

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

5. Lease Designation and Serial No.

ML-35880

6. If Indian, Allottee or Tribe Name

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

DRILL DEEPEN PLUG BACK

7. Unit Agreement Name

b. Type of Well

Oil Well Gas Well Other Single Zone Multiple Zone

8. Farm or Lease Name

Bluff Bench State

2. Name of Operator

Sun Exploration and Production Company

9. Well No.

1

3. Address of Operator

P.O. Box 5940 T.A. Denver, Colorado 80217

10. Field and Pool, or Wildcat

Wildcat

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface

11. Sec., T., R., M., or Blk. and Survey or Area

At proposed prod. zone NESW 1980' FSL & 1980' FWL

Sec. 30-39S-22E

14. Distance in miles and direction from nearest town or post office*

12. County or Parrish 13. State

San Juan Utah

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. line, if any)

16. No. of acres in lease

1,520

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.

19. Proposed depth

6,100'

Desert Creek

20. Rotary or cable tools

Rotary

21. Elevations (Show whether DF, RT, GR, etc.)

4692' Ground

22. Approx. date work will start*

August 31, 1987

23.

PROPOSED CASING AND CEMENTING PROGRAM

| Size of Hole | Size of Casing | Weight per Foot | Setting Depth | Quantity of Cement |
|--------------|----------------|-----------------|---------------|--------------------|
| 17-1/2" | 13-3/8" | 48# | 150' | 175 Sacks |
| 12-1/4" | 8-5/8" | 24# | 1700' | 900 Sacks |
| 7-7/8" | 5-1/2" | 14 & 17# | TD | 150 Sacks |

Entrada 287'
Chinle 1532'
Cutter 2446'
Hermosa 4563'
Upper Ismay 5471'
Havenweep 5571'

*Lower Ismay 5576'
Lower Ismay 0 5601'
Gothic Shale 5645'
Desert Creek 5699'
Salt 5851'

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING

RECEIVED

AUG 10 1987

DIVISION OF OIL
GAS & MINING

*Primary Objective

DATE: 8-31-87

BY: *John R. B...*

WELL SPACING: *RG 5-3-2*

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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

Cindy Bush

Title: Pror. & Prod. Acctg. Supvr

Date: 8-7-87

(This space for Federal or State office use)

Permit No.

43-037-31339

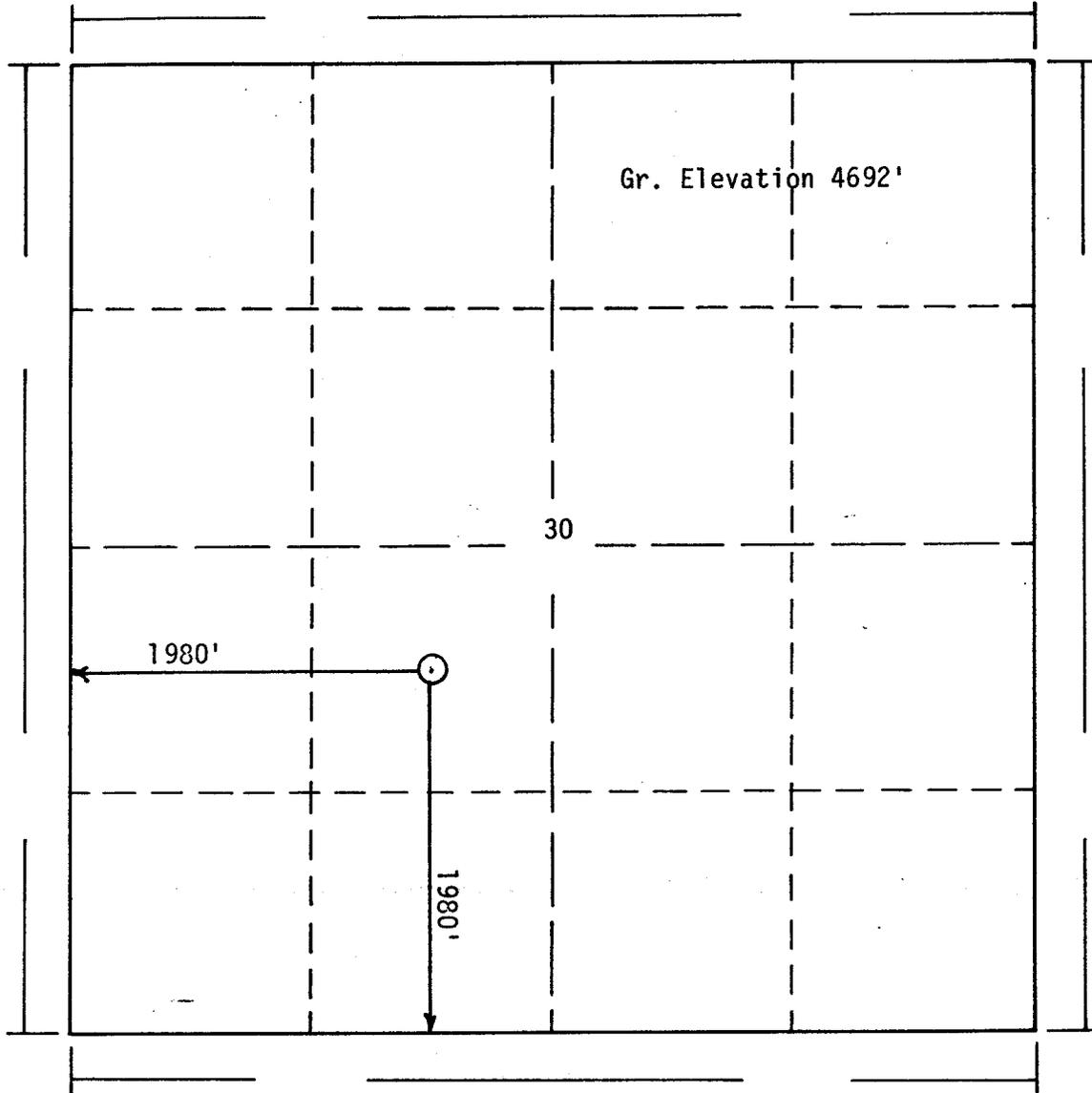
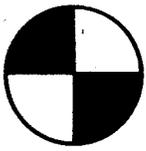
Approval Date

Approved by

Title

Date

Conditions of approval, if any:



Scale: 1"=1000'

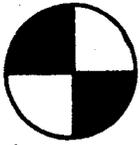
Powers Elevation of Denver, Colorado has in accordance with a request from Dale Fessler for Sun Exploration & Production determined the location of Bluff Bench State #1 to be 1980fsl, 1980fwl Section 30, Township 39 S Range 22 E of the Salt Lake Meridian, San Juan County, Utah

I hereby certify that this plat is an accurate representation of a correct survey showing the location of Bluff Bench State #1

Date: 8-7-87

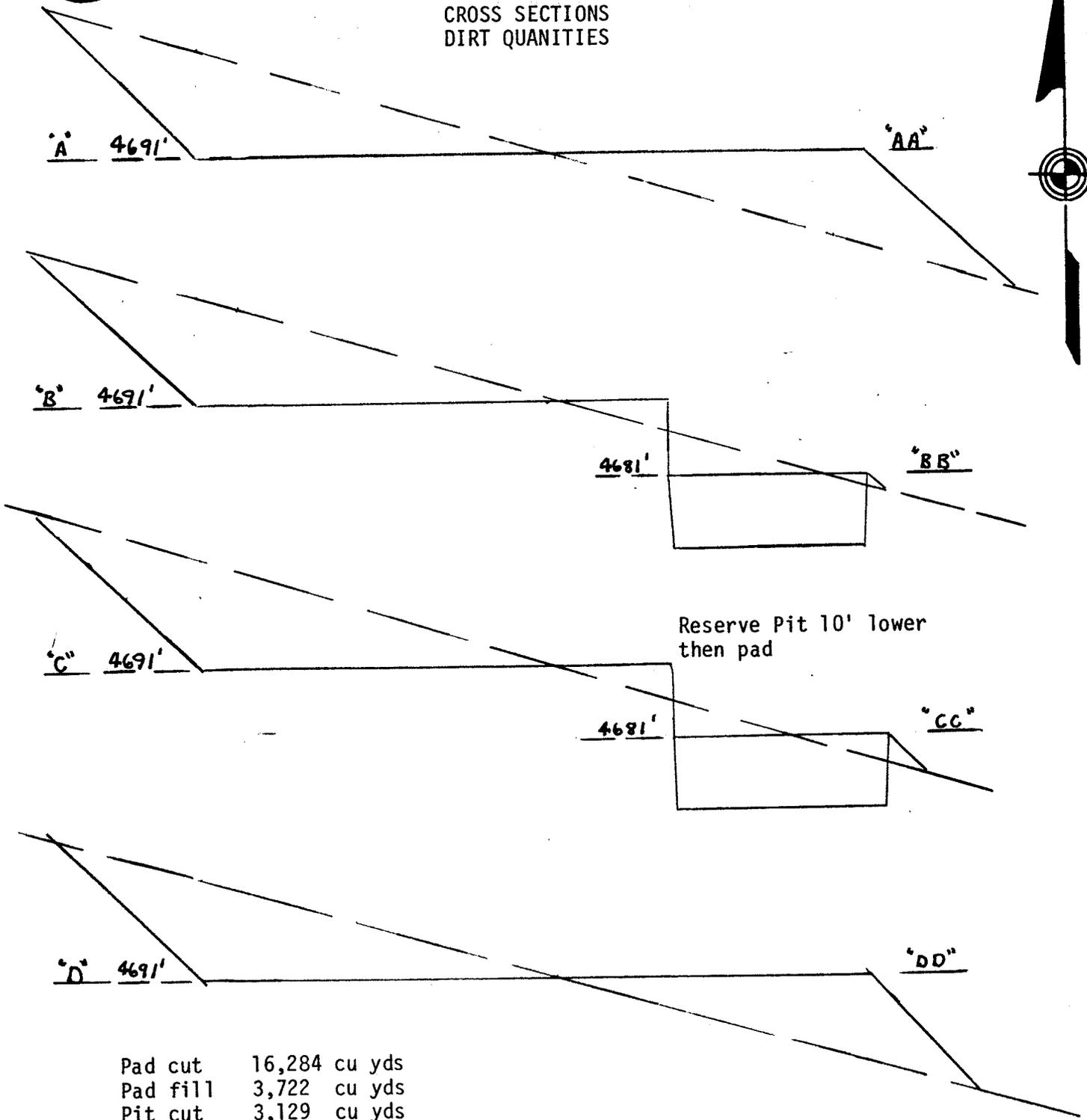
T. Nelson
 Licensed Land Surveyor No. 2711
 State of Utah

Sun Exploration & Production
 Bluff Bench State #1
 1980fsl, 1980fwl
 Sec. 30, T.39S, R.22E
 San Juan County, Utah



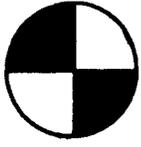
POWERS ELEVATION

CROSS SECTIONS
 DIRT QUANTITIES



Pad cut 16,284 cu yds
 Pad fill 3,722 cu yds
 Pit cut 3,129 cu yds

Scale:
 Horizontal 1"=50'
 Vertical 1"=20'



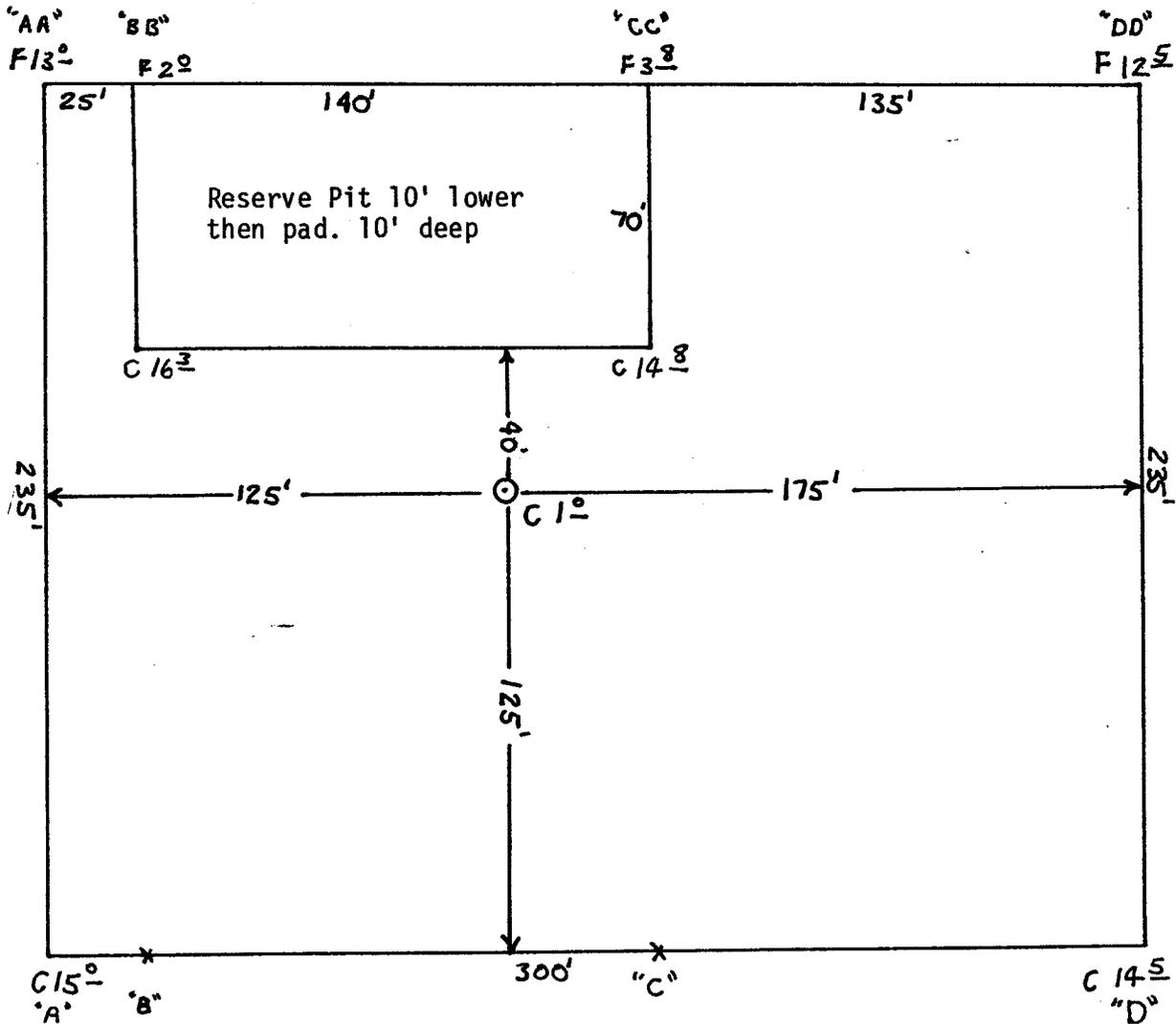
POWERS ELEVATION

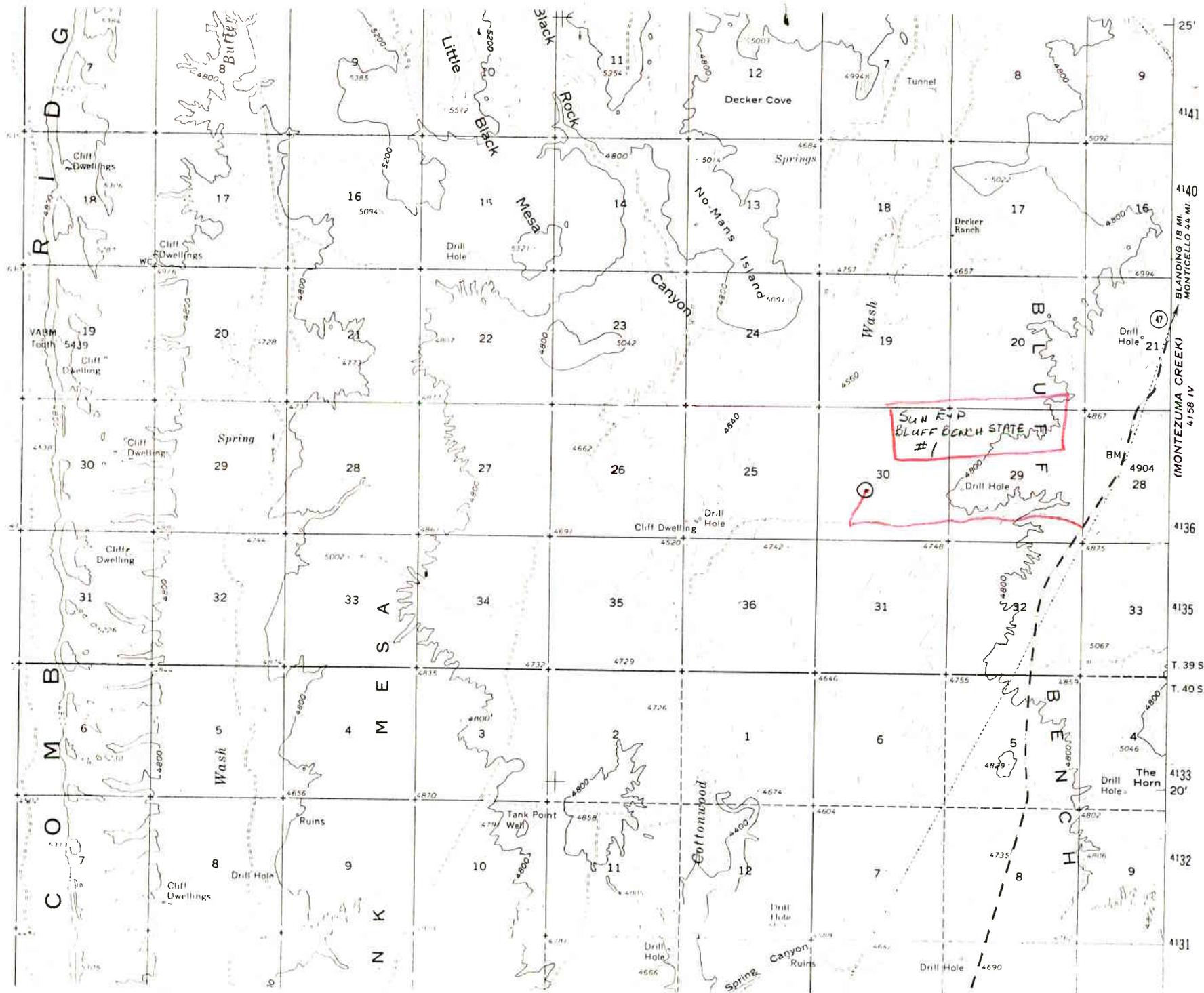
Sun Exploration & Production
Bluff Bench State #1
1980fs1, 1980fw1
Sec. 30, T.39S, R.22E
San Juan County, Utah



PIT & PAD LAYOUT
CUTS & FILLS

Scale: 1"=50'





T395
R22E
SEC.30.

25'
4141
4140
4136
4135
T. 39 S.
T. 40 S.
4133
20'
4132
4131

BLANDING 18 MI
MONTICELLO 44 MI
(MONTEZUMA CREEK) 4158 IV

CONFIDENTIAL
PERIOD
EXPIRED
ON 6-17-88

090102

OPERATOR Sun Exploration & Prod. Co. DATE 8-12-87

WELL NAME Bluff Bench State 1

SEC NESW 30 T 395 R 22E COUNTY San Juan

43-037-31339
API NUMBER

State
TYPE OF LEASE

CHECK OFF:

PLAT

^{State well}
 BOND

NEAREST WELL

LEASE

FIELD

POTASH OR OIL SHALE

PROCESSING COMMENTS:

No other well in Section 30.
Need water permit
Lease - Mobil Oil (Med designation) Rev. 8/12/87

APPROVAL LETTER:

SPACING: R615-2-3 _____ UNIT R615-3-2

_____ CAUSE NO. & DATE R615-3-3

STIPULATIONS:

- 1- Water
- 2- State history
- 3- When constructing location, the first 6" of topsoil will be ^{collected} ~~excavated~~ and stockpiled to be used during location reclamation.
- 4- During drilling, the reserve pit will be fenced on 3 sides. Upon completion, the fourth side will also be enclosed until final pit reclamation.
- 5- A test pit will be built if any DST's or flaring is proposed. The test pit will be located on the NE corner of pad.

0218T

CULTURAL RESOURCE INVENTORY OF THE PROPOSED
SUN EXPLORATION AND PRODUCTION COMPANY'S
BLUFF BENCH STATE NO. 1 LOCATION AND ACCESS ROUTES
IN SOUTHEASTERN SAN JUAN COUNTY, UTAH

RECEIVED

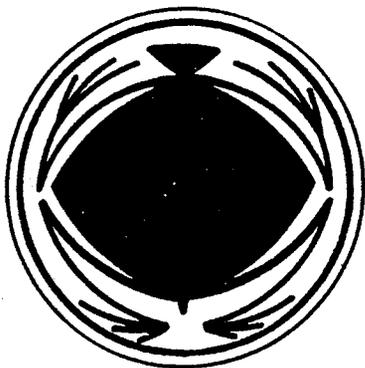
SEP 4 1987

BLUFF BENCH STATE NO. 1

CONFIDENTIAL

Keith R. Montgomery

August 1987



ABAJO ARCHAEOLOGY

CULTURAL RESOURCE INVENTORY OF THE PROPOSED
SUN EXPLORATION AND PRODUCTION COMPANY'S
BLUFF BENCH STATE NO. 1 LOCATION AND ACCESS ROUTES
IN SOUTHEASTERN SAN JUAN COUNTY, UTAH

Prepared For:

Utah Bureau of Land Management
San Juan Resource Area
Moab District
and
State of Utah

Prepared Under Contract With:

Sun Exploration and Production Company
P.O. Box 5940 TA
Denver, Colorado 80217-5940

Prepared By:

Keith R. Montgomery
Consulting Archaeologist

Submitted By:

William E. Davis, Director
Abajo Archaeology
Bluff, Utah

August 1987

U.S. Department of the Interior Antiquities Permit
No. (FLPMA) 87-UT-56323

Utah State Antiquities Project Permit (Survey)
No. U-87-AS-542b,s

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INTRODUCTION

On August 21, 1987, a cultural resource inventory was performed by Abajo Archaeology, Bluff, Utah, for the proposed Sun Exploration and Production Company's Bluff Bench State No. 1 drill location and access routes, located in southeastern San Juan County, Utah. The archaeological survey was conducted by Keith R. Montgomery, Consulting Archaeologist, at the request of Mr. Steve Stearns, District Drilling Engineer, Sun Exploration and Production Company, Denver, Colorado.

The purpose of the inventory was to identify and document any cultural resources located within the proposed well location and associated access routes. The accomplishment of these objectives fulfills compliance requirements set forth in the Antiquities Act of 1906, the Historic Preservation Act of 1966, Executive Order No. 11593 of 1971, the Archaeological and Historic Conservation Act of 1980, the Archaeological Resources Protection Act of 1979, and the Utah State Antiquities Act of 1973.

The fieldwork was conducted under authority of the U.S. Department of Interior (FLPMA) Permit Number 87-UT-56323 and State of Utah Antiquities Permit (Survey) Number U-87-AS-542b,s issued to Abajo Archaeology. On August 21, 1987, a records search for previously-documented cultural resources and inventories was performed at the BLM San Juan Resource Area Office, Monticello, Utah. An additional file search was performed at the Utah Division of State History by Preservation Archaeologist Liz Manion on August 30, 1987. The results of these file searches indicate that several energy-related archaeological surveys (Copeland 1980; Montgomery 1983; Harden 1985) and several public utility surveys (Berge 1983; Harden 1984; Foldi and Davis 1985) have been conducted in the project area. The site records show that one known site (42Sal7292) occurs 200 meters north of the proposed access road in Section 30, T39S, R22E. The site consists of a very small and sparse lithic scatter situated on the upper east-facing slopes of a small sand dune (Harden 1985).

DESCRIPTION OF THE PROJECT AREA

The proposed Bluff Bench State No. 1 drill location is situated on property under the jurisdiction of the State of Utah in the NE 1/4 of the SW 1/4 of Section 30, Township 39 South, Range 22 East (USGS Bluff, Utah 15', 1962). A proposed access road, approximately 1200 feet in length extends from a two-track road to the drill location in the same legal location. In addition

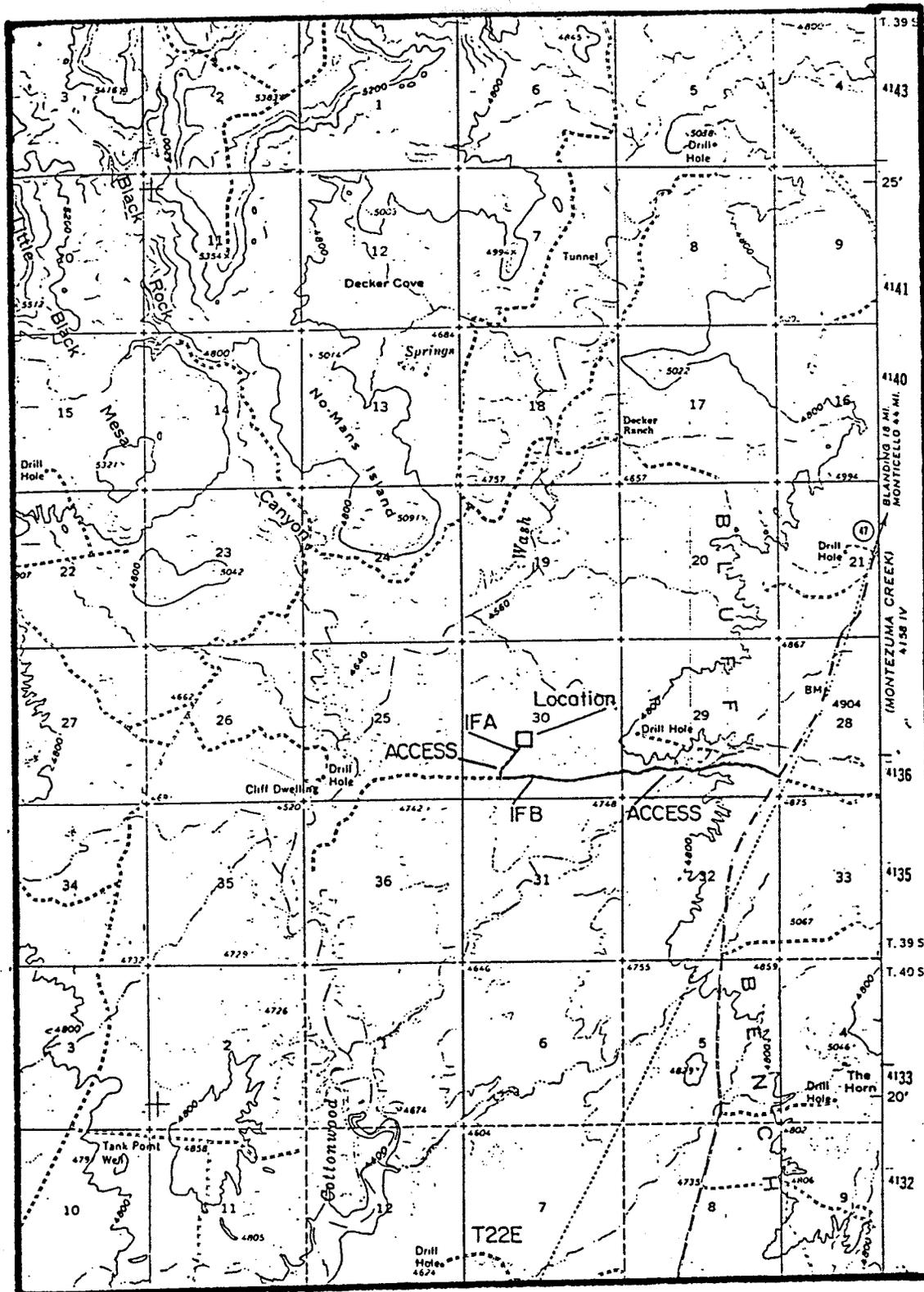


FIGURE 1: Project Location and Cultural Resources
(U.S.G.S Bluff, UT 15', 1962) SCALE 1:62500

1.8 miles of an existing two-track road was inventoried in Sections 29 (State Land) and 30 (Utah-BLM Land) in Township 39 South, Range 22 East. The inventoried area encompasses a 4.6 acre parcel centered on the proposed well location (the survey area measures 500 feet north-south by 400 feet east-west). The total acreage for the two segments of access road is 24.8 acres. Prior to the cultural resource inventory, the center point of the proposed well location was staked.

The project area is located within the Blanding Basin physiographic unit which is a downwarp in the larger Paradox Basin of the Colorado Plateau (Stokes 1977). Specifically the proposed drill location is situated along the west side of Bluff Bench approximately 5 miles north of the town of Bluff, Utah. Cottonwood Wash borders the project area to the west and empties into the San Juan River. Topographically the proposed drill location is situated at the head of an ephemeral drainage between two low eolian north-south oriented ridges. The elevation of the inventoried area ranges from 4680 to 4800 feet.

The most prominent geologic unit in the area is the upper Jurassic Age Bluff Sandstone. Exposed rock units overlying the Bluff Sandstone include, in ascending order: Saltwash Sandstone, Recapture Shale, and Westwater Sandstone, all members of the Morrison Formation. Surface deposits in the area include recent sand dunes. The vegetation within the project area consists mainly of blackbrush with some sagebrush, prickly pear, and yucca.

The cultural history of southeastern Utah has been presented by Nickens (1982). Generally the project area is known to have been occupied by Archaic, Basketmaker II and Basketmaker III groups although settlement appears to have been concentrated primarily along the San Juan River and its major tributaries (Fike and Lindsay 1976). On Bluff Bench, both temporary encampments and habitation sites have been documented representing Pueblo I-III cultural components (Fike and Lindsay 1976:15). A higher density of Puebloan occupations occur in the upland localities northeast of Bluff Bench, especially during Pueblo II and III times. Following abandonment of the San Juan region around A.D. 1200, the area was re-occupied by Ute and Navajo populations. Historically, the area was first colonized by Mormon settlers who employed the project area for livestock and agricultural activities.

PROJECT IMPACTS AND SURVEY LOGISTICS

The construction of the Bluff Bench State No. 1 petroleum drill location will involve a large amount of surface impact within the project area. The access road and well location will be cut and filled to create a level working area. The upslope dugway on the well location is anticipated to be about 15 feet deep. The reserve pit on the northwest corner of the leveled pad will be approximately 10 feet deep. The improvements to the existing two-track road will include widening the drainage ditches where necessary. If cultural resources are encountered during the construction activity, a qualified archaeologist should be contacted immediately.

The proposed drill location was inventoried by the archaeologist walking parallel transects spaced no more than 10 meters apart within a 500 by 400 foot area. The two access routes were examined by walking a close zig-zag pattern so that a 100 foot (30 meter) wide corridor was surveyed.

INVENTORY RESULTS

The inventory of Sun Exploration and Production Company's Bluff Bench State No. 1 drill location and associated access routes resulted in the documentation of two prehistoric isolated finds (IF-A and IF-B). Both of these artifacts were located along the access routes in Section 30, Township 39 South, Range 22 East (Figure 1). Isolated Find A (IF-A) is situated at the southwest corner of the proposed drill location and consists of a secondary Brushy Basin chert flake. Isolated Find B (IF-B) is a chalcedony secondary reduction flake found along the north edge of the two-track road.

MANAGEMENT RECOMMENDATION

The prehistoric isolated finds are considered to be non-significant cultural resources due to their limited research value other than their documentation within this report.

Cultural resource clearance is hereby recommended for Sun Exploration and Production Company's Bluff Bench State No. 1 drill location and associated access routes. If subsurface cultural deposits are uncovered during the construction activities, the Bureau of Land Management (San Juan Resource Area) or a qualified archaeologist should be immediately notified.

REFERENCES CITED

- Berge, Dale L.
1983 Archaeological Investigation of the Pinto-Abajo Transmission, San Juan County, Southeastern Utah. Museum of Peoples and Cultures, Brigham Young University. BLM Report No. 037-466 on file at the San Juan Resource Area Office, Monticello.
- Copeland, James N.
1980 An Archaeological Survey of Six Chevron Geophysical Seismic Lines in Southeastern San Juan County, Utah. Centuries Research.
- Fike, Richard E. and LaMar W. Lindsay
1976 Archaeological Survey of the Bluff Bench/San Juan River and White Mesa Areas, San Juan County, Utah, 1973-1974. Antiquities Section Selected Papers 9.
- Foldi, Debra and William E. Davis
1985 Cultural Resource Inventory for the Proposed Continental Telephone Cable Along US 191 Between Blanding and Bluff, San Juan County, Utah. Abajo Archaeology. Report on file Division of State History, Salt Lake City.
- Harden, Patrick L.
1984 Archeological Survey of the UDOT North of Bluff to JCT SR-262 Highway Maintenance Project in San Juan County, Utah. LaPlata Archeological Consultants. BLM Report No. 037-610 on file at the San Juan Resource Area Office, Monticello.
- 1985 An Archaeological Survey of Veritas Geophysical, Inc.'s Seismograph Lines SC-8 and SC-9, San Juan County, Utah. La Plata Archaeological Consultants.
- Nickens, Paul R.
1982 A Summary of the Prehistory of Southeastern Utah. In Contributions to the Prehistory Southeastern Utah, assembled by Steven G. Baker. Cultural Resource Series No. 13. Utah State BLM Office, Salt Lake City.
- Montgomery, Keith R.
1983 Cultural Resources Survey of Five Seismic Lines in San Juan County, Utah. Environment Consultants, Inc. Report on file at the BLM San Juan Resource Area Office, Monticello.

Stokes, William L.
1977 Subdivisions of the Major Physiographic Provinces
in Utah. Utah Geology 4(1). Utah Geological
and Mineral Survey. Salt Lake City.



RECEIVED
AUG 17 1987
**DIVISION OF OIL
GAS & MINING**

**Sun Exploration and
Production Company**
PO Box 5940
Terminal Annex
Denver CO 80217-5940
303 696 3500

August 14, 1987

Oil and Gas Commission
355 W. North Temple
Salt Lake City, Utah 84180

Please find attached Designation of Operator from Mobil Oil Corporation
for the Bluff Bench , Sec. 30-39S-22E, San Juan County, Utah.

If there are any questions concerning this matter please call me at
303-696-3531.

Very truly yours,

SUN EXPLORATION AND PRODUCTION COMPANY

A handwritten signature in cursive script that reads "Cindy Bush".

Cindy Bush
Proration and Production Acctg. Supvr.

AUG 17 1987

DIVISION OF OIL
GAS & MINING

DESIGNATION OF OPERATOR

The undersigned is, on the records of the Department of Natural Resources, Division of State Lands, holder of lease, ML #35880 :

and hereby designates

NAME: Sun Exploration and Production Company
ADDRESS: P.O. Box 2880
Dallas, TX 75221-2800

as his operator and local agent, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the Director of the Division of State Lands or his representative may serve written or oral instructions in securing compliance with the Rules and Regulations Governing the Issuance of Mineral Leases with respect to (describe acreage to which this designation is applicable):

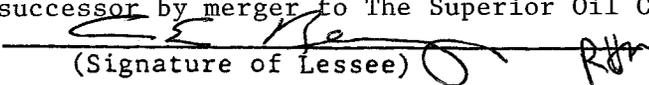
Township 39 South, Range 22 East
Sec. 30: E/2SW/4
San Juan County, Utah

It is understood that this designation of operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Rules and Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated operator, the lessee will make full and prompt compliance with all regulations, lease terms, or orders of the Director, Division of State Lands or his representative.

The lessee agrees promptly to notify the Division of State Lands of any change in the designated operator.

Mobil Oil Corporation, acting as Agent for
Mobil Exploration and Producing North America Inc.
successor by merger to The Superior Oil Company


(Signature of Lessee)

C. E. Reny Attorney in Fact

August 13, 1987
(Date)

P.O. Box 5444, Denver, CO 80217
(Address)

DRILLING LOCATION ASSESSMENT

State of Utah

Division of Oil, Gas & Mining

OPERATOR: Sun Exploration and Prod. Co. WELL NAME: Bluff Bench State #1

QTR/QTR: NESW SECTION: 30 TWP: 39S RANGE: 22E

COUNTY: San Juan FIELD: Wildcat 1980 F S L 1980 F W L

SFC OWNER: State LEASE #: ML-35880

SPACING: F SECTION LINE F QTR/QTR LINE F ANOTHER WELL

INSPECTOR: C. Hutchinson and C. Revelt DATE & TIME: August 20, 1987 @ 1:30 p.m.

PARTICIPANTS: Steve Stearns of Sun; Howard Hughes, Lowell Larson, and Richard McClellan--
dirt contractors; and Rich McClure of BLM.

REGIONAL SETTING/TOPOGRAPHY: Rolling hills on Bluff Bench-pad is about 5 miles
east of Comb Ridge and Monument Upwarp. Location is in a small depression on a
gently rolling ridge. General relief in the area is slight.

LAND USE

CURRENT SURFACE USE: Grazing--both domestic and wildlife.

PROPOSED SURFACE DISTURBANCE: 300' x 160' pad with pit terraced 10' lower. Pit dimensions
are 140' x 70' x 10'. Will improve 1.5 miles of existing road. Location dimensions
have been modified from APD plat.

AFFECTED FLOODPLAINS AND/OR WETLANDS: Access road will pass by a small fresh water spring
to the SW of the location. No floodplains nearby--adjacent area is relatively flat.

FLORA/FAUNA: Sage brush, mormon tea, rabbit brush, cheat grass and other native grasses.
Cows, deer, rabbit.

ENVIRONMENTAL PARAMETERS

GEOLOGY

SOIL TYPE AND CHARACTERISTICS: Reddish tan, well sorted, fine grained clayey sand.

SURFACE FORMATION & CHARACTERISTICS: Alluvial deposits of Morrison sandstone--small
sandstone outcrop located to the SW of the location.

EROSION/SEDIMENTATION/STABILITY: Largest cut will be about 10'. No problems with stability.

SUBSURFACE GEOLOGY

OBJECTIVE(S)/DEPTH(S): Primary objective is the Lower Ismay @ 5576'.

ABNORMAL PRESSURES - HIGH AND LOW: None anticipated.

CULTURAL RESOURCES/ARCHAEOLOGY: Location passed--Abajo Archaeology did survey. Sun is sending DOGM a copy of the survey.

WATER RESOURCES: There is one ephemeral stream located about 2000' from the drilling location--otherwise there is little water in the area.

RESERVE PIT

CHARACTERISTICS: 140' x 70' x 10'. Pit will be terraced 10' below elevation of drilling rig.

LINING: No lining necessary unless bedrock is encountered in constructing the pit.

MUD PROGRAM: Spud mud to 1700'. Fresh water gel to TD.

DRILLING WATER SUPPLY: Will obtain water from a BLM artesian well that Hay Hot Oil has permission to use in San Juan County--location of well is 1050 FNL, 1575 FWL, T40S, R23E. C.W. Roach of Hay Hot Oil said he would send a copy of his permit. (651-3469)

OTHER OBSERVATIONS: Chip requested that Sun save 6" of topsoil for rehab, that 3 sides of the pit are fenced, and that a blooey pit be built if Sun plans on running any DST's. Blooey pit will be located on the NE corner of the pad. This well is being drilled on a farmout from MOBIL. (SUN HAS RECEIVED A BLM RIGHT-OF-WAY FOR 1 MILE OF THE ACCESS ROAD.

STIPULATIONS FOR APD APPROVAL: DOGM must receive a designation of operator from Mobil Oil. DST's must be run according to OSHA standards.

ATTACHMENTS



RECEIVED

AUG 28 1987

**DIVISION OF OIL
GAS & MINING**

**Sun Exploration and
Production Company**
PO Box 5940
Terminal Annex
Denver CO 80217-5940
303 696 3500

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
355 W. Temple
Salt Lake City, Utah 84180

RE: Bluff Bench State #1
8 Point Plan

Gentlemen:

Please find attached an 8 Point Plan as per your request.
If there are any further questions concerning this Application, please
call me at 303-696-3531.

Very truly yours,

SUN EXPLORATION AND PRODUCTION COMPANY

A handwritten signature in black ink that reads "Cindy Bush". The signature is written in a cursive, flowing style.

CINDY BUSH
Proration and Production Acctg. Supvr.

PERMIT TO DRILL BLUFF BENCH STATE #1
In Compliance with Order No.1

Sun Exploration and Production Company
Bluff Bench State #1
NESW Sec. 30-39S-22E
Surface Location 1980' FSL & 1980' FWL
San Juan County, Utah

1. The Geologic Surface Formation
Geologic Name- Lower Ismay
2. Estimated Tops of Important Geologic Markers

| | | | |
|-------------|-------|---------------|-------|
| Entrada | 287' | Lower Ismay | 5576' |
| Chinle | 1532' | Lower Ismay 0 | 5601' |
| Cutter | 2446' | Gothic Shale | 5645' |
| Hermosa | 4563' | Desert Creek | 5699' |
| Upper Ismay | 5471' | Salt | 5851' |
| Havenweep | 5571' | | |

3. Estimated Depths of Anticipated Water, Oil, Gas or Minerals
Base of Fresh Water-1700'

Lower Ismay- 5576'

Means to protect such resources will be to seal off with casing.

4. Proposed Casing Program

| <u>HOLE SIZE</u> | <u>SETTING DEPTH</u> | <u>LENGTH</u> | <u>SIZE</u> | <u>GRADE & JOINT</u> | <u>CONDITION</u> |
|------------------|----------------------|---------------|-------------|--------------------------|------------------|
| 17-1/2" | 0-150' | 150' | 13-3/8" | H-40 STC | New |
| 12-1/4" | 150-1700' | 1700' | 8-5/8" | K-55 STC | New |
| 7-7/8" | 1700'-TD | 5750' | 5-1/2" | K-55 STC | New |
| | | 250' | 5-1/2" | N-80 LTC | New |

Cementing Program

| <u>SIZE</u> | <u>SACKS</u> | <u>TYPE OF CEMENT</u> | <u>YIELD</u> | <u>FILL UP</u> |
|-------------|--------------|--|--------------|----------------|
| 13-3/8" | 175 | Class G w/3% cc | 1.15 | Surface |
| 8-5/8" | 700 | 65/35 Pozmix w/6% Gel, 2% cc and 1/4# sx Cellophane | 1.84 | Surface |
| | 200 | Class G w/2% cc & 1/4#/xs Cellophane | 1.15 | |
| 5-1/2" | 150 | Class G w/.5% FL and .75% Disp | 1.15 | 5200' |

5. Pressure Control Program

An Annular Preventor will be NU on Surface Casing and a Double Ram Preventor will be NU on the Intermediate Casing. The Preventor will be tested to 1500# when NU and each 30 days. The Pipe Rams will be Operated once each 24 hours and the blind rams will be operated on each trip out of the hole. An upper and lower kelly valve will be used. A safety valve, inside BOP Valve and an extra drill pipe to drill collar sub will be kept on the rig floor.

6. Circulating Program- Mud System

| <u>FROM</u> | <u>TO</u> | <u>WEIGHT</u> | <u>VISCOSITY</u> | <u>LOSS</u> | <u>TYPE OF MUD</u> |
|-------------|-----------|---------------|------------------|-------------|---|
| 0 | 150' | 8.3-8.7 | 30-40 | NC | Spud Mud, Gel & Lime Sweeps |
| 150' | 1700' | 8.5-9.5 | 30-40 | NC | Fresh Water, Gel & Lime Swps |
| 1700' | TD | 8.7-9.5 | 35-45 | 10 | Low Solids, Lightly Dispersed gel, Pac, ASP-700 |

7. Auxiliary Drilling Equipment

- A. An upper and lower Kelly cock will be used.
- B. A safety valve and inside BOP valve to be kept on the floor.
- C. Extra drill pipe to drill collar sub on the floor.
- D. No drill collar float to be used.
- E. A flow sensor will be used.

8. Testing Program

- A. Logging Intervals
 - 1. DIL-GR TD to BSC
 - 2. BHC-SONIC TD to BSC
 - 3. CNL-FDC TD to 4500'
- B. Cores
 - 1. 2-30' Cores in Lower Ismay
- C. Samples
 - 1. 30" Samples below Surface Casing to 5000'
 - 2. 10' Samples 5000' to TD
 - 3. Sample Master on Loc-Surf CSG to TD
- D. DST's
 - 3 Possible DST's in Ismay and Desert Creek
- E. Mud Loggers
 - On Location
- F. Completion Program
 - The anticipated completion program will be to perforate and acidize. Details will be provided after the well is drilled.

9. Potential Hazards

- A. No abnormal pressures are expected.
- B. No abnormal temperatures are expected.
- c. No H₂S or other hazardous fluids or gases have been found, reported, or are known to exist in this area at this depth.

10. Drilling Dates

| | |
|-----------------------------|---------------------------------------|
| Anticipated Spud Date | September 1, 1987 |
| Anticipated Drilling Days | Approximately 15 days |
| Anticipated Completion Date | As soon as possible after rig release |

CHOKE MANIFOLD

All valves and fittings will be rated at 3000# working pressure.

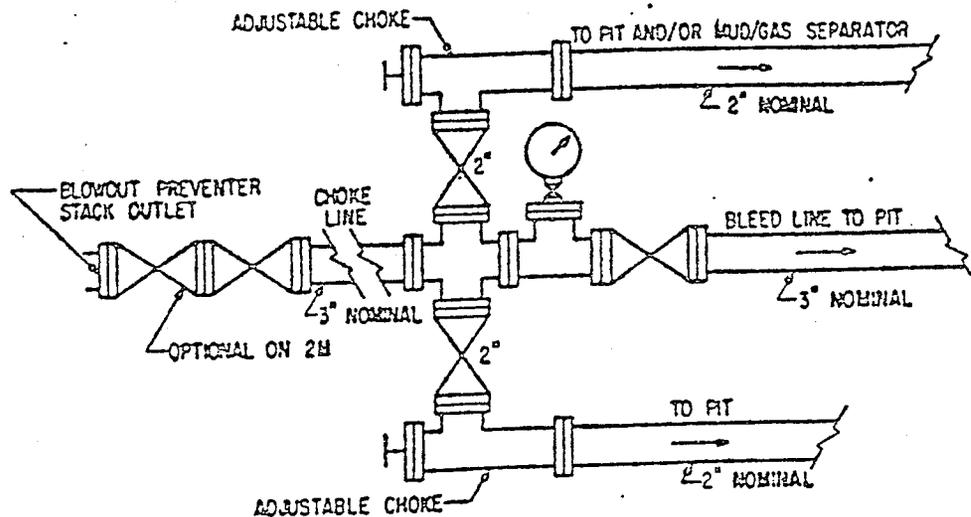


FIG. S.A.1

TYPICAL CHOKE MANIFOLD ASSEMBLY
FOR 2M AND 3M RATED WORKING
PRESSURE SERVICE - SURFACE INSTALLATION

BOP ACTUATING SYSTEM

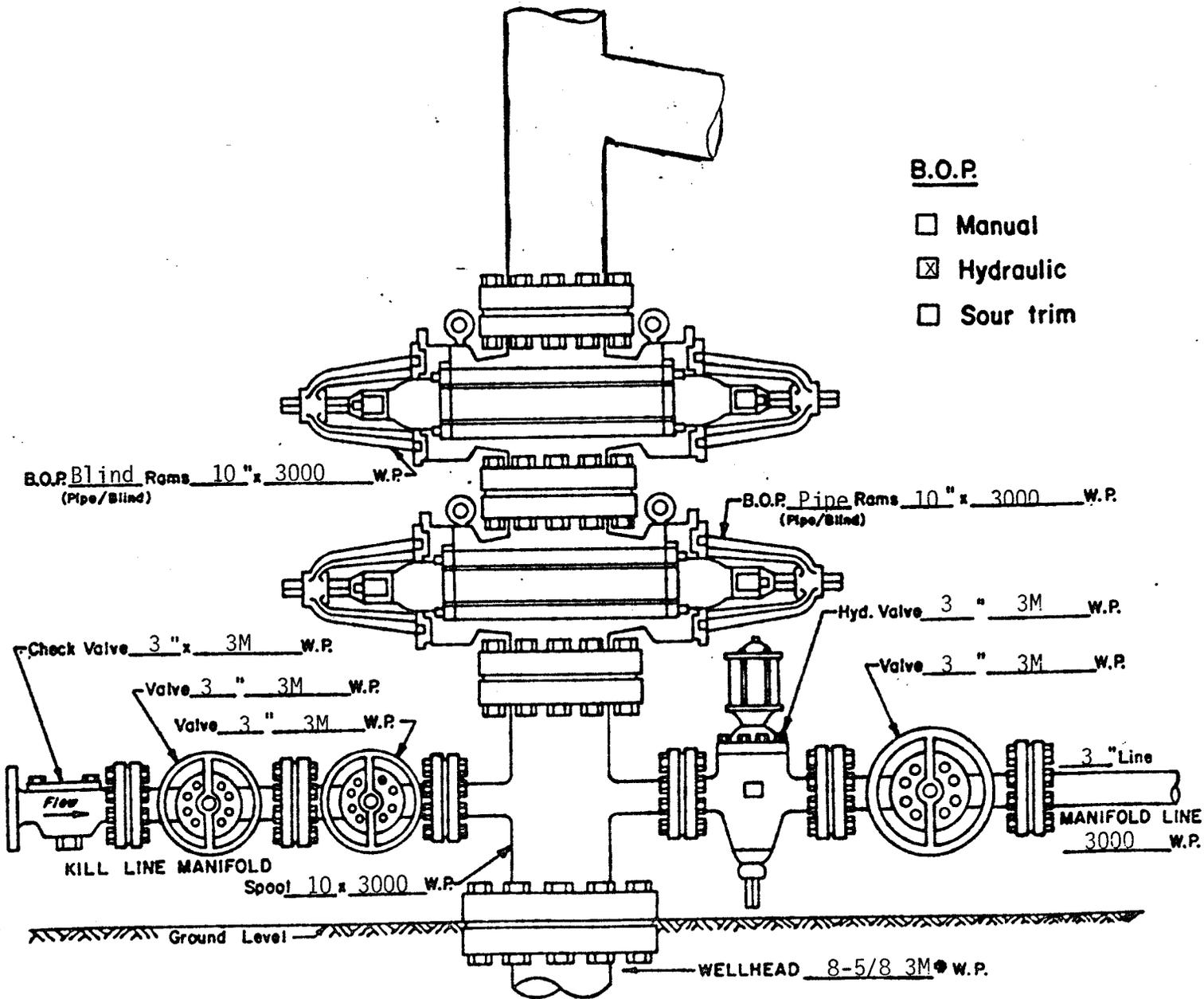
1. Accumulator capacity will supply $1\frac{1}{2}$ times volume necessary to close all BOP equipment units with a minimum pressure of 203 psi above pre-charge pressure.
2. Accumulator back up system, supplied by a secondary power source independent of primary power source, will be provided with sufficient capacity to close all blowout preventers.
3. Locking devices will be provided on ram type preventers.
4. Primary BOP actuating control will be hydraulic and located either in the dog house or on the rig floor. Back up control will be provided by hand-wheel manual operation of BOP.

WELLHEAD BLOWOUT CONTROL SYSTEM

Optional worksheet supplement for "Application for Permit to Drill or Deepen a Well for Oil, Gas, Brine Disposal, Hydrocarbon Storage or Secondary Recovery"

COMPANY Sun Exploration & Production Company WELL NAME _____

LOCATION _____



Fill blanks with applicable information. If not applicable, enter "N.A." or cross-out item shown. Enter other pertinent information below. TEST PROCEDURE

1. Ram type preventers will be tested to rated working pressure of stack or 70% of internal yield of casing whichever is less.

.. BOP will be tested at time of installation and at least every 30 days. Pipe rams will be operated once each 24 hours and blind rams will be tested on trips.

BOP PRPCEDURES AND DRILLS

1. Approved close in procedure to be posted on rig floor.
2. Each rig crew to hold close in drill weekly.
3. Drills will be noted on IADC daily drilling report at rig.

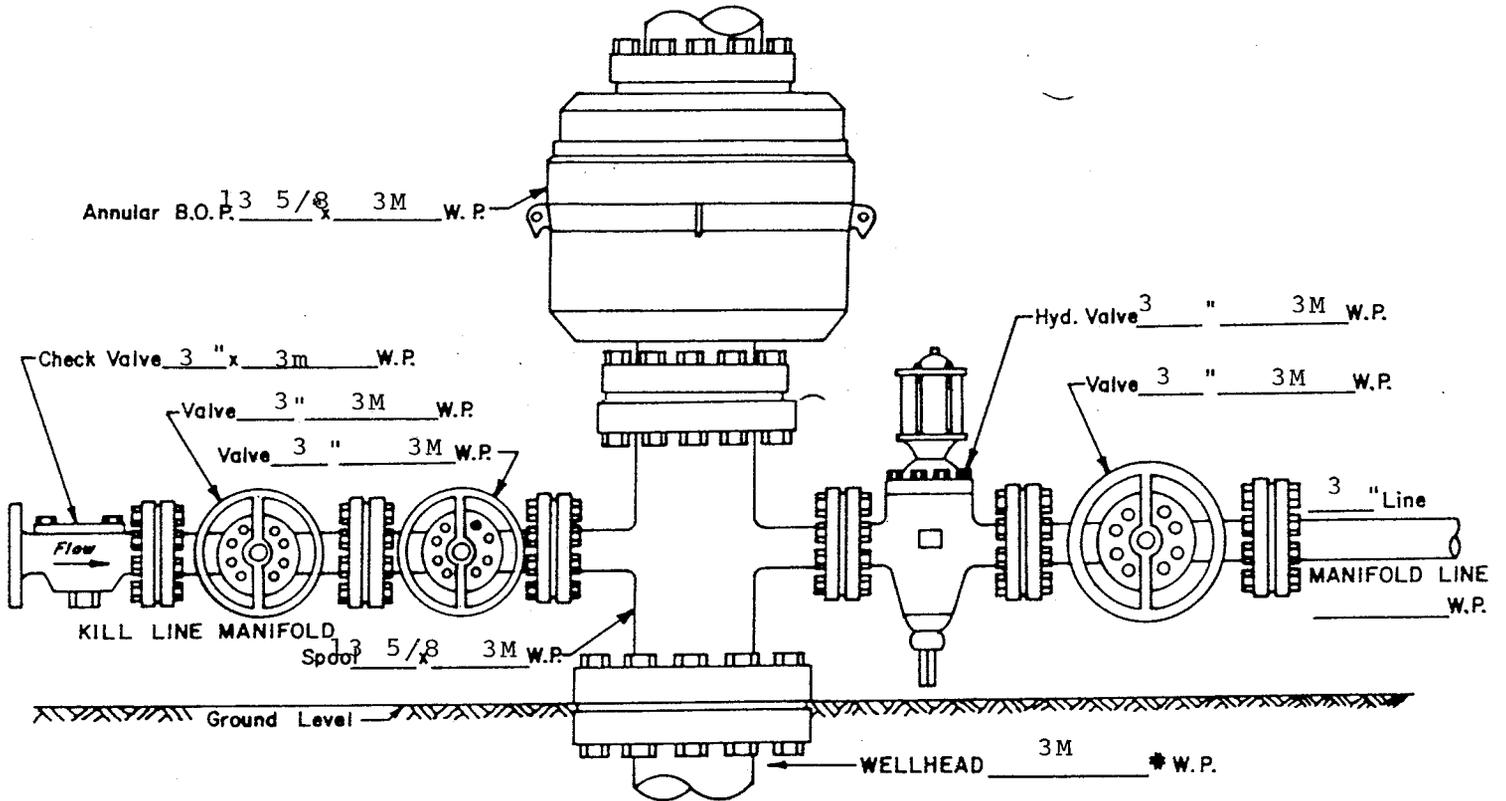
WELLHEAD BLOWOUT CONTROL SYSTEM

R 7207-S1
3/79

Optional worksheet supplement for "Application for Permit to Drill or Deepen a Well for Oil, Gas, Brine Disposal, Hydrocarbon Storage or Secondary Recovery"

COMPANY SUN EXPLORATION AND PRODUCTION CO. WELL NAME BLUFF BENCH ST. #1

LOCATION _____



Fill blanks with applicable information. If not applicable, enter "N.A." or cross-out item shown. Enter other pertinent information below.

- 1) ANNULAR TYPE PREVENTERS WILL BE TESTED TO 50% OF RATED WP.
- 2) THE BOP WILL BE TESTED AT THE TIME OF INSTALLATION AND ONCE EVERY 30 DAYS.
- 3) AN APPROVED CLOSE IN PROCEDURE WILL BE POSTED ON THE RIG FLOOR.
- 4) EACH RIG CREW WILL HOLD A CLOSE IN DRILL WEEKLY.
- 5) ALL CLOSE IN DRILLS WILL BE NOTED IN THE IADC DAILY DRILLING REPORT AT THE RIG.



355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

August 31, 1987

Sun Exploration and Production Company
P. O. Box 5940 Terminal Annex
Denver, Colorado 80217

Gentlemen:

Re: Bluff Bench State #1 - NE SW Sec. 30, T. 39S, R. 22E
1980' FSL, 1980' FWL - San Juan County, Utah

Approval to drill the referenced well is hereby granted in accordance with Rule R615-3-2, Oil and Gas Conservation General Rules, subject to the following stipulations:

1. Prior to commencement of drilling, receipt by the Division of evidence providing assurance of an adequate and approved supply of water as required by Chapter 3, Title 73, Utah Code Annotated.
2. Prior to any ground-disturbing activity on state lands or lands owned or controlled by the state or its subdivisions, a cultural resource clearance report must be filed with and approved by the Division of State History, phone (801) 533-4563. A list of acceptable archaeological contractors is available from the Division of State History.
3. When constructing location, the first 6 inches of topsoil will be collected and stockpiled to be used during location reclamation.
4. During drilling, the reserve pit will be fenced on three sides. Upon completion, the fourth side will also be enclosed until final pit reclamation.
5. A test pit will be built if any DST's or flaring is proposed. The test pit will be located on the northeast corner of the pit.

In addition, the following actions are necessary to fully comply with this approval:

1. Spudding notification to the Division within 24 hours after drilling operations commence.

Page 2
Sun Exploration and Production Company
Bluff Bench State #1
August 31, 1987

2. Submittal of an Entity Action Form to the Division within five working days of the time that the well is spudded or a change in operations or interests necessitates a change in entity status.
3. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
4. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695, or R. J. Firth, Associate Director, (Home) 571-6068.
5. Compliance with the requirements of Rule R615-3-22, Gas Flaring or Venting, Oil and Gas Conservation General Rules.
6. Prior to commencement of the proposed drilling operations, plans for toilet facilities and the disposal of sanitary waste at the drill site shall be submitted to the local health department having jurisdiction. Any such drilling operations and any subsequent well operations must be conducted in accordance with applicable state and local health department regulations. A list of all local health departments and copies of applicable regulations are available from the Division of Environmental Health, Bureau of General Sanitation, telephone (801) 533-6163.
7. This approval shall expire one (1) year after date of issuance unless substantial and continuous operation is underway or an application for an extension is made prior to the approval expiration date.

The API number assigned to this well is 43-037-31339.

Sincerely,



R. J. Firth
Associate Director, Oil & Gas

as
Enclosures
cc: State Lands & Forestry
Branch of Fluid Minerals
D. R. Nielson

CONFIDENTIAL

APPLICATION TO APPROPRIATE WATER STATE OF UTAH

AUG 31 1987

DIVISION OF OIL GAS & MINING

NOTE:—The information given in the following blanks should be free from explanatory matter, but when necessary, a complete supplementary statement should be made on the following page under the heading "Explanatory."

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, for uses indicated by (X) in the proper box or boxes, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of the Laws of Utah.

SON EXPLORATION
530, 395 22E
S S CO.
42037-3/339 PA
Bluff Bench #1

- 1. Irrigation Domestic Stockwatering Municipal Power Mining Other Uses
- 2. The name of the applicant is HAY HOT OIL, INC.
- 3. The Post Office address of the applicant is P.O. BOX 9, MONTEZUMA CREEK, UT. 84534
- 4. The quantity of water to be appropriated N/A second-feet and/or 250 acre-feet
- 5. The water is to be used for DRILLING MUD from JAN. 1 to DEC. 31
(Major Purpose) (Month) (Day) (Month) (Day)
- other use period DUST CONTROL from JAN. 1 to DEC 31 1990
(Minor Purpose) (Month) (Day) (Month) (Day)
- and stored each year (if stored) from N/A to N/A
(Month) (Day) (Month) (Day)
- 6. The drainage area to which the direct source of supply belongs is _____
(Leave Blank)
- 7. The direct source of supply is* UNDERGROUND WATER
(Name of stream or other source)

which is tributary to N/A, tributary to N/A

*Note.—Where water is to be diverted from a well, a tunnel, or drain, the source should be designated as "Underground Water" in the first space and the remaining spaces should be left blank. If the source is a stream, a spring, a spring area, or a drain, so indicate in the first space, giving its name, if named, and in the remaining spaces, designate the stream channels to which it is tributary, even though the water may sink, evaporate, or be diverted before reaching said channels. If water from a spring flows in a natural surface channel before being diverted, the direct source should be designated as a stream and not a spring.

- 8. The point of diversion from the source is in SAN JUAN County, situated at a point*
A FLOWING WATER WELL DRILLED BY EL PASO NATURAL GAS CO. AT 1050 FNL &
1575 FWL, SEC. 27, T. 40 S., R. 23 E., SLBM. EL PASO HAS ABANDONED THE WELL
TO BLM. BLM USES IT FOR LIVESTOCK WATERING.

*Note.—The point of diversion must be located definitely by course and distance or by giving the distances north or south, and east or west with reference to a United States land survey corner or United States mineral monument, if within a distance of six miles of either, or if at a greater distance, to some prominent and permanent natural object. No application will be received for filing in which the point of diversion is not defined definitely.

- 9. The diverting and carrying works will consist of WATER WILL BE CARRIED BY TANK TRUCK. THERE WILL BE NO OTHER DIVERSION OR CARRYING WORKS.
- 10. If water is to be stored, give capacity of reservoir in acre-feet _____ height of dam _____
area inundated in acres _____ legal subdivision of area inundated _____
NO STORAGE PLANNED
- 11. If application is for irrigation purposes, the legal subdivisions of the area irrigated are as follows:
N/A
- 12. Is the land owned by the applicant? Yes _____ No XXX If "No," explain on page 2.
- 13. Is this water to be used supplementally with other water rights? Yes XXX No _____
If "yes," identify other water rights on page 2.
- 14. If application is for power purposes, describe type of plant, size and rated capacity. N/A
- 15. If application is for mining, the water will be used in N/A Mining District at the _____ mine, where the following ores are mined _____
- 16. If application is for stockwatering purposes, number and kind of stock watered N/A
- 17. If application is for domestic purposes, number of persons N/A, or families _____
- 18. If application is for municipal purposes, name of municipality N/A
- 19. If application is for other uses, include general description of proposed uses:
WATER WILL BE USED FOR OIL & GAS DRILLING, DUST CONTROL, ETC.
- 20. Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19, incl. THROUGHOUT GREATER ANETH FIELD AND OTHER OIL FIELDS OF THE PARADOX BASIN
- 21. The use of water as set forth in this application will consume 250 second-feet and/or acre-feet of water and 0 second feet and/ or acre feet will be returned to the natural stream or source at a point described as follows: _____

The following additional facts are set forth in order to define more clearly the full purpose of the proposed application:

12. Land is Federally owned and managed by BLM.

13. Will supplement BLM's livestock watering rights. See attached letter of authorization from BLM.

Lined area for additional text or notes.

(Use page 4 if additional explanatory is needed.)

The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purpose herein described

Signature of Applicant: *[Handwritten Signature]* for Permits 4487, 7
Agent for ~~Hay~~ Hot Oil Inc.

*If applicant is a corporation or other organization, signature must be the name of such corporation or organization by its proper officer, or in the name of the partnership by one of the partners, and the names of the other partners shall be listed. If a corporation or partnership, the affidavit below need not be filled in. If there is more than one applicant, a power of attorney, authorizing one to act for all, should accompany the Application.

DECLARATION OF CITIZENSHIP

STATE OF UTAH, }
County of..... } ss

On the day of, 19....., personally appeared before me, a notary public for the State of Utah, the above applicant who, on oath, declared that he is a citizen of the United States, or has declared his intention to become such a citizen.

My commission expires:

(SEAL)

Notary Public

Arlene Sollis

Dir of oil gas & min

355 W. N Temple Street Trial Center

~~Room~~ 350 SLE
Suite

84180-1203

91411

DIVISION OF OIL, GAS AND MINING

SPODDING INFORMATION

API # 43-037-31339

NAME OF COMPANY: SUN EXPLORATION & PRODUCTION COMPANY

WELL NAME: BLUFF BENCH STATE #1

SECTION NE SW 30 TOWNSHIP 39S RANGE 22E COUNTY SAN JUAN

DRILLING CONTRACTOR FOUR CORNERS

RIG # 3

SPODDED: DATE 8-31-87

TIME 3:00 PM

How Rotary

DRILLING WILL COMMENCE _____

REPORTED BY Chip Hutchinson

TELEPHONE # _____

DATE 9-9-87 SIGNED AS

REPORT NO.
101020

PAGE NO. 1

TEST DATE:
14-SEPT-87

WELL PERFORMANCE

TESTING™ REPORT

A Production System Analysis (NODAL™)
Based On Model Verified™ Interpretation

FLOPETROL JOHNSTON

Schlumberger

CONFIDENTIAL

Company: SUN EXPLORATION & PRODUCTION

Well: BLUFF BENCH STATE #1

TEST IDENTIFICATION

Test Type MFE OH DST
Test No. 2
Formation DESERT CREEK
Test Interval (ft) 5730 - 5757
Reference Depth KELLY BUSHING

WELL LOCATION

Field
County SAN JUAN
State UTAH
Sec/Twn/Rng S30T39SR22E
Elevation (ft)

HOLE CONDITIONS

Total Depth (MD/TUD) (ft) 5757 / 5757
Hole Size (in) 7 7/8
Casing/Liner I.D. (in)
Perf'd Interval/Net Pay (ft).. -- / 10
Shot Density/Diameter (in) ...

MUD PROPERTIES

Mud Type POLY +6
Mud Weight (lb/gal) 9.3
Mud Resistivity (ohm.m) 0.70 @ 70 DEG.F
Filtrate Resistivity (ohm.m).. 0.65 @ 70 DEG.F
Filtrate Chlorides (ppm) 2000

INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) 2731
Gas Cushion Type NONE
Surface Pressure (psi) --
Liquid Cushion Type NONE
Cushion Length (ft)

TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 5048 / 3.8
Collar Length (ft)/I.D. (in).. 642 / 2.25
Packer Depths (ft) 5730
Bottomhole Choke Size (in) ... 15/16
Gauge Depth (ft)/Type 5736/MECHANICAL

NET PIPE RECOVERY

| Volume | Fluid Type | Properties |
|---------|------------|--------------------------------------|
| 100 FT. | DRLG. MUD | RW = 0.67 @ 70 DEG.F 3000 PPM CL. |
| | | |
| | | |
| | | |

NET SAMPLE CHAMBER RECOVERY

| Volume | Fluid Type | Properties |
|----------|------------|------------------------------------|
| 0.21 SCF | GAS | |
| 840 CC | MUD | RW = 0.67 @ 64 DEG 3000 PPM CL. |
| | | |
| | | |

Pressure: 30 GOR: GLR:

INTERPRETATION RESULTS

Model of Behavior
Fluid Type Used for Analysis .
Reservoir Pressure (psi)
Transmissibility (md.ft/cp) ..
Effective Permeability (md) ..
Skin Factor/Damage Ratio
Storativity Ratio
Interporosity Flow Coeff.
Distance to an Anomaly (ft) ..
Radius of Investigation (ft)..
Potentiometric Surface (ft) ..

ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API)
Basic Solids (%)
Gas Gravity
Water Cut (%)
Viscosity (cp)
Total Compressibility (1/psi).
Porosity (%) 12 - 14
Reservoir Temperature (F) 124
Form.Vol.Factor (bbl/STB)

PRODUCTION RATE DURING TEST: --

COMMENTS:

REPORT NO.
101020

PAGE NO. 2

SEQUENCE OF EVENTS

FLOPETROL JOHNSTON

Schlumberger

| EVENT NO. | DATE | TIME (HR:MIN) | DESCRIPTION | ELAPSED TIME (MINS) | BHP (PSIA) | BLOW (IN. -H2O) |
|-----------|---------|---------------|----------------------------|---------------------|------------|-----------------|
| 1 | 9-14-87 | 0559 | SET PACKERS | -2.19 | 2731 | |
| 2 | | 0600 | OPENED TOOL-1/4" BUBBLHOSE | 0.00 | 56 | 1/2" BLOW |
| | | 0605 | | | | 1.5" BLOW |
| | | 0610 | | | | 2" BLOW |
| 3 | | 0615 | CLOSED FOR INITIAL SHUTIN | 17.08 | 52 | 2.25" BLOW |
| 4 | | 0645 | FINISHED SHUT-IN | 46.05 | 137 | |
| 5 | | 0645 | RE-OPENED TOOL | 46.93 | 46 | 1/2" BLOW |
| | | 0650 | | | | 1" BLOW |
| | | 0705 | | | | 1.25" BLOW |
| | | 0740 | | | | 1.5" BLOW |
| | | 0745 | | | | 1.75" BLOW |
| 6 | | 0815 | CLOSED FOR FINAL SHUT-IN | 138.18 | 52 | 1.75" BLOW |
| 7 | | 1015 | FINISHED SHUT-IN | 255.07 | 379 | |
| 8 | | 1017 | RE-OPENED FOR THIRD FLOW | 256.68 | 55 | 8" BLOW |
| | | 1022 | | | | 8.5" BLOW |
| | | 1052 | | | | 8" BLOW |
| | | 1122 | | | | 7" BLOW |
| | | 1137 | | | | 6" BLOW |
| | | 1207 | | | | 5.5" BLOW |
| | | 1252 | | | | 6" BLOW |
| | | 1307 | | | | 5" BLOW |
| 9 | | 1317 | FINISHED THIRD FLOW | 437.25 | 55 | 5" BLOW |
| 10 | | 1320 | PULLED PACKERS LOOSE | 441.68 | 2712 | |
| | | 1340 | BEGIN REVERSING RECOVERY | | | |
| | | 1415 | FINISHED REVERSING REC'UY | | | |

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 101020

COMPANY : SUN EXPLORATION & PRODUCTION CO.

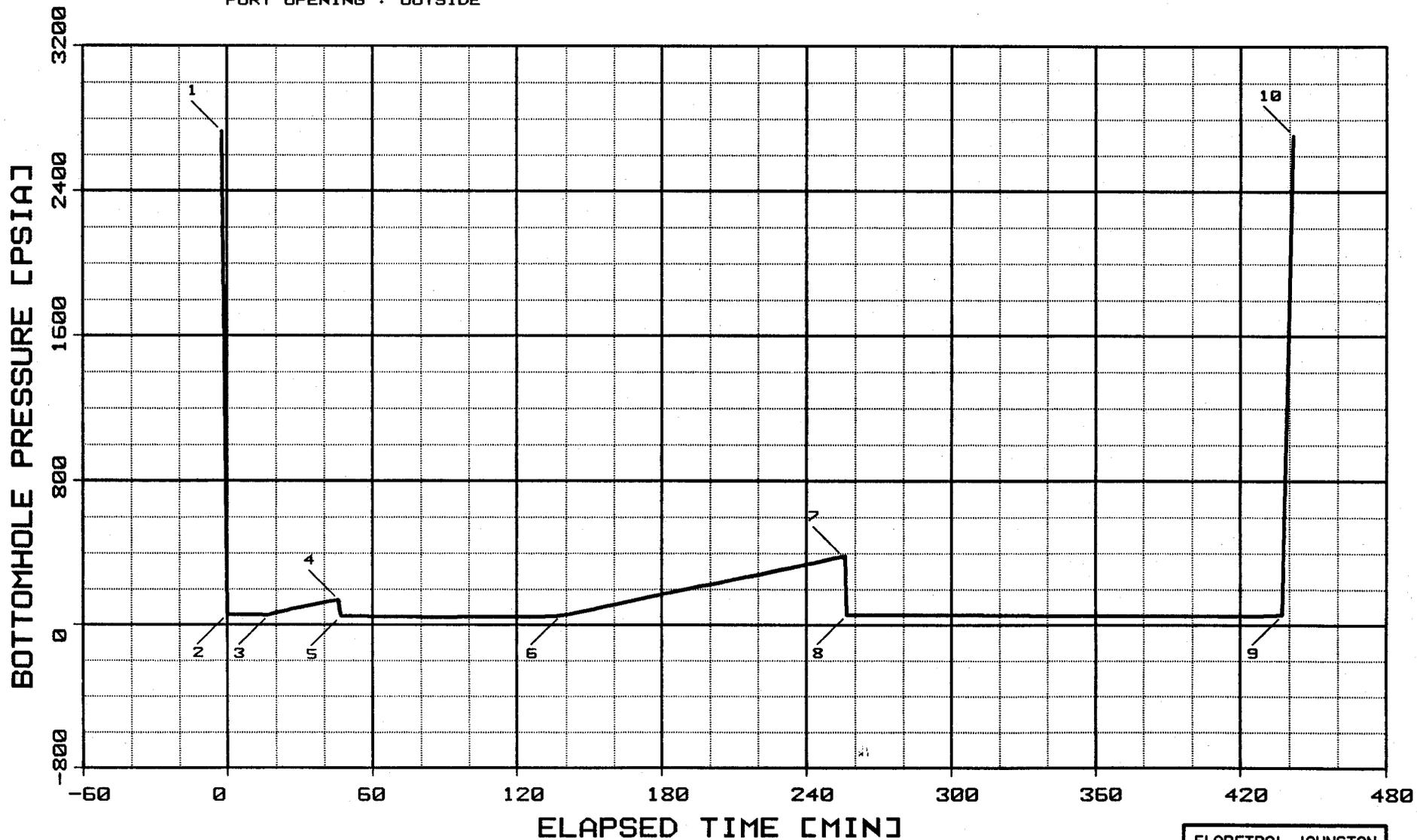
INSTRUMENT NO. 1238

WELL : BLUFF BENCH STATE #1

DEPTH : 5736 FT

CAPACITY : 4700 PSI

PORT OPENING : OUTSIDE



 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 101020

COMPANY : SUN EXPLORATION & PRODUCTION CO.
 WELL : BLUFF BENCH STATE #1

INSTRUMENT # : 1238
 CAPACITY [PSI] : 4700.
 DEPTH [FT] : 5736.0
 PORT OPENING : OUTSIDE
 TEMPERATURE [DEG F] : 124.0

LABEL POINT INFORMATION

| # | TIME OF DAY HH:MM:SS | DATE DD-MM | EXPLANATION | ELAPSED TIME, MIN | BOT HOLE PRESSURE PSIA |
|----|-------------------------|---------------|--------------------------|-------------------|------------------------|
| 1 | 5:57:49 | 14-SP | HYDROSTATIC MUD | -2.19 | 2731 |
| 2 | 6: 0: 0 | 14-SP | START FLOW | 0.00 | 56 |
| 3 | 6:17: 5 | 14-SP | END FLOW & START SHUT-IN | 17.08 | 52 |
| 4 | 6:46: 3 | 14-SP | END SHUT-IN | 46.05 | 137 |
| 5 | 6:46:56 | 14-SP | START FLOW | 46.93 | 46 |
| 6 | 8:18:11 | 14-SP | END FLOW & START SHUT-IN | 138.18 | 52 |
| 7 | 10:15: 4 | 14-SP | END SHUT-IN | 255.07 | 379 |
| 8 | 10:16:41 | 14-SP | START FLOW | 256.68 | 55 |
| 9 | 13:17:15 | 14-SP | END FLOW | 437.25 | 55 |
| 10 | 13:21:41 | 14-SP | HYDROSTATIC MUD | 441.68 | 2712 |

SUMMARY OF FLOW PERIODS

| PERIOD | START ELAPSED TIME, MIN | END ELAPSED TIME, MIN | DURATION MIN | START PRESSURE PSIA | END PRESSURE PSIA |
|--------|-------------------------|-----------------------|--------------|---------------------|-------------------|
| 1 | 0.00 | 17.08 | 17.08 | 56 | 52 |
| 2 | 46.93 | 138.18 | 91.25 | 46 | 52 |
| 3 | 256.68 | 437.25 | 180.57 | 55 | 55 |

SUMMARY OF SHUTIN PERIODS

| PERIOD | START ELAPSED TIME, MIN | END ELAPSED TIME, MIN | DURATION MIN | START PRESSURE PSIA | END PRESSURE PSIA | FINAL FLOW PRESSURE PSIA | PRODUCING TIME, MIN |
|--------|-------------------------|-----------------------|--------------|---------------------|-------------------|--------------------------|---------------------|
| 1 | 17.08 | 46.05 | 28.97 | 52 | 137 | 52 | 17.08 |
| 2 | 138.18 | 255.07 | 116.89 | 52 | 379 | 52 | 108.33 |

TEST PHASE : FLOW PERIOD # 1

| TIME OF DAY | DATE | ELAPSED TIME, MIN | DELTA TIME, MIN | BOT HOLE PRESSURE PSIA |
|-------------|-------|-------------------|-----------------|------------------------|
| 6: 0: 0 | 14-SP | 0.00 | 0.00 | 56 |
| 6: 5: 0 | 14-SP | 5.00 | 5.00 | 54 |
| 6:10: 0 | 14-SP | 10.00 | 10.00 | 54 |
| 6:15: 0 | 14-SP | 15.00 | 15.00 | 53 |
| 6:17: 5 | 14-SP | 17.08 | 17.08 | 52 |

TEST PHASE : SHUTIN PERIOD # 1
 FINAL FLOW PRESSURE [PSIA] = 52
 PRODUCING TIME [MIN] = 17.08

| TIME OF DAY | DATE | ELAPSED TIME, MIN | DELTA TIME, MIN | BOT HOLE PRESSURE PSIA | DELTA P PSI | LOG HORNER TIME |
|-------------|-------|-------------------|-----------------|------------------------|-------------|-----------------|
| 6:17: 5 | 14-SP | 17.08 | 0.00 | 52 | 0 | |
| 6:18: 5 | 14-SP | 18.08 | 1.00 | 57 | 4 | 1.257 |
| 6:19: 5 | 14-SP | 19.08 | 2.00 | 60 | 8 | 0.980 |
| 6:20: 5 | 14-SP | 20.08 | 3.00 | 63 | 11 | 0.826 |
| 6:21: 5 | 14-SP | 21.08 | 4.00 | 67 | 14 | 0.722 |
| 6:22: 5 | 14-SP | 22.08 | 5.00 | 70 | 18 | 0.645 |
| 6:23: 5 | 14-SP | 23.08 | 6.00 | 73 | 21 | 0.585 |
| 6:24: 5 | 14-SP | 24.08 | 7.00 | 76 | 24 | 0.537 |
| 6:25: 5 | 14-SP | 25.08 | 8.00 | 80 | 28 | 0.496 |
| 6:26: 5 | 14-SP | 26.08 | 9.00 | 83 | 31 | 0.462 |
| 6:27: 5 | 14-SP | 27.08 | 10.00 | 87 | 34 | 0.433 |
| 6:29: 5 | 14-SP | 29.08 | 12.00 | 92 | 40 | 0.384 |
| 6:31: 5 | 14-SP | 31.08 | 14.00 | 97 | 45 | 0.346 |
| 6:33: 5 | 14-SP | 33.08 | 16.00 | 103 | 50 | 0.315 |
| 6:35: 5 | 14-SP | 35.08 | 18.00 | 108 | 56 | 0.290 |
| 6:37: 5 | 14-SP | 37.08 | 20.00 | 114 | 61 | 0.268 |
| 6:39: 5 | 14-SP | 39.08 | 22.00 | 119 | 67 | 0.250 |
| 6:41: 5 | 14-SP | 41.08 | 24.00 | 124 | 72 | 0.233 |
| 6:43: 5 | 14-SP | 43.08 | 26.00 | 129 | 77 | 0.219 |
| 6:45: 5 | 14-SP | 45.08 | 28.00 | 134 | 82 | 0.207 |
| 6:46: 3 | 14-SP | 46.05 | 28.97 | 137 | 84 | 0.201 |

TEST PHASE : FLOW PERIOD # 2

| TIME OF DAY | DATE | ELAPSED TIME,MIN | DELTA TIME,MIN | BOT HOLE PRESSURE PSIA |
|----------------|-------|---------------------|-------------------|------------------------------|
| HH:MM:SS | DD-MM | ***** | ***** | ***** |
| 6:46:56 | 14-SP | 46.93 | 0.00 | 46 |
| 6:51:56 | 14-SP | 51.93 | 5.00 | 46 |
| 6:56:56 | 14-SP | 56.93 | 10.00 | 45 |
| 7: 1:56 | 14-SP | 61.93 | 15.00 | 43 |
| 7: 6:56 | 14-SP | 66.93 | 20.00 | 43 |
| 7:11:56 | 14-SP | 71.93 | 25.00 | 43 |
| 7:16:56 | 14-SP | 76.93 | 30.00 | 43 |
| 7:21:56 | 14-SP | 81.93 | 35.00 | 42 |
| 7:26:56 | 14-SP | 86.93 | 40.00 | 42 |
| 7:31:56 | 14-SP | 91.93 | 45.00 | 42 |
| 7:36:56 | 14-SP | 96.93 | 50.00 | 43 |
| 7:41:56 | 14-SP | 101.93 | 55.00 | 43 |
| 7:46:56 | 14-SP | 106.93 | 60.00 | 44 |
| 7:51:56 | 14-SP | 111.93 | 65.00 | 44 |
| 7:56:56 | 14-SP | 116.93 | 70.00 | 44 |
| 8: 1:56 | 14-SP | 121.93 | 75.00 | 44 |
| 8: 6:56 | 14-SP | 126.93 | 80.00 | 44 |
| 8:11:56 | 14-SP | 131.93 | 85.00 | 45 |
| 8:16:56 | 14-SP | 136.93 | 90.00 | 49 |
| 8:18:11 | 14-SP | 138.18 | 91.25 | 52 |

TEST PHASE : SHUTIN PERIOD # 2

FINAL FLOW PRESSURE [PSIA] = 52
 PRODUCING TIME [MIN] = 108.33

| TIME OF DAY | DATE | ELAPSED TIME,MIN | DELTA TIME,MIN | BOT HOLE PRESSURE PSIA | DELTA P PSI | LOG HORNERS TIME |
|----------------|-------|---------------------|-------------------|------------------------------|----------------|------------------------|
| HH:MM:SS | DD-MM | ***** | ***** | ***** | ***** | ***** |
| 8:18:11 | 14-SP | 138.18 | 0.00 | 52 | 0 | |
| 8:19:11 | 14-SP | 139.18 | 1.00 | 54 | 2 | 2.039 |
| 8:20:11 | 14-SP | 140.18 | 2.00 | 55 | 3 | 1.742 |
| 8:21:11 | 14-SP | 141.18 | 3.00 | 58 | 6 | 1.569 |
| 8:22:11 | 14-SP | 142.18 | 4.00 | 61 | 8 | 1.448 |
| 8:23:11 | 14-SP | 143.18 | 5.00 | 63 | 11 | 1.355 |
| 8:24:11 | 14-SP | 144.18 | 6.00 | 66 | 14 | 1.280 |
| 8:25:11 | 14-SP | 145.18 | 7.00 | 68 | 16 | 1.217 |
| 8:26:11 | 14-SP | 146.18 | 8.00 | 71 | 19 | 1.163 |
| 8:27:11 | 14-SP | 147.18 | 9.00 | 74 | 21 | 1.115 |
| 8:28:11 | 14-SP | 148.18 | 10.00 | 76 | 23 | 1.073 |
| 8:30:11 | 14-SP | 150.18 | 12.00 | 81 | 28 | 1.001 |
| 8:32:11 | 14-SP | 152.18 | 14.00 | 87 | 34 | 0.941 |
| 8:34:11 | 14-SP | 154.18 | 16.00 | 94 | 41 | 0.890 |
| 8:36:11 | 14-SP | 156.18 | 18.00 | 100 | 47 | 0.846 |
| 8:38:11 | 14-SP | 158.18 | 20.00 | 105 | 53 | 0.807 |
| 8:40:11 | 14-SP | 160.18 | 22.00 | 111 | 58 | 0.773 |
| 8:42:11 | 14-SP | 162.18 | 24.00 | 116 | 64 | 0.741 |

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 52
 PRODUCING TIME [MIN] = 108.33

| TIME OF DAY | DATE | ELAPSED TIME,MIN | DELTA TIME,MIN | BOT HOLE PRESSURE PSIA | DELTA P PSI | LOG HORNER TIME |
|----------------|-------|---------------------|-------------------|------------------------------|----------------|-----------------------|
| ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| 8:44:11 | 14-SP | 164.18 | 26.00 | 122 | 70 | 0.713 |
| 8:46:11 | 14-SP | 166.18 | 28.00 | 129 | 76 | 0.687 |
| 8:48:11 | 14-SP | 168.18 | 30.00 | 135 | 82 | 0.664 |
| 8:53:11 | 14-SP | 173.18 | 35.00 | 149 | 97 | 0.612 |
| 8:58:11 | 14-SP | 178.18 | 40.00 | 163 | 110 | 0.569 |
| 9: 3:11 | 14-SP | 183.18 | 45.00 | 177 | 125 | 0.532 |
| 9: 8:11 | 14-SP | 188.18 | 50.00 | 191 | 139 | 0.501 |
| 9:13:11 | 14-SP | 193.18 | 55.00 | 205 | 152 | 0.473 |
| 9:18:11 | 14-SP | 198.18 | 60.00 | 217 | 165 | 0.448 |
| 9:23:11 | 14-SP | 203.18 | 65.00 | 231 | 179 | 0.426 |
| 9:28:11 | 14-SP | 208.18 | 70.00 | 245 | 192 | 0.406 |
| 9:33:11 | 14-SP | 213.18 | 75.00 | 258 | 206 | 0.388 |
| 9:38:11 | 14-SP | 218.18 | 80.00 | 272 | 219 | 0.372 |
| 9:43:11 | 14-SP | 223.18 | 85.00 | 287 | 234 | 0.357 |
| 9:48:11 | 14-SP | 228.18 | 90.00 | 301 | 249 | 0.343 |
| 9:53:11 | 14-SP | 233.18 | 95.00 | 315 | 263 | 0.330 |
| 9:58:11 | 14-SP | 238.18 | 100.00 | 330 | 278 | 0.319 |
| 10: 3:11 | 14-SP | 243.18 | 105.00 | 345 | 293 | 0.308 |
| 10: 8:11 | 14-SP | 248.18 | 110.00 | 359 | 307 | 0.298 |
| 10:13:11 | 14-SP | 253.18 | 115.00 | 374 | 321 | 0.288 |
| 10:15: 4 | 14-SP | 255.07 | 116.89 | 379 | 327 | 0.285 |

TEST PHASE : FLOW PERIOD # 3

| TIME OF DAY | DATE | ELAPSED TIME,MIN | DELTA TIME,MIN | BOT HOLE PRESSURE PSIA |
|----------------|-------|---------------------|-------------------|------------------------------|
| ***** | ***** | ***** | ***** | ***** |
| 10:16:41 | 14-SP | 256.68 | 0.00 | 55 |
| 10:21:41 | 14-SP | 261.68 | 5.00 | 55 |
| 10:26:41 | 14-SP | 266.68 | 10.00 | 55 |
| 10:31:41 | 14-SP | 271.68 | 15.00 | 55 |
| 10:36:41 | 14-SP | 276.68 | 20.00 | 55 |
| 10:41:41 | 14-SP | 281.68 | 25.00 | 54 |
| 10:46:41 | 14-SP | 286.68 | 30.00 | 54 |
| 10:51:41 | 14-SP | 291.68 | 35.00 | 54 |
| 10:56:41 | 14-SP | 296.68 | 40.00 | 54 |
| 11: 1:41 | 14-SP | 301.68 | 45.00 | 53 |
| 11: 6:41 | 14-SP | 306.68 | 50.00 | 53 |
| 11:11:41 | 14-SP | 311.68 | 55.00 | 52 |
| 11:16:41 | 14-SP | 316.68 | 60.00 | 52 |
| 11:21:41 | 14-SP | 321.68 | 65.00 | 52 |
| 11:26:41 | 14-SP | 326.68 | 70.00 | 51 |
| 11:31:41 | 14-SP | 331.68 | 75.00 | 50 |
| 11:36:41 | 14-SP | 336.68 | 80.00 | 50 |

TEST PHASE : FLOW PERIOD # 3

| TIME OF DAY | DATE | ELAPSED TIME,MIN | DELTA TIME,MIN | BOT HOLE PRESSURE PSIA |
|----------------|-------|---------------------|-------------------|------------------------------|
| ***** | ***** | ***** | ***** | ***** |
| 11:41:41 | 14-SP | 341.68 | 85.00 | 49 |
| 11:46:41 | 14-SP | 346.68 | 90.00 | 49 |
| 11:51:41 | 14-SP | 351.68 | 95.00 | 49 |
| 11:56:41 | 14-SP | 356.68 | 100.00 | 49 |
| 12: 1:41 | 14-SP | 361.68 | 105.00 | 49 |
| 12: 6:41 | 14-SP | 366.68 | 110.00 | 49 |
| 12:11:41 | 14-SP | 371.68 | 115.00 | 49 |
| 12:16:41 | 14-SP | 376.68 | 120.00 | 49 |
| 12:21:41 | 14-SP | 381.68 | 125.00 | 49 |
| 12:26:41 | 14-SP | 386.68 | 130.00 | 49 |
| 12:31:41 | 14-SP | 391.68 | 135.00 | 49 |
| 12:36:41 | 14-SP | 396.68 | 140.00 | 49 |
| 12:41:41 | 14-SP | 401.68 | 145.00 | 49 |
| 12:46:41 | 14-SP | 406.68 | 150.00 | 49 |
| 12:51:41 | 14-SP | 411.68 | 155.00 | 49 |
| 12:56:41 | 14-SP | 416.68 | 160.00 | 49 |
| 13: 1:41 | 14-SP | 421.68 | 165.00 | 49 |
| 13: 6:41 | 14-SP | 426.68 | 170.00 | 49 |
| 13:11:41 | 14-SP | 431.68 | 175.00 | 51 |
| 13:16:41 | 14-SP | 436.68 | 180.00 | 54 |
| 13:17:15 | 14-SP | 437.25 | 180.57 | 55 |

9-15-87

SRB

Sum Exploration
Richard Doctter

092102 43.037.3 339
Dwg

Bluff Bench State #1 - Drugging program
Sec. 30, T39S, R22E

TD = 5830

Csg: 8 5/8" @ 1700'

Hole: 7 7/8" hole

Samples tops:

Moenk. 2499

Dechelly 2719

Rutler 2821

Hermosa 4513

U. Ism. 3453

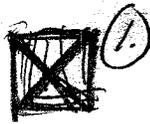
L. Ism. 5566

D.C. 5666

Akah 5808



② 100' @ base of Dechelly



① 100' to isolate Paradox Salt

③ 100' @ Surf. pipe.

④ Cmt. plug. @ surf.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE*
(Other instructions on reverse side)

Form approved
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Sun Exploration and Production Company

3. ADDRESS OF OPERATOR
PO Bx 5940 T.A. Denver, Co 80217

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

NWSW 1980' FSL & 1989' FWL

14. PERMIT NO.
43-037-31339

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
GR 4692'

5. LEASE DESIGNATION AND SERIAL NO.
ML-35880 *Dalg*

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
092104

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Bluff Bench State

9. WELL NO.
1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 30-39S-22F

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

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

| NOTICE OF INTENTION TO: | | SUBSEQUENT REPORT OF: | |
|--|---|---|--|
| TEST WATER SHUT-OFF <input type="checkbox"/> | PULL OR ALTER CASING <input type="checkbox"/> | WATER SHUT-OFF <input type="checkbox"/> | REPAIRING WELL <input type="checkbox"/> |
| FRACTURE TREAT <input type="checkbox"/> | MULTIPLE COMPLETE <input type="checkbox"/> | FRACTURE TREATMENT <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| SHOOT OR ACIDIZE <input type="checkbox"/> | ABANDON* <input type="checkbox"/> | SHOOTING OR ACIDIZING <input type="checkbox"/> | ABANDONMENT* <input type="checkbox"/> |
| REPAIR WELL <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> | (Other) _____ | |
| (Other) Spud date & surf csg <input checked="" type="checkbox"/> | | (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.) | |

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

✓ Spud 8/31/87

Ran 4 jts 13-3/8" 54.4# K-55 ST&C csg/CS @ 171 IF 125/cmt'd w/175 sx class "B" w/3% CACL & 1/4#/sx flocele/FP 100/bump plug w/100#/had good returns & float held/
Ran 42 jts 8-5/8" K-55 24# ST&C csg/CS @ 1699/FC 1656/cmt'd w/700 sx lite w/2% CACL & 1/4#/sx flocele/tailed w/200 sx class "B" w/2% CACL & 1/4#/sx flocele/FP 750#/bumped plug w/1250#/circ 305 sx excess to surface/

RECEIVED
SEP 16 1987
DIVISION OF OIL
AND GAS

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

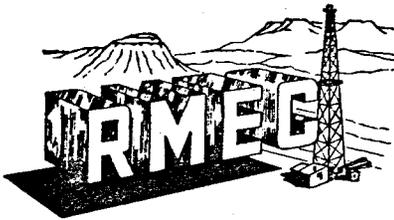
SIGNED *Debra Roth* TITLE Sr. Prod Acct DATE 9/10/87

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side



ROCKY MOUNTAIN GEO-ENGINEERING CO.

WELL SITE GEOLOGY — MUD LOGGING

2450 INDUSTRIAL BLVD.

PHONE 243-3044

GRAND JUNCTION, COLORADO 81505

September 16, 1987

Sun Exploration & Production Co.
P.O. Box 2880
Dallas, Texas 75221-2880

ATTENTION: CHUCK DUNNING

Enclosed are the final logs on your Bluff Bench State #1 well, located in Section 30, T39S, R22E of San Juan County, Utah.

We appreciated the opportunity to serve you. If we can be of any further assistance in the final evaluation of zones encountered, please feel free to contact us.

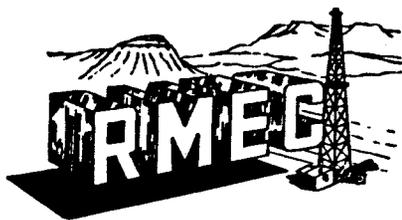
We are looking forward to working with you again in the near future. We thank you, again.

Respectfully,

Andy Kelley
President

AWK:lf

ENC: 2 FINAL LOGS
XXC: 1-SUN EXPLORATION, DALLAS, TX (DANNY BELL)
1- " " " "(ED DOWD)
5- " " , DENVER, CO (CINDY BUSH)
2-ZINN PETROLEUM CO, HOUSTON, TX
2-PARDEE EXP/ORSCHLN PETROL., HOUSTON, TX
3-MOBIL EXPLORATION & PROD., DENVER, CO
1-BASS ENTERPRISES PROD., DENVER, CO
1-CIGNAL OIL CO., SLC, UT



ROCKY MOUNTAIN GEO-ENGINEERING CO.

WELL LOGGING — CORE AND WATER ANALYSIS

2450 INDUSTRIAL BLVD.

PHONE 243-3044

GRAND JUNCTION, COLORADO 81501

COMPANY SUN EXPLORATION AND PRODUCTION COMPANY

WELL NO. BLUFF BENCH STATE #1

LOCATION SEC. 30-T39S-R22E

ZONE OF INTEREST NO. 2

INTERVAL: From 5742' To 5751'

DRILL RATE: Abv 4 m/ft Thru 1.5 m/ft Below 2.5 m/ft

MUD GAS-CHROMATOGRAPH DATA

| | TOTAL | C ₁ | C ₂ | C ₃ | C ₄ | C ₅ | OTHER |
|--------|-------|----------------|----------------|----------------|----------------|----------------|-------|
| Before | 56 | 1200 | 628 | 273 | 234 | ---- | |
| During | 760 | 19,968 | 10,752 | 5544 | 3744 | ---- | |
| After | 60 | 1250 | 630 | 300 | 234 | ---- | |

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

CARBIDE HOLE RATIO: $\frac{\text{GRAMS}}{\text{READING}}$ X Min. in Peak = _____ Sensitivity: Poor Fair Good

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample 20% Poor Slow
 Poor Fair Mod
 Fair % in show lithology 10% Good Fast
 Good COLOR: blu-gn COLOR: blu-wh

STAIN: None Poor Fair Good Live Dead Residue Even Spotty Lt. Dk.

POROSITY: Poor Fair Good Kind INTXL/VUGGY

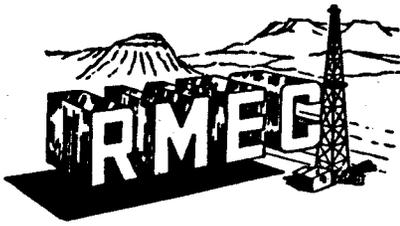
LITHOLOGY DOL ltgy,m-dkgy,vfxl,sm suc,cln-v arg,pred lmy

SAMPLE QUALITY Good

NOTIFIED Chuck Dunning @ 1600 HRS. DATE: 9/13/87

REMARKS DST #2

ZONE DESCRIBED BY Chris Higgins



ROCKY MOUNTAIN GEO-ENGINEERING CO.

WELL LOGGING — CORE AND WATER ANALYSIS

2450 INDUSTRIAL BLVD.

PHONE 243-3044

GRAND JUNCTION, COLORADO 81501

COMPANY SUN EXPLORATION AND PRODUCTION COMPANY

WELL NO. BLUFF BENCH STATE #1

LOCATION SEC. 30-T39S-R22E, SAN JUAN COUNTY, UTAH

ZONE OF INTEREST NO. 1

INTERVAL: From 5516' To 5520'

DRILL RATE: Abv 11 m/ft Thru 6 m/ft. Below 4 m/ft

MUD GAS-CHROMATOGRAPH DATA

| | TOTAL | C ₁ | C ₂ | C ₃ | C ₄ | C ₅ | OTHER |
|--------|-------|----------------|----------------|----------------|----------------|----------------|-------|
| Before | 8 | 260 ppm | 144 ppm | 84 ppm | tr | | |
| During | 280 | 4784 | 2976 | 2016 | 1456 | | |
| After | 12 | 260 | 120 | 84 | 52 | | |

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

CARBIDE HOLE RATIO: $\frac{\text{GRAMS}}{\text{READING}}$ X Min. in Peak = _____ Sensitivity: Poor Fair Good

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample 20% Poor Slow
 Poor Fair Mod
 Fair % in show lithology 20% Good Fast
 Good COLOR: YEL-GN COLOR: YEL

STAIN: None Poor Fair Good Live Dead Residue Even Spotty Lt. Dk.

POROSITY: Poor Fair Good Kind INTERCRYSTALLINE & PP VUGGY

LITHOLOGY LS ltgy-gybrn, mic-vfxl, cln-sl arg, sm chk, occ dol, anhy ip

SAMPLE QUALITY _____

NOTIFIED Gene Stevenson @ 0230 HRS. DATE: 9/10/87

REMARKS _____

ZONE DESCRIBED BY Chris Higgins

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

5. LEASE DESIGNATION AND SERIAL NO.

ML-35880

6. IF IN OIL FIELD, GIVE FIELD OR TRIBE NAME

100301

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Bluff Bench State

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Wildcat

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

Sec. ³⁰ 20-39S-22E

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

CONFIDENTIAL

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESVR. Other _____

2. NAME OF OPERATOR
Sun Exploration & Production Company

OCT 1 1987

3. ADDRESS OF OPERATOR
P.O. Box 5940 T.A., Denver, CO 80217

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface NWSW 1980 FSL 1989 FWL

At top prod. interval reported below

At total depth

14. PERMIT NO. DATE ISSUED

43-037-31339

15. DATE SPUDED 8-31-87 16. DATE T.D. REACHED 9-15-87 17. DATE COMPL. (Ready to prod.) P&A'd 9-17-87 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* GR 4692 19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 5830 21. PLUG, BACK T.D., MD & TVD 22. IF MULTIPLE COMPL., HOW MANY* 23. INTERVALS DRILLED BY ROTARY TOOLS CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* None - P&A 25. WAS DIRECTIONAL SURVEY MADE

26. TYPE ELECTRIC AND OTHER LOGS RUN CNL/DIL/BHC Sonic 10-1-87 mil 27. WAS WELL CORED yes

28. CASING RECORD (Report all strings set in well)

| CASING SIZE | WEIGHT, LB./FT. | DEPTH SET (MD) | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
|-------------|-----------------|----------------|-----------|------------------|---------------|
| 8-5/8 | 24# | 1699 | | 900 sx lite | |

29. LINER RECORD 30. TUBING RECORD

| SIZE | TOP (MD) | BOTTOM (MD) | SACKS CEMENT* | SCREEN (MD) | SIZE | DEPTH SET (MD) | PACKER SET (MD) |
|------|----------|-------------|---------------|-------------|------|----------------|-----------------|
| | | | | | | | |

31. PERFORATION RECORD (Interval, size and number) 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

| DEPTH INTERVAL (MD) | AMOUNT AND KIND OF MATERIAL USED |
|---------------------|----------------------------------|
| 5820-5720 | 30 sx cmt |
| 2830-2730 | 50 sx cmt |
| 1850-1650 | 86 sx cmt |
| Surf | 10 sx cmt |

33.* PRODUCTION

| DATE FIRST PRODUCTION | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) | WELL STATUS (Producing or shut-in) | | | | | |
|-----------------------|--|------------------------------------|-------------------------|----------|------------|-------------------------|---------------|
| NA | Plugged | P&A | | | | | |
| DATE OF TEST | HOURS TESTED | CHOKE SIZE | PROD'N. FOR TEST PERIOD | OIL—BBL. | GAS—MCF. | WATER—BBL. | GAS-OIL RATIO |
| NA | | | | | | | |
| FLOW. TUBING PRESS. | CASING PRESSURE | CALCULATED 24-HOUR RATE | OIL—BBL. | GAS—MCF. | WATER—BBL. | OIL GRAVITY-API (CORR.) | |
| NA | | | | | | | |

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) TEST WITNESSED BY

35. LIST OF ATTACHMENTS
Logs, core analysis, DST, sundry

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records
SIGNED Debra A. Roth TITLE Sr. Acctg. Assist. DATE 9/25/87

*(See Instructions and Spaces for Additional Data on Reverse Side)

CONFIDENTIAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Sun Exploration & Production Company

3. ADDRESS OF OPERATOR
P.O. Box 5940 T.A., Denver, CO 80217

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface
NWSW 1980' FSL 1989' FWL

14. PERMIT NO. _____ 15. ELEVATIONS (Show whether DF, RT, GR, etc.)
GR 4692

5. LEASE DESIGNATION AND SERIAL NO.
ML-35880

6. IF INDIAN, ALLOTTEE OR TRIBE NAME _____

7. UNIT AGREEMENT NAME _____

8. FARM OR LEASE NAME
Bluff Bench State

9. WELL NO.
1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC. T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 30-39S-22E

12. COUNTY OR PARISH | 13. STATE
San Juan | Utah

RECEIVED

OCT 1 1987

DIVISION
GAS & ...

CONFIDENTIAL

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

| NOTICE OF INTENTION TO : | | SUBSEQUENT REPORT OF : | |
|--|---|--|--|
| TEST WATER SHUT-OFF <input type="checkbox"/> | PULL OR ALTER CASING <input type="checkbox"/> | WATER SHUT-OFF <input type="checkbox"/> | REPAIRING WELL <input type="checkbox"/> |
| FRACTURE TREAT <input type="checkbox"/> | MULTIPLE COMPLETE <input type="checkbox"/> | FRACTURE TREATMENT <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| SHOOT OR ACIDIZE <input type="checkbox"/> | ABANDON* <input type="checkbox"/> | SHOOTING OR ACIDIZING <input type="checkbox"/> | ABANDONMENT* <input checked="" type="checkbox"/> |
| REPAIR WELL <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> | (Other) _____ | |

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

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

- Spud @ 3pm 8/31/87/ Ran 4 jts 13 3/8 54.4# K-55 ST&C csg/ CS @ 171 IF 125/ Howco cmt'd w/ 175 sx Class "B" w/3% CaCl & 1/4#/sx Flocele/ FP 100/ Bump lug w/200#/ Had good returns & float held/ Ran 42 jts 8 5/8 K-55 24\$ ST&C csg/ CS @ 1699/ FC @ 1656/ Cmt'd w/700 sx Lite w/2% CaCl & 1/4#/sx Flocele/ Tailed w/200 sx Class B w/2% CaCl & 1/4#/sx Flocel/ FP 750#/ Bumped plug w/1250#/ Circ 305 sx excess to surface
- DST #1/ 5507-5537/ Upper Ismay
- Core #1 f/5574-5599/ Core #2 f/5600-5630
- DST #2/ 5730-5757/ Desert Creek
- Ran CNL f/5827-4400/ DIL f/5827-1666/ BHC Sonic f/5827-surf
- Set plugs with Class "B" cmt f/5820-5720 w/30 sx/ 2830-2730 w/50 sx/ 1850-1650 w/86 sx/ 10 sx at surface/ Plugging depths rec'd f/John Baza Utah OGC/ Plugs witnessed by Chip Hutchinson Utah OGC/ ND BOP & rig released @ 2am 9-17-87/ Well P&A

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

SIGNED [Signature] TITLE Sr. Acctg. Assist. DATE 9/28/87

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

CONFIDENTIAL

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

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

| | | | |
|---|--|--|-------------------|
| 1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> Dry hole | | 3. LEASE DESIGNATION AND SERIAL NO. ML-35880 | |
| 2. NAME OF OPERATOR Sun Exploration and Production Company | | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME | |
| 3. ADDRESS OF OPERATOR PO Box 5940 T.A. Denver, CO 80217 | | 7. UNIT AGREEMENT NAME | |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface NWSW 1980' FSL & 1989' FWL | | 8. FARM OR LEASE NAME Bluff Bench State | |
| 14. PERMIT NO. GR 4692 | | 9. WELL NO. 1 | |
| 15. ELEVATIONS (Show whether DF, RT, GR, etc.) | | 10. FIELD AND POOL, OR WILDCAT Wildcat | |
| | | 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 30-39S-22E | |
| | | 12. COUNTY OR PARISH San Juan | 13. STATE Utah |

RECEIVED
OCT 1 1987
DIVISION OF OIL
& MINING

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

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

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

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

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

Set plugs with Class "B" cmt f/5820-5720 w/30 sx/2830-2730 w/50 sx/ 1850-1650 w/86 sx/10 sx at surface/ND BOP / RR/

CONFIDENTIAL
O.G.M.

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

SIGNED [Signature] TITLE Sr Prod Acct. DATE 9-28-87

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

CONFIDENTIAL

COMPANY: Sun Exploration UT ACCOUNT # 18390 SUSPENSE DATE: _____

TELEPHONE CONTACT DOCUMENTATION

CONFIDENTIAL
O.G.M.

CONTACT NAME: Perry

CONTACT TELEPHONE NO.: 303-696-3536

SUBJECT: WCR came in marked confidential but the well is not being held confidential called to find out what status the company wanted. Perry said she would call back 10-2-87 1:56 p.m.

(Use attachments if necessary)

RESULTS: Sun wishes well to be held confidential, thus will get a letter out right away. Considering this -

CONFIDENTIAL

as of this date 10-2-87 J. Young

(Use attachments if necessary)

CONTACTED BY: JL

DATE: 10-2-87



October 2, 1987

Sun Exploration and
Production Company
PO Box 5940
Terminal Annex
Denver CO 80217-5940
303 696 3500

Oil and Gas Conservation Commission
355 W. North Temple
3 Triad Center
Suite 350
Salt Lake City, UT 84180-1203

RECEIVED
OCT 05 1987

Re: Bluff Bench State #1
Sec. 20-39S-22E
San Jaun Utah

DIVISION OF
OIL, GAS & MINING

As per our conservation October 2, 1987, please hold the above location
"Confidential".

If there are any questions concerning this matter, please contact this
office at 303-696-3531.

Very truly,

SUN EXPLORATION AND PRODUCTION COMPANY

Cindy Bush
Proration and Production Acctg. Supvr.

CONFIDENTIAL
10/5/87



INVOICE

1506

REMIT TO: DOWELL SCHLUMBERGER INCORPORATED P O BOX 910295 DALLAS TX 75391

INVOICE DATE 09/16/87

864649 SUN EXPLORATION & PRODUCTION COMPANY ROCKY MOUNTAIN DISTRICT BOX 5940 T A DENVER CO 80217

PAGE 1

INVOICE NUMBER 15-69-1769

TYPE SERVICE CEMENTING PLUG AND ABANDON 101506

Table with columns: JOB SITE, STATE, COUNTY/CITY, SERVICE FROM LOCATION, SHIPPED VIA, CUSTOMER P.O. NO./REF. Includes job location BLUFF BENCH ST #1 and date of service order 09/16/87.

SEC 30, T39S, R23E 43-037-31339 Dwg

09/16/87 R.L. DOCKTER

Main invoice table with columns: ITEM NUMBER, QUANTITY, U/M, DESCRIPTION, UNIT PRICE, AMOUNT. Lists items like MILEAGE, LINER/SQZ, CEMENT, etc.

RECEIVED OCT 13 1987 DIVISION OF OIL, GAS & MINING

M C STATE TAX ON 1,440.00 73.80 M L C LOCAL TAX ON 1,440.00 10.80

TERMS NET 30 DAYS DUE ON OR BEFORE OCT 16, 1987

WITH QUESTIONS CALL 303-565-7461 FEDERAL TAX ID # 38-239-7173

AMOUNT DUE 3,263.17

FINAL WELL SITE GEOLOGIST'S REPORT

FOR THE

102010

SUN EXPLORATION & PRODUCTION CO.

BLUFF BENCH STATE #1

NE SW SEC 30-T39S-R22E

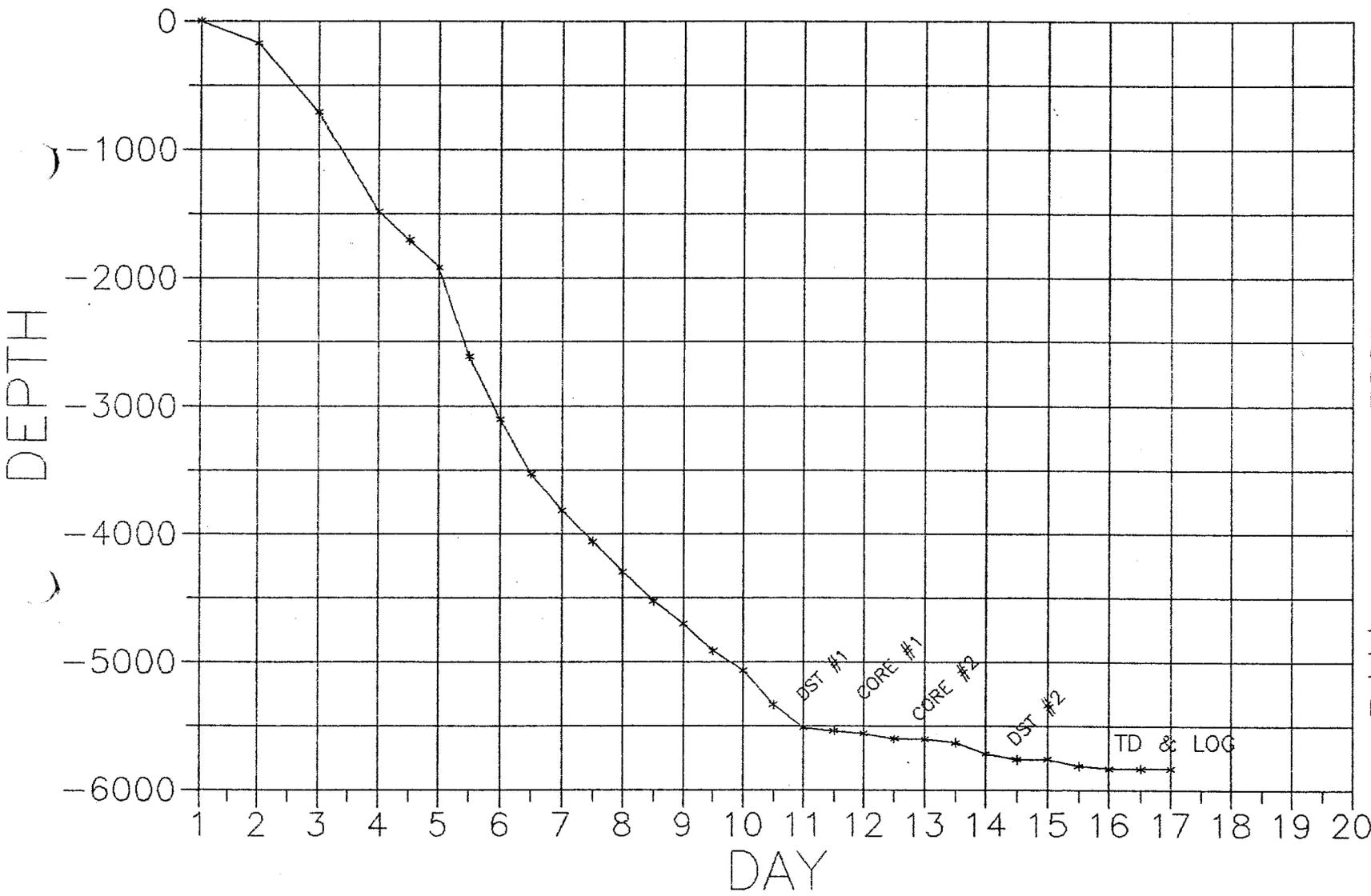
SAN JUAN CO., UTAH

API #43-037-31339

SOCKETED
10/11

SUN EXPLORATION & PRODUCTION
 BLUFF BENCH 1—STATE
 NESW SEC 30, T39S, R22E, (KB 4709)
 SAN JUAN COUNTY, UTAH

STEVENSON PETROLEUM
 CONSULTANTS, INC.
 LOGGED BY: GMS & THS



DST #1 5507 - 37
 CORE #1 5574 - 99
 CORE #2 5600 - 30
 DST #2 5727 - 57

TD DRILLER 5830
 TD LOGGER 5827
 TD DATE 9/15/87
 P&A 9/16/87

WELL SUMMARY DATA

OPERATOR: Sun Exploration & Production Company

ADDRESS: P.O. Box 2880, Dallas, TX 75221-2880

COMPANY GEOLOGIST: Mr. Chuck Dunning

WELL NAME: Sun Bluff Bench State #1 API: 43-037-31339

LOCATION: NE SW Sec 30- T39S- R22E, San Juan County, Utah

AREA: Southwest shelf, Blanding sub-basin, Paradox Basin.

ELEVATION: KB: 4709.2, DF: 4708.2, GL: 4695.6

SPUD DATE: August 31, 1987 @ 3:00 pm

COMPLETION DATE: September 15, 1987 @ 3:30 am

TOTAL DEPTH: Driller: 5830, Logger: 5828

STATUS: Plugged & Abandoned September 16, 1987

CONTRACTOR: 4 Corners Drilling (Aztec, NM) Rig #3

COMPANY MAN: Mr. Richard Dockter

TOOL PUSHER: Mr. Charles G. Shepard

MUDLOGGERS: Mr. Art Curtis and Mr. Chris Higgins
Rocky Mountain Geo-Engineering Co., Grand Jct, CO

WELL SITE GEOLOGIST: Mr. Gene M. Stevenson, Denver, CO

DRILLING FLUID: Dispersed mud, gel

SURFACE CASING: 13 3/8" to 178'

INTERMEDIATE CASING: 9 5/8" to 1701'

BOTTOM HOLE DIAMETER: 7 7/8"

SAMPLES: 10 ft from 4,000 ft to TD

CORE: Core #1: 5574-5599 ft (rec 19.5'); Core #2: 5600-5630 ft
(rec 19.2').

DRILL STEM TESTS: DST #1: 5507-5537', DST #2: 5727-5757'

LOGGING: Schlumberger, Farmington, NM
Recorded by Mr. Vance Ayers 9/15/87

LOG SUITE: FDC/CNL, DIL, BHC Sonic

GEOLOGIC OVERVIEW

The Bluff Bench area lies immediately north of the town of Bluff, Utah. Here, the Jurassic age Bluff Sandstone forms a resistant platform or "bench" where the overlying less-resistant Morrison siltstone and shale has been eroded, thus providing the rather modest undulating topographic relief and relative ease of accessibility. The area is not without its problems, however, in that modern-day sand dunes and steep-walled arroyos can stop the best of the off-road vehicles.

The Bluff Bench area saw its first oil exploration in the mid-50's immediately prior to the discovery of the giant Aneth complex only a few miles to the southeast. The nearby Bluff field had begun to be developed over the previous few years and along with the Aneth discovery, numerous wildcat wells were drilled in search of "another Aneth". During the next decade, numerous "satelite fields" were found to flank the huge Aneth field, but there was little encouragement to the west-northwest of Aneth (the Bluff Bench area).

Certainly, these discouraging "dry holes" were based on economics of the time, and a novice understanding of the geology and reservoir subtleties. Current activity in the central Blanding Basin (Upper Ismay play) would have been (and was) scoffed at during these earlier days of exploration. The wells in the Cottonwood Creek area (north of the Sun location) attest to an overall misunderstanding of the reservoir trend or geometry.

The Sun Bluff Bench #1 (NESW Sec 30-T39S-R22E) was drilled on a seismic high and tied to subsurface mapping. The well was drilled to a total depth of 5830 ft in 17 days. Two cores were cut in the Lower Ismay and two DST's taken, one in the Upper Ismay, and one in the Desert Creek. Although oil and gas shows occurred in all three objectives, all zones of interest were tight and consisted of non-reservoir rock (ie., no phylloid algae). The well was plugged and abandoned on September 16, 1987. Nearest wells to the Sun well are:

1. Carter Bluff Bench #1 (NW SW Sec 29-T39S-R22E)
2. Petrostates Decker Ranch Fed #1 (SE SW Sec 19-T39S-R22E)
3. Humble Bluff Bench 13 (SW SW Sec 25-T39S-R21E)
4. Mosbacher Federal 24-1 (NE SW Sec 24-T39S-R21E)

Throughout the course of drilling, these four wells were tied to the Sun well. By far, the most encouragement from the five wells is that in the Carter well where considerable porosity is well developed in the Lower Ismay zone. The Lower Ismay porosity zone tested voluminous amounts of salt water with a small show of oil on a second DST. The obvious play was to gain structure over that porosity interval seen in the Carter well. To this end, the new well was a success, however all effective porosity was lost.

The lenticular nature of porous phylloid algal mounds developed in the upper Paradox carbonates of the Blanding basin has, once again, shown to be quite real. Obviously, no effective porosity was realized in the Lower Ismay in the Sun location, and leads to speculation as to the size and extent of the porosity zone drilled in the Carter location. Because the Lower Ismay zone was cored in the Sun location, several points of encouragement can be addressed. Although tight, the core was bleeding oil from 5584-86' with no salt water whatsoever. This strongly suggests that an oil/water contact does exist between the Carter well and the Sun well at an approximate subsea depth of -875 to -928 ft. Furthermore, the live oil show in the Sun well supports the presence of moveable hydrocarbons in the Lower Ismay, with the Sun well situated in an updip "sealing" position. The only remaining question is not whether there is an oil filled algal mound reservoir in the vicinity, but rather what is the trend or areal distribution of the stratigraphic trap?

Geologic report submitted September 30, 1987 by G. M. Stevenson

Sincerely,


Gene M. Stevenson

DEVIATION SURVEYS

| | |
|-------|--------------|
| 716' | 1.25 degrees |
| 838' | |
| 1088' | |
| 1337' | 1.75 |
| 1636' | 1.75 |
| 1943' | 1.50 |
| 2478' | 1.50 |
| 2923' | 2.00 |
| 3069' | 1.50 |
| 3643' | 1.25 |
| 4142' | 1.00 |
| 4639' | 0.75 |
| 5014' | 0.50 |

BIT RECORD

| Bit Number | Size | Type | In | Out | Hours |
|------------|---------|---------------|-------|-------|---------|
| 1 | 17 1/2" | HTC 05C3 | surf | 174' | 4 1/4 |
| 2 | 12 1/4" | SEC S84F | 171' | 1636' | 19 1/2 |
| 3 | 12 1/4" | SEC S84F | 1636' | 1701' | 2 3/4 |
| 4 | 7 7/8" | STC F27L | 1701' | 5014' | 110 3/4 |
| 5 | 7 7/8" | STC F-3 | 5014' | 5574' | 31 |
| 6 | 7 7/8" | Reed CD-84 | 5574' | 5599' | 9 1/4 |
| 7 | 7 7/8" | HTC J-33 | 5599' | 5600' | 1 |
| 8 | 7 7/8" | Reed CD-95 | 5600' | 5630' | 13 1/2 |
| 9 | 7 7/8" | STC F-3 rerun | 5630' | 5830' | 13 1/4 |

FORMATION TOPS

| <u>FORMATION</u> | <u>SAMPLE TOP</u> | <u>LOG TOP</u> |
|------------------------|-------------------|----------------|
| Navajo Ss | | 732' |
| Kayenta Fm | | 1192' |
| Wingate Ss | | 1312' |
| Chinle Fm | | 1670' |
| Moenkopi Fm | | 2475' |
| De Chelly Ss | | 2679' |
| Cutler arkose | | 2778' |
| Honaker Trail Fm | 4513' | 4473' |
| Desmoines | 5224' | 5200' |
| Upper Ismay | 5452' | 5464' |
| Hovenweep Sh | 5560' | 5556' |
| Lower Ismay | 5566' | 5566' |
| Gothic Sh | 5621' | 5621' |
| Desert Creek | 5676' | 5665' |
| Base L. DC anhy/equiv. | 5754' | 5756' |
| Chimney Rock Sh | 5774' | 5775' |
| Akah | 5808' | 5807' |
| Paradox salt | not penetrated | ---- |

LITHOLOGIC DESCRIPTIONS OF DRILL CUTTINGS

LITHOLOGY A

Sandstone, gray-green to white to clear, fine- to coarse-grained, moderately well cemented, moderately well- to poorly-sorted, subround to subangular with occasional very angular grains. Cement varies from siliceous to calcareous. Grains are dominantly quartz, with chert (red, gy-gn) and white to pink feldspar secondary. Minor magnetite and mica (biotite).

LITHOLOGY B

Arkosic sandstone, pink to red brown, very fine- to coarse-grained, well cemented, siliceous, angular to subround, moderate- to poorly-sorted. Occasional lithic grains (siltstone, limestone or quartz) isolated in matrix, always well rounded. Much higher percentage of matrix than Lithology A and a much higher degree of mica.

LITHOLOGY C

Siltstone, dark red brown to maroon, micaceous, argillaceous, hard. Ranges from very fine-grained sandstone to silty mudstone. High percentage of feldspar and matrix. Dark, very fine-grained grains common (magnetite ?). Calcareous to siliceous cement.

LITHOLOGY D

Shale, red, maroon to gray-green to white (commonly variegated). Micaceous, calcareous to siliceous. Platy, moderately hard to very soft.

LITHOLOGY E

Shale, dark gray to gray-green, micaceous, silty, ranging from very calcareous to dolomitic, platy.

LITHOLOGY F

Shale, very dark gray to black, slightly micaceous to silty, calcareous to dolomitic, very soft to platy. Occasional mineral fluorescence and rapid streaming cut (source rock).

LITHOLOGY G

Limestone, non-fossiliferous, medium gray to dark gray to gray-brown. Ranges from arkosic to very argillaceous and micaceous. Very calcareous to dolomitic. Always occurs in cuttings as angular chips or flakes with very little rounding. The more argillaceous limestone breaks along bedding (platy). Trace carbonaceous partings.

LITHOLOGY H

Limestone, fossiliferous to non-fossiliferous, cream to tan, ranges from mudstone to packstone. Porosity ranges from very finely intercrystalline and sucrosic to non-existent. Trace dark shale partings and laminations. Mineral fluorescence common, with varying degrees of streaming cuts usually from the grains with visible porosity.

LITHOLOGY I

Anhydrite, white, very soft, non-effervescent. May occur as individual grains or as pore-filling.

Lithologies A through D are continental clastics derived principally from the Uncompahgre uplift to the east. In general, these continental facies are coarser nearer the source terrane and progressively fine westward. Lithologies A and B were probably deposited as fan delta channels and distributary mouth bars, and lithologies C and D deposited as overbank flood basin and floodplain sediments that prograde into a broad tidal flat and/or prodelta setting.

Lithologies E through I represent marine facies. Lithologies E and F are marine shales deposited in the deepest portions of the shelf during periods of maximum water depth (transgressions). Lithologies G and H are shelf or stable platform carbonates deposited in shallow marine conditions. Lithology I represents periods of maximum restriction of the seas and the pervasive precipitation of sulfates. No phylloid algal or ooid carbonates were encountered in this well.

LOG-ADJUSTED LITHOLOGIC DESCRIPTIONS

(See accompanying lithologic log for details)

- 4000- 4473'-- Cutler redbeds with interbedded lithologies A,B,C and D comprising 90% of the cuttings. Trace pink carbonates and anhydrite scattered throughout. The occurrence of thin carbonate beds and anhydrite in the lower Cutler is the southernmost facies of the Elephant Canyon Formation (Wolfcampian) that interfingers with the Cutler arkoses and Cedar Mesa quartzose sandstone.
- 4473- 5200'-- Honaker Trail Formation. The majority of this interval is comprised of continental clastics (Lithologies A-D) with minor amounts of marine facies (Lithologies E,G and H). The highest carbonate bed of Pennsylvanian age occurs at 4555'. The Mosbacher, Humble, Petrostates, and Carter wells were tied to this well during the course of drilling. Slow drilling (8 mfp) from 4688-4690' correlates regionally to a gamma ray "hot streak" in the above mentioned reference wells. This marker is consistently 550 ft above the Des Moines marker bed and approximately 820 ft above the top of the Upper Ismay. Below 4900 ft white sandstone (Lithology A) and marine shale (Lithology E) gradually increase downhole. Sandstone is predominantly quartzose with 10% dark accessory minerals.
- 5200- 5452'-- Lower Honaker Trail Fm. (top of Des Moines). The majority of this interval is comprised of marine facies (predominantly limestone- Lithology H, and shale- Lithology E).
- 5452- 5464'-- Paradox Shale. Throughout the basin, this bed is commonly a very dark shale, however in this well it is an argillaceous limestone (Lithology G). The Paradox Shale marks the base of the Honaker Trail Formation and the top of the Paradox Formation.
- 5464- 5556'-- Upper Ismay Stage. From 5464-5478' interbedded lithologies G and I. From 5478-5522' massive limestone (Lithology H). From 5522-5556' interbedded lithologies G and H. A moderate gas increase occurred at 5520' and was accompanied by fair to moderate sample shows of oil. See DST #1 for details.
- 5556-5566'-- Hovenweep Shale. Very poorly developed in this part of the basin. Occurs as Lithologies E and G.

- 5566-5621'-- Lower Ismay Stage. Almost entirely Lithology H. Most of this interval was cored (from 5574-5630'). See core report for more details. The bulk of this interval was very dense with only traces of pinpoint porosity. Bleeding oil shows occurred from 5584-5586' with no visible porosity and from 5609.5-5611.5' along small vertical fractures through limestone with no visible porosity.
- 5621-5665'-- Gothic Shale, Lithologies G and F.
- 5665-5775'-- Desert Creek Stage. This entire interval is comprised of two basic lithologies (G and I), with the most noticeable distinction being that the entire carbonate sequence is pervasively dolomitized. The thickest anhydrite bed encountered in this well was from 5681-5701'. A moderately strong gas show occurred at 5745' and was accompanied by a drilling break with only trace sample shows (although sample quality was extremely poor). Only a few grains showed any signs of porosity. See DST #2 for details.
- 5775-5807'-- Chimney Rock Shale. Dolomitized lithologies G and F.
- 5807- 5830'-- Akah Stage (top of Paradox salt cycle). Dolomitized lithologies G and I. No salt was penetrated in this well.

GENERAL CORE DESCRIPTION

Core #1 5574- 5599 ft (recovered 19.5 ft) The core description is based on representative lithologies, lithologic breaks and hydrocarbon shows.

- 5574-74.5' cherty, gray dense limestone.
5574.5-83.0 medium to dark gray, dense, slightly argillaceous lime mudstone; No visible porosity or show.
5583.0-83.3 gray dense lime mudstone, as above with slight mineral fluorescence, no cut.
5583.3-83.9 large rounded argillaceous intraclast in limestone as above.
5583.9-86.0 medium gray to gray-brown lime mudstone, slightly argillaceous, possibly burrowed, very finely crystalline with few isolated small vugs. Bleeding oil and dark brown oil stain; excellent yellow fluorescence with rapid to slow streaming cut (yellow-white). Oil stain and bright yellow fluorescence along small vertical fractures up to 12" long. No salt water.
5586.0-93.5 medium gray, dense lime mudstone with occasional isolated vugs filled with calcite spar or anhydrite. Wavy argillaceous laminations and occasional horizontal stylolites. No shows.
5593.5-99.0 remainder of core was dropped in hole, no description available.

Core #2 5600- 5630 ft (recovered 19.2 ft) The core description is based on representative lithologies, lithologic breaks, and hydrocarbon shows.

- 5600.0-09.5 medium gray, dense lime mudstone to wackestone with abundant crinoids, brachiopods and other fossil fragments. Slightly argillaceous with no visible porosity. Some isolated vugs are filled by calcite spar. No shows.
5609.5-11.5 as above with bright yellow oil bleeding from vertical fractures and along isolated, leached bedding planes. Vertical fractures are discontinuous and less than 10" long. Oil cuts rapidly with a yellow-white residue.
5611.5-19.2 fossiliferous lime mudstone to wackestone, as above, no shows.
5619.2-30.0 dropped in hole, not available for description.

DRILL STEM TESTS

Two drill stem tests were taken in this well. One from 5507-5537' in the Upper Ismay and one taken from 5727-5757' in the lower Desert Creek. Both tests were successful, in that no packers failed, although both resulted in negative tests of very tight impermeable carbonates. Details are listed below.

DST #1 5507 to 5537'

Times (in minutes) IO-15, ISI-30, FF-60, FSI-90

IHP 2555 psi

IFP 42-42 psi

ISIP 42 psi

FFP 33-33 psi

FSIP 42 psi

FHP 2255 psi

Comments: Tool opened with only a few bubbles in the bucket and was dead in 7 minutes. No blow through the remainder of the test. Drill pipe recovery-- reversed out 25 ft mud, no show. Sampler recovery-- 2500 cc mud, 0 psi. BHT 120 F.

DST #2 5727 to 5757'

Times (in minutes) IO-15, ISI-30, 2nd F-90, FSI-120, 3rd F-180

IHP 2717 psi

IFP 48 psi

ISIP 125 psi

2ndFP 48 psi

FSIP 362 psi

3rdFP 48 psi

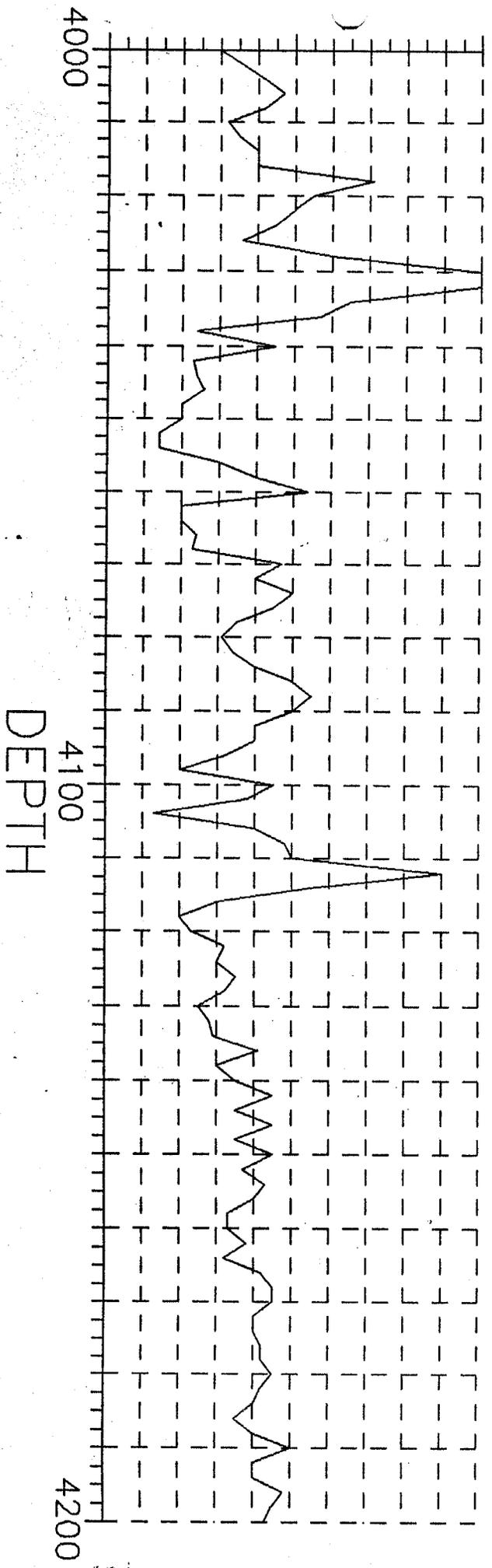
FHP 2717 psi

Comments: Tool opened with 1/2" blow and increased to 2 1/4" blow. During 2nd flow increased from 1/2" to 1 3/4" blow. During 3rd flow decreased from 8" to 5" blow. Drill pipe recovery-- reversed out 100' mud, no show. Sampler recovery-- 840 cc mud, 0.21 cfg @ 30 psi. BHT 124 F.

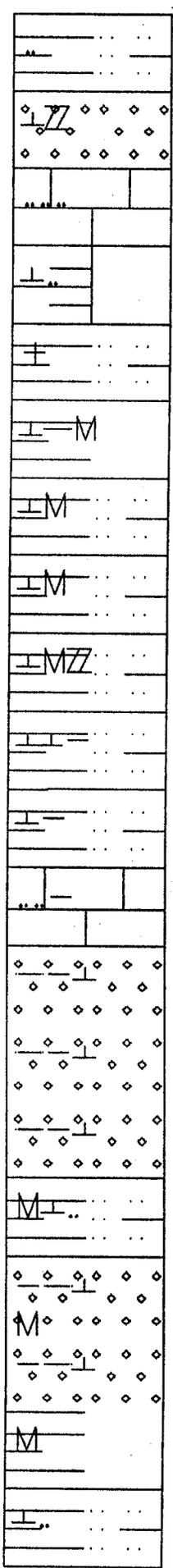
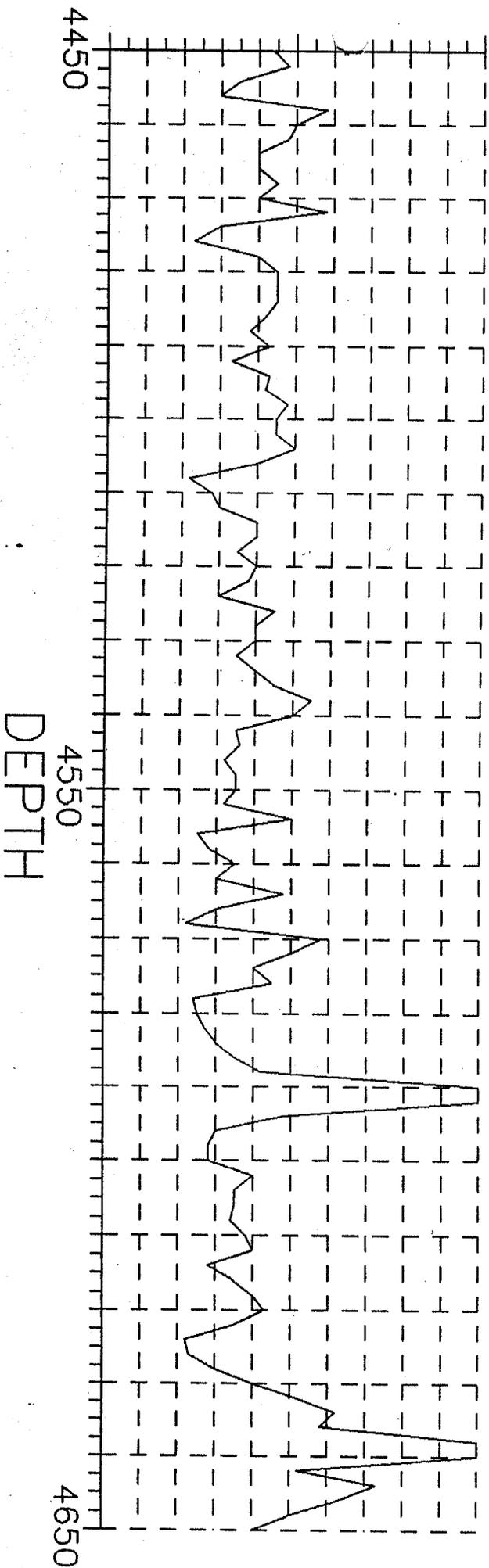
OPERATOR: Sun Exploration & Production Company
ADDRESS: P.O. Box 2880, Dallas, TX 75221-2880
COMPANY GEOLOGIST: Mr. Chuck Dunning
PARTNERS: See Distribution List
WELL NAME: Sun Bluff Bench State #1
LOCATION: NE SW Sec 30- T39S- R22E, San Juan County, Utah
API: 43-037-31339
AREA: Southwest shelf- Blanding sub-basin of the greater Paradox Basin.
ELEVATION: KB: 4709.2, DF: 4708.2, GL: 4695.6
SPUD DATE: August 31, 1987 @ 3:00 pm
COMPLETION DATE: September 15, 1987 @ 3:30 am
TOTAL DEPTH: Driller: 5830, Logger: 5828
STATUS: Plugged & Abandoned September 16, 1987
CONTRACTOR: 4 Corners Drilling (Aztec, NM) Rig #3
COMPANY MAN: Mr. Richard Dockter
TOOL PUSHER: Mr. Charles G. Shepard
MUDLOGGERS: Mr. Art Curtis and Mr. Chris Higgins
Rocky Mountain Geo-Engineering Co., Grand Jct, CO
WELL SITE GEOLOGIST: Mr. Gene M. Stevenson, Denver, CO
DRILLING FLUID: Dispersed mud, gel
SURFACE CASING: 13 3/8" to 178'
CORE: Core #1: 5574-5599 ft (rec 19.5'); Core #2: 5600-5630 ft
(rec 19.2').
DRILL STEM TESTS: DST #1: 5507-5537', DST #2: 5727-5757'
LOGGING: Schlumberger, Farmington, NM
Recorded by Mr. Vance Ayers 9/15/87
LOG SUITE: FDC/CNL, DIL, BHC Sonic

LITHLOG

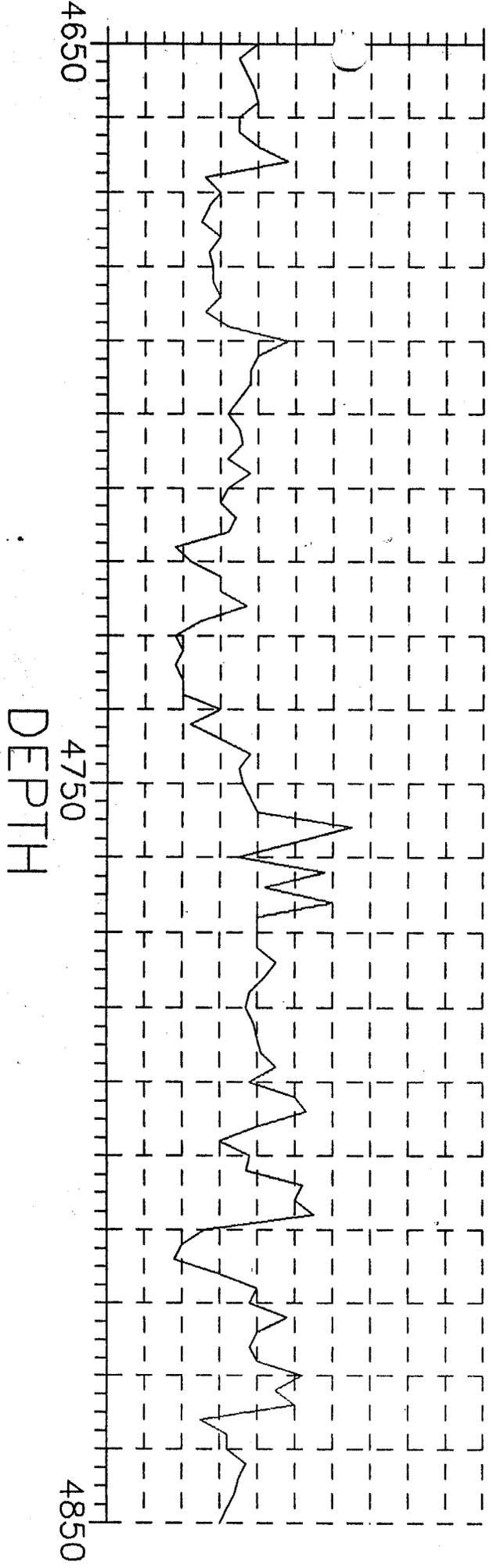
| | GAMMA RAY | LITHOLOGY | DESCRIPTION |
|---|-----------|-----------|-------------|
| 0 | 100 | 200 | |



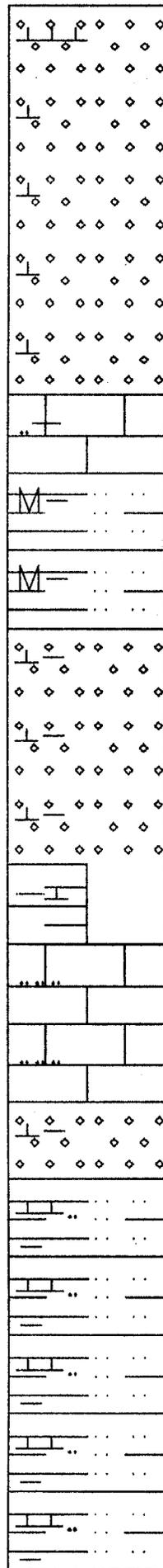
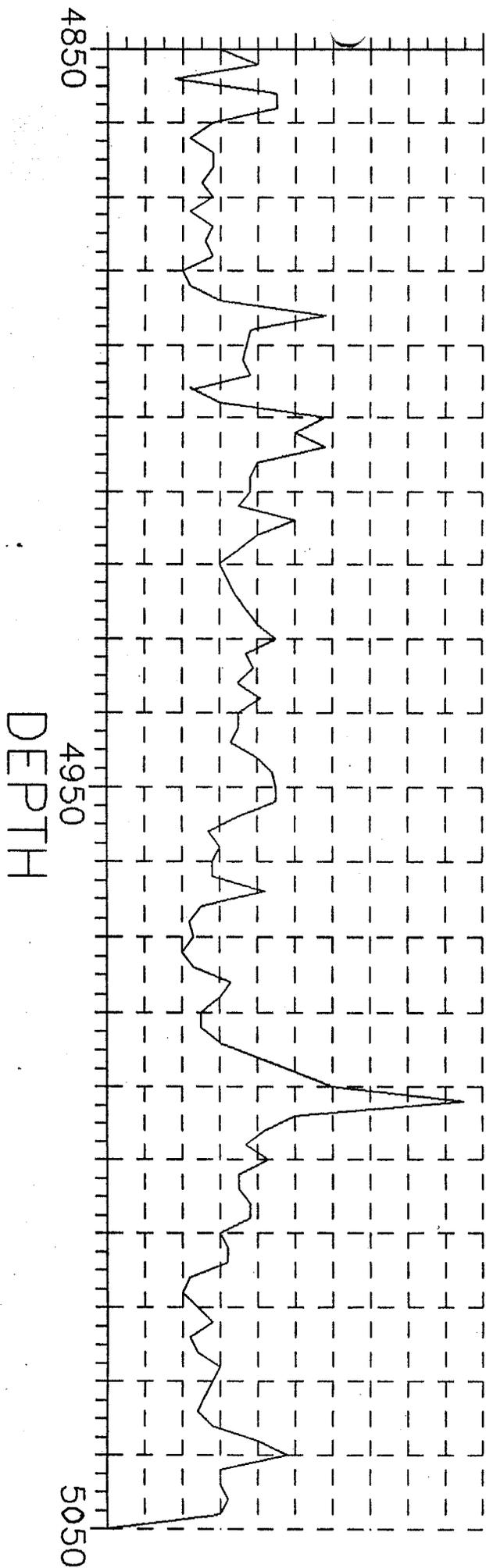
| | |
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| M= | red mic slst |
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| aa | aa |
| aa | aa |
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| =M | aa |
| =M | aa |
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- aa, sli sndy
- limy, anhy qtzose ss
- v sndy ls, non foss
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- red sltst, mic, arkosic
- red sh
- red sltst
- as above
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- aa, w/tr pk ls
- sli calc sltst
- ltgy sndy ls
- slty, arg-limy qtz ss
- vari-col shly sltst
- sli calc
- qtz ss, calc, arg-slty
- w cmted, wh-ltgy
- aa
- red sh, v sft
- v slo drlg
- red, frm sndy



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| | gy-wh calc ss, sli arg |
| | gygrn sh, w/ qtz grns |
| | brn sltst, v calc, sndy |
| | tan-ltgy, dns lime mdst sli arg |
| | brn sltst, v calc, sndy |
| | orng-rd sltst, v calc, sndy |



gy-wh v calc ss

gy-wh Qtzose ss
f-m grn, subrnd-
gy-wh Qtzose ss
aa

gy-wh Qtzose ss
aa

gy-wh Qtzose ss
aa

tan ls, sli arg

redbrn arg sltst, mic

redbrn arg sltst, mic

ltgy-wh Qtz ss, sli calc
&arg

ltgy-wh Qtz ss, sli calc
&arg

ltgy-wh Qtz ss, sli calc
&arg

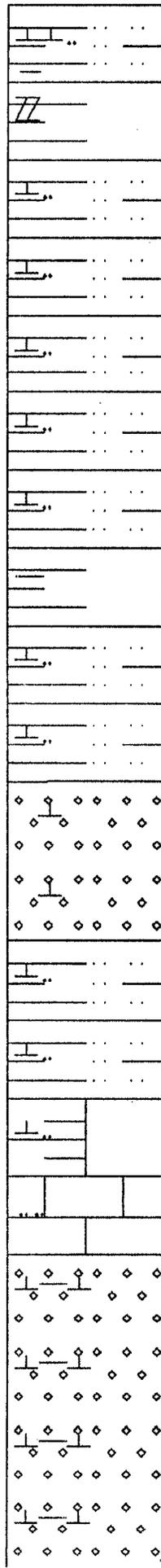
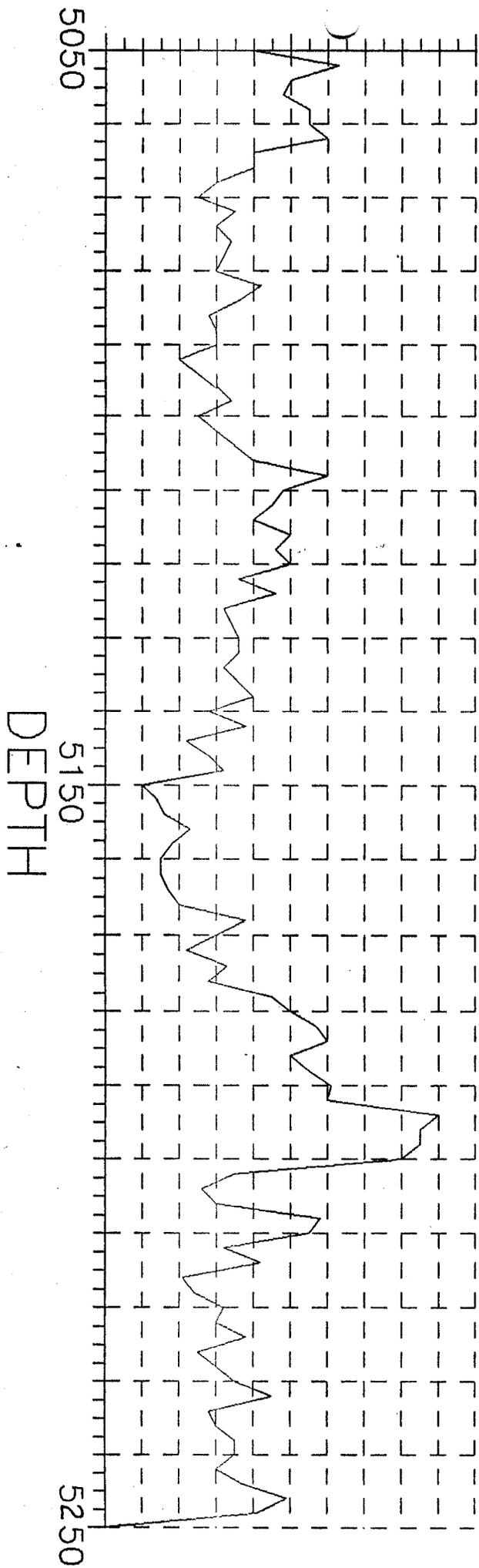
gy-gn sh, sli calc, platy

tan-ltgy v sndy
lime mdst, non-foss

tan-ltgy v sndy
lime mdst, non-foss

ltgy-wh Qtz ss, sli calc
&arg

ltgy-dk brn calc sltst
sndy, platy, sft-frm



ltgy-dk brn calc sltst
 sndy, platy, sft-frm
 redbrn sh w/anhly, v sft

redbrn sltst, calc-silic

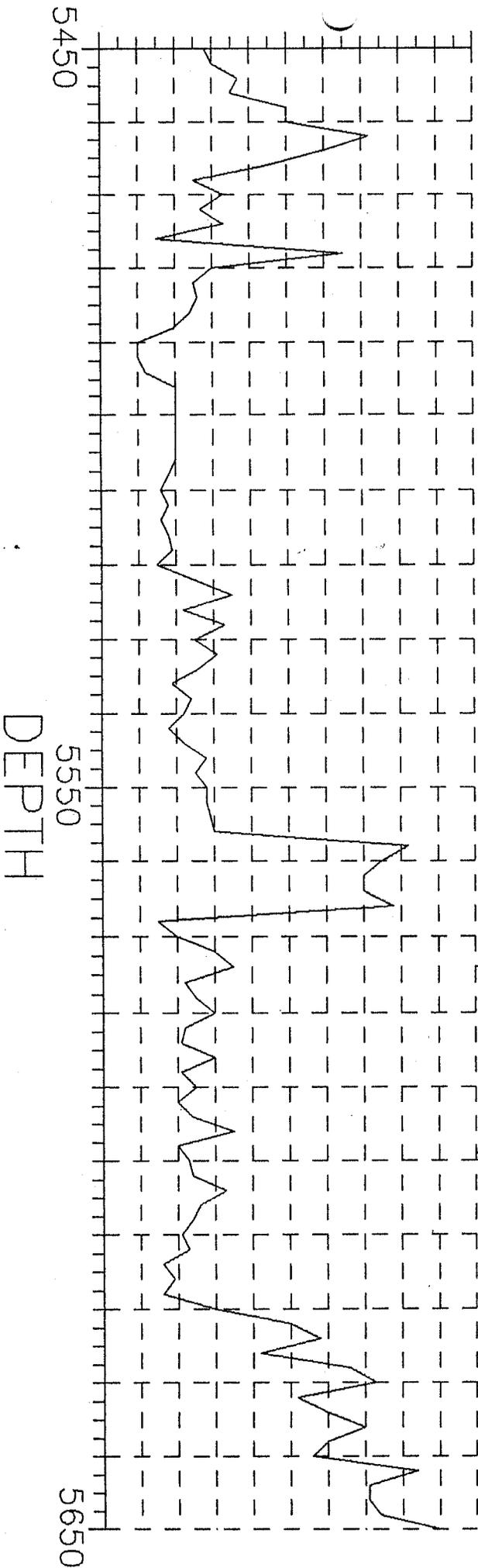
redbrn sh, arg, clay,
 non-calc to sli calc
 redbrn sltst, calc-silic

redbrn sltst, calc-silic

wh-ltgy qtzose ss,
 f-crs grn, w cmtd
 wh-ltgy qtzose ss,
 f-crs grn, w cmtd
 redbrn sltst, calc-silic

redbrn sltst, calc-silic
 ABNT CVNGS
 gy-brn sh, sli calc, sndy

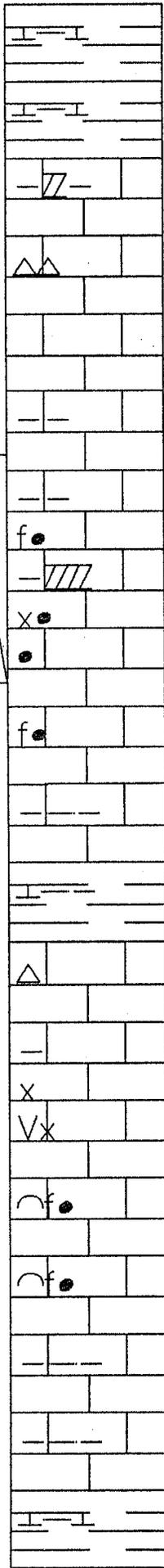
mgy lime mdst, dns
 approx top Desmoines
 wh-lt gybrn ss, v calc
 arg, w/intbdd dk sh
 wh-lt gybrn ss, v calc
 arg, w/intbdd dk sh
 wh-lt gybrn ss, v calc
 arg, w/intbdd dk sh
 wh-lt gybrn ss, v calc
 arg, w/intbdd dk sh



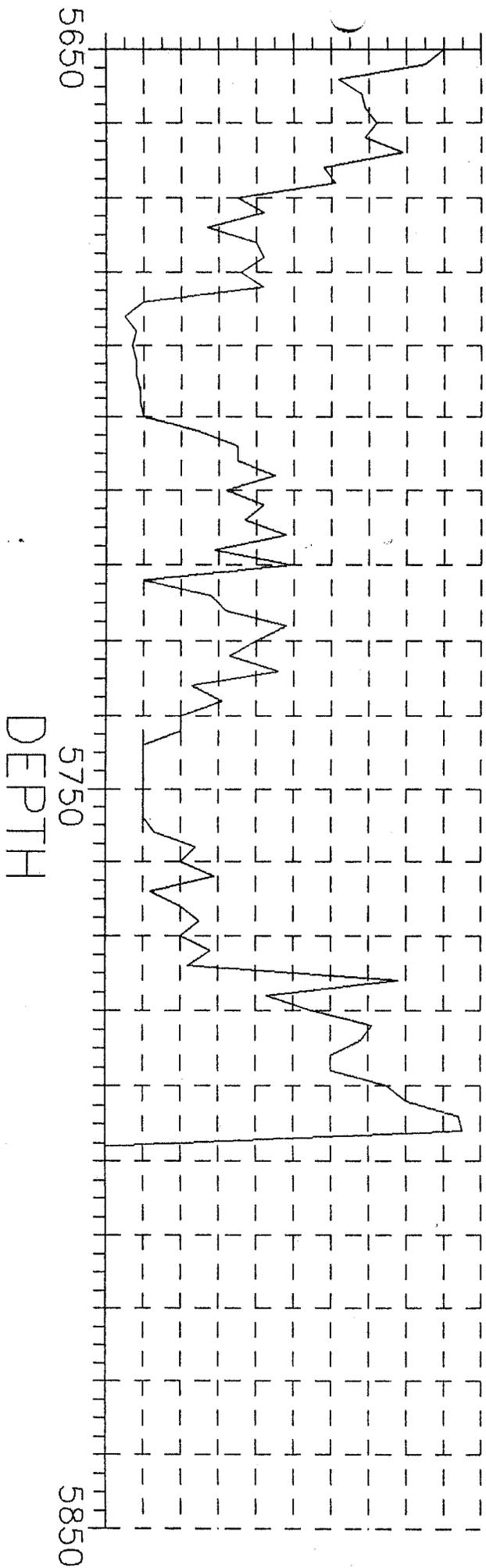
DST #1

CORE #1

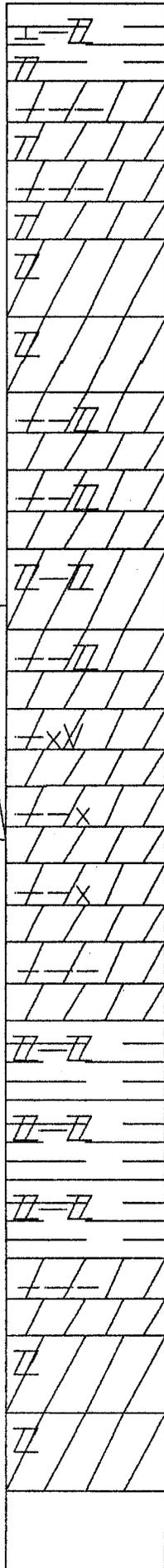
CORE #2



vdk gy-blk sh, calc, slty
 fissile, sft-frm
 vdk gy-blk sh, calc, slty
 fissile, sft-frm
 m-dkgy arg lime mdst
 non-foss, tr anhy
 m gy dns lime mdst
 sli cherty
 m gy dns lime mdst
 m gy dns lime mdst
 m gy dns lime mdst
 washout, poro err
 lt-mgy lime mdst, arg,
 dolo, anhy, GD O&G sho
 m gy dns lime mdst
 m gy dns lime mdst
 tr pel, foss frag
 dk gy lime mdst, arg,
 slty, non-foss
 m gy dns lime mdst,
 sli cherty- silic
 m-dkgy lime mdst
 mgy, dns ls w/occ
 calcite/anhy filled vugs
 lost btm 5.5' core
 Core #2 5600-5630'
 mgy, dns lime wkst
 aa, w/ O bledg from vert
 dkgy lime mdst, slty, arg
 non-foss
 dkgy lime mdst, slty, arg
 non-foss
 v dkgy-blk slty sh
 v calc



DST #2



v dkgy-blk slty sh
 sli calc-v dolo
 v dkgy slty dolo mdst
 tr anhy Top DC 5665
 v dkgy slty dolo mdst
 tr anhy
 wh anhy, v sft, amorph
 U DC anhy 5681-5701'
 wh anhy, v sft, amorph
 sli dolo
 v dkgy slty, arg, anhy
 dolo mdst
 v dkgy slty, arg, anhy
 dolo mdst
 v dkgy slty dolo mdst &
 thin anhy bd (5722-24')
 v dkgy slty, arg, anhy
 dolo mdst
 lith aa, tr xtl n & vug
 poro gd drlg brk, o&g sho
 vps, v dkgy slty, arg,
 dolo mdst, tr intxtln poro
 vps, v dkgy slty, arg,
 dolo mdst, tr intxtln poro
 v dkgy arg-slty dolo mdst
 non-foss, no vis poro
 blk dolo slty sh, v fiss
 Top Chmny Rock Sh 5775
 blk dolo slty sh, v fiss
 blk dolo slty sh, v fiss
 Top Akah 5807'
 v dkgy arg-slty dolo mdst
 gd fluor & cut
 ltgy-wh, sft anhy
 caprock to Pdx salt
 TD drlr 5830'