.650
	6	5	3562.0	429.7	4.9	1.568
	7	6	3569.0	436.8	5.7	1.499
	8	7	3581.6	449.3	6.6	1.431
	9	8	3602.4	470.1	7.6	1.374
	10	9	3618.8	486.5	8.7	1.316
	11	10	3637.5	505.3	9.6	1.272
	12	12	3658.0	525.8	11.3	1.202
	13	14	3678.5	546.2	13.1	1.138
	14	16	3713.3	581.1	14.7	1.087
	15	18	3750.8	618.5	16.4	1.039
	16	20	3809.9	677.7	18.0	0.999
	17	22	3835.1	702.9	19.5	0.964
	18	24	3874.6	742.4	21.2	0.927
	19	26	3903.8	771.6	22.7	0.898
	20	28	3951.9	819.7	24.3	0.869
	21	30	3985.5	853.2	25.7	0.845
	22	35	4081.7	949.5	29.4	0.786
	23	40	4653.8	1521.6	32.8	0.739
	24	45	4735.5	1603.3	36.0	0.697
	25	50	4813.7	1681.4	39.2	0.661
	26	55	4899.9	1767.7	42.1	0.629
	27	60	4979.3	1847.1	45.0	0.601
	28	70	5137.3	2005.1	50.4	0.552
	29	80	5275.6	2143.4	55.3	0.511
	30	90	5419.2	2286.9	60.0	0.476
	31	100	5549.7	2417.4	64.2	0.447
	32	110	5691.2	2559.0	68.2	0.420
	33	120	5805.2	2673.0	71.9	0.397
	34	135	5970.8	2838.6	77.1	0.367
	35	150	6107.7	2975.5	81.7	0.342

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
			FIRST CLOSED-IN - CONTINUED			
	36	165	6227.3	3095.0	86.0	0.320
	37	180	6351.1	3218.9	89.8	0.301
	38	195	6481.7	3349.4	93.5	0.283
	39	210	6605.5	3473.3	96.8	0.268
	40	225	6749.1	3616.8	99.9	0.255
	41	240	6856.5	3724.2	102.7	0.243
	42	270	7059.2	3926.9	107.8	0.221
	43	300	7247.3	4115.0	112.3	0.204
	44	330	7446.2	4314.0	116.3	0.189
D	45	363	7642.6	4510.4	120.1	0.174
			SECOND FLOW			
E	1	0	3539.6			
	2	5	3683.6	144.0		
	3	10	3608.0	-75.6		
	4	15	3617.1	9.1		
	5	20	3623.0	5.9		
	6	25	3627.7	4.7		
	7	30	3632.4	4.7		
	8	35	3638.6	6.2		
	9	40	3720.9	82.3		
	10	45	3739.4	18.5		
	11	50	3760.0	20.6		
	12	55	3774.4	14.4		
F	13	61	3788.2	13.8		
			SECOND CLOSED-IN			
F	1	0	3788.2			
	2	1	4085.6	297.4	1.1	2.358
	3	2	4136.3	348.1	2.0	2.091
	4	3	4161.7	373.5	3.0	1.906
	5	4	4193.9	405.7	4.0	1.777
	6	5	4236.1	447.9	4.9	1.692
	7	6	4260.1	471.9	5.9	1.610
	8	7	4290.2	502.1	6.8	1.551
	9	8	4329.2	541.0	7.8	1.491
	10	9	4359.0	570.8	8.7	1.439
	11	10	4388.6	600.4	9.7	1.393
	12	12	4424.9	636.7	11.5	1.320
	13	14	4480.5	692.3	13.3	1.258
	14	16	4529.1	740.9	15.0	1.204
	15	18	4561.3	773.1	16.7	1.157
	16	20	4604.0	815.9	18.6	1.112
	17	22	4644.4	856.3	20.2	1.075
	18	24	4679.9	891.7	21.9	1.041
	19	26	4712.9	924.8	23.5	1.011
	20	28	4759.8	971.6	25.1	0.982
	21	30	4799.6	1011.4	26.6	0.956
	22	35	4892.0	1103.8	30.6	0.895
	23	40	4973.7	1185.6	34.4	0.845

REMARKS:

TICKET NO: 26991600	GAUGE NO: 7937
CLOCK NO: 21687 HOUR: 120	DEPTH: 12255.4

	REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
	SECOND CLOSED-IN - CONTINUED					
	24	45	5045.2	1257.0	38.0	0.802
	25	50	5121.6	1333.4	41.3	0.765
	26	55	5200.9	1412.7	44.8	0.730
	27	60	5271.5	1483.3	48.1	0.699
	28	70	5401.7	1613.5	54.2	0.647
	29	80	5532.4	1744.2	60.0	0.603
	30	90	5643.1	1854.9	65.5	0.565
	31	100	5755.5	1967.3	70.6	0.532
	32	110	5867.0	2078.9	75.5	0.503
	33	120	5972.6	2184.4	80.1	0.478
	34	135	6122.8	2334.6	86.5	0.444
	35	150	6269.2	2481.0	92.4	0.415
	36	165	6415.3	2627.1	97.9	0.391
	37	180	6566.7	2778.5	103.0	0.369
	38	195	6701.2	2913.0	107.7	0.349
	39	210	6817.7	3029.5	112.1	0.332
	40	225	6926.1	3137.9	116.2	0.316
G	41	242	7046.3	3258.1	120.7	0.299

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$

REMARKS:

TICKET NO: 26991600	GAUGE NO: 7485
CLOCK NO: 6865 HOUR: 48	DEPTH: 12294.7

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	5269.5			
2	15.0	4500.2	-769.4		
3	30.0	4148.8	-351.4		
4	45.0	3958.7	-190.1		
5	60.0	3806.9	-151.8		
6	75.0	3683.5	-123.4		
7	90.0	3598.7	-84.8		
8	105.0	3564.5	-34.2		
9	120.0	3723.1	158.6		
10	135.0	3678.7	-44.4		
11	150.0	3774.6	95.9		
12	165.0	3686.5	-88.1		
C 13	179.5	3727.7	41.2		
		FIRST CLOSED-IN			
C 1	0.0	3727.7			
2	1.0	3772.4	44.7	1.0	2.253
3	2.0	3813.5	85.8	2.0	1.954
4	3.0	3846.8	119.1	2.9	1.789
5	4.0	3881.9	154.2	3.9	1.658
6	5.0	3906.4	178.8	4.8	1.568
7	6.0	3939.1	211.4	5.8	1.491
8	7.0	3974.8	247.1	6.7	1.426
9	8.0	3993.3	265.7	7.7	1.369
10	9.0	4014.1	286.4	8.5	1.323
11	10.0	4030.4	302.7	9.4	1.279
12	12.0	4076.4	348.8	11.2	1.204
13	14.0	4120.3	392.6	13.0	1.141
14	16.0	4167.4	439.8	14.7	1.088
15	18.0	4215.7	488.0	16.3	1.041
16	20.0	4269.6	541.9	18.0	0.998
17	22.0	4313.5	585.8	19.6	0.962
18	24.0	4361.4	633.7	21.2	0.928
19	26.0	4399.6	671.9	22.7	0.898
20	28.0	4448.3	720.6	24.2	0.870
21	30.0	4486.7	759.1	25.7	0.844
22	35.0	4583.2	855.5	29.3	0.787
23	40.0	4664.9	937.2	32.7	0.739
24	45.0	4749.6	1022.0	36.0	0.698
25	50.0	4836.8	1109.1	39.1	0.662
26	55.0	4909.6	1181.9	42.1	0.630
27	60.0	4994.6	1266.9	45.0	0.601
28	70.0	5140.6	1412.9	50.4	0.552
29	80.0	5277.9	1550.2	55.3	0.511
30	90.0	5404.9	1677.2	60.0	0.476
31	100.0	5522.8	1795.2	64.2	0.447
32	110.0	5647.6	1919.9	68.2	0.420
33	120.0	5763.4	2035.7	71.9	0.397
34	135.0	5930.7	2203.0	77.1	0.367

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
		FIRST CLOSED-IN - CONTINUED			
35	150.0	6086.2	2358.5	81.7	0.342
36	165.0	6227.0	2499.3	86.0	0.320
37	180.0	6369.7	2642.0	89.9	0.300
38	195.0	6503.8	2776.1	93.5	0.283
39	210.0	6628.9	2901.2	96.8	0.268
40	225.0	6749.7	3022.0	99.8	0.255
[1] 41	232.7	6813.2	3085.5	101.3	0.248
D 42	NO DATA FOR THIS POINT				
		SECOND FLOW			
E 1	NO DATA FOR THIS POINT				
F 2	NO DATA FOR THIS POINT				
		SECOND CLOSED-IN			
F 1	NO DATA FOR THIS POINT				
G 2	NO DATA FOR THIS POINT				

LEGEND:
[1] CHART TIME EXPIRED

REMARKS:

TICKET NO: 26991600	
CLOCK NO: 21681	HOUR: 120

GAUGE NO: 1843	
DEPTH: 13303.1	

FIRST FLOW

	REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
B	1	0	5026.2			
	2	15	4397.4	-628.8		
	3	30	4221.0	-176.4		
	4	45	4032.0	-189.0		
	5	60	3837.6	-194.4		
	6	75	3736.7	-101.0		
	7	90	3806.9	70.2		
	8	105	3665.6	-141.3		
	9	120	3776.8	111.2		
	10	135	3676.1	-100.7		
	11	150	3835.0	158.9		
	12	165	3668.1	-166.8		
C	13	180	3796.8	128.6		

FIRST CLOSED-IN

	REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
C	1	0	3796.8			
	2	5	3962.4	165.6	4.9	1.562
	3	10	4076.1	279.3	9.6	1.273
	4	15	4216.7	419.9	13.9	1.112
	5	20	4308.9	512.1	18.1	0.997
	6	25	4429.1	632.3	21.9	0.913
	7	30	4545.1	748.3	25.8	0.843
	8	35	4632.8	836.0	29.3	0.788
	9	40	4716.0	919.2	32.7	0.739
	10	45	4799.5	1002.7	36.0	0.697
	11	50	4894.4	1097.6	39.1	0.662
	12	55	4968.8	1172.0	42.1	0.629
	13	60	5054.8	1258.0	45.0	0.600
	14	70	5176.3	1379.5	50.3	0.552
	15	80	5319.7	1522.9	55.4	0.511
	16	90	5439.8	1643.0	60.0	0.476
	17	100	5552.3	1755.5	64.2	0.447
	18	110	5670.9	1874.1	68.3	0.420
	19	120	5802.0	2005.2	71.9	0.397
	20	135	5962.4	2165.6	77.0	0.367
	21	150	6126.0	2329.2	81.7	0.342
	22	165	6262.6	2465.8	86.0	0.320
	23	180	6406.5	2609.7	89.9	0.300
	24	195	6535.5	2738.7	93.5	0.283
	25	210	6654.3	2857.5	96.8	0.268
	26	225	6770.9	2974.1	99.9	0.255
	27	240	6890.0	3093.2	102.7	0.242
	28	270	7117.0	3320.2	107.8	0.221
	29	300	7317.9	3521.1	112.3	0.204
	30	330	7513.5	3716.7	116.3	0.189
D	31	363	7717.5	3920.7	120.1	0.174

SECOND FLOW

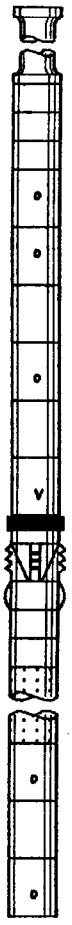
	REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
E	1	0	3987.0			
	2	5	3974.4	-12.7		
	3	10	4171.7	197.4		
	4	15	4125.2	-46.6		
	5	20	4242.3	117.2		
	6	25	4112.0	-130.3		
	7	30	4079.4	-32.6		
	8	35	4285.2	205.7		
	9	40	4156.0	-129.2		
	10	45	4273.5	117.6		
	11	50	4070.9	-202.6		
	12	55	4099.3	28.4		
F	13	61	4139.3	40.0		

SECOND CLOSED-IN

	REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
F	1	0	4139.3			
	2	5	4341.6	202.3	5.0	1.686
	3	10	4493.9	354.6	9.7	1.394
	4	15	4642.5	503.2	14.1	1.230
	5	20	4648.4	509.1	18.5	1.113
	6	25	4784.2	645.0	22.7	1.026
	7	30	4879.2	739.9	26.7	0.954
	8	35	4965.1	825.8	30.6	0.895
	9	40	5040.2	900.9	34.3	0.846
	10	45	5108.0	968.7	38.0	0.802
	11	50	5196.7	1057.4	41.4	0.764
	12	55	5267.1	1127.8	44.8	0.730
	13	60	5314.8	1175.5	48.0	0.700
	14	70	5466.3	1327.0	54.2	0.647
	15	80	5610.9	1471.6	60.1	0.602
	16	90	5732.7	1593.4	65.5	0.565
	17	100	5845.7	1706.4	70.6	0.532
	18	110	5958.2	1818.9	75.5	0.503
	19	120	6057.2	1918.0	80.0	0.478
	20	135	6212.8	2073.5	86.4	0.445
	21	150	6326.8	2187.5	92.4	0.416
	22	165	6486.3	2347.0	97.9	0.390
	23	180	6607.4	2468.1	103.0	0.368
	24	195	6746.0	2606.7	107.7	0.349
	25	210	6884.6	2745.4	112.1	0.331
	26	225	7011.7	2872.5	116.3	0.316
G	27	242	7105.7	2966.4	120.7	0.299

REMARKS:
FIRST HOUR OF CLOSED-INS WAS READ IN 5 MINUTE (AS OPPOSED TO 1 AND 2 MINUTE) READINGS DUE TO "STAIR-STEPPING" OF THE GAUGE

TICKET NO. 26991600



		O.D.	I.D.	LENGTH	DEPTH
2	TUBING	3.500	2.750	13233.1	
5	CROSSOVER	6.125	2.250	0.8	
5	CROSSOVER	6.688	2.250	2.7	
5	CROSSOVER	4.750	2.250	1.6	
13	DUAL CIP SAMPLER	5.000	0.750	7.0	
60	HYDROSPRING TESTER	5.000	0.750	5.0	13249.2
80	AP RUNNING CASE	5.000	2.250	4.1	13251.3
81	BLANKED-OFF RUNNING CASE	5.000	2.250	4.1	13255.4
87	ELECTRONIC GAUGE RUNNING CASE	5.000	3.060	5.1	13259.5
16	VR SAFETY JOINT	5.000	1.000	2.8	
71	CASING PACKER	8.187	2.500	5.3	13268.0
5	CROSSOVER	6.500	2.250	1.2	
5	CROSSOVER	5.688	2.437	0.9	
20	FLUSH JOINT ANCHOR	5.000	2.250	20.0	
81	BLANKED-OFF RUNNING CASE	5.000		3.3	13294.7
87	ELECTRONIC GAUGE RUNNING CASE	5.000		5.1	13298.0
81	BLANKED-OFF RUNNING CASE	5.000		4.1	13303.1
	TOTAL DEPTH				14250.0

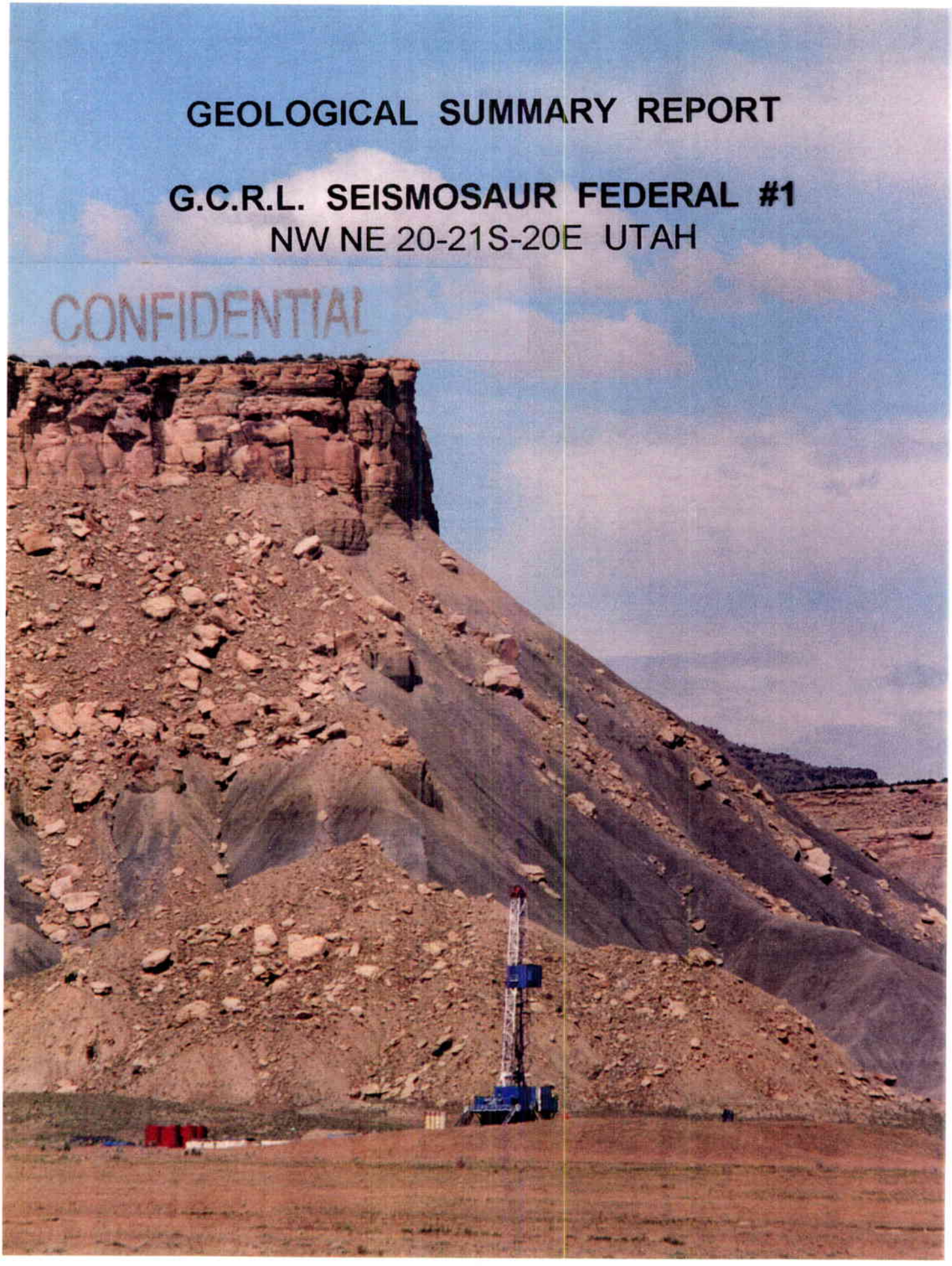
EQUIPMENT DATA

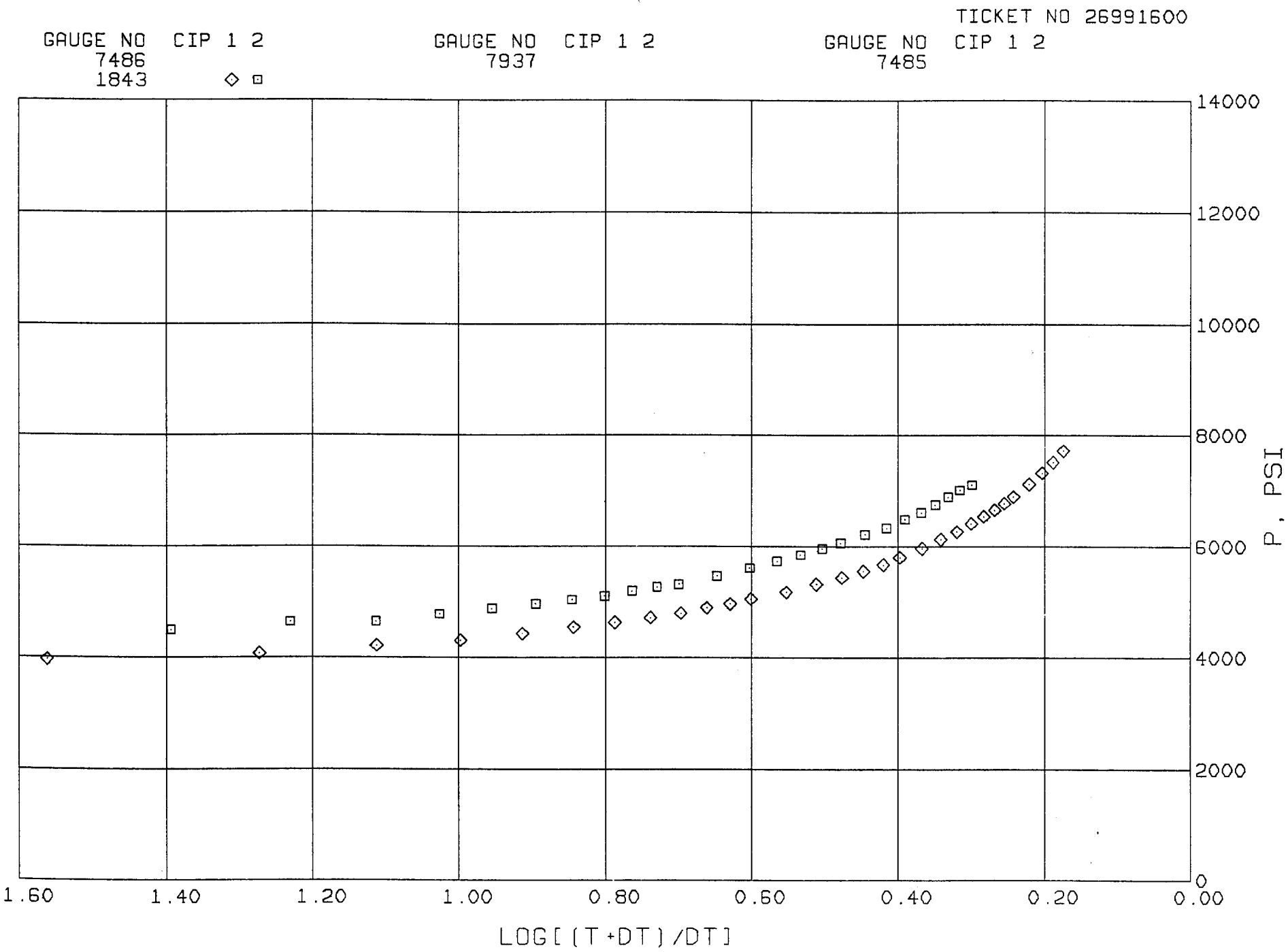
GEOLOGICAL SUMMARY REPORT

G.C.R.L. SEISMOSAUR FEDERAL #1

NW NE 20-21S-20E UTAH

CONFIDENTIAL

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7937
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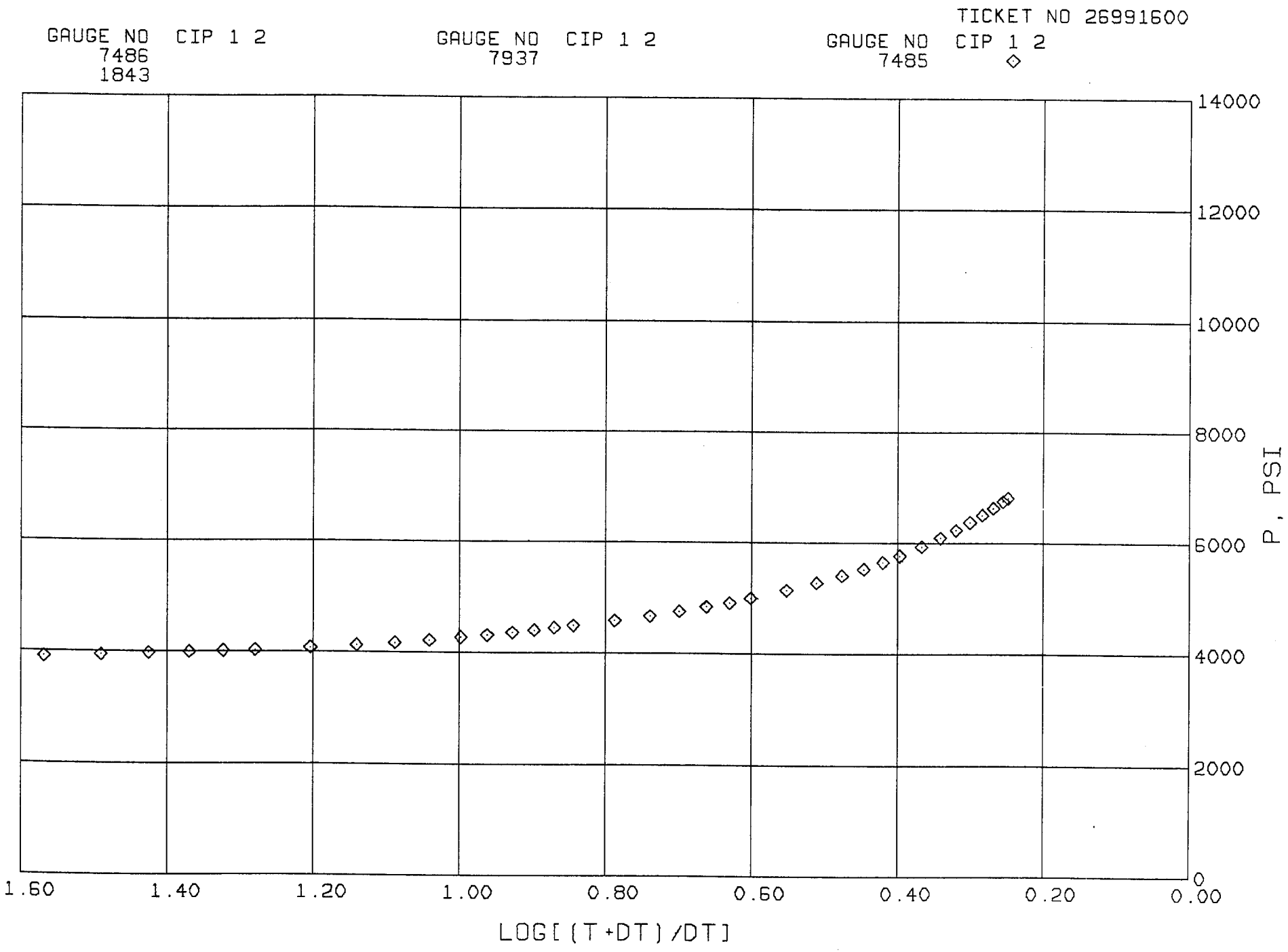
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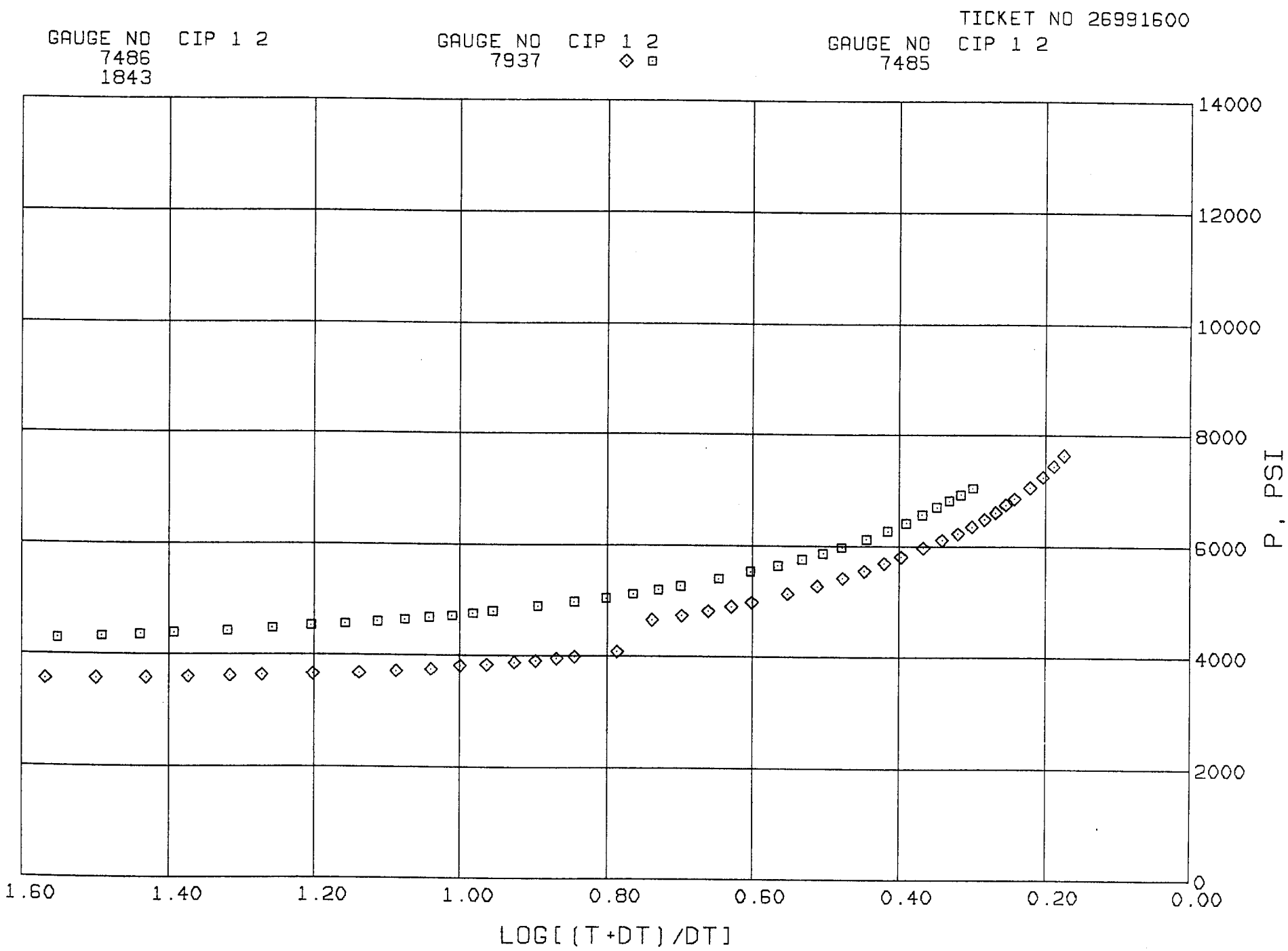
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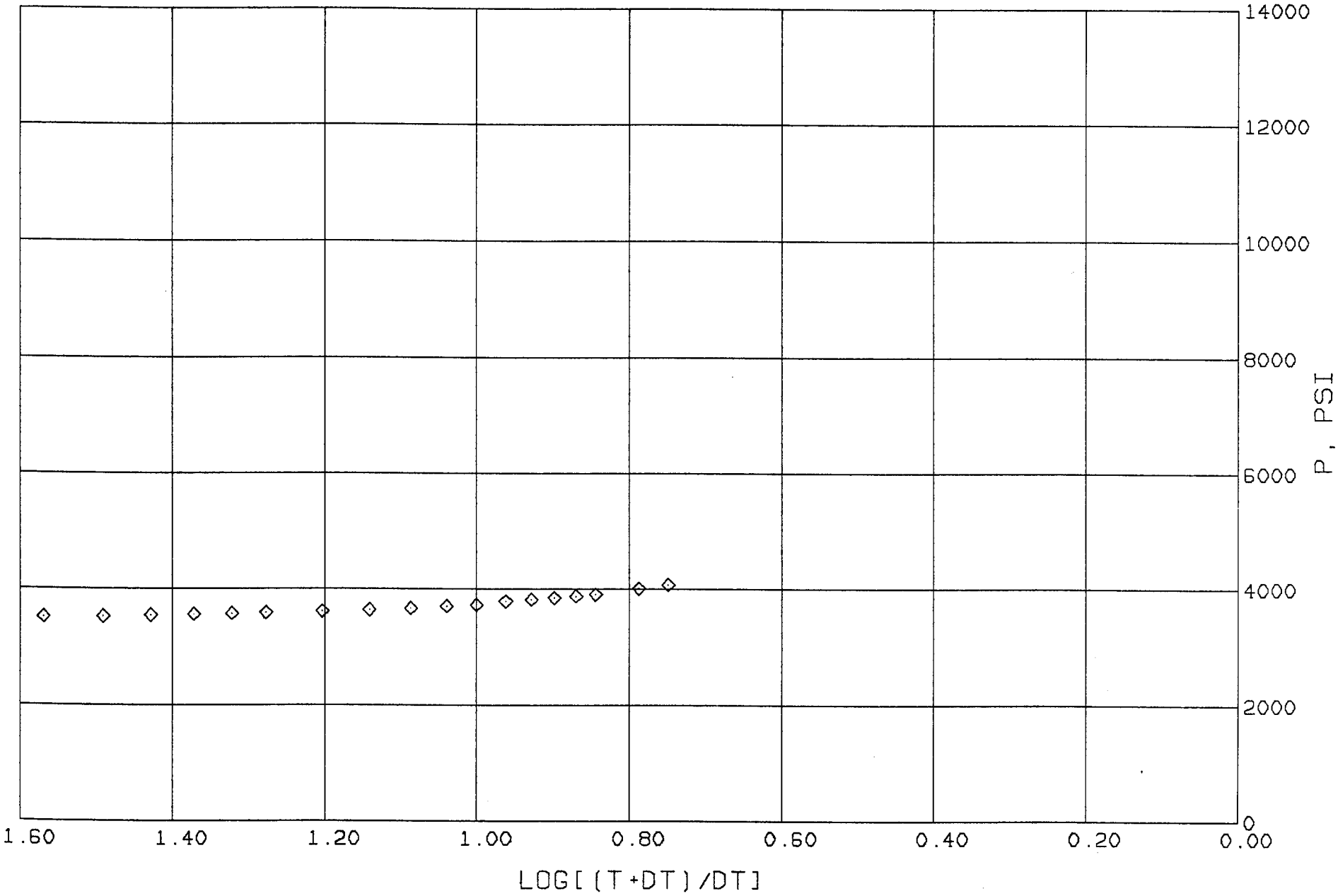

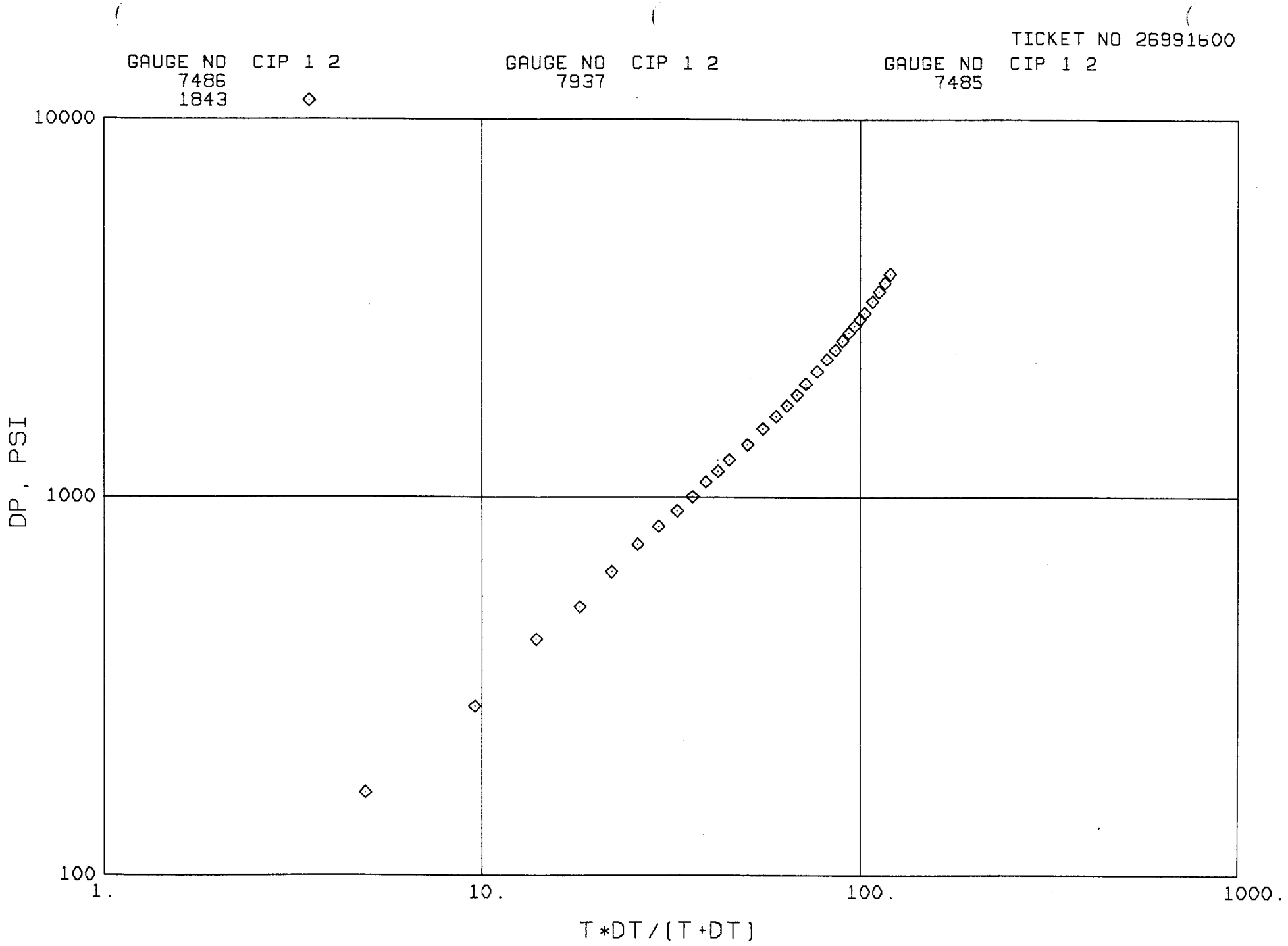
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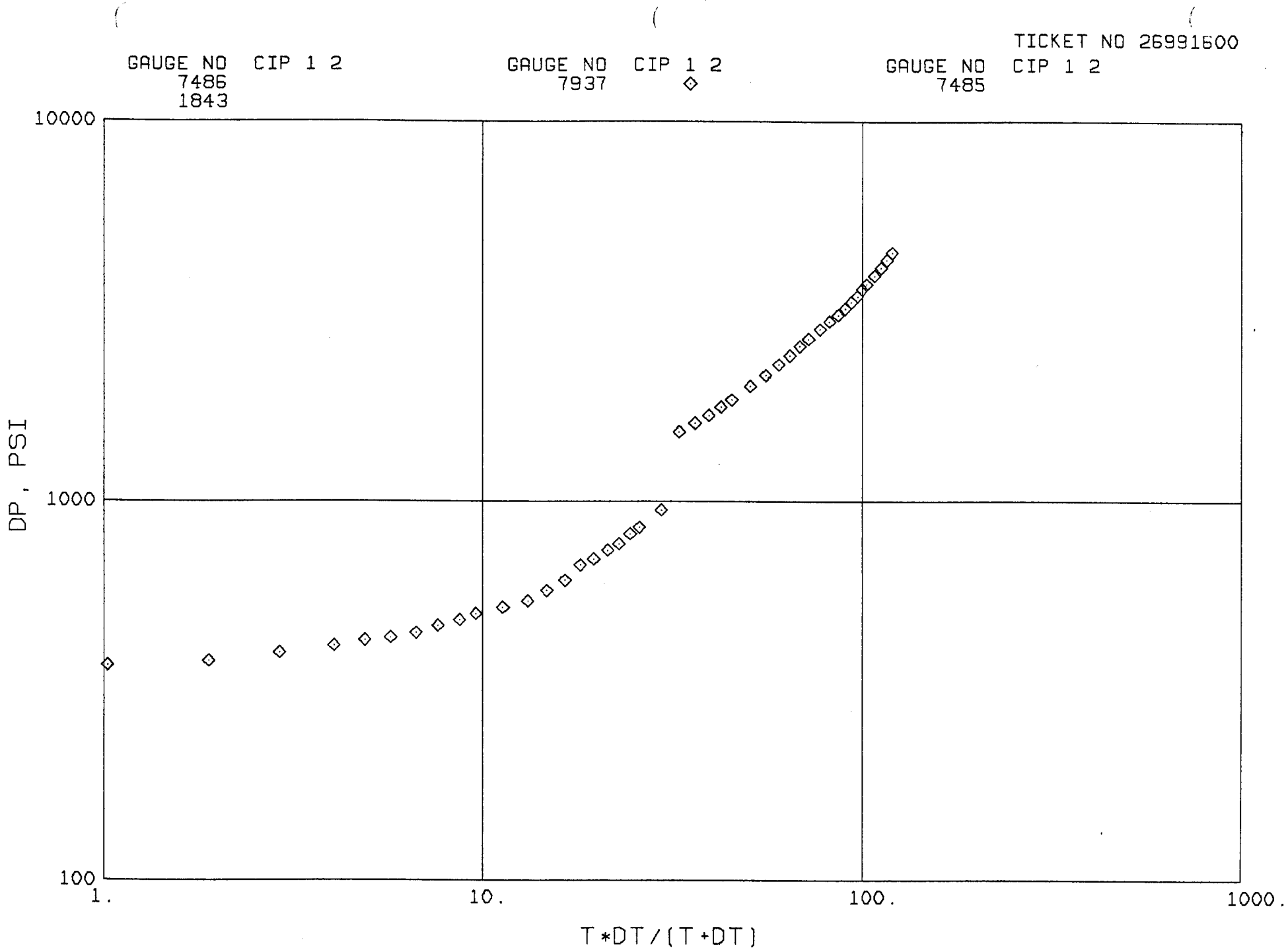
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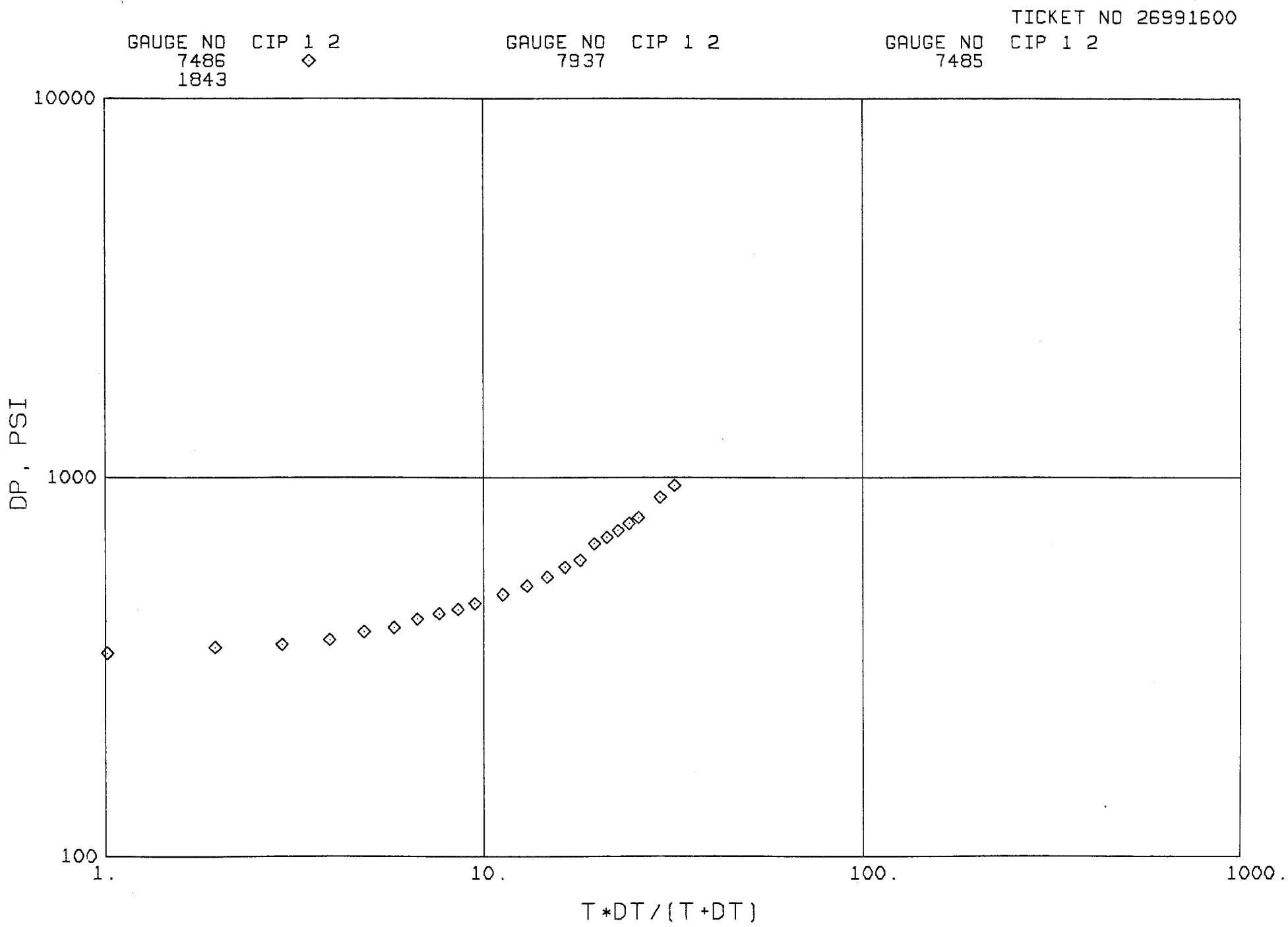
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T*DT/(T+DT)

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AUG 25 1997
DIV. OF OIL, GAS & MINING

GEOLOGICAL SUMMARY REPORT

G.C.R.L. SEISMOSAUR FEDERAL #1

NW NE 20-21S-20E

UTAH

BARKER CREEK LEADVILLE PROSPECT

Prepared by:

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Vernon, British Columbia

Phone: (250) 545-0308

Fax: (250) 545-8846

June, 1997

GEOLOGISTS

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and from 13339' to 15483'

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Conley and Associates Ltd.
Edmonton, Alberta
Phone: (403) 444-6493
Interval from 8880' to 13339'

REPORT

Part 1 of this report covers the interval from 4540' to 13339'.

Part 2 of this report covers the interval from 13339' to 15483'.

G.C.R.L. SEISMOSAUR FEDERAL #1

NW NE 20-21S-20E UTAH

PART 1

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G.C.R.L. SEISMOSAUR FEDERAL #1

NW NE 20-21S-20E UTAH

PART 2

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WELL DATA SUMMARY

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1
OPERATOR: GCRL ENERGY LTD.
LOCATION: NW NE 20-21S-20E
NS CO-ORDINATES: 92 feet South of the North boundary of Section 20.
EW CO-ORDINATES: 2320 feet West of the East boundary of Section 20.
PROVINCE: UTAH
AREA: GRAND COUNTY, UTAH
DRILLING CONTRACTOR: NABORS DRILLING USA Rig #: 280
WELL LICENCE NUMBER: UT1064
ELEVATIONS - GROUND LEVEL: 5137.00ft
- KELLY BUSHING: 5168.50ft
SPUD DATE: JAN 21, 1997 at 1800 hours
T.D. DATE: MAY 09, 1997 at 02:30 hours
SAMPLE INTERVAL: 4550.00ft - 13339.00ft

ELECTRICAL LOGS RUN:

Rep#	Log#	Description	From(ft)	To(ft)
1	1	Phasor Induction BHC Sonic Gamma Ray	5796.00	315.00
1	2	Six Arm Caliper Gamma Ray Log	5796.00	315.00
2	1	Phasor Induction BHC Sonic GR-CAL	13340.00	5792.00
2	2	EMS-GR	13340.00	5792.00

DRILL STEM TESTS:

DST#	From(ft)	To(ft)

CORES CUT:

Cores#	From(ft)	To(ft)	Formation

WELL STATUS: Intermediate casing point.

CASING SUMMARY

String#	Name	Casing Size (inches)	Hole Size (inches)	Joints (#)	Weight (lbs/ft)	Landed At (ft)	Cement (sacks)	Cement Type
1	Conductor	20.00	26.00	20	94.00	315.00	755.00	Premium class 'G' plus 3% CaCl2. Had good cement returns.
2	Surface	13.38	17.50	131	72.00	5800.00	5355.00	Stage 1: 1810 sks of 'G' + additives. Stage 2: 3545 sks of Premium Lite & 'G'.
3	Intermediate	9.62	12.25	299	53.50	13339.00	1434.00	1176 sacks Premium Lite & 30% Silica flour + additives; & 258 sks same + BA-90.

DAILY DRILLING SUMMARY

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
APR 03, 1997	8987.00	105.00	12.50	8.80	44.00	4.40	N/A	Drilling 12.25 hole."
APR 04, 1997	9156.00	169.00	22.75	8.90	45.00	4.60	N/A	Drilling 12.25 Intermediate hole."
APR 05, 1997	9314.00	158.00	23.25	8.90	46.00	4.60	N/A	Drilling 12.25 intermediate hole."
APR 06, 1997	9463.00	149.00	21.25	8.90	46.00	4.60	N/A	Drilling 12.25 intermed Hole."
APR 07, 1997	9510.00	47.00	7.00	8.90	46.00	4.60	N/A	Tripping into hole.
APR 08, 1997	9690.00	180.00	22.00	8.80	45.00	4.00	N/A	Drilling 12.25 intermediate hole."
APR 09, 1997	9863.00	173.00	23.00	8.80	45.00	4.00	N/A	Drilling 12.25 intermediate hole."
APR 10, 1997	10025.00	162.00	23.25	8.50	45.00	4.00	N/A	drilling 12.25 intermediate hole."
APR 11, 1997	10159.00	134.00	22.50	8.50	45.00	4.00	N/A	Drilling 12.25 intermediate hole."
APR 12, 1997	10248.00	89.00	17.50	8.50	44.00	4.00	N/A	Tripping for Bit #16.
APR 13, 1997	10290.00	42.00	6.00	8.50	44.00	4.00	N/A	Drilling 12.25 intermediate hole."
APR 14, 1997	10417.00	127.00	23.00	8.30	44.00	3.60	N/A	Drilling 12.25 intermediate Hole."
APR 15, 1997	10535.00	118.00	22.50	8.30	45.00	3.80	N/A	Drilling 12.25 intermediate hole."
APR 16, 1997	10681.00	146.00	22.50	8.30	45.00	3.80	N/A	Drilling 12.25 Hole."
APR 17, 1997	10788.00	107.00	15.75	8.30	45.00	3.60	N/A	Tripping for Bit #17

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
APR 18, 1997	10861.00	73.00	12.50	8.30	45.00	3.60	N/A	Drilling 12.25" intermediate Hole.
APR 19, 1997	11055.00	194.00	23.25	8.40	44.00	3.80	N/A	Drilling 12.25" intermediate hole.
APR 20, 1997	11230.00	175.00	23.00	8.40	42.00	4.00	N/A	Drilling 12.25" intermediate hole.
APR 21, 1997	11393.00	163.00	23.50	8.40	43.00	3.80	N/A	drilling 12.25" intermediate hole.
APR 22, 1997	11545.00	152.00	22.50	8.40	44.00	3.60	N/A	Surveying
APR 23, 1997	11638.00	93.00	16.00	8.40	44.00	3.60	N/A	drilling 12.25" intermediate hole.
APR 24, 1997	11792.00	154.00	23.50	8.40	44.00	3.60	N/A	Drilling 12.25" intermediate Hole.
APR 25, 1997	11950.00	158.00	23.00	8.40	45.00	3.80	N/A	Drilling 12.25" intermediate Hole.
APR 26, 1997	12084.00	134.00	23.50	8.40	45.00	3.80	N/A	Drilling 12.25" Intermediate Hole.
APR 27, 1997	12198.00	114.00	22.50	8.40	46.00	3.80	N/A	Drilling 12.25" intermediate hole.
APR 28, 1997	12225.00	27.00	4.50	8.40	46.00	3.80	N/A	drilling 12.25" intermediate hole.
APR 29, 1997	12370.00	145.00	22.00	8.40	46.00	4.00	N/A	Drilling 12.25" intermediate Hole.
APR 30, 1997	12516.00	146.00	23.50	8.40	46.00	4.00	N/A	Drilling 12.25" intermediate Hole.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAY 01, 1997	12630.00	114.00	22.50	8.40	46.00	4.00	N/A	Drilling 12.25" Intermedaite Hole.
MAY 02, 1997	12776.00	146.00	23.00	8.40	46.00	4.00	N/A	Drilling 12.25" Intermediate Hole.
MAY 03, 1997	12906.00	130.00	23.50	8.40	46.00	4.00	N/A	Drilling 12.25" Intermediate Hole.
MAY 04, 1997	12954.00	48.00	8.50	8.40	45.00	4.20	N/A	Working stuck pipe.
MAY 05, 1997	12954.00	0.00	0.00	8.40	45.00	4.20	N/A	Tripping in hole with Bit #21
MAY 06, 1997	13050.00	96.00	17.00	8.40	44.00	4.00	N/A	Drilling 12.25" Intermediate Hole.
MAY 07, 1997	13174.00	124.00	23.00	8.40	44.00	3.80	N/A	Control Drilling 12.25" Hole.
MAY 08, 1997	13252.00	78.00	16.50	8.30	43.00	4.00	N/A	Reaming to bottom
MAY 09, 1997	13339.00	87.00	17.50	8.40	45.00	4.00	N/A	Short wiper trip
MAY 10, 1997	13339.00	0.00	0.00	8.40	45.00	4.00	N/A	Tripping out of hole to log.
MAY 11, 1997	13339.00	0.00	0.00	8.40	45.00	4.00	N/A	Laying down logging tools.

DEVIATION SURVEYS

Measured Depth (ft)	Angle of Inclination (Degree)	Azimuth (Degree)	T.V.D. (ft)	Latitude (ft)	Departure (ft)	Vert. Section (ft)	Dog Leg Severity (Deg/100ft)
185.00	0.50	N/A	N/A	N/A	N/A	N/A	N/A
280.00	0.25	N/A	N/A	N/A	N/A	N/A	N/A
469.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
552.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
786.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
972.00	1.25	N/A	N/A	N/A	N/A	N/A	N/A
1224.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
1413.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
1661.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
1905.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
2171.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
2419.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
2698.00	1.25	N/A	N/A	N/A	N/A	N/A	N/A
2955.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
3165.00	2.00	N/A	N/A	N/A	N/A	N/A	N/A
3232.00	1.88	N/A	N/A	N/A	N/A	N/A	N/A
3365.00	2.25	N/A	N/A	N/A	N/A	N/A	N/A
3450.00	2.00	N/A	N/A	N/A	N/A	N/A	N/A
3608.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
3763.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
3922.00	2.25	N/A	N/A	N/A	N/A	N/A	N/A
4077.00	2.75	N/A	N/A	N/A	N/A	N/A	N/A
4275.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
4418.00	3.00	N/A	N/A	N/A	N/A	N/A	N/A
4530.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
4592.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
4654.00	2.25	N/A	N/A	N/A	N/A	N/A	N/A
4699.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
4793.00	2.00	N/A	N/A	N/A	N/A	N/A	N/A
4884.00	3.00	N/A	N/A	N/A	N/A	N/A	N/A
4919.00	3.00	N/A	N/A	N/A	N/A	N/A	N/A
5031.00	2.75	N/A	N/A	N/A	N/A	N/A	N/A

Measured Depth (ft)	Angle of Inclination (Degree)	Azimuth (Degree)	T.V.D. (ft)	Latitude (ft)	Departure (ft)	Vert. Section (ft)	Dog Leg Severity (Deg/100ft)
5091.00	2.00	N/A	N/A	N/A	N/A	N/A	N/A
5154.00	1.25	N/A	N/A	N/A	N/A	N/A	N/A
5211.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
5271.00	1.25	N/A	N/A	N/A	N/A	N/A	N/A
5334.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
5416.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
5579.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
5713.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
5749.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
5929.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
6051.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
6272.00	0.50	N/A	N/A	N/A	N/A	N/A	N/A
6585.00	0.25	N/A	N/A	N/A	N/A	N/A	N/A
6894.00	0.25	N/A	N/A	N/A	N/A	N/A	N/A
7532.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
7816.00	1.75	N/A	N/A	N/A	N/A	N/A	N/A
8130.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
8562.00	1.75	N/A	N/A	N/A	N/A	N/A	N/A
8963.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
9274.00	1.75	N/A	N/A	N/A	N/A	N/A	N/A
10075.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
10598.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
11027.00	0.50	N/A	N/A	N/A	N/A	N/A	N/A
11478.00	0.75	N/A	N/A	N/A	N/A	N/A	N/A
12090.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
12279.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
12559.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
13321.00	0.50	N/A	N/A	N/A	N/A	N/A	N/A

BIT RECORD

Bit #: 1A **Size:**26.00inch **Make:**N/A **Type:**HoleOpener
Serial #: 1796 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 0.00ft **Out:**315.00ft **Made:**315.00ft
Hours: 25.00hrs **Accumulated Hours:**25.00hrs
FOB: 10000.00/20000.00lbs **RPM:**50.00/50.00 **PP:**500.00psi
Mud Density: 8.50lbs/gal **Viscosity:**54.00sec/qt **Vertical Deviation:**0.50Deg
Condition: N/A
Remark: 17.5X26 Hole Opener"

Bit #: 1 **Size:**17.50inch **Make:**Smith **Type:**15JS
Serial #: NC2533 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 315.00ft **Out:**3016.00ft **Made:**2701.00ft
Hours: 76.00hrs **Accumulated Hours:**101.00hrs
FOB: 20000.00/25000.00lbs **RPM:**60.00/65.00 **PP:**1100.00psi
Mud Density: 8.40lbs/gal **Viscosity:**28.00sec/qt **Vertical Deviation:**2.00Deg
Condition: 3-3-I

Bit #: 2 **Size:**17.50inch **Make:**Hughs **Type:**ATX22
Serial #: L79CV **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 3016.00ft **Out:**3117.00ft **Made:**101.00ft
Hours: 32.00hrs **Accumulated Hours:**133.00hrs
FOB: 10000.00/10000.00lbs **RPM:**65.00/85.00 **PP:**1200.00psi
Mud Density: 8.70lbs/gal **Viscosity:**35.00sec/qt **Vertical Deviation:**2.00Deg
Condition: 1-1-I

Bit #: 2RR **Size:**17.50inch **Make:**Hughs **Type:**ATX22
Serial #: L79CV **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 3117.00ft **Out:**3428.00ft **Made:**311.00ft
Hours: 53.00hrs **Accumulated Hours:**186.00hrs
FOB: 40000.00/50000.00lbs **RPM:**75.00/75.00 **PP:**1100.00psi
Mud Density: 8.80lbs/gal **Viscosity:**34.00sec/qt **Vertical Deviation:**2.00Deg
Condition: 3-3-I

Bit #: 3 **Size:**17.50inch **Make:**Reed **Type:**MS53K
Serial #: N09016 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 3428.00ft **Out:**4020.00ft **Made:**592.00ft
Hours: 61.00hrs **Accumulated Hours:**247.00hrs
FOB: 35000.00/50000.00lbs **RPM:**75.00/75.00 **PP:**1250.00psi
Mud Density: 9.00lbs/gal **Viscosity:**33.00sec/qt **Vertical Deviation:**2.25Deg
Condition: 4-3-I

Bit #: 4 **Size:**17.50inch **Make:**Reed **Type:**MS53K
Serial #: N09008 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 4020.00ft **Out:**4495.00ft **Made:**475.00ft
Hours: 85.00hrs **Accumulated Hours:**332.00hrs
FOB: 30000.00/50000.00lbs **RPM:**60.00/60.00 **PP:**1200.00psi
Mud Density: 8.90lbs/gal **Viscosity:**32.00sec/qt **Vertical Deviation:**3.00Deg
Condition: 4-2-I

Bit #: 5 **Size:**17.50inch **Make:**Varel **Type:**FTD515
Serial #: 116718 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 4495.00ft **Out:**4671.00ft **Made:**176.00ft
Hours: 28.00hrs **Accumulated Hours:**360.00hrs
FOB: 15000.00/15000.00lbs **RPM:**60.00/60.00 **PP:**1200.00psi
Mud Density: 8.90lbs/gal **Viscosity:**32.00sec/qt **Vertical Deviation:**2.25Deg
Condition: 4-2-I

Bit #: 6 **Size:**17.50inch **Make:**Varel **Type:**FTD515
Serial #: 103387 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 4671.00ft **Out:**5011.00ft **Made:**340.00ft
Hours: 54.00hrs **Accumulated Hours:**414.00hrs
FOB: 35000.00/45000.00lbs **RPM:**50.00/50.00 **PP:**1200.00psi
Mud Density: 8.90lbs/gal **Viscosity:**31.00sec/qt **Vertical Deviation:**3.00Deg
Condition: 4-2-I

Bit #: 7 **Size:**17.50inch **Make:**Reed **Type:**MS43A-M
Serial #: M70983 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 5011.00ft **Out:**5191.00ft **Made:**180.00ft
Hours: 67.75hrs **Accumulated Hours:**481.75hrs
FOB: 15000.00/18000.00lbs **RPM:**50.00/55.00 **PP:**1700.00psi
Mud Density: 8.80lbs/gal **Viscosity:**30.00sec/qt **Vertical Deviation:**2.00Deg
Condition: 5-2-I

Bit #: 8 **Size:**17.50inch **Make:**Varel **Type:**ETD535
Serial #: 112663 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 5191.00ft **Out:**5502.00ft **Made:**311.00ft
Hours: 106.75hrs **Accumulated Hours:**588.50hrs
FOB: 40000.00/49000.00lbs **RPM:**50.00/65.00 **PP:**1650.00psi
Mud Density: 9.20lbs/gal **Viscosity:**37.00sec/qt **Vertical Deviation:**1.00Deg
Condition: 2-2-I

Bit #: 9 **Size:**17.50inch **Make:**Secur **Type:**S84F
Serial #: 692166 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 5502.00ft **Out:**5663.00ft **Made:**161.00ft
Hours: 64.75hrs **Accumulated Hours:**653.25hrs
FOB: 25000.00/48000.00lbs **RPM:**50.00/60.00 **PP:**1800.00psi
Mud Density: 9.10lbs/gal **Viscosity:**37.00sec/qt **Vertical Deviation:**1.00Deg
Condition: 6-8-I

Bit #: 10 **Size:**17.50inch **Make:**Reed **Type:**MS53A
Serial #: N09019 **Jets:**N/A, N/A, N/A, N/A
Depth: **In:** 5663.00ft **Out:**5800.00ft **Made:**137.00ft
Hours: 59.00hrs **Accumulated Hours:**712.25hrs
FOB: 25000.00/48000.00lbs **RPM:**50.00/60.00 **PP:**1700.00psi
Mud Density: 9.10lbs/gal **Viscosity:**38.00sec/qt **Vertical Deviation:**1.50Deg
Condition: 3-3-I
Remark: Surface casing point.

Bit #: 11 **Size:**12.25inch **Make:**Varel **Type:**L117GT
Serial #: 105283 **Jets:**18.00, 18.00, 18.00, N/A
Depth: **In:** 5800.00ft **Out:**5900.00ft **Made:**100.00ft
Hours: 9.00hrs **Accumulated Hours:**721.25hrs
FOB: 45000.00/45000.00lbs **RPM:**50.00/60.00 **PP:**1400.00psi
Mud Density: 9.20lbs/gal **Viscosity:**48.00sec/qt **Vertical Deviation:**1.50Deg
Condition: 2-2-I

Bit #: 12 **Size:**12.25inch **Make:**Reed **Type:**HP51A
Serial #: RT2435 **Jets:**18.00, 18.00, 18.00, N/A
Depth: **In:** 5900.00ft **Out:**6935.00ft **Made:**1035.00ft
Hours: 83.00hrs **Accumulated Hours:**804.25hrs
FOB: 45000.00/55000.00lbs **RPM:**60.00/60.00 **PP:**2650.00psi
Mud Density: 9.00lbs/gal **Viscosity:**46.00sec/qt **Vertical Deviation:**1.00Deg
Condition: 5-3-I

Bit #: 13 **Size:**12.25inch **Make:**Varel **Type:**ETD537
Serial #: 116074 **Jets:**18.00, 18.00, 18.00, N/A
Depth: **In:** 6935.00ft **Out:**7832.00ft **Made:**897.00ft
Hours: 103.50hrs **Accumulated Hours:**907.75hrs
FOB: 50000.00/55000.00lbs **RPM:**60.00/60.00 **PP:**2300.00psi
Mud Density: 8.80lbs/gal **Viscosity:**40.00sec/qt **Vertical Deviation:**1.00Deg
Condition: 7-8-I

Bit #: 14 **Size:**12.25inch **Make:**HTC **Type:**ATJ33
Serial #: L93CW **Jets:**20.00, 20.00, 20.00, N/A
Depth: **In:** 7832.00ft **Out:**8882.00ft **Made:**1050.00ft
Hours: 128.00hrs **Accumulated Hours:**1035.75hrs
FOB: 50000.00/55000.00lbs **RPM:**60.00/60.00 **PP:**2300.00psi
Mud Density: 8.90lbs/gal **Viscosity:**50.00sec/qt **Vertical Deviation:**1.50Deg
Condition: 5-7-I

Bit #: 15 **Size:**12.25inch **Make:**STC **Type:**F3
Serial #: LGH63 **Jets:**22.00, 22.00, 22.00, N/A
Depth: **In:** 8882.00ft **Out:**9510.00ft **Made:**628.00ft
Hours: 88.00hrs **Accumulated Hours:**1123.75hrs
FOB: 50000.00/55000.00lbs **RPM:**55.00/65.00 **PP:**2150.00psi
Mud Density: 8.80lbs/gal **Viscosity:**44.00sec/qt **Vertical Deviation:**1.75Deg
Condition: 6-4-I

Bit #: 16 **Size:**12.25inch **Make:**SEC **Type:**S86F
Serial #: 538287 **Jets:**22.00, 22.00, 22.00, N/A
Depth: **In:** 9510.00ft **Out:**10248.00ft **Made:**738.00ft
Hours: 108.25hrs **Accumulated Hours:**1232.00hrs
FOB: 45000.00/55000.00lbs **RPM:**55.00/65.00 **PP:**2200.00psi
Mud Density: 8.50lbs/gal **Viscosity:**45.00sec/qt **Vertical Deviation:**1.75Deg
Condition: 5-3-I
Remark: SLOW ROP

Bit #: 17 **Size:**12.25inch **Make:**REED **Type:**HP51A
Serial #: PH3339 **Jets:**22.00, 22.00, 22.00, N/A
Depth: **In:** 10427.00ft **Out:**10788.00ft **Made:**361.00ft
Hours: 89.75hrs **Accumulated Hours:**1321.75hrs
FOB: 46000.00/65000.00lbs **RPM:**58.00/62.00 **PP:**2300.00psi
Mud Density: 8.40lbs/gal **Viscosity:**45.00sec/qt **Vertical Deviation:**0.75Deg
Condition: 5-3-I
Remark: TORQUE, underguage 1/16"

Bit #: 18 **Size:**12.25inch **Make:**STC **Type:**F25ODC
Serial #: CE8640 **Jets:**24.00, 24.00, 24.00, N/A
Depth: **In:** 10780.00ft **Out:**11545.00ft **Made:**765.00ft
Hours: 104.00hrs **Accumulated Hours:**1425.75hrs
FOB: 55000.00/65000.00lbs **RPM:**60.00/N/A **PP:**2300.00psi
Mud Density: 8.40lbs/gal **Viscosity:**44.00sec/qt **Vertical Deviation:**0.75Deg
Condition: 5-3-I
Remark: TORQUE

Bit #: 19 **Size:**12.25inch **Make:**HTC **Type:**ATJ22
Serial #: D77CR **Jets:**22.00, 22.00, 22.00, N/A
Depth: **In:** 11545.00ft **Out:**12202.00ft **Made:**657.00ft
Hours: 104.75hrs **Accumulated Hours:**1530.50hrs
FOB: 52000.00/65000.00lbs **RPM:**55.00/60.00 **PP:**2500.00psi
Mud Density: 8.40lbs/gal **Viscosity:**45.00sec/qt **Vertical Deviation:**1.75Deg
Condition: 6-8-I
Remark: Underguage 1/16"

Bit #:	20 **Size:**12.25inch **Make:**REED **Type:**HP53A
Serial #:	EX4434 **Jets:**24.00, 24.00, 24.00, N/A
Depth:	**In:** 12202.00ft **Out:**12954.00ft **Made:**752.00ft
Hours:	126.50hrs **Accumulated Hours:**1657.00hrs
FOB:	55000.00/65000.00lbs **RPM:**55.00/55.00 **PP:**2500.00psi
Mud Density:	8.40lbs/gal **Viscosity:**44.00sec/qt **Vertical Deviation:**1.00Deg
Condition:	6-3-I
Remark:	Stuck @12954, pinched.

Bit #:	21 **Size:**12.25inch **Make:**WRB **Type:**J-33
Serial #:	L92CW **Jets:**24.00, 24.00, 24.00, N/A
Depth:	**In:** 12954.00ft **Out:**13339.00ft **Made:**385.00ft
Hours:	73.00hrs **Accumulated Hours:**1730.00hrs
FOB:	22000.00/40000.00lbs **RPM:**60.00/60.00 **PP:**2450.00psi
Mud Density:	8.40lbs/gal **Viscosity:**45.00sec/qt **Vertical Deviation:**0.50Deg
Condition:	4-3-I
Remark:	OUT 1/16"

LOGGING REPORT

Date: MAR 09, 1997
Logging Company: Schlumberger
Logging Engineer: Fernando Ortiz & J. Tringe
Truck Number: 2018
Hole Size: 17.50in
Depth (Driller's): 5800.00ft
Depth (Strap): 5800.05ft
Depth (Logger's): 5796.00ft
Last Casing: Depth : 315.00ft **Size:** 20.00in **Weight:** 94.00lbs/ft

MUD DETAILS

Mud Type: Gel Chem.
Mud Type: 8.90lbs/gal
Viscosity: 70.00sec/qt
pH: 10.50
Fluid Loss: 6.00cc/30min
Salinity: 7500.00ppm

OPERATIONS SUMMARY

Hole conditions prior to logging: Good on trips.
Circulation time after T.D.: 2.5 hours at TD and 3 hours after wiper trip.
Number of Dummy Trips: 1
Description of Dummy Trips: Trip to surface.
Number of Runs in Hole: Total: 2 **Suceeded:** 2 **Failed :** 0

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (ft)	Interval To (ft)	Remarks
Phasor Induction BHC Sonic Gamma Ray	4.00	5796.00	315.00	Ran eccentralization on Sonic.
Six Arm Caliper Gamma Ray Log	3.00	5796.00	315.00	CME-Z used on EMS-B to centralize the tool.

Total Hours Logging: 7.00

FURTHER REMARKS

Good job. No problems.

Date: MAY 10, 1997
Logging Company: Schlumberger
Logging Engineer: M.Kotula/B. Kleinhaus
Truck Number: 8426
Hole Size: 12.25in
Depth (Driller's): 13339.00ft
Depth (Strap): 13341.00ft
Depth (Logger's): 13340.00ft
Last Casing: Depth : 5800.00ft **Size:** 13.00in **Weight:** 88.20lbs/ft

MUD DETAILS

Mud Type: Invert
Mud Type: 8.30lbs/gal
Viscosity: 45.00sec/qt
pH: N/A
Fluid Loss: 4.20cc/30min
Salinity: 368000.00ppm

OPERATIONS SUMMARY

Hole conditions prior to logging: Good.
Circulation time after T.D.: 1.75 hrs at Casing point, 2.0 hrs after wiper trips.
Number of Dummy Trips: 4
Description of Dummy Trips: Worked salts from 12243-13300.
Number of Runs in Hole: Total: 2 **Suceeded:** 2 **Failed :** 0

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (ft)	Interval To (ft)	Remarks
Phasor Induction BHC Sonic GR-CAL	9.00	5792.00	13340.00	Caliper not responding correctly. BHT 194°F
EMS-GR	6.00	5792.00	13340.00	Used for six-arm caliper. Use GR for correlation to Run #1.

Total Hours Logging: 22.00

FURTHER REMARKS

Sonic caliper failed on first run into hole.Pulled back to surface repaired caliper. Caliper data not reliable below 8850'.

FORMATION TOPS

Kelly Bushing : 5168.50ft

Formation	Prognosis (ft)	Sample Top (ft)	Sample TVD (ft)	Log Top (ft)	Log TVD (ft)	Subsea (ft)
WINGATE	4475.00	4601.00	4601.00	4597.00	4597.00	571.50
CHINLE	4740.00	4946.00	4946.00	4949.00	4949.00	219.50
SHINARUMP	N/A	5182.00	5182.00	5172.00	5172.00	-3.50
MOENKOPI	N/A	5195.00	5195.00	5187.00	5187.00	-18.50
LOWER MOENKOPI	N/A	5646.00	5646.00	5636.00	5636.00	-467.50
CUTLER- WHITE RIM	5630.00	5721.00	5721.00	5719.00	5719.00	-550.50
CUTLER- ARKOSE	N/A	5778.00	5778.00	5774.00	5774.00	-605.50
ELEPHANT CANYON	9240.00	9236.00	9236.00	9394.00	9394.00	-4225.50
HONAKER TRAIL	10890.00	11534.00	11534.00	11574.00	11574.00	-6405.50
PARADOX	12800.00	12862.00	12862.00	12864.00	12864.00	-7695.50
FIRST SALT	12870.00	12953.00	12953.00	12952.00	12952.00	-7783.50
BASE SALT	13303.00	13300.00	13300.00	13300.00	13300.00	-8131.50

FORMATION EVALUATIONS

Formation:	WINGATE		
Age:	TRIASSIC		
Member:	N/A		
Sample Top:	4601.00ft	**Sample TVD:**	4601.00ft
Log Top:	4597.00ft	**Log TVD:**	4597.00ft
Thickness:	352.00ft	**Subsea:**	571.50ft

Evaluation: The Wingate consists of wind deposited dune sands with minor siltstone and minor shale interbeds. The sands are light brown gray to pink with very fine to fine well sorted quartz grains. Average porosity is fair to good. No oil shows were detected.

Conclusion: Excellent reservoir sands occur throughout the Wingate section but all appear to be wet.

Formation:	CHINLE		
Age:	TRIASSIC		
Member:	N/A		
Sample Top:	4946.00ft	**Sample TVD:**	4946.00ft
Log Top:	4949.00ft	**Log TVD:**	4949.00ft
Thickness:	223.00ft	**Subsea:**	219.50ft

Evaluation: The Chinle consists of interbedded dark to medium brick red shales and siltstones, with minor tight sandstone stringers at the top of the section, deposited on the flood plains of Triassic streams.

Conclusion: The Chinle has no reservoir potential at this location.

Formation:	SHINARUMP		
Age:	TRIASSIC		
Member:	N/A		
Sample Top:	5182.00ft	**Sample TVD:**	5182.00ft
Log Top:	5172.00ft	**Log TVD:**	5172.00ft
Thickness:	15.00ft	**Subsea:**	-3.50ft

Evaluation: The Shinarump is a basal conglomerate deposited on top of the Moenkopi unconformity. It consists of a medium brown red to light gray limestone pebble and quartz pebble conglomerate. The conglomerate is predominant tight with only minor poor porosity stringers and no oil shows.

Conclusion: The Shinarump conglomerate has poor reservoir properties, and the poor porosity that is developed appears wet.

Formation:	MOENKOPI		
Age:	TRIASSIC		
Member:	N/A		
Sample Top:	5195.00ft	**Sample TVD:**	5195.00ft
Log Top:	5187.00ft	**Log TVD:**	5187.00ft
Thickness:	449.00ft	**Subsea:**	-18.50ft

Evaluation: The Moenkopi consists predominantly of thin interbeds of shale, siltstone and minor tight sandstone stringers deposited on tidal flats and coastal floodplains. Minor shallow marine carbonates also occur in this horizon. An oolitic dolomite occurs from 5413' to 5418' with fair oolitic porosity, pyrobitumen, fair spotty fluorescence and fair spotty cut.

Conclusion: Although thin, the oolitic dolomite has fair reservoir potential with the possibility of gas or oil production.

Formation:	LOWER MOENKOPI		
Age:	TRIASSIC		
Member:	N/A		
Sample Top:	5646.00ft	**Sample TVD:**	5646.00ft
Log Top:	5636.00ft	**Log TVD:**	5636.00ft
Thickness:	83.00ft	**Subsea:**	-467.50ft

Evaluation: The Lower Moenkopi consists of thin interbeds of sandstone, siltstone and shale deposited on coastal floodplains and tidal flats. The sandstones are medium to light red brown to pink to light gray, very fine to coarse grained, poor sorted quartz grains, very calcareous, with a siltstone and shale matrix in part. The sands are predominantly tight with minor poor porosity from 5651' to 5656'. No oil shows were detected.

Conclusion: The Lower Moenkopi is not productive at this location.

Formation:	CUTLER- WHITE RIM		
Age:	PERMIAN		
Member:	N/A		
Sample Top:	5721.00ft	**Sample TVD:**	5721.00ft
Log Top:	5719.00ft	**Log TVD:**	5719.00ft
Thickness:	55.00ft	**Subsea:**	-550.50ft

Evaluation: The White Rim Member of the Cutler Formation consists of medium to light brick red to orange coastal plain beach sands. The sands are very fine to medium to minor coarse grained quartz and trace feldspar, kaolinitic, with fair to good porosity from 5723' to 5756'. No oil shows were detected.

Conclusion: The White Rim sands appear wet at this location.

Formation:	CUTLER- ARKOSE		
Age:	PERMIAN		
Member:	N/A		
Sample Top:	5778.00ft	**Sample TVD:**	5778.00ft
Log Top:	5774.00ft	**Log TVD:**	5774.00ft
Thickness:	3620.00ft	**Subsea:**	-605.50ft

Evaluation: The Cutler Arkose consists of stream deposited alluvial fan arkosic conglomerates and minor arkosic sands. The conglomerates are kaolinitic, slightly calcareous, with tight to poor to minor fair porosity stringers. No oil shows were detected.

Conclusion: The Cutler Arkose has poor to fair reservoir properties, but appears wet.

Formation:			
Age:	PERMIAN		
Member:	ELEPHANT CANYON		
Sample Top:	9236.00ft	**Sample TVD:**	9236.00ft
Log Top:	9394.00ft	**Log TVD:**	9394.00ft
Thickness:	2180.00ft	**Subsea:**	-4225.50ft

Evaluation: The Elephant Canyon is the lower member of the Cutler group of deltaic clastics. The name "Elephant Canyon" has been replaced by the more accepted defining term, Lower Cutler, as the section is a dominated by fluvial deposition with minor marine influences due to periodic marine transgressions.
The defining feature of this section is the absence of the thick units of akosic sandstones and conglomerates typical in the upper Cutler Sandstone. The section consists mostly of red to orange argillaceous siltstones and micaceous silty shales.Sandstone becomes more common below 10,000 feet.
These deposits are representative of a lower energy environment such as a flood plain with scattered fluvial stream deposits.
At this locality marine sediments are rarely present. Light brown limestone stringers first occur at 10370' and represent a very small percentage of cuttings. The section becomes more calcareous with minor very silty limestone stringers towards base.

Conclusion: At this location the Elephant Canyon represents distal deltaic depostion, consisting of interbedded siltstones and shales. Gas values throughout the section remained very low. There is likely no hydrocarbon potential throughout the Culter Formation .

Formation:	HONAKER TRAIL		
Age:	PENNSYLVANIAN		
Member:	N/A		
Sample Top:	11534.00ft	**Sample TVD:**	11534.00ft
Log Top:	11574.00ft	**Log TVD:**	11574.00ft
Thickness:	1290.00ft	**Subsea:**	-6405.50ft

Evaluation: The top of the Honaker Trail is marked by a green,very calcareous siltstone. Below this siltstone, the section consists of interbedded dark red micaceous siltstone and light gray translucent crypto-crystalline fossiliferous limestone. The siltstone is a common marker throughout the region and is present in the offset wells several hundreds of feet into Honaker. At this location it is probable that the Upper portion of the Honaker is absent and replaced by lower Cutler deposits.
The section becomes increasing more shallow water marine in character being very calcareous, silt to fine ,slightly glauconitic. Limestone units within the section are dense, hard, argillaceous, bioclastic with common crinoid fragments.

Conclusion: N/A

Formation:	PARADOX		
Age:	PENNSYLVANIAN		
Member:	N/A		
Sample Top:	12862.00ft	**Sample TVD:**	12862.00ft
Log Top:	12864.00ft	**Log TVD:**	12864.00ft
Thickness:	N/A	**Subsea:**	-7695.50ft

Evaluation: The top of the Paradox Formation is historically picked at the first massive anhydrite within the marine sediments of the Pennsylvanian. At this location the top of the Paradox consists of black argillaceous shale interbedded with massive to microcrystalline anhydrite. Dark to medium grey, very calcareous siltstone stringers are common.
The first salt of the Paradox was encountered at 12953 ft. This salt flowed slightly, sticking the drill string for several hours. Water was spotted over the salt freeing the drill string.This salt was 350 feet thick. Minor anhydrite stringers and thin black dolomitic, euxinic shales were encountered throughout the salt unit. The salt becomes increasingly argillaceous at the base. Below the salt, the section is a dark to medium gray calcareous, anhydritic siltstone with minor dark brown argillaceous dolomite stringers.Intermediate casing was set in this siltstone unit.

Conclusion: N/A

Formation:	PARADOX-SALT		
Age:	PENNSYLVANIAN		
Member:	FIRST SALT		
Sample Top:	12953.00ft	**Sample TVD:**	12953.00ft
Log Top:	12952.00ft	**Log TVD:**	12952.00ft
Thickness:	348.00ft	**Subsea:**	-7783.50ft

Evaluation: N/A

Conclusion: N/A

Formation:	PARADOX BASE SALT		
Age:	PENNSYLVANIAN		
Member:	BASE SALT		
Sample Top:	13300.00ft	**Sample TVD:**	13300.00ft
Log Top:	13300.00ft	**Log TVD:**	13300.00ft
Thickness:	N/A	**Subsea:**	-8131.50ft

Evaluation: N/A

Conclusion: N/A

SAMPLE DESCRIPTIONS

Well Name: G.C.R.L. SEISMOSAUR FEDERAL #1
Location: NW NE 20-21S-20E

4540.00 to 4545.00ft **Interval: 5.00ft**	NOTE: N/A, FROM 4540' TO 4665' SAMPLES WERE CAUGHT DIRECTLY OFF THE SHAKER SCREEN AND ARE NOT REPRESENTITIVE OF THE ENTIRE SAMPLE INTERVAL. GEOLOGIST ARRIVED ON LEASE AT 4665'.
4545.00 to 4550.00ft **Interval: 5.00ft**	**SANDSTONE: 80%**, light pink to light gray, fine to minor medium grained, subangular to rounded, well sorted quartz grains, friable in part, silty in part, argillaceous in part, siliceous in part, calcareous in part, dolomitic in part, tight to fair porosity stringers, no shows; with minor Siltstone stringers, red brown, very argillaceous, sandy. **SHALE: 20%**, with: 15% Shale cavings; and 5% Shale, dark to medium pink brown, fissile, silty in part.
4550.00 to 4560.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above, very fine grained in part, more dolomitic, not calcareous, tight to poor porosity; with minor Siltstone stringers, as above. **SHALE: 20%**, as above.
4560.00 to 4575.00ft **Interval: 15.00ft**	**SANDSTONE: 90%**, as above. **SHALE: 10%**, as above.
4575.00 to 4595.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, light brown gray to light pink, very fine to fine grained with minor medium grained, subangular to subrounded, medium sorted, quartz grains, argillaceous, siliceous, silty, slightly kaolinitic, dolomitic, tight to minor poor porosity, no shows. **SHALE: 10%**, cavings.
4601.00ft	**WINGATE**
4595.00 to 4610.00ft **Interval: 15.00ft**	**SANDSTONE: 90%**, light brown gray to light pink, fine grained, subangular to rounded, well sorted quartz grains, very friable, slightly silty, slightly argillaceous, slightly dolomitic, tight to fair to good porosity in part, no shows. **SHALE: 10%**, cavings.
4610.00 to 4638.00ft **Interval: 28.00ft**	**SANDSTONE: 70%**, light pink to light gray, very fine to fine grained, subangular to rounded, well sorted quartz grains, siliceous, dolomitic, silty, argillaceous in part, kaolinitic in part, slightly calcareous, tight. Questionable sample quality!! **SILTSTONE: 10%**, dark to medium red brown, sandy, argillaceous, dolomitic. **SHALE: 20%**, cavings.
4638.00 to 4650.00ft **Interval: 12.00ft**	**SANDSTONE: 70%**, light pink to brown gray, very fine to fine grained, subangular to rounded, well sorted quartz grains, silty, siliceous, argillaceous, dolomitic, tight. **SHALE: 20%**, cavings. **SILTSTONE: 10%**, as above.
4650.00 to 4665.00ft **Interval: 15.00ft**	**SANDSTONE: 60%**, as above.

SHALE: 30%, cavings.

SILTSTONE: 10%, as above.

4665.00 to 4675.00ft
Interval: 10.00ft

CAVINGS: 70%, trip sample: Shale cavings.

SANDSTONE: 20%, light pink to brown gray, very fine to fine grained, subangular to rounded, well sorted quartz, silty, argillaceous, siliceous, dolomitic, tight.

SILTSTONE: 10%, dark to medium red brown, argillaceous, sandy.

4675.00 to 4690.00ft
Interval: 15.00ft

CAVINGS: 70%, shale and friable sandstone.

SANDSTONE: 20%, brick red, very fine grained, subangular, well sorted quartz grains, silty to very silty, argillaceous, dolomitic, siliceous in part, tight.

SILTSTONE: 10%, red brown to light pink, very argillaceous, sandy, dolomitic.

4690.00 to 4705.00ft
Interval: 15.00ft

CAVINGS: 50%, as above.

SANDSTONE: 40%, light brown gray to pink to brick red, very fine to fine grained, subangular to rounded, well sorted quartz grains, silty in part, argillaceous in part, kaolinitic in part, dolomitic, trace calcareous, friable in part, tight to poor to minor fair porosity, no shows.

SILTSTONE: 10%, as above.

4705.00 to 4710.00ft
Interval: 5.00ft

CAVINGS: 50%, mixed bag.

SANDSTONE: 30%, as above, tight predominant.

SHALE: 10%, brick red, fissile, silty, dolomitic in part.

SILTSTONE: 10%, as above.

4710.00 to 4725.00ft
Interval: 15.00ft

SANDSTONE: 50%, as above, slightly siliceous in part, tight to minor poor porosity, no shows.

SILTSTONE: 5%, as above.

SHALE: 5%, as above.

CAVINGS: 40%, as above.

4725.00 to 4740.00ft
Interval: 15.00ft

CAVINGS: 20%, as above.

SILTSTONE: 10%, medium to light red brown, very argillaceous, sandy to very sandy, dolomitic, micromicaceous in part.

SANDSTONE: 70%, with: 50% Sandstone, light brown gray, fine grained, subrounded to rounded, well sorted quartz grains, very friable, kaolinitic in part, slightly siliceous with trace euhedral quartz overgrowths, fair porosity, no shows; and with 20% Sandstone, as above.

4740.00 to 4750.00ft
Interval: 10.00ft

SANDSTONE: 90%, light brown gray, as above, very friable, fair to good porosity, no shows.

SILTSTONE: 5%, as above.

	SHALE: 5%, as above.
4750.00 to 4760.00ft **Interval: 10.00ft**	**CAVINGS: 50%**, uphole shale.
	SANDSTONE: 40%, with: 20% Sandstone, light brown gray, as above; and 20% Sandstone, medium to light red brown, very fine to fine grained, subangular to rounded, well sorted quartz grains, silty, argillaceous, dolomitic, slightly kaolinitic, tight to minor poor porosity, no shows.
	SILTSTONE: 5%, as above.
	SHALE: 5%, as above.
4760.00 to 4775.00ft **Interval: 15.00ft**	**SANDSTONE: 40%**, with: 20% Sandstone, very fine to fine grained and tight, as above; and with 20% Sandstone, light brown and very fissile, as above.
	SILTSTONE: 10%, dark to medium brick red, very argillaceous, sandy, dolomitic.
	SHALE: 10%, dark brick red, fissile, silty, dolomitic in part, micromicaceous in part.
	CAVINGS: 40%, shale.
4775.00 to 4785.00ft **Interval: 10.00ft**	**SANDSTONE: 50%**, medium to light red brown, very fine to fine grained, subangular to rounded, well sorted quartz grains, friable in part, silty to very silty in part, argillaceous, dolomitic, kaolinitic in part, tight to poor to fair porosity stringers, no shows.
	SILTSTONE: 10%, as above.
	SHALE: 5%, as above.
	CAVINGS: 35%, as above.
4785.00 to 4800.00ft **Interval: 15.00ft**	**SANDSTONE: 70%**, light gray brown to pink, very fine to fine grained, rounded to well rounded, medium sorted quartz grains, very friable, kaolinitic in part, slightly dolomitic in part, poor to fair to good porosity stringers, no shows.
	CAVINGS: 30%, shale.
4800.00 to 4820.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, as above, fine to minor medium grained, rounded, very friable, fair to good porosity, no shows.
	CAVINGS: 20%, shale.
4820.00 to 4840.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, as above, with minor very fine to fine grained, silty and tight in part.
	CAVINGS: 20%, shale.
4840.00 to 4850.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light red brown to pink, fine grained, subrounded to rounded, well sorted quartz grains, very friable, slightly dolomitic, slightly kaolinitic, fair to good porosity, no shows.
	CAVINGS: 10%, shale.
4850.00 to 4860.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red brown, silty, dolomitic.
	SILTSTONE: 10%, dark to medium brick red, argillaceous, sandy to very sandy, dolomitic.

SANDSTONE: 40%, with: 20% Sandstone, very friable as above; and 20% Sandstone, light pink to gray brown, very fine to fine grained, subrounded to rounded, well sorted quartz grains, silty in part, argillaceous in part, kaolinitic in part, friable in part, slightly dolomitic, tight to poor porosity, no shows.

CAVINGS: 40%, shale.

4860.00 to 4880.00ft
Interval: 20.00ft

SANDSTONE: 70%, with: 60% Sandstone, light brown to pink, fine grained, rounded, well sorted quartz grains, very friable, slightly kaolinitic, fair to good porosity, no shows; and 10% Sandstone, very fine to fine grained, as above.

SHALE: 5%, as above.

SILTSTONE: 5%, as above.

CAVINGS: 20%, as above.

4880.00 to 4890.00ft
Interval: 10.00ft

SANDSTONE: 80%, medium red brown to pink, very fine grained, subangular, well sorted quartz grains, very silty, argillaceous, dolomitic, tight.

SILTSTONE: 10%, medium red brown, very sandy, dolomitic, argillaceous.

CAVINGS: 10%, as above.

4890.00 to 4900.00ft
Interval: 10.00ft

SHALE: 5%, dark red brown, fissile, silty, dolomitic in part.

SILTSTONE: 20%, as above.

SANDSTONE: 55%, as above.

CAVINGS: 20%, shale.

4900.00 to 4910.00ft
Interval: 10.00ft

SILTSTONE: 5%, as above; with minor Shale stringers, as above.

SANDSTONE: 85%, with: 45% Sandstone, light brown to pink, very fine to fine grained, subrounded to well rounded, quartz grains, very friable, dolomitic in part, kaolinitic in part, slightly calcareous in part, fair porosity, no shows; and 40% Sandstone, light brown to pink, very fine to fine grained, subangular to rounded, well sorted quartz grains, silty, argillaceous in part, kaolinitic in part, friable in part, dolomitic, tight.

CAVINGS: 10%, shale.

4910.00 to 4930.00ft
Interval: 20.00ft

SANDSTONE: 95%, light brown pink, very fine to minor fine to trace medium grained, subangular to well rounded, medium sorted quartz grains, friable in part, silty in part, argillaceous in part, dolomitic in part, slightly siliceous in part, tight to minor poor porosity stringers, no shows.

SILTSTONE: 5%, as above; with minor Shale stringers, as above.

4930.00 to 4940.00ft
Interval: 10.00ft

SANDSTONE: 100%, light brown pink, very fine to minor fine to trace medium grained, subangular to rounded, well sorted quartz grains, silty, argillaceous in part, siliceous in part, dolomitic, tight.

4946.00ft

CHINLE

4940.00 to 4950.00ft
Interval: 10.00ft

SANDSTONE: 85%, as above.

SILTSTONE: 10%, dark brick red, argillaceous, sandy to very sandy, dolomitic.

SHALE: 5%, dark red brown, fissile, silty in part, dolomitic in part, micromicaceous in part.

4950.00 to 4960.00ft
Interval: 10.00ft

SHALE: 30%, as above.

SILTSTONE: 5%, as above.

SANDSTONE: 65%, with: 45% Sandstone, as above; and 20% Sandstone, light gray to white, very fine to minor fine grained, subangular to subrounded, well sorted quartz grains, very calcareous in part, very dolomitic, tight.

4960.00 to 4970.00ft
Interval: 10.00ft

SHALE: 70%, dark red brown, fissile to blocky, silty to very silty in part, dolomitic, micromicaceous.

SANDSTONE: 20%, with: 10% Sandstone, light brown pink, as above; and 10% Sandstone, light gray to white, very fine to fine grained, subangular, well sorted quartz grains, very dolomitic, silty in part, tight.

SILTSTONE: 10%, dark brick red, very argillaceous, sandy, micromicaceous.

4970.00 to 4980.00ft
Interval: 10.00ft

SHALE: 50%, as above.

SANDSTONE: 40%, medium to light red brown to pink to white in part, very fine to minor fine grained, subangular to subrounded, well sorted quartz grains, silty, argillaceous, dolomitic, slightly friable, tight.

SILTSTONE: 10%, as above.

4980.00 to 4990.00ft
Interval: 10.00ft

SANDSTONE: 70%, medium to light red brown to pink mottled, very fine to fine grained, subangular to rounded, medium to well sorted quartz grains, silty to very silty, argillaceous to very argillaceous, dolomitic, tight.

SILTSTONE: 20%, as above, very sandy.

SHALE: 10%, as above.

4990.00 to 5000.00ft
Interval: 10.00ft

SILTSTONE: 50%, dark to light red brown to pink, argillaceous, sandy, dolomitic.

SANDSTONE: 20%, medium red brown to pink to white, very fine grained, subangular, well sorted quartz grains, very silty, argillaceous, dolomitic, calcareous in part, tight.

SHALE: 15%, as above.

CAVINGS: 15%, shale.

5000.00 to 5011.00ft
Interval: 11.00ft

CAVINGS: 100%, Reamed 12 hours to get to bottom after trip for bit. Cannot interpret.

5011.00 to 5030.00ft
Interval: 19.00ft

CAVINGS: 70%, mixed bag.

	SILTSTONE: 20%, dark to medium brick red, sandy to very sandy in part, argillaceous to very argillaceous in part, dolomitic; with minor Sandstone stringers, medium to light red brown to pink, very fine grained, subangular to subrounded, well sorted quartz grains, very silty, argillaceous, dolomitic, tight.
	SHALE: 10%, dark red brown, fissile to blocky, silty, slightly dolomitic, micromicaceous in part.
5030.00 to 5040.00ft **Interval: 10.00ft**	**SHALE: 70%**, dark to medium brick red, fissile to blocky, silty, calcareous, dolomitic.
	SILTSTONE: 10%, as above.
	CAVINGS: 20%, shale.
5040.00 to 5050.00ft **Interval: 10.00ft**	**SHALE: 35%**, as above.
	SILTSTONE: 15%, dark to medium brick red, argillaceous, sandy, dolomitic, calcareous in part.
	CAVINGS: 50%, mixed bag.
5050.00 to 5060.00ft **Interval: 10.00ft**	**SHALE: 40%**, as above.
	SILTSTONE: 40%, as above.
	CAVINGS: 20%, as above.
5060.00 to 5080.00ft **Interval: 20.00ft**	**SHALE: 70%**, dark to medium brick red, fissile to blocky, silty, very calcareous, dolomitic in part; with minor Marlstone stringers, medium brick red, calcareous, silty.
	SILTSTONE: 20%, as above, very calcareous.
	CAVINGS: 10%, shale.
5080.00 to 5090.00ft **Interval: 10.00ft**	**CAVINGS: 60%**, STOP AIR INJECTION. DRILLING ONLY WITH WATER. SAMPLE QUALITY VERY POOR.
	SHALE: 30%, as above.
	SILTSTONE: 10%, as above.
5090.00 to 5140.00ft **Interval: 50.00ft**	**CAVINGS: 50%**, SAMPLES CAUGHT IN SHAKER BOX FLOW LINE. CHIPS TOO SMALL TO GO OVER SHAKER SCREENS.
	SHALE: 40%, dark to medium brick red, fissile to blocky in part, silty, calcareous to very calcareous, dolomitic in part.
	SILTSTONE: 10%, as above.
5140.00 to 5150.00ft **Interval: 10.00ft**	**SHALE: 50%**, as above.
	SILTSTONE: 10%, as above.
	CAVINGS: 40%, mixed bag.
5150.00 to 5160.00ft **Interval: 10.00ft**	**SHALE: 90%**, as above.
	SILTSTONE: 10%, as above, with trace fine to medium grained well rounded argillaceous silty limestone grains.

5160.00 to 5170.00ft **Interval: 10.00ft**	**SHALE: 90%**, as above, with trace fine to medium grained well rounded very argillaceous silty limestone grains.
	SILTSTONE: 10%, as above.
5170.00 to 5180.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, medium brick red, argillaceous, sandy to very sandy, calcareous, dolomitic in part, with minor coarse to very coarse grained limestone and trace quartz grains; with trace Sandstone stringers, medium brick red, coarse to very coarse grained, well rounded, poor sorted, limestone and trace quartz grains, argillaceous, silty, calcareous, tight.
	SHALE: 70%, as above, very silty in part.
5182.00ft	**SHINARUMP**
5180.00 to 5184.00ft **Interval: 4.00ft**	**CONGLOMERATE: 10%**, Sandstone in part, medium brown red to light pink to light gray mottled, coarse to very coarse to conglomerate, limestone grains and pebbles and minor quartz grains, with minor shale and minor siltstone rip-up clasts, well rounded, poor sorted, silty with a siltstone matrix in part, argillaceous, very calcareous, tight.
	SILTSTONE: 30%, as above.
	SHALE: 40%, as above.
	CAVINGS: 20%, mixed bag.
5184.00 to 5191.00ft **Interval: 7.00ft**	**CONGLOMERATE: 20%**, Sandstone in part, light gray to pink to red brown in part, very coarse grained to conglomerate, clear quartz grains predominant, minor chert and minor limestone grains, subangular to rounded, poor sorted, argillaceous with shale matrix in part, silty in part, slightly kaolinitic, calcareous in part, tight to minor poor porosity, no shows.
	SILTSTONE: 10%, as above.
	SHALE: 10%, as above.
	CAVINGS: 60%, mixed bag.
5195.00ft	**MOENKOPI**
5191.00 to 5200.00ft **Interval: 9.00ft**	**CONGLOMERATE: 20%**, Sandstone in part, as above, but not calcareous, and clear quartz grains only.
	SHALE: 20%, dark brick red to maroon in part, fissile to blocky, silty to very silty in part, slightly calcareous, dolomitic in part, micromicaceous in part.
	SILTSTONE: 20%, dark to medium brick red, very argillaceous, sandy in part, calcareous.
	CAVINGS: 40%, mixed bag.
5200.00 to 5210.00ft **Interval: 10.00ft**	**SHALE: 50%**, as above, fissile, micaceous in part.
	SILTSTONE: 20%, as above.
	CAVINGS: 30%, as above.
5210.00 to 5250.00ft **Interval: 40.00ft**	**SHALE: 100%**, dark to medium brick red to red brown in part, fissile, silty in part, micromicaceous in part, calcareous in part; with minor Siltstone stringers, dark brick red, very argillaceous, calcareous in part, sandy in part.

5250.00 to 5260.00ft **Interval: 10.00ft**	**SHALE: 80%**, dark to medium brick red, fissile to blocky, very soft in part, slightly silty to very silty in part, dolomitic, calcareous. **SILTSTONE: 20%**, dark to medium brick red, very argillaceous, micaceous, sandy, dolomitic, calcareous in part.
5260.00 to 5270.00ft **Interval: 10.00ft**	**SHALE: 75%**, as above. **SILTSTONE: 25%**, as above; with minor Sandstone stringers, medium brick red, very fine grained with trace floating medium grains, quartz grains, very silty, very argillaceous, micaceous, calcareous, dolomitic, tight.
5270.00 to 5280.00ft **Interval: 10.00ft**	**SHALE: 90%**, as above. **SILTSTONE: 10%**, as above.
5280.00 to 5310.00ft **Interval: 30.00ft**	**SHALE: 80%**, as above. **SILTSTONE: 20%**, as above.
5310.00 to 5320.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, medium brick red to dark red brown, very argillaceous, dolomitic, sandy in part, calcareous in part, micaceous in part. **SHALE: 40%**, dark to medium brick red to dark brown in part, fissile, silty, dolomitic, calcareous in part.
5320.00 to 5330.00ft **Interval: 10.00ft**	**SHALE: 70%**, as above. **SILTSTONE: 30%**, as above.
5330.00 to 5360.00ft **Interval: 30.00ft**	**SHALE: 85%**, as above. **SILTSTONE: 15%**, as above.
5360.00 to 5370.00ft **Interval: 10.00ft**	**SHALE: 60%**, as above, very silty. **SILTSTONE: 40%**, as above.
5370.00 to 5380.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, as above. **SHALE: 40%**, as above.
5380.00 to 5390.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, dark to light brick red to pink, argillaceous, very sandy, calcareous in part, dolomitic in part. **SANDSTONE: 20%**, medium to light red brown to pink, very fine grained, subangular, well sorted quartz grains, very silty, argillaceous, dolomitic, tight. **SHALE: 20%**, as above.
5390.00 to 5410.00ft **Interval: 20.00ft**	**SILTSTONE: 70%**, as above. **SHALE: 20%**, as above; with euhedral anhydrite crystals; and with trace Marlstone stringers, light red brown to pink, calcareous, silty.

	SANDSTONE: 10%, light red brown to pink, very fine to trace fine grained, subangular to subrounded, well sorted quartz grains, very silty, argillaceous, calcareous, dolomitic in part, tight.
5410.00 to 5420.00ft **Interval: 10.00ft**	**SILTSTONE: 70%**, medium to light red brown to brick red, very argillaceous, very sandy, dolomitic, slightly calcareous.
	SANDSTONE: 10%, as above; with minor Sandstone stringers, light gray to pink, fine grained, rounded, well sorted quartz grains, silty in part, argillaceous in part, calcareous in part, friable in part, tight.
	SHALE: 20%, as above; with euhedral anhydrite crystals; and with trace Marlstone stringers, medium gray, calcareous, silty.
5420.00 to 5430.00ft **Interval: 10.00ft**	**DOLOMITE: 60%**, dark to light gray mottled, microcrystalline and fine to medium grained oolites, argillaceous in part, silty in part, poor to fair oolitic porosity stringers, pyrobitumen, fair spotty fluorescence, fair spotty cut; with trace Limestone stringers, light gray, cryptocrystalline, tight.
	SILTSTONE: 20%, as above.
	SHALE: 10%, as above.
	SANDSTONE: 10%, as above.
5430.00 to 5440.00ft **Interval: 10.00ft**	**SILTSTONE: 70%**, dark to medium brick red, argillaceous, sandy to very sandy, micaceous, calcareous, dolomitic in part.
	SHALE: 30%, dark to medium brick red to red brown, fissile to blocky, silty to very silty in part, micaceous in part, dolomitic in part.
5440.00 to 5450.00ft **Interval: 10.00ft**	**SHALE: 90%**, as above.
	SILTSTONE: 10%, as above.
5450.00 to 5460.00ft **Interval: 10.00ft**	**SHALE: 60%**, as above.
	SILTSTONE: 40%, as above.
5460.00 to 5470.00ft **Interval: 10.00ft**	**SHALE: 90%**, dark to medium brick red to dark red brown in part, fissile, silty, dolomitic, micromicaceous, sandy in part with floating rounded medium quartz grains.
	SILTSTONE: 10%, medium brick red, sandy, argillaceous, micaceous, calcareous, dolomitic.
5470.00 to 5490.00ft **Interval: 20.00ft**	**SHALE: 60%**, as above.
	SILTSTONE: 40%, as above.
5490.00 to 5500.00ft **Interval: 10.00ft**	**SHALE: 80%**, as above.
	SILTSTONE: 20%, as above.
5500.00 to 5510.00ft **Interval: 10.00ft**	**SILTSTONE: 15%**, as above.
	SHALE: 5%, as above.
	CAVINGS: 80%, bit trip, mixed bag.

5510.00 to 5520.00ft **Interval: 10.00ft**	**SILTSTONE: 40%**, dark to light brick red to pink in part, argillaceous, sandy, micaceous, dolomitic, calcareous in part. **SHALE: 30%**, dark red brown, fissile, silty, micaceous, dolomitic. **SANDSTONE: 10%**, stringers, light red brown to pink, very fine grained, subrounded, well sorted quartz grains, silty, argillaceous, kaolinitic in part, calcareous, tight. **CAVINGS: 20%**, shale.
5520.00 to 5530.00ft **Interval: 10.00ft**	**SHALE: 60%**, as above. **SILTSTONE: 40%**, as above; with minor Sandstone stringers, as above.
5530.00 to 5540.00ft **Interval: 10.00ft**	**SHALE: 70%**, as above. **SILTSTONE: 30%**, as above.
5540.00 to 5550.00ft **Interval: 10.00ft**	**SHALE: 90%**, as above. **SILTSTONE: 10%**, as above.
5550.00 to 5560.00ft **Interval: 10.00ft**	**SILTSTONE: 50%**, medium brick red, sandy, argillaceous, micaceous, dolomitic, calcareous in part. **SHALE: 40%**, dark red brown, fissile to blocky, silty, micaceous, dolomitic, calcareous in part. **SANDSTONE: 10%**, light red brown to pink, very fine grained, subangular to subrounded, well sorted quartz grains, silty, argillaceous, micaceous, dolomitic, calcareous in part, tight.
5560.00 to 5570.00ft **Interval: 10.00ft**	**SHALE: 50%**, as above. **SILTSTONE: 40%**, as above. **SANDSTONE: 10%**, as above.
5570.00 to 5580.00ft **Interval: 10.00ft**	**SHALE: 70%**, as above; with trace euhedral anhydrite crystals. **SILTSTONE: 30%**, as above; with minor Sandstone stringers, as above.
5580.00 to 5600.00ft **Interval: 20.00ft**	**SHALE: 90%**, as above. **SILTSTONE: 10%**, as above.
5600.00 to 5620.00ft **Interval: 20.00ft**	**SHALE: 80%**, as above. **SILTSTONE: 20%**, as above.
5620.00 to 5630.00ft **Interval: 10.00ft**	**SHALE: 100%**, as above; with minor Siltstone stringers, as above.
5630.00 to 5640.00ft **Interval: 10.00ft**	**SHALE: 80%**, dark red brown, fissile to blocky, silty, dolomitic in part, calcareous in part, micaceous.

SILTSTONE: 10%, medium brick red, sandy, argillaceous, micaceous, dolomitic, calcareous in part.

SANDSTONE: 10%, stringers, medium to light brick red, very fine grained, subangular to subrounded, well sorted quartz grains, silty, argillaceous, micaceous, dolomitic, calcareous, tight.

5646.00ft — **LOWER MOENKOPI**

5640.00 to 5650.00ft
Interval: 10.00ft

SANDSTONE: 30%, light pink, very fine grained, subangular, well sorted quartz grains, very silty, very calcareous, micaceous, argillaceous in part, slightly siliceous, tight.

SILTSTONE: 20%, as above, very sandy in part, calcareous.

SHALE: 50%, as above.

5650.00 to 5660.00ft
Interval: 10.00ft

SANDSTONE: 90%, with: 70% Sandstone, light gray, fine to coarse grained, subrounded, poor sorted quartz grains, very kaolinitic, friable, slightly micaceous, slightly calcareous to very calcareous in part, tight to minor poor to trace fair porosity stringers, no shows; and with 20% Sandstone, medium to light pink, very fine grained, subangular, well sorted quartz grains, very silty, argillaceous, very calcareous, micaceous, tight.

SILTSTONE: 10%, as above; with minor Shale stringers, as above.

5660.00 to 5662.00ft
Interval: 2.00ft

SANDSTONE: 70%, light pink to light gray, very fine to coarse grained, subangular to subrounded, poor sorted quartz grains, silty in part, kaolinitic, very calcareous in part, siliceous in part, argillaceous in part, tight.

SILTSTONE: 25%, medium brick red, very sandy with fine to medium well rounded floating quartz grains, argillaceous, calcareous, dolomitic in part, micaceous in part.

SHALE: 5%, dark red brown, blocky, silty to very silty, sandy with minor fine to medium grained well rounded quartz grains, calcareous in part, dolomitic in part.

5662.00 to 5670.00ft
Interval: 8.00ft

SILTSTONE: 30%, dark to medium brick red, very sandy with very fine to coarse rounded quartz grains, argillaceous, micaceous, calcareous to very calcareous in part, dolomitic in part.

SANDSTONE: 20%, dark to medium brick red, very fine to coarse grained, subangular to rounded, poor sorted quartz grains, very silty with siltstone matrix in part, argillaceous, micaceous, very calcareous, dolomitic, tight.

SHALE: 10%, dark red brown, fissile to blocky, very silty, micromicaceous, sandy with floating rounded quartz grains.

CAVINGS: 40%, trip sample: up-hole shale.

5670.00 to 5675.00ft
Interval: 5.00ft

SANDSTONE: 40%, medium to light brick red to pink to light gray in part, very fine to coarse grained, subangular to rounded, poor sorted quartz grains, very silty with siltstone matrix in part, argillaceous to very argillaceous in part, micaceous, kaolinitic in part, calcareous to very calcareous, dolomitic, tight.

SILTSTONE: 35%, as above.

SHALE: 5%, stringers, as above.

CAVINGS: 20%, shale.

5675.00 to 5680.00ft **Interval: 5.00ft**	**SILTSTONE: 75%**, as above. **SANDSTONE: 20%**, as above. **SHALE: 5%**, stringers, as above.
5680.00 to 5690.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, medium to light red brown to pink to minor light gray, very fine to coarse grained, subangular to rounded, poor sorted quartz grains, friable in part, silty with siltstone matrix in part, argillaceous with shale matrix in part, micaceous, calcareous to very calcareous in part, tight. **SILTSTONE: 25%**, medium brick red, very sandy with very fine to coarse rounded quartz grains, argillaceous to very argillaceous in part, micaceous, calcareous, dolomitic in part. **SHALE: 5%**, stringers, dark red brown, fissile to blocky, silty to very silty in part, micromicaceous, sandy in part with fine to medium rounded quartz grains, dolomitic.
5690.00 to 5710.00ft **Interval: 20.00ft**	**SANDSTONE: 40%**, as above, fine to medium grained predominant, tight. **SHALE: 30%**, dark to light red brown to pink in part, fissile, very calcareous, silty, sandy with rounded quartz grains; grading to minor Marlstone stringers, pink, calcareous, silty. **SILTSTONE: 30%**, as above.
5710.00 to 5720.00ft **Interval: 10.00ft**	**SANDSTONE: 50%**, as above. **SILTSTONE: 40%**, as above. **SHALE: 10%**, as above.
5721.00ft	**CUTLER- WHITE RIM**
5720.00 to 5725.00ft **Interval: 5.00ft**	**SANDSTONE: 60%**, light red brown to pink to white, very fine to fine to minor medium to trace coarse grained, subangular to rounded, medium sorted quartz grains with trace feldspar grains, siliceous in part, calcareous in part, slightly kaolinitic, tight to poor porosity, no shows. **SHALE: 20%**, as above. **SILTSTONE: 20%**, as above.
5725.00 to 5735.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, medium to light brick red to orange, fine to medium to minor coarse grained, rounded, medium sorted quartz grains, very friable, argillaceous in part, silty in part, fair to good porosity, no shows. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
5735.00 to 5750.00ft **Interval: 15.00ft**	**SANDSTONE: 100%**, light red orange to pink, very fine to medium grained, minor coarse grained, subangular to rounded, medium to poor sorted, quartz grains with trace feldspar grains, silty in part, kaolinitic in part, siliceous, calcareous in part, slightly micaceous, friable in part, tight to poor to fair to minor good porosity stringers, no shows.

5750.00 to 5770.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light red orange, very fine to medium to coarse grained in part, subangular to rounded, poor sorted, quartz grains with minor feldspar grains, friable in part, kaolinitic in part, siliceous in part, calcareous in part, silty in part, slightly micaceous, tight to poor to fair porosity stringers, no shows.
5778.00ft	**CUTLER- ARKOSE**
5770.00 to 5780.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above but very fine to coarse grained with medium grained predominant.
	CONGLOMERATE: 10%, arkosic, light gray, coarse grained to pebbles, subangular to rounded, poor sorted, quartz and feldspar, kaolinitic in part, calcareous in part, slightly micaceous, tight to poor porosity, no shows.
5780.00 to 5800.00ft **Interval: 20.00ft**	**CONGLOMERATE: 90%**, arkosic, light gray to pink, medium grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar, friable, kaolinitic, calcareous in part, micaceous in part, tight to poor to minor fair porosity stringers, no shows.
	SANDSTONE: 10%, as above.
5800.00 to 5810.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to minor coarse grained with trace quartz and feldspar pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, very friable, kaolinitic, argillaceous in part, fair porosity, no shows.
5810.00 to 5820.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light pink, medium to coarse to minor very coarse grained, subangular, poor sorted, friable, quartz and feldspar grains, very argillaceous with shale matrix in part, kaolinitic, dolomitic in part, tight.
	SHALE: 10%, medium to light red brown, fissile, silty, dolomitic.
5820.00 to 5830.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light pink, as above, very friable, clay coatings on grains, tight to poor to fair porosity stringers, no shows.
5830.00 to 5840.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to coarse to minor very coarse grained, subangular, poor sorted, quartz and feldspar grains, micaceous, friable, kaolinitic, argillaceous in part with minor shale stringers, tight to poor porosity, no shows.
5840.00 to 5850.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, Conglomerate, light gray to pink, medium to very coarse to conglomerate pebbles, subangular, poor sorted, quartz and feldspar grains, micaceous, friable in part, kaolinitic, silty in part, argillaceous in part, tight to poor porosity, no shows.
	SILTSTONE: 5%, medium brick red, argillaceous, sandy, dolomitic in part; with minor Shale stringers, dark red brown, silty, dolomitic.
5850.00 to 5860.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, Conglomerate, as above but very dolomitic in part, calcareous in part, tight to poor porosity, no shows.
	SILTSTONE: 5%, as above.
5860.00 to 5870.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to pink, medium to very coarse grained, minor pebbles, subangular, poor sorted, quartz and feldspar grains, micaceous in part, friable in part, kaolinitic, dolomitic in part, calcareous in part, silty in part, argillaceous in part, tight to poor porosity, no shows.
	SILTSTONE: 10%, dark to medium brick red to maroon, argillaceous, sandy, dolomitic, micaceous.

5870.00 to 5880.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, medium to coarse to minor very coarse grained, subangular to angular, poor sorted, quartz and feldspar grains, micaceous in part, friable, kaolinitic in part, siliceous in part, poor to fair porosity, no shows.
5880.00 to 5890.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to light pink, medium to very coarse grained to pebbles, subangular, poor sorted, quartz and feldspar grains, very kaolinitic, friable, silty in part, argillaceous in part, tight to poor to minor fair porosity, no shows.
5890.00 to 5900.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to coarse to minor very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, micaceous, kaolinitic, friable, siliceous in part, tight to poor to fair porosity stringers, no shows.
5900.00 to 5910.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to light pink, medium to coarse grained with minor very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous in part, poor to fair porosity, no shows.
5910.00 to 5940.00ft **Interval: 30.00ft**	**SANDSTONE: 90%**, light gray to pink, medium to very coarse grained with minor pebbles, subangular to angular, poor sorted, quartz and feldspar grains, micaceous, kaolinitic, argillaceous, silty with siltstone matrix in part, dolomitic in part, calcareous in part, tight to poor porosity, no shows. **SILTSTONE: 10%**, dark to medium red brown, very sandy, argillaceous, micaceous, dolomitic.
5940.00 to 5950.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink in part, medium to very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous in part, silty in part, micaceous, fair porosity, no shows.
5950.00 to 5960.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, as above, dolomitic in part, tight to fair porosity, no shows. **SILTSTONE: 5%**, as above.
5960.00 to 5970.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above.
5970.00 to 5980.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to pink, medium to very coarse grained to pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable, kaolinitic, micaceous, dolomitic in part, poor porosity, no shows.
5980.00 to 6050.00ft **Interval: 70.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to coarse to minor very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, friable, micaceous, argillaceous in part, silty in part, dolomitic in part, tight to poor to fair porosity stringers, no shows.
6050.00 to 6070.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to very coarse grained, subrounded to subangular, poor to medium sorted, quartz and feldspar grains, friable, kaolinitic, micaceous, argillaceous, silty, dolomitic in part, tight to poor porosity, no shows.
6070.00 to 6090.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray to pink in part, medium to coarse to minor very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, friable, micaceous, kaolinitic, argillaceous in part, silty in part, slightly siliceous, poor to fair porosity, no shows.

6090.00 to 6140.00ft **Interval: 50.00ft**	**SANDSTONE: 90%**, Conglomerate, light gray to pink, medium to very coarse grained to pebbles, subrounded to angular, poor sorted, quartz and feldspar grains, friable, argillaceous with shale matrix in part, silty with siltstone matrix in part, kaolinitic, calcareous in part, tight to poor to minor fair porosity, no shows. **SHALE: 5%**, dark red brown, very micaceous, silty, sandy in part. **SILTSTONE: 5%**, medium red brown, very argillaceous, micaceous, sandy, dolomitic in part.
6140.00 to 6150.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to very coarse grained, minor pebbles, subangular to subrounded, poor to medium sorted, quartz and feldspar grains, micaceous, friable, kaolinitic, siliceous in part, argillaceous, silty in part, tight to poor to minor fair porosity stringers, no shows.
6150.00 to 6160.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, very kaolinitic, dolomitic in part with trace euhedral dolomite crystals: fractures, tight to poor porosity, no shows.
6160.00 to 6170.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light pink to red orange, medium to very coarse grained with minor pebbles, subrounded to subangular, poor sorted, quartz and feldspar grains, friable, very kaolinitic, argillaceous to very argillaceous, silty in part, micaceous, slightly dolomitic, tight to poor porosity, no shows.
6170.00 to 6180.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, as above but conglomerate in part.
6180.00 to 6190.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, medium to very coarse grained, minor pebbles, subrounded to angular, poor sorted, quartz and feldspar grains, friable, micaceous, argillaceous, very kaolinitic, silty in part, tight to poor porosity, no shows.
6190.00 to 6200.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to coarse to minor very coarse grained, minor pebbles, subrounded to angular, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty in part, tight to poor to minor fair porosity, no shows.
6200.00 to 6210.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, fine to coarse grained, minor very coarse grained, subangular to angular, medium sorted, quartz and feldspar grains, very friable, kaolinitic, micaceous, argillaceous in part, tight to poor to fair porosity stringers, no shows.
6210.00 to 6220.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, as above. **SHALE: 5%**, dark red brown, very silty, micaceous, sandy in part; with minor Siltstone stringers, dark to medium red brown, very argillaceous, sandy, micaceous.
6220.00 to 6230.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, medium to very coarse grained, minor pebbles and minor fine grained, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty in part, tight to poor to minor fair porosity stringers, no shows.
6230.00 to 6240.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, light gray to red orange, medium to coarse to minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous to very argillaceous in part with shale matrix in part, silty in part, tight to poor porosity, no shows.

SHALE: 5%, as above.

6240.00 to 6250.00ft
Interval: 10.00ft

SANDSTONE: 90%, light gray to red orange, medium to very coarse grained with minor pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty, tight to poor porosity, no shows.

SILTSTONE: 5%, dark to medium brick red, argillaceous, sandy, micaceous, dolomitic in part, calcareous in part.

SHALE: 5%, dark to medium red brown, silty, micaceous, sandy in part.

6250.00 to 6260.00ft
Interval: 10.00ft

SANDSTONE: 85%, as above.

SILTSTONE: 10%, as above.

SHALE: 5%, as above.

6260.00 to 6270.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray to red orange, fine to coarse with minor very coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, argillaceous, silty, kaolinitic, tight to poor porosity, no shows; with minor Siltstone and minor Shale stringers, as above.

6270.00 to 6280.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, silty, kaolinitic, tight to poor to minor fair porosity, no shows; with minor Siltstone and minor Shale stringers, as above.

6280.00 to 6300.00ft
Interval: 20.00ft

SANDSTONE: 100%, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, argillaceous, silty, kaolinitic, tight to poor to minor fair porosity, no shows; with minor Siltstone stringers and minor Shale stringers, as above.

6300.00 to 6310.00ft
Interval: 10.00ft

SANDSTONE: 90%, light gray to red orange, medium to coarse to minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous to very argillaceous in part with shale matrix in part, silty in part, tight to poor porosity, no shows.

SHALE: 10%, dark red brown to brick red, fissile, silty, micaceous, sandy in part; with minor Siltstone stringers, dark to medium brick red, very argillaceous, micaceous, sandy, dolomitic in part.

6310.00 to 6320.00ft
Interval: 10.00ft

SANDSTONE: 95%, as above, with minor pebbles.

SHALE: 5%, as above.

6320.00 to 6330.00ft
Interval: 10.00ft

SANDSTONE: 80%, light gray to red orange, medium to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, kaolinitic, silty to very silty with siltstone matrix in part, argillaceous, micaceous, dolomitic in part, tight.

SILTSTONE: 20%, medium red orange, argillaceous, very sandy, micaceous, dolomitic in part; with minor Shale stringers, as above.

6330.00 to 6350.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty, tight to poor porosity, no shows. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
6350.00 to 6370.00ft **Interval: 20.00ft**	**CONGLOMERATE: 100%**, Sandstone, light gray to pink, medium grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, kaolinitic, silty, argillaceous, tight to poor porosity, no shows; with minor Siltstone stringers, as above.
6370.00 to 6380.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to pink to red orange, medium to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, kaolinitic, calcareous in part, dolomitic in part, silty, argillaceous, tight. **SHALE: 5%**, as above. **SILTSTONE: 5%**, as above.
6380.00 to 6390.00ft **Interval: 10.00ft**	**SHALE: 20%**, dark red orange, fissile, micaceous, silty in part; with minor Siltstone stringers, medium to light brick red, argillaceous, sandy, micaceous. **SANDSTONE: 80%**, light gray to pink, medium to coarse to minor very coarse grained with trace pebbles, subangular to subrounded, poor to medium sorted, quartz and feldspar grains, micaceous, friable, argillaceous, silty in part, kaolinitic, tight to minor poor porosity, no shows.
6390.00 to 6400.00ft **Interval: 10.00ft**	**SHALE: 25%**, as above, sandy in part; with minor Siltstone stringers, as above. **SANDSTONE: 75%**, as above with shale matrix in part.
6400.00 to 6410.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, light gray to red orange, medium to very coarse grained to pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable, very kaolinitic, argillaceous, silty, micaceous, tight to minor poor porosity, no shows. **SHALE: 15%**, as above. **SILTSTONE: 5%**, as above.
6410.00 to 6420.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to pink, medium to very coarse grained to pebbles, subangular to angular, poor sorted, quartz and feldspar grains, very silty with siltstone matrix in part, argillaceous, kaolinitic, micaceous, dolomitic, tight.
6420.00 to 6430.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, as above. **SILTSTONE: 10%**, medium red orange, very sandy, argillaceous, micaceous, dolomitic.
6430.00 to 6440.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, light gray to pink, medium to very coarse grained, minor pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable in part, silty with siltstone matrix in part, argillaceous, micaceous, kaolinitic, tight. **SILTSTONE: 25%**, as above; with minor Shale stringers, as above.

6440.00 to 6450.00ft **Interval: 10.00ft**	**CONGLOMERATE: 90%**, Sandstone, light gray to red orange, medium to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, kaolinitic, micaceous, argillaceous, dolomitic in part, tight. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
6450.00 to 6460.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, medium to coarse grained with minor fine and minor very coarse grained in part, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty, argillaceous, kaolinitic, micaceous, tight to poor porosity, no shows.
6460.00 to 6470.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above but very coarse in part and minor pebbles, poor sorted, with minor siltstone matrix in part, tight to minor poor porosity, no shows.
6470.00 to 6480.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to light pink, fine to medium to coarse to minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty in part, micaceous, tight to poor to minor fair porosity, no shows.
6480.00 to 6490.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above; with minor Siltstone stringers, as above.
6490.00 to 6510.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, Conglomerate, light gray to red orange, medium to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, kaolinitic, silty with minor siltstone matrix, micaceous, tight to minor poor porosity stringers, no shows. **SILTSTONE: 10%**, dark to medium brick red, micaceous, argillaceous, sandy, dolomitic in part; with minor Shale stringers, dark brick red, silty, micaceous, sandy in part.
6510.00 to 6520.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink to red orange in part, fine to very coarse grained with minor pebbles in part, poor sorted, quartz and feldspar grains, friable, argillaceous in part, silty in part, kaolinitic, micaceous, slightly dolomitic, tight to poor porosity, no shows.
6520.00 to 6530.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, very kaolinitic, tight to minor poor porosity stringers, no shows.
6530.00 to 6540.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above.
6540.00 to 6550.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to red orange, medium to very coarse to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty with siltstone matrix in part, micaceous, tight to poor porosity, no shows.
6550.00 to 6560.00ft **Interval: 10.00ft**	**CONGLOMERATE: 30%**, as above. **SANDSTONE: 70%**, light gray to pink, fine to coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty, micaceous, tight to poor porosity, no shows.
6560.00 to 6570.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, medium to very coarse grained with minor fine grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, kaolinitic, silty in part, micaceous, slightly dolomitic, tight to poor porosity, no shows.

6570.00 to 6580.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above.
	SHALE: 15%, dark to medium brick red, fissile, micaceous, silty.
	SILTSTONE: 5%, dark to medium brick red, argillaceous, micaceous, sandy.
6580.00 to 6590.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to red orange, medium to very coarse to pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable in part, micaceous, kaolinitic, argillaceous, silty in part, tight to poor porosity, no shows.
6590.00 to 6600.00ft **Interval: 10.00ft**	**CONGLOMERATE: 85%**, as above.
	SILTSTONE: 15%, dark brick red, argillaceous, micaceous, sandy to very sandy, dolomitic in part; with minor Shale stringers, as above.
6600.00 to 6630.00ft **Interval: 30.00ft**	**SANDSTONE: 90%**, light gray to pink to red orange in part, fine to coarse to minor very coarse grained, minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, kaolinitic, very argillaceous, silty, micaceous, tight to poor porosity, no shows.
	SILTSTONE: 10%, as above.
6630.00 to 6650.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty, micaceous, tight to porosity porosity, no shows; with minor Siltstone stringers, dark brick red, very micaceous, argillaceous, sandy.
6650.00 to 6660.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above.
	SILTSTONE: 10%, as above.
6660.00 to 6670.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above but medium to very coarse grained with minor pebbles, very kaolinitic, tight to minor poor porosity, no shows.
6670.00 to 6680.00ft **Interval: 10.00ft**	**CONGLOMERATE: 30%**, light gray to red orange, medium to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, silty with siltstone matrix in part, argillaceous, micaceous, tight to poor porosity, no shows.
	SANDSTONE: 60%, light gray to pink, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous in part, silty in part, micaceous, tight to poor porosity, no shows.
	SILTSTONE: 10%, dark brick red, argillaceous, micaceous, sandy in part; with minor Shale stringers, dark brick red, silty, micaceous.
6680.00 to 6690.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, fine to coarse grained with minor very coarse and minor pebbles, subangular to subrounded, medium to poor sorted, quartz and feldspar grains, friable, argillaceous, silty in part, micaceous in part, kaolinitic, slightly dolomitic, tight to poor porosity, no shows.
6690.00 to 6700.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, Conglomerate, light gray to red orange, medium to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, silty with siltstone matrix in part, kaolinitic, micaceous in part, tight to poor porosity, no shows.

	SILTSTONE: 30%, medium red orange, very sandy, argillaceous, micaceous, dolomitic in part.
6700.00 to 6710.00ft **Interval: 10.00ft**	**CONGLOMERATE: 90%**, Sandstone, as above.
	SILTSTONE: 10%, as above.
6710.00 to 6720.00ft **Interval: 10.00ft**	**CONGLOMERATE: 80%**, as above.
	SILTSTONE: 20%, as above.
6720.00 to 6730.00ft **Interval: 10.00ft**	**CONGLOMERATE: 100%**, as above; with minor Siltstone stringers, as above.
6730.00 to 6740.00ft **Interval: 10.00ft**	**CONGLOMERATE: 80%**, as above.
	SILTSTONE: 20%, as above.
6740.00 to 6750.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, silty with siltstone matric in part, argillaceous, kaolinitic, micaceous, dolomitic in part, tight to minor poor porosity, no shows.
	SILTSTONE: 20%, medium to light brick red, very argillaceous, sandy to very sandy, micaceous, dolomitic in part.
6750.00 to 6760.00ft **Interval: 10.00ft**	**CONGLOMERATE: 90%**, light gray to pink, medium grained to pebbles, subangular to angular, poor sorted, quartz and feldspar grains, friable in part, silty, argillaceous, micaceous, kaolinitic, tight to minor poor porosity, no shows.
	SILTSTONE: 10%, as above.
6760.00 to 6770.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty with siltstone matrix in part, micaceous in part, tight to poor porosity, no shows.
	SILTSTONE: 10%, as above.
6770.00 to 6790.00ft **Interval: 20.00ft**	**CONGLOMERATE: 95%**, Sandstone, light gray to red orange, medium grained to pebbles, fine grained in part, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, argillaceous, silty, micaceous, kaolinitic, tight to poor porosity, no shows.
	SILTSTONE: 5%, as above.
6790.00 to 6800.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, pink to red orange, medium grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, argillaceous, silty with minor siltstone matrix, micaceous, kaolinitic, tight to poor porosity, no shows.
6800.00 to 6820.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, light gray to red orange, fine to very coarse grained, minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty with siltstone matrix in part, micaceous, tight to poor porosity, no shows.
	SILTSTONE: 10%, medium brick red, argillaceous, sandy, micaceous, dolomitic in part.

6820.00 to 6830.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above.
	CONGLOMERATE: 30%, as above; with minor Siltstone stringers, as above.
6830.00 to 6840.00ft **Interval: 10.00ft**	**CONGLOMERATE: 100%**, Sandstone, pink, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, fissile, argillaceous, silty in part, kaolinitic, micaceous, tight to poor porosity, no shows.
6840.00 to 6850.00ft **Interval: 10.00ft**	**CONGLOMERATE: 100%**, as above.
6850.00 to 6860.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, pink to red orange, fine to coarse grained, minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty in part, tight to poor porosity, no shows.
	SHALE: 10%, dark red brown, very silty, micaceous.
6860.00 to 6870.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above but medium to very coarse grained with minor pebbles.
6870.00 to 6880.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, as above but fine grained in part and 20% conglomerate pebbles.
6880.00 to 6890.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, medium to very coarse grained, minor fine grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, argillaceous, kaolinitic, silty in part, micaceous in part, tight to poor porosity, no shows.
6890.00 to 6900.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, as above but conglomerate in part.
6900.00 to 6920.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, Conglomerate, as above; with minor Siltstone stringers in part, as above.
6920.00 to 6930.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, as above with siltstone matrix in part, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 10%, stringers, as above.
6930.00 to 6935.00ft **Interval: 5.00ft**	**STRAP: N/A**, PIPE STRAP AT 6930'. MADE 5' DEPTH CORRECTION: 6930' IS NOW 6935'.
6935.00 to 6940.00ft **Interval: 5.00ft**	**SANDSTONE: 90%**, Conglomerate, as above.
	SILTSTONE: 10%, stringers, as above.
6940.00 to 6950.00ft **Interval: 10.00ft**	**CONGLOMERATE: 100%**, light gray to red orange, medium grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, micaceous, kaolinitic, tight.
6950.00 to 6960.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, light gray to red orange, fine to very coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, silty, argillaceous, tight to minor poor porosity in part, no shows.
	CONGLOMERATE: 20%, as above.
6960.00 to 6990.00ft **Interval: 30.00ft**	**SANDSTONE: 90%**, as above, minor pebbles, siltstone matrix in part, tight.

	SILTSTONE: 10%, medium brick red, very sandy, argillaceous, micaceous, dolomitic in part.
6990.00 to 7010.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to pink to red orange in part, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, argillaceous, silty in part, micaceous, tight to poor porosity, no shows.
7010.00 to 7020.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, kaolinitic, argillaceous, micaceous, dolomitic in part, tight.
	SILTSTONE: 10%, medium brick red, sandy to very sandy, argillaceous, micaceous, dolomitic in part.
7020.00 to 7040.00ft **Interval: 20.00ft**	**SANDSTONE: 70%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, silty with siltstone matrix, argillaceous, kaolinitic, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 30%, as above.
7040.00 to 7050.00ft **Interval: 10.00ft**	**SILTSTONE: 50%**, medium brick red to red orange, very sandy, argillaceous, micaceous, calcareous in part, dolomitic in part.
	SANDSTONE: 50%, Conglomerate, light pink to red orange, fine grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, kaolinitic, dolomitic in part, calcareous in part, tight.
7050.00 to 7070.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, light gray to red orange, fine to coarse grained with minor very coarse and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, silty in part, argillaceous in part, kaolinitic, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 20%, as above.
7070.00 to 7080.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, light pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, argillaceous, kaolinitic, micaceous, dolomitic in part, tight.
	SILTSTONE: 10%, as above.
7080.00 to 7090.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, Conglomerate, as above but less silty, more kaolinitic, friable in part, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 5%, as above.
7090.00 to 7100.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, light gray to pink, fine to coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, tight to minor poor porosity stringers, no shows.
	CONGLOMERATE: 10%, as above.
	SILTSTONE: 10%, as above.
7100.00 to 7110.00ft **Interval: 10.00ft**	**CONGLOMERATE: 90%**, Sandstone, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, kaolinitic, argillaceous in part, micaceous in part, dolomitic in part, tight.

	SILTSTONE: 10%, as above.
7110.00 to 7120.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, friable in part, silty to very silty with siltstone matrix in part, argillaceous, micaceous in part, kaolinitic in part, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 10%, red orange, very sandy, argillaceous, dolomitic, micaceous.
7120.00 to 7140.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, Conglomerate, as above, tight.
	SILTSTONE: 10%, as above.
7140.00 to 7150.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, light gray to red orange, fine to coarse grained with minor very coarse and minor pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, friable in part, silty with siltstone matrix in part, argillaceous, micaceous, kaolinitic in part, tight to minor poor porosity stringers, no shows.
	CONGLOMERATE: 10%, as above.
	SILTSTONE: 10%, as above.
7150.00 to 7160.00ft **Interval: 10.00ft**	**CONGLOMERATE: 100%**, Sandstone, red orange, fine grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, kaolinitic, micaceous, argillaceous, slightly dolomitic, tight.
7160.00 to 7180.00ft **Interval: 20.00ft**	**CONGLOMERATE: 95%**, as above.
	SILTSTONE: 5%, stringers, as above.
7180.00 to 7190.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, light gray to pink to red orange in part, fine to very coarse grained, minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, silty in part, argillaceous in part, micaceous in part, tight to minor poor porosity stringers, no shows.
	SILTSTONE: 5%, stringers, as above.
7190.00 to 7200.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, conglomerate in part.
7200.00 to 7210.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, kaolinitic, silty with siltstone matrix in part, argillaceous, micaceous in part, slightly dolomitic, tight.
7210.00 to 7220.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, light gray to pink, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, silty in part, argillaceous in part, micaceous, tight to minor poor poor stringers, no shows.
	CONGLOMERATE: 20%, as above.
	SILTSTONE: 5%, stringers, as above.

7220.00 to 7230.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, light gray to pink, fine to coarse to minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, kaolinitic, silty with siltstone matrix in part, argillaceous in part, micaceous in part, tight to minor poor porosity stringers, no shows. **SILTSTONE: 5%**, stringers, medium brick red, very sandy, argillaceous, micaceous, dolomitic in part.
7230.00 to 7240.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, argillaceous, kaolinitic, micaceous in part, tight. **SILTSTONE: 5%**, stringers, as above.
7240.00 to 7250.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, silty with siltstone matrix in part, argillaceous, kaolinitic, micaceous, tight. **SILTSTONE: 5%**, stringers, as above.
7250.00 to 7260.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, as above, very kaolinitic in part, friable, tight to minor poor porosity stringers, no shows.
7260.00 to 7290.00ft **Interval: 30.00ft**	**SANDSTONE: 90%**, Conglomerate, as above, but very silty with siltstone matrix, tight. **SILTSTONE: 10%**, red orange, very sandy, argillaceous, micaceous, dolomitic in part.
7290.00 to 7300.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty with siltstone matrix in part, kaolinitic, argillaceous, tight to minor poor porosity stringers, no shows. **CONGLOMERATE: 10%**, as above. **SILTSTONE: 10%**, as above.
7300.00 to 7310.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, like sandstone as above but conglomerate in part, tight. **SILTSTONE: 10%**, as above.
7310.00 to 7320.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty with siltstone matrix in part, kaolinitic, argillaceous, tight to minor poor porosity stringers, no shows. **SILTSTONE: 15%**, as above. **CONGLOMERATE: 10%**, as above.
7320.00 to 7330.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, with Conglomerate stringers, as above. **SILTSTONE: 10%**, as above.
7330.00 to 7340.00ft **Interval: 10.00ft**	**SANDSTONE: 85%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, kaolinitic in part, argillaceous, micaceous, tight.

	SILTSTONE: 15%, medium brick red to orange, very sandy, very argillaceous, micaceous, dolomitic in part; with minor Shale stringers, dark red orange, very silty, micaceous.
7340.00 to 7360.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, as above.
	SILTSTONE: 10%, as above; with minor Shale stringers, as above.
7360.00 to 7370.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, as above, with minor Conglomerate stringers.
	SILTSTONE: 25%, dark red orange, argillaceous, very sandy, micaceous, dolomitic in part.
7370.00 to 7380.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, kaolinitic, argillaceous, tight.
	SILTSTONE: 20%, as above.
7380.00 to 7390.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part.
	SILTSTONE: 10%, as above.
7390.00 to 7400.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above.
	SILTSTONE: 10%, as above.
7400.00 to 7410.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, Conglomerate, as above, very silty with siltstone matrix, tight.
	SILTSTONE: 30%, as above.
	SHALE: 10%, medium red orange, very silty, micaceous, sandy in part, dolomitic in part.
7410.00 to 7420.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, Conglomerate, as above.
	SILTSTONE: 20%, as above.
	SHALE: 10%, as above, very micaceous.
7420.00 to 7430.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, silty with siltstone matrix, argillaceous, kaolinitic, tight.
	SILTSTONE: 20%, medium red orange, very sandy, argillaceous, micaceous, dolomitic in part.
	SHALE: 10%, as above.
	CONGLOMERATE: 10%, as above.
7430.00 to 7450.00ft **Interval: 20.00ft**	**SANDSTONE: 85%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, kaolinitic, tight.
	SILTSTONE: 10%, as above.
	SHALE: 5%, as above.

7450.00 to 7460.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix, micaceous, kaolinitic, argillaceous, tight. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
7460.00 to 7470.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, silty, argillaceous, micaceous, kaolinitic, tight to minor poor porosity stringers, no shows.
7470.00 to 7480.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, with minor pebbles in part, tight. **SILTSTONE: 5%**, as above. **SHALE: 5%**, medium red brown, fissile, silty, dolomitic in part.
7480.00 to 7500.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, as above, with minor pebbles in part, tight. **SHALE: 15%**, dark to medium red brown to red orange, fissile, silty, micaceous, sandy in part, dolomitic in part. **SILTSTONE: 5%**, stringers, as above.
7500.00 to 7510.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink to red orange in part, fine to coarse to minor very coarse grained and minor pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, very kaolinitic, silty, argillaceous, micaceous, tight.
7510.00 to 7520.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix, kaolinitic, argillaceous, micaceous, tight. **SILTSTONE: 10%**, red orange, very sandy, argillaceous, micaceous, dolomitic in part. **SHALE: 10%**, dark to medium red orange to red brown, fissile, silty, micaceous, sandy in part.
7520.00 to 7540.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, Conglomerate, as above. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
7540.00 to 7550.00ft **Interval: 10.00ft**	**SANDSTONE: 85%**, light gray to red orange, fine to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, silty with siltstone matrix in part, argillaceous, kaolinitic, micaceous in part, tight. **SILTSTONE: 15%**, as above; with minor Shale stringers, as above.
7550.00 to 7560.00ft **Interval: 10.00ft**	**SANDSTONE: 95%**, Conglomerate, as above, siltstone matrix, tight. **SILTSTONE: 5%**, stringers, as above.
7560.00 to 7570.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above. **SILTSTONE: 20%**, as above.

7570.00 to 7580.00ft **Interval: 10.00ft**	**SILTSTONE: 50%**, dark to medium red orange, very sandy, very argillaceous, micaceous, dolomitic. **SHALE: 20%**, dark red orange, silty, micaceous, sandy in part, dolomitic. **SANDSTONE: 30%**, Conglomerate, as above,tight.
7580.00 to 7590.00ft **Interval: 10.00ft**	**SILTSTONE: 50%**, as above. **SHALE: 30%**, as above. **SANDSTONE: 20%**, Conglomerate, as above.
7590.00 to 7610.00ft **Interval: 20.00ft**	**SANDSTONE: 70%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous with shale matrix in part, micaceous, dolomitic in part, kaolinitic, tight. **SILTSTONE: 20%**, as above. **SHALE: 10%**, as above.
7610.00 to 7640.00ft **Interval: 30.00ft**	**SANDSTONE: 70%**, light gray to red orange, fine to coarse to minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, argillaceous with shale matrix in part, micaceous, kaolinitic, dolomitic in part, tight. **SILTSTONE: 20%**, as above. **SHALE: 10%**, as above.
7640.00 to 7650.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above, Conglomerate in part, tight. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
7650.00 to 7670.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, light gray to pink, fine to medium grained with minor coarse and minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty, argillaceous, kaolinitic, tight to minor poor porosity stringers, no shows. **SILTSTONE: 5%**, as above. **SHALE: 5%**, as above.
7670.00 to 7700.00ft **Interval: 30.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, kaolinitic, micaceous, tight to minor poor porosity stringers, no shows; with minor Siltstone stringers, as above; and with minor Shale stringers, as above.
7700.00 to 7710.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to pink to red orange in part, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, kaolinitic, micaceous, tight to minor poor porosity stringers, no shows.
7710.00 to 7720.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, as above, tight.

	SHALE: 10%, dark red orange, fissile, very micaceous, silty.
7720.00 to 7740.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, argillaceous, silty, kaolinitic in part, micaceous in part, tight; with minor Shale stringers, as above.
7740.00 to 7750.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part.
	SHALE: 10%, as above.
7750.00 to 7760.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, argillaceous, kaolinitic, silty, tight.
7760.00 to 7770.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above.
	SILTSTONE: 10%, dark to medium red orange, sandy, argillaceous, micaceous, dolomitic in part.
	SHALE: 10%, dark to medium red orange, fissile, micaceous, silty.
7770.00 to 7780.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, argillaceous, silty in part, kaolinitic, micaceous in part, tight to minor poor porosity stringers, no shows.
7780.00 to 7790.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part.
	SILTSTONE: 10%, as above; with minor Shale stringers, as above.
7790.00 to 7810.00ft **Interval: 20.00ft**	**SANDSTONE: 75%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, silty with siltstone matrix in part, argillaceous, micaceous, kaolinitic, tight.
	SILTSTONE: 25%, dark to medium red orange, sandy, argillaceous, micaceous, dolomitic in part; with minor Shale stringers, dark red orange, silty, micaceous.
7810.00 to 7820.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above.
	SILTSTONE: 20%, as above; with minor Shale stringers, as above.
7820.00 to 7830.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, as above.
	SILTSTONE: 10%, stringers, as above.
7830.00 to 7850.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to coarse to minor very coarse grained and minor pebbles, subangular to subrounded, medium to poor sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, micaceous in part, tight to minor poor porosity stringers, no shows.
7850.00 to 7870.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, as above, medium to very coarse grained predominant, poor sorted, siltstone matrix in part, tight.

7870.00 to 7880.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to coarse grained with minor very coarse and minor pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, kaolinitic in part, tight to minor poor porosity stringers, no shows.
7880.00 to 7900.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, as above, medium to very coarse grained predominant, minor pebbles, siltstone matrix in part, tight. **SILTSTONE: 10%**, medium red orange, very sandy, micaceous, argillaceous, dolomitic in part.
7900.00 to 7920.00ft **Interval: 20.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part. **SILTSTONE: 10%**, as above.
7920.00 to 7930.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate in part, as above. **SILTSTONE: 20%**, as above.
7930.00 to 7970.00ft **Interval: 40.00ft**	**SANDSTONE: 90%**, light gray to pink to red orange in part, fine to very coarse grained with pebbles in part, subangular to subrounded, poor sorted, quartz and feldspar grains, friable in part, silty with siltstone matrix in part, argillaceous, micaceous, kaolinitic, tight. **SILTSTONE: 10%**, as above.
7970.00 to 7980.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, friable, tight to minor poor porosity stringers, no shows.
7980.00 to 8020.00ft **Interval: 40.00ft**	**SANDSTONE: 100%**, Conglomerate in part, as above.
8020.00 to 8050.00ft **Interval: 30.00ft**	**SANDSTONE: 80%**, Conglomerate, pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, micaceous, kaolinitic, tight to minor poor porosity stringers, no shows. **SILTSTONE: 10%**, red orange, very sandy, argillaceous, micaceous, dolomitic in part. **SHALE: 10%**, dark red orange, fissile, silty, micaceous, dolomitic in part.
8050.00 to 8060.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, silty in part, argillaceous in part, kaolinitic, micaceous in part, tight to minor poor porosity stringers, no shows; with minor Siltstone stringers, as above.
8060.00 to 8070.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, Conglomerate in part; with minor Siltstone stringers, as above.
8070.00 to 8110.00ft **Interval: 40.00ft**	**SANDSTONE: 100%**, as above with fine to medium grained sandstone predominant, minor pebbles.
8110.00 to 8120.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, light gray to pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, friable, kaolinitic, silty with siltstone matrix in part, argillaceous, micaceous in part, tight.

	SILTSTONE: 10%, medium red orange, very sandy, argillaceous, micaceous, dolomitic in part; with minor Shale stringers, dark to medium red orange, very silty, micaceous.
8120.00 to 8130.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, with sandstone predominant, as above.
	SILTSTONE: 10%, as above.
	SHALE: 10%, as above.
8130.00 to 8140.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, as above.
	SILTSTONE: 10%, as above.
8140.00 to 8170.00ft **Interval: 30.00ft**	**SANDSTONE: 80%**, light pink to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, silty, micaceous, kaolinitic in part, tight.
	SILTSTONE: 10%, as above.
	SHALE: 10%, as above.
8170.00 to 8180.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, pink to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty with siltstone matrix in part, calcareous in part, argillaceous, micaceous in part, dolomitic in part, tight.
	SHALE: 10%, medium red orange, silty, micaceous, calcareous in part, dolomitic in part.
	SILTSTONE: 10%, medium red orange, sandy, micaceous, argillaceous, calcareous in part, dolomitic in part.
8180.00 to 8190.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part.
	SILTSTONE: 10%, as above; with minor Shale stringers, as above.
8190.00 to 8200.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, not conglomerate.
	SILTSTONE: 10%, as above; with minor Shale stringers, as above.
8200.00 to 8210.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above.
	SHALE: 10%, dark to medium red orange, fissile, micaceous, silty, slightly calcareous.
	SILTSTONE: 10%, as above.
8210.00 to 8220.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above, friable with shale matrix, tight to minor very poor porosity stringers, no shows.
	SHALE: 10%, as above.
	SILTSTONE: 10%, as above.
8220.00 to 8230.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, pink to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty, very argillaceous, kaolinitic, micaceous in part, tight.
	SILTSTONE: 10%, as above; with minor Shale stringers, as above.

8230.00 to 8240.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, as above, Conglomerate in part. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
8240.00 to 8250.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, red orange, fine to very coarse grained to minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous with shale matrix in part, silty, calcareous in part, dolomitic in part, micaceous in part, kaolinitic, tight. **SHALE: 10%**, as above. **SILTSTONE: 10%**, as above.
8250.00 to 8270.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, as above, Conglomerate in part. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
8270.00 to 8280.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above, siltstone matrix, tight. **SHALE: 10%**, as above. **SILTSTONE: 10%**, as above.
8280.00 to 8290.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, Conglomerate, as above. **SHALE: 15%**, as above. **SILTSTONE: 10%**, as above.
8290.00 to 8300.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, as above. **SHALE: 10%**, as above. **SILTSTONE: 10%**, as above.
8300.00 to 8310.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous to very argillaceous, kaolinitic, micaceous in part, tight. **SILTSTONE: 10%**, red orange, very argillaceous, sandy, micaceous, calcareous in part, dolomitic in part. **SHALE: 10%**, dark to medium red orange, very silty, micaceous, sandy in part, calcareous in part, dolomitic in part.
8310.00 to 8320.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, fine to coarse grained, minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, friable, argillaceous in part, silty in part, micaceous, kaolinitic, tight to minor poor porosity stringers, no shows; with minor Siltstone and minor Shale stringers, as above.
8320.00 to 8330.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above, Conglomerate in part. **SHALE: 20%**, medium to light red orange, silty, micaceous, calcareous. **SILTSTONE: 10%**, medium red orange, sandy, argillaceous, micaceous, calcareous in part, dolomitic in part.

8330.00 to 8350.00ft **Interval: 20.00ft**	**SANDSTONE: 80%**, as above. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
8350.00 to 8360.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, as above. **SHALE: 15%**, as above. **SILTSTONE: 10%**, as above.
8360.00 to 8370.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above. **SHALE: 20%**, as above. **SILTSTONE: 10%**, as above.
8370.00 to 8380.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light pink to red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, kaolinitic in part, micaceous in part, tight. **SILTSTONE: 10%**, as above; with minor Shale stringers, as above.
8380.00 to 8390.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, as above. **SILTSTONE: 40%**, medium to light red orange, friable, sandy, kaolinitic, argillaceous, micaceous, calcareous.
8390.00 to 8400.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate in part, light gray to red orange, fine to very coarse grained with pebbles in part, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, calcareous in part, dolomitic in part, siliceous in part, tight. **SILTSTONE: 10%**, as above. **SHALE: 10%**, dark to medium red orange, fissile, micaceous, silty, dolomitic in part.
8400.00 to 8410.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above, very silty with siltstone matrix, tight. **SILTSTONE: 20%**, as above. **SHALE: 10%**, as above.
8410.00 to 8420.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
8420.00 to 8430.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, light gray to pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, kaolinitic in part, siliceous in part, calcareous in part, tight.
8430.00 to 8440.00ft **Interval: 10.00ft**	**CONGLOMERATE: 80%**, as above.

SHALE: 15%, medium to light red orange, fissile, silty, micaceous, calcareous in part.

SILTSTONE: 5%, as above.

8440.00 to 8450.00ft
Interval: 10.00ft

SANDSTONE: 80%, light gray to pink to red orange, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, quartz and feldspar grains, argillaceous, silty with siltstone matrix in part, micaceous, kaolinitic in part, tight.

SHALE: 10%, as above.

SILTSTONE: 10%, as above.

8450.00 to 8470.00ft
Interval: 20.00ft

SANDSTONE: 80%, as above, Conglomerate in part, siliceous in part, calcareous in part, dolomitic in part, tight.

SILTSTONE: 10%, as above.

SHALE: 10%, as above.

8470.00 to 8480.00ft
Interval: 10.00ft

SANDSTONE: 80%, Conglomerate in part, as above.

SHALE: 10%, as above.

SILTSTONE: 10%, as above.

8480.00 to 8490.00ft
Interval: 10.00ft

SANDSTONE: 70%, red orange, fine to very coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, very argillaceous with shale matrix, silty to very silty, kaolinitic, micaceous in part, calcareous in part, tight.

SHALE: 20%, medium red orange to red brown, fissile, silty, calcareous.

SILTSTONE: 10%, red orange, sandy, argillaceous, micaceous, calcareous in part, dolomitic in part.

8490.00 to 8500.00ft
Interval: 10.00ft

SANDSTONE: 80%, as above, Conglomerate in part.

SHALE: 20%, as above.

8500.00 to 8510.00ft
Interval: 10.00ft

SANDSTONE: 70%, red orange, fine to medium grained with coarse grained in part, subangular to subrounded, medium sorted, quartz and feldspar grains, very silty with siltstone matrix in part, very argillaceous with shale matrix in part, calcareous in part, dolomitic in part, tight.

SHALE: 15%, as above.

SILTSTONE: 15%, as above.

8510.00 to 8520.00ft
Interval: 10.00ft

SHALE: 50%, medium red orange, fissile, silty, micaceous, calcareous in part, dolomitic in part.

SANDSTONE: 40%, as above but fine to very coarse grained with minor pebbles, poor sorted, tight.

SILTSTONE: 10%, as above.

8520.00 to 8530.00ft
Interval: 10.00ft

SANDSTONE: 60%, as above, very kaolinitic, tight.

SHALE: 40%, as above; with minor Siltstone stringers, as above.

8530.00 to 8540.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, light gray to pink, fine to coarse grained with minor very coarse grained and minor pebbles, subangular to subrounded, quartz and feldspar grains, friable in part, very kaolinitic, silty, argillaceous, micaceous in part, tight. **SHALE: 10%**, as above; with minor Siltstone stringers, as above.
8540.00 to 8550.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, light gray to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, silty, kaolinitic, micaceous, tight. **SILTSTONE: 10%**, dark to medium red orange, sandy, argillaceous, micaceous, calcareous, dolomitic in part. **SHALE: 10%**, as above.
8550.00 to 8560.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, light pink to red orange, fine to coarse to minor very coarse grained, subangular to subrounded, poor to medium sorted, quartz and feldspar grains, argillaceous, silty, kaolinitic, micaceous in part, tight. **SHALE: 20%**, dark to light red orange, fissile, silty, calcareous, micaceous, kaolinitic. **SILTSTONE: 20%**, as above.
8560.00 to 8570.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above, very coarse grained in part, poor sorted, siltstone matrix, calcareous in part, tight. **SILTSTONE: 20%**, dark red orange, sandy, micaceous, argillaceous, dolomitic, calcareous in part. **SHALE: 10%**, as above.
8570.00 to 8580.00ft **Interval: 10.00ft**	**SANDSTONE: 50%**, as above, with minor pebbles, tight. **SILTSTONE: 30%**, as above, very sandy. **SHALE: 20%**, as above.
8580.00 to 8590.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous to very argillaceous, micaceous in part, kaolinitic, calcareous in part, dolomitic in part, tight. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
8590.00 to 8600.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, red orange, very fine to coarse grained with minor very coarse and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, kaolinitic, micaceous, siliceous in part, dolomitic in part, tight. **SILTSTONE: 20%**, red orange, very sandy, argillaceous, micaceous, dolomitic in part. **SHALE: 10%**, dark to medium red orange, fissile, micaceous, silty, dolomitic in part, calcareous in part.
8600.00 to 8610.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, as above, Conglomerate in part.

SILTSTONE: 10%, as above.

SHALE: 10%, as above.

8610.00 to 8620.00ft
Interval: 10.00ft

SANDSTONE: 90%, Conglomerate in part, as above.

SILTSTONE: 5%, as above.

SHALE: 5%, as above.

8620.00 to 8630.00ft
Interval: 10.00ft

SANDSTONE: 80%, Conglomerate, light pink to red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous,micaceous, kaolinitic, tight.

SHALE: 10%, as above.

SILTSTONE: 10%, as above.

8630.00 to 8640.00ft
Interval: 10.00ft

SHALE: 40%, medium red orange, fissile, micaceous, silty to very silty in part, kaolinitic in part, dolomitic in part, calcareous in part.

SILTSTONE: 20%, dark to medium red orange, micaceous, argillaceous, sandy, calcareous, dolomitic in part.

SANDSTONE: 40%, light red orange, very fine to coarse to minor very coarse grained and minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, micaceous, kaolinitic, calcareous, siliceous in part, tight.

8640.00 to 8650.00ft
Interval: 10.00ft

SHALE: 40%, as above.

SILTSTONE: 30%, as above.

SANDSTONE: 30%, as above.

8650.00 to 8660.00ft
Interval: 10.00ft

SANDSTONE: 70%, red orange, fine to medium to coarse grained, minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, very argillaceous, very silty with siltstone matrix, micaceous, kaolinitic, tight.

SHALE: 20%, as above.

SILTSTONE: 10%, as above.

8660.00 to 8670.00ft
Interval: 10.00ft

SHALE: 40%, dark to medium red orange, fissile, silty, micaceous, kaolinitic, calcareous in part.

SILTSTONE: 40%, dark red orange, argillaceous, sandy, micaceous, calcareous.

SANDSTONE: 20%, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty, very argillaceous, micaceous, kaolinitic, tight.

8670.00 to 8680.00ft
Interval: 10.00ft

SHALE: 50%, as above.

SANDSTONE: 30%, red orange, fine to coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty, very argillaceous, kaolinitic, micaceous in part, tight.

SILTSTONE: 20%, as above.

8680.00 to 8700.00ft **Interval: 20.00ft**	**SANDSTONE: 40%**, as above, with very coarse grained in part and minor pebbles, tight. **SHALE: 30%**, as above. **SILTSTONE: 30%**, as above.
8700.00 to 8710.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, red orange, fine to medium to coarse grained with minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, very silty, very argillaceous, calcareous in part, micaceous, kaolinitic, tight. **SHALE: 15%**, as above. **SILTSTONE: 10%**, as above.
8710.00 to 8720.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray to pink, fine to very coarse grained, subangular to subrounded, poor sorted, quartz and feldspar grains, very kaolinitic, friable, silty, argillaceous, micaceous, tight to trace poor porosity stringers, no shows; with minor Siltstone and minor Shale stringers, as above.
8720.00 to 8730.00ft **Interval: 10.00ft**	**SANDSTONE: 75%**, as above, with minor pebbles, very silty, very argillaceous, calcareous in part, tight. **SHALE: 15%**, as above. **SILTSTONE: 10%**, as above.
8730.00 to 8740.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, silty, argillaceous, kaolinitic, micaceous in part, siliceous, slightly dolomitic, tight; with minor Siltstone stringers, as above.
8740.00 to 8750.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, light red orange, fine to medium grained with minor coarse grained, subangular to subrounded, medium sorted, friable, quartz and feldspar grains, argillaceous, silty, kaolinitic, tight. **CONGLOMERATE: 10%**, as above. **SILTSTONE: 10%**, as above. **SHALE: 10%**, as above.
8750.00 to 8770.00ft **Interval: 20.00ft**	**SANDSTONE: 70%**, light red orange, fine to very coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, kaolinitic to very kaolinitic, friable in part, micaceous in part, tight. **SILTSTONE: 20%**, dark red orange, sandy, argillaceous, micaceous, calcareous, dolomitic in part. **SHALE: 10%**, medium red orange, fissile, silty, micaceous, calcareous in part.
8770.00 to 8780.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, Conglomerate, light red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, argillaceous, silty, kaolinitic in part, micaceous in part, tight. **SHALE: 10%**, as above; and minor Siltstone stringers, as above.

8780.00 to 8790.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, light red orange, fine to medium grained with minor very fine and minor very coarse grained, subangular to subrounded, medium sorted, quartz and feldspar grains, very argillaceous with shale matrix in part, silty, kaolinitic in part, micaceous in part, tight. **SHALE: 30%**, as above. **SILTSTONE: 10%**, as above.
8790.00 to 8800.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, as above, with minor pebbles, poor sorted, siltstone matrix, tight. **SHALE: 20%**, as above. **SILTSTONE: 10%**, as above.
8800.00 to 8810.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, as above. **SHALE: 30%**, as above. **SILTSTONE: 10%**, as above.
8810.00 to 8820.00ft **Interval: 10.00ft**	**SHALE: 50%**, dark red orange, fissile, kaolinitic, silty, micaceous, calcareous in part. **SANDSTONE: 30%**, as above. **SILTSTONE: 20%**, as above.
8820.00 to 8830.00ft **Interval: 10.00ft**	**SANDSTONE: 80%**, light gray to red orange, fine to coarse grained with minor pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, kaolinitic, argillaceous, silty, micaceous, siliceous in part, calcareous in part, tight. **SHALE: 20%**, dark red orange, fissile, silty, micaceous, dolomitic in part.
8830.00 to 8840.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, as above, very silty with siltstone matrix, tight. **SHALE: 20%**, as above. **SILTSTONE: 20%**, dark to medium red orange, argillaceous, micaceous, sandy, calcareous in part, dolomitic in part.
8840.00 to 8860.00ft **Interval: 20.00ft**	**SILTSTONE: 50%**, as above. **SANDSTONE: 30%**, as above. **SHALE: 20%**, as above.
8860.00 to 8870.00ft **Interval: 10.00ft**	**SANDSTONE: 70%**, Conglomerate, red orange, fine to very coarse grained to pebbles, subangular to subrounded, poor sorted, quartz and feldspar grains, very silty with siltstone matrix, argillaceous, kaolinitic in part, micaceous in part, tight. **SILTSTONE: 20%**, as above. **SHALE: 10%**, as above.
8870.00 to 8882.00ft **Interval: 12.00ft**	**SILTSTONE: 50%**, as above. **SHALE: 30%**, as above.

	SANDSTONE: 20%, Conglomerate, as above.
8882.00 to 8890.00ft **Interval: 8.00ft**	**SANDSTONE: 80%**, light gray,red,fine grain to coarse grain,very poorly sorted, con, argillaceous and siltstone matrix material, biotite mica,quartz and flds grains and pebbles,arkosic,tight.
	SILTSTONE: 20%, red,subangular to subrounded,sandy,argillaceous matrix, common biotite mica flakes,arkosic.
8890.00 to 8900.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, translucent,red,fine grained to coarse grained,subround to subangular,very poor sorted,consolidated,siltstone matrix,argillaceous,arkosic,biotite,micaceous,conglomerate,kaolinitic,silt stone stringers,tight.
8900.00 to 8910.00ft **Interval: 10.00ft**	**SILTSTONE: 10%**, red,orange,shaly,abundant biotite flakes,shale stringers.
	SANDSTONE: 90%, translucent, fine grained to coarse grained, subangular, very poor sorted, consolidated, siltstone and argillaceous matrix, common biotite, kaolinitic, weathered, tight.
8910.00 to 8920.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, red, orange,very sandy, clayey,argillaceous, kaolinitic,blocky.
	SANDSTONE: 70%, red, translucent, as above.
8920.00 to 8940.00ft **Interval: 20.00ft**	**SILTSTONE: 15%**, red, orange, very sandy to sandy, kaolin, feldspar, argillaceous, micaceous.
	SANDSTONE: 85%, translucent, red, fine to coarse grained, subangular, consolidated, argillaceous matrix, silty to very silty, common biotite flakes, kaolinitic, tight.
8940.00 to 8950.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red, med texture, finely laminated, silty to very silty, micaceous, subfissile.
	SANDSTONE: 90%, red-brn, translucent, silt to coarse grain, conglomerate, very poor sorted, consolidated, argillaceous and siltstone matrix,common biotite, micaceous, feldspar, kaolinitic, tight to very poor porosity.
8950.00 to 8960.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, red, shaly, sandy, firm,slightly calcareous, argillaceous, micaceous.
	SANDSTONE: 40%, red, translucent, silt to coarse grained, consolidated, argillaceous siltstone matrix, micaceous, feldspar, kaolin, tight.
8960.00 to 8970.00ft **Interval: 10.00ft**	**SILTSTONE: 70%**, red, orange, trace gray to green, argillaceous stringers, sandy, feldspar, slightly calcareous, micaceous.
	SANDSTONE: 30%, red, tnsl, silt to coarse grained, consolidated, argillaceous,siltstone matrix, feldspar, micaceous, kaolinitic, tight.
8970.00 to 8980.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red, firm, soft, silty, micaceous, subfissile.
	SILTSTONE: 70%, red, orange, argillaceous, shaly, micaceous, arkosic, kaolinitic, blocky.
	SANDSTONE: 20%, red, translucent, fine to coarse grained, subangular to subround, consolidated, argillaceous matrix, silty, quartz and feldspar grains, micaceous, tight.

8980.00 to 8990.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, red, orange, shale laminations, sandy in part, arkosic, slightly calcareous, kaolinitic. **SANDSTONE: 10%**, as above.
8990.00 to 9000.00ft **Interval: 10.00ft**	**SILTSTONE: 80%**, red to orange, as above. **SANDSTONE: 20%**, light gray, red, fine grained to medium grained, subangular, consolidated, argillaceous siltstone matrix, abundant feldspar grains and pebbles, micaceous, tight.
9000.00 to 9020.00ft **Interval: 20.00ft**	**SILTSTONE: 30%**, red, orange, firm, argillaceous, occasional shale laminae, sandy in part, micaceous. **SANDSTONE: 70%**, light gray, red, translucent, fine to coarse grained, subround to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix, abundant feldspar, micaceous, biotite, tight.
9020.00 to 9030.00ft **Interval: 10.00ft**	**SILTSTONE: 50%**, red, argillaceous, sandy in part, micaceous, biotite. blocky. **SANDSTONE: 50%**, translucent, red, as above.
9030.00 to 9040.00ft **Interval: 10.00ft**	**SILTSTONE: 10%**, as above. **SANDSTONE: 90%**, light gray, red, orange, fine to coarse grained, subangular, consolidated, argillaceous siltstone matrix, micaceous, kaolinitic, weakly calcareous, tight.
9040.00 to 9050.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, light red, fine to coarse grain, subangular to subround, very poorly sorted, consolidated, conglomerate, minor argillaceous matrix, silty in part, abundant feldspar grains, micaceous, biotite, kaolinitic, tight.
9050.00 to 9060.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above; occasional siltstone stringers.
9060.00 to 9070.00ft **Interval: 10.00ft**	**SILTSTONE: 25%**, red, dark red, very argillaceous, micaceous, minor sand, grades to silty shale. **SANDSTONE: 75%**, light gray, light orange to red, subangular, fine to coarse grain, very poorly sorted, consolidated, argillaceous siltstone matrix,abundant feldspar, micaceous, tight.
9070.00 to 9090.00ft **Interval: 20.00ft**	**SILTSTONE: 15%**, red, argillaceous,micaceous, grades to silty shale. **SANDSTONE: 85%**, light gray, light orange to red, fine to coarse grained, subangular, consolidated, occasional argillaceous matrix, silty in part, conglomerate, micaceous, tight to very poor porosity, no shows.
9090.00 to 9100.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red, silty, micaceous, firm, calcareous, occasional sand grains, subfissile. **SILTSTONE: 40%**, red, orange, silt to sandy, micaceous, argillaceous, calcareous in part, blocky. **SANDSTONE: 50%**, red, light gray, fine grain to coarse grained, consolidated, argillaceous siltstone matrix, conglomerate in part, kaolinitic, tight.
9100.00 to 9110.00ft **Interval: 10.00ft**	**SHALE: 10%**, red, dark red, firm, micaceous, silty in part, partly dense and calcareous, very finely laminated.

SILTSTONE: 50%, red, orange, argillaceous, micaceous, kaolinitic, partly calcareous, sandy.

SANDSTONE: 40%, light gray, red, translucent, fine to coarse grained, subangular, consolidated, argillaceous matrix, silty in part, abundant feldspar grains, weak calcareous, tight.

9110.00 to 9130.00ft
Interval: 20.00ft

SHALE: 40%, dark red, firm, micaceous, silty to very silty, calcareous in part(marl), grades to siltstone.

SILTSTONE: 50%, red, orange, sandy, argillaceous, shale stringers, biotite flakes, blocky.

SANDSTONE: 10%, as above.

9130.00 to 9140.00ft
Interval: 10.00ft

SILTSTONE: 60%, red, firm, very argillaceous, interbedded shale laminations, weak calcareous, minor sand, micaceous, blocky.

SANDSTONE: 40%, red, translucent, fine to coarse grain, subround to subangular, poorly sorted, consolidated, argillaceous siltstone matrix, conglomeratic, micaceous, biotite, common feldspar grains, tight.

9140.00 to 9150.00ft
Interval: 10.00ft

SILTSTONE: 90%, orange, red, firm, argillaceous, shale laminations, biotite flakes, trace kaolinitic, slightly sandy.

SANDSTONE: 10%, red, silt to coarse grain, subangular, poor sorted, consolidated, argillaceous matrix,tight.

9150.00 to 9160.00ft
Interval: 10.00ft

SILTSTONE: 40%, light red,pink,sandy, argillaceous,kaolinitic,weakly calcareous, micaceous,firm.

SANDSTONE: 60%, light red,translucent, fine to medium grained, subangular to subround, poor sorted, consolidated, siltstone matrix, argillaceous, common feldspar grains, kaolinitic, weathered, minor biotite flakes, tight.

9160.00 to 9170.00ft
Interval: 10.00ft

SILTSTONE: 30%, light red, as above.

SANDSTONE: 70%, light gray, red, fine to coarse grained, very poor sorted, consolidated, argillaceous and siltstone matrix, arkosic, abundant feldspar, micaceous, interbedded siltstone, tight.

9170.00 to 9180.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray, partly light red, coarse grained to fine grained, subangular, very poor sorted, consolidated, siltstone matrix, argillaceous in part, common shaly siltstone stringers, abundant feldspar, kaolinitic, arkosic, weathered, tight.

9180.00 to 9190.00ft
Interval: 10.00ft

SHALE: 30%, red, dark red, medium texture, very silty to sandy, common biotite flakes, firm, subfissile.

SILTSTONE: 20%, pink, orange, argillaceous to sandy, micaceous, trace dark red-brown.

SANDSTONE: 50%, red, light gray, conglomerate, subangular to subround, very poor sorted, consolidated, siltstone and argillaceous matrix, common feldspar, trace micaceous, arkosic, tight.

9190.00 to 9200.00ft
Interval: 10.00ft

SHALE: 10%, dark red, medium texture, silty to trace sandy, subfissile.

SILTSTONE: 20%, red, argillaceous to sandy, micaceous, biotite, blocky.

	SANDSTONE: 70%, red, light gray, coarse to fine grained, subangular, consolidated, argillaceous and silt matrix, arkosic, abundant feldspar grains, biotite flakes, tight.
9200.00 to 9210.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, translucent, partly red, fine grained to coarse grained, subangular to subround, consolidated, silt matrix, argillaceous in part, arkosic, kaolinitic, weathered, interbedded siltstone.
9210.00 to 9220.00ft **Interval: 10.00ft**	**SILTSTONE: 25%**, red, orange, partly sandy, shale laminae, micaceous, as stringers.
	SANDSTONE: 75%, arkose, as above. Weathered.
9220.00 to 9230.00ft **Interval: 10.00ft**	**SHALE: 10%**, red, medium texture, silty to very silty, micaceous, soft, occasional sand grains, subfissile.
	SILTSTONE: 30%, red, as above.
	SANDSTONE: 60%, light gray, red, fine to coarse grained, subangular, poorly sorted, consolidated, abundant silt and argillaceous matrix, micaceous (biotite), interbedded siltstone, calcareous in part, trace kaolin, feldspar, tight.
9236.00ft	**N/A**
9230.00 to 9240.00ft **Interval: 10.00ft**	**SHALE: 15%**, dark red, medium texture, very micaceous, silty to very silty, clayey, subfissile.
	SILTSTONE: 25%, as above.
	SANDSTONE: 60%, light gray, partly red, as above.
9240.00 to 9250.00ft **Interval: 10.00ft**	**SHALE: 15%**, red, dark red, medium texture, silty, very micaceous,fissile.
	SILTSTONE: 30%, red, orange, argillaceous to sandy, micaceous, firm.
	SANDSTONE: 55%, light gray, red, orange, fine to medium grained, subround, poorly sorted, consolidated, argillaceous siltstone matrix, trace biotite flakes, tight.
9250.00 to 9260.00ft **Interval: 10.00ft**	**SHALE: 30%**, orange, red, firm, micaceous, biotite, silty, partly very silty, grades to siltstone.
	SILTSTONE: 60%, red, orange, argillaceous, shale laminae, sandy in part, occasional mica flakes, sandstone stringers, blocky.
	SANDSTONE: 10%, light gray, red, as stringers in siltstone.
9260.00 to 9270.00ft **Interval: 10.00ft**	**SHALE: 15%**, red-brown, silty, micaceous, subfissile.
	SILTSTONE: 65%, red, orange, argillaceous, shale laminae, sandy inclusions, micaceous, blocky.
	SANDSTONE: 20%, light gray, arkosic, consolidated, argillaceous and silty, trace calcareous, tight.
9270.00 to 9280.00ft **Interval: 10.00ft**	**SHALE: 50%**, red, orange, medium texture, micaceous, silty, clayey, subfissile.
	SILTSTONE: 50%, red, orange, silt to fine grained, very argillaceous in part, micaceous, arkosic sandstone stringers, blocky.

9280.00 to 9300.00ft **Interval: 20.00ft**	**SHALE: 15%**, red,orange, medium texture, micaceous, silty,grading to siltstone. **SILTSTONE: 85%**, orange, argillaceous, shale laminations, sandy ,occasional sandstone stringers,slightly micaceous, biotite flakes, blocky.
9300.00 to 9310.00ft **Interval: 10.00ft**	**SHALE: 20%**, as above. **SILTSTONE: 80%**, red, orange, shaly, argillaceous, sandy in part, micaceous, scattered fine to medium grained sandstone clasts, blocky.
9310.00 to 9320.00ft **Interval: 10.00ft**	**SHALE: 30%**, partly as above, partly dark red- brown, micaceous, soft, clayey, silty, subfissile. **SILTSTONE: 70%**, red, orange, as above.
9320.00 to 9330.00ft **Interval: 10.00ft**	**SHALE: 15%**, red to dark red, as above. **SILTSTONE: 70%**, red, orange, argillaceous to sandy, occasional sandstone stringers, micaceous, blocky. **SANDSTONE: 15%**, red, arkosic, fine to medium grained, subangular, consolidated, silt and argillaceous matrix, as stringers in siltstone.
9330.00 to 9340.00ft **Interval: 10.00ft**	**SILTSTONE: 75%**, orange,red,trace gray,argillaceous to sandy,micaceous,biotite,minor shale laminations, blocky. **SANDSTONE: 25%**, light gray,arkose,fine to coarse grained,subround to subangular,very poor sorted, consolidated, argillaceous siltstone matrix, micaceous,common feldspar grains,kaolinitic,calcareous, biotite flakes, tight to poor porosity.
9340.00 to 9350.00ft **Interval: 10.00ft**	**SILTSTONE: 15%**, red,orange, as above, trace purple. **SANDSTONE: 85%**, light gray, red, arkosic, subangular to subround, very poorly sorted, consolidated, argillaceous siltstone matrix and stringers,abundant feldspar grains, feldspar partly weathered to kaol, biotite flakes, tight.
9350.00 to 9360.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, red, orange, argillaceous to sandy, common biotite flakes,reddish brown shale stringers, sub-blocky. **SANDSTONE: 80%**, light gray,translucent, arkosic, fine to coarse grain, consolidated, argillaceous siltstone matrix, micaceous, feldspar grains, calcite, kaolinitic,tight.
9360.00 to 9380.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, translucent, light red, arkose, fine to very coarse grained, subrounded to subangular, consolidated, minor argillaceous siltstone matrix,common to abundant feldspar grains and pebbles,red siltstone stringers, micaceous, biotite, calcite, kaolinitic, tight to poor porosity.
9380.00 to 9390.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, translucent,fine grained to pebble, consolidated, siltstone stringers and matrix, arkosic, micaceous, feldspar, tight to occasional poor porosity.
9390.00 to 9400.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, orange, red,very argillaceous, moderately hard, kaolinitic, arkosic,abundant biotite flakes, blocky. **SHALE: 30%**, red, medium to rough texture, firm, micaceous, silty to very silty, subfissile.

SANDSTONE: 10%, as above.

9400.00 to 9410.00ft
Interval: 10.00ft

SHALE: 15%, orange, red, firm, micaceous, silty to partly sandy, subfissile.

SILTSTONE: 30%, red, as above.

SANDSTONE: 65%, light gray, translucent,fine to very coarse grained, occasional pebbles, subangular, very poorly sorted, consolidated, argillaceous siltstone matrix, feldspar grains and pebbles, kaolinitic, calcareous, micaceous, tight.

9410.00 to 9420.00ft
Interval: 10.00ft

SHALE: 10%, dark red, firm, micaceous, silty to very silty, subfissile.

SILTSTONE: 15%, red, as above.

SANDSTONE: 75%, light gray, translucent, arkosic, fine to very coarse grained, consolidated, shaly siltstone matrix, micaceous, common feldspar grains, kaolinitic, calcareous, biotflks, tight to poor porosity.

9420.00 to 9430.00ft
Interval: 10.00ft

SHALE: 20%, red, rare green, medium to rough texture, firm, micaceous, silty to very silty, occasional sand inclusion, subfissile.Grades to siltstone.

SILTSTONE: 50%, orange, red, argillaceous, micaceous, sandy, arkosic, blocky.

SANDSTONE: 30%, light gray, arkose, fine to very coarse grained, consolidated, argillaceous siltstone matrix, micaceous,common feldspar grains, kaolinitic, calcareous in part, tight.

9430.00 to 9440.00ft
Interval: 10.00ft

SHALE: 10%, dark red, fine to medium texture, micaceous, silty, subfissile.

SILTSTONE: 50%, orange, as above.

SANDSTONE: 40%, translucent, arkosic, fine to very coarse grained, consolidated, silty and argillaceous matrix, micaceous, tight.

9440.00 to 9450.00ft
Interval: 10.00ft

SILTSTONE: 15%, red, orange, argillaceous to partly sandy, moderately hard, red shale laminations, micaceous, biotite, subblocky.

SANDSTONE: 85%, orange, arkosic, fine to very coarsely grained, subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and inclusions, common feldspar grains, calcareous, trace kaolin, micaceous, tight to poor porosity.

9450.00 to 9460.00ft
Interval: 10.00ft

SILTSTONE: 25%, orange, argillaceous to sandy, micaceous, firm, shale stringers.

SANDSTONE: 75%, arkosic, as above.

9460.00 to 9480.00ft
Interval: 20.00ft

SILTSTONE: 80%, orange, partly red, argillaceous, very sandy, dark red shale stringers, micaceous, blocky. Grades in part to very silty sandstone.

SANDSTONE: 20%, light gray, translucent, arkosic, consolidated, argillaceous siltstone inclusion, micaceous, biotite,abundant feldspar grains, tight.

9480.00 to 9490.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray, translucent, orange, arkosic, fine to occasionally very coarse grained, subangular to subrounded,consolidated, scattered argillaceous slst stringers, micaceous,common feldspar grains, occasional kaolin material, calcareous, tight.

9490.00 to 9500.00ft **Interval: 10.00ft**	**SILTSTONE: 25%**, red, argillaceous, very sandy, scattered sandstone stringers, common biotite flakes, occasional red shale inclusion, blocky. **SANDSTONE: 75%**, translucent, orange, as above.
9500.00 to 9510.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, orange,argillaceous,sandy in part, trace red brown shale laminations, kaolinitic,biotite, micaceous, blocky. **SANDSTONE: 10%**, orange, light gray, fine to coarse grained, consolidated, argillaceous siltstone matrix and stringers,abundant feldspar grains, kaolinitic, micaceous, tight.
9510.00 to 9520.00ft **Interval: 10.00ft**	**SILTSTONE: 85%**, orange as above. **SANDSTONE: 15%**, orange, light gray, fine to coarse grained, consolidated, argillaceous siltstone matrix, tight.
9520.00 to 9530.00ft **Interval: 10.00ft**	**SHALE: 10%**, red, partly dark red, firm, silty, common biotite flakes, subfissile. **SILTSTONE: 60%**, orange, argillaceous to partly sandy, micaceous, scattered biotite, blocky. **SANDSTONE: 30%**, light gray,arkosic,fine to vc grained,very poorly sorted,consolidated, argillaceous siltstone matrix and stringers, feldspar grains, kaolinitic, weakly calcite, tight.
9530.00 to 9540.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, red, arkose, fine to pebbles,subround to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and inclusions, common feldspar grains, kaolinitic, trace micaceous flakes, tight to poor porosity.
9540.00 to 9550.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, red,orange, argillaceous, friable,sandy, partly micaceous, blocky. **SANDSTONE: 70%**, light gray, red, arkose, fine to very coarse grained, consolidated, siltstone matrix and laminations, micaceous, abundant feldspar grains, kaolinitic streaks, trace brown claystone laminae, tight.
9550.00 to 9570.00ft **Interval: 20.00ft**	**SHALE: 10%**, dark red,orange, medium texture, micaceous, very silty in part, occasional sand grains, subfissile. **SILTSTONE: 65%**, orange,light red,argillaceous,very sandy,micaceous, biotite,shale laminations, sub-blocky. **SANDSTONE: 25%**, light gray, red,arkosic,fine to pebbles,subangular to subrounded,very poorly sorted,consolidated, argillaceous siltstone matrix, micaceous,abundant feldspar, very kaolinitic,tight.
9570.00 to 9590.00ft **Interval: 20.00ft**	**SILTSTONE: 70%**, orange,red,argillaceous, very kaolinitic, shale laminations, abundant sand inclusion, micaceous,weathered, trace calcareous, blocky. **SANDSTONE: 30%**, light gray, arkosic, fine to very coarse grained, consolidated, argillaceous siltstone stringers, micaceous, abundant feldspar grains, kaolinitic, tight.
9590.00 to 9600.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, light red,orange,argillaceous, shale laminations, scattered sand inclusion, blocky.

SANDSTONE: 40%, light gray, arkose, fine grained to pebbles, conglomeratic, subrounded to subangular, very poorly sorted, consolidated, argillaceous siltstone inclusion, abundant feldspar grains, kaolinitic, tight.

9600.00 to 9610.00ft
Interval: 10.00ft

SILTSTONE: 20%, light red, red, as above.

SANDSTONE: 80%, light gray, arkosic, fine grained to pebbles, conglomerate, consolidated, minor siltstone matrix, weathered, micaceous, tight.

9610.00 to 9620.00ft
Interval: 10.00ft

SILTSTONE: 10%, red, orange, as above.

SANDSTONE: 90%, light gray, orange, conglomerate, very poorly sorted, subangular, consolidated, micaceous, biotite, kaolinitic, abundant feldspar grains, weathered, tight to poor porosity.

9620.00 to 9630.00ft
Interval: 10.00ft

SILTSTONE: 30%, light red,orange, as above.

SANDSTONE: 70%, light gray,arkosic, conglomerate, subrounded to subangular, consolidated,minor siltstone matrix,kaioc, tight.

9630.00 to 9640.00ft
Interval: 10.00ft

SILTSTONE: 10%, as above.

SANDSTONE: 90%, light gray,fine to coarse grained, subangular to subrounded,very poor sorted, consolidated, argillaceous siltstone inclusion and matrix, abundant feldspar grains, kaolinitic, micaceous, tight.

9640.00 to 9650.00ft
Interval: 10.00ft

SILTSTONE: 25%, orange, argillaceous,firm,micaceous, sandy to very sandy, blocky.

SANDSTONE: 75%, light gray, arkosic, fine to coarse grained, consolidated, argillaceous siltstone inclusion, abundant feldspar grains, weathered, kaolinitic, tight.

9650.00 to 9660.00ft
Interval: 10.00ft

SILTSTONE: 30%, as above.

SANDSTONE: 70%, light gray, red, arkose, fine to pebbles, conglomeratic,subangular, very poorly sorted, consolidated, argillaceous siltstone stringers and matrix, abundant feldspar grains,biotite flakes, tight.

9660.00 to 9670.00ft
Interval: 10.00ft

SILTSTONE: 40%, as above.

SANDSTONE: 60%, light gray, arkosic, fine to coarse grain,conglomerate, consolidated, siltstone matrix, tight.

9670.00 to 9680.00ft
Interval: 10.00ft

SILTSTONE: 80%, orange, red, argillaceous, micaceous, sandy to very sandy, grades to silty sandstone in part, kaolinitic, blocky.

SANDSTONE: 20%, light gray, red, as above.

9680.00 to 9690.00ft
Interval: 10.00ft

SILTSTONE: 30%, light red, orange, argillaceous, micaceous, firm, rough texture, sandy to very sandy, biotite, blocky.

SANDSTONE: 70%, light gray, red, fine to very coarse grained, consolidated, argillaceous siltstone stringers and matrix, feldspar grains, kaolinitic, tight.

9690.00 to 9700.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, orange, argillaceous to very sandy,micaceous, as stringers in sandstone. **SANDSTONE: 80%**, orange, light gray, arkosic, fine to very coarse grained,subangular to subrounded, very poorly sorted, consolidated, argillaceous siltstone stringers, abundant feldspar grains, kaolinitic, biotite, tight.
9700.00 to 9710.00ft **Interval: 10.00ft**	**SILTSTONE: 10%**, orange, as above. **SANDSTONE: 90%**, orange, light gray,translucent, arkose.
9710.00 to 9720.00ft **Interval: 10.00ft**	**SILTSTONE: 25%**, orange,light red, partly white, argillaceous in part, common to abundant kaolin stringers,very sandy, micaceous,blocky. **SANDSTONE: 75%**, light gray, arkosic, as above.
9720.00 to 9730.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, red to orange, arkose, fine grained to very coarse grained, subrounded to subangular, very poorly sorted, consolidated, argillaceous siltstone stringers and matrix, micaceous, abundant feldspar grains, kaolinitic, tight.
9730.00 to 9740.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, light red, orange, argillaceous, micaceous, firm, shale laminations, partly sandy, blocky. **SANDSTONE: 80%**, light gray, translucent, arkose, consolidated, siltstone stringers, micaceous, biotite, kaolinitic, tight.
9740.00 to 9750.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, red, argillaceous, sandy to very sandy, micaceous, biotite flakes, grades to silty sandstone. **SANDSTONE: 80%**, light red, arkose, rare green, fine grained to very coarse grained, occasional pebbles, abang to subrounded, consolidated to friable, argillaceous siltstone matrix and stringers, abundant feldspar grains, very kaolinitic, weathered, tight to very poor porosity.
9750.00 to 9760.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, orange, red, argillaceous, occasional dark red shale laminations, sandy to very sandy, micaceous, blocky. **SANDSTONE: 70%**, red, orange, arkose, fine to very coarse grained, subangular, consolidated, abundant feldspar grains, kaolinitic, micaceous, biotite flakes, tight.
9760.00 to 9770.00ft **Interval: 10.00ft**	**SILTSTONE: 15%**, red,orange, argillaceous, shale laminations,very sandy, micaceous, kaolinitic in part, blocky. **SANDSTONE: 85%**, red, arkose, light gray in part, fine grained to pebbles, subrounded to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and stringers, micaceous, abundant feldspar grains,common white kaolin,calcareous, tight.
9770.00 to 9780.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red, red,firm, very micaceous, silty, rare sand inclusions, subfissile. **SILTSTONE: 20%**, red, as above. **SANDSTONE: 70%**, red,orange, translucent, arkosic, fine to very coarse grained, subrounded to subangular, consolidated to friable, argillaceous siltstone matrix, and stringers, micaceous, feldspar grains, kaolinitic, weathered in part, slightly calcareous, tight.
9780.00 to 9790.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, as above.

SANDSTONE: 80%, red, arkose, micaceous, common feldspar grains, argillaceous siltstone inclusion, calcareous,tight.

9790.00 to 9800.00ft
Interval: 10.00ft

SILTSTONE: 10%, as above.

SANDSTONE: 90%, red, orange, arkosic, fine to very coarse grained, occasional pebbles,subrounded to subangular,very poorly sorted, consolidated, argillaceous siltstone matrix, abundant feldspar grains, kaolinitic, micaceous, tight.

9800.00 to 9820.00ft
Interval: 20.00ft

SILTSTONE: 20%, as above. Occasional dark red shale laminations.

SANDSTONE: 80%, red, arkosic, light gray, in part, fine to very coarse grained, consolidated, argillaceous siltstone matrix, micaceous, abundant feldspar grains, kaolinitic, calcareous in part, tight.

9820.00 to 9830.00ft
Interval: 10.00ft

SILTSTONE: 80%, red, argillaceous, firm,micaceous, sandy to very sandy, grades to argillaceous sandstone in part, trace clay, blocky.

SANDSTONE: 20%, red, arkosic, as above.

9830.00 to 9840.00ft
Interval: 10.00ft

SILTSTONE: 75%, as above, trace light gray-green claystone stringers.

SANDSTONE: 25%, red, arkosic, as above.

9840.00 to 9850.00ft
Interval: 10.00ft

SILTSTONE: 15%, orange, red, argillaceous, sandy to very sandy, micaceous, kaolinitic, calcareous in part, blocky.

SANDSTONE: 85%, orange,red,occasional light gray, conglomerate, arkose, very coarse grained to fine grain, angular to rounded, consolidated, argillaceous siltstone matrix, common feldspar grains, kaolinitic, calcareous in part, tight to trace poor porosity.

9850.00 to 9870.00ft
Interval: 20.00ft

SILTSTONE: 60%, red,orange, argillaceous, very sandy in part, firm, micaceous, occasional kaolin clay, blocky.

SANDSTONE: 40%, red, arkosic, conglomerate,very coarse to fine grained, consolidated, feldspar grains,kaolinitic, trace black mafic inclusion, tight.

9870.00 to 9880.00ft
Interval: 10.00ft

SILTSTONE: 25%, red, argillaceous, very sandy, grading to sandstone.

SANDSTONE: 75%, red, arkose, trace light gray,subangular, very poorly sorted, very coarse to fine grained, consolidated, abundant to occasional argillaceous siltstone matrix, common feldspar grains,kaolinitic, micaceous, calcareous in part, tight.

9880.00 to 9890.00ft
Interval: 10.00ft

SILTSTONE: 10%, as above.

SANDSTONE: 90%, red, arkose, light gray,fine to coarse very grained, consolidated, argillaceous siltstone matrix and stringers, micaceous, feldspar grains, kaolinitic, weathered, tight.

9890.00 to 9900.00ft
Interval: 10.00ft

SANDSTONE: 100%, orange, translucent,arkosic,very fine to very coarse grained,subangular to subrounded,very poorly sorted, ons,argillaceous siltstone matrix and stringers,abundant feldspar grains,kaolinitic in part, calcareous, micaceous, tight.

9900.00 to 9910.00ft
Interval: 10.00ft

SILTSTONE: 20%, as above.

SANDSTONE: 80%, orange,arkosic, very fine to very coarse grain,subrounded, very poorly sorted,consolidated,argillaceous siltstone matrix,shale laminations, feldspar grains, kaolinitic,calcareous,tight.

9910.00 to 9920.00ft
Interval: 10.00ft

SILTSTONE: 10%, red, orange, argillaceous, sandy to very sandy, grades to sandstone in part.

SANDSTONE: 90%, arkose,as above.

9920.00 to 9930.00ft
Interval: 10.00ft

SILTSTONE: 20%, as above.

SANDSTONE: 80%, red, arkosic as above.

9930.00 to 9940.00ft
Interval: 10.00ft

SANDSTONE: 100%, red,orange,arkose,fine grained to coarse grained, subrounded to subangular, poorly sorted,consolidated,siltstone matrix and stringers, micaceous, feldspar grains, kaolinitic, calcareous in part, tight.

9940.00 to 9950.00ft
Interval: 10.00ft

SHALE: 10%, red,trace dark red,firm, micaceous,silty to very silty, subfissile.

SILTSTONE: 40%, red,orange,argillaceous,firm,common shale laminations,sandy in part, micaceous, blocky.

SANDSTONE: 50%, red, arkose,fine to very coarse grained,very poorly sorted, subangular, consolidated, argillaceous siltstone matrix and inclusions,kaolinitic in part, common feldspar grains, occasional mica flks, tight to poor porosity.

9950.00 to 9960.00ft
Interval: 10.00ft

SILTSTONE: 10%, red, argillaceous, abundant mica flakes, shale laminations, blocky.

SANDSTONE: 90%, arkose, light gray, conglomerate, vc grained to fine grain, occasional pebbles,subrounded to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and stringers, abundant feldspar grains, kaolinitic,weakly calcareous,micaceous in part, tight to very poor porosity.

9960.00 to 9970.00ft
Interval: 10.00ft

SHALE: 15%, dark red, red, firm, rough to medium texture,very micaceous, partly very silty, grading to argillaceous siltstone.

SILTSTONE: 20%, red,orange,trace light green,silty to occasionally sandy, micaceous, blocky.

SANDSTONE: 65%, red, arkosic, conglomerate, consolidated, argillaceous siltstone stringers, trace poor porosity.

9970.00 to 9980.00ft
Interval: 10.00ft

SILTSTONE: 70%, orange,red,argillaceous, dark red shale laminations, sandy in part, micaceous.

SANDSTONE: 30%, arkose,orange, fine to coarse grained,subrounded to subangular, poor sorted, consolidated, common siltstone matrix, argillaceous in part, micaceous, abundant feldspar grains, tight.

9980.00 to 9990.00ft
Interval: 10.00ft

SHALE: 10%, dark red,purple,medium to fine texture,firm, micaceous, silty in part,clayey,fissile.

SILTSTONE: 20%, as above.

SANDSTONE: 70%, light gray,arkosic, fine to coarse grained, occasionally very coarse grained, subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and stringers, feldspar grains,trace kaolin, occasionally weakly calcareous,tight.

9990.00 to 10000.00ft
Interval: 10.00ft

SHALE: 20%, dark red,firm,micaceous,very silty in part, fissile.

SILTSTONE: 30%, red,orange,argillaceous, micaceous, firm, very sandy,grading to silty sandstone.

10000.00 to 10010.00ft
Interval: 10.00ft

SILTSTONE: 20%, orange, sandy to very sandy, argillaceous ,minor red shale laminations, blocky.

SANDSTONE: 80%, red, light gray, arkosic, fine to very coarse grained, consolidated, argillaceous siltstone matrix, micaceous, common feldspar grains, trace kaolinitic, tight.

10010.00 to 10020.00ft
Interval: 10.00ft

SHALE: 10%, dark round, firm, micaceous, silty, fissile.

SILTSTONE: 20%, as above.

SANDSTONE: 70%, arkose, very coarse grained to fine grained,subangular to subrounded, consolidated, argillaceous siltstone matrix, kaolinitic, feldspar grains, calcareous in part, tight.

10020.00 to 10030.00ft
Interval: 10.00ft

SILTSTONE: 40%, orange, argillaceous in part, micaceous, partly sandy, blocky.

SANDSTONE: 60%, red, light gray, arkose, consolidated, argillaceous siltstone matrix, weathered, calcareous in part, tight.

10030.00 to 10040.00ft
Interval: 10.00ft

SHALE: 20%, dark red,firm, medium texture, micaceous, clayey, silty in part, fissile.

SILTSTONE: 20%, red,orange, trace light green,argillaceous to sandy,micaceous,blocky.

SANDSTONE: 60%, red,arkosic,fine to very coarse grained, consolidated, siltstone matrix, kaolinitic in part, common feldspar grains, micaceous in part, tight.

10040.00 to 10050.00ft
Interval: 10.00ft

SHALE: 40%, red,dark red,firm,micaceous,silty, occasionally sandy,fissile.

SILTSTONE: 40%, orange,red,argillaceous to partly sandy,firm, micaceous,biotite flakes,shale stringers,blocky.

SANDSTONE: 20%, arkose, as above.

10050.00 to 10060.00ft
Interval: 10.00ft

SHALE: 10%, dark red,red,firm, medium texture, very micaceous,silty in part, fissile.

SANDSTONE: 90%, orange,arkose,light gray in part,fine grained to very coarse grained, rounded to subangular,very poorly sorted,consolidated,kaolinitic in part, common siltstone matrix, abundant feldspar grains,micaceous in part, tight to poor porosity.

10060.00 to 10070.00ft
Interval: 10.00ft

SHALE: 10%, dark red, as above.

SILTSTONE: 30%, red,orange,argillaceous to partly sandy,calcareous,shale laminations,micaceous, grades to sandstone in part, blocky.

SANDSTONE: 60%, as above.Trace gray fine grain sandstone streaks,micaceous, trace poor porosity.

10070.00 to 10080.00ft
Interval: 10.00ft

SILTSTONE: 80%, red,firm,argillaceous in part,dark red shale laminations,very sandy, calcareous, micaceous, trace quartz veining,kaolinitic, grades to sandstone in part, blocky.

SANDSTONE: 20%, light gray, arkosic,fine to coarse grained, subangular to rounded, poorly sorted,consolidated,argillaceous siltstone matrix and stringers,abundant feldspar grains,micaceous,tight.

10080.00 to 10090.00ft
Interval: 10.00ft

SILTSTONE: 90%, red,orange,micaceous, argillaceous to partly sandy,dark red shale laminations, blocky.

SANDSTONE: 10%, as above.

10090.00 to 10100.00ft
Interval: 10.00ft

SILTSTONE: 70%, red,orange,calcareous, as above.

SANDSTONE: 30%, light gray,red,arkosic,subangular,poorly sorted, consolidated, argillaceous siltstone matrix, partly kaolinitic, abundant feldspar grains,trace yellow uraniferous grains, tight. Mostly as fragments as opposed to grains.

10100.00 to 10110.00ft
Interval: 10.00ft

SHALE: 10%, red,orange,firm, micaceous, medium texture, silty in part, subfissile.

SILTSTONE: 75%, orange,red,trace purple,firm,argillaceous to sandy,common shale laminations,blocky.

SANDSTONE: 15%, as above, trace green silty stringers.

10110.00 to 10120.00ft
Interval: 10.00ft

SHALE: 20%, red,dark red,firm,micaceous,silty,fissile.Grading to very argillaceous siltstone.

SILTSTONE: 75%, red,orange, as above, calcareous in part.

SANDSTONE: 5%, as above.

10120.00 to 10130.00ft
Interval: 10.00ft

SILTSTONE: 75%, orange,partly light gray,trace light green,argillaceous,firm, occasional dark red shale laminations,very micaceous, biotite flakes, common sand grains, weakly calcareous, kaolinitic, blocky.

SANDSTONE: 25%, light gray,arkose, fine to coarse grain,subangular to subrounded,poor art, consolidated, argillaceous siltstone matrix,feldspar grains, kaioc,tight.

10130.00 to 10150.00ft
Interval: 20.00ft

SILTSTONE: 80%, orange, trace light green, argillaceous,occasional shale laminations, minor sand inclusion, weakly calcareous,very micaceous, blocky.

SANDSTONE: 20%, arkose, light red to orange, partly light gray, fine to coarse grain, subangular, consolidated, argillaceous siltstone matrix and inclusion, tight.

10150.00 to 10160.00ft
Interval: 10.00ft

SILTSTONE: 30%, orange,red,firm,red shale laminations, partly sandy, micaceous, blocky.

SANDSTONE: 70%, arkose,light red,fine to very coarse grained,subrounded to subangular,very poorly sorted, consolidated, argillaceous siltstone stringers and matrix material,kaolinitic in part, common feldspar grains, calcareous, tight to poor porosity.

10160.00 to 10170.00ft
Interval: 10.00ft

SILTSTONE: 20%, orange, light red, argillaceous, firm, micaceous, biotite, occasional redshale laminations, partly sandy, sub-blocky.

SANDSTONE: 80%, erd,arkose,fine to very coarse grained,subrounded to subangular, consolidated to partly friable, argillaceous siltstone matrix, common to abundant feldspar grains, micaceous, trace kaolinitic, tight.

10170.00 to 10180.00ft
Interval: 10.00ft

SILTSTONE: 30%, orange, red argillaceous, as above.

SANDSTONE: 70%, light gray, orange, arkose, fine to coarse grained, consolidated to partly friable, argillaceous siltstone matrix, micaceous, feldspar grains, tight.

10180.00 to 10190.00ft
Interval: 10.00ft

SILTSTONE: 75%, orange,argillaceous to slightly sandy, firm, micaceous, occasional dark red to red shale stringers, calcareous in part, scattered sand grains, sub-blocky.

SANDSTONE: 25%, light gray, translucent, arkosic, fine to coarse grained, consolidated to occasional friable, argillaceous siltstone matrix, micaceous, tight.

10190.00 to 10200.00ft
Interval: 10.00ft

SILTSTONE: 30%, orange, light gray in part,argillaceous, occasional silty shale laminations, firm, blocky.

SANDSTONE: 70%, light gray,orange,arkose, fine to very coarse grained, occasional pebbles, subrounded to subangular,consolidated to friable, argillaceous siltstone matrix and stringers,common feldspar grains, kaolinitic, calcareous in part, tight.

10200.00 to 10210.00ft
Interval: 10.00ft

SILTSTONE: 65%, orange,light gray,argillaceous in part,scattered biotite flakes, calcareous in part,occasional sand grains, blocky.

SANDSTONE: 35%, light gray, arkosic,fine to coarse grained, subangular to subrounded, consolidated to partly friable,argillaceous siltstone matrix, micaceous, common feldspar grains, kaolinitic, tight.

10210.00 to 10220.00ft
Interval: 10.00ft

SILTSTONE: 40%, red,arkosic, argillaceous to very argillaceous, firm, scattered dark red shale stringers,micaceous, sandy to very sandy in part, blocky.

SANDSTONE: 60%, orange,round,arkosic, fine to coarse grain, subangular, poorly sorted,consolidated to partly friable,argillaceous siltstone matrix and stringers,micaceous, abundant feldspar grains, tight.

10220.00 to 10230.00ft
Interval: 10.00ft

SILTSTONE: 60%, red,orange in part,rare green, argillaceous, firm, scattered shale stringers, very micaceous, abundant biotite flakes, kaolinitic in part,occasionally sandy, blocky.

SHALE: 0%, red dark red, firm, silty, micaceous, fissile

SANDSTONE: 40%, light gray, arkosic, subangular, poor sorted, consolidated to partly friable,argillaceous siltstone matrix, micaceous, feldspar grains, very kaolinitic, tight.

10230.00 to 10240.00ft
Interval: 10.00ft

SHALE: 0%, dark red, fine texture, very micaceous, silty in part, fissile.

SANDSTONE: 100%, light gray, orange,arkose, fine to trace coarse grained, subrounded to subangular,poor sorted, consolidated to minor friable,minor siltstone matrix and stringers, common feldspar grains, micaceous, kaolinitic, calcareous in part, tight to trace poor porosity.

10240.00 to 10250.00ft
Interval: 10.00ft

SHALE: 10%, dark red, firm,fine texture,silty,very micaceous,fissile.

SILTSTONE: 20%, orange, red, argillaceous, sandy in part, micaceous,subblocky.

SANDSTONE: 70%, light gray,arkosic,fine to very coarse grained,subangular to subrounded,very poorly sorted, consolidated to partly friable,siltstone matrix, feldspar grains, trace calcareous, tight.

10250.00 to 10260.00ft
Interval: 10.00ft

SILTSTONE: 75%, light red,orange, trace green, argillaceous, occasional red shale stringers, micaceous, blocky.

SANDSTONE: 25%, light red, arkosic,orange, fine to medium grained, occasional coarse grained, subangular to subrounded, poor sorted, consolidated, common argillaceous siltstone matrix and stringers, micaceous, abundant feldspar grains, kaolinitic in part, calcareous, tight.

10260.00 to 10270.00ft
Interval: 10.00ft

SHALE: 25%, dark red,red,firm, fine texture, micaceous, silty in part, fissile.

SILTSTONE: 60%, red,orange,argillaceous to partly sandy, blocky.

SANDSTONE: 15%, light gray, arkosic, coarse to fine grain, subangular, poor sorted, consolidated, siltstone matrix, micaceous, trace kaolinitic, slightly calcareous, tight.

10270.00 to 10290.00ft
Interval: 20.00ft

SHALE: 20%, red, dark red,fine to medium texture, firm,micaceous, silty in part, fissile. grades to siltstone in part.

SANDSTONE: 80%, light gray,orange,arkosic,fine to very coarse grained,subangular, consolidated, friable in part, abundant feldspar grains, calcareous in part, micaceous, minor kaolin, tight.

10290.00 to 10300.00ft
Interval: 10.00ft

SILTSTONE: 80%, light red,orange,argillaceous,moderate hard, micaceous to very micaceous, kaolinitic, occasional dark red to purple shale laminations,weakly calcareous in part,blocky. Grades to very fine grained argillaceous sandstone in part.

SANDSTONE: 20%, light gray,arkosic,fine to coarse grained, consolidated, argillaceous siltstone matrix, micaceous, feldspar grains, kaolinitic, tight.

SHALE: 0%, dark red,purple,fine texture, micaceous, silty in part, fissile.

10300.00 to 10310.00ft
Interval: 10.00ft

SILTSTONE: 75%, red, orange, as above.

SANDSTONE: 25%, light gray, arkosic, as above.

10310.00 to 10320.00ft
Interval: 10.00ft

SHALE: 20%, red, partly dark red, fine to medium texture, micaceous,silty in part, fissile.

SILTSTONE: 65%, orange,trace purple,argillaceous,firm,sandy in part, micaceous, kaolinitic, blocky.

SANDSTONE: 15%, light gray, to red, arkosic, fine to coarse grained, consolidated,silty, argillaceous, micaceous, feldspar grains, tight.

10320.00 to 10330.00ft
Interval: 10.00ft

SILTSTONE: 65%, as above, occasional dark red shale laminations.

SANDSTONE: 35%, red,light red, arkosic, fine to coarse grained, subangular to subrounded, poor sorted, consolidated to slightly friable, siltstone matrix, common feldspar grains, kaolinitic, tight to very poor porosity.

SHALE: 0%, dark red,fine texture, micaceous, very silty in part, fissile.

10330.00 to 10340.00ft
Interval: 10.00ft

SILTSTONE: 10%, as above, trace shale laminations.

SANDSTONE: 90%, light gray, red, arkosic,orange,coarse to fine grained, occasional very coarse grained, subangular to subrounded,consolidated to partly friable,argillaceous siltstone matrix, micaceous, abundant feldspar grains, kaolinitic, calcareous in part, tight to trace very poor porosity.

10340.00 to 10350.00ft
Interval: 10.00ft

SHALE: 5%, dark red,orange,firm, very micaceous,silty in part, fissile.

SILTSTONE: 30%, orange, red,firm, micaceous, occasional dark red micaceous shale stringers,sandy in part, blocky.

SANDSTONE: 65%, as above.

10350.00 to 10360.00ft
Interval: 10.00ft

SHALE: 10%, as above, trace purple.

SILTSTONE: 15%, as above.

SANDSTONE: 75%, red,arkosic, very coarse to fine grained, subangular to subrounded,very poorly sorted,consolidated to slightly friable,argillaceous siltstone matrix and inclusion,abundant feldspar grains, minor kaolin,micaceous,tight.

10360.00 to 10370.00ft
Interval: 10.00ft

SHALE: 25%, dark red,red,fine texture to partly medium texture,firm,very micaceous,silty in part,fissile.

SILTSTONE: 50%, orange,red,trace green,argillaceous to sandy,subrounded to subangular,firm,micaceous,slightly calcareous,occasional shale laminations, kaolinitic, blocky.

SANDSTONE: 25%, light red,arkosic, fine to very coarse grained, consolidated, argillaceous siltstone matrix, micaceous, kaolinitic, common feldspar grains,partly calcareous, tight.

LIMESTONE: 0%, light brown, cryptocrystalline,massive, hard.

10370.00 to 10380.00ft
Interval: 10.00ft

SHALE: 80%, red,dark red,very fine to medium texture,micaceous, abundant biotite flakes,firm, weak calcareous,slightly silty, fissile.

SILTSTONE: 20%, red,orange,very argillaceous,firm, micaceous,sandy in part, sub-blocky.

SANDSTONE: 0%, as above.

10380.00 to 10390.00ft
Interval: 10.00ft

SHALE: 30%, dark red,red,as above.

SILTSTONE: 30%, red,trace green, arkosic, argillaceous to trace sandy, firm, micaceous,blocky.Grades to very silty sandstone.

SANDSTONE: 40%, red,arkosic, fine to occasional very coarse grained,subangular to subrounded,poorly sorted,consolidated to friable,abundant argillaceous siltstone matrix and inclusions,common feldspar grains, occasionally kaolinitic,slightly calcareous, micaceous, tight.

10390.00 to 10400.00ft
Interval: 10.00ft

SHALE: 20%, dark red,red,firm, very micaceous,partly silty, fissile.

SILTSTONE: 40%, orange,light red,rare green,firm, argillaceous to sandy,micaceous, weakly calcareous, blocky.

SANDSTONE: 40%, light red, light gray, arkosic, fine to coarse grained,subrounded to subangular,poor sorted, consolidated,argillaceous siltstone matrix and stringers,kaolinitic,calcareous in part, common flds grains, occasionally micaceous, tight.

10400.00 to 10410.00ft
Interval: 10.00ft

SHALE: 10%, dark red, as above.

SILTSTONE: 60%, orange,arkosic,firm, micaceous, argillaceous, partly sandy, scattered shale laminations, blocky.

SANDSTONE: 30%, light gray,light red, arkose, fine to coarse grained, consolidated, abundant siltstone matrix in part,abundant feldspar grains, kaolinitic, tight.

10410.00 to 10420.00ft
Interval: 10.00ft

SHALE: 10%, dark red, red, firm, fine texture, very micaceous, silty in part, fissile.

SILTSTONE: 75%, as above, scattered dark red shale laminations.

SANDSTONE: 15%, light gray, arkose, fine to coarse grained, consolidated, argillaceous siltstone matrix, abundant feldspar grains, kaolinitic,occasionally micaceous, tight.

10420.00 to 10430.00ft
Interval: 10.00ft

SILTSTONE: 40%, light red, orange, as above.

SANDSTONE: 60%, light gray, arkose,very coarse to fine grained, trace pebbles,subrounded to subangular,very poorly sorted, consolidated, argillaceous siltstone matrix, partly kaolin clay matrix,abundant feldspar grains, micaceous, biotite, trace blocky mafic grains, tight.

10430.00 to 10440.00ft
Interval: 10.00ft

SHALE: 15%, orange,dark red,firm,very micaceous,fine texture, silty in part, fissile.

SANDSTONE: 85%, light gray,orange, arkosic,very coarse to fine grained,occasional pebbles,angular to subrounded,very poorly sorted,consolidated, argillaceous siltstone matrix, kaolinitic in part,abundant feldspar grains and fragments, feldspar grains altered to kaolin in part,micaceous,tight to poor porosity.

10440.00 to 10450.00ft
Interval: 10.00ft

SILTSTONE: 60%, red,orange, argillaceous to partly sandy, micaceous, firm, grades to silty sandstone in part, blocky.

SANDSTONE: 40%, light gray,red,arkosic, fine to very coarse grained,angular to subrounded, consolidated, argillaceous siltstone matrix, micaceous,abundant feldspar grains, kaolinitic in part, tight.

10450.00 to 10460.00ft
Interval: 10.00ft

SHALE: 10%, dark red,orange, rare purple,fine to medium texture,very micaceous,partly silty, fissile.

SILTSTONE: 40%, red, orange, as above.

SANDSTONE: 50%, light gray,orange,arkosic, fine to very coarse grained,rounded to subangular,cions,argillaceous siltstone matrix, abundant feldspar grains, kaolinitic in part, tight.

10460.00 to 10470.00ft
Interval: 10.00ft

SILTSTONE: 50%, red, argillaceous, sandy in part, scattered red shale laminations, blocky.

SANDSTONE: 50%, light gray, arkosic, as above.

10470.00 to 10480.00ft
Interval: 10.00ft

SHALE: 20%, dark red,red,firm, fine texture,micaceous to very micaceous,partly silty,fissile. grades to argillaceous siltstone.

SILTSTONE: 40%, red, orange, very argillaceous to partly sandy, firm, micaceous, blocky.

SANDSTONE: 40%, as above, calcareous in part.

10480.00 to 10490.00ft
Interval: 10.00ft

SHALE: 60%, red, dark red,fine to medium texture, micaceous,silty in part, fissile. Grades to very argillaceous micaceous siltstone.

SILTSTONE: 30%, red, as above.

SANDSTONE: 10%, red, arkose, as above.

LIMESTONE: 0%, light bn,crypto-crystalline,dense,tight.

10490.00 to 10500.00ft
Interval: 10.00ft

SHALE: 10%, dark red, red, firm, micaceous, very silty, fissile.

SILTSTONE: 20%, orange,red, argillaceous to sandy,micaceous, firm, blocky.

SANDSTONE: 70%, light gray,orange, arkosic, very coarse to fine grained, subrounded to subangular,poorly sorted,consolidated, siltstone matrix, partly kaolinitic,common feldspar grains, micaceous in part, tight.

10500.00 to 10510.00ft
Interval: 10.00ft

SHALE: 10%, dark red, as above.

SILTSTONE: 40%, red,orange,argillaceous,firm,micaceous, partly sandy, blocky.

SANDSTONE: 50%, light gray,arkose, trace green, fine to coarse grained,occasionally very coarse grained,subrounded to subangular,poorly sorted,consolidated, argillaceous siltstone matrix,abundant feldspar grains, kaolinitic, micaceous, tight.

10510.00 to 10520.00ft
Interval: 10.00ft

SHALE: 10%, as above.

SILTSTONE: 55%, red,orange,argillaceous, partly sandy, common shale alms, micaceous,blocky.

SANDSTONE: 35%, light gray, red, arkosic, consolidated,argillaceous siltstone matrix, abundant feldspar grains, tight.

10520.00 to 10530.00ft
Interval: 10.00ft

SHALE: 10%, dark red, fine texture, firm, micaceous,slightly silty, fissile.

SILTSTONE: 20%, red, orange,argillaceous to slightly sandy, micaceous,weakly calcareous, blocky.

SANDSTONE: 70%, light gray, red,arkosic, fine to very coarse grained, consolidated, argillaceous siltstone matrix, abundant feldspar grains, kaolinitic in part, tight.

10530.00 to 10540.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray,arkose, conglomeratic, fine grained to pebble, very poorly sorted, rounded to angular, abundant angular fragments, consolidated, siltstone matrix, kaolinitic in part, common feldspar grains and fragments, micaceous, biotite, tight.

10540.00 to 10550.00ft
Interval: 10.00ft

SILTSTONE: 30%, red,orange,argillaceous,micaceous,partly sandy,blocky.

SANDSTONE: 70%, orange, red, arkosic, trace green,medium fine to very coarse grained, trace pebbles,rounded to subangular,consolidated, argillaceous siltstone matrix and inclusions, abundant feldspar grains, slightly kaolinitic, micaceous, tight.

10550.00 to 10570.00ft
Interval: 20.00ft

SILTSTONE: 20%, red, orange, argillaceous to partly sandy, occasional dark red shale laminations, micaceous, grades in part to argillaceous sandstone.

SANDSTONE: 80%, light gray,orange, arkosic, fine to very coarse grained, subrounded to subangular, very poorly sorted,consolidated,argillaceous siltstone stringers, and matrix, common feldspar grains and fragments,kaolinitic,micaceous, tight.

10570.00 to 10580.00ft
Interval: 10.00ft

SHALE: 75%, dark red,orange, firm, fine texture, micaceous, silty to very silty, sub-fissile.

SILTSTONE: 10%, orange, argillaceous, partly sandy, shale laminations, micaceous, blocky.

SANDSTONE: 15%, orange, arkosic, trace green,fine to coarse grained, subangular to subrounded, consolidated, argillaceous siltstone matrix, micaceous, tight.

10580.00 to 10590.00ft
Interval: 10.00ft

SHALE: 25%, dark red, red, as above.

SILTSTONE: 55%, red, orange, argillaceous, common shale laminations, very micaceous in part,trace yellow to light green siltstone, weak calcareous, partly sandy, blocky.

SANDSTONE: 20%, light gray,red, arkosic, fine to coarse grained, subrounded to subangular,poorly sorted, consolidated, siltstone matrix, trace kaolinitic, common feldspar grains, tight.

10590.00 to 10600.00ft
Interval: 10.00ft

SHALE: 20%, dark red, red, fine texture, micaceous to very micaceous, silty in part, fissile.

SILTSTONE: 20%, orange, red, argillaceous, very sandy in part, micaceous, shale stringers, blocky.

SANDSTONE: 60%, orange, arkosic, very fine to very coarse grained, subangular to subrounded, very poorly sorted, consolidated, abundant argillaceous siltstone matrix and inclusion, common feldspar grains, kaolinitic, trace grey limestone fragments, tight.

10600.00 to 10610.00ft
Interval: 10.00ft

SHALE: 10%, as above.

SILTSTONE: 35%, red, orange, kaolinitic, argillaceous, micaceous, partly sandy, calcareous in part, grades to argillaceous sandstone.

SANDSTONE: 65%, orange, arkosic, fine to very coarse grained, subangular,poorly sorted, consolidated, argillaceous siltstone matrix,weakly calcareous, scattered feldspar grains, kaolinitic, tight.

10610.00 to 10620.00ft
Interval: 10.00ft

SHALE: 20%, as above.

SILTSTONE: 65%, red, orange, argillaceous, shale laminations, micaceous, sandstone inclusions, blocky.

	SANDSTONE: 15%, light gray, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, tight.
10620.00 to 10640.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray, arkosic, conglomerate, fine grained to pebble, rounded to subangular, very poorly sorted, consolidated, red argillaceous siltstone matrix and inclusions, abundant feldspar grains, minor kaolin, scattered biotite mica flakes and laminations,trace shale laminations,tight to poor porosity.
10640.00 to 10650.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, red, orange, firm, argillaceous,micaceous, sandy to very sandy, grading to sandstone in part, blocky.
	SANDSTONE: 80%, red, arkosic as above, scattered shale and siltstone laminations.
10650.00 to 10670.00ft **Interval: 20.00ft**	**SILTSTONE: 10%**, as above.
	SANDSTONE: 90%, light gray, orange, fine to coarse grained, angular to subrounded, poorly sorted, consolidated to friable, argillaceous siltstone matrix and stringers, kaolinitic in part, tight to very poor porosity.
10670.00 to 10680.00ft **Interval: 10.00ft**	**SILTSTONE: 70%**, orange, light red, argillaceous, firm, micaceous, kaolinitic, slightly calcareous,sandy to partly very sandy, minor red shale laminations, blocky. Grades to very silty sandstone.
	SANDSTONE: 30%, light gray, arkosic, fine to coarse grained, subangular to subrounded,consolidated, argillaceous siltstone stringers and matrix, common feldspar grains, tight.
10680.00 to 10690.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, light red,arkosic, subrounded to subangular, poor sorted, fine to medium grained, occasional coarse grained, consolidated, argillaceous siltstone matrix, abundant feldspar grains, slightly calcareous, trace kaolinitic, tight to trace poor porosity.
10690.00 to 10700.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, As above, slightly more siltstone stringers, scattered shale laminations, trace limestone grey fragments.
10700.00 to 10710.00ft **Interval: 10.00ft**	**SHALE: 10%**, red, red-brown, fine texture, firm, micaceous, silty in part, fissile.
	SILTSTONE: 20%, red, orange, argillaceous to sandy, firm, micaceous, kaolinitic, dark red shale laminations, blocky.
	SANDSTONE: 70%, light gray, red, arkosic, fine to occasional coarse grained, subangular, consolidated, argillaceous siltstone matrix, abundant feldspar grains, kaolinitic in part,slightly calcareous, tight.
10710.00 to 10720.00ft **Interval: 10.00ft**	**SHALE: 40%**, red,minor dark red, firm, fine to very fine texture, micaceous, slightly silty, fissile.
	SILTSTONE: 30%, as above.
	SANDSTONE: 30%, light gray,red, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, micaceous, feldspar grains, kaolinitic in part, tight.
10720.00 to 10730.00ft **Interval: 10.00ft**	**SHALE: 30%**, red, minor dark red, as above.
	SILTSTONE: 30%, red, orange,argillaceous to partly very sandy, firm, micaceous, blocky.

SANDSTONE: 40%, light gray, red, arkosic, fine to coarse grained,subangular, consolidated,siltstone matrix, partly kaolinitic, common feldspar and quartz grains, micaceous in part, tight.

10730.00 to 10740.00ft
Interval: 10.00ft

SHALE: 10%, red, dark res, firm, partly hard, micaceous, silty, fissile to subfissile.

SILTSTONE: 10%, as above.

SANDSTONE: 80%, light gray,red, arkosic, fine to coarse grained,trace very coarse grained, angular to subrounded, very poorly sorted, consolidated, argillaceous siltstone matrix, partly kaolinitic,quartz and feldspar grains,quartz grains becoming more abundant, minor micaceous flakes, tight.

10740.00 to 10750.00ft
Interval: 10.00ft

SANDSTONE: 100%, translucent, light gray, arkosic, conglomerate,pebble to fine grained, subrounded to angular, very poorly sorted, consolidated,siliceous,minor siltstone matrix ,common feldspar and quartz grains and fragments, slightly kaolinitic,scattered biotite mica flakes, tight to trace very poor porosity.

10750.00 to 10760.00ft
Interval: 10.00ft

SHALE: 20%, red, orange,firm, micaceous, silty to very silty, fissile.

SILTSTONE: 30%, red, orange, argillaceous to partly sandy, firm, micaceous, shale laminations, blocky.

SANDSTONE: 50%, conglomeratic, light gray to arkosic, as above.

10760.00 to 10770.00ft
Interval: 10.00ft

SHALE: 10%, dark red, as above.

SILTSTONE: 65%, orange, red, argillaceous, kaolinitic, calcareous in part, siliceous,occasionally sandy, micaceous, shale laminations, sub-blocky.

SANDSTONE: 25%, light gray,arkosic, fine to very coarse grained,subrounded to angular, poorly sorted, consolidated, siliceous,argillaceous siltstone matrix and stringers, common quartz and feldspar grains, tight.

10770.00 to 10780.00ft
Interval: 10.00ft

SHALE: 0%, dark red, fine texture, micaceous, silty in part, fissile.

SILTSTONE: 10%, dark red, red, micaceous, sandy in part, shale laminations, sub-blocky.

SANDSTONE: 90%, conglomeratic, light gray to red, arkosic, fine grained to pebbles, subrounded to angular, very poorly sorted, consolidated, siltstone matrix material, siliceous in part, abundant feldspar and quartz grains and pebble fragments,partly micaceous, tight.

10780.00 to 10790.00ft
Interval: 10.00ft

SHALE: 5%, red, fine texture,micaceous, fissile.

SILTSTONE: 70%, red, orange, argillaceous, finely laminated, shale stringers, calcareous in part, micaceous, partly sandy, blocky.

SANDSTONE: 25%, red,arkosic, fine to coarse grained, subrounded to subangular,consolidated, argillaceous siltstone matrix, abundant feldspar grains, kaolinitic in part, tight.

10790.00 to 10800.00ft
Interval: 10.00ft

SILTSTONE: 40%, red,firm, micaceous, dark red shale stringers,partly kaolinitic, trace green hard calcareous stringers.

SANDSTONE: 60%, light gray, red, arkosic, fine to coarse grained, subrounded to subangular, consolidated, argillaceous siltstone matrix and stringers, kaolinitic in part, partly calcareous, common feldspar grains, scattered quartz grains, trace limestone grains, tight.

LIMESTONE: 0%, gray, crypto-crystalline, dense, hard, silty.

10800.00 to 10810.00ft
Interval: 10.00ft

SILTSTONE: 20%, as above, dark red shale stgs.

SANDSTONE: 80%, light red, arkosic, fine to medium grained, partly very coarse grained, poorly sorted, subangular, consolidated, abundant argillaceous siltstone matrix and inclusions,common feldspar grains, calcareous, kaolinitic, tight.

10810.00 to 10830.00ft
Interval: 20.00ft

SHALE: 15%, red, partly dark red,fine texture,firm, micaceous, slightly silty, fissile.

SILTSTONE: 60%, red, orange, trace green, argillaceous, firm, micaceous, sandy to very sandy in part, kaolinitic,weakly calcareous, blocky.

SANDSTONE: 25%, light gray, red, arkosic, fine to platy very coarse grained,consolidated, argillaceous siltstone matrix, micaceous in part, abundant feldspar grains, tight.

10830.00 to 10840.00ft
Interval: 10.00ft

SHALE: 10%, dark red,orange, fine texture,firm, micaceous, silty in part, trace hard calcareous shale inclusions, fissile.

SILTSTONE: 50%, red, trace grn, firm,argillaceous to very sandy, calcareous, micaceous, blocky.

SANDSTONE: 40%, light red, arkosic, fine to partly very coarse grained, subangular to subrounded,very poorly sorted, consolidated, abundant argillaceous siltstone matrix, micaceous, in part, kaolinitic, tight.

10840.00 to 10850.00ft
Interval: 10.00ft

SHALE: 5%, as above.

SILTSTONE: 20%, red, orange, argillaceous, micaceous, sandy in part, blocky.

SANDSTONE: 75%, light gray, light red, arkosic,fine to coarse grained, trace very coarse grained, subrounded to subangular, poorly sorted, cons-friable, argillaceous siltstone matrix and inclusions, common feldspar grains, kaolinitic, trace limestone grains,partly micaceous, tight to very poor porosity.

10850.00 to 10860.00ft
Interval: 10.00ft

SHALE: 10%, red, partly dark red, fine texture, micaceous, silty in part, fissile.

SILTSTONE: 40%, orange, trace purple, argillaceous to partly sandy, micaceous, firm.

SANDSTONE: 50%, light gray, red, arkosic, fine to coarse grained, subrounded to angular, poorly sorted, consolidated, kaolinitic, abundant argillaceous siltstone matrix, common feldspar grains, micaceous, tight.

10860.00 to 10870.00ft
Interval: 10.00ft

SILTSTONE: 30%, orange, as above.

SANDSTONE: 70%, light red, arkosic, fine to coarse grained, subrounded to subangular, poorly sorted, consolidated, siltstone matrix and stringers, abundant feldspar grains, micaceous,kaolinitic in part, tight to trace very poor porosity.

10870.00 to 10880.00ft
Interval: 10.00ft

SILTSTONE: 20%, orange,trace purple,argillaceous, sandy in part, micaceous, occasional shale laminations, blocky.

SANDSTONE: 80%, light gray,orange, arkosic, very to very coarse grained, subrounded to subangular,very poorly sorted, consolidated,argillaceous siltstone matrix, kaolinitic in part, common feldspar grains, micaceous in part, tight.

10880.00 to 10890.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray, arkosic, fine to coarse grained,scattered fragments, subangular to subrounded, poorly sorted, consolidated, argillaceous siltstone matrix and inclusions,kaolinitic in part,abundant feldspar grains, slightly micaceous, tight to trace poor porosity.

10890.00 to 10900.00ft
Interval: 10.00ft

SILTSTONE: 15%, red, orange,argillaceous, very sandy in part, micaceous, as matrix material.

SANDSTONE: 85%, red, light gray, as above.

10900.00 to 10910.00ft
Interval: 10.00ft

SILTSTONE: 40%, red, trace gray, purple, firm, argillaceous, sandy in part, micaceous, slightly calcareous,kaioc,sub-blocky.

SANDSTONE: 60%, light gray,light red, arkosic, fine to very coarse grained, rounded to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix and inclusions, common feldspar grains, mcima, kaolinitic, tight.

10910.00 to 10920.00ft
Interval: 10.00ft

SHALE: 30%, red,medium to fine texture,micaceous, silty to very silty, fissile.

SILTSTONE: 50%, red, orange, argillaceous to partly sandy, firm, micaceous, shale laminations, grades in part to very silty sandstone.

SANDSTONE: 20%, as above.

10920.00 to 10930.00ft
Interval: 10.00ft

SHALE: 30%, as above.

SILTSTONE: 30%, as above.

SANDSTONE: 40%, light gray, arkosic, fine to coarse grained,subrounded to subangular,poor sorted, consolidated, argillaceous siltstone matrix and stringers, quartz and feldspar grains, kaolinitic, calcareous in part,slightly micaceous, tight.

10930.00 to 10950.00ft
Interval: 20.00ft

SILTSTONE: 10%, as above.

SANDSTONE: 90%, light gray, orange, arkosic, medium to very coarse grained,subangular to subrounded, poorly sorted, consolidated, common argillaceous siltstone matrix,calcareous in part, kaolinitic, abundant feldspar grains, minor dark red shale laminations.

10950.00 to 10960.00ft
Interval: 10.00ft

SHALE: 10%, red, minor dark red,firm,micaceous,silty in part.

SILTSTONE: 60%, orange,red argillaceous,very fine grained sand inclusions, micaceous,blocky.

SANDSTONE: 30%, light gray, arkosic, fine to very coarse grained, argillaceous siltstone matrix, kaolinitic, abundant feldspar grains, micaceous,calcareous, tight.

10960.00 to 10970.00ft
Interval: 10.00ft

SILTSTONE: 60%, red, orange, argillaceous, occasional dark red fine textured shale stringers, micaceous, sandy in part,calcareous, blocky.

SANDSTONE: 40%, as above.

10970.00 to 10980.00ft
Interval: 10.00ft

SHALE: 20%, dark red,red, fine texture, firm, very micaceous in part, partly silty, fissile.

SILTSTONE: 10%, as above.

SANDSTONE: 70%, conglomeratic,light gray, arkosic, fine grained to pebble,angular to subrounded, very poorly sorted, consolidated, siltstone matrix,silica in part, kaolinitic, abundant feldspar grains and fragments, tight.

10980.00 to 10990.00ft
Interval: 10.00ft

SHALE: 20%, as above.

SILTSTONE: 50%, red, orange in part,firm, argillaceous to very sandy,shale stringers,micaceous,grades to argillaceous sandstone in part.

SANDSTONE: 30%, conglomeratic, light gray arkosic, fine grained to occasional pebbles,subangular to rounded, consolidated, argillaceous siltstone matrix, kaolinitic, common feldspar grains and fragments.

10990.00 to 11000.00ft
Interval: 10.00ft

SHALE: 75%, red, minor dark red to purple,fine to medium texture,firm,micaceous, silty to partly very silty, fissile.

SILTSTONE: 15%, as above.

SANDSTONE: 10%, as above.

11000.00 to 11010.00ft
Interval: 10.00ft

SHALE: 10%, red to platy dark red,grades to siltstone in part.

SANDSTONE: 90%, light gray,arkosic,conglomeratic, medium grained to pebble,subangular to subrounded, very poorly sorted, consolidated,minor siltstone matrix,kaolinitic, siliceous in part, quartz and feldspar grains, tight.

11010.00 to 11020.00ft
Interval: 10.00ft

SHALE: 15%, as above.

SANDSTONE: 85%, conglomerate, light gray to arkose, as above, more argillaceous matrix , minor kaolin.

11020.00 to 11030.00ft
Interval: 10.00ft

SHALE: 30%, red,minor dark red,firm,micaceous, silty to very silty, grades to argillaceous siltstone, fissile.

SILTSTONE: 10%, red,firm, argillaceous to partly sandy, micaceous, shale stringers, calcareous in part.

SANDSTONE: 60%, arkose, fine to very coarse grained,pebble fragments, subrounded to subangular, very poorly sorted, consolidated, abundant argillaceous siltstone matrix, silica in part, trace calcareous. Trace limestone grains.

11030.00 to 11060.00ft
Interval: 30.00ft

SHALE: 5%, dark red, red, fine texture, micaceous, firm, silty in part, fissile.

SILTSTONE: 40%, orange, light red, rare light green, firm, calcareous,micaceous, common shale laminations, kaolinitic, blocky.

SANDSTONE: 55%, light red, arkose, fine to very coarse grained, subrounded to subangular, common argillaceous siltstone matrix, calcareous, kaolinitic, rare gray silty limestone grains.

11060.00 to 11070.00ft
Interval: 10.00ft

SILTSTONE: 40%, orange, red, firm, micaceous, minor shale inclusions, sandy, grades to very silty sandstone in part, blocky.

SANDSTONE: 60%, arkosic, kaolinitic, as above.

11070.00 to 11080.00ft
Interval: 10.00ft

SHALE: 10%, red, dark red, firm, fine texture, silty in part, fissile.

SILTSTONE: 30%, as above, trace light green.

SANDSTONE: 60%, light red, arkose, fine to very coarse grained, subangular to subrounded, very poorly sorted, consolidated, argillaceous siltstone matrix, trace frosted aeloian sand grains, kaolinitic, micaceous, tight. Trace grey cptxln very silty limestone.

11080.00 to 11090.00ft
Interval: 10.00ft

SHALE: 10%, orange,dark red, rare green,fine texture, micaceous, fissile.

SILTSTONE: 15%, red, firm, argillaceous to partly sandy, micaceous, shale inclusions, blocky.

SANDSTONE: 75%, light gray, minor red, fine to very coarse grained, occasional pebbles,angular to subrounded, poorly sorted, consolidated, siliceous, abundant quartz grains, scattered feldspar grains, kaolinitic, tight.

11090.00 to 11100.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray, translucent, trace red, fine to very coarse grained,angular to subrounded, poorly sorted, consolidated, siliceous, kaolinitic in part,abundant quartz grains, minor feldspar, trace micaceous siltstone inclusions, tight.

11100.00 to 11120.00ft
Interval: 20.00ft

SANDSTONE: 100%, light gray,translucent, minor light red, fine to very coarse grained,trace pebble fragments, angular to subangular,poorly sorted, consolidated, siliceous, kaolinitic, trace red argillaceous siltstone stringers, common feldspar and quartz grains,calcareous in part, tight.

11120.00 to 11130.00ft
Interval: 10.00ft

SILTSTONE: 10%, red, trace light green,argillaceous,micaceous, sandy, trace calcareous, blocky.

SANDSTONE: 90%, light gray, translucent, arkosic in part, fine to very coarse grained, consolidated, rounded to angular, poor sorted, kaolinitic, occasional argillaceous siltstone matrix,feldspar and quartz grains, tight.

11130.00 to 11140.00ft
Interval: 10.00ft

SILTSTONE: 25%, orange,argillaceous to sandy, scattered red shale laminations, micaceous, kaolinitic, calcareous in part, blocky.

SANDSTONE: 75%, light gray,arkose,fine to coarse grained,rounded to subangular, poor sorted, consolidated, argillaceous siltstone matrix, kaolinitic, occasional frosted well rounded quartz grains(aeolian), trace purple calcite grains, tight.Trace gray very silty limestone fragments.

11140.00 to 11150.00ft
Interval: 10.00ft

SHALE: 55%, orange, partly dark red, fine texture, partly silty, micaceous, fissile.

SILTSTONE: 25%, as above, trace green, calcareous, firm to partly hard and calcareous.

	SANDSTONE: 20%, light gray, arkosic,consolidated, quartz and feldspar grains, siltstone matrix, rare casts(salt), kaolinitic.
11150.00 to 11160.00ft **Interval: 10.00ft**	**SHALE: 70%**, red, dark red, firm, micaceous, silty in part, trace red calcareous shale inclusions, fissile.
	SILTSTONE: 20%, red, orange,trace dark green,very argillaceous, minor sand, micaceous, calcareous in green fraction,rare gray limestone inclusions.
	SANDSTONE: 10%, as above.
11160.00 to 11170.00ft **Interval: 10.00ft**	**SHALE: 15%**, dark red, red, trace green, fine texture, firm, micaceous, calcareous in part, fissile.
	SILTSTONE: 25%, orange,red, argillaceous, micaceous, sandy in part, kaolinitic, calcareous, blocky.
	SANDSTONE: 60%, light gray,arkose, medium to coarse grained, subrounded to subangular, very poorly sorted, consolidated, argillaceous siltstone matrix, kaolinitic, common feldspar grains,tight.
11170.00 to 11180.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray,arkosic, fine to very coarse grained,subrounded to angular,very poorly sorted, consolidated,argillaceous siltstone matrix,kaolinitic in part, common feldspar grains,trace dark red shale laminations, micaceous, rare gray very silty limestone inclusions.
11180.00 to 11190.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red, red,firm, fine texture, very calcareous,micaceous, chalky.
	SILTSTONE: 20%, orange, red, argillaceous to sandy, firm, kaolinitic, calcareous, micaceous.
	SANDSTONE: 70%, as above.
11190.00 to 11200.00ft **Interval: 10.00ft**	**SHALE: 70%**, red, orange, rare green,fine texture, calcareous, micaceous, gray limestone inclusions, fissile.
	SILTSTONE: 10%, as above.
	SANDSTONE: 20%, light gray, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, shale laminations, micaceous, feldspar grains, kaolinitic, tight.
11200.00 to 11210.00ft **Interval: 10.00ft**	**SHALE: 85%**, red, dark red, fine texture, micaceous, firm, very calcareous, silty in part, trace dark gray very silty limestone inclusions, fissile.
	SILTSTONE: 15%, orange, red, argillaceous to sandy, micaceous, calcareous, kaolinitic, blocky.
11210.00 to 11220.00ft **Interval: 10.00ft**	**SHALE: 20%**, as above.
	SILTSTONE: 50%, red, orange, argillaceous to very argillaceous, calcareous, kaolinitic, micaceous, partly sandy, blocky.
	SANDSTONE: 30%, light gray, fine to coarse grained, subrounded to subangular, poor sorted, consolidated, argillaceous siltstone matrix, quartz grains, minor feldspar grains, tight.
11220.00 to 11240.00ft **Interval: 20.00ft**	**SILTSTONE: 80%**, red, orange, argillaceous to very argillaceous, calcareous, kaolinitic, micaceous, minor shale stringers, blocky.

SANDSTONE: 20%, light gray,arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, micaceous in part, calcareous,tight.

11240.00 to 11250.00ft
Interval: 10.00ft

SHALE: 10%, dark red,red,fine texture,micaceous, calcareous in part, fissile.

SILTSTONE: 25%, as above.

SANDSTONE: 65%, light gray, arkosic, fine to coarse grained, subrounded to subangular, poorly sorted, consolidated, argillaceous siltstone matrix, micaceous in part, common feldspar and quartz grains, kaolinitic, tight.

11250.00 to 11260.00ft
Interval: 10.00ft

SILTSTONE: 75%, orange, firm, occasional hard very calcareous inclusions, micaceous, argillaceous, minor orange shale stringers, partly sandy, blocky.

SANDSTONE: 25%, light gray, arkosic, fine to coarse grained, subrounded to subangular,poor sorted, consolidated, quartz and feldspar grains, kaolinitic, tight.

11260.00 to 11270.00ft
Interval: 10.00ft

SHALE: 10%, dark red, red, rare purple, firm to hard, calcareous in part, micaceous, occasional siltstone stringers, fissile to subfissile.

SILTSTONE: 80%, as above, argillaceous, calcareous, blocky.

SANDSTONE: 10%, as above.

11270.00 to 11280.00ft
Interval: 10.00ft

SHALE: 30%, dlk red, red, fine texture, micaceous, partly silty, fissile.

SILTSTONE: 60%, red, orange, argillaceous to partly sandy, micaceous, calcareous in part, blocky.

SANDSTONE: 10%, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, kaolinitic.

11280.00 to 11290.00ft
Interval: 10.00ft

SILTSTONE: 20%, red,orange, argillaceous, coarse texture, partly very sandy, abundant biotite flakes, calcareous in part, occasional shale laminations, blocky.

SANDSTONE: 80%, light gray, arkose, fine to very coarse grained, rounded to subangular, poorly sorted, consolidated, argillaceous siltstone matrix and stringers, siliceous in part, mostly quartz grains, scattered feldspar grains, kaolinitic in part, calcareous, tight.

11290.00 to 11300.00ft
Interval: 10.00ft

SHALE: 30%, red,orange, firm to partly hard, micaceous, silty in part, calcareous, fissile to blocky.

SILTSTONE: 20%, red, orange, very micaceous, abundant biotite flakes, sandy in part, schistose texture, blocky.

SANDSTONE: 50%, orange, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix and inclusions, kaolinitic, abundant feldspar grains, micaceous in part.

11300.00 to 11310.00ft
Interval: 10.00ft

SHALE: 10%, orange,rare purple, fine texture, firm, calcareous in part, micaceous, fissile.

SILTSTONE: 30%, as above.

SANDSTONE: 60%, light gray, arkosic, fine to medium grained, trace coarse grained, consolidated, kaolinitic, argillaceous siltstone stringers, micaceous, common feldspar grains.

11310.00 to 11320.00ft
Interval: 10.00ft

SHALE: 15%, as above.

SILTSTONE: 10%, red, orange, firm, argillaceous, very micaceous, sandy in part, blocky.

SANDSTONE: 75%, light gray, arkosic, fine to very coarse grained, subrounded to subangular, poor sorted, consolidated, argillaceous siltstone matrix, micaceous, kaolinitic, common feldspar grains,calcareous, tight.

11320.00 to 11330.00ft
Interval: 10.00ft

SHALE: 10%, as above.

SILTSTONE: 10%, red,orange, trace green, as above.

SANDSTONE: 80%, light gray, arkosic, very fine to coarse grained, subangular to subrounded, poorly sorted, consolidated, argillaceous siltstone matrix, micaceous, kaolinitic, common feldspar grains, calcareous, tight.Rare gray very silty limestone inclusions.

11330.00 to 11340.00ft
Interval: 10.00ft

SILTSTONE: 30%, red,orange, trace green, abundant biotite flakes, argillaceous in part, partly sandy.

SANDSTONE: 70%, light red, arkosic, fine to coarse grained, subangular to subrounded, poor sorted, consolidated, abundant argillaceous siltstone matrix and stringers, micaceous, abundant feldspar grains, calcareous in part, kaolinitic, tight.

11340.00 to 11350.00ft
Interval: 10.00ft

SHALE: 70%, orange, firm, fine texture, silty in part, micaceous to very micaceous, kaolinitic, occasionally calcareous, fissile.

SILTSTONE: 20%, as above.

SANDSTONE: 10%, as above.

11350.00 to 11360.00ft
Interval: 10.00ft

SHALE: 40%, red, dark red, trace green, stringers.

SILTSTONE: 50%, red, argillaceous to sandy, kaolinitic, micaceous, calcareous, blocky.

SANDSTONE: 10%, light gray, arkosic, fine to coarse grained,consolidated, argillaceous siltstone matrix, trace limestone grain inclusions.

11360.00 to 11370.00ft
Interval: 10.00ft

SHALE: 20%, red, dark red, fine texture, micaceous, firm, calcareous in part, fissile.

SILTSTONE: 80%, orange, red, micaceous, argillaceous sandy in part, calcareous, blocky.

11370.00 to 11380.00ft
Interval: 10.00ft

SHALE: 20%, as above.

SILTSTONE: 65%, red, argillaceous to sandy, micaceous, firm, kaolinitic, calcareous, blocky.

SANDSTONE: 15%, light gray, arkosic, fine to partly coarse grained, consolidated, argillaceous siltstone matrix, calcareous in part, kaolinitic, common feldspar grains, rare very silty grey limestone inclusions.

11380.00 to 11390.00ft
Interval: 10.00ft

SANDSTONE: 40%, light red, arkosic, fine to medium grained, subangular to subrounded, fair sorted, consolidated, abundant argillaceous siltstone matrix, kaolinitic, common feldspar grains, calcareous, tight.

SILTSTONE: 60%, orange, argillaceous, minor shale laminations, kaolinitic, calcareous, micaceous, sandy to very sandy , grading to very argillaceous silty sandstone.

11390.00 to 11410.00ft
Interval: 20.00ft

SILTSTONE: 70%, as above, dark red, shale stringers.

SANDSTONE: 30%, arkose, fine to trace coarse grained, consolidated, abundant argillaceous siltstone matrix, kaolinitic, abundant feldspar grains, micaceous in part,calcareous, tight.

11410.00 to 11420.00ft
Interval: 10.00ft

SHALE: 15%, red, orange, firm, micaceous, silty in part, fissile.

SILTSTONE: 40%, as above, grades to very argillaceous sandstone.

SANDSTONE: 45%, arkose,light red, fine to medium grained, trace coarse grained, subrounded,subangular in part, poorly sorted, consolidated, abundant argillaceous siltstone stringers and matrix, micaceous, common feldspar and quartz grains, very calcareous, tight.

11420.00 to 11440.00ft
Interval: 20.00ft

SHALE: 20%, red, trace green, very fine texture, calcareous, micaceous, fissile.

SILTSTONE: 70%, red, orange, firm, argillaceous, calcareous, kaolinitic, sandy in part.

SANDSTONE: 10%, arkose, medium to coarse grained, consolidated argillaceous siltstone matrix, kaolinitic, common feldspar grains, tight. Trace limestone inclusions light gray, cryptocrystalline brittle, silty.

11440.00 to 11450.00ft
Interval: 10.00ft

SHALE: 15%, dark red, red, firm, fine texture, micaceous, calcareous, fissile.

SILTSTONE: 50%, as above, trace purple, green, calcareous, sandy.

SANDSTONE: 35%, orange, arkosic, fine to coarse grained, subangular, poorly sorted, consolidated, abundant argillaceous siltstone matrix, calcareous,kaolinitic, rare gray limestone grains.

11450.00 to 11460.00ft
Interval: 10.00ft

SHALE: 15%, red, orange, fine texture, firm, calcareous, silty in part, fissile.

SILTSTONE: 75%, orange, argillaceous to partly very sandy, firm, micaceous, kaolinitic, fine grained sandstone stringers, blocky. Trace green hard very calcareous.

SANDSTONE: 10%, organic, arkosic, as above.

11460.00 to 11470.00ft
Interval: 10.00ft

SHALE: 20%, as above.

SILTSTONE: 70%, red, orange,trace green, firm to hard, argillaceous, sandy to partly very sandy, grading to sandstone in part, micaceous, calcareous,blocky. Trace hard very calcareous strks.

SANDSTONE: 10%, light red, arkosic, trace grey-green, fine to coarse grained, consolidated, argillaceous siltstone matrix, kaolinitic, calcareous, common feldspar grains, tight.

11470.00 to 11480.00ft
Interval: 10.00ft

SILTSTONE: 35%, orange, red, trace grey-green, very micaceous, argillaceous in part, grading to sandstone, calcareous in part, blocky.

SANDSTONE: 65%, light gray, arkosic, fine to coarse grained, subangular to angular, poorly sorted, consolidated, kaolinitic, calcareous in part, common argillaceous siltstone matrix, feldspar grains, tight.

11480.00 to 11490.00ft
Interval: 10.00ft

SHALE: 10%, red, fine texture, micaceous,silty, fissile.

SILTSTONE: 50%, orange, rare green,argillaceous to very sandy, micaceous, calcareous, arkosic sandstone stringers, blocky.

SANDSTONE: 40%, arkose,fine to very coarse grained,subangular,poorly sorted, consolidated,abundant argillaceous siltstone matrix and inclusions, common feldspar grains, kaolinitic, calcareous, minor biotite flakes, tight.

11490.00 to 11500.00ft
Interval: 10.00ft

SILTSTONE: 15%, orange, red,trace green, argillaceous, very sandy, calcareous.Scattered very calcareous green clayey stringers, blocky.

SANDSTONE: 85%, light gray, arkose, fine to coarse grained, subangular to subrounded,poorly sorted,consolidated, abundant siltstone matrix, kaolinitic, common feldspar grains, calcareous, partly micaceous, tight.

11500.00 to 11510.00ft
Interval: 10.00ft

SHALE: 20%, dark red, red, partly grey-green, fine texture, micaceous, calcareous to very calcareous(green fraction), fissile.

SILTSTONE: 50%, orange, trace light green, argillaceous to sandy, micaceous, kaolinitic, very calcareous, shale stringers, blocky.

SANDSTONE: 30%, light gray, arkosic, as above.

11510.00 to 11520.00ft
Interval: 10.00ft

SHALE: 30%, red, orange, firm, calcareous, micaceous, silty in part.

SILTSTONE: 70%, orange, red, trace green, argillaceous, micaceous, very calcareous, sandy, scattered fine grain sandstone stringers, blocky.

11520.00 to 11530.00ft
Interval: 10.00ft

SHALE: 10%, dkred, partly red-brown, firm, fine texture, micaceous, minor silty stringers, calcareous, fissile.

SILTSTONE: 85%, red, orange, brown,green, argillaceous, micaceous, calcareous, firm to hard and brittle in part, blocky.

SANDSTONE: 5%, light gray, arkosic, fine to coarse grained,rounded to subangular,poorly sorted, consolidated,abundant argillaceous siltstone matrix, micaceous, calcareous, kaolinitic, common feldspar grains, tight.

11534.00ft

HONAKER TRAIL

11530.00 to 11540.00ft
Interval: 10.00ft

SILTSTONE: 25%, orange, light green, argillaceous to very sandy, micaceous, rough texture, minor shale laminations, calcareous, trace very calcareous hard streaks, blocky.

SANDSTONE: 75%, light gray, light red,arkosic, fine to coarse grained, rounded to angular, poorly sorted, consolidated,common argillaceous siltstone matrix, kaolinitic, scattered well rounded aeolian sand grains, feldspar grains, micaceous in part,tight. Trace translucent very calcareous sandstone stringers with green glauconite grains.

11540.00 to 11570.00ft
Interval: 30.00ft

SILTSTONE: 90%, red, red-brown, firm to hard, micaceous, calcareous,occasional shale laminations,sandy, grading to very fine grained silty sandstone.

SANDSTONE: 10%, red, arkosic, fine to coarse grained, subangular, consolidated, abundant argillaceous siltstone matrix.

11570.00 to 11580.00ft
Interval: 10.00ft

SILTSTONE: 80%, red brown, green, firm to hard, micaceous, calcareous, dark red, shale laminations, partly sandy, blocky.

LIMESTONE: 20%, translucent,light gray, crypto-crystalline,massive,dense,indistinct fossil debris, tight.

11580.00 to 11590.00ft
Interval: 10.00ft

SHALE: 10%, dark red-brown, red, firm, silty in part, micaceous, very calcareous, subfissile.

SILTSTONE: 70%, reddish brown, red, light green, hard to firm where calcareous, argillaceous, very kaolinitic, micaceous, very calcareous in part, blocky.

SANDSTONE: 5%, red, arkosic,fine to medium grained,trace coarse grained, consolidated, argillaceous matrix, calcareous, tight.

LIMESTONE: 15%, light to trace dark gray, translucent, cryptocrystalline, massive,dense,scattered fossil coral debris,silty in part.

11590.00 to 11600.00ft
Interval: 10.00ft

SHALE: 10%, dark reddish brown, as above.

SILTSTONE: 60%, dark red, bn, green, light gray, argillaceous to slightly sandy, micaceous, abundant biotite micaceous flakes,very calcareous, grading to silty fine grained sandstone in part.

SANDSTONE: 20%, light gray, translucent in part, minor arkose, very fine grained to fine grained, fine to coarse grained in arkosic fraction, subangular to rounded, consolidated,calcareous matrix, silty stringers, kaolinitic, micaceous, trace chert fragments, tight.

LIMESTONE: 10%, light to dark gray, cryptocrystalline, dense, massive, hard, trace fossil debris, minor sand inclusions.

11600.00 to 11610.00ft
Interval: 10.00ft

SILTSTONE: 65%, green, light gray, trace purple, very sandy in part, calcareous, kaolinitic, occasional crystalline calcite, micaceous, blocky.

SANDSTONE: 35%, light gray, white, arkose in part, fine to very coarse grained, subangular to rounded, poorly sorted, consolidated, calcareous matrix, occasional argillaceous siltstone inclusions, scattered aeolian sand grains, common feldspar grains, kaolinitic, tight. Trace light to dark gray cryptocrystalline limestone stringers.

11610.00 to 11620.00ft
Interval: 10.00ft

SILTSTONE: 20%, red, green, as above.Trace black hard calcareous shale inclusions.

SANDSTONE: 75%, light gray, white, translucent, conglomeratic, fine to very coarse grained, common pebble fragments, angular to rounded, very poorly sorted, consolidated, calcareous, siliceous in part, quartz and feldspar grains, trace aeolian sand, micaceous in part, tight.

LIMESTONE: 5%, light gray gray, cryptocrystalline,dense, hard, slightly argillaceous, tight.

11620.00 to 11630.00ft
Interval: 10.00ft

SILTSTONE: 25%, red, green, purple, argillaceous, very micaceous, sandy, calcareous, hard, blocky.

SANDSTONE: 75%, light gray, arkosic in part, fine to coarse grained, rounded to subangular, poorly sorted,consolidated, argillaceous siltstone matrix, calcareous, tight.

11630.00 to 11640.00ft
Interval: 10.00ft

SILTSTONE: 10%, as above.Trace black shale laminations.

SANDSTONE: 90%, light gray, translucent, very fine to coarse grained, rounded to subangular, poorly sorted, consolidated, calcareous, siliceous in part, kaolinitic, trace limestone inclusions, common quartz and feldspar grains, tight. Trace gray crypto-crystalline dense limestone.

11640.00 to 11650.00ft
Interval: 10.00ft

SILTSTONE: 35%, green, red, reddish brown, minor dark red and black shale laminations, argillaceous, micaceous, calcareous, sandy.

SANDSTONE: 65%, as above, scattered aeolian sand grains.Trace light gray to gray limestone fragments.

11650.00 to 11670.00ft
Interval: 20.00ft

SILTSTONE: 75%, green, red, brown, argillaceous, kaolinitic,very calcareous in part, micaceous, scattered black and dark red shale stringers, occasional gray clayey limestone inclusions.

SANDSTONE: 25%, light gray, arkosic in part, fine to occasional coarse grained, consolidated, calcareous, kaolinitic, minor aeolian sand grains, trace gray cryptocrystalline limestone fragments, tight.

11670.00 to 11680.00ft
Interval: 10.00ft

LIMESTONE: 10%, gray,dark gray, crypto-crystalline,dense,massive, argillaceous in part, rare fossil debris, tight.

SILTSTONE: 70%, red, green, argillaceous to very sandy, calcareous, micromicaceous,blocky,occasional dark red to black calcareous shale stringers.

SANDSTONE: 20%, red, arkosic, partly light gray, fine to coarse grained, consolidated, very argillaceous, kaolinitic, trace massive and crystalline calcite, occasional feldspar grains, micaceous, tight.

11680.00 to 11690.00ft
Interval: 10.00ft

SILTSTONE: 10%, red, partly green, as above.

SANDSTONE: 90%, light gray, arkosic, very to very coarse grained, subangular to rounded, poorly sorted, consolidated, argillaceous siltstone matrix, calcareous, quartz and feldspar grains, trace gray limestone grains, micaceous.Occasional gray to dark gray cryptocrystalline limestone inclusion.

11690.00 to 11700.00ft
Interval: 10.00ft

SILTSTONE: 30%, red, green, dark red, micaceous, argillaceous in part, calcareous, scattered crystalline to massive calcite, grading to silty very fine grained sandstone in part.

SANDSTONE: 70%, light gray, partly arkose, fine to very coarse grained, consolidated, argillaceous siltstone matrix, scattered well rounded frosted aeolian sand grains. Scattered limestone gray cryptocrystalline dense, hard, argillaceous.

11700.00 to 11710.00ft
Interval: 10.00ft

SHALE: 10%, gray, red, trace black, hard, silty,micro-micaceous, calcareous, fissile.

SILTSTONE: 30%, red, green, as above.

SANDSTONE: 60%, light gray, arkosic in part, fine to medium grained, trace coarse grained, rounded to subangular, poorly sorted, consolidated, kaolinitic, argillaceous siltstone matrix in part, micaceous, scattered well rounded aeolian sand grains, trace limestone fragments, tight.

11710.00 to 11720.00ft **Interval: 10.00ft**	**SHALE: 20%**, black, dark bn, dense, hard, very calcareous in part,micromicaceous, subfissile.Grades to very argillaceous silty limestone. **SILTSTONE: 50%**, red, orange, trace green, argillaceous to partly sandy, very calcareous, kaolinitic, micaceous, hard. **SANDSTONE: 10%**, red,as above, trace aeolian sand grains. **LIMESTONE: 20%**, gray, crypto-crystalline, dense,hard, argillaceous to slightly silty, occasional fossil debris, tight.
11720.00 to 11730.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, red, trace green and light gray, hard, micaceous, argillaceous inclusions, sandy, occasional imbedded fine to coarse grained sand grains,calcareous, kaolinitic in part, abundant biotite flakes. Trace black to dark red, calcareous shale laminations, grading to very fine grained argillaceous sandstone. **LIMESTONE: 10%**, dark gray to gray, cryptocrystalline to occasionally microcrystalline, dense, hard, argillaceous, common fossil fragments, tight.
11730.00 to 11740.00ft **Interval: 10.00ft**	**SHALE: 30%**, black, dark gray, minor red, hard, very calcareous, micaceous, silty in part, blocky. **SILTSTONE: 50%**, dark red, green, trace light gray, hard, micaceous, abundant biotite flakes, very calcareous, sandy, gdg tyo very fine grained calcareous sandstone. **SANDSTONE: 10%**, red, light gray, arkosic in part, consolidated, argillaceous matrix, micaceous, aeolian sand grains, trace limestone inclusions. **LIMESTONE: 10%**, gray, light gray, cryptocrystalline, dense, massive, argillaceous to silty, trace fossil debris, tight.
11740.00 to 11750.00ft **Interval: 10.00ft**	**SILTSTONE: 100%**, light gray, white, red to light green in part, very well indurated, brittle, very calcareous,siliceous, trace gray calcareous shale laminations, micaceous, rare glauconite grains, grades to very fine grained calcareous sandstone. Minor light gray to gray cryptocrystalline limestone inclusions.
11750.00 to 11780.00ft **Interval: 30.00ft**	**SILTSTONE: 100%**, gray, light gray, minor dark red, argillaceous in dark red fraction, dense, very well indurated, very calcareous, siliceous, occasional dark gray to gray calcareous shale stringers, blocky. Grades in part to very silty dense limestone.
11780.00 to 11790.00ft **Interval: 10.00ft**	**SHALE: 20%**, black, dark gray, hard, micro-micaceous, very calcareous, well indurated, silty, blocky. **SILTSTONE: 80%**, dark to light gray, very calcareous, dense, brittle, siliceous, trace chert fragments, well indurated, blocky, grades to silty very fine grained, dense sandstone.
11790.00 to 11800.00ft **Interval: 10.00ft**	**SHALE: 80%**, black,dark gray, hard, brittle, very calcareous, silty in part, rare carbonaceous laminae, blocky. **SILTSTONE: 20%**, gray,light gray, dense, hard, sandy very calcareous, siliceous, blocky.
11800.00 to 11810.00ft **Interval: 10.00ft**	**SHALE: 10%**, black, dark gray, hard, micaceous, very calcareous, rare carbonaceous laminae, blocky.

	LIMESTONE: 90%, gray, microcrystalline to cryptocrystalline,massive,argillaceous,slightly silty, trace massive calcite, siliceous, trace brown chert fragments, fractured.
11810.00 to 11820.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark gray, rough texture, hard, very calcareous, micaceous,slightly silty, blocky.
	SANDSTONE: 60%, translucent, light gray, fine to coarse grained, angular to subrounded, poorly sorted, consolidated, siliceous, trace calcite matrix, rare chert fragments, quartz shards, occc argillite grains, rare micaceous flakes,trace intergranular bitumen, tight.
	LIMESTONE: 30%, gray, brown, cryptocrystalline to microcrystalline, dense, hard, trace brown chert inclusions, argillaceous in part, tight.
11820.00 to 11830.00ft **Interval: 10.00ft**	**SHALE: 25%**, black, dark gray, fine to medium texture, hard, brittle, very calcareous, silty, micaceous, blocky.
	SANDSTONE: 65%, light gray, translucent, fine to medium grained, subangular to angular, moderate sorted, consolidated, siliceous, calcareous in part, scattered brown chert grains and fragments, trace very fine glauconite grains, micaceous, trace black interstital bitumen, fractured, tight.
	LIMESTONE: 10%, gray, bn, cryptocrystalline, dense, hard, occasional brown chert inclusions, argillaceous in part, tight.
11830.00 to 11840.00ft **Interval: 10.00ft**	**SHALE: 10%**, as above.
	SANDSTONE: 20%, light gray, translucent, fine to coarse grained, consolidated, calcite matrix, siliceous, micaceous, tight.
	LIMESTONE: 70%, brown, dark gray, cryptocrystalline, dense, scattered brown chert fragments, trace carbonaceous laminae, silty, fragmental, grades in part to very calcareous micaceous siltstone.
11840.00 to 11850.00ft **Interval: 10.00ft**	**SHALE: 15%**, dark gray, hard, rough texture, micaceous, very calcareous, blocky.
	SANDSTONE: 80%, light to dark gray, silt to very fine grained, subangular, consolidated, siliceous, calcareous, trace glauconite grains, trace chert inclusions, grades in part to very sandy siltstone.
	LIMESTONE: 5%, brown, gray, cryptocrystalline, dense, hard, fragmental, chert fragments, silty in part.
11850.00 to 11860.00ft **Interval: 10.00ft**	**SILTSTONE: 35%**, dark to light gray, hard, very argillaceous, very calcareous in part,micaceous, minor crystalline calcite, blocky.
	SANDSTONE: 75%, translucent,light gray,trace arkose,fine to coarse grain, angular,poor sorted, consolidated,siliceous, calcareous in part, micaceous, tight.
11860.00 to 11870.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark gray,medium texture, hard, micaceous,very calcareous in part, limestone inclusions, blocky.
	SANDSTONE: 90%, light gray,minor arkose,fine to very coarse grained, subrounded to angular,poorly sorted, consolidated,siliceous,minor kaolin,occasional mica flakes, trace light green clay inclusions, tight.
11870.00 to 11880.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark gray,medium texture,micaceous,very calcareous,silty, blocky.

SANDSTONE: 85%, light gray,arkosic, fine to coarse grained, rounded to angular, poorly sorted,consolidated,calcareous matrix, siliceous in part,common feldspar grains, trace argillite grains, micaceous, tight.

LIMESTONE: 5%, brown, dark gray,cryptocrystalline to microcrystalline,dense, hard, argillaceous in part, rare fossil debris.

11880.00 to 11890.00ft
Interval: 10.00ft

SHALE: 5%, as above, partly dark red.

SANDSTONE: 95%, red, arkose, minor light gray, fine to coarse grained, consolidated, calcareous matrix, occasional argillaceous siltstone inclusions, red shale laminations,feldspar grains, trace argillite grains, tight.

11890.00 to 11900.00ft
Interval: 10.00ft

SILTSTONE: 10%, black, dark gray, argillaceous, micaceous, hard to firm, very calcareous, micaceous, grades to shale in part, blocky.

SANDSTONE: 90%, light gray, arkose,fine to very coarse grained, rounded to subangular,poorly sorted, consolidated, silty shale matrix and stringers, micaceous, scattered feldspar grains, calcareous in part, trace light green claystone inclusions, tight. Trace brown cryptocrystalline fossiliferous limestone stringers.

11900.00 to 11910.00ft
Interval: 10.00ft

SILTSTONE: 30%, red, trace green, fine texture, hard, argillaceous, clayey, very calcareous, dark brown shale laminations.

SANDSTONE: 70%, red, arkosic, fine to coarse grained, consolidated, argillaceous siltstone matrix, trace chert fragments, trace green claystone inclusions, tight. Occasional limestone brown, cryptocrystalline to microcrystalline,dense,hard, fossiliferous.

11910.00 to 11930.00ft
Interval: 20.00ft

SHALE: 10%, red, green, very silty, firm, micaceous, calcareous, blocky.

SANDSTONE: 90%, red, arkose, as above.

11930.00 to 11950.00ft
Interval: 20.00ft

SANDSTONE: 100%, light red, arkose, fine to coarse grained, subrounded to subangular, poorly sorted, consolidated, common argillaceous siltstone matrix and inclusions,dark red and black shale laminations, micaceous in part, slightly calcareous, common feldspar grains, kaolin clay stringers, occasional gray microcrystalline limestone fragments.

11950.00 to 11960.00ft
Interval: 10.00ft

SANDSTONE: 100%, light red, arkose, fine to very coarse grained, trace pebble fragments, angular to subrounded, poorly sorted, consolidated, siliceous,minor argillaceous siltstone matrix, trace kaolin,slightly micaceous, calcareous in part,tight, trace dark gray limestone inclusions.

11960.00 to 11970.00ft
Interval: 10.00ft

SANDSTONE: 100%, pink,fine to very coarse grained,subangular to rounded, poorly sorted, consolidated, siliceous, trace red siltstone matrix,trace green siltstone stringers, minor red shale laminations, scattered feldspar grains, partly calcareous, tight.

11970.00 to 11980.00ft
Interval: 10.00ft

SILTSTONE: 25%, red, trace dark green, argillaceous, sandy in part, calcareous, micaceous, blocky.

SANDSTONE: 65%, light gray, fine to medium grained, trace coarse grained, moderately sorted, consolidated, argillaceous siltstone matrix, calcareous, siliceous in part, scattered feldspar grains, tight.

LIMESTONE: 10%, gray, white, cryptocrystalline to microcrystalline,sparry calcite, fossiliferous,moderately hard, tight.

11980.00 to 11990.00ft
Interval: 10.00ft

SANDSTONE: 40%, as above, trace green silty shale laminations.

LIMESTONE: 60%, gray, trace light green, microcrystalline to cryptocrystalline, silty in part, slightly argillaceous, trace fossil debris, chert fragments,dense, tight.

11990.00 to 12000.00ft
Interval: 10.00ft

SHALE: 20%, dark gray, black, fine texture, hard, very calcareous, partly silty, trace carbonaceous laminae, blocky.

SANDSTONE: 50%, light red, arkosic, fine to very coarse grained, consolidated, argillaceous siltstone matrix, calcareous, common feldspar grains, micaceous, tight.

LIMESTONE: 30%, gray to dark gray, cryptocrystalline,dense, hard,bioclastic, slightly argillaceous, fractured,tight.

12000.00 to 12010.00ft
Interval: 10.00ft

SHALE: 65%, dark gray,black,hard, very calcareous in part, fractured, micaceous, gray limestone stringers, micaceous, blocky.

SANDSTONE: 25%, arkose, fine to very coarse grained, angular to subrounded, consolidated, argillaceous siltstone matrix, partly siliceous, feldspar grains, micaceous in part, tight.

LIMESTONE: 10%, gray, brown, cryptocrystalline,argillaceous, siliceous in part, trace chert nodules,minor fossil material, interbedded silty shales.

12010.00 to 12020.00ft
Interval: 10.00ft

SHALE: 25%, as above, dark gray, trace disseminated pyrite, partly sandy.

SANDSTONE: 30%, arkose, light red, as above, trace aeolian sand grains.

LIMESTONE: 45%, gray, minor brown, microcrystalline to cryptocrystalline,dense to earthy , partly very argillaceous, minor chert inclusions, fossiliferous(crinoid,fusulinoid), tight to rare pin-point porosity(2-3%). Fair gas show.

12020.00 to 12030.00ft
Interval: 10.00ft

SHALE: 50%, black, dark gray, fine texture, hard, micaceous, very calcareous in part, pyritic,blocky.

SILTSTONE: 10%, dark gray, partly green, argillaceous, common sand inclusions, very pyritic, micaceous, partly light gray, very well indurated, hard, micaceous.

SANDSTONE: 20%, arkose, as above, consolidated, common argillaceous siltstone matrix, occasional red stringers.

LIMESTONE: 20%, gray, minor brown, cryptocrystalline, dense, argillaceous in part, fossiliferous, siliceous, trace chert nodules.

12030.00 to 12040.00ft
Interval: 10.00ft

SHALE: 10%, as above.

SILTSTONE: 50%, light to medium gray, green, red, argillaceous to very sandy, hard, micaceous, calcareous, grading in part to very silty argillaceous sandstone.

SANDSTONE: 20%, light red, arkosic, as above, very silty.

LIMESTONE: 20%, light gray, gray-brown,cryptocrystalline to partly microcrystalline, dense, argillaceous, occasional shale laminations, fossiliferous, tight.

12040.00 to 12050.00ft **Interval: 10.00ft**	**SILTSTONE: 75%**, light gray, orange, green,gray, hard, micaceous,partly calcareous, occasional black shale inclusions, clayey, grading in part to very fine grained sandstone. **SANDSTONE: 20%**, arkose, light gray in part, fine to coarse grained, consolidated, argillaceous siltstone matrix and stringers, micaceous, feldspar grains, tight. Trace light gray to translucent very fine grained well indurated calcareous, trace glauconite grains. **LIMESTONE: 5%**, brown, gray, cryptocrystalline, trace chert nodules, fossiliferous.
12050.00 to 12060.00ft **Interval: 10.00ft**	**SHALE: 5%**, dark gray, black, hard, medium texture, micaceous,calcareous in part, pyritic,trace carbonaceous debris, blocky. **SILTSTONE: 60%**, as above, grades to argillaceous sandstone in part. **SANDSTONE: 35%**, arkose, fine to coarse grained, subrounded, consolidated, argillaceous siltstone matrix, micaceous, feldspar grains, calcareous, slightly siliceous.Partly light gray,translucent,very fine grained, hard, dense, well indurated, calcareous, trace glauconite grains. Trace gray crypto-crystalline limestone inclusions.
12060.00 to 12070.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, red, green, hard to firm, argillaceous to sandy, calcareous, partly kaolinitic, micaceous, blocky. **SANDSTONE: 80%**, arkose, light red, fine to coarse grained, subrounded to subangular, poorly sorted, consolidated, abundant argillaceous siltstone matrix and inclusions, calcareous, sparry calcite inclusions, trace gray limestone grains, tight.
12070.00 to 12080.00ft **Interval: 10.00ft**	**SHALE: 10%**, black, fine to medium texture, calcareous, silty, disseminated pyrite, subfissile. **SANDSTONE: 85%**, arkose, as above, trace aeolian quartz sand grains. **LIMESTONE: 5%**, gray, microcrystalline to cryptocrystalline, dense, silty in part, argillaceous, fossiliferous.
12080.00 to 12110.00ft **Interval: 30.00ft**	**SANDSTONE: 100%**, arkose, light red to partly light gray, fine to very coarse grained, subrounded to subangular, poorly sorted, consolidated, common red and green argillaceous siltstone matrix and stringers, kaolinitic, sparry calcite, micaceous,common feldspar grains, aeolian sand grains, trace gray limestone inclusions, tight.
12110.00 to 12120.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, orange, partly green to gray, argillaceous, dark gray shale laminations, micaceous, trace glauconite, carbonaceous fragments, blocky. **SANDSTONE: 80%**, arkose, as above, becoming more argillaceous. Trace limestone dark gray, brown, cryptocrystalline, dense, hard, fossiliferous.
12120.00 to 12130.00ft **Interval: 10.00ft**	**SHALE: 10%**, red, maroon, gray, firm to hard, silty in part, micaceous, calcareous, subfissile. **SILTSTONE: 40%**, as above. **SANDSTONE: 50%**, arkose, light red, fine to coarse grained, rounded to subrounded, poorly sorted, consolidated, abundant argillaceous siltstone matrix, micaceous, abundant feldspar grains, calcareous, trace gray limestone and aeolian quartz sand grains, tight.
12130.00 to 12140.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark red,trace dark gray, fine texture, micaceous, silty in part, calcareous, fissile.

SILTSTONE: 15%, red, green, argillaceous, micaceous, firm, sandy, partly calcareous, trace shale laminations, blocky.

SANDSTONE: 70%, arkose, as above.

LIMESTONE: 5%, gray, microcrystalline, dense, hard, fragmental,trace fossil debris, tight.

12140.00 to 12150.00ft
Interval: 10.00ft

SANDSTONE: 100%, arkose, light gray, orange, fine to coarse grained, rounded to subangular, consolidated, argillaceous red to green siltstone matrix and stringers, scattered aeolian sand grains, common feldspar grains, trace dark gray shale laminations, calcareous in part, tight.

12150.00 to 12160.00ft
Interval: 10.00ft

SHALE: 15%, dark red, dark gray, fine texture, silty in part, micaceous, partly calcareous,subfissile.

SILTSTONE: 40%, red, partly green, argillaceous to sandy, clayey, calcareous, micaceous, sparry calcite, blocky.

SANDSTONE: 40%, arkose, light gray,fine to partly very coarse grained, rounded to subangular, poorly sorted, consolidated, argillaceous siltstone matrix, calcareous in part, tight.

LIMESTONE: 5%, gray, partly light gray, cryptocrystalline to microcrystalline, dense, argillaceous,slightly silty, trace fossil debris, tight.

12160.00 to 12190.00ft
Interval: 30.00ft

SANDSTONE: 100%, arkose, light gray,very fine to fine grained, partly fine to coarse grained, angular to rounded, poorly sorted, consolidated, abundant siltstone matrix, becoming very calcareous, scattered feldspar grains, occasional sandy limestone stringers, tight.

12190.00 to 12200.00ft
Interval: 10.00ft

SANDSTONE: 100%, light gray, minor light red, fine grained, minor medium to coarse grained, rounded to subangular, fine sorted, well consolidated, argillaceous siltstone matrix and stringers, partly very calcareous, micaceous, trace very fine glauconite grains, tight. Trace sandy limestone inclusions.

12200.00 to 12210.00ft
Interval: 10.00ft

SILTSTONE: 30%, gray, light green, moderately hard, argillaceous, very calcareous, partly sandy, occasional dark gray and red shale stringers.

SANDSTONE: 70%, light gray, light red, consolidated, abundant argillaceous siltstone matrix, trace very fine grained glauconite, tight. Trace gray cryptocrystalline dense limestone fragments.

12210.00 to 12220.00ft
Interval: 10.00ft

SILTSTONE: 20%, gray, partly light green,red, argillaceous in part, micaceous, sandy, calcareous, blocky.

SANDSTONE: 30%, light gray, arkosic in part, fine to partly coarse grained, subangular to rounded, moderate sorting, consolidated, common siltstone matrix, calcareous in part, feldspar grains, micaceous, tight.

LIMESTONE: 50%, gray, partly bn, cryptocrystalline to microcrystalline, scattered fossil material(brachiopod,fusulinid), sparry calcite, argillaceous in part, hard to firm, tight.

12220.00 to 12230.00ft
Interval: 10.00ft

SANDSTONE: 90%, light gray, arkosic, fine to very coarse grained, rounded to subangular, poorly sorted, consolidated, argillaceous siltstone matrix, micaceous, partly calcareous, kaolinitic,common feldspar grains, occasional black micaceous shale inclusions, tight.

LIMESTONE: 10%, gray, cryptocrystalline, dense, trace fossil debris, partly argillaceous.

12230.00 to 12240.00ft **Interval: 10.00ft**	**SANDSTONE: 90%**, arkose, light gray in part, fine to coarse grained, poorly sorted, consolidated, abundant red to green shaley siltstone matrix and stringers, calcareous in part, kaolinitic, scattered feldspar grains, occasional frosted well rounded quartz grains, tight. **LIMESTONE: 10%**, gray, cryptocrystalline, dense, hard, fossiliferous, tight.
12240.00 to 12250.00ft **Interval: 10.00ft**	**SHALE: 30%**, bn,dark gray, firm, micro-micaceous, very silty in part, very calcareous, subfissile. **SILTSTONE: 20%**, red, trace green, brown in part, argillaceous, firm, micaceous, partly sandy, calcareous, sparry calcite, blocky. **SANDSTONE: 30%**, light gray, red, arkosic, fine grained, partly coarse grained, consolidated, calcareous, argillaceous siltstone stringers and matrix, scattered feldspar grains, micaceous, tight. **LIMESTONE: 20%**, gray, trace light grey, cryptocrystalline to microcrystalline, slightly argillaceous, fragmental, trace crystal calcite, tight.
12250.00 to 12260.00ft **Interval: 10.00ft**	**SHALE: 25%**, gray-green, firm, micaceous, silty, slightly calcareous, fissile. **SILTSTONE: 50%**, green, red, brown, argillaceous to sandy, hard to firm, micaceous, subblocky. **SANDSTONE: 15%**, light gray, red, arkosic, fine grained, minor coarse grained, consolidated, argillaceous siltstone matrix, tight. **LIMESTONE: 10%**, brown, gray, cryptocrystalline, dense, hard, slightly silty, fragmented, crystal calcite, rare bitumen, tight.
12260.00 to 12270.00ft **Interval: 10.00ft**	**SHALE: 15%**, gray, partly red, firm, micromicaceous, silty, partly calcareous, fissile. **SILTSTONE: 60%**, light red, brown, firm, micaceous, common to abundant biotite flakes, sandy, calcareous, blocky. **SANDSTONE: 20%**, light red, arkosic, as above. **LIMESTONE: 5%**, brown, gray, cryptocrystalline, dense, fossiliferous, tight.
12270.00 to 12280.00ft **Interval: 10.00ft**	**SHALE: 20%**, dark gray, gray green, micromicaceous, firm, slightly calcareous, subfissile. **SILTSTONE: 40%**, as above. **SANDSTONE: 40%**, as above.
12280.00 to 12290.00ft **Interval: 10.00ft**	**SHALE: 5%**, dark gray, minor gray green, firm, micaceous, slightly silty, weakly calcareous, fissile. **SANDSTONE: 95%**, light red, arkosic, fine to very coarse grained, rounded to subangular, poorly sorted, consolidated, abundant gray and green argillaceous siltstone matrix and stringers, common massive calcite, trace crystalline calcite, scattered feldspar grains, tight. Trace dark gray, silty limestone inclusions.
12290.00 to 12300.00ft **Interval: 10.00ft**	**SILTSTONE: 20%**, red, green, argillaceous in part, micaceous, moderately hard, calcareous, blocky.

	SANDSTONE: 80%, arkosic, partly gray, fine to coarse grained, consolidated, argillaceous siltstone matrix, calcareous in part,crystalline calcite, trace aeolian sand grains.
12300.00 to 12310.00ft **Interval: 10.00ft**	**SHALE: 10%**, dark gray, black, hard, micaceous, slightly calcareous, subfissile to blocky.
	SANDSTONE: 90%, arkose, gray in part, fine to coarse grained, consolidated, argillaceous siltstone matrix, feldspar grains, aeolian sand grains, crystalline calcite inclusions,trace intergranular bitumen, tight.
12310.00 to 12320.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, as above, abundant dark red, very micaceous siltstone stringers and matrix.
12320.00 to 12330.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, red, trace green, very argillaceous, micaceous, partly calcareous, trace dark gray hard shale inclusions, blocky.
	SANDSTONE: 10%, red, arkose, consolidated, argillaceous siltstone matrix, trace dark gray, limestone fragments.
12330.00 to 12340.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, as above.
	SANDSTONE: 70%, light red, arkosic, very fine to coarse grained,rounded to subangular, poorly sorted, consolidated, abundant argillaceous siltstone matrix, micaceous, calcareous in part, trace micaceous shale stringers, occasional gray-brown limestone fragments.
12340.00 to 12360.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light red, arkosic, fine grained to minor coarse grained, rounded to subangular, poorly sorted, consolidated, abundant argillaceous siltstone matrix, calcareous, black calcareous shale laminations, feldspar grains, tight.
12360.00 to 12370.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, red-brown, maroon,arkosic, fine to coarse grained, rounded to subangular, poorly sorted, consolidated, calcareous and red to green argillaceous siltstone matrix, micaceous, sparry calcite, rare glauconite grains, trace bitumen, tight.
12370.00 to 12380.00ft **Interval: 10.00ft**	**SILTSTONE: 80%**, light red, red-brown, firm to trace hard, micaceous, calcareous, sandy in part, trace glauconite grains, argillaceous, blocky.
	SANDSTONE: 20%, red- brown, as above.
12380.00 to 12390.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, light red, red- brown, trace green,calcareous, becoming more argillaceous,micaceous, trace black calcareous shale inclusions, minor sand, blocky.
	SANDSTONE: 10%, as above, trace massive calcite, tight. Trace gray crypto-crystalline dense, limestone fragments.
12390.00 to 12400.00ft **Interval: 10.00ft**	**SILTSTONE: 15%**, as above, trace grey- green shale stringers, blocky.
	SANDSTONE: 85%, light red, arkosic, fine to coarse grained, rounded to subangular, poorly sorted, consolidated, calcareous matrix material, argillaceous siltstone stringers, sparry calcite, micaceous, common feldspar grains, trace rounded quartz grains, tight.
12400.00 to 12410.00ft **Interval: 10.00ft**	**SILTSTONE: 10%**, red, green, trace black calcareous shale laminations,micaceous, partly sandy, blocky.
	SANDSTONE: 85%, conglomeratic, red, arkosic, fine to very coarse grained, occasional pebbles, rounded to subangular, poorly sorted, consolidated, abundant argillaceous siltstone matrix, calcareous, micaceous, common feldspar grains, tight.

	LIMESTONE: 5%, gray to brown, cryptocrystalline, dense, hard, slightly argillaceous, scattered fossil material(bryozoa,fusulinid), tight.
12410.00 to 12420.00ft **Interval: 10.00ft**	**SILTSTONE: 90%**, red- brown, trace green, firm,calcareous,argillaceous, trace green claystone inclusions, trace crystalline calcite, partly sandy, grading to fine grained very argillaceous sandstone.
	SANDSTONE: 10%, light red, fine to coarse grained,subangular to subrounded, consolidated, argillaceous siltstone matrix, calcareous, micaceous, very argillaceous, scattered feldspar grains, tight.
12420.00 to 12430.00ft **Interval: 10.00ft**	**SHALE: 20%**, red, red- brown, maroon, fine to medium texture, micromicaceous, silty in part, calcareous,subfissile.
	SILTSTONE: 80%, red, red- brown, trace green, argillaceous, micaceous, firm, slightly sandy, calcareous, blocky.
12430.00 to 12450.00ft **Interval: 20.00ft**	**SILTSTONE: 100%**, gray, red- brown, trace green, argillaceous to partly sandy, micaceous, mostly hard, calcareous,dense, blocky.
12450.00 to 12460.00ft **Interval: 10.00ft**	**SHALE: 25%**, dark red, maroon, firm to hard, micaceous, calcareous, subfissile.
	SILTSTONE: 75%, red, dark brown, partly grey-green,firm to hard, micaceous,very argillaceous, very calcareous,slightly sandy, grades to silty shale in part.
12460.00 to 12470.00ft **Interval: 10.00ft**	**SHALE: 70%**, red- brown,partly gray,hard, fine to medium texture, micro-micaceous,silty, very calcareous, grading to very argillaceous siltstone, subfissile to blocky.
	SILTSTONE: 30%, red- brown, trace green, argillaceous to partly very argillaceous, minor sand grains, very calcareous, micaceous, trace carbonaceous fragments, blocky.
12470.00 to 12480.00ft **Interval: 10.00ft**	**SHALE: 40%**, maroon,red- brown,fine texture, hard to partly firm, micaceous,very calcareous, silty in part, fissile.
	SILTSTONE: 60%, red, orange, trace green,firm to hard, very calcareous, argillaceous, dense, trace light gray glauconitic sandstone stringers, blocky.
12480.00 to 12490.00ft **Interval: 10.00ft**	**SHALE: 60%**, red- brown, trace maroon,firm to hard, micaceous, very calcareous in part, silty, subfissile.
	SILTSTONE: 40%, as above, trace carbonaceous fragments.
12490.00 to 12500.00ft **Interval: 10.00ft**	**SHALE: 20%**, red, red-brown, siltier than above.
	SILTSTONE: 80%, red- brown, light gray to green in part, firm to hard, argillaceous, micaceous, partly very calcareous, grading to very fine grained silty sandstone.
12500.00 to 12510.00ft **Interval: 10.00ft**	**SILTSTONE: 10%**, red, partly grey- green, hard, calcareous, sandy in part, blocky.
	SANDSTONE: 90%, light gray, gray, very fine grain, slightly silty, subrounded, well sorted, very well indurated, calcite cement, dense, brittle, trace intergranular organic material,minor micaceous flakes, tight.

12510.00 to 12530.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, gray, translucent in part, very fine grained to silty, rounded to subangular, well sorted, very well indurated, calcite cement, dense, hard, brittle, trace argillaceous streaks,tight.
12530.00 to 12550.00ft **Interval: 20.00ft**	**SANDSTONE: 100%**, light gray, translucent, partly dark gray, very fine grained to silty, subrounded, well sorted, very well indurated to consolidated, calcite cement,trace kaolin,dark gray siltstone stringers, hard brittle, trace micaceous flakes, minor intergranular gray organic material,tight to scattered intergranular porosity.
12550.00 to 12560.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, light gray, gray,very fine grained to silty, hard, well sorted, well indurated, abundant calcite cement,slightly micaceous,trace interstital organic material, kaolinitic in part, trace pyrite, tight, grades in part to sandy siltstone.
12560.00 to 12570.00ft **Interval: 10.00ft**	**SANDSTONE: 100%**, gray, partly light gray, very fine grained to partly silty, well consolidated, calcite cement, kaolinitic, dark gray to black argillaceous stringers, tight. Partly light red, arkosic, fine to coarse grained, consolidated, calcareous siltstone matrix, micaceous, tight.
12570.00 to 12580.00ft **Interval: 10.00ft**	**SILTSTONE: 60%**, dark gray, hard, shaley, gray very fine grained sandstone stringers, calcareous, carbonaceous. Trace gray, earthy argillaceous limestone . **SANDSTONE: 40%**, light gray, gray, very fine grained to silty, subrounded, consolidated, calcite matrix, dense,hard,trace glauconite grains, tight.
12580.00 to 12590.00ft **Interval: 10.00ft**	**SHALE: 80%**, dark gray, black, hard,very calcareous, silty, gray earthy argillaceous limestone inclusions, blocky. **SANDSTONE: 20%**, as above.
12590.00 to 12600.00ft **Interval: 10.00ft**	**SHALE: 100%**, dark gray, black, hard, very calcareous,micromicaceous, silty to very silty, subfissile to blocky. Trace limestone dark brown, gray, cryptocrystalline,dense,fragmental,minor fossil debris, tight.
12600.00 to 12610.00ft **Interval: 10.00ft**	**SHALE: 30%**, black, dark gray, fine texture, very calcareous, slightly silty, trace limestone inclusions, occasional fossil fragments,sub-fissile. **SANDSTONE: 15%**, gray, dark gray in part, very fine grained to silty, subrounded, moderately sorted,consolidated,calcite cement, abundant argillaceous siltstone stringers and matrix, tight. **LIMESTONE: 55%**, gray, partly dark brown,earthy texture, microcrystalline,cryptocrystalline in dark brown fraction,silty, finely laminated,trace fossil material(crinoid), lagoonal.
12610.00 to 12630.00ft **Interval: 20.00ft**	**SHALE: 15%**, as above, very calcareous, as stringers in limestone. **LIMESTONE: 85%**, gray,dark gray,minor brown,cryptocrystalline to microcrystalline,very argillaceous,bioclastic(crinoid,spicule),earthy texture,fragmental,lagoonal.
12630.00 to 12640.00ft **Interval: 10.00ft**	**SANDSTONE: 60%**, light gray, translucent,fine to partly coarse grained, angular to subangular, poorly sorted, consolidated, calcite cement, rare glauconite grains, slightly micaceous,common interstital bitumen,fractured in part, crystalline calcite fracture fill, tight to trace poor intergranular porosity. Good gas show. **LIMESTONE: 40%**, gray, dark gray, micro to cryptocrystalline,very argillaceous, fossiliferous, tight.

12640.00 to 12650.00ft
Interval: 10.00ft

SANDSTONE: 90%, light gray, translucent,fine to coarse grained, angular to subrounded, consolidated,calcite cement, interstital bitumen, micaceous,trace white chert fragments,tight. Trace dark gray hard siltstone stringers.

LIMESTONE: 10%, dark gray, gray,minor brown, microcrystalline to cryptocrystalline,earthy, argillaceous, tight.

12650.00 to 12660.00ft
Interval: 10.00ft

SILTSTONE: 35%, light gray-green,trace dark gray,mottled with red arkosic siltstone inclusions,hard, calcareous,silt to very fine grained sand, rare glauconite grains, argillaceous in dark gray fraction.

SANDSTONE: 65%, light gray, fine to partly coarse grained, consolidated, calcareous matrix, common bitumen, argillaceous siltstone inclusions, tight.
Trace dark brown cryptocrystalline limestone, scattered crinoid fragments.

12660.00 to 12670.00ft
Interval: 10.00ft

SILTSTONE: 78%, light gray green,hard, calcareous,trace very fine grained sand, kaolinitic, rare light red arkosic silt inclusions,trace micaceous, blocky.

SANDSTONE: 20%, light gray,gray,fine to partly coarse grained, consolidated, calcareous, argillaceous in part, tight.

LIMESTONE: 2%, dark gray,brown,cryptocrystalline,bioclastic,crinoidal,hard, argillaceous in part(mudstone).

12670.00 to 12680.00ft
Interval: 10.00ft

SILTSTONE: 15%, gray, gray-green,hard, sandy in part, calcareous, blocky.

SANDSTONE: 85%, light red, light gray, arkosic in part, very fine grained to fine grained, occasional coarse grained, rounded to subangular,moderately sorted, consolidated, abundant calcareous siltstone matrix, feldspar grains,green glauconite grains, micaceous, trace dark gray, silty shale laminations.

12680.00 to 12690.00ft
Interval: 10.00ft

SILTSTONE: 70%, gray-green,gray, silt to very fine grained sand,hard, very calcareous, trace glauconite grains, micaceous, trace red arkosic siltstone inlcs, blocky.

SANDSTONE: 20%, light gray-green,light red, arkosic, mottled in part, very fine to fine grained, consolidated, calcareous, micaceous, trace glauconite grains, tight.

LIMESTONE: 10%, dark gray, black,cryptocrystalline,rhty, argillaceous in part, occasional fossil debris(crinoid).

12690.00 to 12700.00ft
Interval: 10.00ft

SILTSTONE: 90%, light gray,gray-green, silt to very fine grained sand, hard,glauconite grains, very calcareous,micaceous, blocky.

SANDSTONE: 10%, light gray,gray-green,fine to very fine grained, consolidated, common calcite cement, silty in part, micaceous, trace glauconite grains, tight. Minor limestone dark gray, cryptocrystalline, argillaceous, trace fossil debris.

12700.00 to 12710.00ft
Interval: 10.00ft

SILTSTONE: 20%, light gray,minor gray-green, trace dark gray and carbonaceous, hard, slightly sandy, calcareous, blocky.

SANDSTONE: 80%, light gray, fine to very fine grained, rounded to subangular, well sorted, consolidated, calcite cement, micaceous, trace glauconite grains, occasional gray siltstone stringers, tight.

12710.00 to 12720.00ft
Interval: 10.00ft

SILTSTONE: 15%, as above.

SANDSTONE: 85%, light gray, very fine to fine grained, rounded to angular, moderately sorted,well indurated, abundant calcite cement, trace interstital organic material, rare glauconite grains, hard, tight.

12720.00 to 12730.00ft
Interval: 10.00ft

SILTSTONE: 20%, gray to dark gray,firm to earthy, micaceous, trace very calcareous, blocky.

SANDSTONE: 78%, light gray, gray, very fine to partly fine grained, subrounded, well sorted, well indurated, calcareous cement, trace glauconite grains, micaceous, slightly silty. Trace fine to medium grained sandstone stringers which are fractured. Crystalline calcite fracture fill, trace bitumen.

LIMESTONE: 2%, dark brown, black, earthy, argillaceous, fossil fragments.

12730.00 to 12740.00ft
Interval: 10.00ft

SILTSTONE: 20%, light gray, gray, hard, very calcareous, sandy in part, trace glauconite grains, blocky.

SHALE: 80%, black, firm to hard, very calcareous, common disseminated pyrite, trace carbonaceous fragments, rare indistinct fossils, sub-blocky.

12740.00 to 12750.00ft
Interval: 10.00ft

SHALE: 30%, black, firm to hard, very calcareous, trace sparry calcite, disseminated pyrite, sub-blocky.

SILTSTONE: 30%, light gray, to gray, firm, argillaceous, calcareous, trace sandy, blocky.

LIMESTONE: 40%, dark gray, crypto -micxl, earthy texture, very argillaceous in part, trace fossil debris(crinoid), calcareous mudstone.

12750.00 to 12760.00ft
Interval: 10.00ft

SHALE: 10%, black, as above.

SILTSTONE: 5%, gray, silt to partly very fine grained sand, hard, very calcareous, slightly argillaceous, trace glauconite grains, blocky.

LIMESTONE: 85%, gray, micro-crystalline, firm, very argillaceous, slightly silty, fragmental, sparry calcite inclusions, very finely laminated, tight.

12760.00 to 12770.00ft
Interval: 10.00ft

SHALE: 20%, black, fine texture,hard, very calcareous, micaceous, subfissile.

SILTSTONE: 40%, gray,silt to very fine grained sand,argillaceous, very calcareous, common disseminated pyrite, slightly micaceous, blocky.

SANDSTONE: 10%, gray, trace green, fine to partly coarse grained, consolidated, abundant calcite matrix, tight.

LIMESTONE: 30%, gray, dark gray,cryptocrystalline, moderately hard, slightly argillaceous, bioclastic, tight.

12770.00 to 12780.00ft
Interval: 10.00ft

SHALE: 10%, black, hr, fine texture, calcareous, disseminated pyrite, subblocky.

SILTSTONE: 70%, gray, light gray, firm to hard, very calcareous, slightly micaceous, very sandy,blocky. Grading to silty calcareous sandstone.

	SANDSTONE: 15%, light gray, fine grained, minor coarse grained, subangular to subrounded, moderate sorting, consolidated, very calcareous,silty, rare mica, trace glauconite grains, tight.
	LIMESTONE: 5%, black, dark gray, cryptocrystalline, hard, very argillaceous, trace sand inclusions.
12780.00 to 12790.00ft **Interval: 10.00ft**	**SHALE: 5%**, black, very calcareous, trace sand inclusions, blocky.
	SILTSTONE: 40%, dark gray,trace light gray green,silt to very fine grained sand, very calcareous,slightly micaceous, argillaceous in part, blocky. Grades to very fine grained silty sandstone.
	SANDSTONE: 50%, light gray, translucent, very fine to partly coarse grained, angular to subrounded, poorly sorted,well consolidated, calcite cement, hard, common siltstone stringers, rare limestone grains, tight.
	LIMESTONE: 5%, black, dark gray, cryptocrystalline, very argillaceous, trace sand inclusions, tight.
12790.00 to 12800.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, light gray, gray, trace inclusions of light red siltstone, calcareous, firm, very calcareous, micaceous, minor black shale laminations, blocky.
	SANDSTONE: 70%, light gray, very fine to fine grained, minor coarse grained, subrounded to subangular, medium sorted, well consolidated, calcite cement, glauconite grains, siltstone stringers, hard, disseminated pyrite, trace feldspar grains, crystalline calcite and sparry calcite, tight.
12800.00 to 12820.00ft **Interval: 20.00ft**	**SILTSTONE: 85%**, gray, light gray green, trace dark gray, hard, very calcareous, argillaceous to very sandy, scattered glauconite grains, trace light green claystone laminations,trace limestone, blocky.
	SANDSTONE: 15%, light gray, very fine to fine grained, well consolidated, calcite cement, trace aeolian sand grains, tight.
12820.00 to 12830.00ft **Interval: 10.00ft**	**SILTSTONE: 85%**, light gray green, light gray, hard, partly firm, earthy texture in part, very calcareous, silt to very fine grained sand, dense, trace glauconite grains, micaceous, blocky.
	CLAYSTONE: 15%, orange, very calcareous, slightly silty, earthy texture, massive.
12830.00 to 12850.00ft **Interval: 20.00ft**	**SILTSTONE: 100%**, gray green, light gray, minor re, firm to hard, very calcareous, sandy to very sandy in part, micaceous, trace red claystone inclusions, rare anhydrite matrix, trace well rounded aeolian sand grains.
12862.00ft	**PARADOX**
12850.00 to 12870.00ft **Interval: 20.00ft**	**SILTSTONE: 100%**, light gray, gray green, hard, calcareous,silt to very sandy in part, rare interstital anhydrite, blocky. grades to very silty calcareous sandstone in part.
12870.00 to 12880.00ft **Interval: 10.00ft**	**SILTSTONE: 30%**, light gray, gray green, very calcareous, slightly anhydritic, blocky.
	LIMESTONE: 40%, (mudstone)dark gray, microcrystalline, very argillaceous, silty in part, common light gray anhydrite inclusions and laminations.
	ANHYDRITE: 30%, light gray, translucent, massive to partly microcrystalline, soft, trace argillaceous stringers.

12880.00 to 12890.00ft
Interval: 10.00ft

SHALE: 10%, black, hard, micaceous, very calcareous, blocky.

SILTSTONE: 30%, gray green, dark to medium gray, hard, sandy, very calcareous, anhydritic, micaceous, disseminated pyrite, blocky.

LIMESTONE: 20%, (mudstone)black, earthy, crpxln, sorted, interbedded anhydrite, very argillaceous in part, tight.

ANHYDRITE: 40%, light gray, translucent, massive to micro-crystalline, common shaley limestone laminations.

12890.00 to 12900.00ft
Interval: 10.00ft

SHALE: 10%, as above.

LIMESTONE: 50%, dark gray, gray, cryptocrystalline to partly microcrystalline, earthy texture, firm, partly very argillaceous, common anhydrite inclusions and laminations, tight.

ANHYDRITE: 40%, light gray, translucent, massive to crystalline, occasional argillaceous limestone stringers.

12900.00 to 12910.00ft
Interval: 10.00ft

SILTSTONE: 20%, gray, light gray-green, silt to very fine grained sand, very calcareous, micaceous, partly argillaceous, blocky.

LIMESTONE: 80%, black, gray, cryptocrystalline to microcrystalline,hard,earthy in part,slightly silty, scattered fossil(fusulinid,brachiopod) debris,partly very argillaceous,common translucent crystalline anhydrite inclusions and laminations.

12910.00 to 12920.00ft
Interval: 10.00ft

SHALE: 20%, black, hard, micaceous, calcareous to very calcareous, trace carbonaceous fragments, disseminated pyrite, subfissile.

LIMESTONE: 70%, dark gray, black, cryptocrystalline, earthy in part, hard,argillaceous to partly very argillaceous, common anhydrite inclusions, rare fossil material, trace carbonaceous fragments, tight.

ANHYDRITE: 10%, light gray, translucent, microcrystalline to massive, slightly shaly.

12920.00 to 12930.00ft
Interval: 10.00ft

SILTSTONE: 60%, gray, firm, slightly argillaceous, calcareous, anhydritic, blocky.

LIMESTONE: 10%, black, dark gray, cryptocrystalline to microcrystalline,argillaceous, anhydrite inclusions, scattered fossil debris(fusulinid), tight.

ANHYDRITE: 30%, light gray, translucent in part, crystalline to massive, argillaceous limestone stringers.

12930.00 to 12940.00ft
Interval: 10.00ft

SILTSTONE: 20%, gray, argillaceous, very calcareous, grading to silty limestone.

LIMESTONE: 70%, gray, brown, microcrystalline, partly cryptocrystalline,dense, anhydritic,slightly argillaceous, silty in part, trace fossil debris, fractured, tight.

ANHYDRITE: 10%, light gray, translucent, massive.

12940.00 to 12950.00ft
Interval: 10.00ft

SILTSTONE: 10%, gray, as above.

LIMESTONE: 70%, (mudstone), gray, dark gray, cryptocrystalline to microcrystalline,very argillaceous, silty, earthy texture,anhydritic, shale laminations, very finely laminated, trace carbonaceous fragments.

	DOLOMITE: 15%, dark brown,microcrystalline,hard, calcareous,dense, tight.
	ANHYDRITE: 5%, as above.
12953.00ft	**PARADOX-SALT**
12950.00 to 12954.00ft Interval: 4.00ft	**LIMESTONE: 60%**, (mudstone), microcrystalline to cryptocrystalline,earthy texture, very argillaceous,silty, anhydritic,dolomitic, disseminated pyrite, finely laminated.
	SALT: 40%, clear, translucent, crystalline, soft, trace dolomite inclusions.
12954.00 to 12960.00ft Interval: 6.00ft	**LIMESTONE: 60%**, (mudstone) black, dark gray, microcrystalline to cryptocrystalline, earthy texture, very argillaceous, silty, anhydrite inclusions, trace salt.
	SALT: 40%, clear,translucent, crystalline, soft, trace crystalline anhydrite,bedded.
12960.00 to 12970.00ft Interval: 10.00ft	**SALT: 100%**, clear, crystalline(partly cubic), mass in part, minor brown dolomite inclusions, rare finely bedded anhydrite.
12970.00 to 13040.00ft Interval: 70.00ft	**SALT: 100%**, clear,translucent,crystalline,soft,massive, rare anhydrite and gypsum inclusions.
13040.00 to 13100.00ft Interval: 60.00ft	**SALT: 100%**, translucent, clear, massive,crystalline.Trace white finely bedded anhydrite and gypsum stringers.
13100.00 to 13110.00ft Interval: 10.00ft	**SALT: 90%**, translucent, clear,crystalline to massive.
	ANHYDRITE: 10%, white, amorphous,finely laminated,gypsum crystals,soft.
13110.00 to 13120.00ft Interval: 10.00ft	**SALT: 100%**, translucent,clear, crystalline, massive, trace anhydrite inclusions.
13120.00 to 13130.00ft Interval: 10.00ft	**SALT: 98%**, translucent, crystalline, massive. Rare black, hard, dolomitic shale laminations.
	ANHYDRITE: 2%, white, very finely bedded, gypsum crystals, slightly argillaceous.
13130.00 to 13160.00ft Interval: 30.00ft	**SALT: 100%**, translucent, clear, crystalline to massive, trace white earthy anhydrite inclusions.
13160.00 to 13170.00ft Interval: 10.00ft	**SALT: 95%**, translucent, clear, massive to crystalline, trace anhydrite inclusions.
	ANHYDRITE: 5%, white, earthy, finely laminated, soft, gypsum crystals.
13170.00 to 13180.00ft Interval: 10.00ft	**SALT: 98%**, as above.
	ANHYDRITE: 2%, white, soft, massive, earthy, slightly argillaceous, trace gypsum crystals.
13180.00 to 13190.00ft Interval: 10.00ft	**SALT: 95%**, clear, translucent, massive to crystalline,slightly anhydritic.
	ANHYDRITE: 5%, white, gray, earthy, massive, trace argillaceous material, rare black dolomitic bitumen shale inclusions.

13190.00 to 13210.00ft **Interval: 20.00ft**	**SALT: 90%**, translucent, clear, massive to crystalline, firm, slightly anhydritic, convolute bedding.
	ANHYDRITE: 10%, white,light gray,soft,earthy,finely bedded,common salt inclusion,slightly argillaceous.
13210.00 to 13220.00ft **Interval: 10.00ft**	**SALT: 100%**, as above.
13220.00 to 13230.00ft **Interval: 10.00ft**	**SALT: 95%**, clear, translucent,massive to crystalline,slightly argillaceous,occasional anhydrite inclusions. Convoluted bedding.
	ANHYDRITE: 4%, white, light gray, rhty,salt inclusion, finely laminated, argillaceous in part.
	SHALE: 1%, black,hard, dolomitic,bituminous, very finely laminated.
13230.00 to 13240.00ft **Interval: 10.00ft**	**SALT: 98%**, translucent, clear, massive to crystalline, trace anhydritic, becoming more argillaceous, very hard where argillaceous, convoluted bedding.
	ANHYDRITE: 2%, white, light gray, earthy, massive, partly finely laminated.
13240.00 to 13260.00ft **Interval: 20.00ft**	**SALT: 100%**, translucent, platy clear, massive to crystalline, anhydritic in part, trace black dolomitic shale inclusions, slightly argillaceous.
13260.00 to 13270.00ft **Interval: 10.00ft**	**SALT: 90%**, translucent, clear in part, massive to crystalline, slightly argillaceous, anhydritic.
	ANHYDRITE: 10%, white, light gray, massive, finely laminated, common salt inclusions, as stringers in salt.
13270.00 to 13280.00ft **Interval: 10.00ft**	**SALT: 100%**, translucent, clear in part, massive to crystalline, convoluted, interbedded light gray slightly argillaceous anhydrite.
13280.00 to 13290.00ft **Interval: 10.00ft**	**SALT: 100%**, translucent, partly clear,gray, massive to crystalline, anhydritic, becoming more argillaceous.
13290.00 to 13300.00ft **Interval: 10.00ft**	**SALT: 75%**, translucent to clear, anhydritic, argillaceous inclusions, brecciated appearance.
	ANHYDRITE: 25%, white, light gray,finely bedded, common crystalline salt inclusions and stringers, slightly argillaceous.
13300.00ft	**PARADOX BASE SALT**
13300.00 to 13310.00ft **Interval: 10.00ft**	**SILTSTONE: 45%**, gray, dark gray in part, hard to partly earthy and soft, calcareous to dolomitic, micaceous, trace black dolomitic, euxinic shale laminations.
	DOLOMITE: 10%, dark brown, microcrystalline, dense, hard, very argillaceous, silty.Basinal.
	ANHYDRITE: 30%, white, light gray, earthy in part, common salt inclusions.
	SALT: 15%, translucent to clear, as above.
13310.00 to 13320.00ft **Interval: 10.00ft**	**SHALE: 10%**, black, dark gray, calcareous to dolomitic, hard, silty in part, anhydritic, blocky.
	SILTSTONE: 60%, gray, dark gray, hard to partly earthy and soft, anhydritic, calcareous to partly dolomitic, micaceous, trace very fine grained sand, fractured, minor bitumen, blocky.

ANHYDRITE: 20%, gray, light gray, massive, silty.

SALT: 10%, as above.

13320.00 to 13339.00ft
Interval: 19.00ft

SILTSTONE: 80%, medium to dark gray, hard to partly soft, calcareous to dolomitic, anhydritic, argillaceous, micaceous, blocky. Occasionally grading to very silty, argillaceous dolomite.

ANHYDRITE: 20%, light gray, gray, massive, silty, calcareous, argillaceous. trace crystalline salt inclusions.

DAILY DRILLING SUMMARY

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
JAN 22, 1997	173.00	173.00	10.00	N/A	N/A	N/A	N/A	Clean out 26" hole.
JAN 23, 1997	315.00	142.00	15.00	N/A	N/A	N/A	N/A	Cement 20" casing.
JAN 24, 1997	315.00	0.00	0.00	N/A	N/A	N/A	N/A	Nipple up.
JAN 25, 1997	315.00	0.00	0.00	N/A	N/A	N/A	N/A	Run in hole.
JAN 26, 1997	387.00	72.00	2.00	N/A	N/A	N/A	N/A	Air drilling 17.5" hole.
JAN 27, 1997	842.00	455.00	12.00	N/A	N/A	N/A	N/A	Air drilling 17.5" hole.
JAN 28, 1997	1715.00	873.00	20.50	N/A	N/A	N/A	N/A	Air drilling at 40' per hour.
JAN 29, 1997	2586.00	871.00	21.50	N/A	N/A	N/A	N/A	Air drilling at 35' per hour.
JAN 30, 1997	2955.00	369.00	17.50	N/A	N/A	N/A	N/A	Work tight connection.
JAN 31, 1997	3016.00	61.00	2.50	N/A	N/A	N/A	N/A	Ream at 2118' with air water mix.
FEB 01, 1997	3030.00	14.00	5.50	N/A	N/A	N/A	N/A	Drilling with air water mix.
FEB 02, 1997	3092.00	62.00	19.50	N/A	N/A	N/A	N/A	Drilling at 8 minutes per foot.
FEB 03, 1997	3117.00	25.00	7.00	N/A	N/A	N/A	N/A	Ream in bottom hole assembly at 3080'.
FEB 04, 1997	3214.00	97.00	18.50	N/A	N/A	N/A	N/A	Survey at 3165'.
FEB 05, 1997	3368.00	154.00	22.50	N/A	N/A	N/A	N/A	Drilling with air water mix at 10 min/ft.
FEB 06, 1997	3428.00	60.00	12.00	N/A	N/A	N/A	N/A	Run in hole after trip for bit and ream bridge at 3240'.
FEB 07, 1997	3555.00	127.00	20.00	N/A	N/A	N/A	N/A	Drilling at 5'/hour.
FEB 08, 1997	3846.00	291.00	21.50	N/A	N/A	N/A	N/A	Drilling at 11'/hour.
FEB 09, 1997	4020.00	174.00	19.50	N/A	N/A	N/A	N/A	Trip out for bit.

GCRL ENERGY LTD.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
FEB 10, 1997	4081.00	61.00	16.50	N/A	N/A	N/A	N/A	Drilling with air water mix at 2'/hour.
FEB 11, 1997	4251.00	170.00	23.00	N/A	N/A	N/A	N/A	Drilling at 5'/hour.
FEB 12, 1997	4402.00	151.00	23.50	N/A	N/A	N/A	N/A	Drilling at 4'/hour.
FEB 13, 1997	4486.00	84.00	20.00	N/A	N/A	N/A	N/A	Drilling with air water mix at 5'/hour.
FEB 14, 1997	4495.00	9.00	2.00	N/A	N/A	N/A	N/A	Run in hole after trip for bit and ream at 4405'.
FEB 15, 1997	4600.00	105.00	19.50	N/A	N/A	N/A	N/A	Drilling at 5'/hour.
FEB 16, 1997	4671.00	71.00	8.50	8.90	31.00	10.50	11.00	Run in hole after trip for bit and ream at 3037'.
FEB 17, 1997	4766.00	95.00	15.00	8.90	31.00	10.50	11.00	Drilling at 6'/hour.
FEB 18, 1997	4934.00	168.00	22.50	8.90	31.00	10.50	11.50	Drilling 17.5" hole.
FEB 19, 1997	5011.00	77.00	16.00	9.00	31.00	10.20	11.50	Trip for bit due to deviation.
FEB 20, 1997	5021.00	10.00	5.00	9.00	31.00	10.20	11.50	Drilling 17.5" hole with air water mix.
FEB 21, 1997	5075.00	54.00	21.50	9.00	31.00	10.20	11.50	Drilling 17.5" hole.
FEB 22, 1997	5133.00	58.00	20.25	8.80	30.00	N/A	N/A	Drilling 17.5" hole with water only.
FEB 23, 1997	5191.00	58.00	21.00	8.80	30.00	N/A	N/A	Trip to change bottom hole assembly.
FEB 24, 1997	5200.00	9.00	2.50	8.80	30.00	N/A	N/A	Drilling 17.5" hole with water.
FEB 25, 1997	5259.00	59.00	23.00	8.90	35.00	8.40	11.50	Drilling 17.5" hole at 3'/hour.
FEB 26, 1997	5327.00	68.00	22.50	8.90	35.00	8.40	11.50	Drilling 17.5" hole at 3'/hour.
FEB 27, 1997	5398.00	71.00	22.75	9.10	35.00	7.40	11.50	Drilling 17.5" hole at 3'/hour.
FEB 28, 1997	5471.00	73.00	23.50	9.10	37.00	7.80	11.50	Drilling 17.5" hole at 3'/hour.

GCRL ENERGY LTD.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAR 01, 1997	5502.00	31.00	12.50	9.10	37.00	7.80	11.50	Trip for bit.
MAR 02, 1997	5514.00	12.00	5.50	9.10	37.00	7.80	11.50	Drilling 17.5" hole at 3'/hour.
MAR 03, 1997	5578.00	64.00	22.50	9.10	38.00	6.40	11.50	Drilling 17.5" hole at 3'/hour.
MAR 04, 1997	5641.00	63.00	23.00	9.10	38.00	6.40	11.50	Drilling 17.5" hole at 3'/hour.
MAR 05, 1997	5663.00	22.00	14.25	9.10	38.00	6.40	11.50	Trip for bit.
MAR 06, 1997	5686.00	23.00	19.50	9.10	38.00	6.40	11.50	Drilling 17.5" hole at 1'/hour.
MAR 07, 1997	5721.00	35.00	23.50	9.00	42.00	7.20	11.50	Drilling 17.5" hole at 2'/hour.
MAR 08, 1997	5800.00	79.00	17.00	9.00	65.00	7.00	11.00	Trip out to log and run casing.
MAR 09, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Logging with Schlumberger.
MAR 10, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Run 13 3/8" surface casing.
MAR 11, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Cement surface casing.
MAR 12, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Wait on cement.
MAR 13, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Nipple up BOP's.

GCRL ENERGY LTD.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAR 14, 1997	5800.00	0.00	0.00	9.00	65.00	7.00	11.00	Clean mud tanks prior to switching to invert mud.
MAR 15, 1997	2650.00	0.00	0.00	N/A	N/A	N/A	N/A	Drill casing cement.
MAR 16, 1997	5844.00	44.00	4.00	9.00	65.00	7.00	11.00	Drill 12.25" hole at 12'/hour.
MAR 17, 1997	5900.00	56.00	5.00	9.20	47.00	4.60	N/A	Pick up drill pipe and run in hole.
MAR 18, 1997	6107.00	207.00	14.00	9.00	46.00	6.00	N/A	Drill at 15'/hour.
MAR 19, 1997	6390.00	283.00	22.00	8.90	43.00	5.20	N/A	Drill at 12'/hour.
MAR 20, 1997	6654.00	264.00	21.75	8.80	41.00	5.00	N/A	Drill at 14'/hour.
MAR 21, 1997	6918.00	264.00	23.25	8.80	38.00	5.20	N/A	Drill at 10'/hour.
MAR 22, 1997	7015.00	97.00	11.00	8.80	38.00	5.20	N/A	Drill 12.25" hole at 10'/hour.
MAR 23, 1997	7228.00	213.00	23.25	8.80	42.00	5.00	N/A	Drill at 9'/hour.
MAR 24, 1997	7403.00	175.00	22.50	8.80	41.00	4.40	N/A	Drill at 8'/hour.
MAR 25, 1997	7572.00	169.00	22.00	8.80	44.00	4.20	N/A	Drill at 9'/hour.
MAR 26, 1997	7800.00	228.00	23.25	8.80	45.00	3.60	N/A	Drill at 10'/hour.

GCRL ENERGY LTD.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAR 27, 1997	7892.00	92.00	10.50	8.70	46.00	3.60	N/A	Drill 12.25" hole at 10'/hour.
MAR 28, 1997	8118.00	226.00	23.50	8.70	46.00	3.40	N/A	Drill at 10'/hour.
MAR 29, 1997	8316.00	198.00	23.00	8.70	47.00	3.60	N/A	Drill at 9'/hour.
MAR 30, 1997	8394.00	78.00	9.50	8.70	47.00	3.60	N/A	Drill at 10'/hour.
MAR 31, 1997	8572.00	178.00	22.50	8.80	52.00	3.80	N/A	Drill at 8'/hour.
APR 01, 1997	8738.00	166.00	22.00	8.90	54.00	4.20	N/A	Drill at 8'/hour.
APR 02, 1997	8882.00	144.00	21.00	8.80	44.00	4.40	N/A	Trip for bit.

G.C.R.L. SEISMOSAUR FEDERAL #1

NW NE 20-21S-20E UTAH

PART 2

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WELL DATA SUMMARY

WELL NAME: G.C.R.L. SEISMOSAUR FEDERAL #1
OPERATOR: GCRL ENERGY LTD.
LOCATION: NW NE 20-21S-20E
NS CO-ORDINATES: 92 feet South of the North boundary of Section 20.
EW CO-ORDINATES: 2320 feet West of the East boundary of Section 20.
PROVINCE: UTAH
AREA: GRAND COUNTY, UTAH
DRILLING CONTRACTOR: NABORS DRILLING USA Rig #: 280
WELL LICENCE NUMBER: UT1064
ELEVATIONS - GROUND LEVEL: 5137.00ft
- KELLY BUSHING: 5168.50ft
SPUD DATE: JAN 21, 1997 at 1800 hours
T.D. DATE: JUN 17, 1997 at 06:15 hours
SAMPLE INTERVAL: 13340.00ft - 15483.00ft

ELECTRICAL LOGS RUN:

Rep#	Log#	Description	From(ft)	To(ft)
1	1	Phasor Induction BHC Sonic Gamma Ray	0.00	0.00
1	2	Phasor Induction BHC Sonic Gamma Ray	15418.00	13339.00
1	3	Phasor Induction Gamma Ray	15418.00	13339.00
1	4	Phasor Induction Gamma Ray	15464.00	13339.00
1	5	Compensated Neutron Litho-Density GR	15477.00	13339.00
1	6	BHC Sonic Gamma Ray	15475.00	13339.00

DRILL STEM TESTS:

DST#	From(ft)	To(ft)
1	13268.00	14250.00

CORES CUT:

Cores#	From(ft)	To(ft)	Formation

WELL STATUS: Potential Gas

CASING SUMMARY

String#	Name	Casing Size (inches)	Hole Size (inches)	Joints (#)	Weight (lbs/ft)	Landed At (ft)	Cement (sacks)	Cement Type
3	Intermediate	9.62	12.25	299	53.50	13339.00	1434.00	1176 sks. Premium Lite & 30% Silica flour + additives; and 258 sks same + BA-90.

DAILY DRILLING SUMMARY

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAY 12, 1997	13339.00	0.00	0.00	N/A	N/A	N/A	N/A	Rig to run 9 5/8" casing.
MAY 13, 1997	13339.00	0.00	0.00	N/A	N/A	N/A	N/A	Circulate and rig to cement casing.
MAY 14, 1997	13339.00	0.00	0.00	N/A	N/A	N/A	N/A	Pressure testing.
MAY 15, 1997	13395.00	56.00	5.25	8.40	44.00	4.20	N/A	Drilling 8.5" hole.
MAY 16, 1997	13470.00	75.00	8.75	8.50	53.00	4.20	N/A	Drilling 8.5" hole.
MAY 17, 1997	13576.00	106.00	12.50	8.50	48.00	4.40	N/A	Work stuck pipe.
MAY 18, 1997	13607.00	31.00	5.50	8.50	48.00	4.40	N/A	Drilling 8.5" hole.
MAY 19, 1997	13749.00	142.00	19.25	8.30	52.00	4.40	N/A	Drilling 8.5" hole.
MAY 20, 1997	13874.00	125.00	22.50	9.60	50.00	5.40	N/A	Drilling 8.5" hole.
MAY 21, 1997	13890.00	16.00	2.75	9.60	50.00	5.40	N/A	Ream to bottom after trip for bit.
MAY 22, 1997	14026.00	136.00	22.25	9.70	56.00	5.00	N/A	Drilling 8.5" hole.
MAY 23, 1997	14162.00	136.00	23.25	9.60	50.00	4.80	N/A	Circulate up sample.

GCRL ENERGY LTD.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
MAY 24, 1997	14336.00	174.00	16.00	9.60	50.00	4.80	N/A	Wiper trip to casing.
MAY 25, 1997	14336.00	0.00	0.00	9.60	50.00	4.80	N/A	Work stuck pipe at 14182'.
MAY 26, 1997	14406.00	70.00	12.50	9.60	50.00	4.80	N/A	Drilling 8.5" hole.
MAY 27, 1997	14440.00	34.00	5.00	9.60	50.00	4.80	N/A	Trip for bit.
MAY 28, 1997	14628.00	188.00	17.00	9.60	54.00	4.40	N/A	Drilling 8.5" hole.
MAY 29, 1997	14688.00	60.00	12.25	9.60	54.00	4.40	N/A	Drilling 8.5" hole.
MAY 30, 1997	14805.00	117.00	17.50	9.60	54.00	4.40	N/A	Jar stuck pipe.
MAY 31, 1997	14805.00	0.00	0.00	9.60	54.00	4.40	N/A	Jar stuck pipe.
JUN 01, 1997	14826.00	21.00	4.75	9.60	54.00	4.40	N/A	Wiper trip, ream to bottom.
JUN 02, 1997	14958.00	132.00	21.50	9.70	51.00	4.00	N/A	Drilling 8.5" hole.
JUN 03, 1997	14964.00	6.00	1.50	9.70	51.00	4.00	N/A	Jar stuck pipe.
JUN 04, 1997	14964.00	0.00	0.00	9.70	51.00	4.00	N/A	Trip out for bit, back ream at 13614'.
JUN 05, 1997	14964.00	0.00	0.00	9.70	51.00	4.00	N/A	Trip in hole.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
JUN 06, 1997	15033.00	69.00	13.00	9.70	51.00	4.00	N/A	Drilling 8.5" hole.
JUN 07, 1997	15112.00	79.00	14.50	9.70	51.00	4.00	N/A	Ream tight hole.
JUN 08, 1997	15136.00	24.00	6.00	9.60	72.00	5.20	N/A	Jar stuck pipe.
JUN 09, 1997	15144.00	8.00	3.00	9.60	72.00	5.20	N/A	Drill 8.5" hole.
JUN 10, 1997	15199.00	55.00	16.50	9.60	72.00	5.20	N/A	Jar stuck pipe.
JUN 11, 1997	15258.00	59.00	19.50	10.90	62.00	5.40	N/A	Drilling 8.5" hole.
JUN 12, 1997	15285.00	27.00	6.75	10.90	62.00	5.40	N/A	Trip out for bit.
JUN 13, 1997	15285.00	0.00	0.00	10.90	62.00	5.40	N/A	Ream to bottom after trip for bit.
JUN 14, 1997	15331.00	46.00	14.00	10.90	62.00	5.40	N/A	Drilling 8.5" hole.
JUN 15, 1997	15385.00	54.00	21.25	12.00	60.00	5.80	N/A	Drilling 8.5" hole.
JUN 16, 1997	15441.00	56.00	23.50	12.00	60.00	5.80	N/A	Drilling 8.5" hole.
JUN 17, 1997	15482.00	41.00	23.50	12.00	60.00	5.80	N/A	Drilling 8.5" hole.
JUN 18, 1997	15483.00	1.00	0.25	12.00	60.00	5.80	N/A	Well shut in, weight up mud to control kick.

Date	0800 Depth (ft)	Progress (ft)	Hours Drlg.	Mud Weight (lb/gl)	Vis (sec/qt)	Fluid Loss (cc/30min)	PH	Activity
JUN 19, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Weight up mud and monitor salt water flow.
JUN 20, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	MIx surface mud and monitor salt water flow.
JUN 21, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Weight up mud, work pipe and monitor water flow.
JUN 22, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Circulate and condition 19 pound mud.
JUN 23, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Trip out of hole, back ream at 13645'.
JUN 24, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Pull out of hole.
JUN 25, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Nipple up BOP's.
JUN 26, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Trip out to log.
JUN 27, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Run in with Schlumberger Phasor Sonic Log, second attempt.
JUN 28, 1997	15483.00	0.00	0.00	12.00	60.00	5.80	N/A	Log with Schlumberger.

DEVIATION SURVEYS

Measured Depth (ft)	Angle of Inclination (Degree)	Azimuth (Degree)	T.V.D. (ft)	Latitude (ft)	Departure (ft)	Vert. Section (ft)	Dog Leg Severity (Deg/100ft)
13321.00	0.50	N/A	N/A	N/A	N/A	N/A	N/A
13400.00	1.00	N/A	N/A	N/A	N/A	N/A	N/A
13809.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A
14321.00	2.50	N/A	N/A	N/A	N/A	N/A	N/A
15185.00	1.50	N/A	N/A	N/A	N/A	N/A	N/A

BIT RECORD

Bit #: 21 **Size:** 12.25inch **Make:** HW **Type:** ATJ33
Serial #: L92CW **Jets:** 24.00, 24.00, 24.00, N/A
Depth: **In:** 12954.00ft **Out:** 13339.00ft **Made:** 385.00ft
Hours: 73.00hrs **Accumulated Hours:** 73.00hrs
FOB: 20000.00/40000.00lbs **RPM:** 60.00/60.00 **PP:** 2500.00psi
Mud Density: 8.30lbs/gal **Viscosity:** 45.00sec/qt **Vertical Deviation:** 0.50Deg
Condition: 5-3-I
Remark: Intermediate casing point.

Bit #: 22 **Size:** 8.50inch **Make:** Reed **Type:** HP13J
Serial #: PLR408 **Jets:** 18.00, 18.00, 18.00, N/A
Depth: **In:** 13339.00ft **Out:** 13428.00ft **Made:** 89.00ft
Hours: 9.50hrs **Accumulated Hours:** 82.50hrs
FOB: 24000.00/48000.00lbs **RPM:** 60.00/60.00 **PP:** 1500.00psi
Mud Density: 8.40lbs/gal **Viscosity:** 44.00sec/qt **Vertical Deviation:** 1.00Deg
Condition: 3-2-I

Bit #: 23 **Size:** 8.50inch **Make:** Smith **Type:** F3
Serial #: LJ8186 **Jets:** 18.00, 18.00, 18.00, N/A
Depth: **In:** 13428.00ft **Out:** 13890.00ft **Made:** 462.00ft
Hours: 67.00hrs **Accumulated Hours:** 149.50hrs
FOB: 10000.00/40000.00lbs **RPM:** 50.00/55.00 **PP:** 1550.00psi
Mud Density: 9.00lbs/gal **Viscosity:** 50.00sec/qt **Vertical Deviation:** 1.50Deg
Condition: 3-3-I

Bit #: 24 **Size:** 8.50inch **Make:** Reed **Type:** HP53A
Serial #: TY6406 **Jets:** 18.00, 18.00, 20.00, N/A
Depth: **In:** 13890.00ft **Out:** 14440.00ft **Made:** 550.00ft
Hours: 79.00hrs **Accumulated Hours:** 228.50hrs
FOB: 20000.00/40000.00lbs **RPM:** 50.00/55.00 **PP:** 1850.00psi
Mud Density: 9.60lbs/gal **Viscosity:** 55.00sec/qt **Vertical Deviation:** 2.50Deg
Condition: 3-7-I

Bit #: 25 **Size:** 8.50inch **Make:** HTC **Type:** ATJ22
Serial #: M49CC **Jets:** 18.00, 20.00, 20.00, N/A
Depth: **In:** 14440.00ft **Out:** 14964.00ft **Made:** 524.00ft
Hours: 74.50hrs **Accumulated Hours:** 303.00hrs
FOB: 20000.00/45000.00lbs **RPM:** 50.00/65.00 **PP:** 1900.00psi
Mud Density: 9.70lbs/gal **Viscosity:** 54.00sec/qt **Vertical Deviation:** 2.00Deg
Condition: 5-4-I

Bit #: 26 **Size:** 8.50inch **Make:** Reed **Type:** HP53A
Serial #: EX4279 **Jets:** 18.00, 20.00, 20.00, N/A
Depth: **In:** 14964.00ft **Out:** 15285.00ft **Made:** 321.00ft
Hours: 79.00hrs **Accumulated Hours:** 382.00hrs
FOB: 30000.00/45000.00lbs **RPM:** 60.00/65.00 **PP:** 2250.00psi
Mud Density: 11.50lbs/gal **Viscosity:** 60.00sec/qt **Vertical Deviation:** 1.50Deg
Condition: 3-3-I
Remark: Pulled for hours on bit.

Bit #: 27 **Size:** 8.50inch **Make:** Reed **Type:** HP51A
Serial #: DJ4311 **Jets:** 22.00, 22.00, 22.00, N/A
Depth: **In:** 15285.00ft **Out:** 15483.00ft **Made:** 198.00ft
Hours: 83.25hrs **Accumulated Hours:** 465.25hrs
FOB: 18000.00/45000.00lbs **RPM:** 55.00/60.00 **PP:** 2375.00psi
Mud Density: 12.00lbs/gal **Viscosity:** 58.00sec/qt **Vertical Deviation:** 1.50Deg
Condition: 8-8-4.00
Remark: Lost one cone.

DRILL STEM TEST REPORTS

Well Name: G.C.R.L. SEISMOSAUR FEDERAL #1
Location: NW NE 20-21S-20E
Dst # and Interval: 1, 13268.00 to 14250.00ft
Date: JUL 08, 1997
Formation: Paradox
Test Type: Open Hole below casing.
Hole Size: 8.50in
Testing Company: HRS Halliburton

MUD PROPERTIES

Mud Density: 12.80lbs/gal **Viscosity :** 50.00sec/qt **pH :** N/A
Fluid Loss: 6.00cc/30min **Water Cushion (if any) :** 0.00ft

TIME AND PRESSURES

	Time (min)	Pressure (psi)
Preflow	180.00	3797.00
I.S.I.	360.00	7718.00
V.O./I.F.	60.00	3987.00
F.F.	--------	4139.00
F.S.I.	240.00	7106.00
I.H.	--------	9240.00
F.H.	--------	9192.00

Bottom Hole Temperature : 234.00 Degrees F

RECOVERY AND DESCRIPTION

Flow Description: With 1/4" choke: surface pressure dropped from 2450 to 16 psi.

Valve Open Description: With 1/8" bubble hose: blow 9" in water pail, increased to 9.5" at end of flow.

Fluid Recovery: 4193 feet of 16 pound/foot gas cut drilling mud.

Remarks: Charts indicate possible plugging during the flow periods.

Salinity: N/Appm

Samples: **Quantity:** N/A

Sent To: N/A

LOGGING REPORT

Date: JUN 26, 1997
Logging Company: Schlumberger
Logging Engineer: Jim Tringe and A. White
Truck Number: 8426
Hole Size: 8.50in
Depth (Driller's): 15483.00ft
Depth (Strap): N/Aft
Depth (Logger's): 15479.00ft
Last Casing: Depth : 13339.00ft **Size:** 9.62in **Weight:** 53.50lbs/ft

MUD DETAILS

Mud Type: Invert
Mud Type: 19.30lbs/gal
Viscosity: 67.00sec/qt
pH: N/A
Fluid Loss: 4.60cc/30min
Salinity: N/Appm

OPERATIONS SUMMARY

Hole conditions prior to logging: Good
Circulation time after T.D.: 24 hours.
Number of Dummy Trips: 0
Description of Dummy Trips: No wiper trips.
Number of Runs in Hole: Total: 6 **Suceeded:** 3 **Failed :** 3

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (ft)	Interval To (ft)	Remarks
Phasor Induction BHC Sonic Gamma Ray	8.00	N/A	N/A	Ran in to 13000'. Lost all signals from tool. Pull out.
Phasor Induction BHC Sonic Gamma Ray	9.00	15418.0	13339.0	Lost all signals from tool except gamma. Logged Gamma only.
Phasor Induction Gamma Ray	5.00	N/A	N/A	Could not get tool to work in surface casing. Change gamma.
Phasor Induction Gamma Ray	8.00	15464.0	13339.0	No problems.
Compensated Neutron Litho-Density GR	9.00	15477.0	13339.0	No problems.
BHC Sonic Gamma Ray	6.00	15475.0	13339.0	No problems.

Total Hours Logging: 45.00

FURTHER REMARKS

Entire tool failed on first run. Only gamma ray worked on second run. Entire tool failed on third run. Next three runs: no problems.

FORMATION TOPS

Kelly Bushing : 5168.50ft

Formation	Prognosis (ft)	Sample Top (ft)	Sample TVD (ft)	Log Top (ft)	Log TVD (ft)	Subsea (ft)
PARADOX	12800.00	12862.00	12862.00	12864.00	12864.00	-7695.50
TOTAL DEPTH	17000.00	15483.00	15483.00	15479.00	15479.00	-10310.50

FORMATION EVALUATIONS

Formation:	PARADOX		
Age:	PENNSYLVANIAN		
Member:	N/A		
Sample Top:	12862.00ft	**Sample TVD:**	12862.00ft
Log Top:	12864.00ft	**Log TVD:**	12864.00ft
Thickness:	2619.00ft	**Subsea:**	-7695.50ft

Evaluation: The Paradox consists of massive salts, 10' to 350' thick (comprising 47% of the total Paradox lithology drilled), and interbedded dolomitic calcareous sandy siltstones, very argillaceous silty tight limestones, and silty marlstones. Minor amounts of interbedded tight silty dolomites, argillaceous anhydrites, black carbonaceous shales and tight silty sandstones also occur throughout this section. The only significant porosity detected occurs in two fractured black shales. The first fractured shale, from 13648' to 13680', had a significant gas show while drilling. The total gas increased from 100 units background to 4400 units peak gas. The mud weight was increased from 8.3 to 9.6 pounds per gallon to control the gas. The second fractured shale, from 15455' to 15483', occurs as thin interbeds within argillaceous anhydrites. The well kicked and flowed approximately 1680 barrels per day of saturated salt water after drilling this inteval. The mud weight had to be increased from 12.0 to 19.1 pounds per gallon to kill the salt water flow.

Conclusion: The only potential hydrocarbon reservoir in the Paradox appears to be the fractured shale at 13648' to 13680'.

Formation:	TOTAL DEPTH		
Age:	N/A		
Member:	N/A		
Sample Top:	15483.00ft	**Sample TVD:**	15483.00ft
Log Top:	15479.00ft	**Log TVD:**	15479.00ft
Thickness:	N/A	**Subsea:**	-10310.50ft

Evaluation: N/A

Conclusion: N/A

SAMPLE DESCRIPTIONS

Well Name: G.C.R.L. SEISMOSAUR FEDERAL #1
Location: NW NE 20-21S-20E

12862.00ft	PARADOX
12850.00 to 13340.00ft Interval: 490.00ft	CASING: N/A, Intermediate casing set at 13339'.
13340.00 to 13350.00ft Interval: 10.00ft	SILTSTONE: 60%, medium brown gray, very dolomitic, sandy, slightly pyritic, micromicaceous in part, argillaceous, calcareous in part. DOLOMITE: 20%, medium brown gray, microcrystalline, very silty, argillaceous, sandy, calcareous in part, tight. CEMENT: 20%, Casing cement.
13350.00 to 13360.00ft Interval: 10.00ft	SHALE: 80%, black, fissile, micromicaceous, very carbonaceous, bituminous, calcareous to very calcareous, silty in part. SILTSTONE: 10%, as above. CEMENT: 10%, Casing cement.
13360.00 to 13370.00ft Interval: 10.00ft	SHALE: 100%, as above; with minor Siltstone stringers, as above.
13370.00 to 13380.00ft Interval: 10.00ft	SHALE: 100%, as above.
13380.00 to 13390.00ft Interval: 10.00ft	SHALE: 85%, as above, very silty in part. SILTSTONE: 15%, dark to medium gray to brown gray, very argillaceous, calcareous, dolomitic.
13390.00 to 13400.00ft Interval: 10.00ft	SANDSTONE: 20%, medium to light gray, very fine grained, subangular, well sorted, quartz with minor dark chert grains, silty, very calcareous, very dolomitic, glauconitic, pyritic in part, argillaceous in part, tight. SILTSTONE: 30%, dark to medium gray to brown gray, sandy, argillaceous, micromicaceous, calcareous, dolomitic, trace glauconitic. SHALE: 50%, as above, very silty.
13400.00 to 13410.00ft Interval: 10.00ft	SANDSTONE: 70%, medium to light gray to brown gray in part, very fine to minor fine to trace medium grained, subangular, well sorted, quartz with dark chert grains in part, very dolomitic, calcareous in part, glauconitic, silty to very silty, argillaceous in part, siliceous in part, trace pyritic, tight to trace very poor porosity stringers. SILTSTONE: 18%, medium to light brown gray, very dolomitic, sandy, calcareous in part, argillaceous. SHALE: 10%, as above. DOLOMITE: 2%, stringers, light brown gray, microcrystalline, very silty, argillaceous, tight.
13410.00 to 13418.00ft Interval: 8.00ft	SILTSTONE: 70%, as above, very sandy, slightly glauconitic, micromicaceous in part. SANDSTONE: 20%, as above, very silty, micaceous, tight.

SHALE: 10%, with: 5% Shale, as above; and 5% Shale, medium to light gray, silty, dolomitic, micaceous in part, calcareous in part.

13418.00 to 13428.00ft
Interval: 10.00ft

SILTSTONE: 60%, as above.

SANDSTONE: 20%, as above.

SHALE: 20%, as above.

13428.00 to 13430.00ft
Interval: 2.00ft

SILTSTONE: 50%, medium to light brown gray, very sandy, dolomitic, calcareous in part, micaceous in part, argillaceous.

SANDSTONE: 20%, medium to light brown gray, very fine grained, subangular, well sorted, quartz with minor dark chert grains, very silty, dolomitic, calcareous in part, micaceous in part, argillaceous in part, slightly glauconitic, tight.

SHALE: 10%, black, fissile, carbonaceous.

MARLSTONE: 10%, medium to light brown gray, calcareous, silty.

SALT: 10%, light gray to clear.

13430.00 to 13440.00ft
Interval: 10.00ft

SALT: 50%, white to clear, argillaceous in part.

SILTSTONE: 30%, light brown gray, very sandy, argillaceous, slightly glauconitic, micromicaceous in part, dolomitic, calcareous in part, anhydritic in part.

SANDSTONE: 20%, light brown gray, very fine to minor fine to trace medium grained, subangular, well sorted, quartz with minor dark chert grains, very silty, anhydritic, glauconitic, micaceous in part, dolomitic, slightly calcareous, siliceous in part, tight.

13440.00 to 13450.00ft
Interval: 10.00ft

SILTSTONE: 60%, as above; with minor Shale partings, medium to light gray, calcareous, dolomitic, silty.

SANDSTONE: 20%, as above.

SALT: 20%, as above.

13450.00 to 13460.00ft
Interval: 10.00ft

SILTSTONE: 70%, medium to light brown gray, very calcareous, dolomitic, sandy to very sandy, argillaceous, slightly glauconitic, micromicaceous, slightly anhydritic.

SANDSTONE: 20%, medium to light brown gray, very fine grained with trace fine and trace medium grained, subangular, well sorted, quartz grains, very silty, dolomitic, calcareous in part, siliceous in part, micromicaceous, slightly glauconitic, argillaceous in part, anhydritic in part, tight.

SHALE: 5%, dark gray to black, fissile, carbonaceous, silty.

SALT: 5%, as above.

13460.00 to 13470.00ft
Interval: 10.00ft

SILTSTONE: 80%, medium to light brown gray, calcareous to very calcareous, dolomitic, sandy, micromicaceous, slightly glauconitic, anhydritic in part.

SANDSTONE: 10%, as above but very fine grained, tight.

LIMESTONE: 10%, light brown gray, microcrystalline, dolomitic, very silty, anhydritic, argillaceous in part, tight.

13470.00 to 13480.00ft Interval: 10.00ft	SILTSTONE: 75%, as above, very calcareous.
	LIMESTONE: 20%, as above.
	SANDSTONE: 5%, as above.
13480.00 to 13490.00ft Interval: 10.00ft	LIMESTONE: 50%, light gray, microcrystalline, silty, anhydritic, argillaceous in part, chalky, dolomitic, tight; with trace Anhydrite stringers, medium to light gray to brown gray mottled, microcrystalline, argillaceous in part.
	SILTSTONE: 50%, medium to light brown gray, sandy, argillaceous to very argillaceous in part, micromicaceous, very calcareous, dolomitic, anhydritic in part; with minor Sandstone stringers, as above; and with minor Shale stringers, medium gray, fissile, micaceous, dolomitic, silty.
13490.00 to 13500.00ft Interval: 10.00ft	MARLSTONE: 50%, medium to light gray, microcrystalline, dolomitic, anhydritic, calcareous in part, silty.
	LIMESTONE: 30%, as above, very argillaceous in part, tight; with trace Anhydrite stringers, as above.
	SHALE: 10%, dark to medium gray, very dolomitic, fissile to blocky, silty, pyritic.
	SILTSTONE: 10%, as above.
13500.00 to 13510.00ft Interval: 10.00ft	DOLOMITE: 30%, light brown gray, microcrystalline, very argillaceous, very anhydritic, silty, tight.
	MARLSTONE: 30%, as above, very silty.
	LIMESTONE: 30%, as above, very dolomitic.
	SHALE: 5%, as above.
	ANHYDRITE: 5%, stringers, medium to light gray, calcareous in part, dolomitic, argillaceous.
13510.00 to 13520.00ft Interval: 10.00ft	SALT: 90%, light gray to clear.
	DOLOMITE: 5%, as above; with minor Anhydrite stringers, as above.
	MARLSTONE: 5%, as above; with minor Shale stringers, as above.
13520.00 to 13530.00ft Interval: 10.00ft	SALT: 99%, light gray to clear to pink, with shale partings and stringers.
	SHALE: 1%, stringers, black to dark gray, fissile, dolomitic in part, salt laminae.
13530.00 to 13570.00ft Interval: 40.00ft	SALT: 99%, as above.
	SHALE: 1%, stringers and partings, as above.
13570.00 to 13577.00ft Interval: 7.00ft	SALT: 100%, as above; with minor anhydrite stringers, light gray, microcrystalline, very salty.
13577.00 to 13580.00ft Interval: 3.00ft	SALT: 90%, as above. (Trip sample).
	CAVINGS: 10%, as above.

13580.00 to 13590.00ft **Interval: 10.00ft**	SALT: 100%, light gray to clear to minor light pink, anhydritic in part, slightly argillaceous; with trace to minor Anhydrite stringers, light gray, microcrystalline, salty.
13590.00 to 13600.00ft **Interval: 10.00ft**	SALT: 100%, as above; with minor Anhydrite stringers, as above.
13600.00 to 13610.00ft **Interval: 10.00ft**	SALT: 100%, as above; with minor Anhydrite stringers, as above, dolomitic in part, slightly argillaceous in part.
13610.00 to 13620.00ft **Interval: 10.00ft**	SALT: 70%, as above. ANHYDRITE: 20%, medium to light gray to brown gray mottled, microcrystalline, dolomitic to very dolomitic, calcareous to very calcareous, silty, argillaceous in part. DOLOMITE: 5%, dark to medium brown to gray mottled, cryptocrystalline to microcrystalline, very anhydritic, calcareous, silty, argillaceous in part, tight. LIMESTONE: 5%, medium to light brown gray, microcrystalline, very dolomitic, very anhydritic, silty, argillaceous in part, tight.
13620.00 to 13630.00ft **Interval: 10.00ft**	DOLOMITE: 70%, with: 50% Dolomite, medium to light gray brown to gray mottled, microcrystalline, calcareous to very calcareous, argillaceous, very anhydritic, silty, tight; and 20% Dolomite, dark brown, cryptocrystalline to microcrystalline, very silty, anhydritic, slightly calcareous, argillaceous, tight. ANHYDRITE: 15%, as above, very dolomitic. SILTSTONE: 10%, dark to medium brown gray mottled, very dolomitic, anhydritic, argillaceous, sandy, slightly glauconitic. SALT: 5%, as above.
13630.00 to 13640.00ft **Interval: 10.00ft**	SILTSTONE: 70%, dark to medium gray brown mottled, very dolomitic, anhydritic, sandy, argillaceous, slightly pyritic, micaceous in part. DOLOMITE: 20%, as above, very silty; with minor Anhydrite stringers, as above. SALT: 10%, as above.
13640.00 to 13650.00ft **Interval: 10.00ft**	SILTSTONE: 60%, as above, very argillaceous, calcareous in part. SHALE: 20%, dark gray to black, fissile to blocky, calcareous, dolomitic, carbonaceous, silty in part. DOLOMITE: 20%, as above, very silty, argillaceous, tight.
13650.00 to 13658.00ft **Interval: 8.00ft**	SHALE: 80%, as above. MARLSTONE: 15%, dark gray brown, calcareous, silty. SILTSTONE: 5%, as above.
13658.00 to 13670.00ft **Interval: 12.00ft**	SHALE: 100%, black, fissile, brittle, very carbonaceous, calcareous, dolomitic, slightly silty in part, micromicaceous, with common fractures filled with calcite and trace pyrite, with trace euhedral pyrite crystals: open fractures.

13670.00 to 13675.00ft Interval: 5.00ft	SHALE: 100%, as above, calcite and pyrite filled fractures, anhedral crystals.
13675.00 to 13680.00ft Interval: 5.00ft	SHALE: 100%, as above, very dolomitic in part.
13680.00 to 13690.00ft Interval: 10.00ft	SHALE: 80%, as above.
	SILTSTONE: 20%, medium to light gray to brown, very dolomitic, sandy to very sandy, slightly glauconitic, argillaceous; with minor Sandstone stringers, dark to medium gray brown, very fine grained, subangular, well sorted quartz grains, very silty, very dolomitic, glauconitic, argillaceous, pyritic, tight.
13690.00 to 13700.00ft Interval: 10.00ft	SILTSTONE: 60%, as above.
	SANDSTONE: 25%, medium to light gray to brown, very fine to minor fine grained, subangular, well sorted quartz grains, very dolomitic, silty, glauconitic, pyritic, siliceous in part, argillaceous in part, calcareous in part, micaceous in part, tight.
	SHALE: 15%, as above.
13700.00 to 13710.00ft Interval: 10.00ft	SILTSTONE: 40%, as above.
	SANDSTONE: 40%, as above.
	SHALE: 20%, as above.
13710.00 to 13720.00ft Interval: 10.00ft	SANDSTONE: 70%, as above, not calcareous.
	SILTSTONE: 20%, as above.
	SHALE: 10%, as above.
13720.00 to 13740.00ft Interval: 20.00ft	SILTSTONE: 90%, light gray, very sandy, micaceous, dolomitic, slightly calcareous, glauconitic, anhydritic in part.
	SANDSTONE: 10%, as above, anhydritic in part, tight; with minor Shale, as above; and with minor Limestone stringers, light gray, microcrystalline, dolomitic, very silty, anhydritic, tight.
13740.00 to 13750.00ft Interval: 10.00ft	SILTSTONE: 90%, as above.
	SANDSTONE: 10%, as above; with minor Limestone stringers, as above.
13750.00 to 13760.00ft Interval: 10.00ft	SILTSTONE: 50%, light gray, dolomitic, calcareous, sandy, anhydritic, argillaceous in part, glauconitic.
	MARLSTONE: 10%, medium gray, calcareous, silty.
	SANDSTONE: 10%, as above.
	LIMESTONE: 10%, light gray, microcrystalline, very argillaceous, silty, dolomitic, tight.
	CAVINGS: 20%, mixed bag.
13760.00 to 13770.00ft Interval: 10.00ft	SILTSTONE: 40%, as above, very calcareous in part, very argillaceous in part.

	LIMESTONE: 30%, medium to light gray, microcrystalline, very silty, very argillaceous, dolomitic, anhydritic in part, tight.
	MARLSTONE: 10%, as above.
	CAVINGS: 20%, as above.
13770.00 to 13780.00ft Interval: 10.00ft	LIMESTONE: 30%, as above.
	SILTSTONE: 30%, as above.
	ANHYDRITE: 20%, light gray to white, microcrystalline, dolomitic in part.
	CAVINGS: 20%, as above.
13780.00 to 13790.00ft Interval: 10.00ft	SALT: 70%, light gray to clear, anhydritic to very anhydritic in part.
	ANHYDRITE: 25%, as above.
	SILTSTONE: 5%, as above.
13790.00 to 13800.00ft Interval: 10.00ft	SALT: 70%, as above.
	ANHYDRITE: 30%, as above.
13800.00 to 13810.00ft Interval: 10.00ft	MARLSTONE: 40%, dark to medium gray, dolomitic, silty, calcareous in part, anhydritic in part.
	DOLOMITE: 30%, medium gray, microcrystalline, calcareous, very argillaceous, silty, anhydritic to very anhydritic in part, tight.
	ANHYDRITE: 10%, as above, argillaceous.
	CAVINGS: 20%, mixed bag.
13810.00 to 13820.00ft Interval: 10.00ft	MARLSTONE: 50%, as above.
	DOLOMITE: 50%, as above.
13820.00 to 13830.00ft Interval: 10.00ft	MARLSTONE: 90%, dark to medium gray, dolomitic, silty, calcareous in part.
	DOLOMITE: 10%, as above.
13830.00 to 13840.00ft Interval: 10.00ft	LIMESTONE: 60%, medium to light gray, microcrystalline, dolomitic, very argillaceous, silty, tight.
	MARLSTONE: 30%, as above.
	DOLOMITE: 10%, as above.
13840.00 to 13850.00ft Interval: 10.00ft	DOLOMITE: 40%, dark to medium gray to brown gray, cryptocrystalline to microcrystalline, calcareous, silty, sandy, anhydritic in part, tight.
	LIMESTONE: 30%, medium to light gray to brown gray, microcrystalline, very dolomitic, argillaceous, silty, anhydritic in part, tight.
	MARLSTONE: 30%, as above.
13850.00 to 13860.00ft Interval: 10.00ft	SILTSTONE: 25%, medium to light brown gray, very dolomitic, calcareous, sandy, argillaceous, micromicaceous in part, slightly glauconitic.

SANDSTONE: 15%, medium to light gray to brown, very fine grained, subangular, well sorted quartz grains, very dolomitic, calcareous, silty, micaceous, anhydritic in part, tight.

MARLSTONE: 20%, as above.

LIMESTONE: 20%, as above.

DOLOMITE: 20%, as above.

13860.00 to 13870.00ft
Interval: 10.00ft

SILTSTONE: 30%, as above.

LIMESTONE: 30%, medium to light gray, microcrystalline, very dolomitic, argillaceous, silty, anhydritic in part, tight.

DOLOMITE: 20%, medium to light brown gray, microcrystalline, very calcareous, silty, argillaceous, anhydritic in part, tight.

MARLSTONE: 20%, as above.

13870.00 to 13880.00ft
Interval: 10.00ft

SILTSTONE: 50%, as above.

DOLOMITE: 20%, as above.

LIMESTONE: 20%, as above.

MARLSTONE: 10%, as above.

13880.00 to 13890.00ft
Interval: 10.00ft

MARLSTONE: 50%, with: 30% calcareous marlstone and 20% dolomitic marlstone, silty.

SILTSTONE: 20%, as above.

DOLOMITE: 20%, as above.

LIMESTONE: 10%, as above.

13890.00 to 13900.00ft
Interval: 10.00ft

CAVINGS: 90%, predominant Salt, trip sample, ream to bottom.

SILTSTONE: 10%, medium to light gray, very dolomitic, sandy, calcareous in part, argillaceous, anhydritic in part; with minor Limestone stringers, light gray, microcrystalline, silty, argillaceous, anhydritic in part, tight.

13900.00 to 13910.00ft
Interval: 10.00ft

LIMESTONE: 60%, light gray to brown gray, microcrystalline, very silty, dolomitic, anhydritic in part, argillaceous in part, tight.

SILTSTONE: 40%, medium to light brown gray, very calcareous, dolomitic, anhydritic in part, sandy, argillaceous, micromicaceous in part, trace glauconitic.

13910.00 to 13920.00ft
Interval: 10.00ft

LIMESTONE: 70%, as above.

SILTSTONE: 30%, as above, slightly calcareous; with minor Sandstone stringers, light gray, very fine grained, subangular, well sorted quartz grains, very silty, very dolomitic, anhydritic in part, argillaceous in part, calcareous in part, micromicaceous in part, trace glauconitic, trace pyritic, tight.

13920.00 to 13930.00ft
Interval: 10.00ft

SILTSTONE: 70%, as above; with minor Sandstone stringers, as above.

LIMESTONE: 30%, as above, sandy in part, very anhydritic in part, tight.

13930.00 to 13940.00ft **Interval: 10.00ft**	SILTSTONE: 50%, medium to light brown gray, very sandy, dolomitic, anhydritic, argillaceous, calcareous in part, micromicaceous. SANDSTONE: 30%, light brown gray, very fine to trace fine grained, subangular, well sorted quartz grains, very silty, dolomitic, micaceous, anhydritic, slightly calcareous, tight. LIMESTONE: 20%, as above; with minor Salt stringers, very anhydritic.
13940.00 to 13950.00ft **Interval: 10.00ft**	SILTSTONE: 60%, as above, very argillaceous in part. LIMESTONE: 25%, as above. SANDSTONE: 15%, as above.
13950.00 to 13960.00ft **Interval: 10.00ft**	SILTSTONE: 70%, as above. LIMESTONE: 20%, light gray, microcrystalline, very silty, very dolomitic, argillaceous, anhydritic, tight. SANDSTONE: 10%, as above.
13960.00 to 13970.00ft **Interval: 10.00ft**	MARLSTONE: 40%, dark to medium to light gray in part, calcareous, dolomitic, slightly silty. LIMESTONE: 40%, medium to light gray, microcrystalline, very argillaceous, silty, very dolomitic, tight. SILTSTONE: 20%, as above, argillaceous.
13970.00 to 13980.00ft **Interval: 10.00ft**	LIMESTONE: 40%, as above. MARLSTONE: 40%, as above. SILTSTONE: 20%, as above; with minor Sandstone stringers, as above.
13980.00 to 13990.00ft **Interval: 10.00ft**	DOLOMITE: 50%, medium brown gray, microcrystalline, very silty, very argillaceous, anhydritic, tight. SILTSTONE: 30%, medium brown gray, very argillaceous, very dolomitic, anhydritic, sandy in part. MARLSTONE: 10%, dark to medium gray, dolomitic, calcareous in part, slightly silty. ANHYDRITE: 10%, stringers, light gray brown, microcrystalline, dolomitic, argillaceous.
13990.00 to 14000.00ft **Interval: 10.00ft**	SILTSTONE: 40%, as above, light gray. MARLSTONE: 20%, as above, very silty. DOLOMITE: 20%, as above, cryptocrystalline in part, tight. LIMESTONE: 10%, light gray, microcrystalline, very dolomitic, silty, argillaceous, tight. ANHYDRITE: 10%, as above.
14000.00 to 14010.00ft **Interval: 10.00ft**	DOLOMITE: 50%, light gray, microcrystalline, very argillaceous, very silty, anhydritic, calcareous in part, tight; with minor Anhydrite stringers, as above.

MARLSTONE: 25%, as above.

SILTSTONE: 25%, as above.

14010.00 to 14020.00ft
Interval: 10.00ft

DOLOMITE: 40%, as above.

MARLSTONE: 30%, as above.

SHALE: 20%, dark gray to black, fissile to blocky, very dolomitic, micromicaceous, carbonaceous in part.

LIMESTONE: 10%, stringers, light gray, microcrystalline, very dolomitic, very argillaceous, silty, tight.

14020.00 to 14028.00ft
Interval: 8.00ft

MARLSTONE: 80%, medium gray brown, dolomitic, microcrystalline, calcareous in part, very silty.

DOLOMITE: 10%, as above, very argillaceous, tight.

SHALE: 10%, as above; with minor Siltstone stringers, as above.

14028.00 to 14032.00ft
Interval: 4.00ft

SHALE: 90%, black, fissile to blocky, very carbonaceous, bituminous in part, dolomitic, calcareous in part.

MARLSTONE: 10%, as above.

14032.00 to 14040.00ft
Interval: 8.00ft

SILTSTONE: 80%, light brown gray, very sandy, very dolomitic, slightly calcareous, micromicaceous, slightly pyritic, trace glauconitic; with minor Sandstone stringers, light brown gray, very fine grained, subangular, well sorted quartz grains, very silty, very dolomitic, micromicaceous, slightly glauconitic, tight.

SHALE: 20%, as above.

14040.00 to 14050.00ft
Interval: 10.00ft

SILTSTONE: 40%, as above.

DOLOMITE: 20%, light gray, microcrystalline, very argillaceous, silty, calcareous, anhydritic, tight.

SHALE: 10%, as above.

CAVINGS: 30%, a bit of everything!

14050.00 to 14060.00ft
Interval: 10.00ft

SILTSTONE: 80%, as above, glauconitic; with minor Sandstone stringers, as above.

LIMESTONE: 20%, light gray, microcrystalline, very silty, anhydritic, dolomitic, argillaceous, tight.

14060.00 to 14070.00ft
Interval: 10.00ft

SILTSTONE: 90%, as above, anhydritic in part; with minor Sandstone stringers, as above, anhydritic in part.

LIMESTONE: 10%, as above, anhydritic in part; with minor Dolomite stringers, medium to light gray brown, microcrystalline, calcareous, silty, argillaceous, tight.

14070.00 to 14080.00ft
Interval: 10.00ft

SILTSTONE: 90%, medium to light gray to brown gray, sandy, dolomitic to very dolomitic, anhydritic, argillaceous in part, slightly micromicaceous, calcareous in part, trace glauconitic; with minor Dolomite stringers, light brown gray, microcrystalline, very silty, calcareous, anhydritic, tight.

LIMESTONE: 10%, stringers, light gray, microcrystalline, chalky, anhydritic, silty, tight.

14080.00 to 14090.00ft Interval: 10.00ft	SILTSTONE: 80%, as above, very sandy.
	SANDSTONE: 10%, stringers, light gray, very fine grained, subangular, well sorted quartz grains, very silty, very dolomitic, anhydritic, micromicaceous in part, glauconitic in part, tight.
	LIMESTONE: 10%, as above; with minor Dolomite stringers, medium to light gray brown, microcrystalline to cryptocrystalline, very silty, argillaceous, tight.
14090.00 to 14100.00ft Interval: 10.00ft	ANHYDRITE: 20%, white, microcrystalline, chalky, dolomitic.
	DOLOMITE: 20%, medium gray brown, microcrystalline, silty, anhydritic to very anhydritic, argillaceous in part, tight.
	SILTSTONE: 60%, as above, argillaceous, anhydritic.
14100.00 to 14110.00ft Interval: 10.00ft	DOLOMITE: 50%, medium gray brown, microcrystalline, very anhydritic, silty, slightly argillaceous to very argillaceous in part, tight.
	ANHYDRITE: 30%, light gray to white, microcrystalline, chalky in part, dolomitic.
	MARLSTONE: 10%, medium gray, dolomitic, silty.
	SILTSTONE: 10%, as above.
14110.00 to 14120.00ft Interval: 10.00ft	DOLOMITE: 60%, medium to light gray, microcrystalline, very argillaceous, anhydritic, silty, tight.
	MARLSTONE: 20%, as above.
	ANHYDRITE: 20%, as above.
14120.00 to 14130.00ft Interval: 10.00ft	SHALE: 30%, dark to medium gray, fissile to blocky, dolomitic, slightly pyritic.
	LIMESTONE: 30%, medium to light gray, microcrystalline, dolomitic, very argillaceous, silty, anhydritic in part, tight.
	MARLSTONE: 30%, as above.
	DOLOMITE: 10%, as above.
14130.00 to 14140.00ft Interval: 10.00ft	LIMESTONE: 70%, light gray, microcrystalline, chalky, silty, very argillaceous, dolomitic, anhydritic, tight.
	SILTSTONE: 10%, light gray, dolomitic, calcareous, argillaceous, anhydritic.
	DOLOMITE: 10%, as above.
	MARLSTONE: 10%, as above, calcareous.
14140.00 to 14150.00ft Interval: 10.00ft	LIMESTONE: 40%, as above, anhydritic, tight.
	SALT: 15%, light gray to clear, anhydritic in part, trace pyritic, argillaceous in part.
	MARLSTONE: 15%, medium gray, calcareous, dolomitic, silty, anhydritic in part.
	SILTSTONE: 10%, light gray, argillaceous, calcareous, dolomitic, anhydritic.

	ANHYDRITE: 20%, stringers, light gray, argillaceous, dolomitic, calcareous in part.
14150.00 to 14160.00ft Interval: 10.00ft	SALT: 100%, light gray to clear to light pink in part, anhydritic, slightly argillaceous in part; with trace Anhydrite stringers, light gray, salty, argillaceous in part.
14160.00 to 14210.00ft Interval: 50.00ft	SALT: 100%, light gray to clear to light pink in part, anhydritic, argillaceous in part with minor black shale partings; and trace to minor Anhydrite stringers, light gray, salty, argillaceous in part.
14210.00 to 14260.00ft Interval: 50.00ft	SALT: 100%, light gray to clear to light pink in part, anhydritic in part, slightly argillaceous; with trace to minor Anhydrite stringers, light gray, salty, argillaceous in part.
14260.00 to 14270.00ft Interval: 10.00ft	SALT: 95%, as above, very anhydritic in part, argillaceous in part.
	ANHYDRITE: 5%, stringers and laminae, light gray to light pink, salty, argillaceous in part.
14270.00 to 14280.00ft Interval: 10.00ft	SALT: 90%, light gray to clear to light pink to orange, anhydritic, argillaceous in part.
	ANHYDRITE: 10%, as above.
14280.00 to 14290.00ft Interval: 10.00ft	SALT: 90%, light gray to clear to orange mottled, potash rich, very anhydritic with interlaminated anhydrite, argillaceous in part.
	ANHYDRITE: 10%, light gray, chalky, salty with interlaminated salt, slightly argillaceous.
14290.00 to 14310.00ft Interval: 20.00ft	SALT: 80%, as above, potash rich.
	ANHYDRITE: 20%, as above.
14310.00 to 14320.00ft Interval: 10.00ft	SALT: 90%, light gray to clear with minor orange, anhydritic, argillaceous in part.
	ANHYDRITE: 10%, as above, argillaceous in part.
14320.00 to 14330.00ft Interval: 10.00ft	SALT: 90%, medium to light gray to clear to minor orange, anhydritic with interlaminated argillaceous anhydrite stringers, argillaceous.
	ANHYDRITE: 10%, as above.
14330.00 to 14340.00ft Interval: 10.00ft	SALT: 100%, as above; with minor Anhydrite stringers, as above.
14340.00 to 14350.00ft Interval: 10.00ft	SALT: 50%, as above.
	LIMESTONE: 25%, medium to light gray mottled, microcrystalline, very argillaceous, anhydritic, silty, dolomitic, tight.
	ANHYDRITE: 15%, dark to light gray to brown, microcrystalline, argillaceous to very argillaceous in part with shale partings, dolomitic.
	SHALE: 10%, dark gray to black, fissile to blocky, very calcareous, anhydritic in part, silty in part.
14350.00 to 14360.00ft Interval: 10.00ft	SALT: 60%, light gray to clear.

LIMESTONE: 20%, light gray, microcrystalline, very argillaceous, silty, anhydritic in part, tight; with minor Marlstone stringers, medium to light gray, calcareous, silty, dolomitic.

SILTSTONE: 15%, light brown, very dolomitic, slightly calcareous, trace glauconitic, sandy in part, anhydritic in part, micromicaceous.

DOLOMITE: 5%, light brown, microcrystalline, very silty, anhydritic, tight.

14360.00 to 14370.00ft
Interval: 10.00ft

LIMESTONE: 70%, light gray, microcrystalline, chalky, very argillaceous, silty, slightly sandy, anhydritic in part, tight

MARLSTONE: 20%, medium gray, calcareous, silty, dolomitic.

SALT: 10%, as above; and minor Siltstone stringers, as above.

14370.00 to 14380.00ft
Interval: 10.00ft

LIMESTONE: 50%, as above; with minor Dolomite stringers, medium to light gray brown, microcrystalline, silty, anhydritic, tight.

MARLSTONE: 30%, as above.

SHALE: 10%, dark gray to black, fissile to blocky, calcareous to very calcareous, silty in part.

SALT: 10%, as above.

14380.00 to 14390.00ft
Interval: 10.00ft

SALT: 30%, light gray to clear, anhydritic.

SILTSTONE: 30%, light gray brown, very dolomitic, sandy, anhydritic, micromicaceous in part.

LIMESTONE: 30%, as above, very silty in part, very dolomitic in part, anhydritic, tight.

MARLSTONE: 10%, as above.

14390.00 to 14400.00ft
Interval: 10.00ft

SILTSTONE: 40%, light gray to brown, very dolomitic, calcareous, sandy, anhydritic in part, micromicaceous in part.

LIMESTONE: 40%, medium to light gray, microcrystalline, dolomitic, argillaceous, silty, anhydritic, tight.

MARLSTONE: 10%, as above.

SALT: 10%, as above.

14400.00 to 14410.00ft
Interval: 10.00ft

SILTSTONE: 40%, as above.

DOLOMITE: 20%, light brown, microcrystalline, very silty, calcareous, anhydritic, argillaceous, tight.

LIMESTONE: 20%, as above.

MARLSTONE: 10%, as above.

SALT: 10%, as above.

14410.00 to 14420.00ft
Interval: 10.00ft

LIMESTONE: 40%, as above.

DOLOMITE: 20%, as above.

MARLSTONE: 20%, as above.

SILTSTONE: 10%, as above.

	SALT: 10%, as above.
14420.00 to 14430.00ft Interval: 10.00ft	SALT: 60%, light gray to clear, anhydritic.
	LIMESTONE: 20%, as above, very argillaceous in part with shale partings in part, anhydritic to very anhydritic in part.
	ANHYDRITE: 10%, light brown to gray in part, dolomitic, salty in part.
	MARLSTONE: 10%, as above.
14430.00 to 14440.00ft Interval: 10.00ft	SALT: 100%, as above.
14440.00 to 14450.00ft Interval: 10.00ft	SALT: 100%, light gray to clear, anhydritic in part, argillaceous in part with black shale partings in part, trace pyritic; and with minor Anhydrite stringers, medium to light gray, argillaceous, salty, pyritic in part.
14450.00 to 14500.00ft Interval: 50.00ft	SALT: 100%, as above.
14500.00 to 14520.00ft Interval: 20.00ft	SALT: 100%, as above, but more anhydritic with minor Anhydrite stringers, light brown, dolomitic, salty.
14520.00 to 14540.00ft Interval: 20.00ft	SALT: 100%, light gray to clear to minor light pink, anhydritic in part, argillaceous in part with trace black shale partings.
14540.00 to 14570.00ft Interval: 30.00ft	SALT: 100%, as above; with minor Anhydrite stringers, medium to light gray, dolomitic, argillaceous with black shale partings.
14570.00 to 14580.00ft Interval: 10.00ft	SALT: 99%, as above, anhydritic and argillaceous, trace pyritic.
	ANHYDRITE: 1%, medium to light gray, dolomitic, argillaceous with black shale partings in part.
14580.00 to 14600.00ft Interval: 20.00ft	SALT: 80%, as above, argillaceous.
	SHALE: 10%, black, blocky, anhydritic, dolomitic, salty.
	ANHYDRITE: 10%, medium to light gray, dolomitic, argillaceous with black shale partings.
14600.00 to 14610.00ft Interval: 10.00ft	SALT: 100%, light gray to clear to minor light pink, anhydritic in part, slightly argillaceous with trace black shale partings.
14610.00 to 14660.00ft Interval: 50.00ft	SALT: 100%, light gray to clear to minor light pink, anhydritic in part, slightly argillaceous with trace black shale partings.
14660.00 to 14670.00ft Interval: 10.00ft	SALT: 80%, as above.
	SHALE: 20%, dark gray to black, fissile to blocky, very dolomitic, anhydritic, calcareous in part, silty.
14670.00 to 14680.00ft Interval: 10.00ft	SHALE: 50%, as above.
	ANHYDRITE: 20%, medium to light gray, dolomitic, argillaceous, calcareous in part.
	SALT: 20%, as above.

	SILTSTONE: 10%, medium brown, very dolomitic, argillaceous, anhydritic, calcareous in part.
14680.00 to 14690.00ft Interval: 10.00ft	SILTSTONE: 40%, medium gray brown, very dolomitic, argillaceous, anhydritic, calcareous in part.
	LIMESTONE: 30%, medium to light gray, microcrystalline, chalky in part, dolomitic, very anhydritic, silty, argillaceous, tight.
	ANHYDRITE: 20%, medium to light gray, microcrystalline, argillaceous, dolomitic, calcareous in part, silty in part.
	DOLOMITE: 10%, stringers, medium gray brown, microcrystalline, very silty, anhydritic, argillaceous, calcareous in part, tight.
14690.00 to 14700.00ft Interval: 10.00ft	DOLOMITE: 40%, dark brown gray, cryptocrystalline to microcrystalline, argillaceous, silty, pyritic in part, calcareous in part, tight.
	SHALE: 30%, black, fissile, dolomitic, calcareous in part, silty in part.
	LIMESTONE: 20%, as above, very dolomitic, tight; with minor Anhydrite stringers, as above.
	SILTSTONE: 10%, as above.
14700.00 to 14710.00ft Interval: 10.00ft	LIMESTONE: 70%, light gray, microcrystalline, very very argillaceous, dolomitic, silty, anhydritic, tight.
	MARLSTONE: 30%, light gray, calcareous, silty, dolomitic in part.
14710.00 to 14720.00ft Interval: 10.00ft	LIMESTONE: 60%, as above, very silty in part; with minor Dolomite stringers, as above.
	SILTSTONE: 40%, light gray brown, dolomitic, argillaceous in part, calcareous in part, trace glauconitic, slightly micromicaceous, sandy in part.
14720.00 to 14730.00ft Interval: 10.00ft	SILTSTONE: 40%, as above, very sandy; with minor Sandstone stringers, light gray brown, very fine grained, subangular, well sorted quartz grains, very silty, dolomitic, calcareous in part, argillaceous in part, slightly glauconitic, anhydritic in part, tight.
	LIMESTONE: 25%, as above, very argillaceous in part, tight.
	MARLSTONE: 20%, medium gray, calcareous, silty, anhydritic, dolomitic in part.
	SHALE: 10%, dark gray, anhydritic with anhydrite partings, calcareous, dolomitic, silty in part.
	ANHYDRITE: 5%, stringers, light gray to white, microcrystalline, dolomitic, calcareous, argillaceous.
14730.00 to 14740.00ft Interval: 10.00ft	SILTSTONE: 70%, light gray, very dolomitic, sandy, calcareous in part, slightly glauconitic, slightly micromicaceous, anhydritic in part.
	SALT: 15%, light gray to clear, cavings.
	LIMESTONE: 10%, light gray to white, microcrystalline, very anhydritic, dolomitic, silty in part, chalky, tight.
	MARLSTONE: 5%, medium gray, calcareous, silty.
14740.00 to 14750.00ft Interval: 10.00ft	SILTSTONE: 40%, as above.

	DOLOMITE: 40%, light brown gray, microcrystalline, very silty, calcareous, anhydritic in part, tight.
	LIMESTONE: 20%, light gray, microcrystalline, chalky, dolomitic, silty, argillaceous, anhydritic, tight.
14750.00 to 14780.00ft Interval: 30.00ft	SILTSTONE: 80%, light gray, very sandy, dolomitic, calcareous in part, very anhydritic in part, pyritic in part, trace glauconitic, trace micromicaceous; with minor Sandstone stringers, light gray, very fine grained, subangular, well sorted quartz grains, very silty, dolomitic, anhydritic, calcareous, tight.
	DOLOMITE: 10%, as above.
	LIMESTONE: 5%, as above.
	SALT: 5%, as above.
14780.00 to 14790.00ft Interval: 10.00ft	SILTSTONE: 70%, light brown gray, very dolomitic, anhydritic, sandy, argillaceous in part, calcareous in part, trace glauconitic, micromicaceous in part; with minor Dolomite stringers, as above.
	LIMESTONE: 30%, medium to light gray, microcrystalline, chalky, anhydritic, dolomitic, silty, argillaceous to very argillaceous in part, tight; with minor Marlstone stringers, medium gray, calcareous, silty.
14790.00 to 14800.00ft Interval: 10.00ft	LIMESTONE: 50%, as above, very argillaceous, tight.
	MARLSTONE: 20%, dark to medium gray, calcareous, anhydritic, silty, dolomitic in part.
	ANHYDRITE: 15%, medium to light gray, microcrystalline, chalky, dolomitic, very argillaceous with black shale partings.
	SHALE: 10%, dark gray to black, fissile, calcareous, dolomitic, silty, anhydritic with anhydrite partings.
	SILTSTONE: 5%, as above.
14800.00 to 14806.00ft Interval: 6.00ft	ANHYDRITE: 30%, as above.
	MARLSTONE: 30%, as above.
	SALT: 20%, light gray to clear, anhydritic in part.
	SHALE: 10%, as above.
	LIMESTONE: 10%, as above.
14806.00 to 14810.00ft Interval: 4.00ft	SALT: 100%, light gray to clear, anhydritic in part, trace pyritic, argillaceous with minor black Shale partings.
14810.00 to 14820.00ft Interval: 10.00ft	SALT: 100%, as above, light pink in part.
14820.00 to 14827.00ft Interval: 7.00ft	SALT: 100%, light gray to clear to light orange in part, slightly argillaceous, anhydritic; with minor Anhydrite stringers, light gray to white, dolomitic in part, salty.
14827.00 to 14830.00ft Interval: 3.00ft	SALT: 100%, as above, with minor black shale partings.
14830.00 to 14840.00ft Interval: 10.00ft	SALT: 100%, light gray to clear to light pink to orange in part, potash rich in part, anhydritic in part, trace pyritic.

14840.00 to 14850.00ft Interval: 10.00ft	SALT: 100%, as above, light gray to clear predominant.
14850.00 to 14860.00ft Interval: 10.00ft	SALT: 100%, light gray to clear, anhydritic in part, trace argillaceous.
14860.00 to 14900.00ft Interval: 40.00ft	SALT: 100%, as above; with minor Anhydrite stringers, light gray to white, dolomitic in part, salty in part.
14900.00 to 14920.00ft Interval: 20.00ft	SALT: 100%, light gray to clear, anhydritic in part, slightly argillaceous.
14920.00 to 14940.00ft Interval: 20.00ft	SALT: 99%, as above. ANHYDRITE: 1%, stringers, medium to light gray, argillaceous, dolomitic in part, salty.
14940.00 to 14945.00ft Interval: 5.00ft	SALT: 95%, light gray to clear, anhydritic, trace pyritic, slightly argillaceous. ANHYDRITE: 5%, stringers, medium to light gray, argillaceous in part, salty, dolomitic in part.
14945.00 to 14950.00ft Interval: 5.00ft	SALT: 95%, as above. ANHYDRITE: 3%, stringers, as above. LIMESTONE: 1%, medium to light brown, microcrystalline, very anhydritic, argillaceous, tight. MARLSTONE: 1%, dark to medium gray, calcareous, very anhydritic.
14950.00 to 14960.00ft Interval: 10.00ft	SALT: 85%, light gray brown to clear, anhydritic, trace pyritic. MARLSTONE: 10%, medium gray, calcareous, anhydritic to very anhydritic in part, dolomitic, silty in part. ANHYDRITE: 5%, light gray to white, dolomitic, argillaceous with marlstone partings; and trace Siltstone stringers, medium brown, sandy, micaceous, anhydritic, argillaceous.
14960.00 to 14964.00ft Interval: 4.00ft	SALT: 50%, as above. MARLSTONE: 20%, as above, very anhydritic with anhydrite partings. ANHYDRITE: 15%, as above. DOLOMITE: 10%, medium brown, microcrystalline, very anhydritic, tight. SILTSTONE: 5%, light brown, very dolomitic, sandy, micaceous, anhydritic, argillaceous in part.
14964.00 to 14970.00ft Interval: 6.00ft	ANHYDRITE: 50%, medium to light gray to brown mottled, slightly dolomitic to very dolomitic in part, argillaceous in part, silty in part. DOLOMITE: 30%, dark to light gray brown mottled, microcrystalline, very anhydritic, argillaceous, silty, tight. SALT: 20%, cavings.

14970.00 to 14980.00ft **Interval: 10.00ft**	DOLOMITE: 60%, dark to light brown to gray mottled, cryptocrystalline to microcrystalline, argillaceous to very argillaceous, anhydritic, silty, calcareous in part, tight. MARLSTONE: 15%, dark to medium gray, dolomitic, silty. SHALE: 5%, black, fissile, calcareous, dolomitic. ANHYDRITE: 10%, as above. LIMESTONE: 10%, light gray, microcrystalline, very dolomitic, argillaceous, silty, anhydritic, tight.
14980.00 to 14990.00ft **Interval: 10.00ft**	SHALE: 30%, black, fissile, dolomitic in part, calcareous in part, slightly silty. LIMESTONE: 30%, light gray, microcrystalline, argillaceous, chalky, dolomitic, silty, tight. DOLOMITE: 30%, medium to light gray brown, microcrystalline, calcareous in part, argillaceous, silty, tight. MARLSTONE: 10%, as above.
14990.00 to 15000.00ft **Interval: 10.00ft**	LIMESTONE: 60%, light gray, microcrystalline, chalky, argillaceous, silty, anhydritic in part, dolomitic in part, tight. SILTSTONE: 25%, light brown, very dolomitic, slightly pyritic, micromicaceous in part, anhydritic in part. DOLOMITE: 10%, light brown, microcrystalline, very silty, argillaceous, anhydritic, tight. SHALE: 5%, as above.
15000.00 to 15010.00ft **Interval: 10.00ft**	LIMESTONE: 80%, as above. SILTSTONE: 20%, light gray, sandy, anhydritic, very dolomitic, argillaceous in part.
15010.00 to 15020.00ft **Interval: 10.00ft**	LIMESTONE: 70%, as above, very silty, tight; with minor Marlstone stringers, medium gray, calcareous, silty. SILTSTONE: 30%, as above, very calcareous in part.
15020.00 to 15030.00ft **Interval: 10.00ft**	SILTSTONE: 50%, light gray brown, very dolomitic, sandy in part, calcareous in part, anhydritic in part, slightly argillaceous. DOLOMITE: 20%, light brown, microcrystalline, very silty, calcareous in part, argillaceous in part, anhydritic in part, tight. SALT: 20%, light gray to clear, anhydritic. LIMESTONE: 10%, as above.
15030.00 to 15040.00ft **Interval: 10.00ft**	LIMESTONE: 85%, medium to light gray, cryptocrystalline to microcrystalline, argillaceous to very argillaceous in part, silty, dolomitic in part, chalky, tight. SILTSTONE: 15%, as above, calcareous in part.
15040.00 to 15050.00ft **Interval: 10.00ft**	LIMESTONE: 80%, as above. SILTSTONE: 10%, stringers, as above.

DOLOMITE: 10%, stringers, light brown, microcrystalline, very silty, calcareous, argillaceous, tight.

15050.00 to 15060.00ft
Interval: 10.00ft

LIMESTONE: 75%, as above; with minor Marlstone stringers, medium gray, calcareous, silty.

SILTSTONE: 10%, as above.

DOLOMITE: 5%, as above.

SALT: 10%, light gray to clear, anhydritic.

15060.00 to 15070.00ft
Interval: 10.00ft

LIMESTONE: 60%, as above.

SILTSTONE: 30%, as above, anhydritic in part.

SALT: 10%, as above.

15070.00 to 15080.00ft
Interval: 10.00ft

LIMESTONE: 70%, light gray, microcrystalline, argillaceous, silty to very silty in part, chalky, dolomitic, tight.

SILTSTONE: 20%, light gray, dolomitic, calcareous, sandy in part, slightly micromicaceous, argillaceous; with minor Shale stringers, dark gray, fissile, micaceous, silty, calcareous.

DOLOMITE: 10%, light brown gray, microcrystalline to minor very fine crystalline, silty, anhydritic, friable, tight to trace poor pin point porosity.

15080.00 to 15090.00ft
Interval: 10.00ft

SALT: 20%, light gray to clear, anhydritic.

SHALE: 20%, dark gray, fissile, calcareous, silty, pyritic, anhydritic in part.

LIMESTONE: 50%, as above, very argillaceous, tight.

SILTSTONE: 10%, as above.

15090.00 to 15100.00ft
Interval: 10.00ft

SALT: 30%, as above.

ANHYDRITE: 10%, stringers, light brown, dolomitic, salty.

LIMESTONE: 10%, as above.

SHALE: 30%, dark gray, fissile to blocky, very calcareous, anhydritic in part, slightly pyritic.

MARLSTONE: 20%, medium gray, calcareous, anhydritic.

15100.00 to 15110.00ft
Interval: 10.00ft

SALT: 40%, light gray to brown to clear, very anhydritic in part, argillaceous in part.

LIMESTONE: 30%, as above, anhydritic in part.

MARLSTONE: 20%, as above.

SHALE: 10%, as above.

15110.00 to 15120.00ft
Interval: 10.00ft

SALT: 90%, light gray to clear, pyritic, anhydritic in part, argillaceous to very argillaceous with minor Shale stringers and partings.

SHALE: 5%, dark gray, fissile to blocky, very calcareous, silty to very silty, dolomitic, pyritic.

	SILTSTONE: 5%, dark gray, very argillaceous, micromicaceous, very dolomitic, calcareous, pyritic.
15120.00 to 15130.00ft Interval: 10.00ft	SALT: 95%, as above.
	SHALE: 5%, as above with trace open fractures lined with euhedral dolomite crystals; and trace Siltstone stringers, as above.
15130.00 to 15140.00ft Interval: 10.00ft	SALT: 80%, light gray to clear, anhydritic, argillaceous in part.
	CAVINGS: 20%, shale, medium gray, very calcareous.
15140.00 to 15160.00ft Interval: 20.00ft	SALT: 95%, light gray to light brown to clear, anhydritic, trace pyritic, argillaceous in part, with minor black carbonaceous Shale partings.
	CAVINGS: 5%, shale, as above.
15160.00 to 15180.00ft Interval: 20.00ft	SALT: 100%, light gray to light brown to clear, anhydritic, trace pyritic, argillaceous in part with minor black carbonaceous Shale partings.
15180.00 to 15200.00ft Interval: 20.00ft	SALT: 100%, as above.
15200.00 to 15220.00ft Interval: 20.00ft	SALT: 95%, as above.
	ANHYDRITE: 5%, medium to light gray, very argillaceous with black shale partings and stringers, dolomitic, calcareous in part.
15220.00 to 15230.00ft Interval: 10.00ft	SALT: 90%, as above.
	ANHYDRITE: 10%, as above; with minor Shale stringers, black, blocky, very anhydritic, calcareous in part, dolomitic in part.
15230.00 to 15250.00ft Interval: 20.00ft	SALT: 100%, as above; with minor Anhydrite stringers, as above.
15250.00 to 15260.00ft Interval: 10.00ft	SALT: 100%, light gray to clear, anhydritic in part, argillaceous in part with minor black shale partings, trace pyritic.
15260.00 to 15270.00ft Interval: 10.00ft	SALT: 100%, as above; with trace Anhydrite stringers, as above.
15270.00 to 15280.00ft Interval: 10.00ft	SALT: 100%, light gray to clear to light brown, very anhydritic in part, trace black shale partings; with minor Anhydrite stringers, light brown, salty, dolomitic in part.
15280.00 to 15290.00ft Interval: 10.00ft	SALT: 100%, light gray to clear to light brown in part, anhydritic, argillaceous with minor black shale partings.
15290.00 to 15300.00ft Interval: 10.00ft	SALT: 100%, as above, very anhydritic in part; with minor Anhydrite stringers, light brown, medium to light gray in part, slightly argillaceous to very argillaceous in part, dolomitic in part.
15300.00 to 15310.00ft Interval: 10.00ft	SALT: 90%, as above, not argillaceous.
	ANHYDRITE: 10%, light brown, very salty, dolomitic in part.
15310.00 to 15320.00ft Interval: 10.00ft	SALT: 80%, as above.

ANHYDRITE: 10%, as above, medium gray and argillaceous in part.

CAVINGS: 10%, mixed bag.

15320.00 to 15330.00ft
Interval: 10.00ft

SALT: 60%, as above.

ANHYDRITE: 10%, dark to light gray to brown gray, very argillaceous, dolomitic in part, calcareous in part.

MARLSTONE: 10%, dark to medium gray, calcareous, anhydritic, dolomitic, slightly silty.

CAVINGS: 20%, Cutler sandstone, siltstone and shale from adding old invert mud from tank used during casing cementing job.

15330.00 to 15340.00ft
Interval: 10.00ft

SHALE: 20%, dark gray to black, fissile to blocky, dolomitic, calcareous, silty, anhydritic in part.

MARLSTONE: 20%, medium gray, dolomitic, very silty, calcareous, anhydritic.

SILTSTONE: 20%, medium gray, dolomitic, calcareous, very argillaceous, anhydritic.

ANHYDRITE: 10%, medium to light gray, very argillaceous, silty in part.

SALT: 10%, as above.

CAVINGS: 20%, as above.

15340.00 to 15350.00ft
Interval: 10.00ft

SILTSTONE: 30%, medium to light gray to brown gray, very dolomitic, calcareous in part, argillaceous, slightly pyritic, slightly sandy.

DOLOMITE: 20%, medium brown gray, microcrystalline, very silty, calcareous, argillaceous in part, anhydritic in part, tight.

LIMESTONE: 15%, medium to light gray mottled, microcrystalline, very argillaceous, chalky, slightly silty, anhydritic in part, tight.

MARLSTONE: 15%, as above.

CAVINGS: 20%, as above.

15350.00 to 15360.00ft
Interval: 10.00ft

MARLSTONE: 50%, dark to medium gray, very silty, calcareous, dolomitic.

SILTSTONE: 20%, as above.

LIMESTONE: 20%, as above, silty, tight.

DOLOMITE: 10%, as above.

15360.00 to 15370.00ft
Interval: 10.00ft

SILTSTONE: 30%, medium brown gray, very dolomitic, argillaceous, calcareous in part, slightly pyritic.

DOLOMITE: 20%, medium brown gray, microcrystalline, very silty, argillaceous, slightly pyritic, calcareous in part, tight.

MARLSTONE: 20%, dark to medium gray, dolomitic, silty.

SHALE: 10%, black, fissile to blocky, dolomitic.

LIMESTONE: 10%, as above.

CAVINGS: 10%, as above.

15370.00 to 15380.00ft **Interval: 10.00ft**	**SILTSTONE: 30%, as above.**
	LIMESTONE: 30%, medium to light gray, microcrystalline, very argillaceous, silty, chalky, slightly pyritic, tight.
	DOLOMITE: 10%, as above.
	SHALE: 10%, as above.
	CAVINGS: 20%, mixed bag.
15380.00 to 15390.00ft **Interval: 10.00ft**	**LIMESTONE: 50%, as above, dark gray and very argillaceous, tight.**
	SILTSTONE: 20%, medium to light brown gray, calcareous, dolomitic, argillaceous.
	MARLSTONE: 15%, dark to medium gray, calcareous, silty, dolomitic in part.
	SHALE: 5%, as above.
	DOLOMITE: 10%, medium to light brown gray, microcrystalline, very silty, calcareous, argillaceous, tight.
15390.00 to 15400.00ft **Interval: 10.00ft**	**LIMESTONE: 70%, as above.**
	SILTSTONE: 20%, as above.
	MARLSTONE: 10%, as above.
15400.00 to 15410.00ft **Interval: 10.00ft**	**LIMESTONE: 60%, as above.**
	SILTSTONE: 25%, as above.
	MARLSTONE: 15%, as above.
15410.00 to 15420.00ft **Interval: 10.00ft**	**SILTSTONE: 50%, dark to medium gray, minor light brown, very argillaceous, dolomitic, calcareous, slightly pyritic.**
	MARLSTONE: 30%, dark to medium gray, dolomitic, silty to very silty, calcareous, slightly pyritic.
	LIMESTONE: 20%, as above.
15420.00 to 15430.00ft **Interval: 10.00ft**	**LIMESTONE: 50%, medium to light gray, microcrystalline, very argillaceous, silty, chalky, dolomitic in part, slightly pyritic, tight.**
	SILTSTONE: 30%, medium to light gray, calcareous, argillaceous, dolomitic, anhydritic in part.
	DOLOMITE: 10%, light gray, microcrystalline, very silty, calcareous, argillaceous, tight.
	MARLSTONE: 10%, as above.
15430.00 to 15440.00ft **Interval: 10.00ft**	**LIMESTONE: 70%, as above.**
	SILTSTONE: 20%, as above.
	MARLSTONE: 10%, as above.
15440.00 to 15450.00ft **Interval: 10.00ft**	**LIMESTONE: 75%, as above, anhydritic in part, tight.**

	SILTSTONE: 25%, light gray, dolomitic, calcareous in part, sandy, argillaceous, slightly pyritic, anhydritic in part; with trace Sandstone stringers, light gray, very fine grained, subangular, well sorted quartz grains, very silty, dolomitic, anhydritic, argillaceous, trace glauconitic, tight.
15450.00 to 15460.00ft Interval: 10.00ft	SHALE: 30%, dark gray to black, fissile to blocky, very anhydritic, calcareous in part, silty in part, with abundant anhydrite laminae, and trace euhedral anhydrite crystals: open fractures.
	SALT: 30%, light gray, silt sized crystals, chemical precipitate from influx of saturated salt water from fractures. This is NOT drilled salt!
	ANHYDRITE: 20%, light gray to white, microcrystalline to minor very fine crystalline, chalky, very argillaceous in part with abundant black shale partings and distorted stringers.
	LIMESTONE: 10%, as above.
	SILTSTONE: 10%, as above.
15460.00 to 15470.00ft Interval: 10.00ft	ANHYDRITE: 35%, medium to light gray to light brown to white to clear in part, cryptocrystalline to microcrystalline to minor very fine crystalline, very argillaceous in part with distorted shale stringers and partings, dolomitic in part.
	SALT: 40%, as above.
	SHALE: 15%, as above.
	LIMESTONE: 10%, as above.
15470.00 to 15480.00ft Interval: 10.00ft	SALT: 70%, as above.
	ANHYDRITE: 20%, medium to light gray, microcrystalline, very argillaceous, chalky, silty in part, dolomitic in part.
	SHALE: 10%, as above.
15480.00 to 15482.80ft Interval: 2.80ft	SALT: 80%, as above, chemical precipitate, not drilled.
	ANHYDRITE: 10%, dark to light gray mottled, cryptocrystalline to microcrystalline to minor very fine crystalline, chalky in part, argillaceous to very argillaceous in part, slightly silty, dolomitic in part, with black shale partings and stringers.
	SHALE: 10%, black, very soft, friable, slightly pyritic, very anhydritic in part, slightly silty, slightly pyritic, dolomitic in part, with minor euhedral clear anhydrite crystals and trace euhedral clear dolomite crystals: open fractures.
15483.00ft	TOTAL DEPTH

Operator : *GCRL ENERGY LTD.*
Well : *G.C.R.L. SEISMOSAUR FEDERAL #1*
Location : *NW NE 20-21S-20E*
Province : *UTAH* **Licence# :** *UT1064*
Depth Logged : From *4540.00 ft* **To** *13360.00 ft*
Date Logged : From *Feb 15, 1997* **To** *May 11, 1997*
Drilling Fluid : *AIR/WATER/INVERT*
Ground Level : *5137.00 ft*
Kelly Bushing : *5168.50 ft*
Contractor : *NABORS DRILLING USA*
Spud Date : *Jan 21, 1997* **Rig No. :** *280*

Logging Company : *Stone People Resources Ltd.*
Address : *372 Killarney Way RR7 Site 13 C C-3*
City : *Vernon* **Province :** *British Columbia*
Telephone : *(250) 545-0308*
Logged By : *BRUCE MILLER*

Engineering & Gas Symbols

WOB	-	Weight on bit
RPM	-	Rotary table speed (revs/min)
SPP	-	Stand pipe pressure
SPM	-	Pump Strokes/minute
DS	-	Deviation Survey
MW	-	Mud Weight
V	-	Viscosity
WL	-	Water Loss (cm/sec)
pH	-	Hydrogen Ion Index
TVD	-	True Vertical Depth
	-	Bit Trip
FG	-	Formation Gas
CG	-	Connection Gas
TG	-	Trip Gas
DTG	-	Down Time Gas
SG	-	Survey Gas
BG	-	Background Gas
RCG	-	Recycled Connection Gas
RTG	-	Recycled Trip Gas
COAL	-	Coal Gas

Oil Shows

●	Even staining, fluoresces in solvent	D	Dead, Asphaltic, bitumen, etc.
◑	Spotted staining, fluoresces in solvent	○	Questionable, no fluorescence in solvent

Porosity Types

X	Intergranular / intercrystalline	V	Vuggy - voids greater than 1/16 mm
◇	Interoolitic / interpelletoid	P	Pinpoint - voids less than 1/16 mm
e	Earthy - low permeability	⊡	Fenestral, birdseye
⌒	Moldic	○	Organic - bridged, intrafossil
F	Fracture		

Major Rock Types

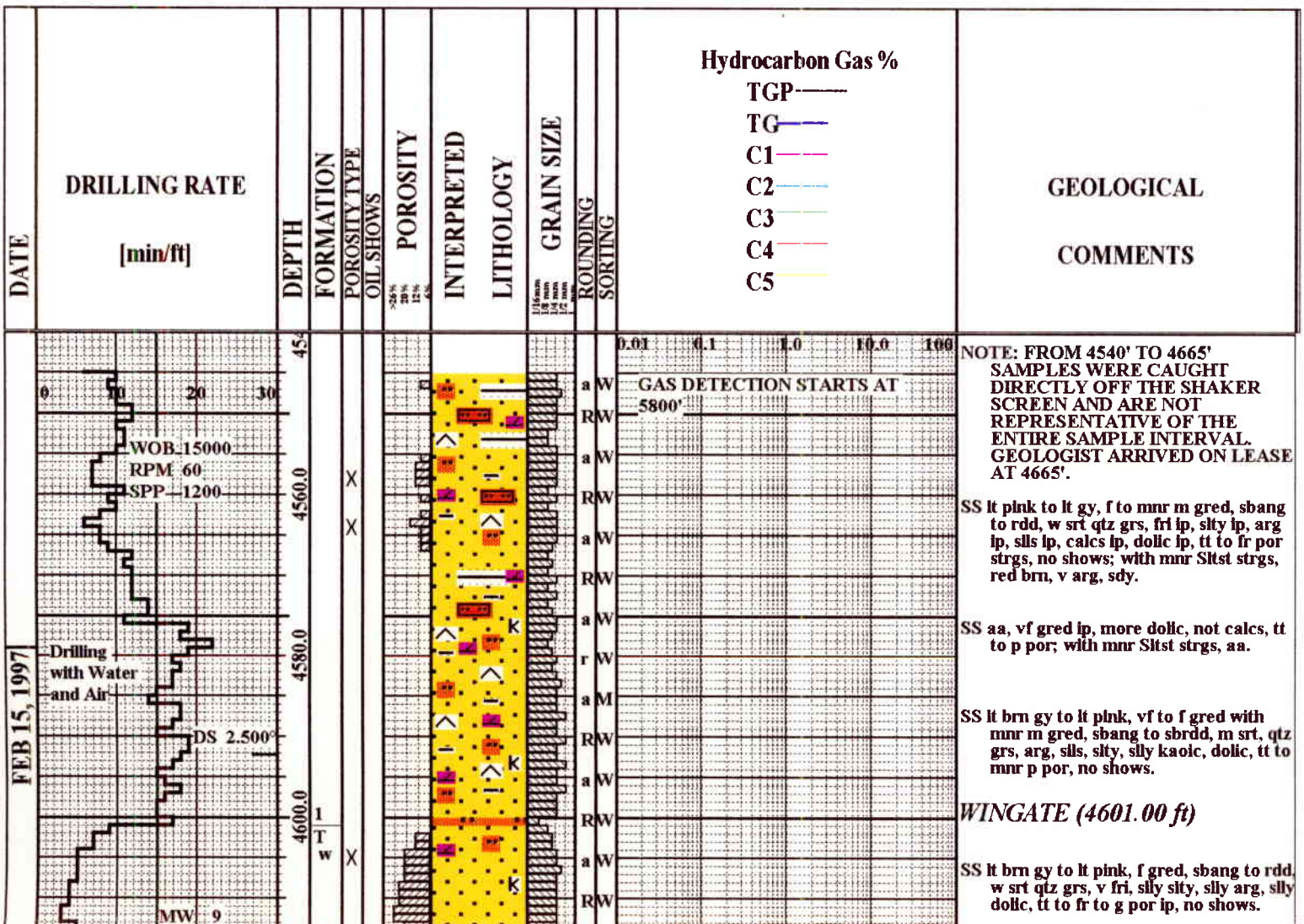
	Anhydrite		Glacial Till		Phosphate
	Bentonite		Gypsum		Salt
	Breccia		Igneous,acidic		Sandstone
	Chert		Igneous,basic		Shale
	Claystone		Limestone		Siderite
	Coal		Marlstone,calcareous		Siltstone
	Conglomerate		Marlstone,dolomitic		Tuff
	Dolomite		Metamorphic		Welded Tuff

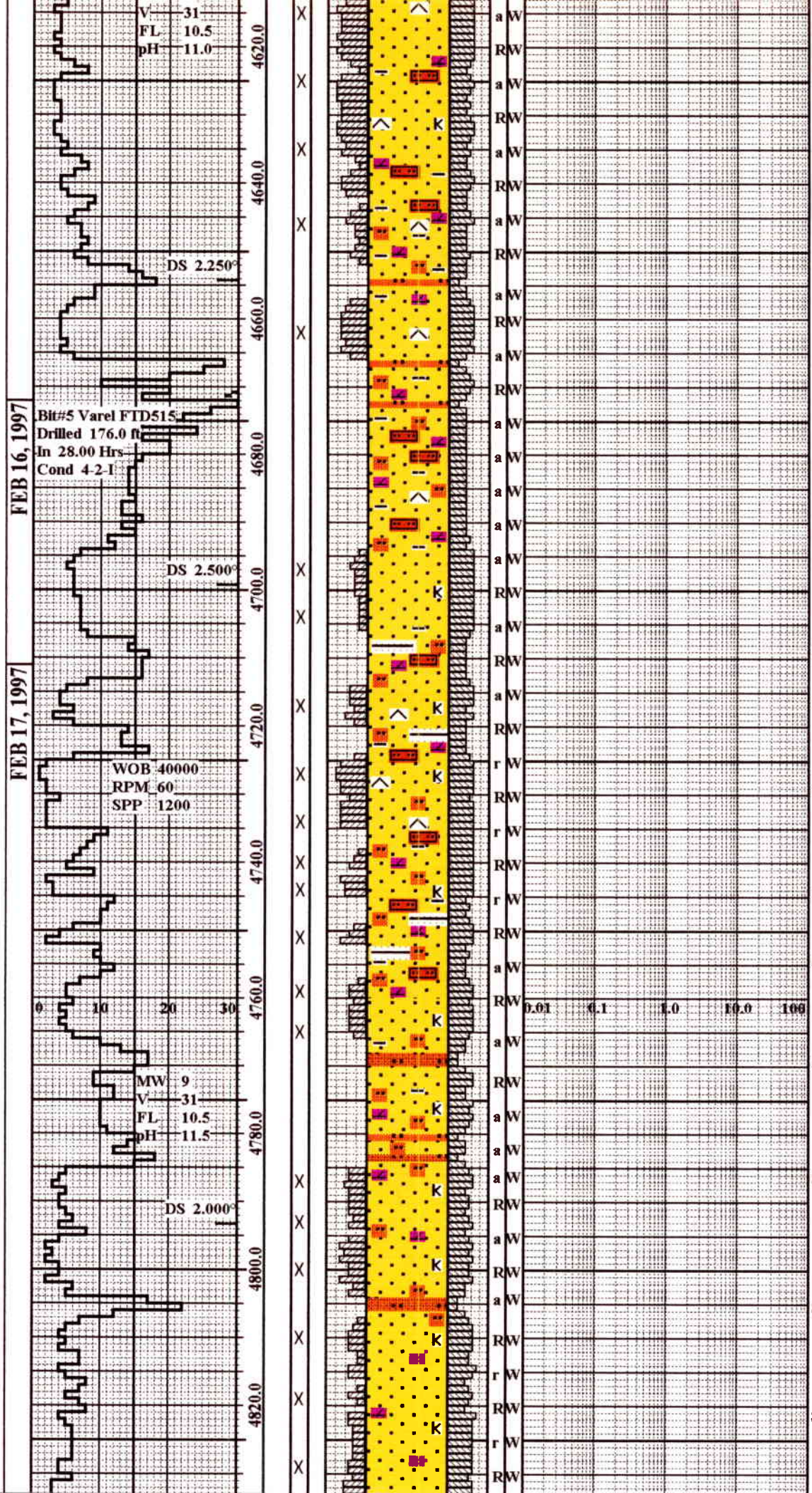
Log Scale 1:240

Major Accessories

	Sandy		Ferruginous grains or pellets	F	Fossil remains
	Sandstone, stringer		Ferruginous	◇	Oolites
	Silty		Ferruginous stringers	◇	Pisolites
	Siltstone, stringer		Clay stringers	ø	Pellets
○	Sand grains		Bentonite stringers		Intraclasts
/	Argillite grains		Volcanic stringers		Framework Algae, skeletal
+	Feldspar		Tuffaceous		Framework Algae, ootoid
	Breccia		Heavy dark minerals		Nonframework Algae,non-descript
^	Siliceous	~	Glauconite		Nonframework Algae, laminated
△	Chert, white	B	Bentonite	e	Texture, earthy
▲	Chert, colored	P	Pyrite	C	Texture, chalky
	Chert, tripolitic	K	Kaolin	L	Texture, lithographic
—		S		mx	

Argillaceous	Plant spores		Texture, microcrystalline
Shale laminae	Plant remains		Texture, cryptocrystalline
Clayey	Fish remains		Siderite Nodules
Carbonaceous flakes	Mineral crystals		Dolomite Nodule
Coal, thin beds	Foraminifera		Limestone Nodule
Bituminous cement	Crinoid		Pebbles
Calcareous	Pelecypod		Siltstone Pebble
Marlstone, calc, strg	Bioclastic fragment		Coal Pebble
Limestone stringers	Amphipora		Dolomite Pebble
Dolomitic	Coral		Feldspar Pebble
Marlstone, dolc, strg	Stromatoporoid		Chert Pebble
Dolomite stringers	Bryozoa		Sandstone Pebble
Anhydritic	Brachiopod		Limestone Pebble
Anhydrite, stringers	Ostracod		Igneous Pebble
Gypsiferous	Cephalopod		Quartz Pebble
Gypsum, stringers	Gastropod		Shale Pebble
Salt cast or infill	Scaphopod		Volcanic Pebble
Phosphate pellets	Belemnite		Metamorphic Pebble
	Echinoid		





SS lt brn gy to lt pink, f gred, sbang to rdd, w srt qtz grs, v fri, slly slty, slly arg, slly dolic, tt to fr to g por ip, no shows.

SS lt brn gy to lt pink, f gred, sbang to rdd, w srt qtz grs, v fri, slly slty, slly arg, slly dolic, tt to fr to g por ip, no shows.

SS lt pink to brn gy, vf to f gred, sbang to rdd, w srt qtz grs, slty, slls, arg, dolic, tt.

SLTST dk to m red brn, arg, sdy.

SS brick red, vf gred, sbang, w srt qtz grs, slty to v slty, arg, dolic, slls ip, tt.

SS lt brn gy to pink to brick red, vf to f gred, sbang to rdd, w srt qtz grs, slty ip, arg ip, kaolc ip, dolic, tr calcs, fri ip, tt to p to mnr fr por, no shows.

SS aa, tt pred.

SS lt brn gy, f gred, sbrdd to rdd, w srt qtz grs, v fri, kaolc ip, slly slls with tr euhed qtz ovgths, fr por, no shows.

SS lt brn gy, aa, v fri, fr to g por, no shows

SS lt brn gy, f gred, sbrdd to rdd, w srt qtz grs, v fri, kaolc ip, slly slls with tr euhed qtz ovgths, fr por, no shows.

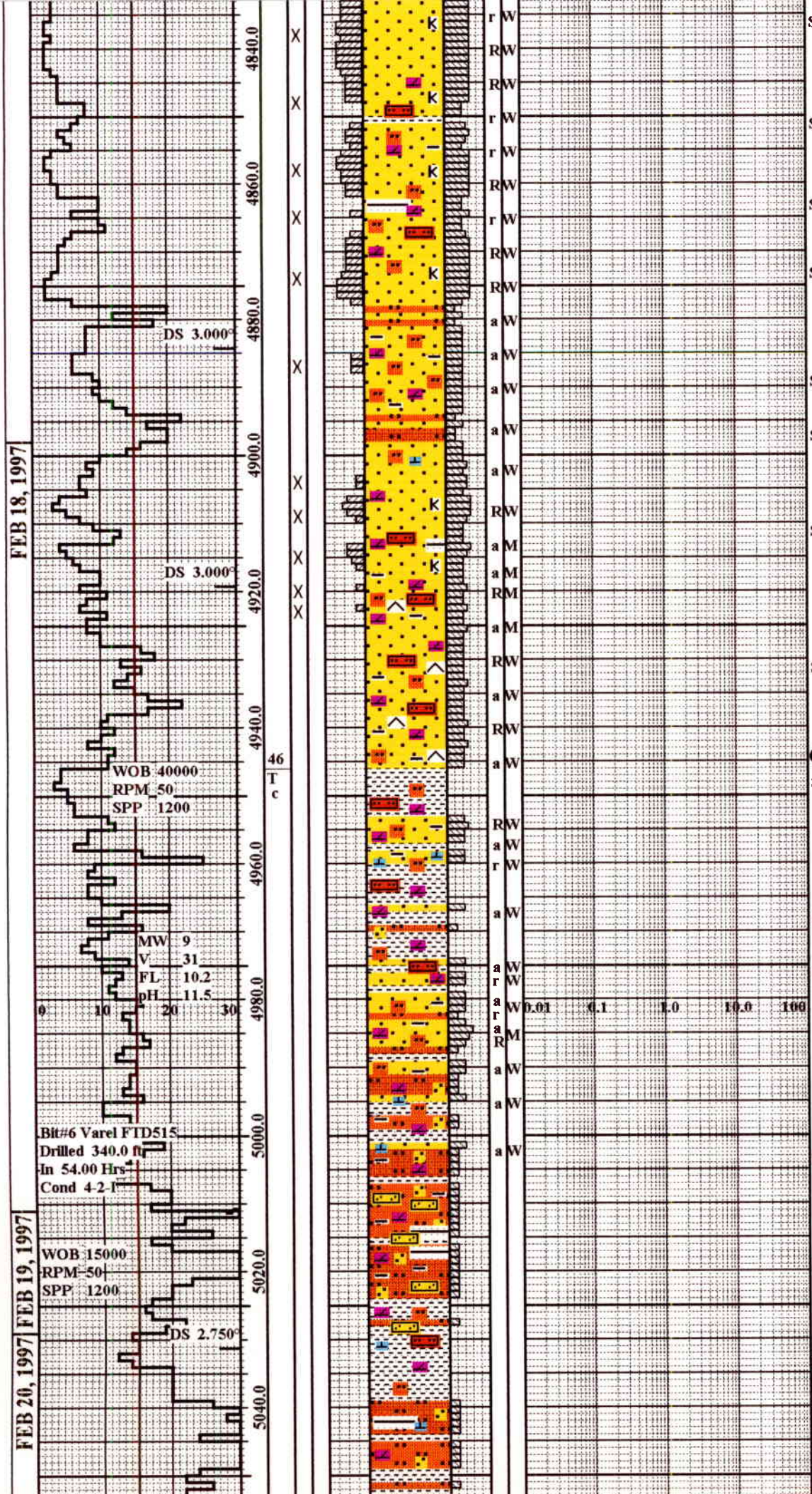
SS m to lt red brn, vf to f gred, sbang to rdd, w srt qtz grs, slty, arg, dolic, slly kaolc, tt to mnr p por, no shows.

SLTST dk to m brick red, v arg, sdy, dolic.

SS lt gy brn to pink, vf to f gred, rdd to w rdd, m srt qtz grs, v fri, kaolc ip, slly dolic ip, p to fr to g por strgs, no shows.

SLTST dk to m brick red, v arg, sdy, dolic.

SS aa, f to mnr m gred, rdd, v fri, fr to g por, no shows.



SS lt red brn to pink, f gred, sbrdd to rdd, w srt qtz grs, v fri, slly dolic, slly kaolc, fr to g por, no shows.

SH dk red brn, slty, dolic.

SS lt pink to gy brn, vf to f gred, sbrdd to rdd, w srt qtz grs, slty ip, arg ip, kaolc ip, fri ip, slly dolic, tt to p por, no shows.

SS lt brn to pink, f gred, rdd, w srt qtz grs, v fri, slly kaolc, fr to g por, no shows.

SS m red brn to pink, vf gred, sbang, w srt qtz grs, v slty, arg, dolic, tt.

SLTST m red brn, v sdy, dolic, arg.

SS with: 45% Ss, lt brn to pink, vf to f gred, sbrdd to w rdd, qtz grs, v fri, dolic ip, kaolc ip, slly calcs ip, fr por, no shows; and 40% Ss, lt brn to pink, vf to f gred, sbang to rdd, w srt qtz grs, slty, arg ip, kaolc ip, fri ip, dolic, tt.

SS lt brn pink, vf to mnr f to tr m gred, sbang to w rdd, m srt qtz grs, fri ip, slty ip, arg ip, dolic ip, slly slls ip, tt to mnr p por strgs, no shows.

CHINLE (4946.00 ft)

SH dk red brn, fls, slty ip, dolic ip, micmica ip.

SS lt gy to wh, vf to mnr f gred, sbang to sbrdd, w srt qtz grs, v calcs ip, v dolic, tt.

SH aa.

SS m to lt red brn to pink to wh ip, vf to mnr f gred, sbang to sbrdd, w srt qtz

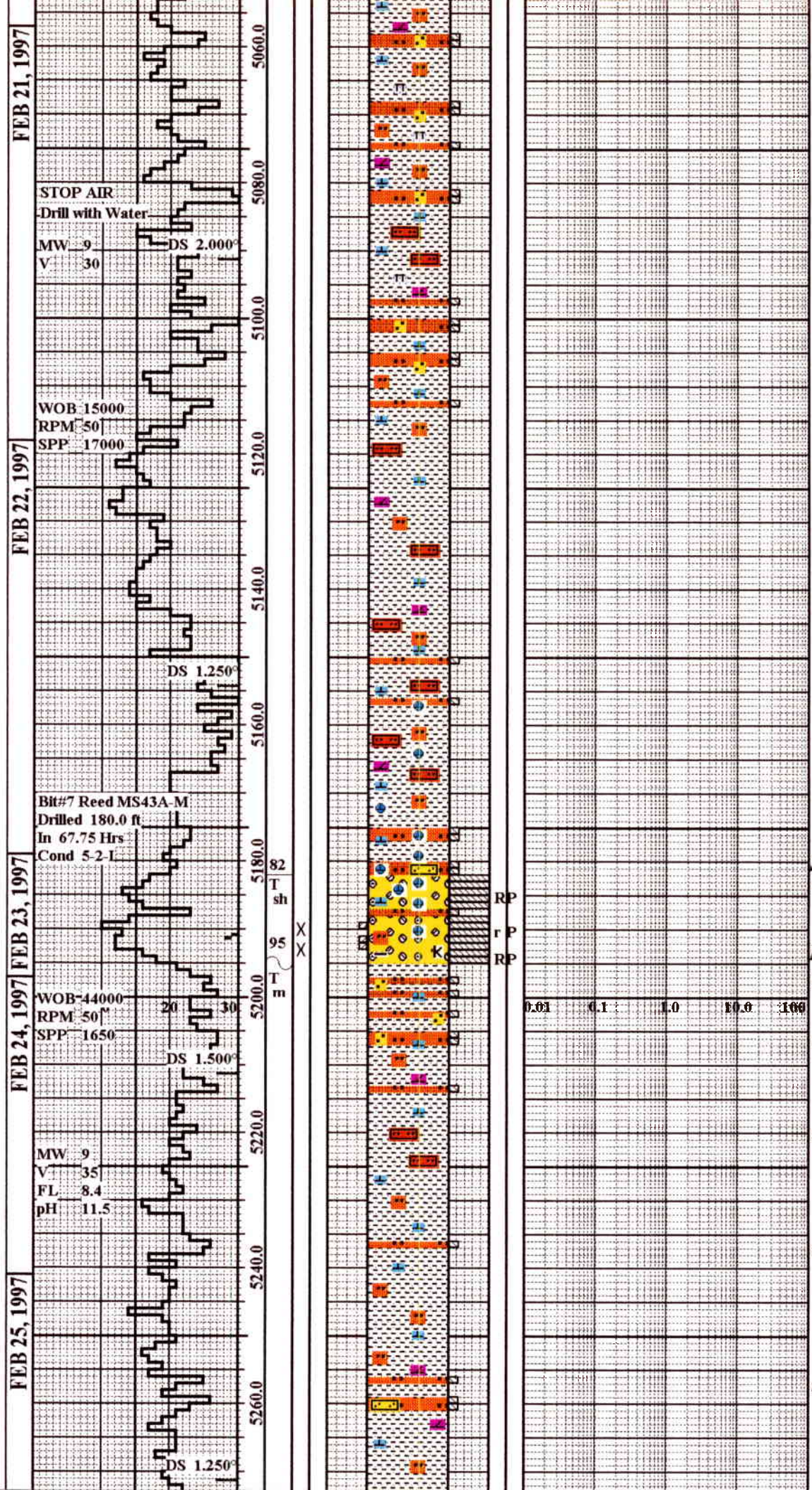
SLTST dk to lt red brn to pink, arg, sdy, dolic.

SLTST dk to m brick red, sdy to v sdy ip, arg to v arg ip, dolic; with mnr Ss strgs, m to lt red brn to pink, vf gred, sbang to sbrdd, w srt qtz grs, v slty, arg, dolic, tt.

SLTST dk to m brick red, sdy to v sdy ip, arg to v arg ip, dolic; with mnr Ss strgs, m to lt red brn to pink, vf gred, sbang to sbrdd, w srt qtz grs, v slty, arg, dolic, tt.

SH dk to m brick red, fls to blky, slty, calcs, dolic.

SLTST dk to m brick red, arg, sdy, dolic, calcs ip.



SH dk to m brick red, fls to blky, slty, v calcs, dolic ip; with mnr Mrlst strgs, m brick red, calcs, slty.

SLTST aa, v calcs.

SH dk to m brick red, fls to blky, slty, v calcs, dolic ip; with mnr Mrlst strgs, m brick red, calcs, slty.

SLTST dk to m brick red, arg, sdy, dolic, calcs to v calcs ip.

SH dk to m brick red, fls to blky ip, slty, calcs to v calcs, dolic ip.

SH dk to m brick red, fls to blky ip, slty, calcs to v calcs, dolic ip.

SLTST dk to m brick red, arg, sdy, dolic, calcs to v calcs ip, with tr f to m gred w rdd arg slty ls grs.

SH aa, with tr f to m gred w rdd v arg slty ls grs.

SHINARUMP (5182.00 ft)

CGL Ss ip, m brn red - lt pink - lt gy, c - v c - cgl, ls grs at top, clr qtz grs at base, sltst & sh matrix ip, tt - mnr p por, no shows.

MOENKOPI (5195.00 ft)

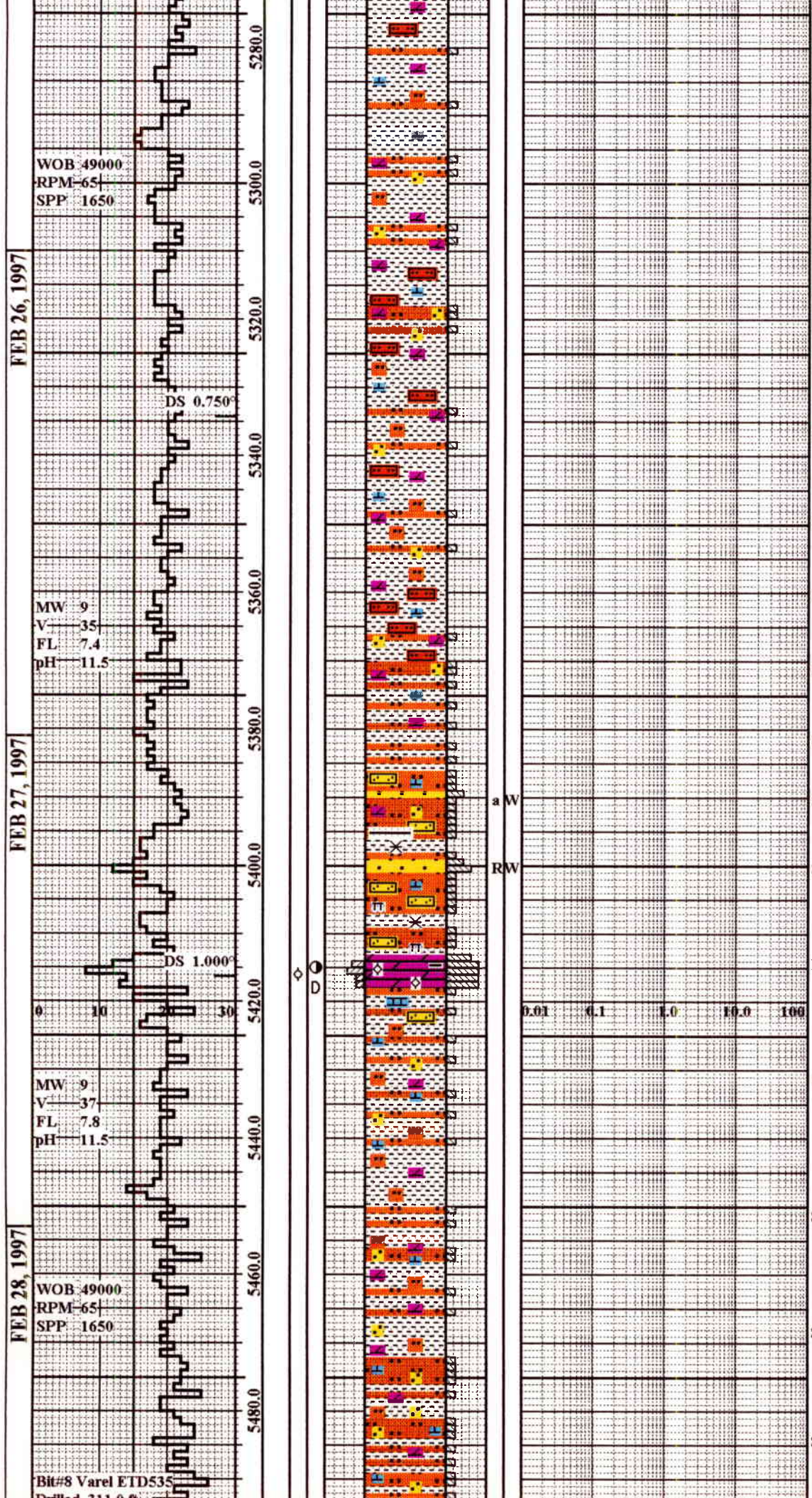
SH dk brick red to mar ip, fls to blky, slty to v slty ip, slly calcs, dolic ip, micmica ip.

SLTST dk to m brick red, v arg, sdy ip, calcs.

SH dk to m brick red to red brn ip, fls, slty ip, micmica ip, calcs ip; with mnr Sltst strgs, dk brick red, v arg, calcs ip, sdy ip.

SH dk to m brick red to red brn ip, fls, slty ip, micmica ip, calcs ip; with mnr Sltst strgs, dk brick red, v arg, calcs ip, sdy ip.

SLTST dk to m brick red, v arg, mica, sdy, dolic, calcs ip; with mnr Ss strgs, m brick red, vf gred with tr floating m grs, qtz grs, v slty, v arg, mica, calcs, dolic, tt.



SH dk to m brick red, fls to blky, v soft ip, slly slty to v slty ip, dolic, calcs.

SLTST aa.

SH dk to m brick red, fls to blky, v soft ip, slly slty to v slty ip, dolic, calcs.

SLTST m brick red to dk red brn, v arg, dolic, sdy ip, calcs ip, mica ip.

SH dk to m brick red to dk brn ip, fls, slty, dolic, calcs ip.

SLTST m brick red to dk red brn, v arg, dolic, sdy ip, calcs ip, mica ip.

SH dk to m brick red to dk brn ip, fls, slty, dolic, calcs ip.

SLTST m brick red to dk red brn, v arg, dolic, sdy ip, calcs ip, mica ip.

SH aa.

SS m to lt red brn to pink, vf gred, sbang, w srt qtz grs, v slty, arg, dolic, tt.

SS aa; with mnr Ss strgs, lt gy to pink, f gred, rdd, w srt qtz grs, slty ip, arg ip, calcs ip, fri ip, tt.

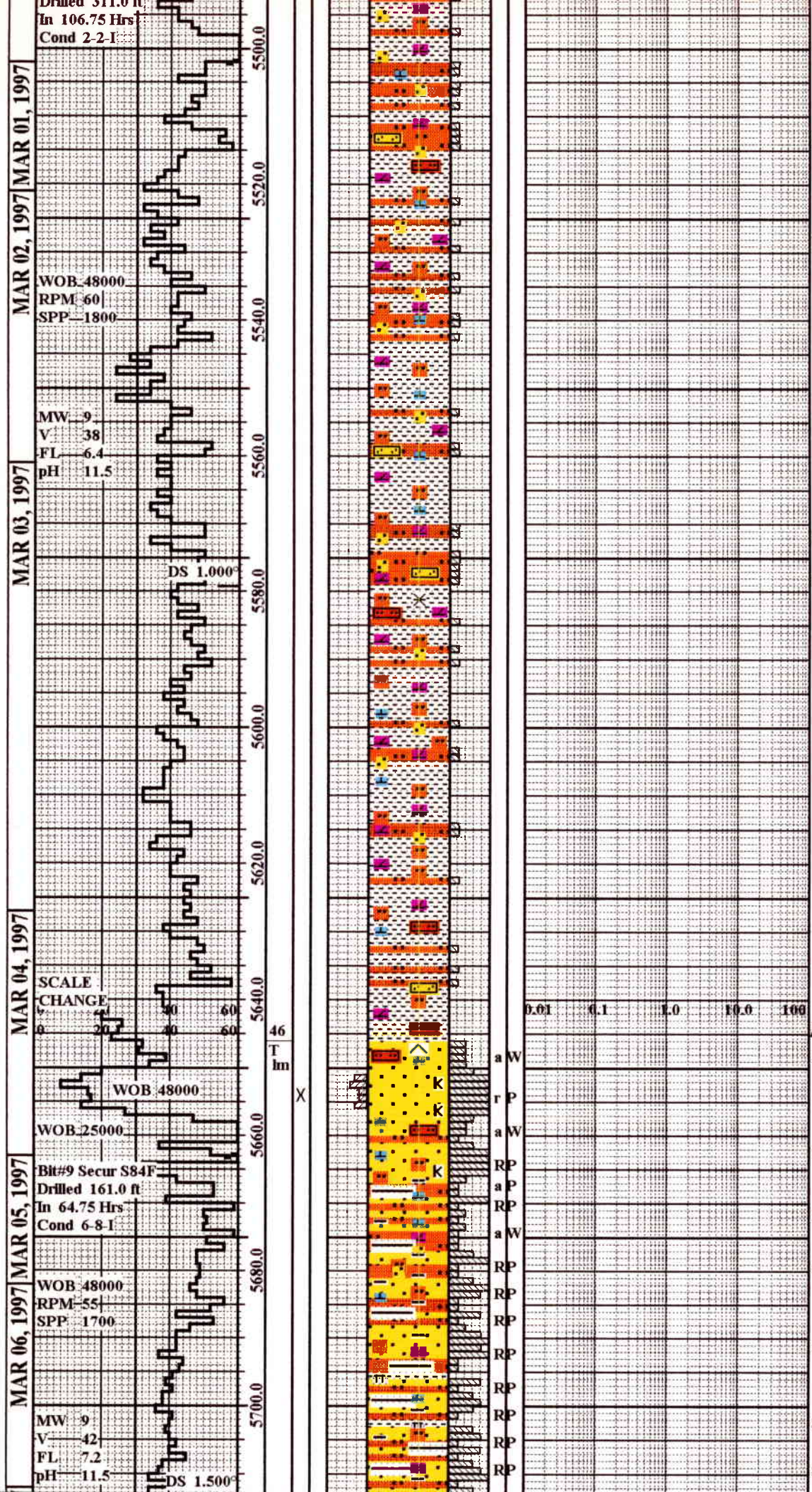
DOL dk to lt gy mot, micxl & f to m gred oolites, arg ip, slty ip, p to fr oolitic por strgs, pyrbit, fr spy flor, fair spy cut;

SH dk to m brick red to red brn, fls to blky, slty to v slty ip, mica ip, dolic ip.

SLTST dk to m brick red, arg, sdy to v sdy, mica, calcs, dolic ip.

SH dk to m brick red to dk red brn ip, fls, slty, dolic, micmica, sdy ip with floating rdd m qtz grs.

SLTST m brick red, sdy, arg, mica, calcs, dolic.



SH dk to m brick red to dk red brn ip, fis, slty, dolic, micmica, sdy ip with floating rdd m qtz grs.

SLTST dk to lt brick red to pink ip, arg, sdy, mica, dolic, calcs ip.

SH dk red brn, fis, slty, mica, dolic.

SLTST m brick red, sdy, arg, mica, dolic, calcs ip.

SH dk red brn, fis to blky, slty, mica, dolic, calcs ip.

SLTST m brick red, sdy, arg, mica, dolic, calcs ip.

SS strgs, lt red brn to pink, vf gred, sbang to sbrdd, w srt qtz grs, slty, arg, mica, dolic, calcs ip, tt.

SH dk red brn, fis to blky, slty, mica, dolic, calcs ip.

SLTST m brick red, sdy, arg, mica, dolic, calcs ip.

SH dk red brn, fis to blky, slty, dolic ip, calcs ip, mica.

LOWER MOENKOPI (5646.00 ft

SS lt pink, vf gred, sbang, w srt qtz grs, v slty, v calcs, mica, arg ip, slly sils, tt.

SS lt gy, f to c gred, sbrdd, p srt qtz grs, v kaolc, fri, slly mica, slly calcs to v calcs ip, tt to mnr p to tr fr por strgs, no shows.

SS lt pink to lt gy, vf to c gred, sbang to sbrdd, p srt qtz grs, slty ip, kaolc, v calcs ip, sils ip, arg ip, tt.

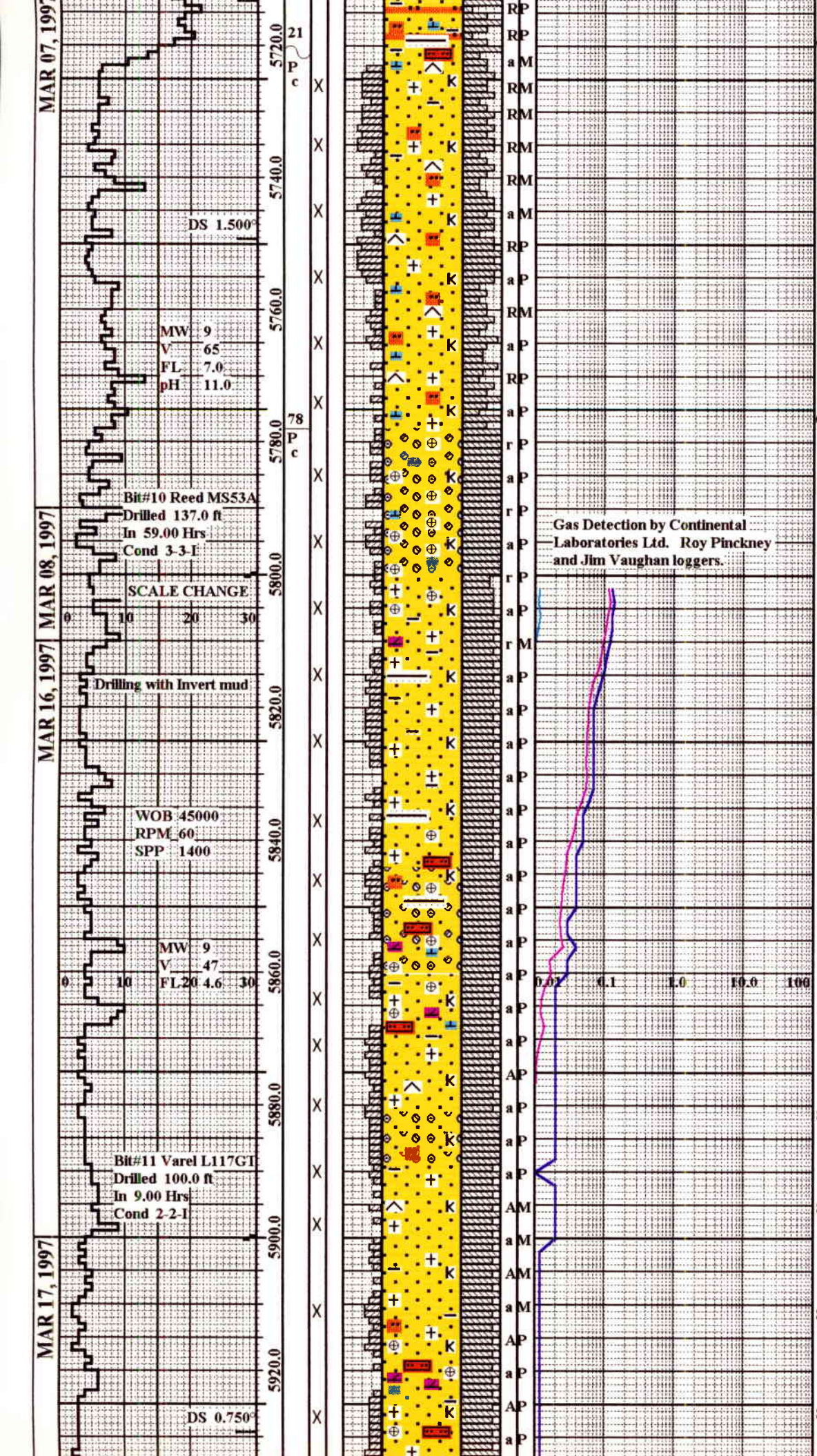
SLTST dk to m brick red, v sdy with vf to c rdd qtz grs, arg, mica, calcs to v calcs ip, dolic ip.

SS m to lt brick red to pink to lt gy ip, vf to c gred, sbang to rdd, p srt qtz grs, v slty with sltst matrix ip, arg to v arg ip, mica, kaolc ip, calcs to v calcs, dolic, tt.

SS m to lt red brn to pink to mnr lt gy, vf to c gred, sbang to rdd, p srt qtz grs, fri ip, slty with sltst matrix ip, arg with sh matrix ip, mica, calcs to v calcs ip, tt.

SLTST m brick red, v sdy with vf to c rdd qtz grs, arg to v arg ip, mica, calcs, dolic ip.

SS m to lt red brn to pink to mnr lt gy, vf to c gred, sbang to rdd, p srt qtz grs,



fri ip, slty with sltst matrix ip, arg with sh matrix ip, mica, v calcs ip, tt.

CUTLER- WHITE RIM (5721.00

SS lt red brn to pink to wh, vf to f to mnr m to tr c gred, sbang to rdd, m srt qtz grs with tr fld grs, sils ip, calcs ip, slly kaolc, tt to p por, no shows.

SS m to lt brick red to orng, f to m to mnr c gred, rdd, m srt qtz grs, v fri, arg ip, slty ip, fr to g por, no shows.

SS lt red orng to pink, vf to m gred, mnr c gred, sbang to rdd, m to p srt, qtz grs with tr fld grs, slty ip, kaolc ip, sils, calcs ip, slly mica, fri ip, tt to p to fr to mnr g por strgs, no shows.

SS lt red orng, vf to m to c gred ip, sbang to rdd, p srt, qtz grs with mnr fld grs, fri ip, kaolc ip, sils ip, calcs ip, slty ip, slly mica, tt to p to fr por strgs, no shows.

CUTLER- ARKOSE (5778.00 ft)

CGL arkic, lt gy to pink, m gred to pbls, sbang to sbrdd, p srt, qtz and fld, fri, kaolc, calcs ip, mica ip, tt to p to mnr fr por strgs, no shows.

SET 13 3/8 SURFACE CASING AT 5800'. DRILL WITH 12 1/4 BIT AND INVERT MUD.""

SS lt gy to pink, m to mnr c gred with tr qtz and fld pbls, sbang to sbrdd, m srt, qtz and fld grs, v fri, kaolc, arg ip, fr por, no shows.

SS lt pink, m to c to mnr v c gred, sbang, p srt, fri, qtz and fld grs, v arg with sh matrix ip, kaolc, dolic ip, tt to p to fr por ip, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang, p srt, qtz and fld grs, mica, fri, kaolc, arg ip with mnr sh strgs, tt to p por, no shows.

SS Cgl, lt gy to pink, m to v c to cgl pbls, sbang, p srt, qtz and fld grs, mica, fri ip, kaolc, slty ip, arg ip, tt to p por, no shows.

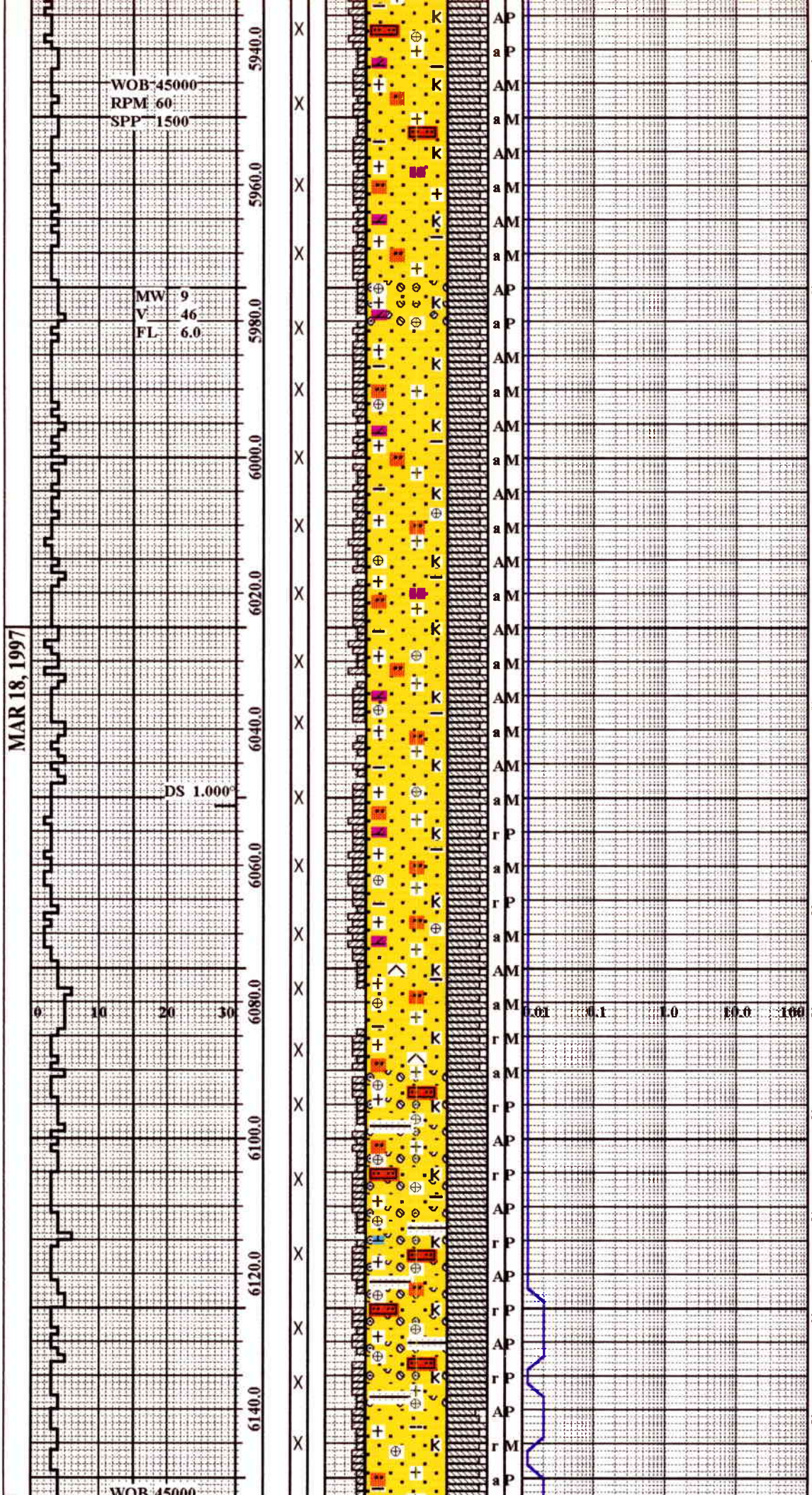
SS lt gy to pink, m to v c gred, mnr pbls, sbang, p srt, qtz and fld grs, mica ip, fri ip, kaolc, dolic ip, calcs ip, slty ip, arg ip, tt to p por, no shows.

SS Cgl, lt gy to lt pink, m to v c gred to pbls, sbang, p srt, qtz and fld grs, v kaolc, fri, slty ip, arg ip, tt to p to mnr fr por, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, mica, kaolc, fri, sils ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, m to v c gred with mnr pbls, sbang to ang, p srt, qtz and fld grs, mica, kaolc, arg, slty with sltst matrix ip, dolic ip, calcs ip, tt to p por, no shows.

SS lt gy to pink, m to v c gred with mnr pbls, sbang to ang, p srt, qtz and fld grs, mica, kaolc, arg, slty with sltst matrix ip, dolic ip, calcs ip, tt to p por,



no shows.

SS lt gy to pink ip, m to v c gred, sbang to ang, m srt, qtz and fld grs, fri, kaolc, arg ip, slty ip, mica, fr por, no shows.

SS lt gy to pink ip, m to v c gred, sbang to ang, m srt, qtz and fld grs, fri, kaolc, arg ip, slty ip, mica, dolic ip, tt to fr por, no shows.

SS Cgl, lt gy to pink, m to v c gred to pbls, sbang to ang, p srt, qtz and fld grs, fri, kaolc, mica, dolic ip, p por, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, fri, mica, arg ip, slty ip, dolic ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, fri, mica, arg ip, slty ip, dolic ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, fri, mica, arg ip, slty ip, dolic ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, fri, mica, arg ip, slty ip, dolic ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, m to v c gred, sbrdd to sbang, p to m srt, qtz and fld grs, fri, kaolc, mica, arg, slty, dolic ip, tt to p por, no shows.

SS lt gy to pink, m to v c gred, sbrdd to sbang, p to m srt, qtz and fld grs, fri, kaolc, mica, arg, slty, dolic ip, tt to p por, no shows.

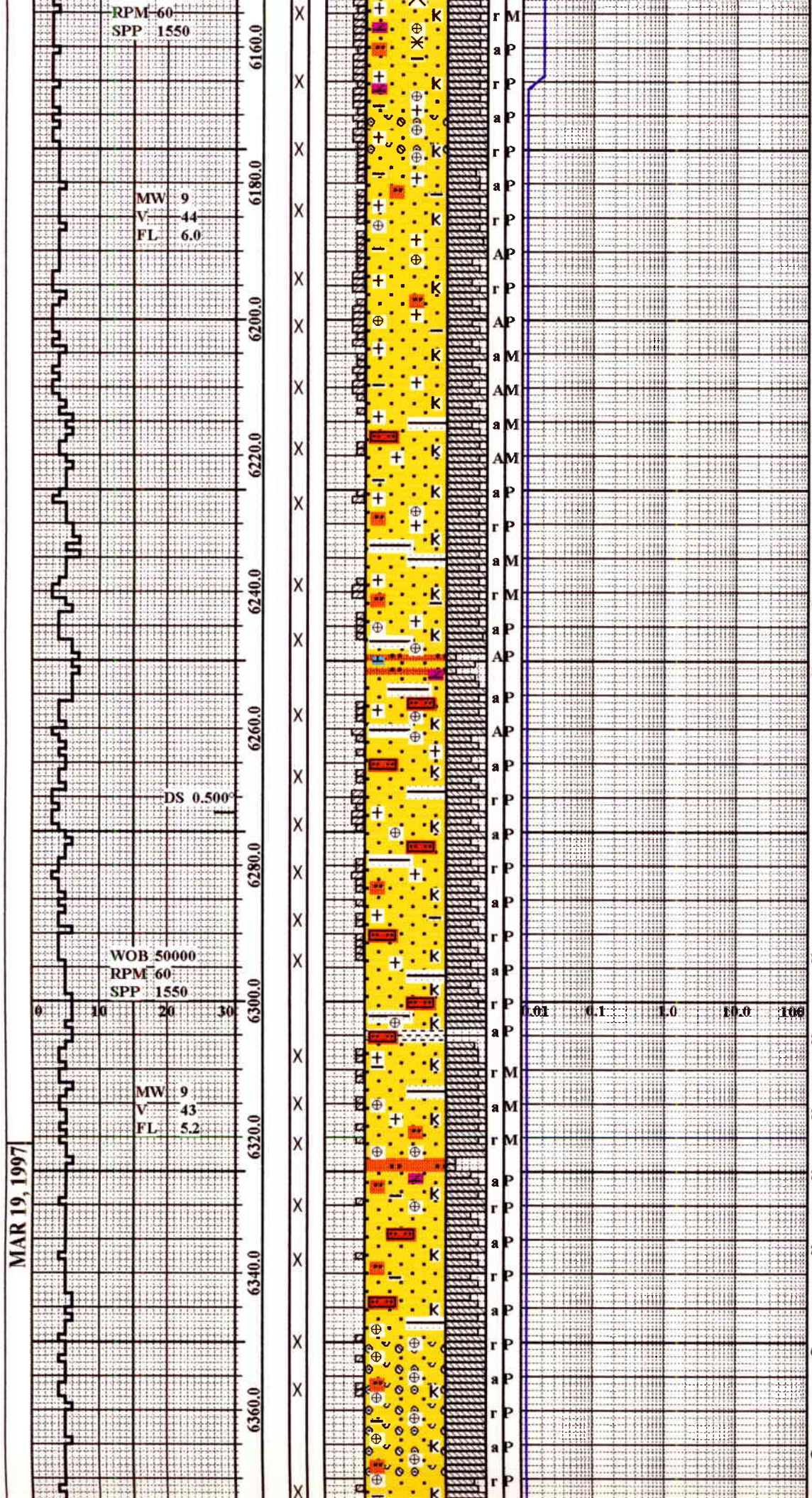
SS lt gy to pink ip, m to c to mnr v c gred, sbang to ang, m srt, qtz and fld grs, fri, mica, kaolc, arg ip, slty ip, slly sils, p to fr por, no shows.

SS Cgl, lt gy to pink, m to v c gred to pbls, sbrdd to ang, p srt, qtz and fld grs, fri, arg with sh matrix ip, slty with sltst matrix ip, kaolc, calcs ip, tt to p to mnr fr por, no shows.

SS Cgl, lt gy to pink, m to v c gred to pbls, sbrdd to ang, p srt, qtz and fld grs, fri, arg with sh matrix ip, slty with sltst matrix ip, kaolc, calcs ip, tt to p to mnr fr por, no shows.

SS Cgl, lt gy to pink, m to v c gred to pbls, sbrdd to ang, p srt, qtz and fld grs, fri, arg with sh matrix ip, slty with sltst matrix ip, kaolc, calcs ip, tt to p to mnr fr por, no shows.

SS lt gy to pink, m to v c gred, mnr pbls, sbang to sbrdd, p to m srt, qtz and fld grs, mica, fri, kaolc, sils ip, arg, slty ip, tt to p to mnr fr por strgs, no shows.



SS aa, v kaolc, dolic ip with tr euhed dol xls: fractures, tt to p por, no shows.

SS lt pink to red orng, m to v c gred with mnr pbls, sbrdd to sbang, p srt, qtz and fld grs, fri, v kaolc, arg to v arg, slty ip, mica, slly dolic, tt to p por, no shows.

SS Cgl, aa but cgl ip.

SS lt gy to red orng, m to v c gred, mnr pbls, sbrdd to ang, p srt, qtz and fld grs, fri, mica, arg, v kaolc, slty ip, tt to p por, no shows.

SS lt gy to pink, f to c gred, mnr v c gred, sbang to ang, m srt, qtz and fld grs, v fri, kaolc, mica, arg ip, tt to p to fr por strgs, no shows.

SS lt gy to pink, f to c gred, mnr v c gred, sbang to ang, m srt, qtz and fld grs, v fri, kaolc, mica, arg ip, tt to p to fr por strgs, no shows.

SS lt gy to red orng, m to c to mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg to v arg ip with sh matrix ip, slty ip, tt to p por, no shows.

SS lt gy to red orng, m to v c gred with mnr pbls, sbang to ang, p srt, qtz and fld grs, fri, kaolc, arg, slty, tt to p por, no shows.

SLTST dk to m brick red, arg, sdy, mica, dolic ip, calcs ip.

SS lt gy to red orng, f to c with mnr v c gred, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty, kaolc, tt to p por, no shows; with mnr Sltst and mnr Sh strgs, aa.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, arg, slty, kaolc, tt to p to mnr fr por, no shows; with mnr Sltst strgs and mnr Sh strgs, aa.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, arg, slty, kaolc, tt to p to mnr fr por, no shows; with mnr Sltst strgs

SH dk red brn to brick red, fis, slty, mica, sdy ip; with mnr Sltst strgs, dk to m brick red, v arg, mica, sdy, dolic ip.

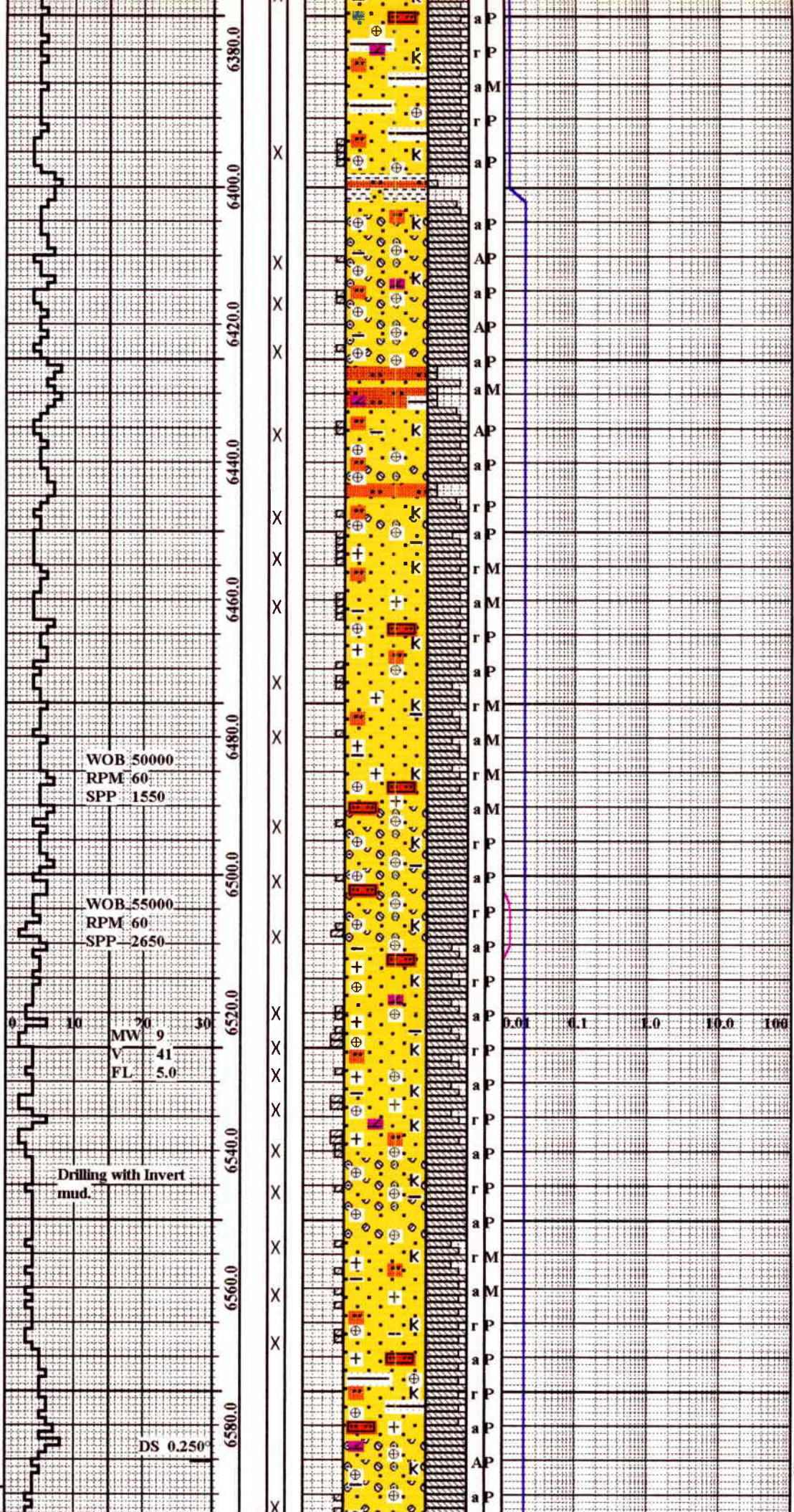
SS lt gy to red orng, m to c to mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg to v arg ip with sh matrix ip, slty ip, tt to p por, no shows.

SLTST m red orng, arg, v sdy, mica, dolic ip; with mnr Sh strgs, aa.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty, tt to p por, no shows.

CGL Ss, lt gy to pink, m gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, kaolc, slty, arg, tt to p por, no shows; with mnr Sltst strgs, aa.

CGL Ss, lt gy to pink, m gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, kaolc, slty, arg, tt to p por, no shows; with mnr Sltst strgs, aa.



with mnr Sltst strgs, aa.

SS lt gy to pink, m to c to mnr v c gred with tr pbls, sbang to sbrdd, p to m srt, qtz and fld grs, mica, fri, arg, slty ip, kaolc, tt to mnr p por, no shows.

SH dk red orng, fls, mica, slty ip; with mnr Sltst strgs, m to lt brick red, arg, sdy, mica.

SS Cgl, lt gy to pink, m to v c gred to pbls, sbang to ang, p srt, qtz and fld grs, v slty with sltst matrix ip, arg, kaolc, mica, dolic, tt.

SLTST m red orng, v sdy, arg, mica, dolic.

SS lt gy to pink, m to v c gred, mnr pbls, sbang to ang, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt.

SLTST aa; with mnr Sh strgs, aa.

CGL Ss, lt gy to red orng, m to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, kaolc, mica, arg, dolic ip, tt.

SS lt gy to pink, m to c gred with mnr f and mnr v c gred ip, sbang to sbrdd, m srt, qtz and fld grs, fri, slty, arg, kaolc, mica, tt to p por, no shows.

SS lt gy to lt pink, f to m to c to mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg, slty ip, mica, tt to p to mnr fr por, no shows.

SS Cgl, lt gy to red orng, m to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, kaolc, slty with mnr sltst matrix, mica, tt to mnr p por strgs, no shows.

SS lt gy to pink to red orng ip, f to v c gred with mnr pbls ip, p srt, qtz and fld grs, fri, arg ip, slty ip, kaolc, mica, slly dolic, tt to p por, no shows.

SS lt gy to pink to red orng ip, f to v c gred with mnr pbls ip, p srt, qtz and fld grs, fri, arg ip, slty ip, kaolc, mica, slly dolic, tt to p por, no shows.

SS Cgl, lt gy to red orng, m to v c to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty with sltst matrix ip, mica, tt to p por, no shows.

SS lt gy to pink, f to c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg, slty, mica, tt to p por, no shows.

SS lt gy to red orng, m to v c gred with mnr f gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, kaolc, slty ip, mica, slly dolic, tt to p por, no shows.

SS Cgl, lt gy to red orng, m to v c to pbls, sbang to ang, p srt, qtz and fld grs, fri ip, mica, kaolc, arg, slty ip, tt to p por, no shows.

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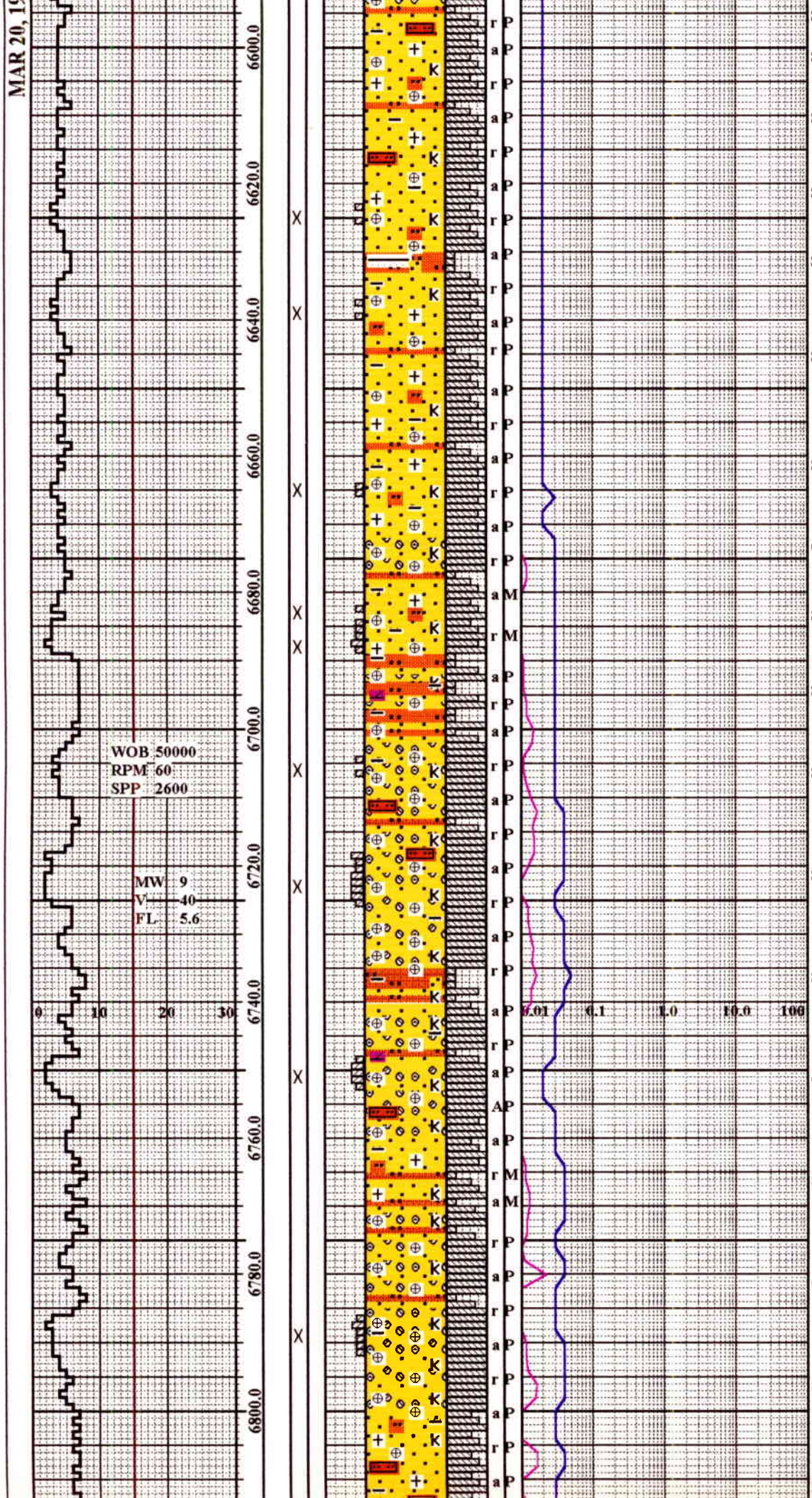


no shows.

SLTST dk brick red, arg, mica, sdy to v sdy, dolic ip; with mnr Sh strgs, aa.

SS lt gy to pink to red orng ip, f to c to mnr v c gred, mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, kaolc, v arg, slty, mica, tt to p por, no shows.

SLTST dk brick red, arg, mica, sdy to v sdy, dolic ip; with mnr Sh strgs, aa.

SS lt gy to pink to red orng ip, f to c to mnr v c gred, mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, kaolc, v arg, slty, mica, tt to p por, no shows.

SLTST dk brick red, arg, mica, sdy to v sdy, dolic ip; with mnr Sh strgs, aa.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty, mica, tt to por por, no shows; with mnr Sltst strgs, dk brick red, v mica, arg, sdy.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty, mica, tt to por por, no shows; with mnr Sltst strgs, dk brick red, v mica, arg, sdy.

CGL lt gy to red orng, m to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, slty with sltst matrix ip, arg, mica, tt to p por, no shows.

SS lt gy to pink, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, m to p srt, qtz and fld grs, fri, arg, slty ip, mica ip, kaolc, slly dolic, tt to p por, no shows.

SLTST m red orng, v sdy, arg, mica, dolic ip.

SS Cgl, lt gy to red orng, m to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty with sltst matrix ip, kaolc, mica ip, tt to p por, no shows.

SS Cgl, lt gy to red orng, m to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty with sltst matrix ip, kaolc, mica ip, tt to p por, no shows.

SLTST m to lt brick red, v arg, sdy to v sdy, mica, dolic ip.

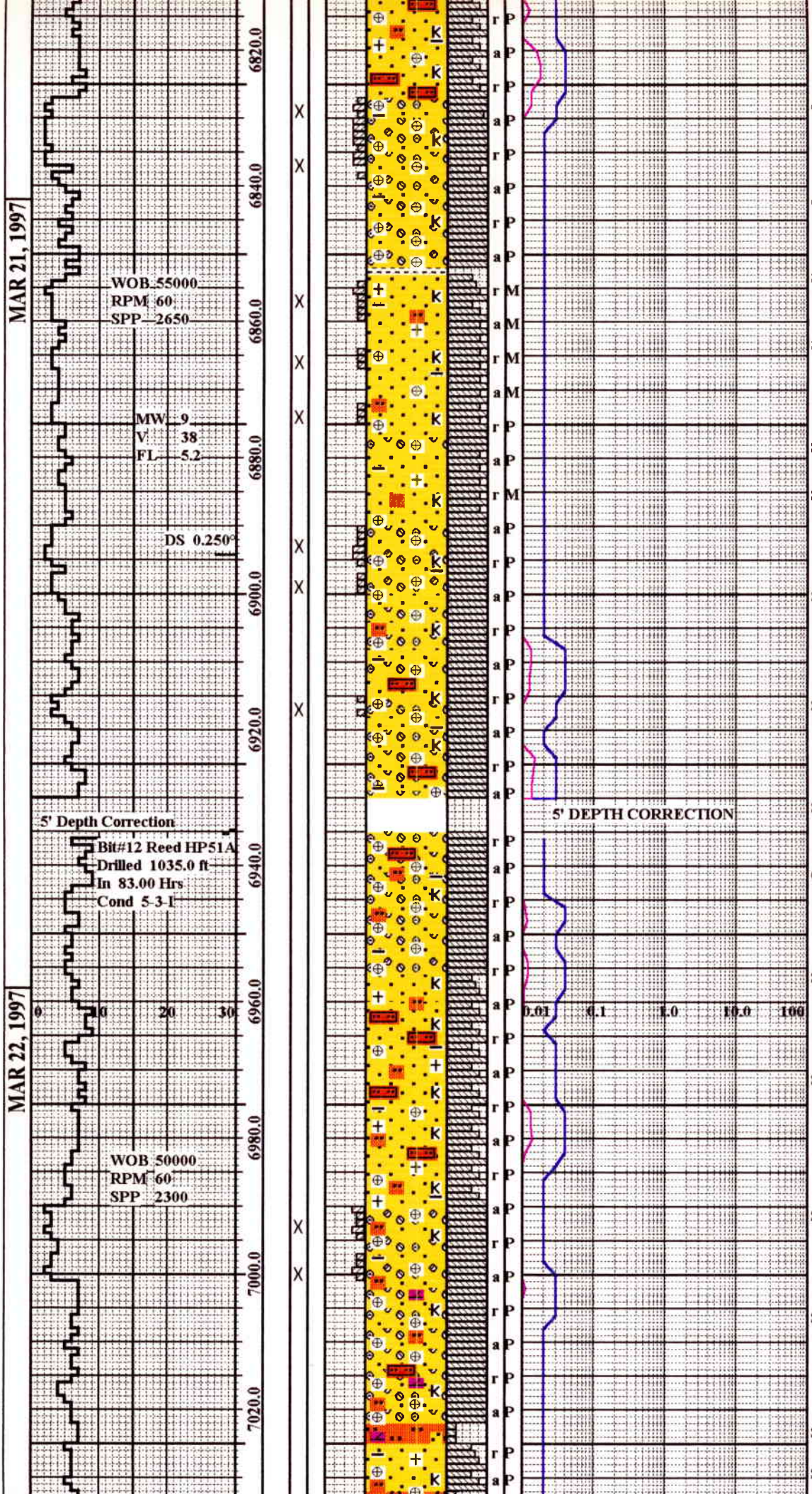
CGL lt gy to pink, m gred to pbls, sbang to ang, p srt, qtz and fld grs, fri ip, slty, arg, mica, kaolc, tt to mnr p por, no shows.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg, slty with sltst matrix ip, mica ip, tt to p por, no shows.

CGL Ss, lt gy to red orng, m gred to pbls, l gred ip, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty, mica, kaolc, tt to p por, no shows.

SS Cgl, pink to red orng, m gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty with mnr sltst matrix, mica, kaolc, tt to p por, no shows.

SS lt gy to red orng, f to v c gred, mnr



pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty with sltst matrix ip, mica, tt to p por, no shows.

CGL Ss, pink, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fls, arg, slty ip, kaolc, mica, tt to p por, no shows.

CGL Ss, pink, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fls, arg, slty ip, kaolc, mica, tt to p por, no shows.

SH dk red brn, v slty, mica.

SS pink to red orng, f to c gred, mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, arg, slty ip, tt to p por, no shows.

SS Cgl, aa but f gred ip and 20% cgl pbls.

SS lt gy to red orng, m to v c gred, mnr f gred, sbang to sbrdd, m srt, qtz and fld grs, fri, arg, kaolc, slty ip, mica ip, tt to p por, no shows.

SS Cgl, lt gy to red orng, m to v c gred to pbls, mnr f gred, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, kaolc, slty ip, mica ip, tt to p por, no shows.

SS Cgl, aa with sltst matrix ip, tt to mnr p por strgs, no shows.

STRAP: PIPE STRAP AT 6930'. MADE 5' DEPTH CORRECTION: 6930' IS NOW 6935'.

CGL lt gy to red orng, m gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, mica, kaolc, tt.

SS lt gy to red orng, f to v c gred, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc,

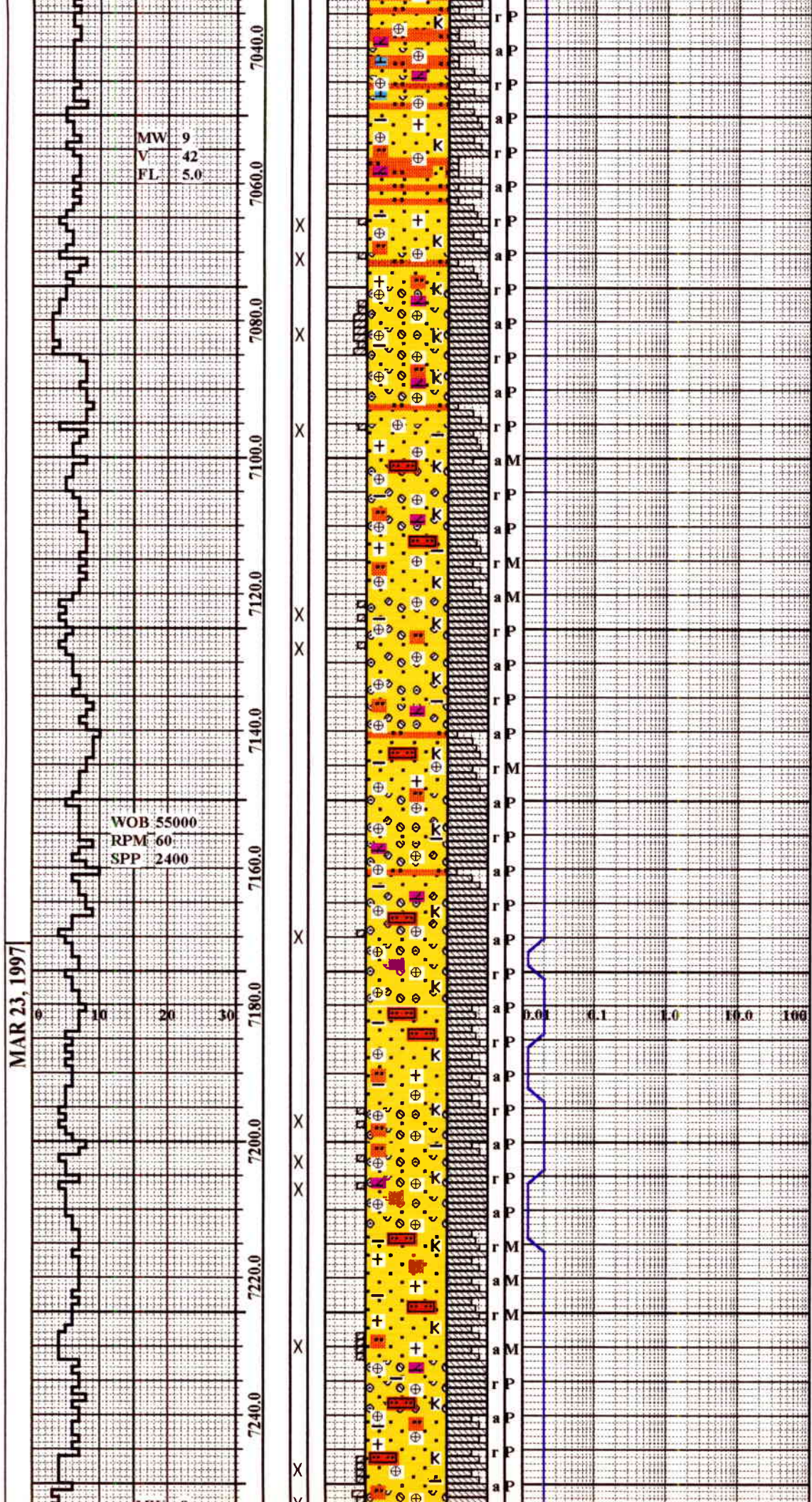
SS lt gy to red orng, f to v c gred, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, slty, arg, tt to mnr p por ip, no shows.

SS Cgl, lt gy to pink to red orng ip, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, arg, slty ip, mica, tt to p por, no shows.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, kaolc, arg, mica, dolic ip, tt.

SLTST m brick red, sdy to v sdy, arg, mica, dolic ip.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld



grs, fri, slty with sltst matrix, arg, kaolc, tt to mnr p por strgs, no shows.

SLTST aa.

SS Cgl, lt pink to red orng, f gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc, dolic ip, calcs ip, tt.

SS lt gy to red orng, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty ip, arg ip, kaolc, tt to mnr p por strgs, no shows.

SS lt gy to red orng, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty ip, arg ip, kaolc, tt to mnr p por strgs, no shows.

SS Cgl, lt pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, arg, kaolc, mica, dolic ip, tt to p por, no shows.

SS lt gy to pink, f to c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, slty ip, arg ip, tt to mnr p por strgs, no shows.

CGL Ss, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, kaolc, arg ip, mica ip, dolic ip, tt.

CGL Ss, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, kaolc, arg ip, mica ip, dolic ip, tt to mnr p por strgs, no shows.

SS Cgl, aa, tt.

SS lt gy to red orng, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc ip, tt to mnr p por strgs, no shows.

CGL Ss, red orng, f gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, kaolc, mica, arg, slly dolic, tt.

CGL Ss, red orng, f gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, kaolc, mica, arg, slly dolic, tt.

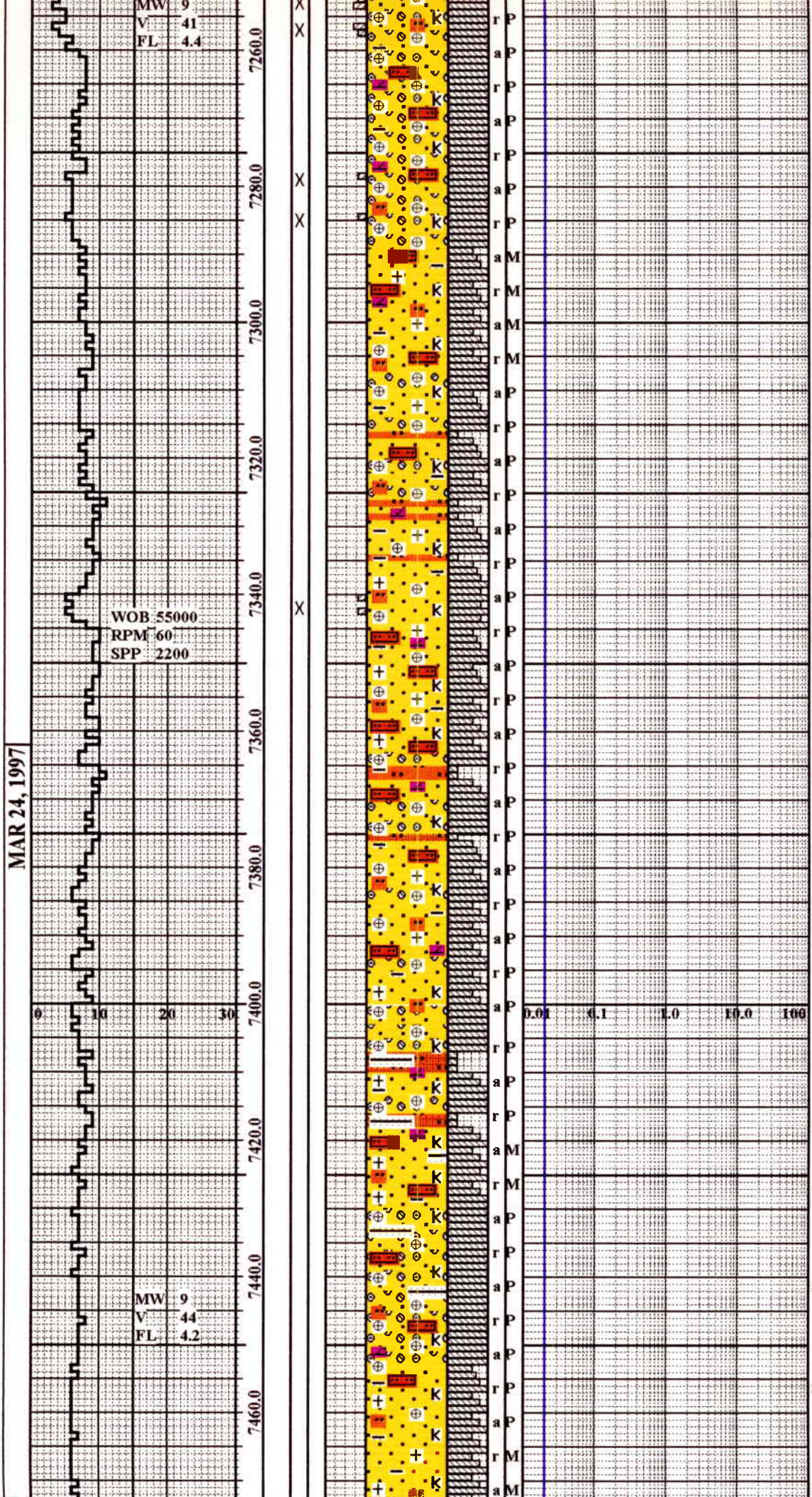
SS lt gy to pink to red orng ip, f to v c gred, mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, slty ip, arg ip, mica ip, tt to mnr p por strgs, no shows.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, kaolc, slty with sltst matrix ip, arg, mica ip, slly dolic, tt.

SS lt gy to pink, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, kaolc, slty ip, arg ip, mica, tt to mnr p poor strgs, no shows.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, arg, kaolc, mica ip, tt.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, slty with sltst matrix ip, arg, kaolc, mica, tt.



SS Cgl, aa, v kaolc ip, fri, tt to mnr p por strgs, no shows.

SS Cgl, aa, but v slty with sltst matrix, tt.

SS Cgl, aa, but v slty with sltst matrix, tt.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, slty with sltst matrix ip, kaolc, arg, tt to mnr p por strgs, no shows.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, arg, kaolc, mica ip, tt.

SLTST red orng, v sdy, arg, mica, dolic ip.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, kaolc ip, arg, mica, tt.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, kaolc ip, arg, mica, tt.

SS aa.

SLTST dk red orng, arg, v sdy, mica, dolic ip.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, kaolc, arg, tt.

SS Cgl, aa, v slty with sltst matrix, tt.

SLTST dk red orng, arg, v sdy, mica, dolic ip.

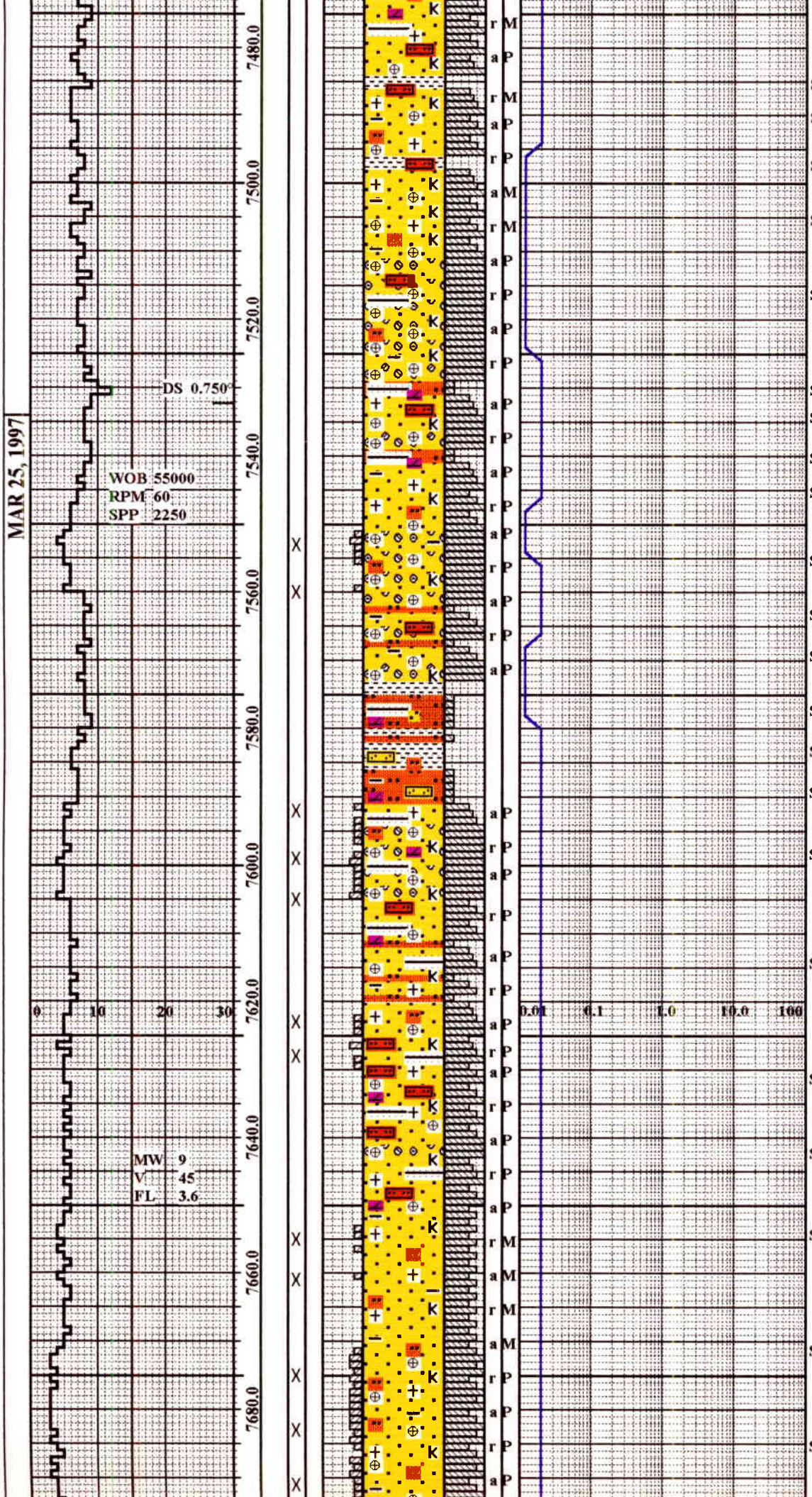
SLTST dk red orng, arg, v sdy, mica, dolic ip.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, slty with sltst matrix, arg, kaolc, tt.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc, tt.

SS lt gy to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix, mica, kaolc, arg, tt.

SS lt gy to red orng, f to c gred with mnr v



c gred, sbang to sbrdd, m srt, qtz and fld grs, slty, arg, mica, kaolc, tt to mnr p por strgs, no shows.

SH dk to m red brn to red orng, fls, slty, mica, sdy ip, dolic ip.

SS aa, with mnr pbls ip, tt.

SH dk to m red brn to red orng, fls, slty, mica, sdy ip, dolic ip.

SS lt gy to pink to red orng ip, f to c to mnr v c gred and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, v kaolc, slty, arg, mica, tt.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix, kaolc, arg, mica, tt.

SLTST red orng, v sdy, arg, mica, dolic ip.

SS Cgl, aa.

SLTST aa; with mnr Sh strgs, aa.

SS lt gy to red orng, f to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, slty with sltst matrix ip, arg, kaolc, mica ip, tt.

SS Cgl, aa, sltst matrix, tt to mnr p por strgs, no shows.

SLTST aa.

SS Cgl, aa.

SLTST dk to m red orng, v sdy, v arg, mica, dolic.

SH dk red orng, slty, mica, sdy ip, dolic.

SLTST dk to m red orng, v sdy, v arg, mica, dolic.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg with sh matrix ip, mica, dolic ip, kaolc, tt.

SS lt gy to red orng, f to c to mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip,

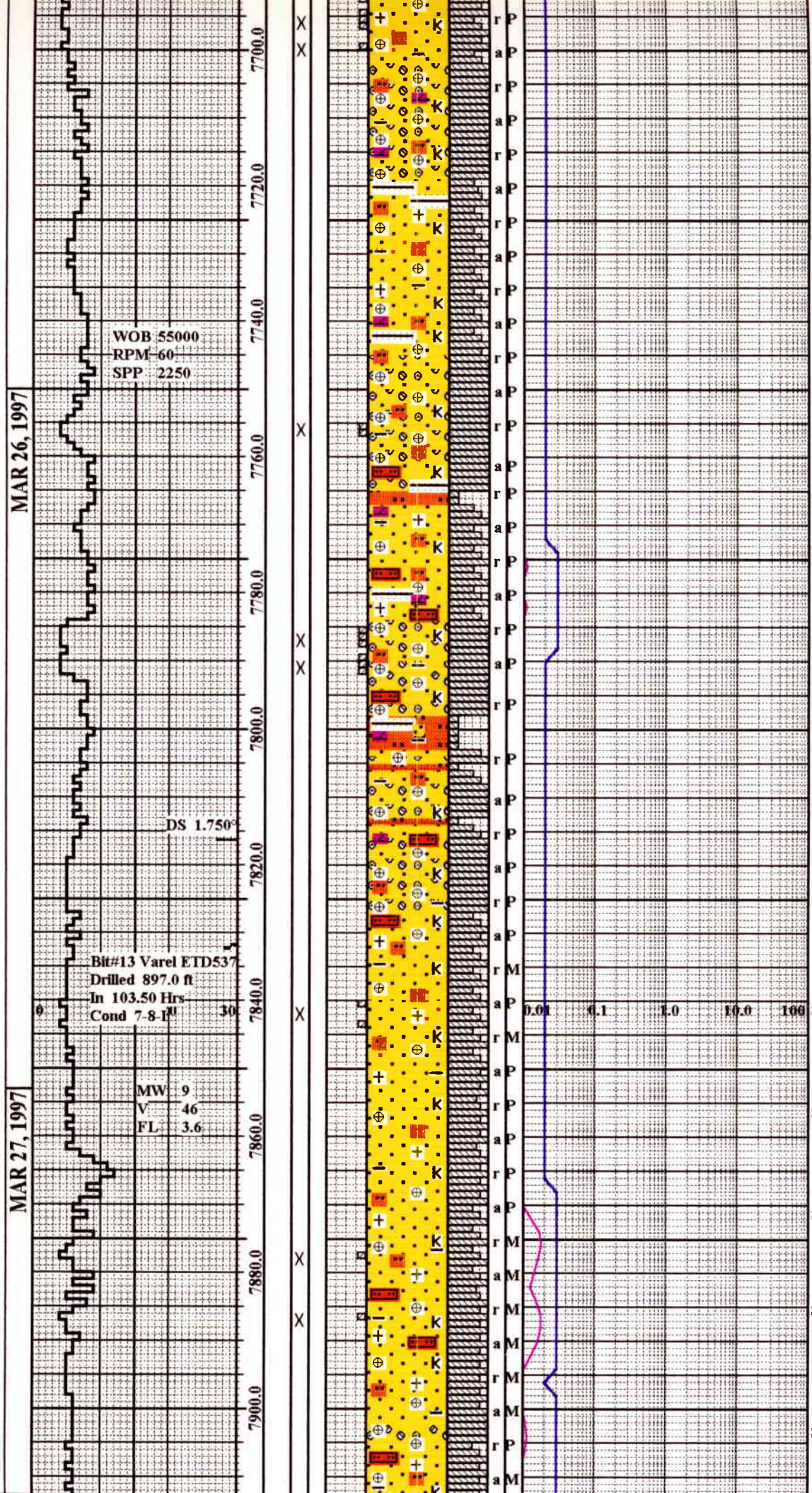
SS lt gy to red orng, f to c to mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, arg with sh matrix ip, mica, kaolc, dolic ip, tt.

SS aa, Cgl ip, tt.

SS lt gy to pink, f to m gred with mnr c and mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, slty, arg, kaolc, tt to mnr p por strgs, no shows.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, slty ip, arg ip, kaolc, mica, tt to mnr p por strgs, no shows; with mnr Sltst strgs, aa; and with mnr Sh strgs, aa.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, slty ip, arg ip, kaolc, mica, tt to mnr p por strgs, no shows; with mnr



Sltst strgs, aa; and with mnr Sh strgs, aa.

SS Cgl, lt gy to pink to red orng ip, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, slty ip, arg ip, kaolc, mica, tt to mnr p por strgs, no shows.

SS Cgl, aa, tt.

SH dk red orng, fls, v mica, slty.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty, kaolc ip, mica ip, tt; with mnr Sh strgs, aa.

SS lt gy to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty, kaolc ip, mica ip, tt; with mnr Sh strgs, aa.

SS Cgl, lt pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, arg, kaolc, slty, tt.

SLTST dk to m red orng, sdy, arg, mica, dolic ip.

SS lt gy to pink, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, arg, slty ip, kaolc, mica ip, tt to mnr p por strgs, no shows.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt to mnr p por strgs, no shows.

SLTST dk to m red orng, sdy, arg, mica, dolic ip; with mnr Sh strgs, dk red orng, slty, mica.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt.

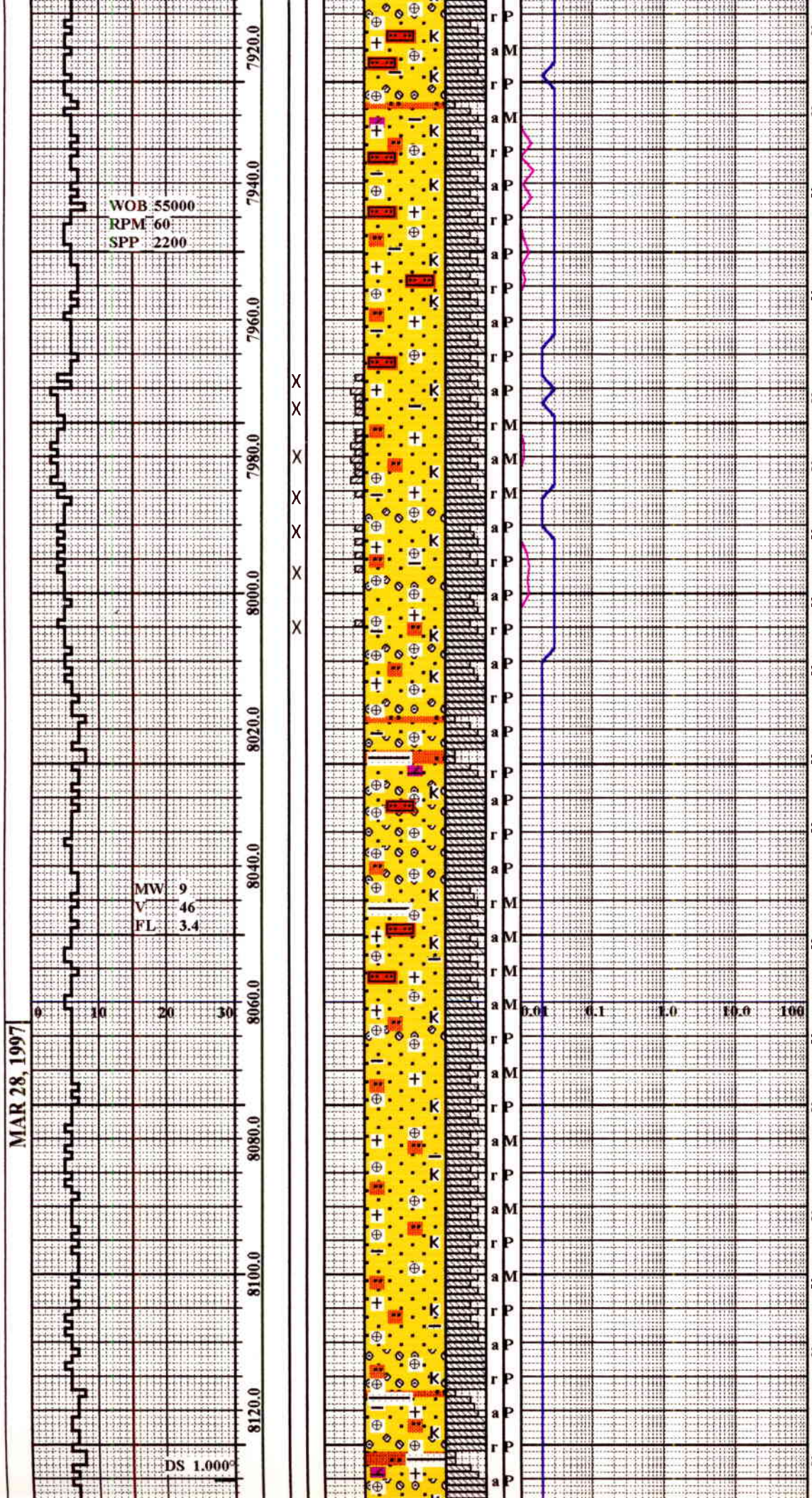
SS lt gy to red orng, f to c to mnr v c gred and mnr pbls, sbang to sbrdd, m to p srt, qtz and fld grs, fri, slty ip, arg ip, mica ip, tt to mnr p por strgs, no shows.

SS aa, m to v c gred pred, p srt, sltst matrix ip, tt.

SS lt gy to red orng, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, fri, slty ip, arg ip, kaolc ip, tt to mnr p por strgs, no shows.

SS aa, m to v c gred pred, mnr pbls, sltst matrix ip, tt.

SS aa, Cgl ip.


MAR 28, 1997
7920.0
7940.0
7960.0
7980.0
8000.0
8020.0
8040.0
8060.0
8080.0
8100.0
8120.0
WOB 55000
RPM 60
SPP 2200
MW 9
V 46
FL 3.4
0 10 20 30
DS 1.000°
0.01 0.1 1.0 10.0 100
SS lt gy to red orng, f to c gred with mnr v c and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, fri, slty ip, arg ip, kaolc ip, tt to mnr p por strgs, no shows.
SLTST m red orng, v sdy, mica, arg, dolic ip.
SS lt gy to pink to red orng ip, f to v c gred with pbls ip, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt.
SS lt gy to pink to red orng ip, f to v c gred with pbls ip, sbang to sbrdd, p srt, qtz and fld grs, fri ip, slty with sltst matrix ip, arg, mica, kaolc, tt.
SS aa, fri, tt to mnr p por strgs, no shows.
SS aa, fri, tt to mnr p por strgs, no shows.
SS Cgl ip, aa.
SS Cgl ip, aa.
SS Cgl ip, aa.
SLTST red orng, v sdy, arg, mica, dolic ip.
SS Cgl, pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, mica, kaolc, tt to mnr p por strgs, no shows.
SS lt gy to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, fri, slty ip, arg ip, kaolc, mica ip, tt to mnr p por strgs,
SS aa, Cgl ip; with mnr Sltst strgs, aa.
SS lt gy to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, m srt, qtz and fld grs, fri, slty ip, arg ip, kaolc, mica ip, tt to mnr p por strgs, no shows; with mnr Sltst strgs, aa.
SS aa with f to m gred ss pred, mnr pbls.
SS aa with f to m gred ss pred, mnr pbls.
SS Cgl, lt gy to pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, fri, kaolc, slty with sltst matrix ip, arg, mica ip, tt.
SLTST m red orng, v sdy, arg, mica, dolic ip; with mnr Sh strgs, dk to m red orng, v slty, mica.

MAR 29, 1997

WOB 55000
RPM 60
SPP 2200

Drilling with Invert mud.

MW 9
V 47
FL 3.6

WOB 55000
RPM 60
SPP 2200

8140.0
8160.0
8180.0
8200.0
8220.0
8240.0
8260.0
8280.0
8300.0
8320.0
8340.0

0 10 20 30

0.01 0.1 1.0 10.0 100

SS lt pink to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty, mica, kaolc ip, tt.

SS lt pink to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty, mica, kaolc ip, tt.

SS pink to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, calcs ip, arg, mica ip, dolic ip, tt.

SS aa, Cgl ip.

SS pink to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty with sltst matrix ip, calcs ip, arg, mica ip, dolic ip, tt.

SS aa, Cgl ip.

SS aa, fri with sh matrix, tt to mnr v p por strgs, no shows.

SS pink to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty, v arg, kaolc, mica ip, tt to mnr p por strgs, no shows.

SS aa, Cgl ip.

SS red orng, f to v c gred to mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, arg with sh matrix ip, slty, calcs ip, dolic ip, mica ip, kaolc, tt.

SS aa, Cgl ip, tt to mnr p por strgs, no shows.

SS red orng, f to v c gred to mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, arg with sh matrix ip, slty, calcs ip, dolic ip, mica ip, kaolc, tt.

SS Cgl, aa.

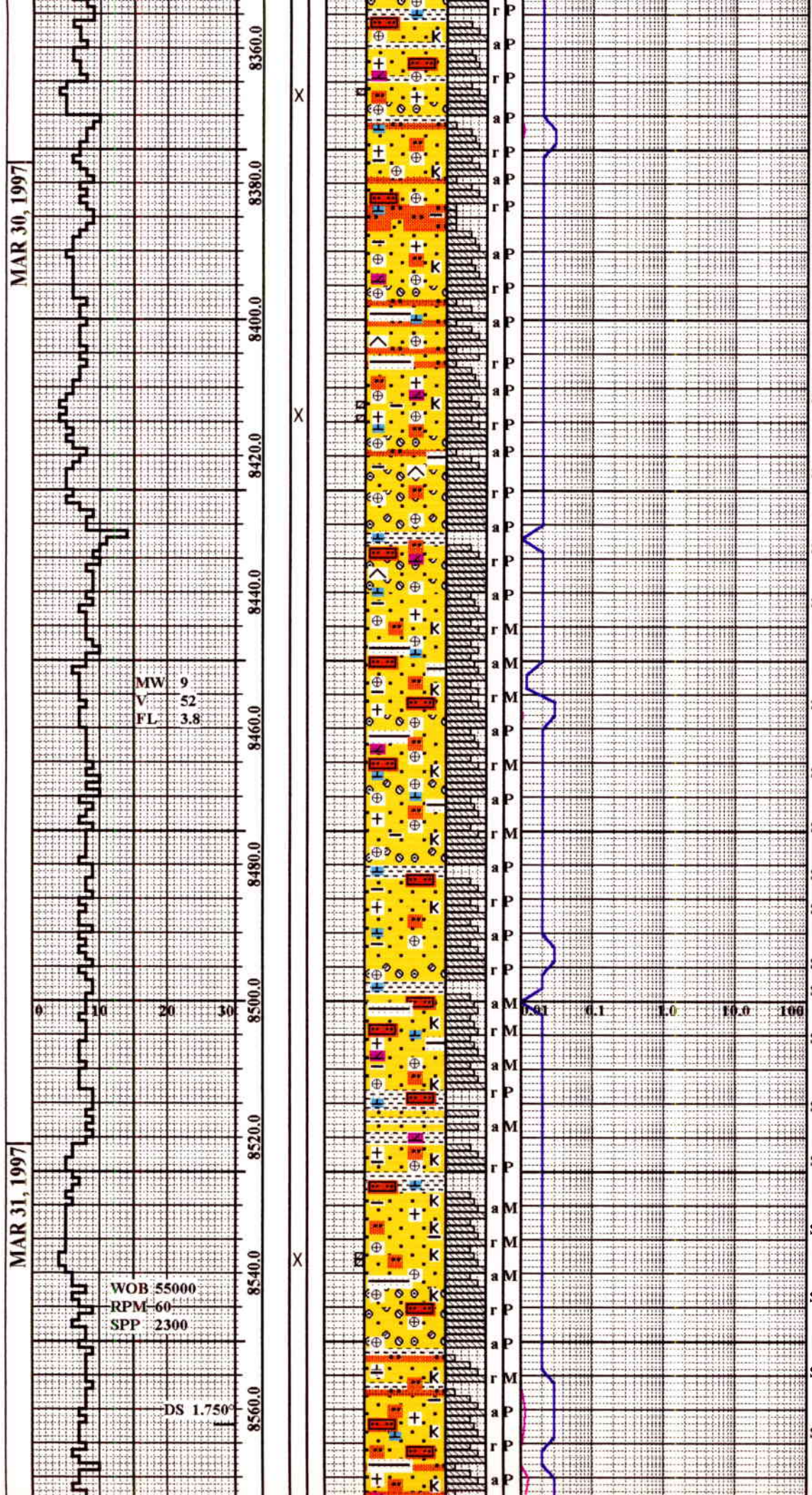
SS Cgl, aa.

SS red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg to v arg, kaolc, mica ip, tt.

SH m to lt red orng, slty, mica, calcs.

SS aa, Cgl ip.

SS lt gy to pink, f to c gred, mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, arg ip, slty ip, mica, kaolc, tt to



mnr p por strgs, no shows; with mnr Sltst and mnr Sh strgs, aa.

SS lt gy to pink, f to c gred, mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, fri, arg ip, slty ip, mica, kaolc, tt to mnr p por strgs, no shows; with mnr Sltst and mnr Sh strgs, aa.

SS lt pink to red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, kaolc ip, mica ip, tt.

SLTST m to lt red orng, fri, sdy, kaolc, arg, mica, calcs.

SS Cgl ip, lt gy to red orng, f to v c gred with pbls ip, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, calcs ip, dolic ip, sils ip, tt.

SLTST m to lt red orng, fri, sdy, kaolc, arg, mica, calcs.

SS Cgl ip, lt gy to red orng, f to v c gred with pbls ip, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, calcs ip, dolic ip, sils ip, tt to mnr p por strgs, no shows.

SS Cgl, lt gy to pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, kaolc ip, sils ip, calcs ip, tt.

SH m to lt red orng, fls, slty, mica, calcs ip.

SS lt gy to pink to red orng, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, qtz and fld grs, arg, slty with sltst matrix ip, mica, kaolc ip, tt.

SS aa, Cgl ip, sils ip, calcs ip, dolic ip, tt.

SS aa, Cgl ip, sils ip, calcs ip, dolic ip, tt.

SS Cgl ip, aa.

SH m red orng to red brn, fls, slty, calcs.

SS red orng, f to v c gred, sbang to sbrdd, p srt, qtz and fld grs, v arg with sh matrix, slty to v slty, kaolc, mica ip, calcs ip, tt.

SS aa, Cgl ip.

SH m red orng to red brn, fls, slty, calcs.

SS red orng, f to m gred with c gred ip, sbang to sbrdd, m srt, qtz and fld grs, v slty with sltst matrix ip, v arg with sh matrix ip, calcs ip, dolic ip, tt.

SH m red orng, fls, slty, mica, calcs ip, dolic ip.

SS red orng, f to m gred with c gred ip, sbang to sbrdd, m srt, qtz and fld grs, v slty with sltst matrix ip, v arg with sh matrix ip, calcs ip, dolic ip, tt.

SS lt gy to pink, f to c gred with mnr v c gred and mnr pbls, sbang to sbrdd, qtz and fld grs, fri ip, v kaolc, slty, arg, mica ip, tt.

SS Cgl, lt gy to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty, kaolc, mica, tt.

SS lt pink to red orng, f to c to mnr v c gred, sbang to sbrdd, p to m srt, qtz and fld grs, arg, slty, kaolc, mica ip, tt.

SS aa, v c gred ip, p srt, sltst matrix, calcs ip, tt.

APR 01, 1997

Drilling with Invert mud.

MW 9
V 54
FL 4.2

WOB 55000
RPM 60
SPP 2300

0 10 20 30

8580.0
8600.0
8620.0
8640.0
8660.0
8680.0
8700.0
8720.0
8740.0
8760.0
8780.0

0.01 0.1 1.0 10.0 100

SLTST dk red orng, sdy, mica, arg, dolic, calcs ip.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg to v arg, mica ip, kaolc, calcs ip, dolic ip, tt.

SS red orng, v f to c gred with mnr v c and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc, mica, sils ip, dolic ip, tt.

SS Cgl ip, red orng, v f to c gred with mnr v c and pbls ip, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc, mica, sils ip, dolic ip, tt to tr p por strgs, no shows.

SS Cgl, lt pink to red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg,mica, kaolc, tt.

SS lt red orng, vf to c to mnr v c gred and mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, mica, kaolc, calcs, sils ip, tt.

SH m red orng, fls, mica, slty to v slty ip, kaolc ip, dolic ip, calcs ip.

SLTST dk to m red orng, mica, arg, sdy, calcs, dolic ip.

SS red orng, f to m to c gred, mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, v arg, v slty with sltst matrix, mica, kaolc, tt.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty, v arg, mica, kaolc, tt.

SH dk to m red orng, fls, slty, mica, kaolc, calcs ip.

SLTST dk red orng, arg, sdy, mica, calcs.

SH dk to m red orng, fls, slty, mica, kaolc, calcs ip.

SS red orng, f to c gred, sbang to sbrdd, p srt, qtz and fld grs, v slty, v arg, kaolc, mica ip, tt.

SH dk to m red orng, fls, slty, mica, kaolc, calcs ip.

SS red orng, f to m to c gred with mnr v c gred, sbang to sbrdd, m srt, qtz and fld grs, v slty, v arg, calcs ip, mica, kaolc, tt.

SS lt gy to pink, f to v c gred, sbang to sbrdd, p srt, qtz and fld grs, v kaolc, fri, slty, arg, mica, tt to tr p por strgs, no shows; with mnr Sltst and mnr Sh strgs, aa.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, slty, arg, kaolc, mica ip, sils, slly dolic, tt; with mnr Sltst strgs, aa.

SS lt red orng, f to m gred with mnr c gred, sbang to sbrdd, m srt, fri, qtz and fld grs, arg, slty, kaolc, tt.

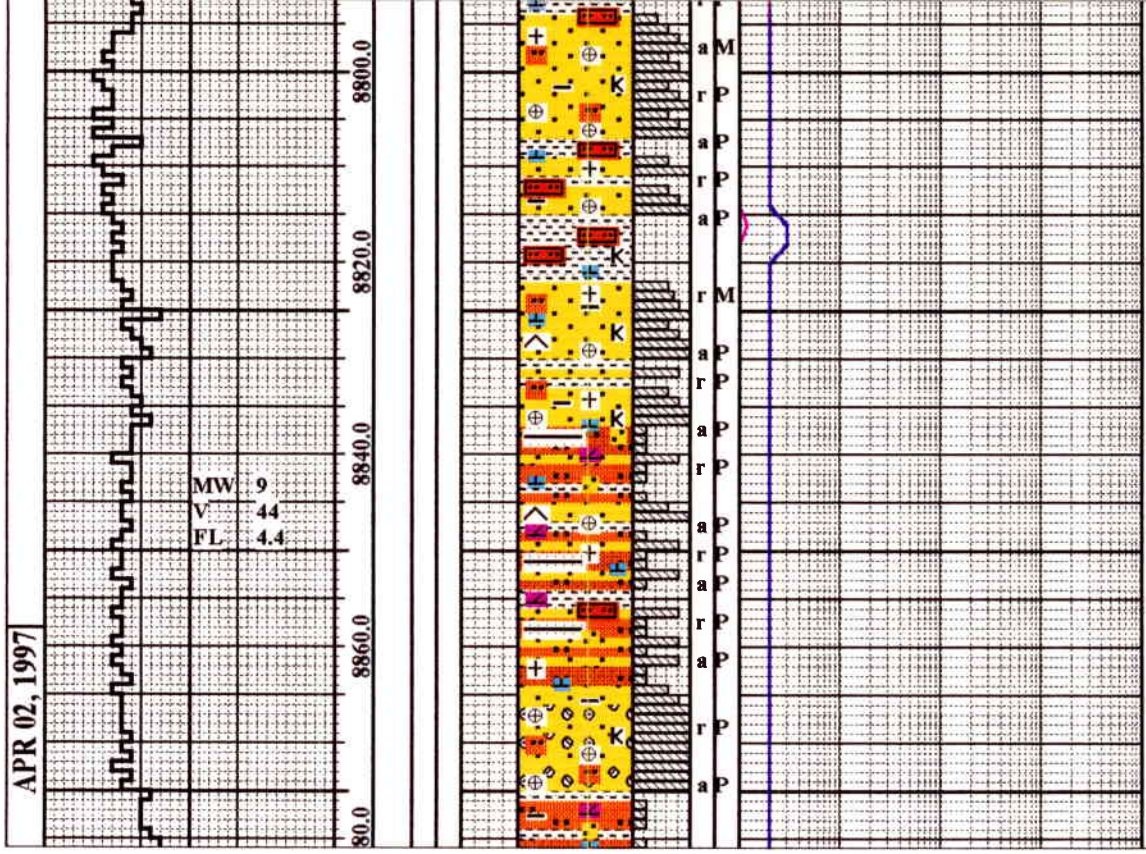
SS lt red orng, f to v c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc to v kaolc, fri ip, mica ip, tt.

SLTST dk red orng, sdy, arg, mica, calcs, dolic ip.

SS Cgl, lt red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, arg, slty, kaolc ip, mica ip, tt.

SH m red orng, fls, slty, mica, calcs ip.

SS lt red orng, f to m gred with mnr vf and mnr v c gred, sbang to sbrdd, m srt,



qtz and no grs, v arg with sit matrix ip, slty, kaolc ip, mica ip, tt.

SS aa, with mnr pbls, p srt, sltst matrix, tt.

SS aa.

SH dk red orng, fls, kaolc, slty, mica, calcs ip.

SS lt gy to red orng, f to c gred with mnr pbls, sbang to sbrdd, p srt, qtz and fld grs, kaolc, arg, slty, mica, sils ip, calcs ip, tt.

SLTST dk to m red orng, arg, mica, sdy, calcs ip, dolic ip.

SS aa, v slty with sltst matrix, tt.

SH dk red orng, fls, slty, mica, dolic ip.

SS Cgl, red orng, f to v c gred to pbls, sbang to sbrdd, p srt, qtz and fld grs, v slty with sltst matrix, arg, kaolc ip, mica ip, tt.

SLTST dk to m red orng, arg, mica, sdy, calcs ip, dolic ip.

Operator : *GCRL ENERGY LTD.*
Well : *G.C.R.L. SEISMOSAUR FEDERAL #1*
Location : *NW NE 20-21S-20E*
Province : *UTAH* **Licence# :** *UT1064*
Depth Logged : From *4540.00 ft* **To** *13360.00 ft*
Date Logged : From *Feb 15, 1997* **To** *May 11, 1997*
Drilling Fluid : *AIR/WATER/INVERT*
Ground Level : *5137.00 ft*
Kelly Bushing : *5168.50 ft*
Contractor : *NABORS DRILLING USA*
Spud Date : *Jan 21, 1997* **Rig No. :** *280*

Logging Company : *Conley & Associates Ltd.*
Address : *8724 187th Street*
City : *Edmonton* **Province :** *Alberta*
Telephone : *(403) 444-6493*
Logged By : *GRANT CONLEY*

Engineering & Gas Symbols

WOB	-	Weight on bit
RPM	-	Rotary table speed (revs/min)
SPP	-	Stand pipe pressure
SPM	-	Pump Strokes/minute
DS	-	Deviation Survey
MW	-	Mud Weight
V	-	Viscosity
WL	-	Water Loss (cm/sec)
pH	-	Hydrogen Ion Index
TVD	-	True Vertical Depth
	-	Bit Trip
FG	-	Formation Gas
CG	-	Connection Gas
TG	-	Trip Gas
DTG	-	Down Time Gas
SG	-	Survey Gas
BG	-	Background Gas
RCG	-	Recycled Connection Gas
RTG	-	Recycled Trip Gas
COAL	-	Coal Gas

Oil Shows

●	Even staining, fluoresces in solvent	D	Dead, Asphaltic, bitumen, etc.
◑	Spotted staining, fluoresces in solvent	○	Questionable, no fluorescence in solvent

Porosity Types

X	Intergranular / intercrystalline	V	Vuggy - voids greater than 1/16 mm
◊	Interoolitic / interpelletoid	P	Pinpoint - voids less than 1/16 mm
e	Earthy - low permeability	⊡	Fenestral, birdseye
∽	Moldic	○	Organic - bridged, intrafossil
F	Fracture		

Major Rock Types

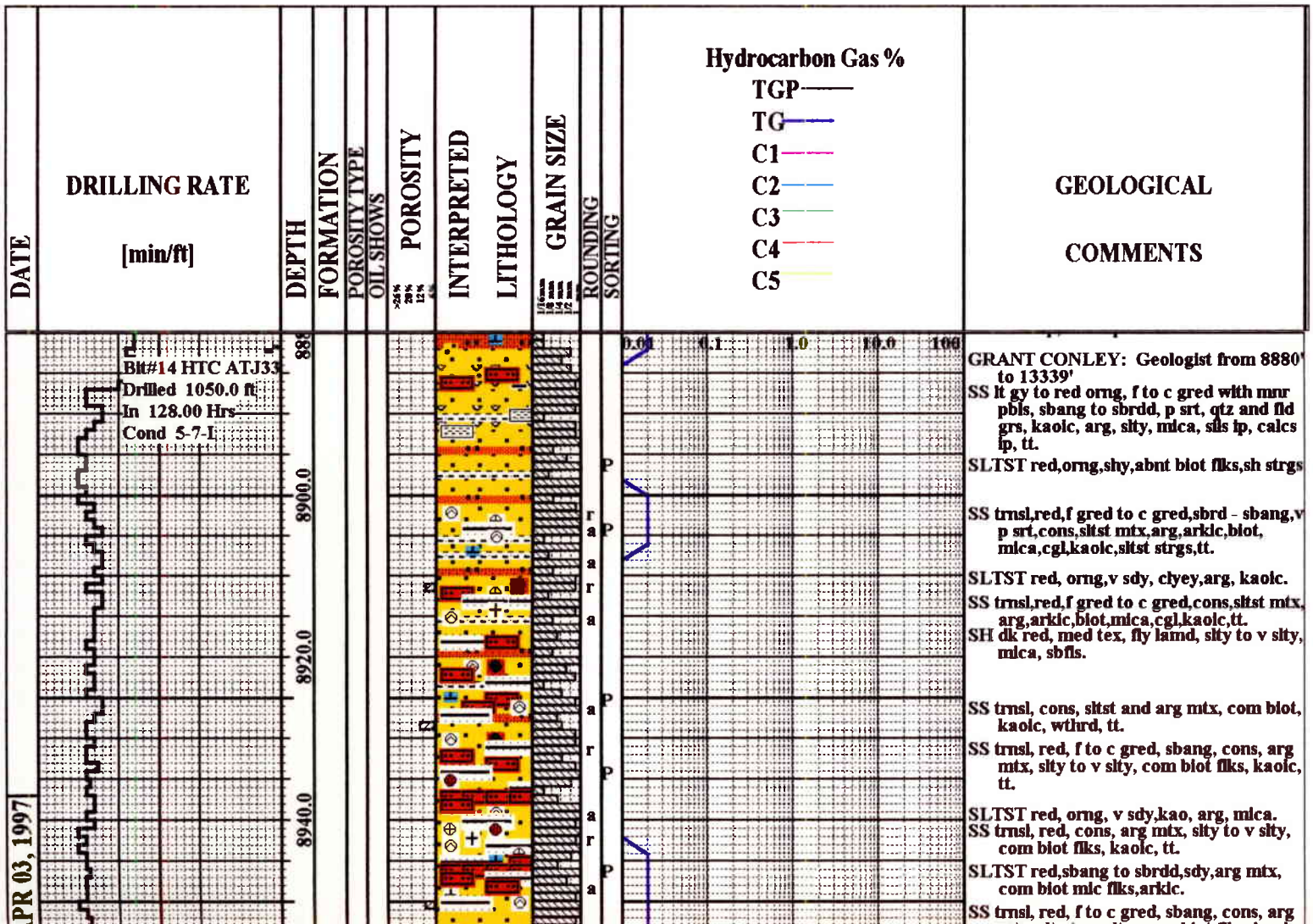
	Anhydrite		Glacial Till		Phosphate
	Bentonite		Gypsum		Salt
	Breccia		Igneous,acidic		Sandstone
	Chert		Igneous,basic		Shale
	Claystone		Limestone		Siderite
	Coal		Maristone,calcareous		Siltstone
	Conglomerate		Maristone,dolomitic		Tuff
	Dolomite		Metamorphic		Welded Tuff

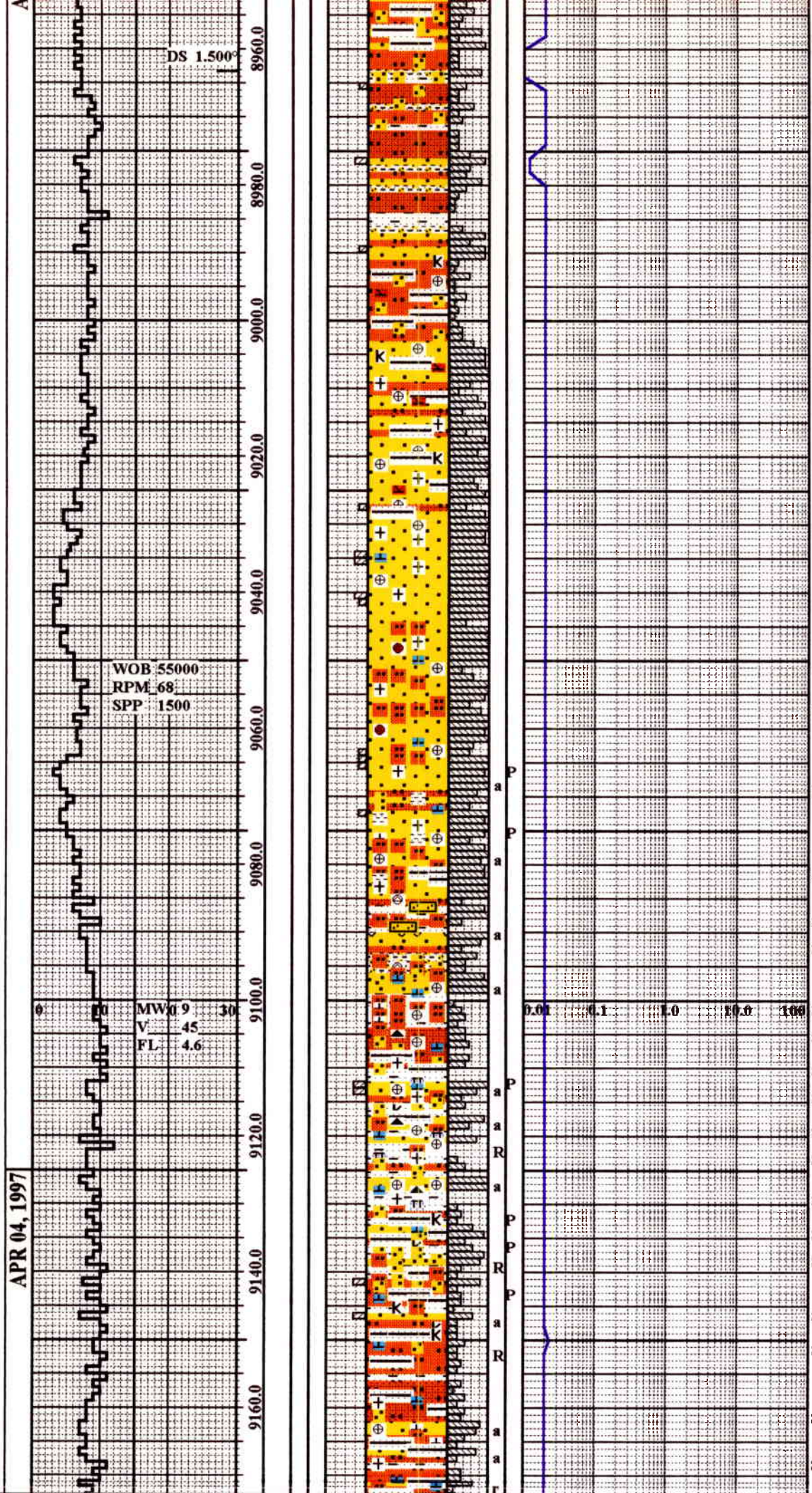
Log Scale 1:240

Major Accessories

	Sandy		Ferruginous grains or pellets	F	Fossil remains
	Sandstone, stringer		Ferruginous	◊	Oolites
	Silty		Ferruginous stringers	⊖	Pisolites
	Siltstone, stringer		Clay stringers	ø	Pellets
○	Sand grains		Bentonite stringers		Intraclasts
/	Argillite grains		Volcanic stringers		Framework Algae, skeletal
+	Feldspar		Tuffaceous		Framework Algae, ootoid
	Breccia	¶	Heavy dark minerals		Nonframework Algae,non-descript
^	Siliceous	~	Glauconite		Nonframework Algae, laminated
	Chert, white	B	Bentonite	e	Texture, earthy
	Chert, colored	P	Pyrite	C	Texture, chalky
	Chert, tripolitic	K	Kaolin	L	Texture, lithographic

Argillaceous	Plant spores		Texture, microcrystalline
Shale laminae	Plant remains	CX	Texture, cryptocrystalline
Clayey	Fish remains		Siderite Nodules
Carbonaceous flakes	Mineral crystals		Dolomite Nodule
Coal, thin beds	Foraminifera		Limestone Nodule
Bituminous cement	Crinoid		Pebbles
Calcareous	Pelecypod		Siltstone Pebble
Marlstone, calc, strg	Bioclastic fragment		Coal Pebble
Limestone stringers	Amphipora		Dolomite Pebble
Dolomitic	Coral		Feldspar Pebble
Marlstone, dolc, strg	Stromatoporoid		Chert Pebble
Dolomite stringers	Bryozoa		Sandstone Pebble
Anhydritic	Brachiopod		Limestone Pebble
Anhydrite, stringers	Ostracod		Igneous Pebble
Gypsiferous	Cephalopod		Quartz Pebble
Gypsum, stringers	Gastropod		Shale Pebble
Salt cast or infill	Scaphopod		Volcanic Pebble
Phosphate pellets	Belemnite		Metamorphic Pebble
	Echinoid		





mtx, slty to v slty, com biot flks, kaolc, tt.

SLTST red, shy, sdy, frm,slly calcs, arg, mica.

SS red, trnsl, slt - c gred, cons, arg sltst mtx, mica, fld, kao, tt.

SLTST red, orng, tr gy - gn, arg strgs, sdy, mica.

SH dk red, frm, sft, slty, mica, sbfls.

SLTST red, orng, v sdy to sdy, kao, fld, arg, mica.

SH dk red, frm, sft, slty, mica, sbfls.

SLTST red, orng, sh lams, sdy ip, arklc, slly calcs, kaolc.

SLTST red, orng, sh lams, sdy ip, arklc, slly calcs, kaolc.

SS lt gy, red, f gr - med gr, sbang, cons, arg sltst mtx, abnt fld grs and pbls, mica, tt.

SLTST red, orng, frm, arg, occ sh lam, sdy ip, mica.

SS lt gy, red, trnsl, f to c gred, sbrd - sbang, v p srt, cons, arg sltst mtx, abnt fld, mica, biot, tt.

SLTST red, orng, frm, arg, occ sh lam, sdy ip, mica.

SS lt gy, red, trnsl, f to c gred, sbrd - sbang, v p srt, cons, arg sltst mtx, abnt fld, mica, biot, tt.

SS lt gy, red, orng, f to c gred, sbang, cons arg sltst mtx, mica, kaolc, wkly calcs, tt.

SS lt gy, lt red, f to c gr, sbang to sbrd, v p srt, cons, cgl, mnr arg mtx, slty ip, abnt fld grs, mica, biot, kaolc, tt.

SLTST red, dk red, v arg, mica, mnr sd, grds to slty sh.

SS lt gy, lt orng to red, sbang, f to c gr, v ply srt, cons, arg sltst mtx,abnt fld, mica, tt.

SLTST red, arg,mica, grds to slty sh.

SH dk red, slty, mica, frm, calcs, occ sd grs, sbfls.

SS lt gy, lt orng to red, f - c gr, sbang, cons, occ arg mtx, slty ip, cgl, mica, tt to v poor por, n shows.

SH dk red, slty, mica, frm, calcs, occ sd grs, sbfls.

SLTST red, orng, slt to sdy, mica, arg, calcs ip, blky.

SH red, dk red, frm, mica, slty ip, ptly dns and calcs, v fly lam.

SS lt gy, red, trnsl, cons, arg mtx, slty ip, abnt fld grs, wk calcs, tt.

SH dk red, frm, mica, slty to v slty, calcs ip(marl), grds to sltst.

SLTST red, orng, arg, mica, kaolc, ptly calcs, sdy.

SH dk red, frm, mica, slty to v slty, calcs ip(marl), grds to sltst.

SLTST red, firm, v arg, intbd sh lams, wk calcs, mnr sd, mica, blky.

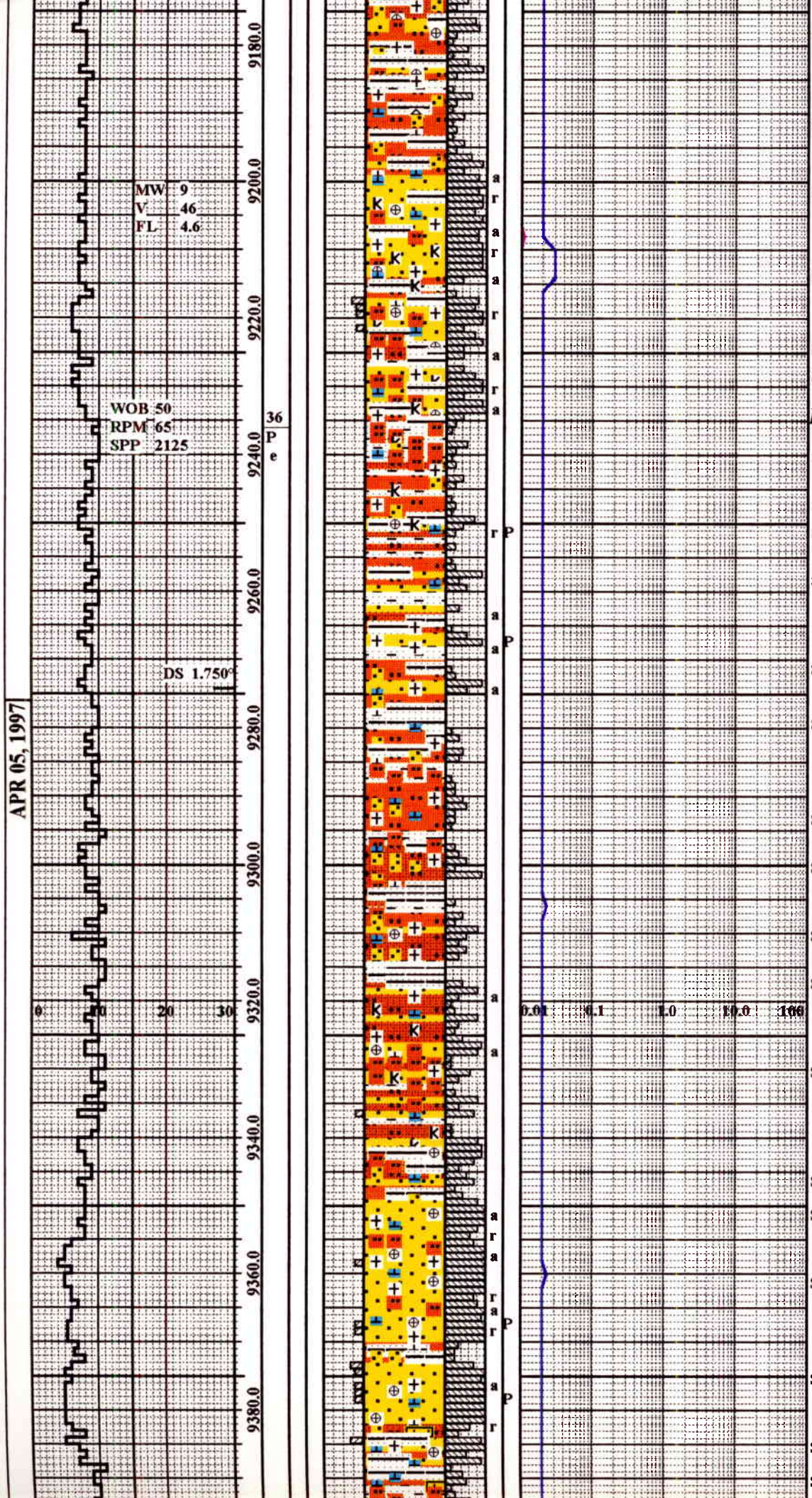
SS red, trnsl, f to c gr, sbrd to sbang, p srt, cons, arg sltst mtx, cgl, mica, biot, com fld grs, tt.

SLTST orng, red, frm, arg, sh lams, biot flks, tr kaolc, slly sdy.

SLTST orng, red, frm, arg, sh lams, biot flks, tr kaolc, slly sdy.

SS lt red,trnsl, f to m gred, sbang to sbrd, p srt, cons, sltst mtx, arg, com fld, kaolc, wthrd, mnr biot flks, tt.

SLTST lt red,pink,sdy, arg,kaolc,wk calcs, mica,frm.



SS lt gy, red, f to c gred, v p srt, cons, arg and sltst mtx, arkic, abnt fld, mica, intbd sltst, tt.

SH red, dk red, m tex, v slty to sdy, com blot flks, firm, sbfls.
SLTST pnk, orng, arg to sdy, mica, tr dk red-brn.

SS red, lt gy, c to f gred, sbang, cons, arg and slt mtx, arkic, abnt fld grs, blot flks, tt.

SS lt gy, trnsl, ptly red, f gred to c gred, sbang to sbrd, cons, slt mtx, arg lp, arkic, kaolc, wthrd, intbd sltst.

SLTST red, orng, ptly sdy, sh lam, mica, a strgs.
SH red, m tex, slty to v slty, mica, sft, occ sd grs, sbfls.

ELEPHANT CANYON (9236.00

SH dk red, m tex, v mica, slty to v slty, clyey, sbfls.

SLTST red, orng, ptly sdy, sh lam, mica, a strgs.
SS lt gy, red, orng, f - m gred, sbrd, p srt, cons, arg sltst mtx, tr blot flks, tt.

SH orng, red, frm, mica, blot, slty, ptly v slty, grds to sltst.

SLTST red, orng, arg, sh lam, sdy lp, occ mic flks, ss strgs, blky.

SH red, orng, m tex, mica, slty, clyey, sbfls

SLTST orng, arg, sh lams, sdy ,occ ss strgs,slly mica, blot, blky.

SS red, arkic, f to m gred, sbang, cons, slt and arg mtx, as strgs in sltst.

SLTST orng, arg, sh lams, sdy ,occ ss strgs,slly mica, blot, blky.

SH ptly aa, ptly dk red- brn, mica, sft, clyey, slty, sbfls.

SS red, arkic, f to m gred, sbang, cons, slt and arg mtx, as strgs in sltst.

SLTST red,orng, aa, tr purple.

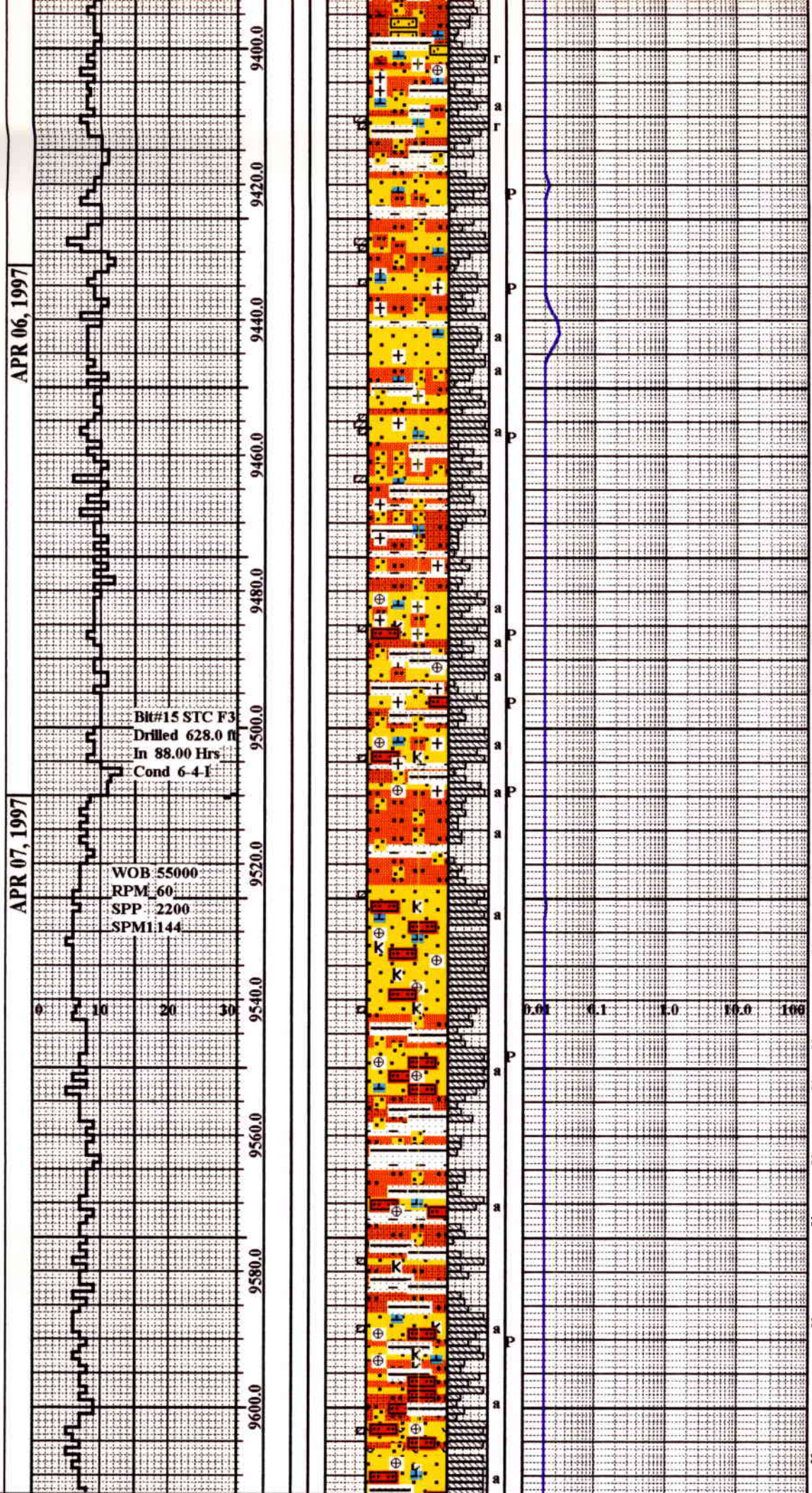
SS lt gy, red, arkic, sbang to sbrd, v p srt, cons, arg sltst mtx and strgs,abnt fld grs, fld ptly wthrd to kaol, blot flks, tt.

SS lt gy,trnsl, arkic, f to c gr, cons, arg sltst mtx, mica, fld grs, calc, kaolc,tt.

SS trnsl, lt red, ark, f to v c gred, sbrdd to sbang, cons, mnr arg sltst mtx,com to abnt fld grs and pbls, mica, blot, calc, kaolc, tt to poor por.

SLTST orng, red,v arg, mod hd, kaolc, arkic,abnt blot flks, blky.

SH red, m to rough tex, frm, mica, slty to v slty, sbfls.


APR 06, 1997
APR 07, 1997
9400.0
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9520.0
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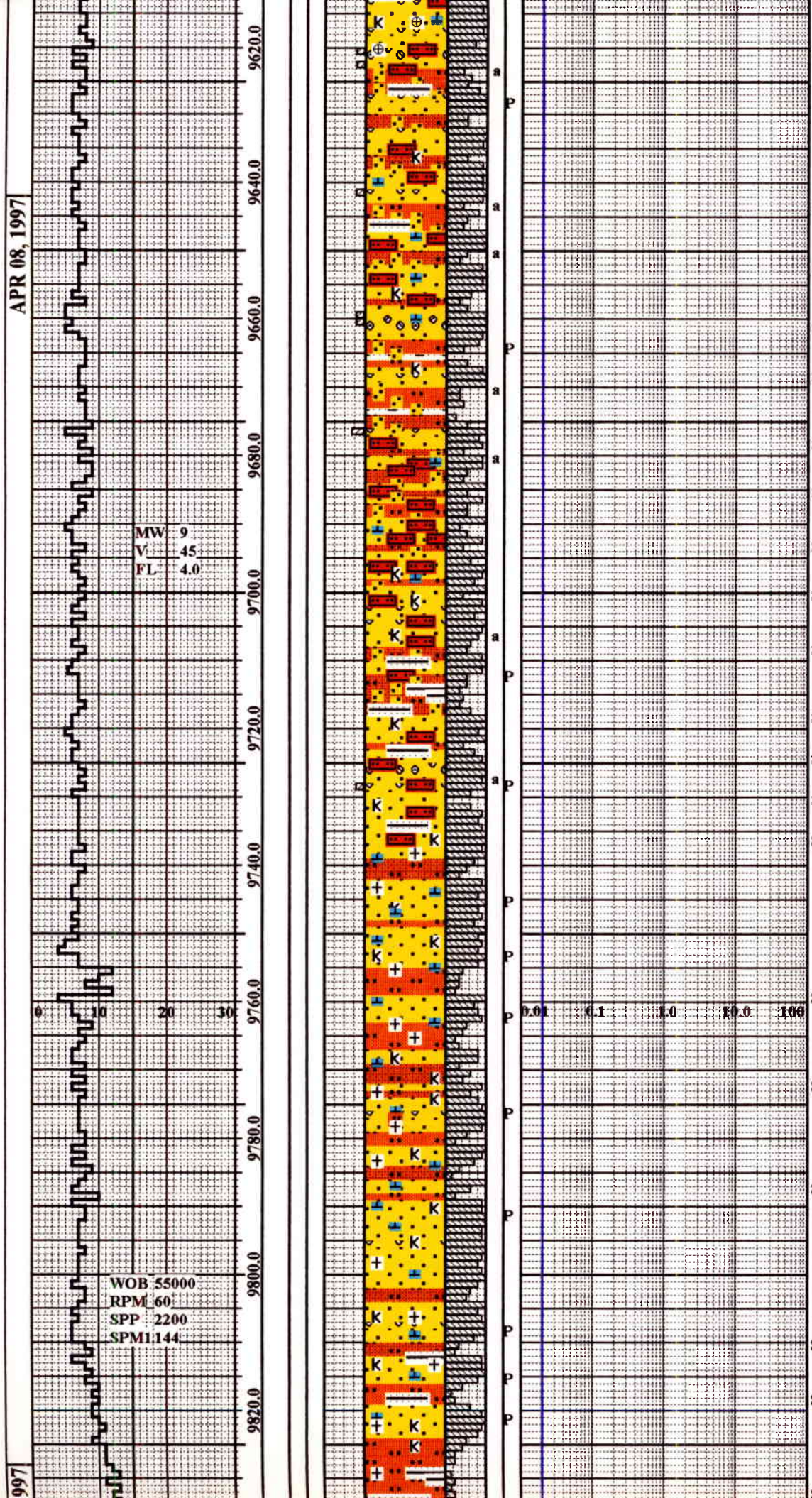
9560.0
9580.0
9600.0
Bit#15 STC F3
Drilled 628.0 ft
In 88.00 Hrs
Cond 6-4-1
WOB 55000
RPM 60
SPP 2200
SPM1 144
0
10
20
30
0.01
0.1
1.0
10.0
100
SLTST orng, red,v arg, mod hd, kaolc, arklc,abnt biot flks, blky.
SS lt gy, trnsl,f - v c gr, occ pbls, sbang, v ply srt, cons, arg sltst mtx, fld grs and pbls, kaolc, calcs, mica, tt.
SH red, m to rough tex, frm, mica, slty to v slty, sbfls.
SS lt gy, trnsl, arklc, f to v c gred, cons, shy sltst mtx, mica, com fld grs, kaolc, calcs, biotflks, tt to p por.
SLTST orng, red, arg, mica, sdy, arklc, blky.
SS trnsl, arklc, f to v c gred, cons, slty and arg mtx, mica, tt.
SLTST red, orng, arg to ptly sdy, mod hd, red sh lams, mica, biot, sbblky.
SLTST orng, ptly red, arg, v sdy, dk red sh strgs, mica, blky. Grds lp to v slty ss.
SLTST orng, ptly red, arg, v sdy, dk red sh strgs, mica, blky. Grds lp to v slty ss.
SS lt gy, trnsl, orng, arklc, f to occly v c gred, sbang to sbrdd,cons, scat arg slst strgs, mica,com fld grs, occ kao mtl, calcs, tt.
SLTST red, arg, v sdy, scat ss strgs, com biot flks, occ red sh incl, blky.
SS lt gy, trnsl, orng, arklc, f to occly v c gred, sbang to sbrdd,cons, scat arg slst strgs, mica,com fld grs, occ kao mtl, calcs, tt.
SS orng, lt gy, f to c gred, cons, arg sltst mtx and strgs,abnt fld grs, kaolc, mica, tt.
SH red, ptly dk red, frm, slty, com biot flks, sbfls.
SS lt gy, red, ark, f to pbls,sbrd to sbang, v ply srt, cons, arg sltst mtx and incls, com fld grs, kaolc, tr mica flks, tt to p por.
SLTST red,orng, arg, fri,sdy, ptly mica, blky.
SS lt gy, red,arklc,f to pbls,sbang to sbrdd, v ply srt,cons, arg sltst mtx, mica,abnt fld grs, v kaolc,tt.
SLTST orng,lt red,arg,v sdy,mica, biot,sh lams,sbblky.
SLTST orng,red,arg, v kaolc, sh lams, abnt sd incl, mica,wthrd, tr calcs, blky.
SS lt gy, arkose, f to pbls, cgl, sbrdd to sbang, v ply srt, cons, arg sltst incl, abnt fld grs, kaolc, tt.
SS lt gy, arkose, f to pbls, cgl, sbrdd to sbang, v ply srt, cons, arg sltst incl, abnt fld grs, kaolc, tt.



SLTST lt red,orng, aa.

SS lt gy,f to c gred, sbang to sbrdd,v p srt, cons, arg sltst incl and mtx, abnt fld grs, kaolc, mica, tt.

SLTST orng, arg,frm,mica, sdy to v sdy, blky.

SS lt gy, red, ark, f to pbls, cgl,sbang, v ply srt, cons, arg sltst strgs and mtx, fld grs,blot flks, tt.

SLTST orng, red, arg, mica, sdy to v sdy, grds to slty ss ip, kaolc, blky.

SS lt gy, red, aa.

SLTST lt red, orng, arg, mica, frm, rough tex, sdy to v sdy, blot, blky.

SS lt gy, red, f to v c gred, cons, arg sltst strgs and mtx, fld grs, kaolc, tt.

SLTST orng, arg to v sdy,mica, as strgs in ss.

SS orng, lt gy, arklc, f to v c gred,sbang to sbrdd, v ply srt, cons, arg sltst strgs, abnt fld grs, kaolc, blot, tt.

SLTST orng, arg to v sdy,mica, as strgs in ss.

SS orng, lt gy, arklc, f to v c gred,sbang to sbrdd, v ply srt, cons, arg sltst strgs, abnt fld grs, kaolc, blot, tt.

SLTST orng, arg to v sdy,mica, as strgs in ss.

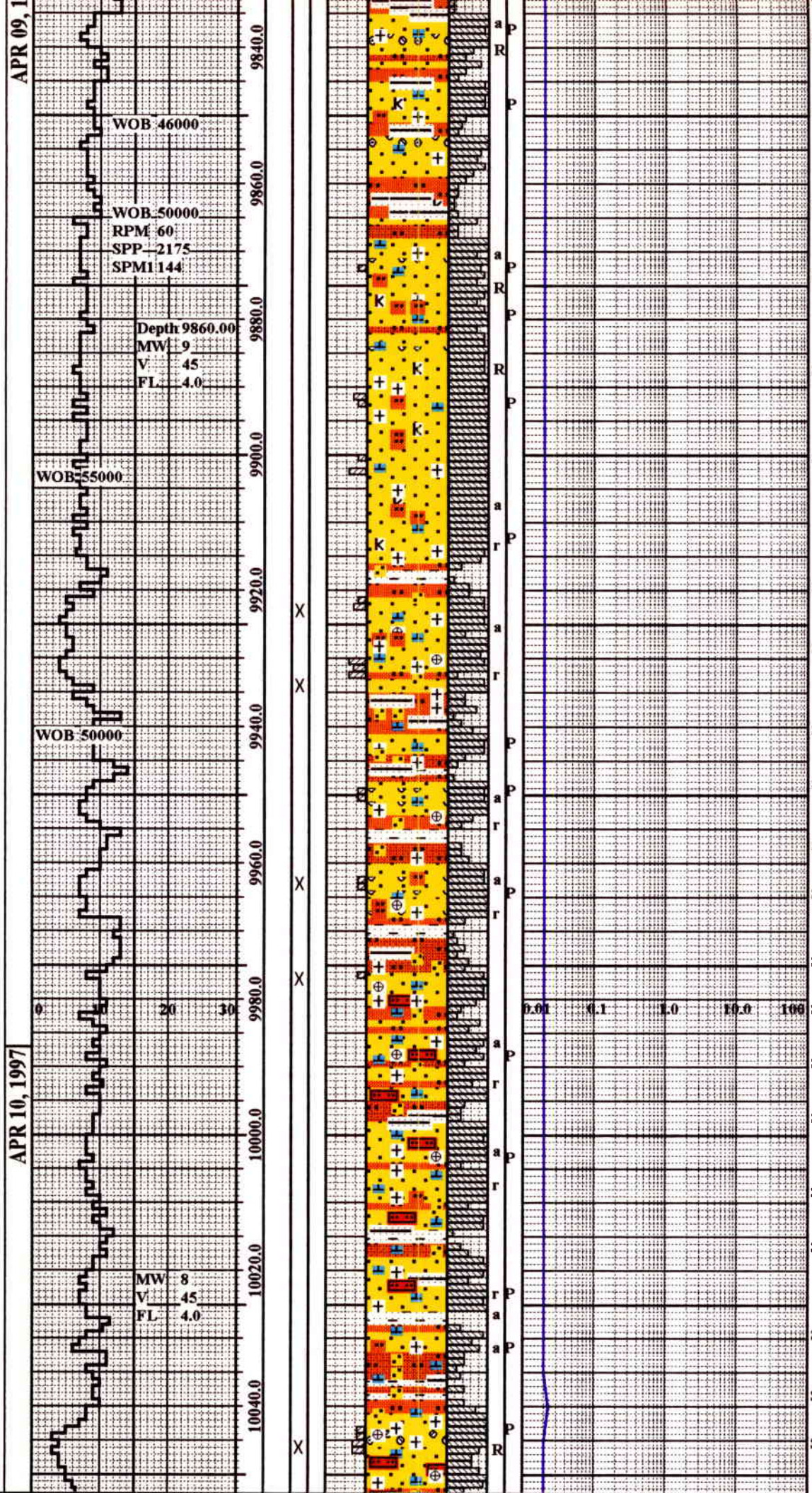
SS orng, lt gy, arklc, f to v c gred,sbang to sbrdd, v ply srt, cons, arg sltst strgs, abnt fld grs, kaolc, blot, tt.

SLTST orng, arg to v sdy,mica, as strgs in ss.

SS orng, lt gy, arklc, f to v c gred,sbang to sbrdd, v ply srt, cons, arg sltst strgs, abnt fld grs, kaolc, blot, tt.

SLTST orng, arg to v sdy,mica, as strgs in ss.

SLTST red, arg, frm,mica, sdy to v sdy,



grds to arg ss ip, tr cly, blky.

SS orng,red, occ lt gy, cgl, ark, v c gred to f gr, ang to rdd, cons, arg sltst mtx, com fld grs, kaolc, calcs ip, tt to tr p por.

SS orng,red, occ lt gy, ark, v c gred to f gr, ang to rdd, cons, arg sltst mtx, com fld grs, kaolc, calcs ip, tt to tr p por.

SLTST red,orng, arg, v sdy ip, frm, mica, occ kao cly, blky.

SS red, ark, tr lt gy,sbang, v ply srt, v c to f gred, cons, abnt to occ arg sltst mtx, com fld grs,kaolc, mica, calcs ip, tt.

SS red, ark, lt gy,f to c v gred, cons, arg sltst mtx and strgs, mica, fld grs, kaolc, wthrd, tt.

SS orng, trnsl,arklc,v f to v c gred,sbang to sbrdd,v ply srt, ons,arg sltst mtx and strgs,abnt fld grs,kaolc ip, calcs, mica, tt.

SLTST red,orng, arg, v sdy ip, frm, mica, occ kao cly, blky.

SS orng,arklc, v f to v c gr,sbrdd, v ply srt, cons,arg sltst mtx,sh lams, fld grs, kaolc,calcs,tt.

SLTST red, orng, arg, sdy to v sdy, grds to ss ip.

SLTST red, orng, arg, sdy to v sdy, grds to ss ip.

SH dk red, frm, mica, v slty,s/fls.

SS orng,red, occ lt gy, cgl, ark, v c gred to f gr, ang to rdd, cons, arg sltst mtx, com fld grs, kaolc, calcs ip, tt to tr p por.

SLTST orng, red, tr green,arg, sdy to v sdy, mica, kaolc, calcs ip, blky.

SS red, arklc, f gr to vc gr, cons, arg sltst mtx and strgs, calc, mica,tt.

SS lt gy,arklc, f to occly v c gr, v ply srt, cons, arg sltst mtx and strgs, fld grs,tr kao, occly wk calcs,tt.

SLTST red,orng,arg, mica, frm, v sdy,grdg to slty ss.

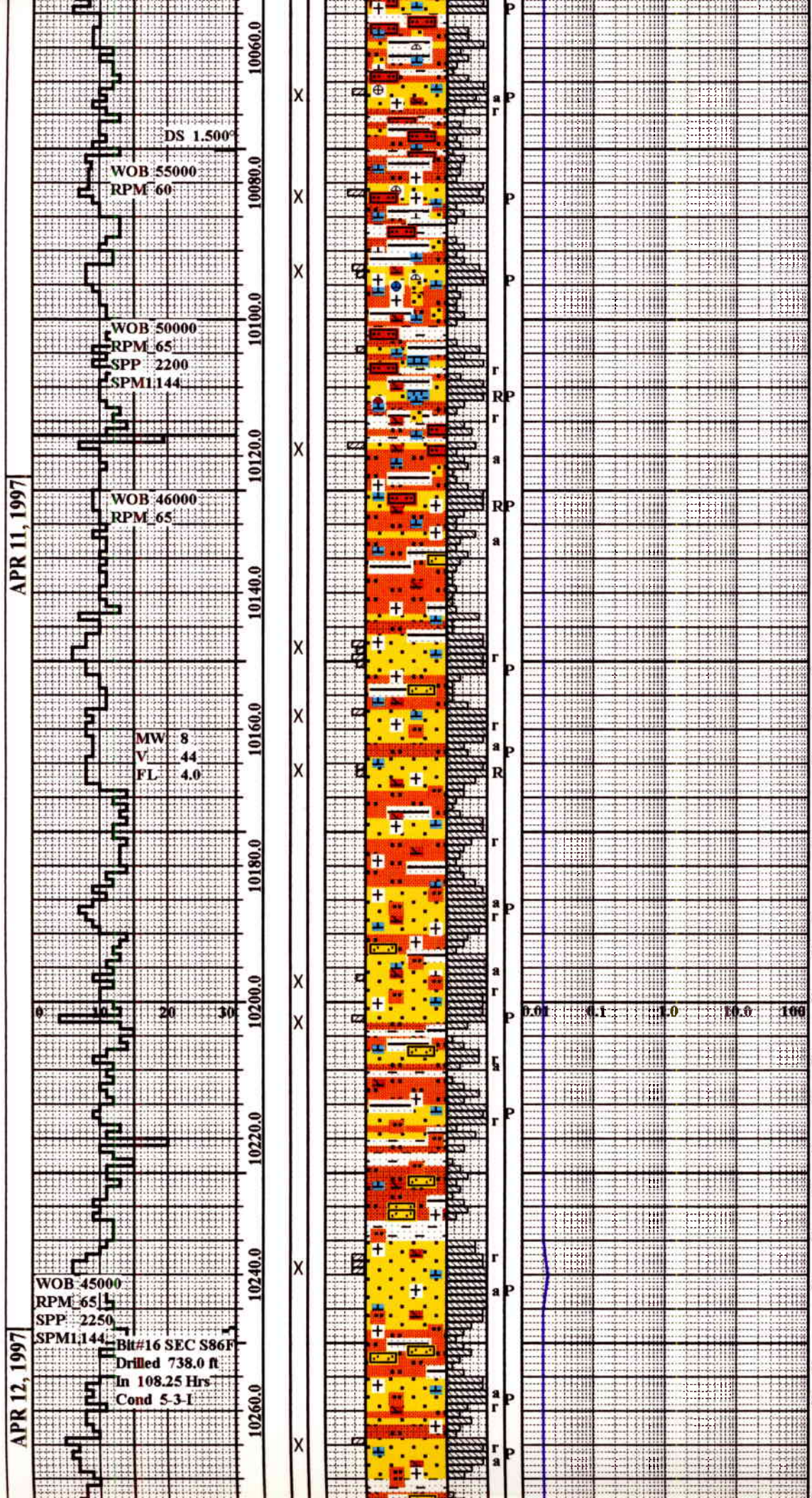
SS lt gy,arklc, f to c gred, occly v c gred, sbang, v ply srt, cons, arg sltst mtx and strgs, fld grs,tr kao, occly wk calcs,tt.

SH dk rd, frm, mica, slty, fls.

SH dk rd, frm, mica, slty, fls.

SLTST red,orng, tr lt gn,arg to sdy,mica, blky.

SS orng,ark,lt gy ip,f gred to v c gred, rdd to sbang,v ply srt,cons,kaolc ip, com sltst mtx, abnt fld grs,mica ip, tt to p por.


APR 11, 1997
APR 12, 1997
10060.0
10080.0
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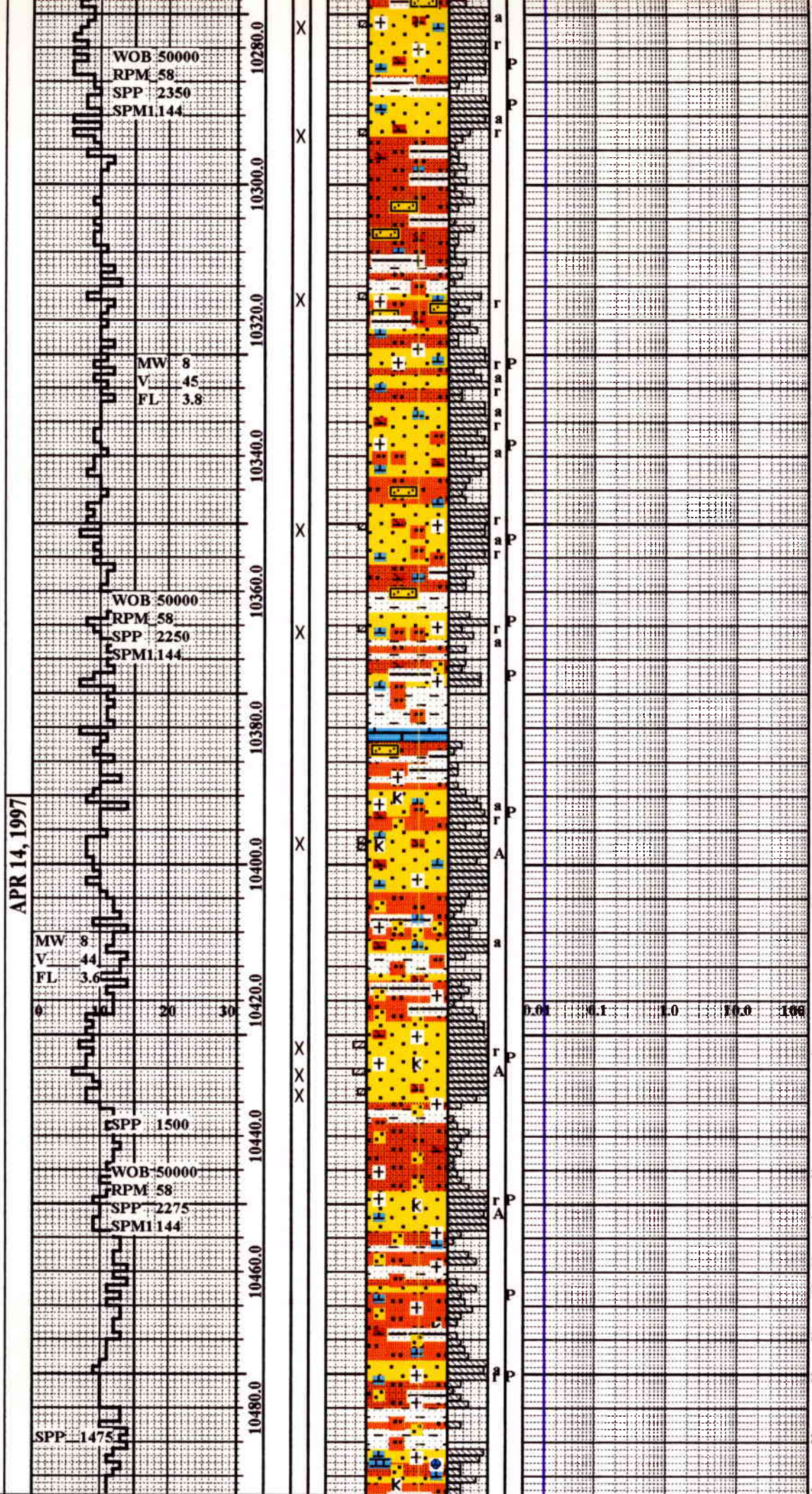
10260.0
DS 1.500°
WOB 55000
RPM 60
WOB 50000
RPM 65
SPP 2200
SPM1 144
WOB 46000
RPM 65
MW 8
V 44
FL 4.0
0
20
30
WOB 45000
RPM 65
SPP 2250
SPM1 144
Bit#16 SEC S86F
Drilled 738.0 ft
In 108.25 Hrs
Cond 5-3-I
0.01
0.1
1.0
10.0
100
SH dk red,red,frm, m tex, v mica,slty ip, fls.
SLTST red,orng,arg to ptly sdy,calcs,sh lams,mica, grds to ss ip, blky.
SLTST red,frm,arg ip,dk red sh lams,v sdy, calcs, mica, tr qtz veining,kaolc, grds to ss ip, blky.
SLTST red,orng,mica, arg to ptly sdy,dk red sh lams, blky.
SS red,ark,vc gr,cons,sltst strgs,calcs,abnt fld grs, kaolc,tt.
SLTST red,orng,mica, arg to ptly sdy,dk red sh lams, blky.
SS lt gy,red,arkic,cons, arg sltst mtx, ptly kaolc, abnt fld grs,tr yel grs, tt.
SH red,dk red,frm,mica,slty,fls, grdg to v arg sltst.
SLTST orng,red,tr purple,frm,arg to sdy, com sh lams,blky.
SLTST orng,ptly lt gy,tr lt gn,arg,frm, occ dk red sh lams,v mica, biot flks, com sd grs, wkly calcs, kaolc, blky.
SS ark, lt red to orng, ptly lt gy, f to c gr, sbang, cons, arg sltst mtx and incl, tt.
SLTST orng, tr lt gn, arg,occ sh lams, mnr sd incl, wk calcs,v mica, blky.
SS ark,lt red,f to v c gred,sbrdd to sbang,v ply srt, cons, arg sltst strgs and mtx mtl,kaolc ip, com fld grs, calcs, tt to p por.
SLTST orng, lt red, arg, frm, mica, biot, occ red sh lams, ptly sdy, sbblky.
SS lt gy, orng, ark, f to c gred, cons to ptly fri, arg sltst mtx, mica, fld grs, tt.
SLTST orng, lt gy ip,arg, occ slty sh lams, frm, blky.
SS lt gy,orng,ark, f to v c gred, occ pbls, sbrdd to sbang,cons to fri, arg sltst mtx and strgs,com fld grs, kaolc, calcs ip, tt.
SS lt gy, arkic,f to c gred, sbang to sbrdd, cons to ptly fri,arg sltst mtx, mica, com fld grs, kaolc, tt.
SLTST red,orng ip,rr gn,arg,frm,abnt biot flks, kaolc ip,sdy,blky.
SH dk red, f tex, v mica, slty ip, fls.
SLTST red,orng ip,rr gn, arg, frm, scat sh strgs, v mica, abnt biot flks, kaolc ip, occly sdy, blky.
SH dk red, f tex, v mica, slty ip, fls.
SS lt gy, orng,ark, f to tr c gred, sbrdd to sbang,p srt, cons to mnr fri,mnr sltst mtx and strgs, com fld grs, mica, kaolc, calcs ip, tt to tr p por.
SH dk red, frm,f tex,slty,v mica,fls.
SLTST lt red,orng, tr gn, arg, occ red sh strgs, mica, blky.



SH dk red,red,frm, f tex, mica, slty ip, fis.

SS lt gy,orng,arkic,f to v c gred,sbang, cons, fri ip, abnt fld grs, calcs ip, mica, mnr kao, tt.

SLTST lt red,orng,arg,mod hd, mica to v mica, kaolc, occ dk red to purp sh lams,wk calcs ip,blky. Grds to v f gred arg ss ip.

SH red, ptly dk red, f to m tex, mica,slty ip fis.

SLTST orng,tr purp,arg,frm,sdy ip, mica, kaolc, blky.

SS red,lt red, arkic, f to c gred, sbang to sbrdd, p srt, cons to slly fri, sltst mtx, com fld grs, kaolc, tt to v p por.

SLTST orng, red,frm, mica, occ dk red mica sh strgs,sdy ip, blky.

SS lt gy, red, arkic,orng,c to f gred, occ v c gred, sbang to sbrdd,cons to ptly fri, arg sltst mtx, mica, abnt fld grs, kaolc, calcs ip, tt to tr v p por.

SH dk red,orng,frm, v mica,slty ip, fis.

SLTST orng, red,frm, mica, occ dk red mica sh strgs,sdy ip, blky.

SH red,dk red,v f to m tex,mica, abnt biot flks,frm, wk calcs,slly slty, fis.

SLTST red,tr gn, arkic, arg to tr sdy, frm, mica,blky.Grds to v slty ss. Tr LS strgs.

SS red,arkic, f to occ v c gred,sbang to sbrdd,ply srt,cons to fri,abnt arg sltst mtx and incl,com fld grs, occly kaolc, slly calcs, mica, tt.

SLTST orng,arkic,frm, mica, arg, ptly sdy, scat sh lams, blky.

SH dk red,red,frm, v mica,ptly slty, fis.

SS lt gy, ark,v c to f gred, tr pbls,sbrdd to sbang,v ply srt, cons, arg sltst mtx, ptly kao cly mtx,abnt fld grs, mica, biot, tr blky mafic grs, tt.

SLTST red,orng, arg to ptly sdy, mica, frm, grds to slty ss ip, blky.

SS lt gy,red,arkic, f to v c gred,ang to sbrdd, cons, arg sltst mtx, mica,abnt fld grs, kaolc ip, tt.

SLTST red,orng, arg to ptly sdy, mica, frm, grds to slty ss ip, blky.

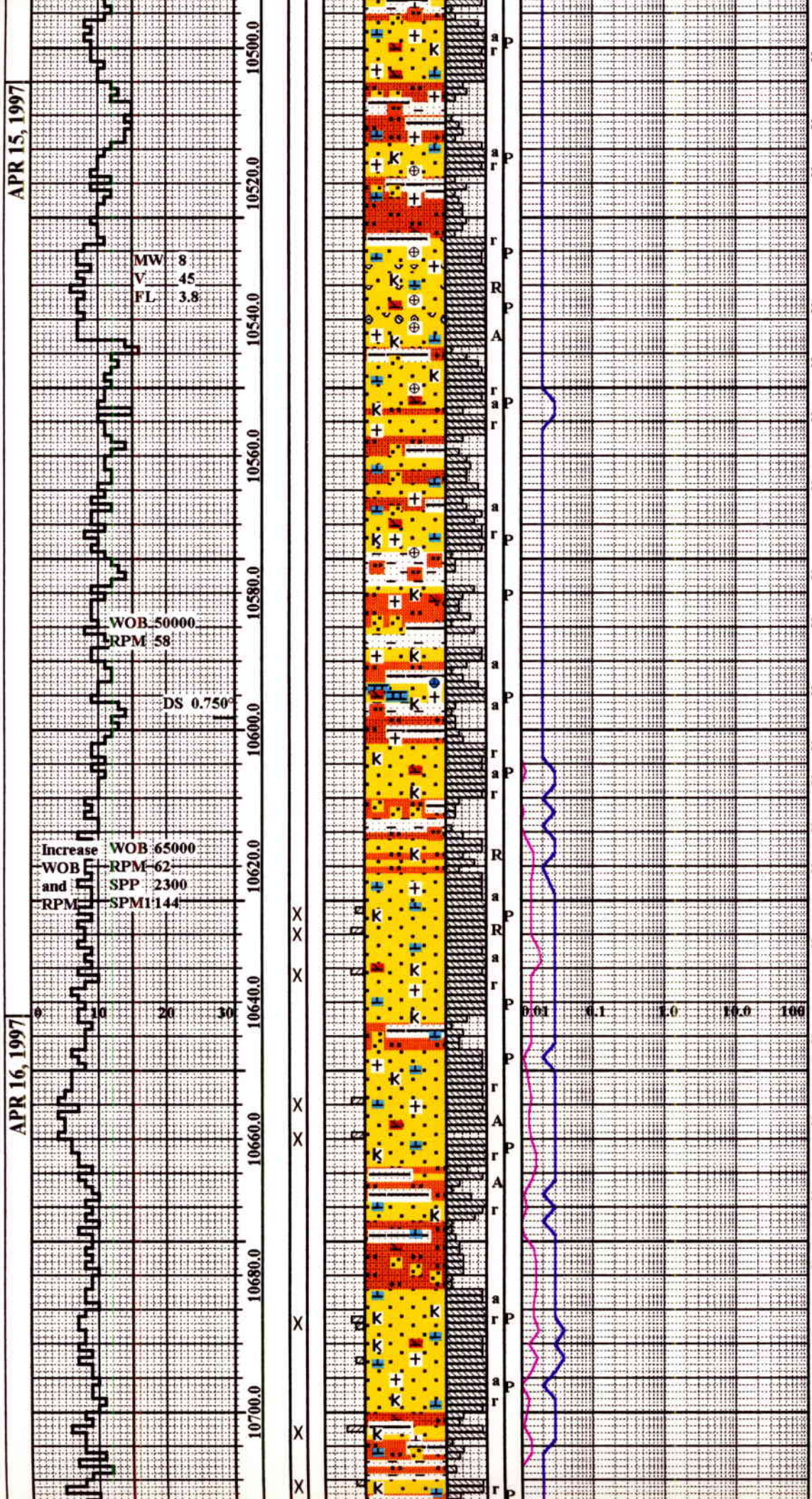
SH dk red,orng, rr purp,f to m tex,v mica, ptly slty, fis.

SLTST red, arg, sdy ip, scat red sh lams, blky.

SS lt gy,orng,arkic, f to v c gred,rdd to sbang,cions,arg sltst mtx, abnt fld grs, kaolc ip, tt.

SH red, dk red,f to m tex, mica,slty ip, fis. Grds to v arg mica sltst.

SLTST orng,red, arg to sdy mica, frm,



blky.

SS lt gy,orng, arkic, v c to f gred, sbrdd to sbang,ply srt,cons, sltst mtx, ptly kaolc,com fld grs, mica ip, tt.

SLTST red,orng,arg,frm,mica, ptly sdy, blky.

SS lt gy,ark, tr gn, f to c gred,occ v c gred, sbrdd to sbang,ply srt,cons, arg sltst mtx,abnt fld grs, kaolc, mica, tt.

SS lt gy,ark, cgl, f gred to pbl, v ply srt, rdd to ang, abnt frags, cons, sltst mtx, kaolc ip, com fld grs and frags, mica, biot, tt.

SLTST red,orng,arg,mica,ptly sdy,blky.

SS orng, red, arkic, tr gn,m f to v c gred, tr pbls,rdd to sbang,cons, arg sltst mtx and incls, abnt fld grs, slly kaolc, mica, tt.

SS lt gy,orng, arkic, f to v c gred, sbrdd to sbang, v ply srt,cons,arg sltst strgs, and mtx,com fld grs and frags,kaolc, mica, tt.

SH dk red,orng, frm, f tex, mica, slty to v slty, sbfls.

SLTST red, orng, arg, com sh lams, v mica ip,tr yel to lt gn sltst, wk calcs, ptly sdy, blky.

SS orng, arkic, v ply srt, cons, abnt arg sltst mtx and incl, com fld grs, kaolc, tr grey ls frags, tt.

SLTST red, orng, kaolc, arg, mica, ptly sdy, calcs ip, grds to arg ss.

SS orng, arkic, f to v c gred, sbang,ply srt, cons, arg sltst mtx,wk calcs, scat fld grs, kaolc, tt.

SH dk red, red, f tex, mica to v mica, slty ip, fls.

SS lt gy, arkic, cgl, f gred to pbl, rdd to sbang, v ply srt, cons, red arg sltst mtx and incls, abnt fld grs, mnr kao, scat biot flks and lams,tr sh lams, tt to p por.

SS lt gy, arkic, cgl, f gred to pbl, rdd to sbang, v ply srt, cons, red arg sltst mtx and incls, abnt fld grs, mnr kao, scat biot flks and lams,tr sh lams, tt to p por.

SLTST red, orng, frm, arg,mica, sdy to v sdy, grdg to ss ip, blky.

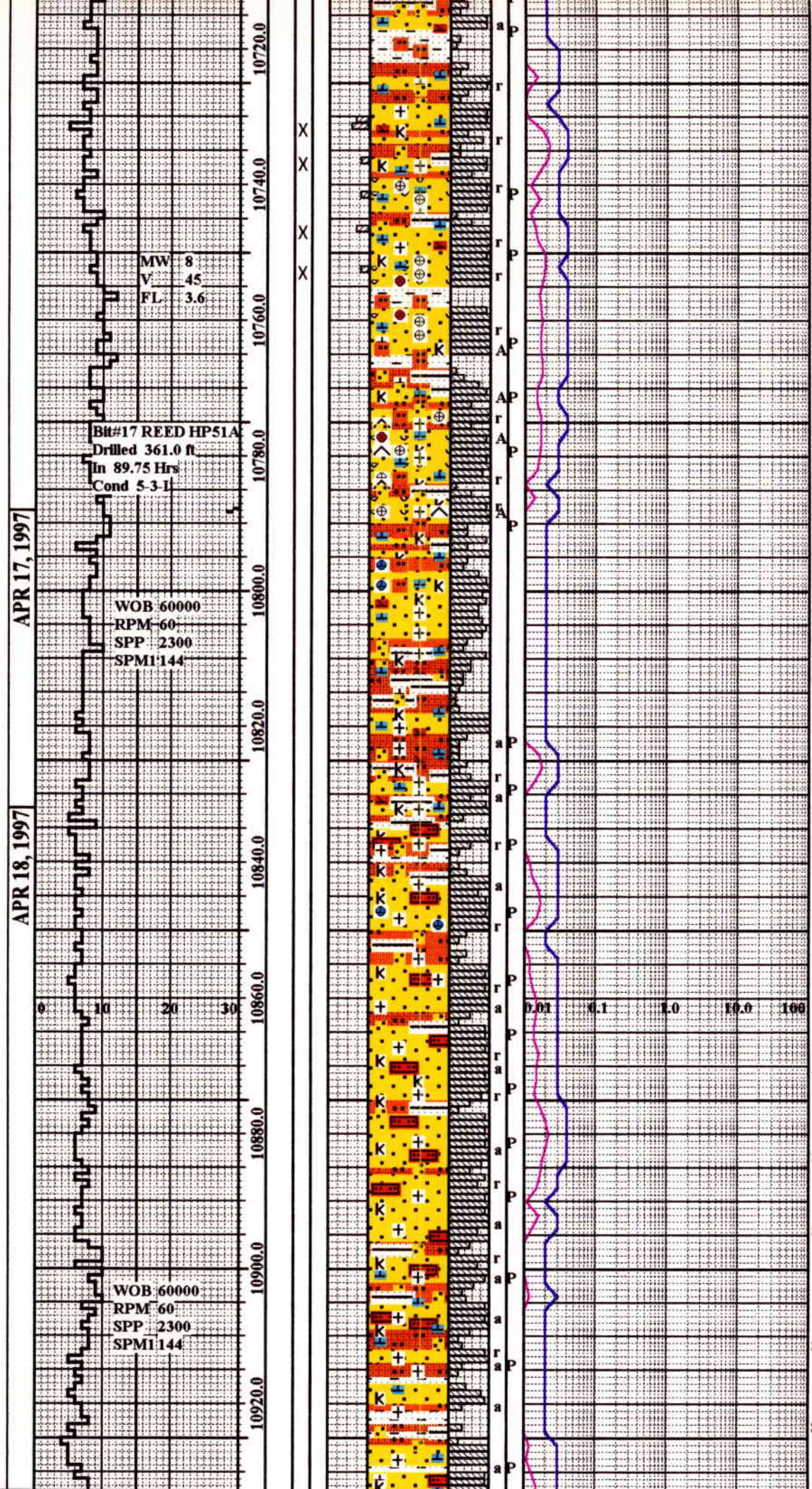
SS lt gy, orng, f to c gred, ang to sbrdd, ply srt, cons to frl, arg sltst mtx and strgs, kaolc ip, tt to v p por.

SLTST orng, lt red, arg, frm, mica, kaolc, slly calcs,sdy to ptly v sdy, mnr red sh lams, blky. Grds to v slty ss.

SLTST orng, lt red, arg, frm, mica, kaolc, slly calcs,sdy to ptly v sdy, mnr red sh lams, blky. Grds to v slty ss.

SS lt gy, lt red,arkic, sbrdd to sbang, p srt, f to m gred, occ c gred, cons, arg sltst mtx, abnt fld grs, slly calcs, tr kaolc, tt to tr p por.

SH red, red brn, f tex, frm, mica, slty ip, fls



SLTST red, orng, arg to sdy, frm, mica, kaolc, dk red sh lams, blky.

SH red,mnr dk red, frm, f to v f tex, mica, slly slty, fls.

SS lt gy, red, arkic, f to c gred,sbang, cons sltst mtx, ptly kaolc, com fld and qtz grs, mica ip, tt.

SS trnsl, lt gy, arkic, cgl,pbl to f gred, sbrdd to ang, v ply srt, cons,sil,mnr sltst mtx ,com fld and qtz grs, and frags, slly kaolc,scat biot flks, tt to tr v p por.

SS trnsl, lt gy, arkic, cgl,pbls, cons,sil,mnr sltst mtx ,com fld and qtz grs, and frags, slly kaolc,scat biot flks, tt to tr v p por.

SLTST orng, red, arg, kaolc, calcs ip, slls, occly sdy, mica, sh lams, sbblky.

SS cgl, lt gy to red, arkic, f gred to pbls, sbrdd to ang, v ply srt, cons, sltst mtx material, slls ip, abnt fld and qtz grs and pbl frags,ptly mica, tt.

SS cgl, lt gy to red, arkic, f gred to pbls, sbrdd to ang, v ply srt, cons, sltst mtx material, slls ip, abnt fld and qtz grs and pbl frags,ptly mica, tt.

LS as incls.

SS lt red, arkic, f to m gred, ptly v c gred, p srt, sbang, cons, abnt arg sltst mtx and incls,com fld grs, calcs, kaolc, tt.

SLTST red, orng, tr gn, arg, frm, mica, sdy to v sdy ip, kaolc,wk calcs, blky.

SS lt gy, red, arkic, f to plty v c gred,cons, arg sltst mtx, mica ip, abnt fld grs, tt.

SLTST red, orng, tr gn, arg, frm, mica, sdy to v sdy ip, kaolc,wk calcs, blky.

SS lt red, arkic, f to ptly v c gred, sbang to sbrdd,v ply srt, cons, abnt arg sltst mtx, mica, ip, kaolc, tt.

SH dk red,orng, f tex,frm, mica, slty ip, tr hd calcs sh incls, fls.

SS lt gy, lt red, arkic,f to c gred, tr v c gred, sbrdd to sbang, p srt, cons-fri, arg sltst ,mtx and incls, com fld grs, kaolc, tr ls grs,tr mica, tt to v p por.

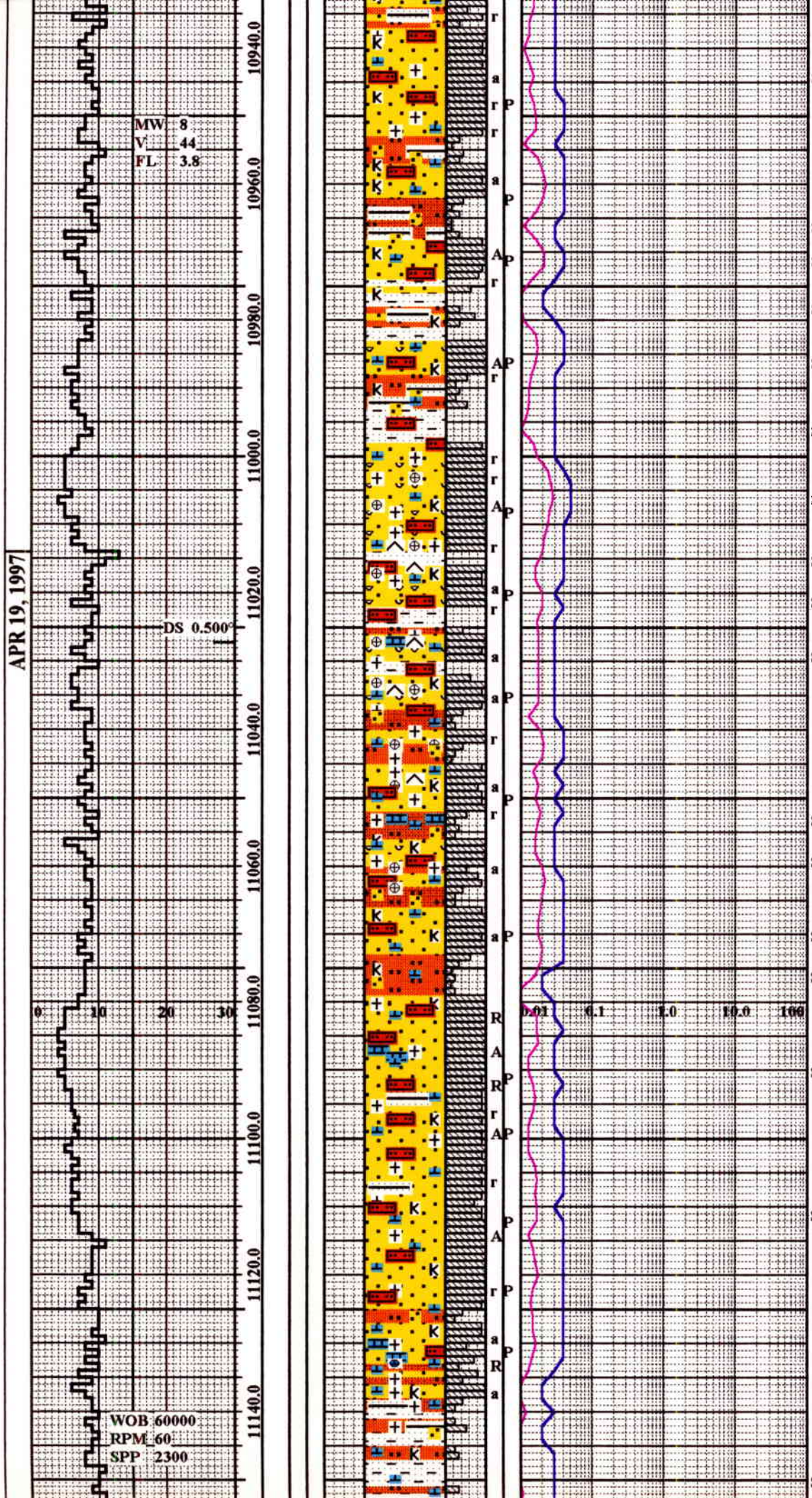
SS lt red, arkic, f to c gred, sbrdd to sbang p srt, cons, sltst mtx and strgs, abnt fld grs, mica,kaolc ip, tt to tr v p por.

SS lt gy,orng, arkic, v to v c gred, sbrdd to sbang,v ply srt, cons,arg sltst mtx, kaolc ip, com fld grs, mica ip, tt.

SS lt gy, arkic, f to c gred,scat frags, sbang to sbrdd, ply srt, cons, arg sltst mtx and incls,kaolc ip,abnt fld grs, slly mica, tt to tr p por.

SLTST red, orng,arg, v sdy ip, mica, as mtx material.

SH red, ptly dk red, f tex, mica, slty ip, fls.



SS lt gy,orng, arkic, v to v c gred, sbrdd to sbang,v ply srt, cons,arg sltst mtx, kaolc ip, com fld grs, mica ip, tt.

SLTST red, orng,arg, v sdy ip, mica, as mtx material.

SS red, lt gy, aa.

SH red, ptly dk red, f tex, mica, slty ip, fls.

SS lt gy,arkic,f-pbls,con,arg sltst mtx,sil, kaolc, abnt fld grs, tt.

SH red, dk mnr dk red to purp,f-m tex, mica, slty-v slty,fls.

SS lt gy,arkic,cgl, m gred to pbl,sbang to sbrdd, v ply srt, cons,mnr sltst mtx, kaolc, sil ip, qtz and fld grs, tt.

SH red to plty dk red,grds to sltst ip.

SS lt gy,arkic,cgl, m gred to pbl,sbang to sbrdd, v ply srt, cons,mnr sltst mtx, kaolc, sil ip, qtz and fld grs, tt.

SS ark, f to v c gred,pbl frags, sbrdd to sbang, v ply srt, cons, abnt arg sltst mtx, sil ip, tr calcs. Tr ls grs.

SLTST orng, lt red, rr lt gn, frm, calcs, mica, com sh lams, kaolc, blky.

SS lt red, ark, f to v c gred, sbrdd to sbang com arg sltst mtx, calcs, kaolc, rr gy slty ls grs.

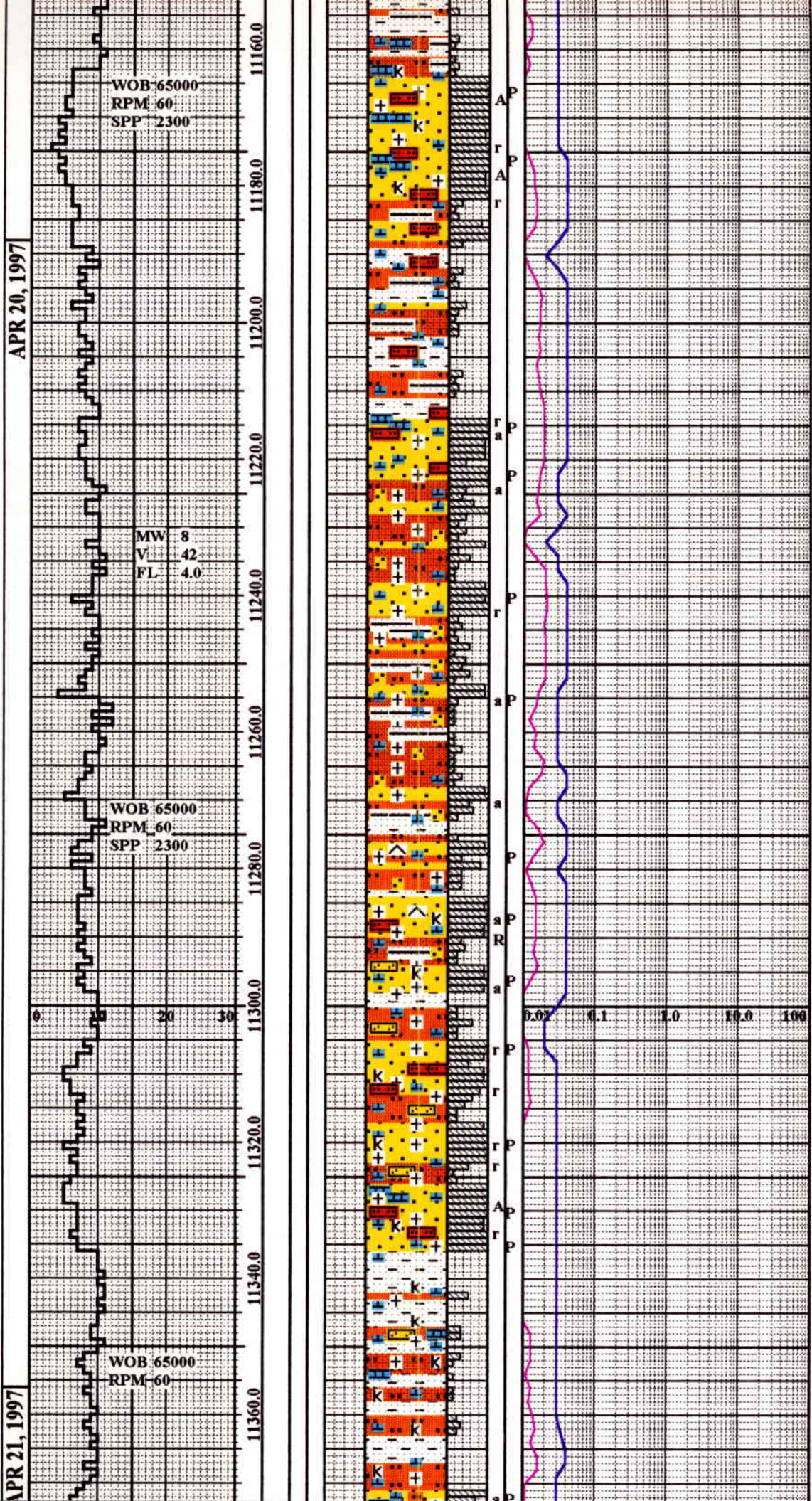
SS lt red, ark, f to v c gred, sbrdd to sbang com arg sltst mtx, calcs, kaolc, rr gy slty ls grs.

SLTST orng, red, frm, mica, mnr sh incls, sdy, grds to v slty ss ip, blky.

SS lt gy, trnsl, tr red, f to v c gred,ang to sbrdd, p srt, cons, sils, kaolc ip,abnt qtz grs, mnr fld, tr mica sltst incls, tt.

SS lt gy, trnsl, tr red, f to v c gred,ang to sbrdd, p srt, cons, sils, kaolc ip,abnt qtz grs, mnr fld, tr mica sltst incls, tt.

SH orng, ptly dk red, f tex, ptly slty, mica, fls.



SLTST red, orng,tr dk gn,v arg, mnr sd, mica, calcs in gn fraction,rr gy ls incls.

SS lt gy,ark, m to c gred, sbrdd to sbang, v ply srt, cons, arg sltst mtx, kaolc, com fld grs,tt.

SS lt gy,arkic, f to v c gred,sbrdd to ang,v ply srt, cons,arg sltst mtx,kaolc ip, com fld grs,tr dk red sh lams, mica, rr gy v slty ls incls.

SH dk red, red,frm, f tex, v calcs,mica, chalky.

SLTST orng, red, arg to sdy, frm, kaolc, calcs, mica.

SH red, orng, rr gn,f tex, calcs, mica, gy ls incls, fls.

SS lt gy, f to c gred, sbrdd to sbang, p srt, cons, arg sltst mtx, qtz grs, mnr fld grs, tt.

SLTST red, orng, arg to v arg, calcs, kaolc, mica, mnr sh strgs, blky.

SS lt gy,arkic, f to c gred, cons, arg sltst mtx, mica ip, calcs,tt.

SLTST red, orng, arg to v arg, calcs, kaolc, mica, mnr sh strgs, blky.

SLTST orng, frm, occ hd v calcs incls, mica, arg, mnr orng sh strgs, ptly sdy, blky.

SS arkic, f to c gred, cons, arg sltst mtx, kaolc.

SLTST red,orng, arg, c tex, ptly v sdy, abnt blot flks, calcs ip, occ sh lams, blky.

SH red,orng, frm to ptly hd, mica, slty ip, calcs, fls to blky.

SS lt gy, arkic, f to m gred, tr c gred, cons, kaolc, arg sltst strgs, mica, com fld grs.

SLTST red, orng, frm, arg, v mica, sdy ip, blky.

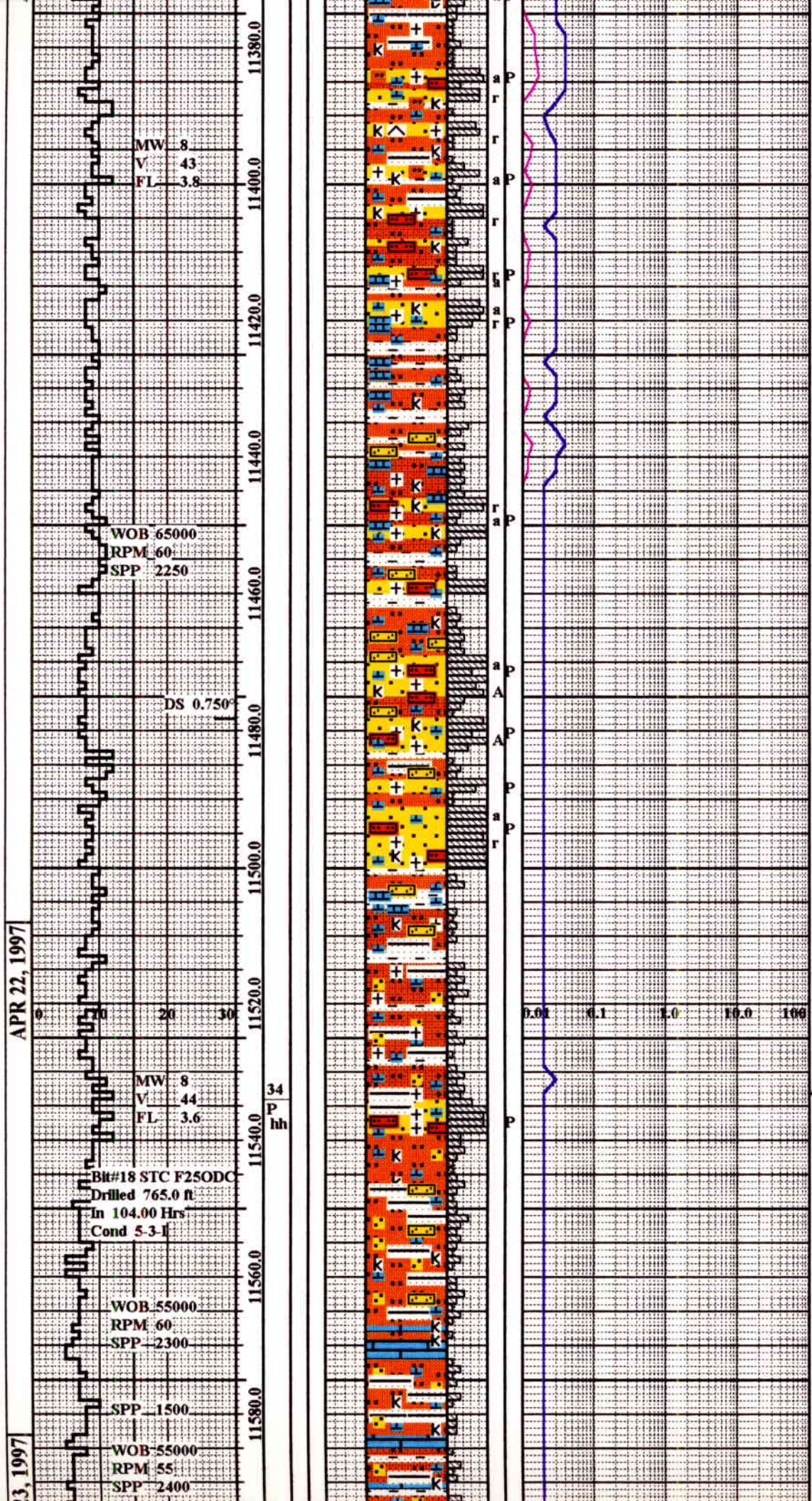
LS gy, v slty, as frags.

SS lt gy, arkic, vf to c gred, sbang to sbrdd, ply srt, cons, arg sltst mtx, mica, kaolc, com fld grs, calcs, tt.Rr gy v slty ls incls.

SH orng, frm, f tex, slty ip, mica to v mica, kaolc, occly calcs, fls.

SLTST red, arg to sdy, kaolc, mica, calcs, blky.

SH red, dk red, tr gn, strgs.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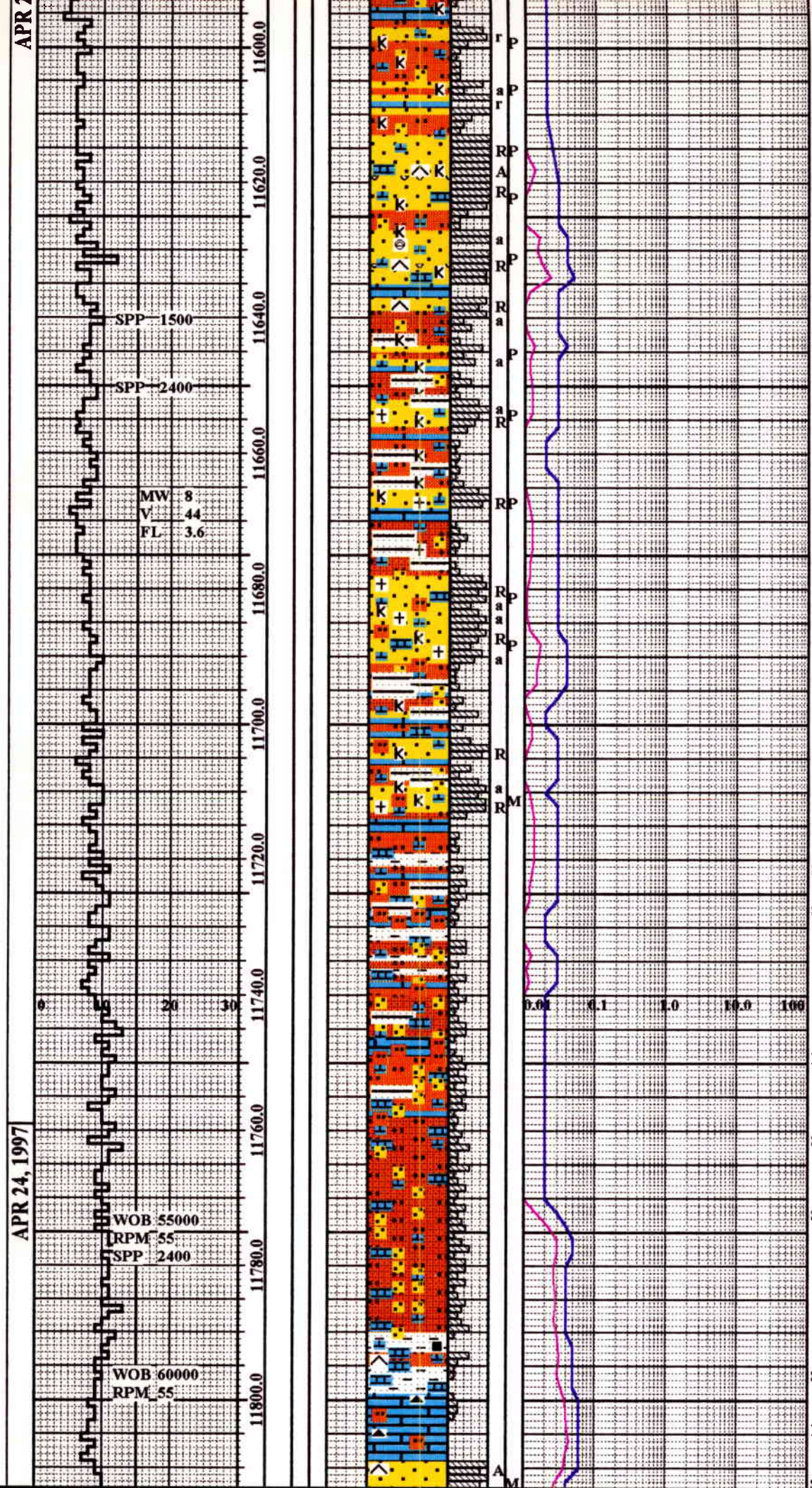
WOB 65000
RPM 60
SPP 2250
DS 0.750°
MW 8
V 44
FL 3.6
34
P
hh
Bit#18 STC F25ODC
Drilled 765.0 ft
In 104.00 Hrs
Cond 5-3-I
WOB 55000
RPM 60
SPP 2300
SPP 1500
WOB 55000
RPM 55
SPP 2400
APR 22, 1997
0
10
20
30
0.01
0.1
1.0
10.0
100
SLTST orng, red, mica, arg sdy ip, calcs, blky.
SS lt red, arkic, f to m gred, sbang to sbrdd, fr srt, cons, abnt arg sltst mtx, kaolc, com fld grs, calcs, tt.
SLTST aa, dk red, sh strgs.
SS ark,lt red, cons, abnt arg sltst strgs and mtx, mica, com fld and qtz grs, v calcs, tt.
SH red, tr gn, v f tex, calcs, mica, fls.
SLTST red, orng, frm, arg, calcs, kaolc, sdy ip.
SLTST red, orng, frm, arg, calcs, kaolc, sdy ip.
SS orng, arkic, f to c gred, sbang, p srt, cons, abnt arg sltst mtx, calcs,kaolc, rr gy ls grs.
SLTST orng, arg to ptly v sdy, frm, mica, kaolc, f gred ss strgs, blky. Tr gn hard v calcs.
SS lt red, arkic, tr grey-green, f to c gred, cons, arg sltst mtx, kaolc, calcs, com fld grs, tt.
SS lt gy, arkic, f to c gred, sbang to ang, p srt, cons, kaolc, calcs ip, com arg sltst mtx, fld grs, tt.
SLTST orng, rr gn,arg to v sdy, mica, calcs, arkic ss strgs, blky.
SS lt gy, ark, f to c gred, sbang to sbrdd, ply srt,cons, abnt sltst mtx, kaolc, com fld grs, calcs, ptly mica, tt.
SH dk red, red, ptly grey-green, f tex, mica, calcs to v calcs(green fraction), fls.
SH red, orng, frm, calcs, mica, slty ip.
SLTST orng, red, tr gn, arg, mica, v calcs, sdy, scat f gr ss strgs, blky.
SLTST orng, lt gn, arg to v sdy, mica, rough tex, mnr sh lams, calcs.
HONAKER TRAIL (11534.00 ft)
SS lt gy, lt red,arkic, f to c gred, rdd to ang, ply srt, cons,com arg sltst mtx, kaolc, scat w rdd aeolian sd grs, fld grs, mica ip,tt. Tr trnsl v calcs ss strgs with gn glau grs.
SLTST red, red brn, frm to hd, mica, calcs,occ sh lams,sdy, grdg to v f gred slty ss.
LS trnsl,lt gy, crpxl,mas,dns,indst fos deb, tt.
SLTST red brn, gn, frm to hd, mica, calcs, dk red, sh lams, ptly sdy, blky.
SH dk red brn, red, frm, slty ip, mica, v calcs, sbfls.



LS lt - tr dk gy, trnsl, crpxl, mas,dns,scat fos coral debris,slty ip.

SLTST dk red, bn, gn, lt gy, arg to slly sdy, mica, abnt blot mica flks,v calcs, grdg to slty f gred ss ip.

SS lt gy, wh, ark ip, f to v c gred, sbang to rdd, ply srt, cons, calcs mtx, occ arg sltst incls, scat aeolian sd grs, com fld grs, kaolc, tt. Tr lt to dk gy crpxl ls strgs.

SS lt gy, wh, trnsl, cgl, f to v c gred, com pbl frags, ang to rdd, v ply srt, cons, calcs, slls ip, qtz and fld grs, tr aeolian sd, mica ip, tt.

LS lt gy gy, crpxl,dns, hd, slly arg, tt.

SLTST gn, red, reddish brn, mnr dk red and blk sh lams, arg, mica, calcs, sdy.

SLTST gn, red, brn, arg, kaolc,v calcs ip, mica, scat blk and dk red sh strgs, occ gy clayey ls incls.

LS gy,dk gy, crpxl,dns,mas, arg ip, rr fos deb, tt.

SLTST gn, red, brn, arg, kaolc,v calcs ip, mica, scat blk and dk red sh strgs, occ gy clayey ls incls.

SS red, arkic, ptly lt gy, f to c gred, cons, v arg, kaolc, tr mas and xln calc, occ fld grs, mica, tt.

SLTST red, gn, dk red, mica, arg ip, calcs, scat xln to mas calc, grdg to slty v f gred ss ip.

SS lt gy, arkic ip, f to m gred, tr c gred, rdd - sbang, ply srt, cons, kaolc, arg sltst mtx ip, mica, scat w rdd aeolian sd grs, tr ls frags, tt.

LS gy, crpxl, dns,hd, arg to slly slty, occ fos deb, tt.

SH blk, dk bn, dns, hd, v calcs ip,micmica, sbfls.Grds to v arg slty ls.

SLTST red, tr gn and lt gy, hd, mica, arg incls, sdy, occ imbedded f to c gred sd grs,calcs, kaolc ip, abnt blot flks. Tr blk to dk red, calcs sh lams, grdg to v f gred arg ss.

LS dk gy,gy, crpxl, dns,hd, arg to slty

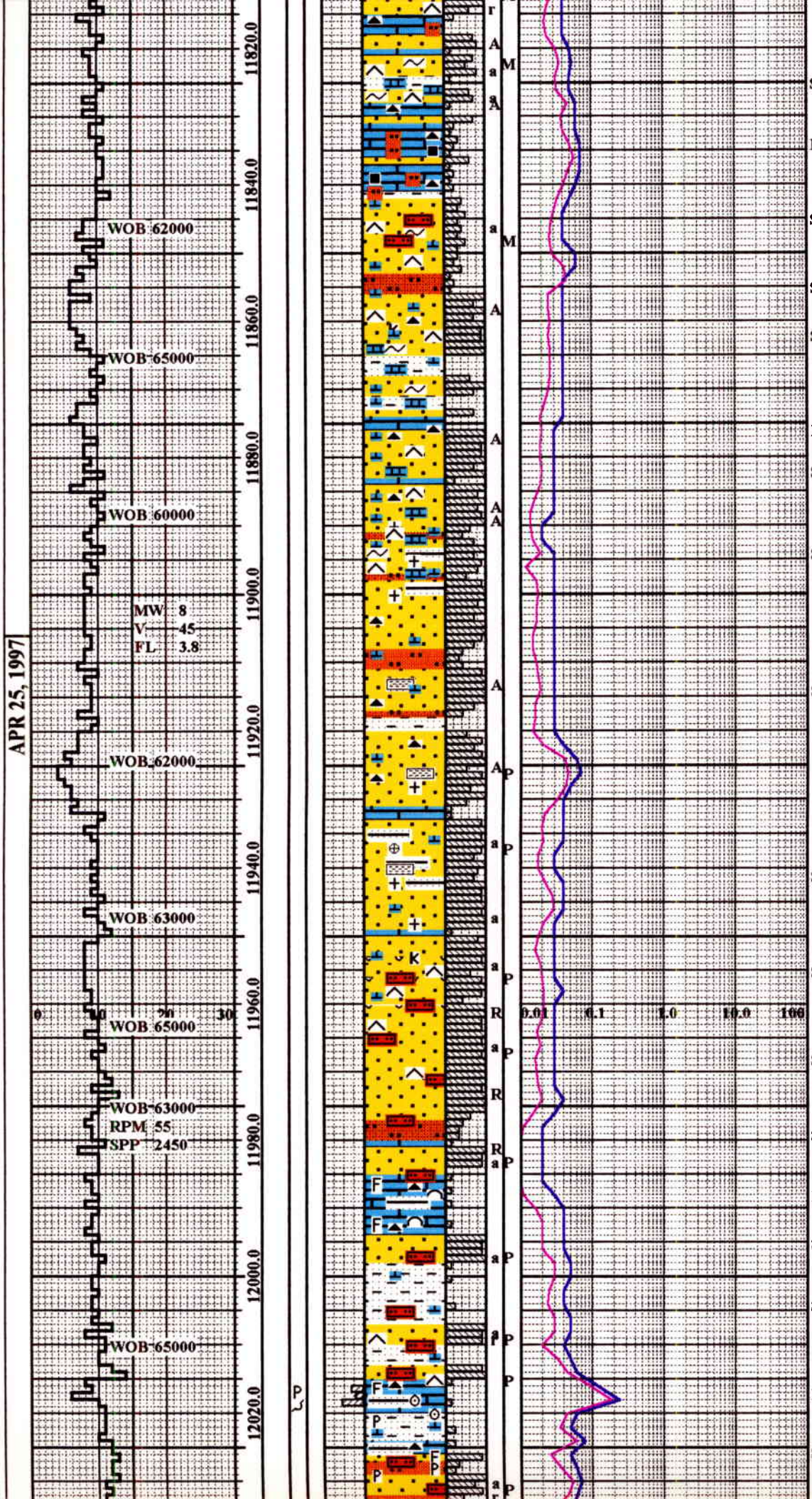
SLTST gy, lt gy, mnr dk red, arg in dk red fraction, dns, v well indurated, v calcs, slls, occ dk gy to gy calcs sh strgs, blky. Grds ip to v slty dns ls.

SLTST gy, lt gy, mnr dk red, arg in dk red fraction, dns, v well indurated, v calcs, slls, occ dk gy to gy calcs sh strgs, blky. Grds ip to v slty dns ls.

SH blk,dk gy, hard, brittle, v calcs, slty ip, rr carb lam, blky.

LS gy, micxl to crpxl,mas,arg,slly slty, tr mas calc, slls, tr brn cht frags, fracd.

SS trnsl, lt gy, f to c gred, ang to sbrdd, ply



srt, cons, sils, tr calc mtx, rr cht frags, qtz shards, occc argl grs, rr mica flks, tr intgran bit, tt.

SH blk, dk gy, f to m tex, hd, brittle, v calcs, slty, mica, blky.

LS brn, dk gy, crpxl, dns, scat brn cht frags, tr carb lam, slty, fragmental, grds ip to v calcs mica sltst.

SS lt to dk gy, slt to v f gred, sbang, cons, sils, calcs, tr glau grs, tr cht incls, grds ip to v sdy sltst.

SLTST dk-lt gy,v sdy, hd,v calcs, ls strgs, mica, blky.

SS lt gy,tnsl,mnr arkose,f-v c gr, cons,sils, mnr mica flks, tr glauc grs, lt gn clay incls, tt.

LS bn, dk gy, cptxln-micxln,dns, arg ip.

SS arkl,ptly lt gy,f-v c gr,cons, sils, calcs, occ slst incls,com fld grs, tr argl grs, tt.

SS lt gy,ark,f-v c gr, cons,calcs,slty sh lams,sils, mica,tr gn clay incls, mnr trnsl v f gr ss strks, tt.

SS red, arkic, f to c gred, cons, arg sltst mtx, tr cht frags, tr gn claystone incls, tt. Occ ls brn, crpxl - micxl,dns,hd, foss.

SS lt red, ark, v to c gred, sbrdd to sbang, ply srt, cons, com arg sltst mtx and incls,dk red and blk sh lams, mica ip, slly calcs, com fld grs, kao cly strgs, occ gy micxl ls frags.

SS lt red, ark, f to v c gred, tr pbl frags, ang to sbrdd, ply srt, cons, sils,mnr arg sltst mtx, tr kao slly mica, calcs ip tt, tr

SS pk,f to v c gred,sbang to rdd, ply srt, cons, sils, tr red sltst mtx,tr gn sltst strgs, mnr red sh lams, scat fld grs, ptly calcs, tt.

SLTST red, tr dk gn, arg, sdy ip, calcs, mica, blky.

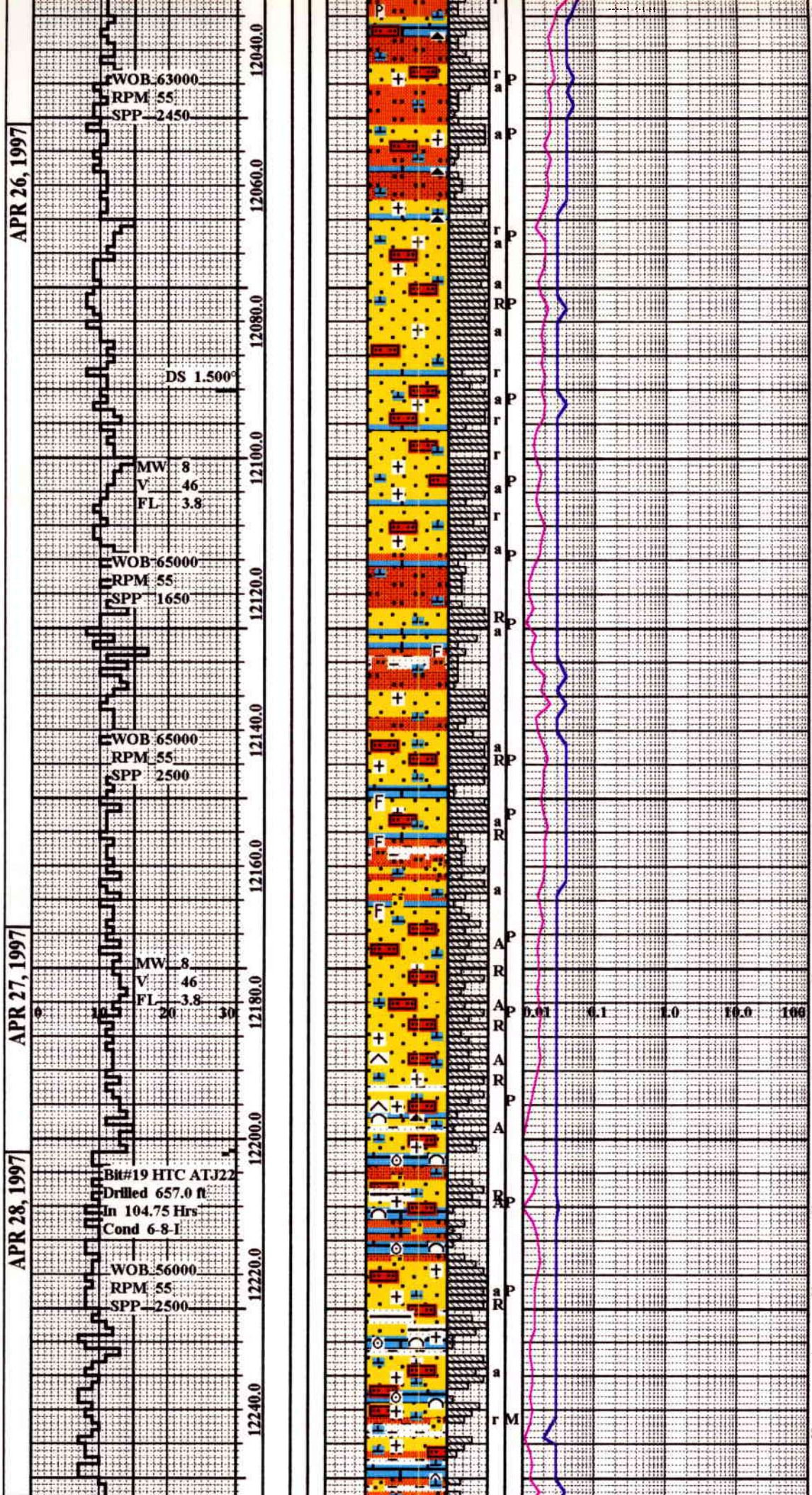
LS gy, tr lt gn, micxl to crpxl, slty ip, slly arg, tr fos deb, cht frags,dns, tt.

SS lt red, arkic, f to v c gred, cons, arg sltst mtx, calcs, com fld grs, mica, tt.

SH dk gy,blk,hd, v calcs ip, fracd, mica, gy ls strgs, mica, blky.

LS gy, mnr brn, micxl to crpxl,dns to rthy , ptly v arg, mnr cht incls, foss(crin, fusulinoid), tt to rr p-p por(2-3%). Fr gas show.

SH blk, dk gy, f tex, hd, mica, v calcs ip, pyric,blky.



SLTST lt to m gy, gn, red, arg to v sdy, hd mica, calcs, grdg lp to v slty arg ss.

SLTST lt gy, orng, gn,gy, hd, mica,ptly calcs, occ blk sh incls, clayey, grdg lp to v f gred ss.

LS brn, gy, crpxl, tr cht nods, foss.

SS ark, lt red, f to c gred, sbrdd to sbang, ply srt, cons, abnt arg sltst mtx and incls, calcs, sy-ca incls, tr gy ls grs, tt.

SS ark, aa, tr aeolian qtz sd grs.

SS ark, lt red to ptly lt gy, f to v c gred, sbrdd to sbang, ply srt, cons, com red and gn arg sltst mtx and strgs, kaolc, sy-ca, mica,com fld grs, aeolian sd grs, tr gy ls incls, tt.

SLTST orng, ptly gn to gy, arg, dk gy sh lams, mica, tr glau, carb frags, blky.

SS ark, lt red, cons, abnt arg sltst mtx, mica, abnt fld grs, calcs, tr gy ls and aeolian qtz sd grs, tt.

SH dk red,tr dk gy, f tex, mica, slty lp, calcs, fls.

SS ark, lt gy, orng, cons, arg red to gn sltst mtx and strgs, scat aeolian sd grs, com fld grs, tr dk gy sh lams, calcs lp, tt.

LS gy, micxl, dns, hd, fragal,tr fos deb, tt.

SH dk red, dk gy, f tex, slty lp, mica, ptly calcs,sbfls.

LS gy, ptly lt gy, crpxl to micxl, dns, arg, slly slty, tr fos deb, tt.

SS ark, lt gy,v f to f gred, ptly f to c gred, ang to rdd, ply srt, cons, abnt sltst

SS ark, lt gy,v f to f gred, ptly f to c gred, ang to rdd, ply srt, cons, abnt sltst mtx, bcmg v calcs, scat fld grs, occ sdy ls strgs, tt.

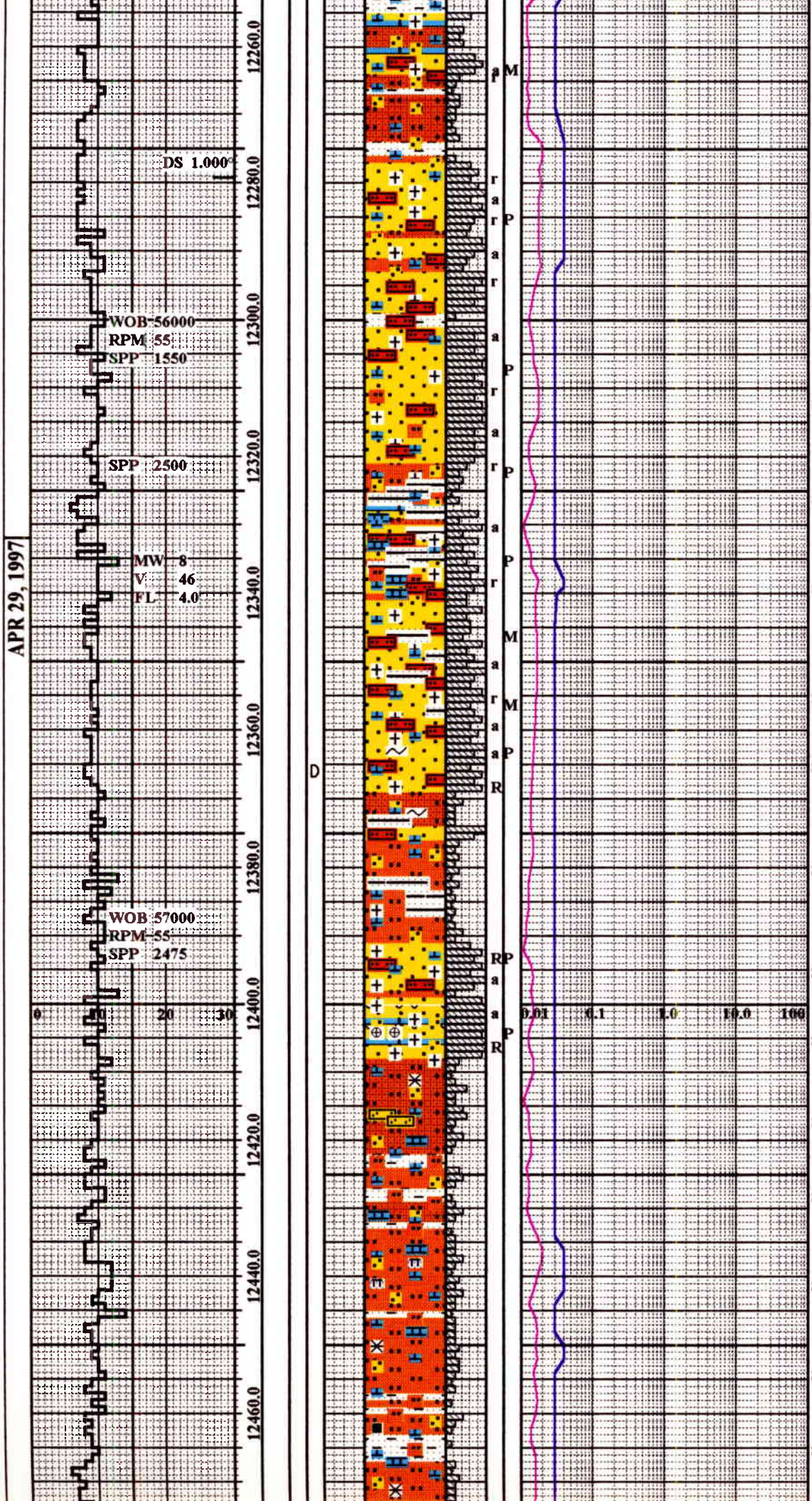
LS gy, ptly bn, crpxl to micxl, scat fos mat(brac,fus), sy-ca, arg lp, hd to frm, tt.

SS lt gy, lt red, cons, abnt arg sltst mtx, tr v f gred glau, tt. Tr gy crpxl dns ls frags.

SS lt gy, arkic lp, f to ptly c gred, sbang to rdd, mod srt, cons, com sltst mtx, calcs lp, fld grs, mica, tt.

LS gy, ptly bn, crpxl to micxl, scat fos mat(brac,fus), sy-ca, arg lp, hd to frm, tt.

SH bn,dk gy, frm, micmica, v slty lp, v calcs, sbfls.



SH brn,dk gy, frm, micmica, v slty ip, v calcs, sbfls.

SLTST gn, red, brn, arg to sdy, hd to frm, mica, sbblky.

SLTST lt red, brn, frm, mica, com to abnt blot flks, sdy, calcs, blky.

SS lt gy, red, arkic, f gred, mnr c gred, cons, arg sltst mtx, tt.

SS arkic, ptly gy, f to c gred, cons, arg sltst mtx, calcs ip,xln calc, tr aeolian sd grs.

SS ark, gy ip, f to c gred, cons, arg sltst mtx, fld grs, aeolian sd grs, xln calc incls,tr intgran blt, tt.

SLTST red, tr gn, v arg, mica, ptly calcs, tr dk gy hd sh incls, blky.

SS lt red, arkic, vf to c gred,rdd to sbang, ply srt, cons, abnt arg sltst mtx, mica, calcs ip, tr mica sh strgs, occ gy brn ls frags.

SS lt red, arkic, f gred to mnr c gred, rdd to sbang, ply srt, cons, abnt arg sltst mtx, calcs, blk calcs sh lams, fld grs, tt.

SS red- brn, mar,arkic, f to c gred, rdd to sbang, ply srt, cons, calcs and red to gn arg sltst mtx, mica, sy-ca, rr glau grs, tr blt, tt.

SLTST lt red, red- brn, tr gn,calcs, bcmg more arg,mica, tr blk calcs sh incls, mnr sd, blky.

SS lt red, arkic, f to c gred, rdd to sbang, ply srt, cons, calcs mtx mat, arg sltst strgs, sy-ca, mica, com fld grs, tr rdd

SS cgl, red, arkic, f to v c gred, occ pbls, rdd to sbang, ply srt, cons, abnt arg sltst mtx, calcs, mica, com fld grs, tt.

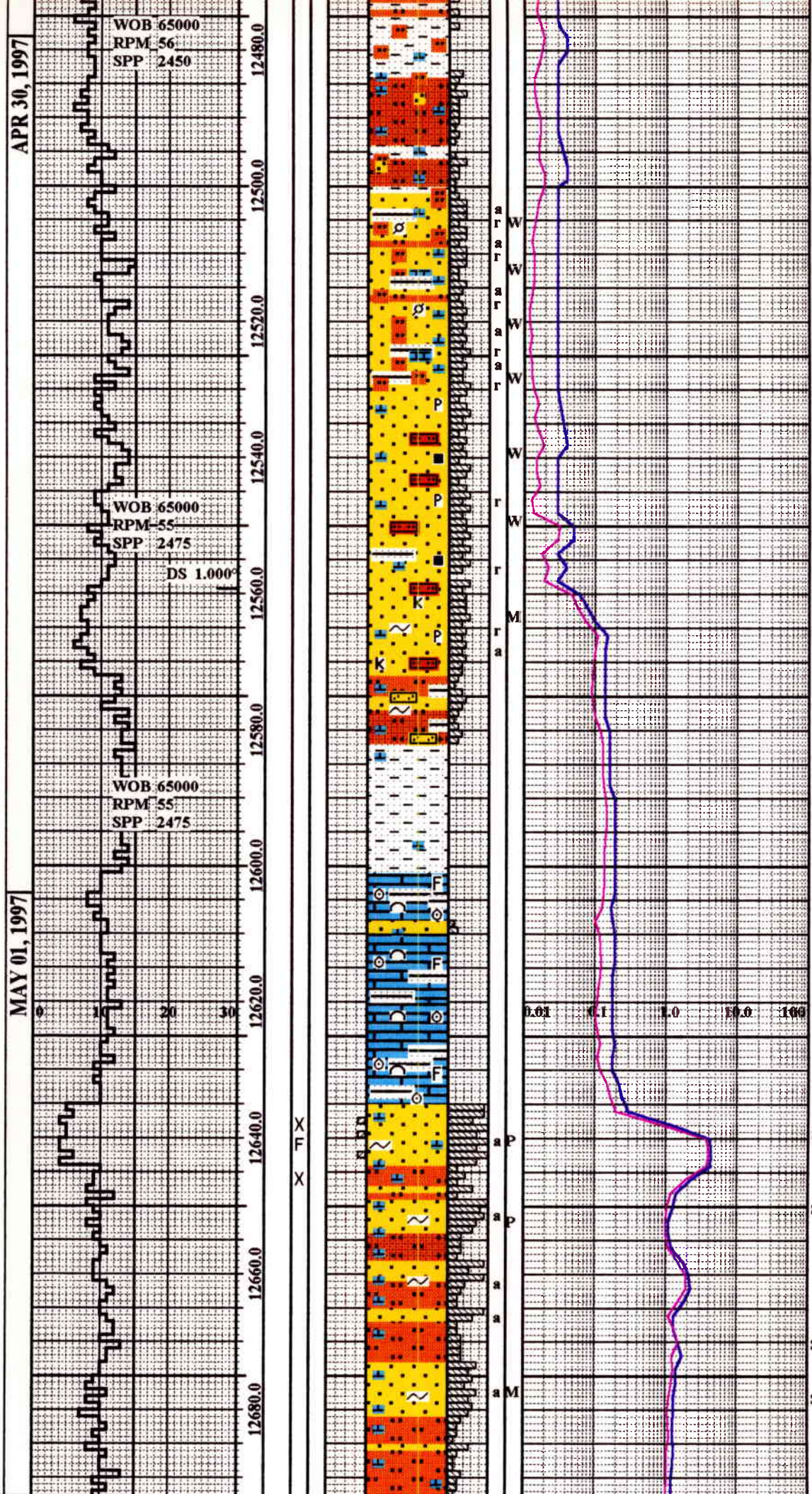
SLTST red- brn, tr gn, frm,calcs,arg, tr gn clyst incls, tr xln calc, ptly sdy, grdg to f gred v arg ss.

SH red, red- brn, mar, f to m tex, micmica, slty ip, calcs,sbfls.

SLTST gy, red- brn, tr gn, arg to ptly sdy, mica, mostly hd, calcs,dns, blky.

SLTST red, dk brn, ptly grey- gn,frm to hd, mica,v arg, v calcs,slty sdy, grds to slty sh ip.

SH red- brn,ptly gy,hd, f to m tex, micmica,slty, v calcs, grdg to v arg sltst, sbfls to blky.



SH mar,red-bn,f tex,v calcs,mica,hd, slty ip, fls

SLTST red,tr gy-gn,frm-hd,v calcs,arg to tr v f gred ss strgs, blky.

SS lt gy, trnsl,vf gred to slty, sr-sa, w srt, v w ind,hd, v calcs,dns, brit,slly shaley,tr mica flks, tt.

SS gy, trnsl ip, v f gred to slty, rdd to sbang, w srt, v w ind, calc cmt, dns. hd, brit, tr arg strs,tt.

SS lt gy, trnsl, ptly dk gy, v f gred to slty, sbrdd, w srt, v w ind to cons, calc cmt, tr kao,dk gy sltst strgs, hd brit, tr mica flks, mnr intgran gy organic mat,tt to scat intgran por.

SS gy, ptly lt gy, v f gred to ptly slty, w cons, calc cmt, kaolc, dk gy to blk arg strgs, tt. Ptly lt red, arkic, f to c gred, cons, calcs sltst mtx, mica, tt.

SLTST dk gy, hd, shaley, gy v f gred ss strgs, calcs, carb. Tr gy, rthy arg ls .

SH dk gy, blk, hd, v calcs,micmica, slty to v slty, sbfls to blky.

LS gy,dk gy,rthy tex,v arg,slty,finely lam,tr fos debris.

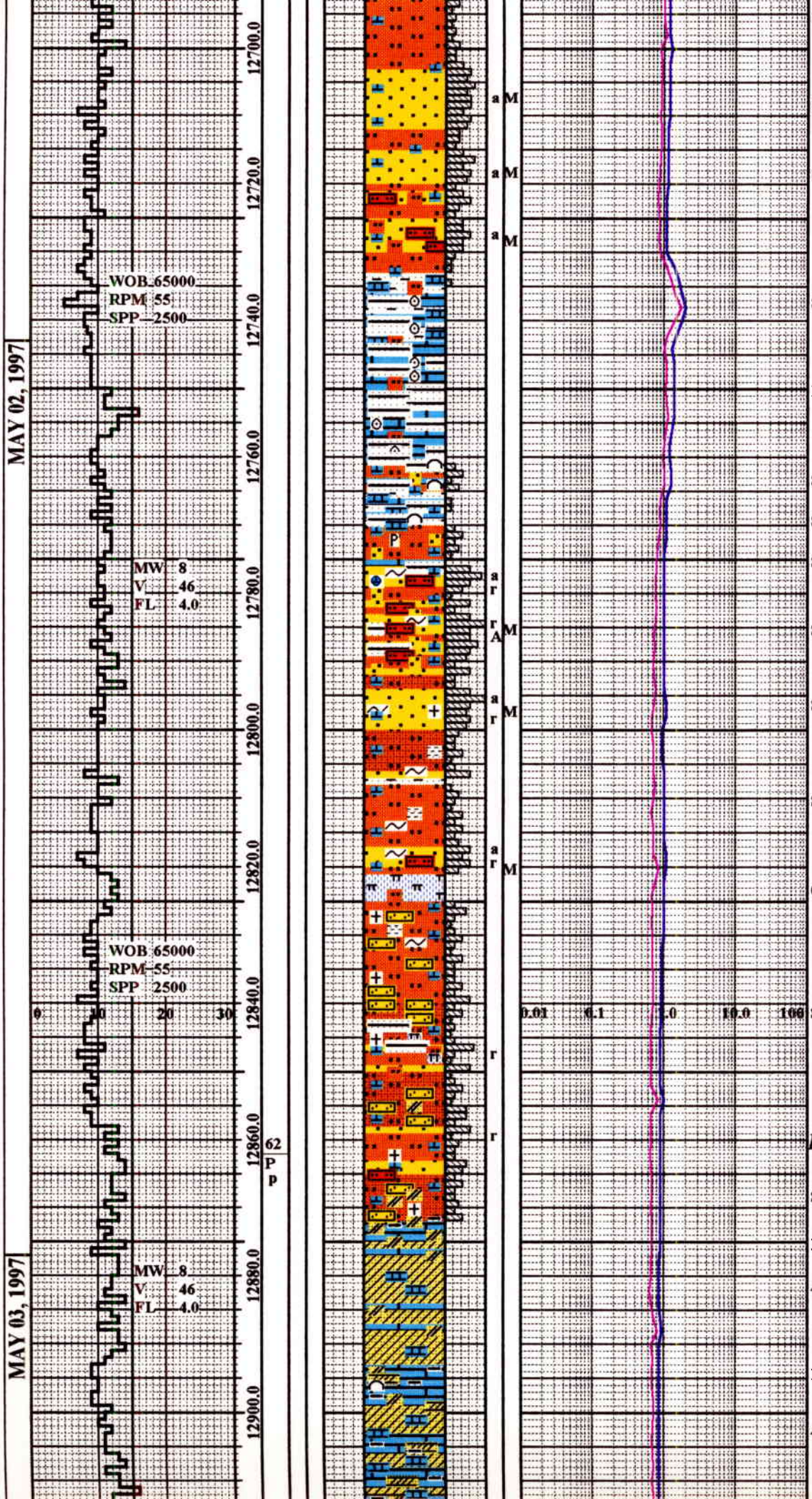
LS gy,dk gy,mnr bn,crpxl-micxl,arg,blocl, rthy tex,crinoidal, lagoonal.

SS trnsl,f-c gr,ang,cons, calc,cmt, fractured,rr glau, tt-p por.

SS trnsl, lt gy,f-c gr, con, calc, tr cht frags, mica,tt.

SLTST lt gy-gn,hd,sdy,v calcs,tr red slst incls, blky.

SS lt red,lt gy,ark,vf-f gr, tr c gr,cons, calcs,slty ip, mica, fld grs,tr dk gy sh strgs, tt.



SLTST gy-gn,gy, slt-v f gr sd, hd, v calcs, tr glau grs, tr red ark sltst incls, grds to vf gred ss.

SS lt gy,f-vf gr,cons,calcs cmt,mica,glau, occ gy sltst strgs,tt.

SS aa, tr organic debris.

SH blk,frm-hd,v calcs,com dism pyr,tr carb debris, rr fos frags,sb-blky.

LS dk gy,rthy tex, micxl-crpxl, dns, v shaley,sy-ca, fragal,rr fos mat, finely lamd.

SLTST gy,slt-v f gr,v calcs, arg,com dism pyr, blky.

SH blk, hd, v calcs, mica, blky.Intbdd dk gy crpxl biocl ls.

SLTST lt-m gy,v calc,frm, mica,v sdy, gdg to slty ss.

SS lt gy,trnsl,vf-c gr,w cons,calc cmt,hd, com slstsrgs,rr ls grs,tt.

SS lt gy, vf to f gred, mnr c gred, sbrdd to sbang, m srt, w cons, calc cmt, glau grs, sltst strgs, hd, dism pyr, tr fld grs, xln calc and sy-ca, tt.

SLTST gy, lt gy gn, tr dk gy, hd, v calcs, arg to v sdy, scat glau grs, tr lt gn clyst lams,tr ls, blky.

CLYST orng, v calcs, slly slty, rthy tex, mas.

SLTST gy gn, lt gy, mnr re, frm to hd, v calcs, sdy to v sdy ip, mica, tr red clyst incls, rr anhydrite mtx, tr w rdd aeolian sd grs.

PARADOX (12862.00 ft)

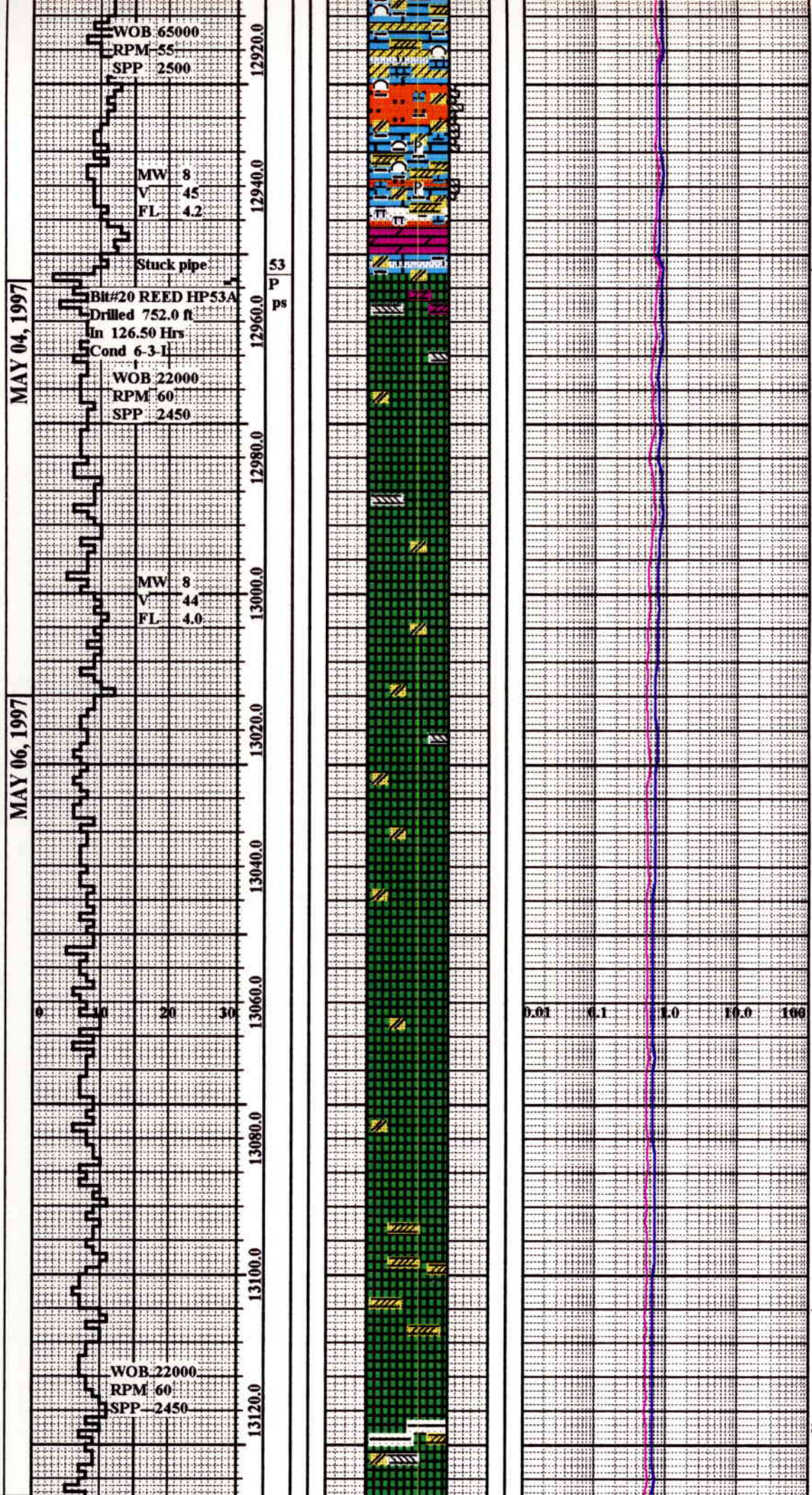
SLTST lt gy, gy gn, hd, calcs,slt to v sdy ip rr intstl anhydrite, blky. grds to v slty calcs ss ip.

LS (mudst)dk gy, micxl, v arg, slty ip, com lt gy anhy incls and lams.

ANHY lt gy, trnsl, mas to ptly micxl, sft, tr arg strgs.

LS dk gy, gy, crpxl to ptly micxl, rthy tex, frm, ptly v arg, com anhy incls and lams, tt.

ANHY lt gy, trnsl, mas to xln, occ arg ls strgs.



LS dk gy, gy, crpxl to ptly micxl, rthy tex, frm, ptly v arg, com anhy incls and lams, tt.

ANHY lt gy, trnsl, mas to xln, occ arg ls strgs.

SLTST gy,frm,slly arg,calcs,anhylc,blky.

LS gy, brn, micxl, ptly crpxl,dns, anhylc, slly arg, slty lp, tr fos debris, fracd, tt.

LS (mudst), gy, dk gy, crpxl to micxl,v arg slty, rthy tex,anhylc, sh lams, v fly lamd, tr carb frags.

DOL dk brn,micxln,dns,slly,calcs,tt.

FIRST SALT (12953.00 ft)

SA clr, trnsl, xln, sft, tr dol incls.

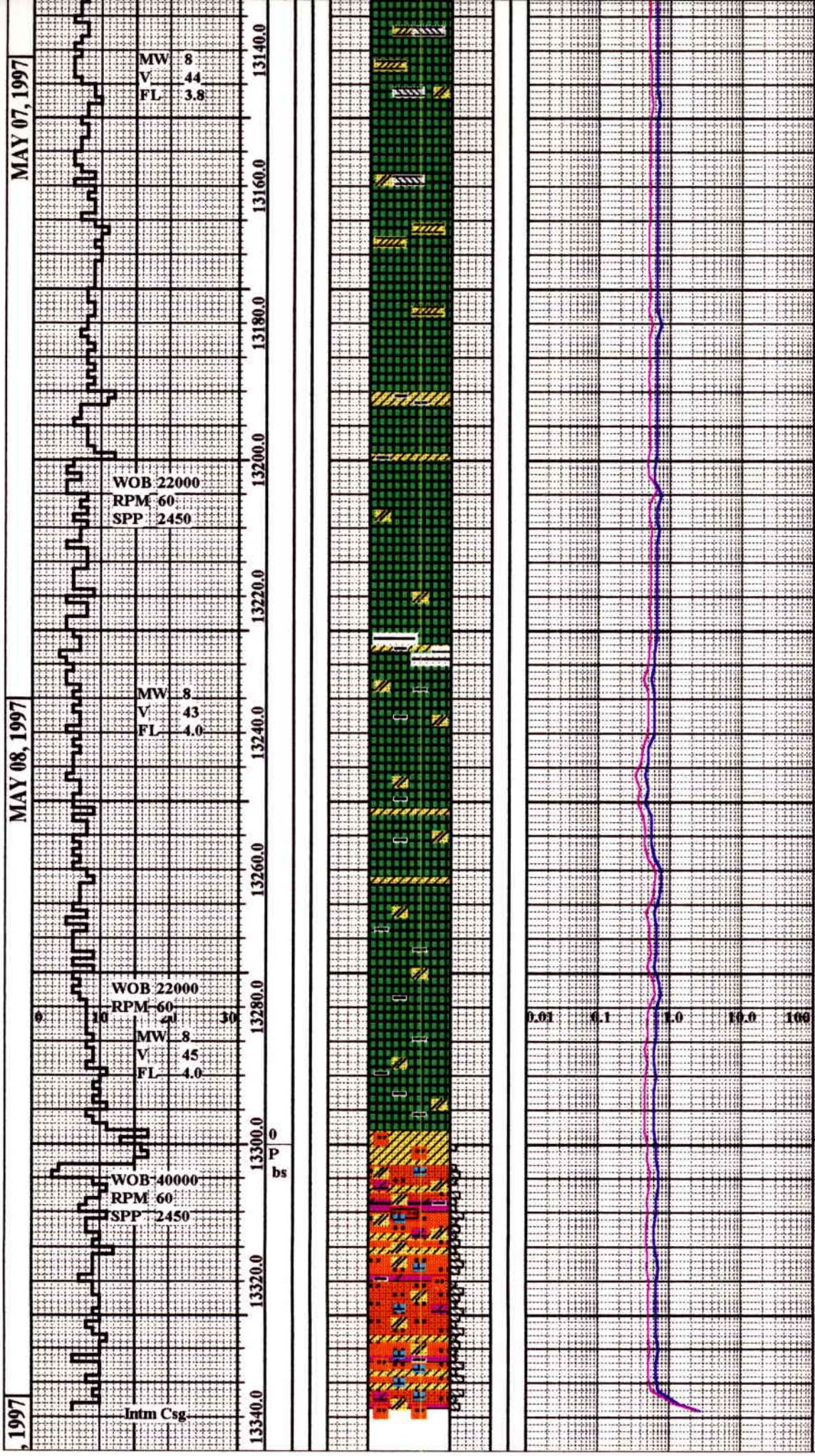
SA clr,trnsl, xln,mas, tr dol incls,rr fly lam anhy.

SA tr massive gypsum.

SA clr, trnsl, xln, sft, fragl, mnr anhy incls.

ANHY wh, fly lamd, frm.

SH blk,fly lam,hd,dolic,fis. As strgs.



SA clr,trnsl,mas,tr fly lamd anhy and gypsum.

SA trnsl, clr, xln to mas, tr wh rthy anhy incls.

ANHY wh, rthy, fly lamd, sft, gypsum xls.

ANHY wh,lt gy,sft,rthy,fly bdd,com sa incl,slly arg.

SA trnsl, clr, mas to xln, frm, slly anhyic, convolute bdg.

ANHY wh, lt gy, rthy, mas, ptly fly lamd.

SA trnsl, clr, mas to xln, tr anhyic, bcmg more arg, v hd where arg, convoluted bdg.

SA trnsl, plty clr, mas to xln, anhyic ip, tr blk dolic sh incls, slly arg.

ANHY wh, lt gy, mas, fly lamd, com sa incls, as strgs in salt.

SA trnsl, ptly clr,gy, mas to xln, anhyic, bcmg more arg.

BASE SALT (13300.00 ft)

ANHY wh, lt gy,fly bdd, com xln sa incls and strgs, slly arg.

DOL dk brn, micxl, dns, hd, v arg, slty. Basinal.

SLTST gy, dk gy, hd to ptly rthy and sft, anhyic, calcs to ptly dolic, mica, tr v f gred sd, fractured, mnr bit, blky.

ANHY gy, lt gy, mas, slty.

SLTST m to dk gy, hd to ptly sft, calcs to dolic, anhyic, arg, mica, blky. Occ grdg to v slty, arg dol.

Operator : *GCRL ENERGY LTD.*
Well : *G.C.R.L. SEISMOSAUR FEDERAL #1*
Location : *NW NE 20-21S-20E*
Province : *UTAH* **Licence# :** *UT1064*
Depth Logged : From *13330.00 ft* **To** *15510.00 ft*
Date Logged : From *May 11, 1997* **To** *Jun 17, 1997*
Drilling Fluid : *INVERT*
Ground Level : *5137.00 ft*
Kelly Bushing : *5168.50 ft*
Contractor : *NABORS DRILLING USA*
Spud Date : *Jan 21, 1997* **Rig No. :** *280*

Logging Company : *Stone People Resources Ltd.*
Address : *372 Killarney Way RR7 Site 13 C C-3*
City : *Vernon* **Province :** *British Columbia*
Telephone : *(250) 545-0308*
Logged By : *BRUCE MILLER*

Oil Shows

●	Even staining, fluoresces in solvent	D	Dead, Asphaltic, bitumen, etc.
◑	Spotted staining, fluoresces in solvent	○	Questionable, no fluorescence in solvent

Porosity Types

X	Intergranular / intercrystalline	V	Vuggy - voids greater than 1/16 mm
◊	Interoolitic / interpelletoid	P	Pinpoint - voids less than 1/16 mm
e	Earthy - low permeability	⊡	Fenestral, birdseye
⌐	Moldic	○	Organic - bridged, intrafossil
F	Fracture		

Major Rock Types

	Anhydrite		Glacial Till		Phosphate
	Bentonite		Gypsum		Salt
	Breccia		Igneous,acidic		Sandstone
	Chert		Igneous,basic		Shale
	Claystone		Limestone		Siderite
	Coal		Marlstone,calcareous		Siltstone
	Conglomerate		Marlstone,dolomitic		Tuff
	Dolomite		Metamorphic		Welded Tuff

Engineering & Gas Symbols

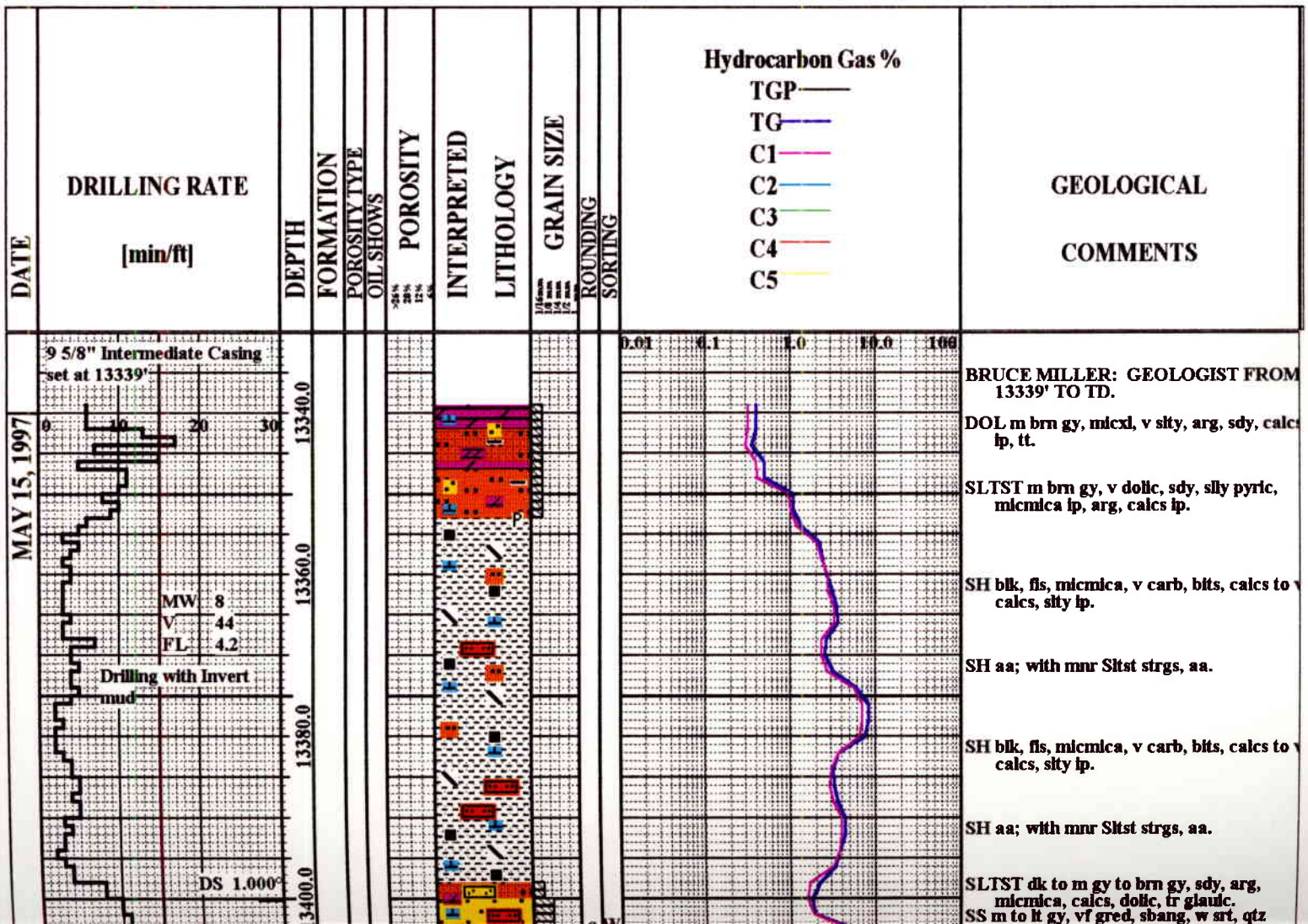
WOB	- Weight on bit
RPM	- Rotary table speed (revs/min)
SPP	- Stand pipe pressure
SPM	- Pump Strokes/minute
DS	- Deviation Survey
MW	- Mud Weight
V	- Viscosity
WL	- Water Loss (cm/sec)
pH	- Hydrogen Ion Index
TVD	- True Vertical Depth
■	- Bit Trip
FG	- Formation Gas
CG	- Connection Gas
TG	- Trip Gas
DTG	- Down Time Gas
SG	- Survey Gas
BG	- Background Gas
RCG	- Recycled Connection Gas
RTG	- Recycled Trip Gas
COAL	- Coal Gas

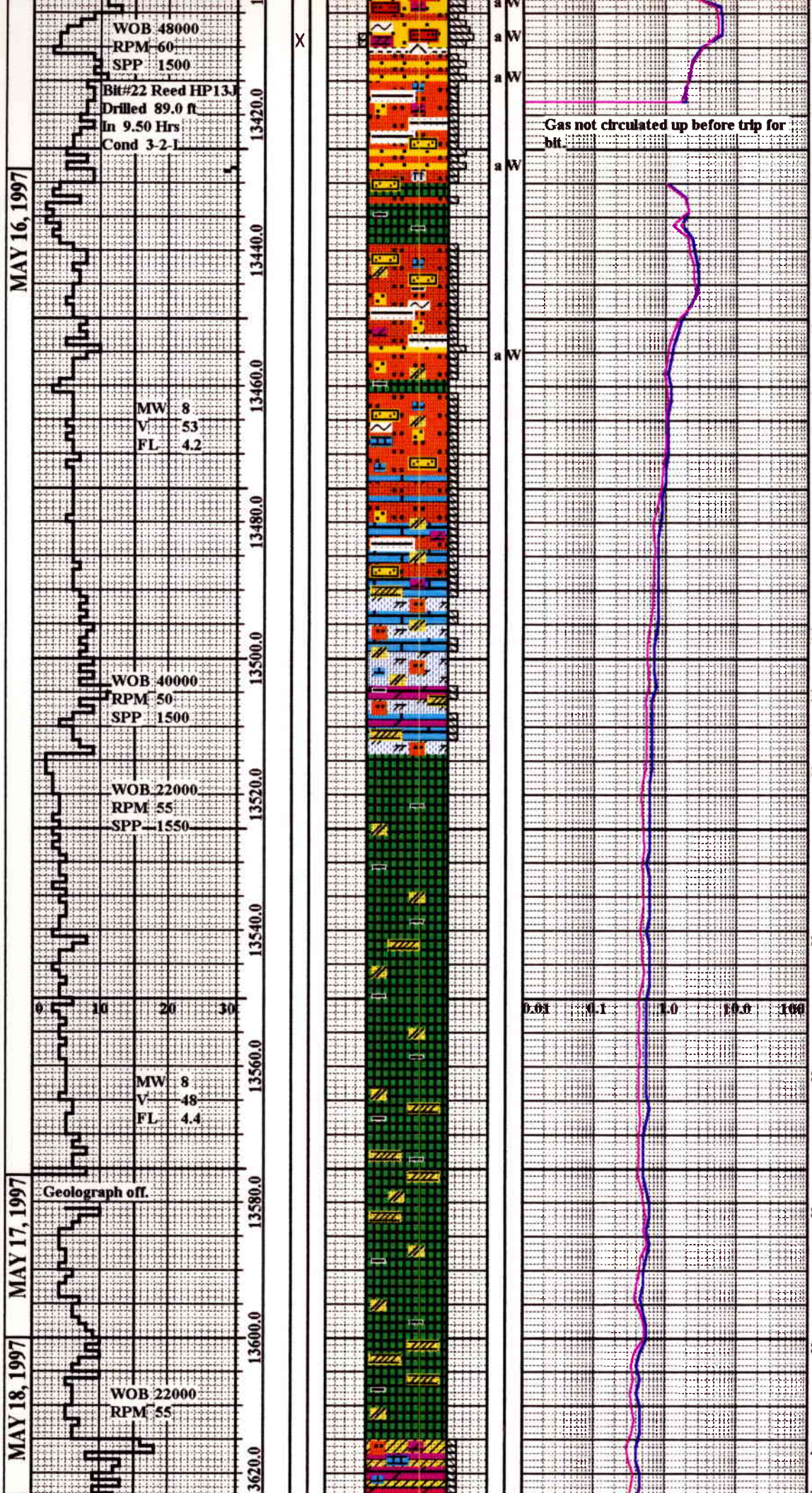
Log Scale 1:240

Major Accessories

	Sandy		Ferruginous grains or pellets	F	Fossil remains
	Sandstone, stringer		Ferruginous	◊	Oolites
	Silty		Ferruginous stringers		Pisolites
	Siltstone, stringer		Clay stringers		Pellets
	Sand grains		Bentonite stringers		Intraclasts
	Argillite grains		Volcanic stringers		Framework Algae, skeletal
+	Feldspar		Tuffaceous		Framework Algae, ootoid
	Breccia		Heavy dark minerals		Nonframework Algae,non-descript
	Siliceous	~	Glauconite		Nonframework Algae, laminated
	Chert, white	B	Bentonite	e	Texture, earthy
	Chert, colored	P	Pyrite	C	Texture, chalky
	Chert, tripolitic	K	Kaolin	L	Texture, lithographic
	Argillaceous	S	Plant macros	mx	Texture, micro crystalline

Argillaceous	Plant spores		Texture, microcrystalline
Shale laminae	Plant remains	CX	Texture, cryptocrystalline
Clayey	Fish remains		Siderite Nodules
Carbonaceous flakes	Mineral crystals		Dolomite Nodule
Coal, thin beds	Foraminifera		Limestone Nodule
Bituminous cement	Crinoid		Pebbles
Calcareous	Pelecypod		Siltstone Pebble
Marlstone, calc, strg	Bioclastic fragment		Coal Pebble
Limestone stringers	Amphipora		Dolomite Pebble
Dolomitic	Coral		Feldspar Pebble
Marlstone, dolc, strg	Stromatoporoid		Chert Pebble
Dolomite stringers	Bryozoa		Sandstone Pebble
Anhydritic	Brachiopod		Limestone Pebble
Anhydrite, stringers	Ostracod		Igneous Pebble
Gypsiferous	Cephalopod		Quartz Pebble
Gypsum, stringers	Gastropod		Shale Pebble
Salt cast or infill	Scaphopod		Volcanic Pebble
Phosphate pellets	Belemnite		Metamorphic Pebble
	Echinoid		





with mnr dk cht grs, slty, v calcs, v dolic, glauic, pyric ip, arg ip, tt.

SS m to lt gy to brn gy ip, vf to mnr f to tr m gred, sbang, w srt, qtz with dk cht grs ip, v dolic, calcs ip, glauic, slty to v slty, arg ip, sils ip, tr pyric, tt to tr v p por strgs.

SLTST m to lt brn gy, v dolic, v sdy, calcs ip, arg, micmica, glauic ip.

SS m to lt brn gy, vf gred, sbang, w srt, qtz with mnr dk cht grs, v slty, dolic, calcs ip, mica ip, arg ip, slly glauic, tt.

SALT wh to clr, arg ip.

SLTST lt brn gy, v sdy, arg, slly glauic, micmica ip, dolic, calcs ip, anhyic ip.

SS m to lt brn gy, vf gred with tr f and tr m gred, sbang, w srt, qtz grs, v slty, dolic, calcs ip, sils ip, micmica, slly glauic, arg ip, anhyic ip, tt.

SALT aa.

SLTST m to lt brn gy, calcs to v calcs, dolic, sdy, micmica, slly glauic, anhyic ip.

LS lt brn gy, micxl, dolic, v slty, anhyic, arg ip, tt.

LS lt gy, micxl, slty, anhyic, arg ip, chalky, dolic, tt; with tr Anhy strgs, m to lt gy to brn gy mot, micxl, arg ip.

MRLST m to lt gy, micxl, dolic, anhyic, calcs ip, slty.

DOL lt brn gy, micxl, v arg, v anhyic, slty, tt.

LS aa, v arg ip, tt; with tr Anhy strgs, aa.

SALT lt gy to clr.

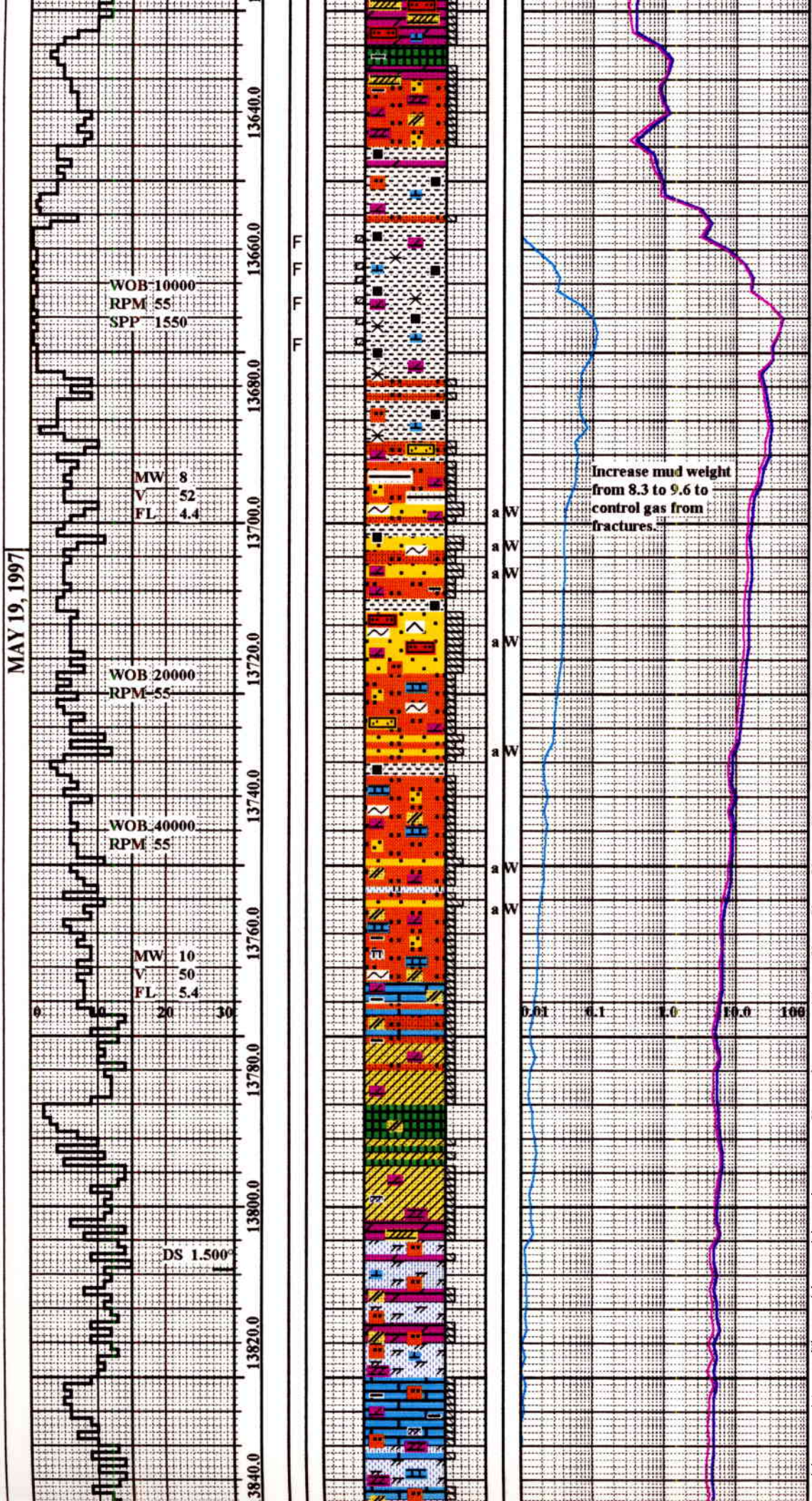
SALT lt gy to clr to pink, anhyic ip, with sl ptgs and strgs.

SALT lt gy to clr to pink, anhyic ip, with sl ptgs and strgs.

SALT aa; with mnr anhy strgs, lt gy, micxl, v salty.

SALT lt gy to clr to mnr lt pink, anhyic ip, slly arg; with tr to mnr Anhy strgs, lt gy, micxl, salty.

ANHY m to lt gy to brn gy mot, micxl, dolic to v dolic, calcs to v calcs, slty, arg ip.



DOL m to lt gy brn mot, micxl, calcs to v calcs, arg, v anhyic, slty, tt.

SALT aa.

DOL aa, v slty; with mnr Anhy strgs, aa.

SLTST dk to m gy brn mot, v dolic, anhyic, sdy, arg, slly pyric, mica ip.

SH dk gy to blk, fls to blky, calcs, dolic, carb, slty ip.

SH blk, fls, brittle, v carb, calcs, dolic, slly slty ip, micmica, with com fracs filled with calc and tr pyr, with tr euhed pyr xls: open fracs.

SH blk, fls, brittle, v carb, calcs, dolic, slly slty ip, micmica, with com fracs filled with calc and tr pyr, with tr euhed pyr xls: open fracs.

SH aa, calc and pyr filled fracs, anhedral xls.

SLTST m to lt gy to brn, v dolic, sdy to v sdy, slly glauic, arg.

SS m to lt gy to brn, vf to mnr f gred, sbang, w srt qtz grs, v dolic, slty, glauic, pyric, slls ip, arg ip, calcs ip, mica ip, tt.

SLTST aa.

SS m to lt gy to brn, vf to mnr f gred, sbang, w srt qtz grs, v dolic, slty, glauic, pyric, slls ip, arg ip, calcs ip, mica ip, tt.

SLTST lt gy, v sdy, mica, dolic, slly calcs, glauic, anhyic ip.

SS aa, anhyic ip, tt; with mnr Sh, aa; and with mnr Ls strgs, lt gy, micxl, dolic, v slty, anhyic, tt.

SLTST lt gy, v sdy, mica, dolic, slly calcs, glauic, anhyic ip.

SS aa.

SS aa.

SLTST aa, v calcs ip, v arg ip.

LS m to lt gy, micxl, v slty, v arg, dolic, anhyic ip, tt.

ANHY lt gy to wh, micxl, dolic ip.

SALT lt gy to clr, anhyic to v anhyic ip.

ANHY lt gy to wh, micxl, dolic ip.

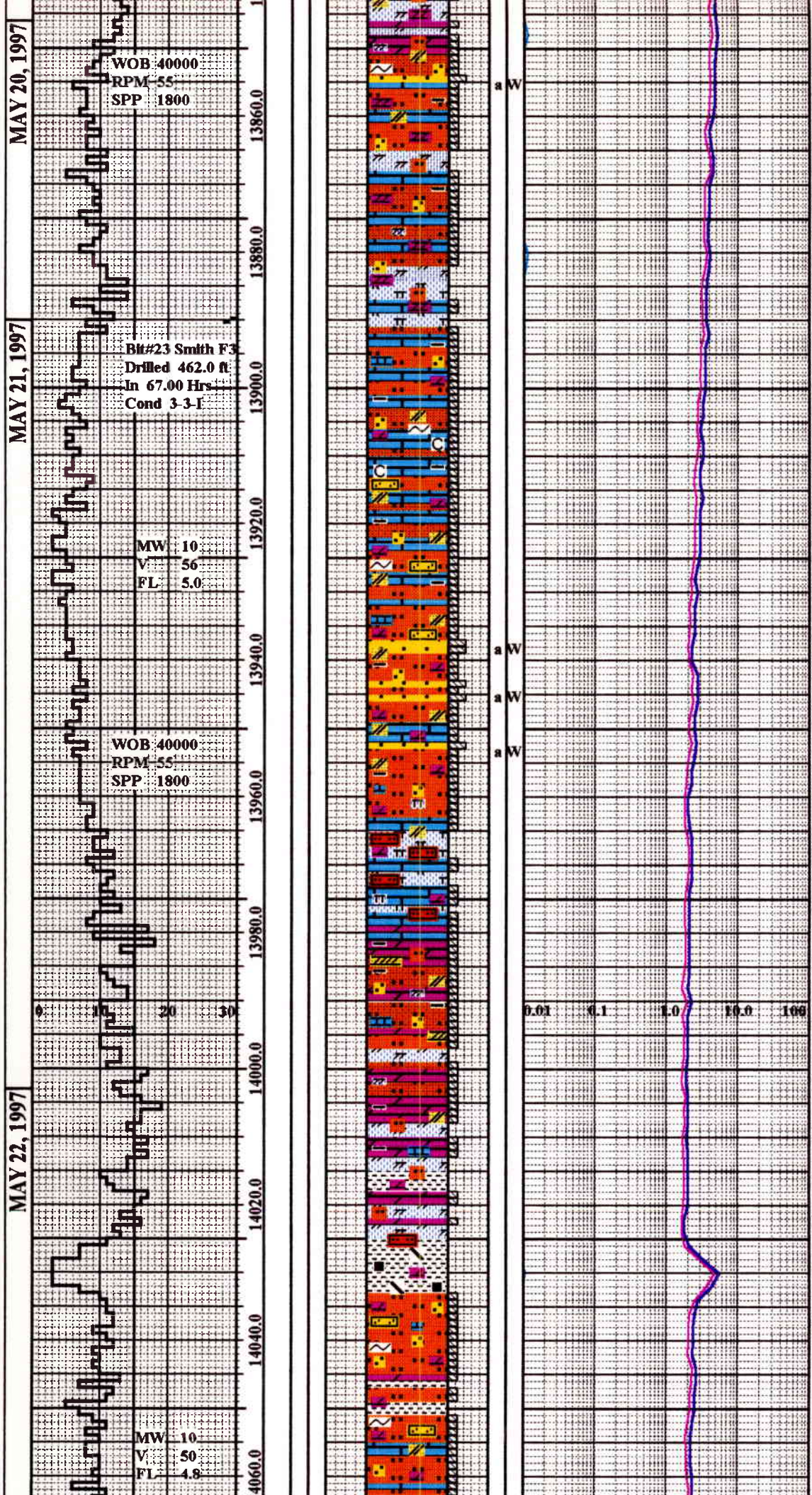
DOL m gy, micxl, calcs, v arg, slty, anhyic to v anhyic ip, tt.

MRLST dk to m gy, dolic, slty, calcs ip, anhyic ip.

DOL aa.

LS m to lt gy, micxl, dolic, v arg, slty, tt.

MRLST dk to m gy, dolic, slty, calcs ip.



DOL dk to m gy to brn gy, crpxl to micxl, calcs, slty, sdy, anhyic ip, tt.

SS m to lt gy to brn, vf gred, sbang, w srt qtz grs, v dolic, calcs, slty, mica, anhyic ip, tt.

SLTST m to lt brn gy, v dolic, calcs, sdy, arg, micmica ip, slly glauic.

LS m to lt gy, micxl, v dolic, arg, slty, anhyic ip, tt.

SLTST m to lt brn gy, v dolic, calcs, sdy, arg, micmica ip, slly glauic.

MRLST dk to m gy, calcs and dolic, slty.

LS lt gy to brn gy, micxl, v slty, dolic, anhyic ip, arg ip, tt.

SLTST m to lt brn gy, v calcs, dolic, anhyic ip, sdy, arg, micmica ip, tr glauic.

LS lt gy to brn gy, micxl, v slty, dolic, chalky, anhyic ip, arg ip, tt.

LS aa.

SLTST aa, slly calcs; with mnr Ss strgs, lt gy, vf gred, sbang, w srt qtz grs, v slty, v dolic, anhyic ip, arg ip, calcs ip, micmica ip, tr glauic, tr pyric, tt.

SS lt brn gy, vf to tr f gred, sbang, w srt qtz grs, v slty, dolic, mica, anhyic, slly calcs, tt.

LS lt gy, micxl, v slty, v dolic, arg, anhyic, tt.

SLTST m to lt brn gy, v sdy, dolic, anhyic, arg, calcs ip, micmica.

MRLST dk to m to lt gy ip, calcs, dolic, slly slty.

LS m to lt gy, micxl, v arg, slty, v dolic, tt.

DOL m brn gy, micxl, v slty, v arg, anhyic, tt.

SLTST m brn gy, v arg, v dolic, anhyic, sdy ip.

DOL m brn gy, micxl, v slty, v arg, anhyic, tt.

MRLST aa, v slty.

SH dk gy to blk, fis to blky, v dolic, micmica, carb ip.

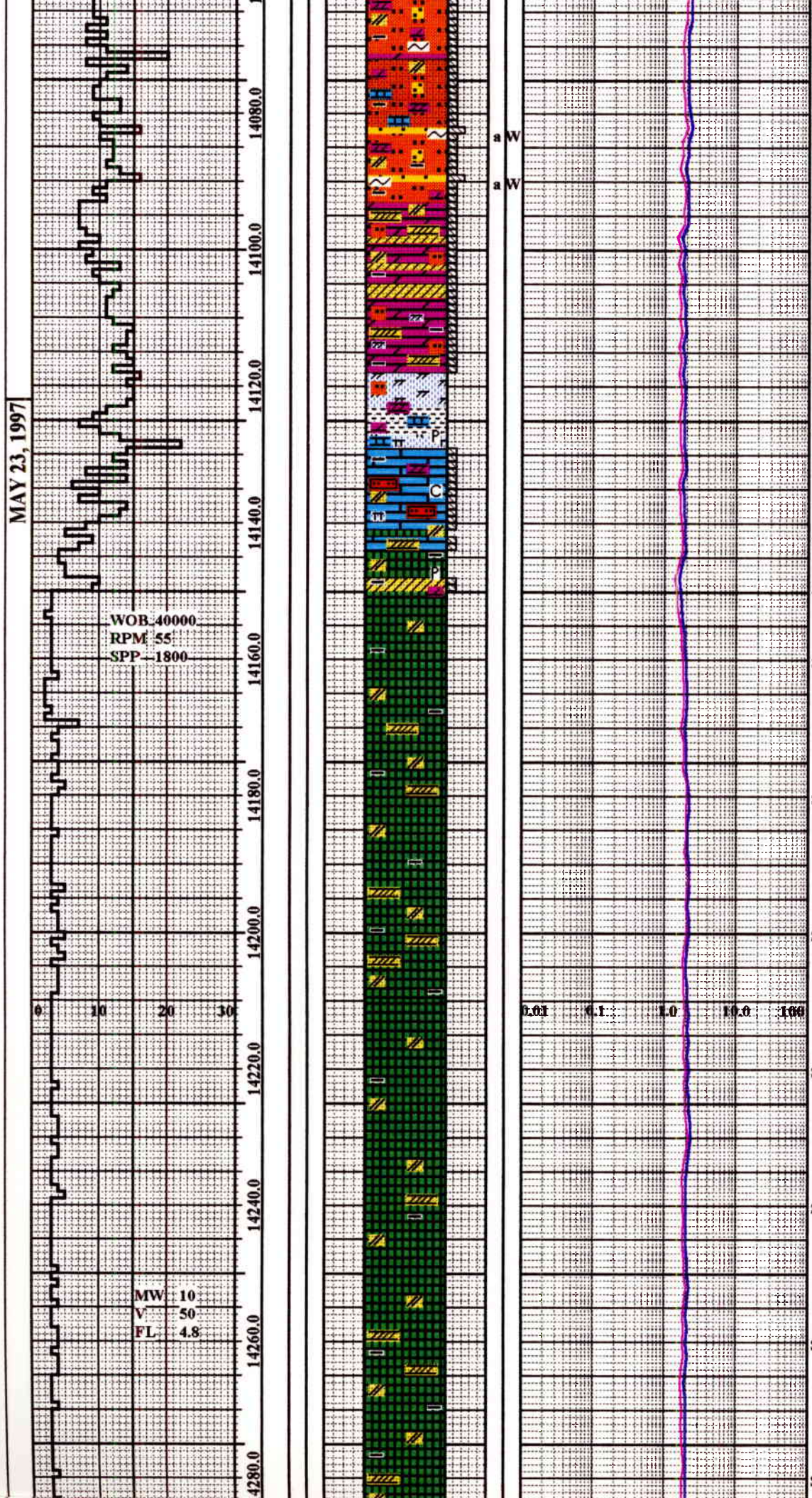
MRLST m gy brn, dolic, micxl, calcs ip, v slty.

SH blk, fis to blky, v carb, bits ip, dolic, calcs ip.

SLTST lt brn gy, v sdy, v dolic, slly calcs, micmica, slly pyric, tr glauic; with mnr Ss strgs, lt brn gy, vf gred, sbang, w srt qtz grs, v slty, v dolic, micmica, slly glauic, tt.

SLTST aa, glauic; with mnr Ss strgs, aa.

LS lt gy, micxl, v slty, anhyic, dolic, arg, tt.



SLTST m to lt gy to brn gy, sdy, dolic to v dolic, anhyic, arg ip, slly micmica, calcs ip, tr glauic; with mnr Dol strgs, lt brn gy, micxl, v slty, calcs, anhyic, tt.

SS strgs, lt gy, vf gred, sbang, w srt qtz grs, v slty, v dolic, anhyic, micmica ip, glauic ip, tt.

DOL m gy brn, micxl, slty, anhyic to v anhyic, arg ip, tt.

ANHY lt gy to wh, micxl, chalky ip, dolic.

DOL m to lt gy, micxl, v arg, anhyic, slty, tt.

MRLST m gy, dolic, slty.

SH dk to m gy, fls to blky, dolic, slly pyric.

LS lt gy, micxl, chalky, slty, v arg, dolic, anhyic, tt.

SALT lt gy to clr, anhyic ip, tr pyric, arg ip.

ANHY strgs, lt gy, arg, dolic, calcs ip.

SALT lt gy to clr to lt pink ip, anhyic, arg ip with mnr blk sh ptgs; and tr to mnr Anhy strgs, lt gy, salty, arg ip.

SALT lt gy to clr to lt pink ip, anhyic, arg ip with mnr blk sh ptgs; and tr to mnr Anhy strgs, lt gy, salty, arg ip.

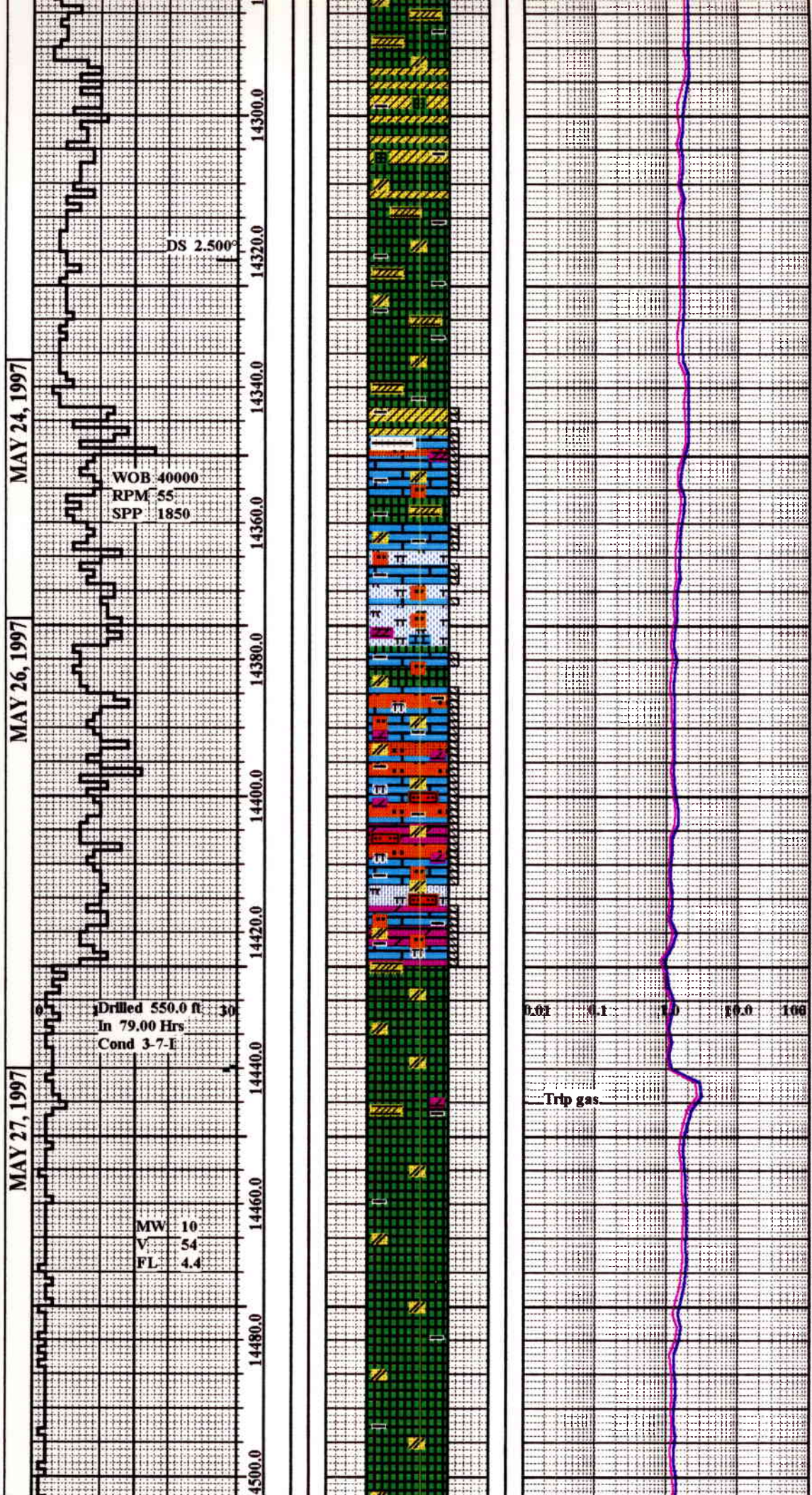
SALT lt gy to clr to lt pink ip, anhyic, arg ip with mnr blk sh ptgs; and tr to mnr Anhy strgs, lt gy, salty, arg ip.

SALT lt gy to clr to lt pink ip, anhyic ip, slly arg; with tr to mnr Anhy strgs, lt gy, salty, arg ip.

SALT lt gy to clr to lt pink ip, anhyic ip, slly arg; with tr to mnr Anhy strgs, lt gy, salty, arg ip.

SALT aa, v anhyic ip, arg ip.

SALT lt gy to clr to orng mot, potash rich, v anhyic with intlam anhy, arg ip.



ANHY lt gy, chalky, salty with intlam salt, slly arg.

SALT lt gy to clr with mnr orng, anhyic, arg ip.

SALT m to lt gy to clr to mnr orng, anhyic with intlam arg anhy strgs, arg.

ANHY dk to lt gy to brn, micxl, arg to v arg ip with sh ptgs, dolic.

LS lt gy, micxl, v arg, slty, anhyic ip, tt; with mnr Mrlst strgs, m to lt gy, calcs, slty, dolic.

SALT lt gy to clr.

LS lt gy, micxl, chalky, v arg, slty, slly sdy, anhyic ip, tt

MRLST m gy, calcs, slty, dolic.

SALT lt gy to clr.

LS lt gy, micxl, chalky, v arg, slty, slly sdy, anhyic ip, tt

SLTST lt gy to brn, v dolic, calcs, sdy, anhyic ip, micmica ip.

DOL lt brn, micxl, v slty, calcs, anhyic, arg, tt.

MRLST m gy, calcs, slty, dolic.

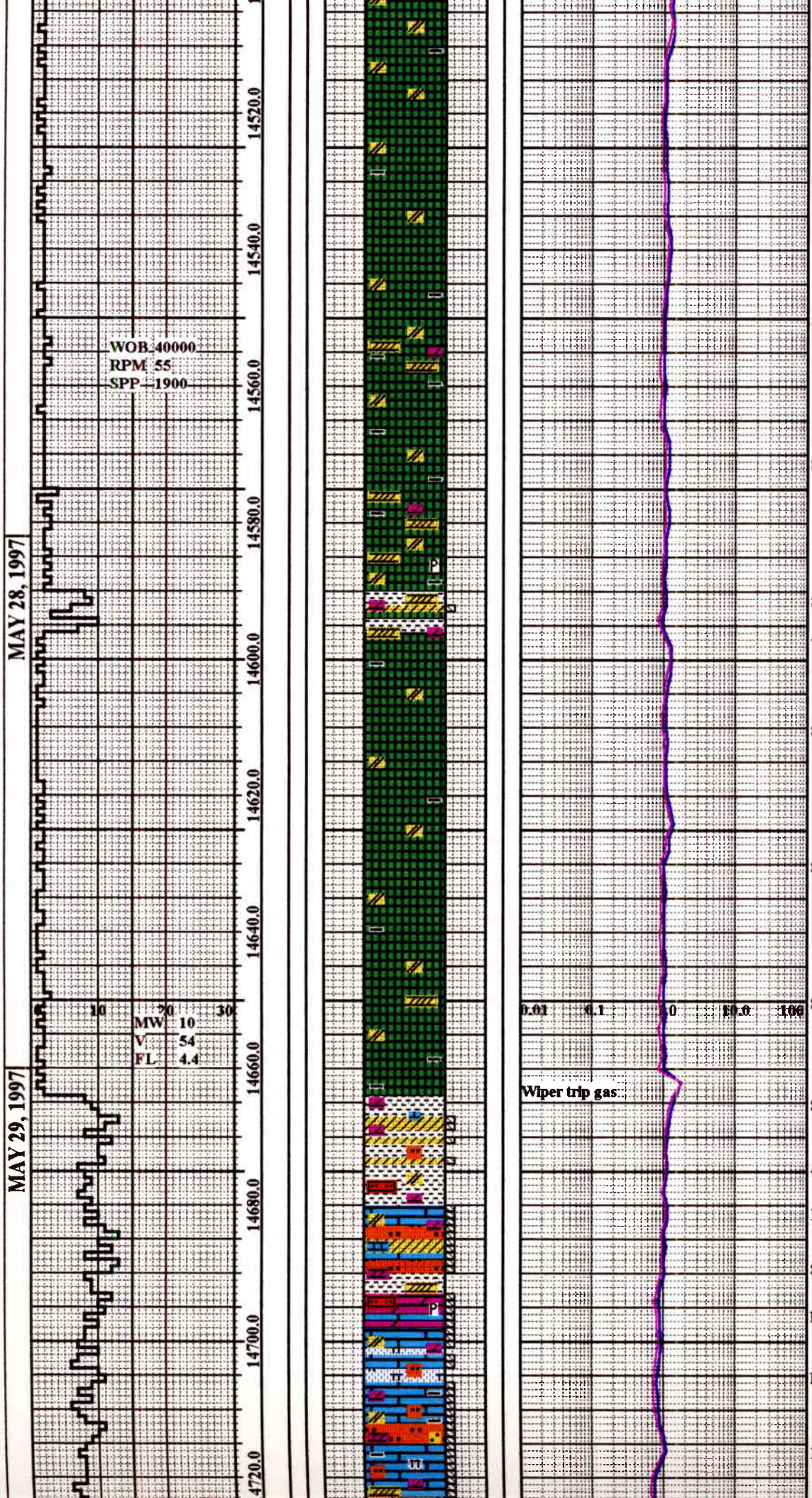
DOL lt brn, micxl, v slty, calcs, anhyic, arg, tt.

SALT lt gy to clr, anhyic.

SALT lt gy to clr, anhyic ip, arg ip with bll sh ptgs ip, tr pyric; and with mnr Anhy strgs, m to lt gy, arg, salty, pyric ip.

SALT lt gy to clr, anhyic.

SALT aa.



SALT aa, but more anhylc with mnr Anhy strgs, lt brn, dolic, salty.

SALT lt gy to clr to mnr lt pink, anhylc ip, arg ip with tr blk sh ptgs.

SALT aa; with mnr Anhy strgs, m to lt gy, dolic, arg with blk sh ptgs.

SALT aa; with mnr Anhy strgs, m to lt gy, dolic, arg with blk sh ptgs.

SH blk, blky, anhylc, dolic, salty.

ANHY m to lt gy, dolic, arg with blk sh ptgs.

SALT lt gy to clr to mnr lt pink, anhylc ip, slly arg with tr blk sh ptgs.

SALT lt gy to clr to mnr lt pink, anhylc ip, slly arg with tr blk sh ptgs.

SALT lt gy to clr to mnr lt pink, anhylc ip, slly arg with tr blk sh ptgs.

SH dk gy to blk, fis to blky, v dolic, anhylc, calcs ip, slty.

ANHY m to lt gy, dolic, arg, calcs ip.

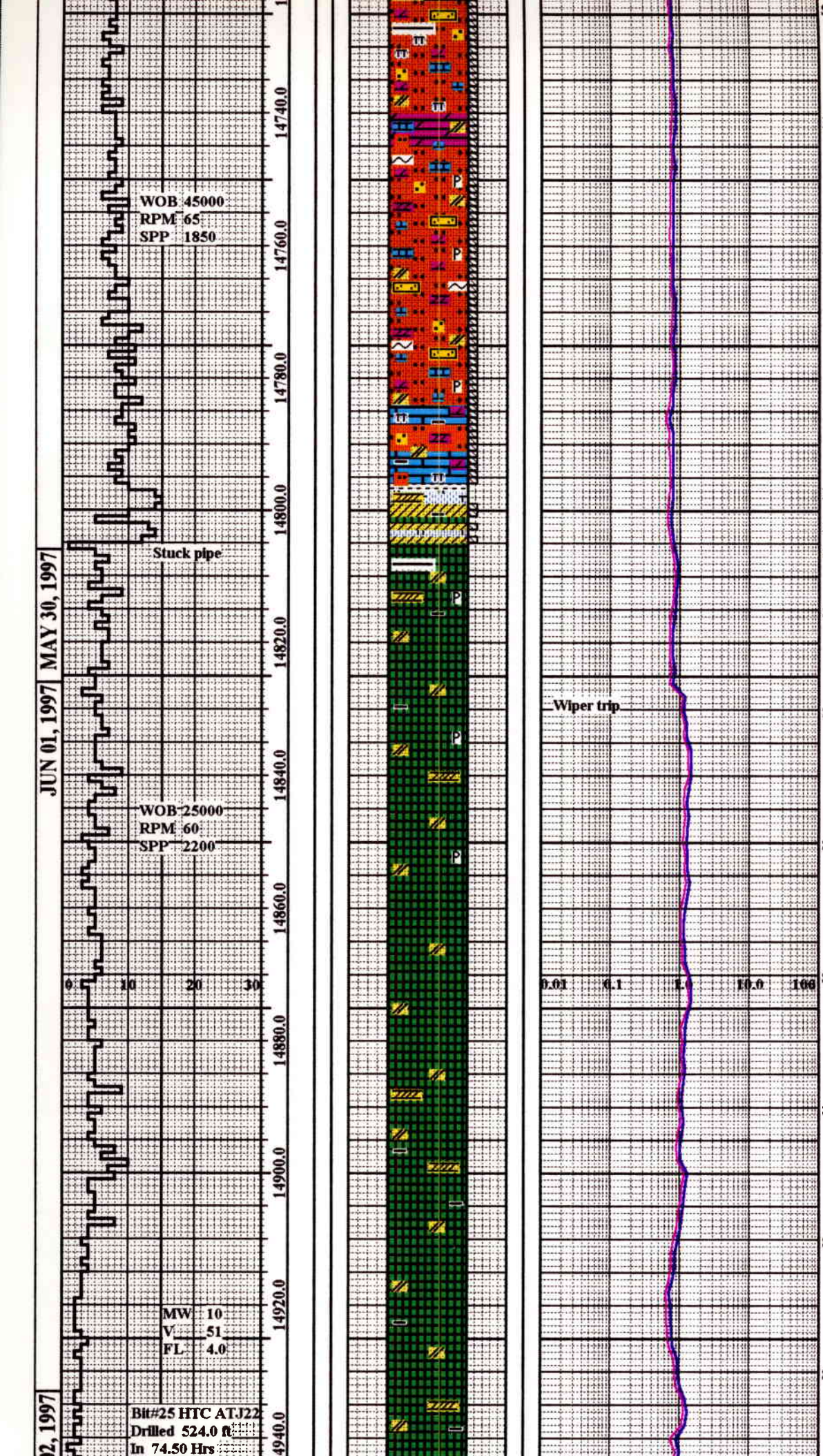
LS m to lt gy, micxl, chalky ip, dolic, v anhylc, slty, arg, tt.

SLTST m gy brn, v dolic, arg, anhylc, calcs ip.

DOL dk brn gy, crpxl to micxl, arg, slty, pyric ip, calcs ip, tt.

MRLST lt gy, calcs, slty, dolic ip.

LS lt gy, micxl, v v arg, dolic, slty, anhylc, tt.


JUN 01, 1997
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14820.0
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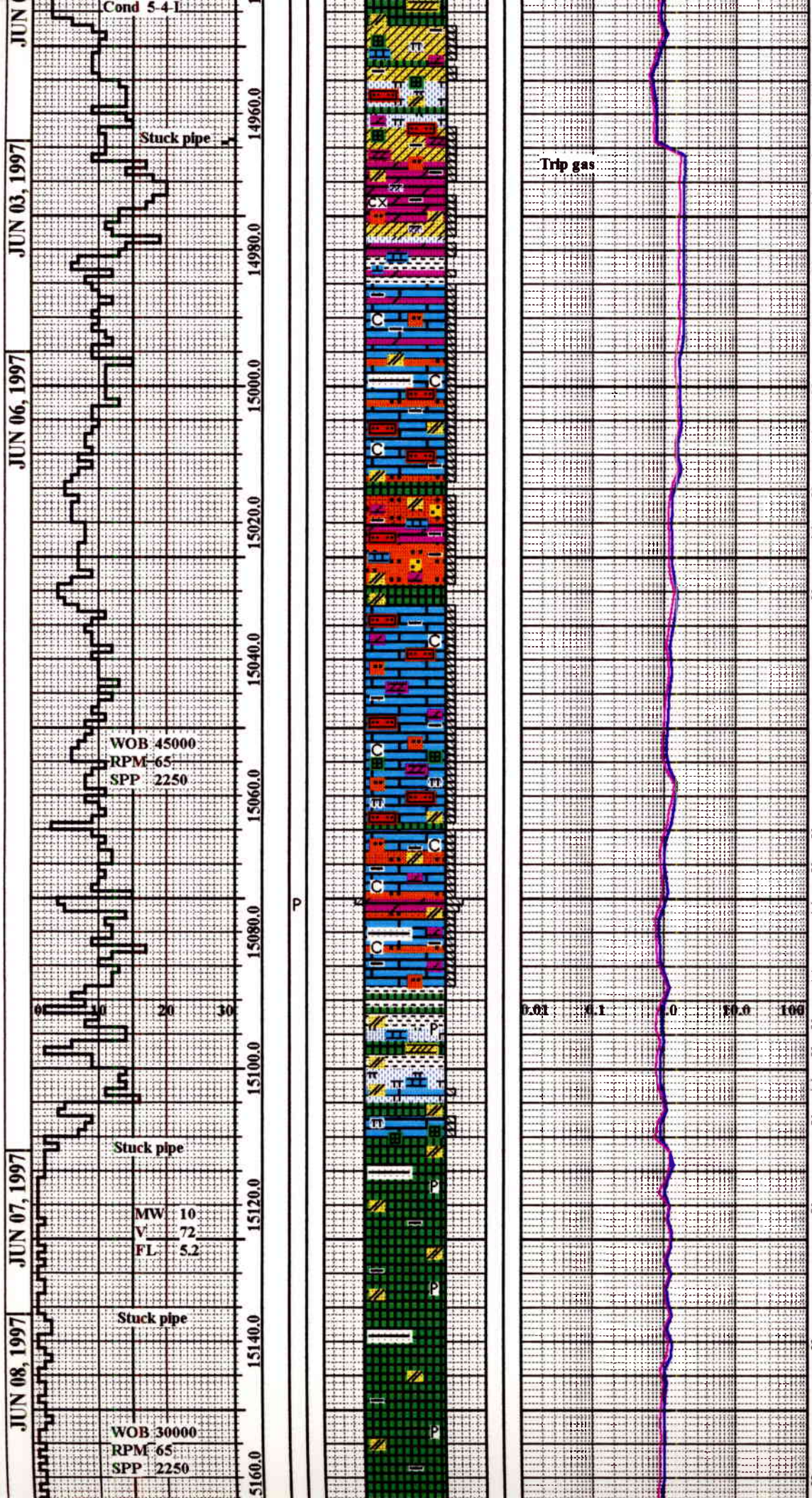
WOB 45000
RPM 65
SPP 1850
Stuck pipe
WOB 25000
RPM 60
SPP 2200
MW 10
V 51
FL 4.0
Bit#25 HTC ATJ22
Drilled 524.0 ft
In 74.50 Hrs
0
10
20
30
0.01
0.1
1.0
10.0
100
Wiper trip
SLTST aa, v sdy; with mnr Ss strgs, lt gy brn, vf gred, sbang, w srt qtz grs, v slty, dolic, calcs ip, arg ip, slly glauic, anhyic ip, tt.
DOL lt brn gy, micxl, v slty, calcs, anhyic ip, tt.
SLTST lt gy, v sdy, dolic, calcs ip, v anhyic ip, pyric ip, tr glauic, tr micmica; with mnr Ss strgs, lt gy, vf gred, sbang, w srt qtz grs, v slty, dolic, anhyic, calcs, tt.
LS m to lt gy, micxl, chalky, anhyic, dolic, slty, arg to v arg ip, tt; with mnr Mrlst strgs, m gy, calcs, slty.
MRLST dk to m gy, calcs, anhyic, slty, dolic ip.
ANHY m to lt gy, micxl, chalky, dolic, v arg with blk sh ptgs.
SALT lt gy to clr, anhyic ip.
SALT lt gy to clr, anhyic ip, tr pyric, arg with mnr blk Sh ptgs.
SALT lt gy to clr to lt orng ip, slly arg, anhyic; with mnr Anhy strgs, lt gy to wh, dolic ip, salty.
SALT lt gy to clr to lt pink to orng ip, potash rich ip, anhyic ip, tr pyric.
SALT lt gy to clr, anhyic ip, tr arg.
SALT aa; with mnr Anhy strgs, lt gy to wh, dolic ip, salty ip.
SALT lt gy to clr, anhyic ip, slly arg.
SALT lt gy to clr, anhyic ip, slly arg.



ANHY m to lt gy, arg ip, salty, dolic ip.

MRLST m gy, calcs, anhyic to v anhyic ip, dolic, slty ip.

ANHY m to lt gy to brn mot, slly dolic to v dolic ip, arg ip, slty ip.

DOL dk to lt brn to gy mot, crpxl to micxl, arg to v arg, anhyic, slty, calcs ip, tt.

SH blk, fls, dolic ip, calcs ip, slly slty.

LS lt gy, micxl, chalky, arg, slty, anhyic ip, dolic ip, tt.

SLTST lt brn, v dolic, slly pyric, micmica ip, anhyic ip.

LS lt gy, micxl, chalky, arg, slty, anhyic ip, dolic ip, tt.

SALT lt gy to clr, anhyic.

DOL lt brn, micxl, v slty, calcs ip, arg ip, anhyic ip, tt.

SALT lt gy to clr, anhyic.

LS m to lt gy, crpxl to micxl, arg to v arg ip, slty, dolic ip, chalky, tt.

LS aa; with mnr Mrlst strgs, m gy, calcs, slty.

SALT lt gy to clr.

SLTST aa, anhyic ip.

DOL lt brn gy, micxl to mnr vf xln, slty, anhyic, frl, tt to tr p p-p por.

LS lt gy, micxl, arg, slty to v slty ip, chalky dolic, tt.

SH dk gy, fls to blky, v calcs, anhyic ip, slly pyric.

SALT lt gy to brn to clr, v anhyic ip, arg ip.

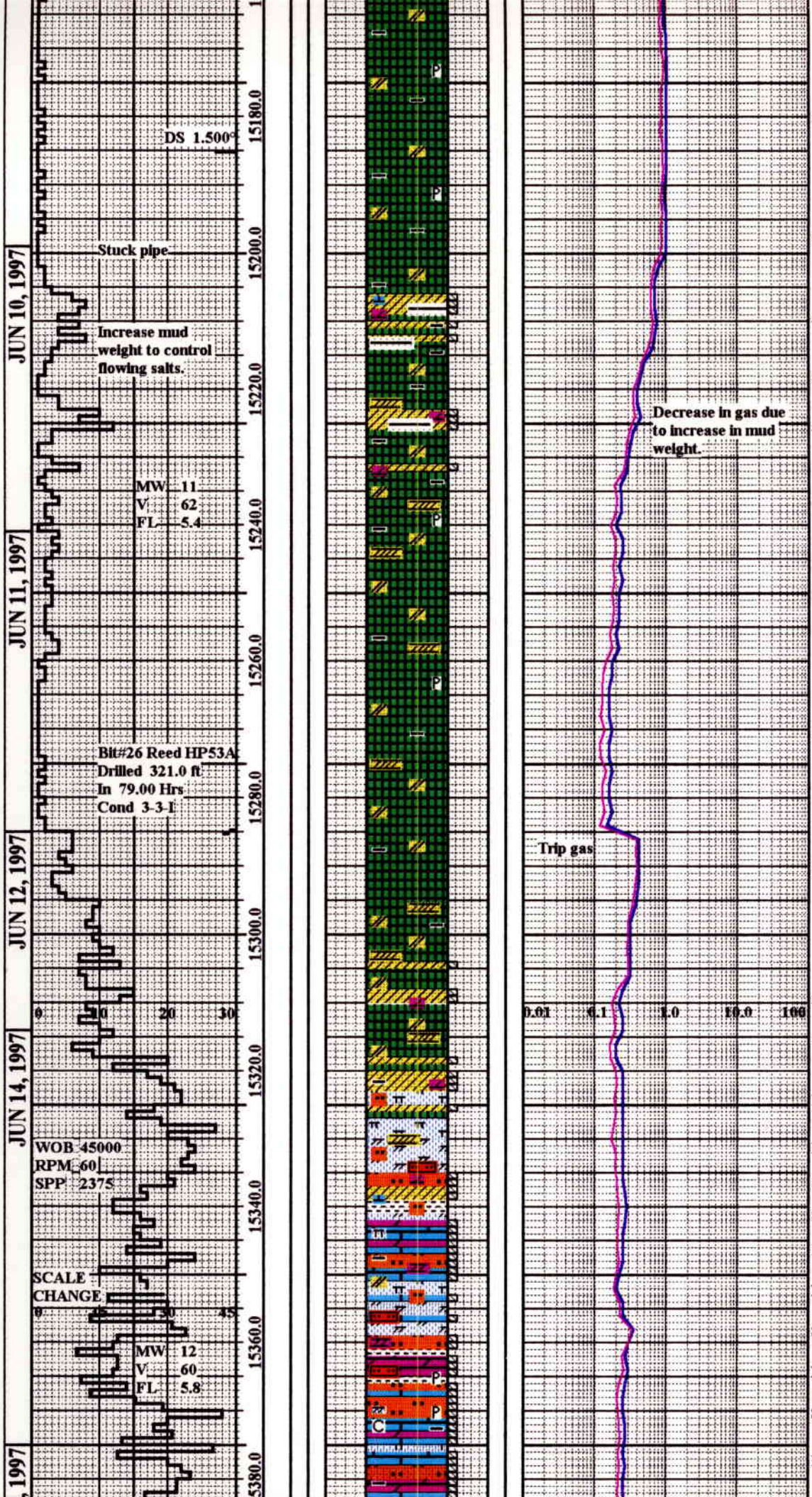
MRLST m gy, calcs, anhyic.

SALT lt gy to brn to clr, v anhyic ip, arg ip.

SALT lt gy to clr, pyric, anhyic ip, arg to v arg with mnr Sh strgs and ptgs.

SALT lt gy to lt brn to clr, anhyic, tr pyric, arg ip, with mnr blk carb Sh ptgs.

SALT lt gy to lt brn to clr, anhyic, tr pyric, arg ip, with mnr blk carb Sh ptgs.



SALT lt gy to lt brn to clr, anhylc, tr pyric, arg ip, with mnr blk carb Sh ptgs.

SALT aa.

ANHY m to lt gy, v arg with blk sh ptgs and strgs, dolic, calcs ip.

SALT aa.

ANHY aa; with mnr Sh strgs, blk, blky, v anhylc, calcs ip, dolic ip.

SALT aa; with mnr Anhy strgs, aa.

SALT lt gy to clr, anhylc ip, arg ip with mnr blk sh ptgs, tr pyric.

SALT lt gy to clr to lt brn, v anhylc ip, tr blk sh ptgs; with mnr Anhy strgs, lt brn, salty, dolic ip.

SALT lt gy to clr to lt brn ip, anhylc, arg with mnr blk sh ptgs.

ANHY lt brn, v salty, dolic ip.

SALT aa.

MRLST dk to m gy, calcs, anhylc, dolic, slly slty.

MRLST m gy, dolic, v slty, calcs, anhylc.

SLTST m gy, dolic, calcs, v arg, anhylc.

SH dk gy to blk, fis to blky, dolic, calcs, slty, anhylc ip.

LS m to lt gy mot, micxl, v arg, chalky, slly slty, anhylc ip, tt.

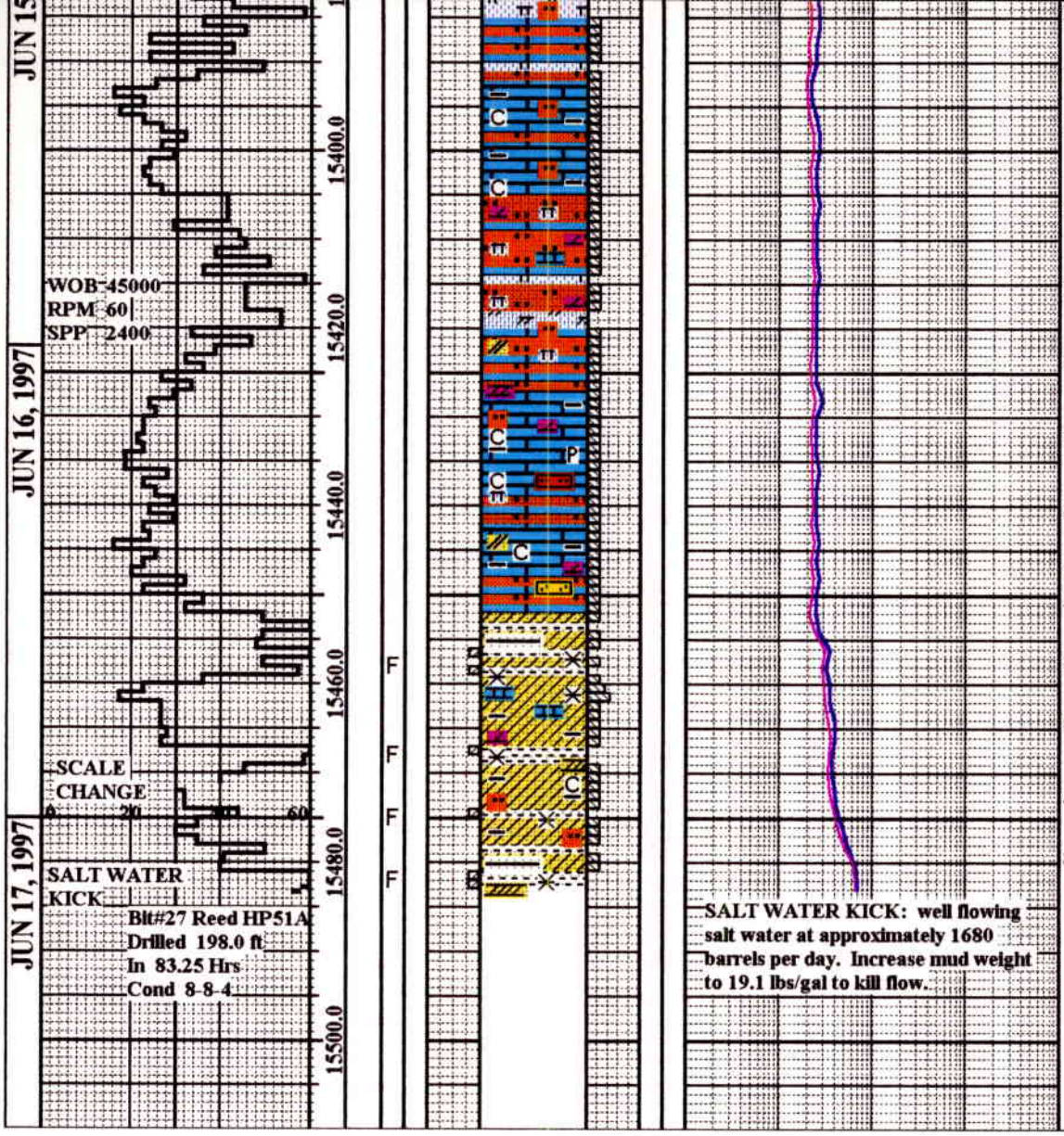
MRLST dk to m gy, v slty, calcs, dolic.

SLTST m to lt gy to brn gy, v dolic, calcs ip, arg, slly pyric, slly sdy.

DOL m brn gy, micxl, v slty, calcs, arg ip, anhylc ip, tt.

SLTST m brn gy, v dolic, arg, calcs ip, slly pyric.

LS m to lt gy, micxl, v arg, slty, chalky, slly pyric, tt.



MRLST dk to m gy, calcs, slty, dolic ip.

SLTST m to lt brn gy, calcs, dolic, arg.

LS m to lt gy, micxl, v arg, slty, chalky, slly pyric, tt.

SLTST dk to m gy, mnr lt brn, v arg, dolic, calcs, slly pyric.

MRLST dk to m gy, dolic, slty to v slty, calcs, slly pyric.

SLTST m to lt gy, calcs, arg, dolic, anhyic ip.

LS m to lt gy, micxl, v arg, slty, chalky, dolic ip, slly pyric, tt.

SLTST m to lt gy, calcs, arg, dolic, anhyic ip.

LS aa, anhyic ip, tt.

ANHY lt gy to wh, micxl to mnr vf xln, chalky, v arg ip with abnt blk sh ptgs and distorted strgs.

SH dk gy to blk, fls to blky, v anhyic, calcs ip, slty ip, with abnt anhy lam, and tr euhed anhy xls: open fracs.

SALT in spls, 30-80%, silt sized xls, chemical precipitate from salt water influx from open fractures.

ANHY m to lt gy, micxl, v arg, chalky, slty ip, dolic ip.

SH blk, v soft, fri, slly pyric, v anhyic ip, slly slty, slly pyric, dolic ip, with mnr euhed clr anhy xls and tr euhed clr dol xls: open fracs.