

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

(Other instructions on reverse side)

5. Lease Designation and Serial No.  
U-47876  
6. If Indian, Allottee or Tribe Name  
N/A  
7. Unit Agreement Name  
N/A  
8. Farm or Lease Name  
Cave Canyon Federal  
9. Well No.  
#4-3  
10. Field and Pool, or Wildcat  
Cave Canyon  
11. Sec., T., R., M., or Blk. and Survey or Area  
Sec. 4, T38S - R24E

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work  
DRILL  DEEPEN  PLUG BACK   
b. Type of Well  
Oil Well  Gas Well  Other  Single Zone  Multiple Zone   
2. Name of Operator 303/759-3303 1777 S. Harrison St., PH I  
Raymond T. Duncan Denver, CO 80210  
3. Address of Operator 303/322-7878 P.O. Box 44065  
Permitco Inc. - Agent Denver, CO 80201-4065  
4. Location of Well (Report location clearly and in accordance with any State requirements.\*)  
At surface 1310' FNL and 200' FEL  
At proposed prod. zone NE NE

14. Distance in miles and direction from nearest town or post office\*  
12.5 miles northwest of Hatch Trading Post  
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drilg. line, if any)  
10'  
16. No. of acres in lease  
1289.44  
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.  
approx 1200'  
19. Proposed depth  
6110' AK  
20. Rotary or cable tools  
Rotary  
21. Elevations (Show whether DF, RT, GR, etc.)  
5336' GR  
22. Approx. date work will start\*  
Immediately upon approval of this application

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#	100'	Circulated to surface.
12-1/4"	8-5/8"	24#	1900'	1100 sx or suffic to circ to surf
7-7/8"	5-1/2"	15.5#	6110'	400 sx or suffic. to cover zones of interest.

Raymond T. Duncan proposes to drill a well to 6110' to test the Ismay and Desert Creek formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached.

We realize that the above mentioned location is staked at unauthorized footages based on the requirements of the State of Utah, Division of Oil, Gas and Mining. This location was chosen based on seismic data and topographic reasons. Raymond T. Duncan is the lease holder of Sections 3 & 4, T38S - R24E. We therefore, requested request an exception to the spacing requirements for the State of Utah.

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: Raymond T. Duncan Title: Consultant for Raymond T. Duncan Date: 4/28/88

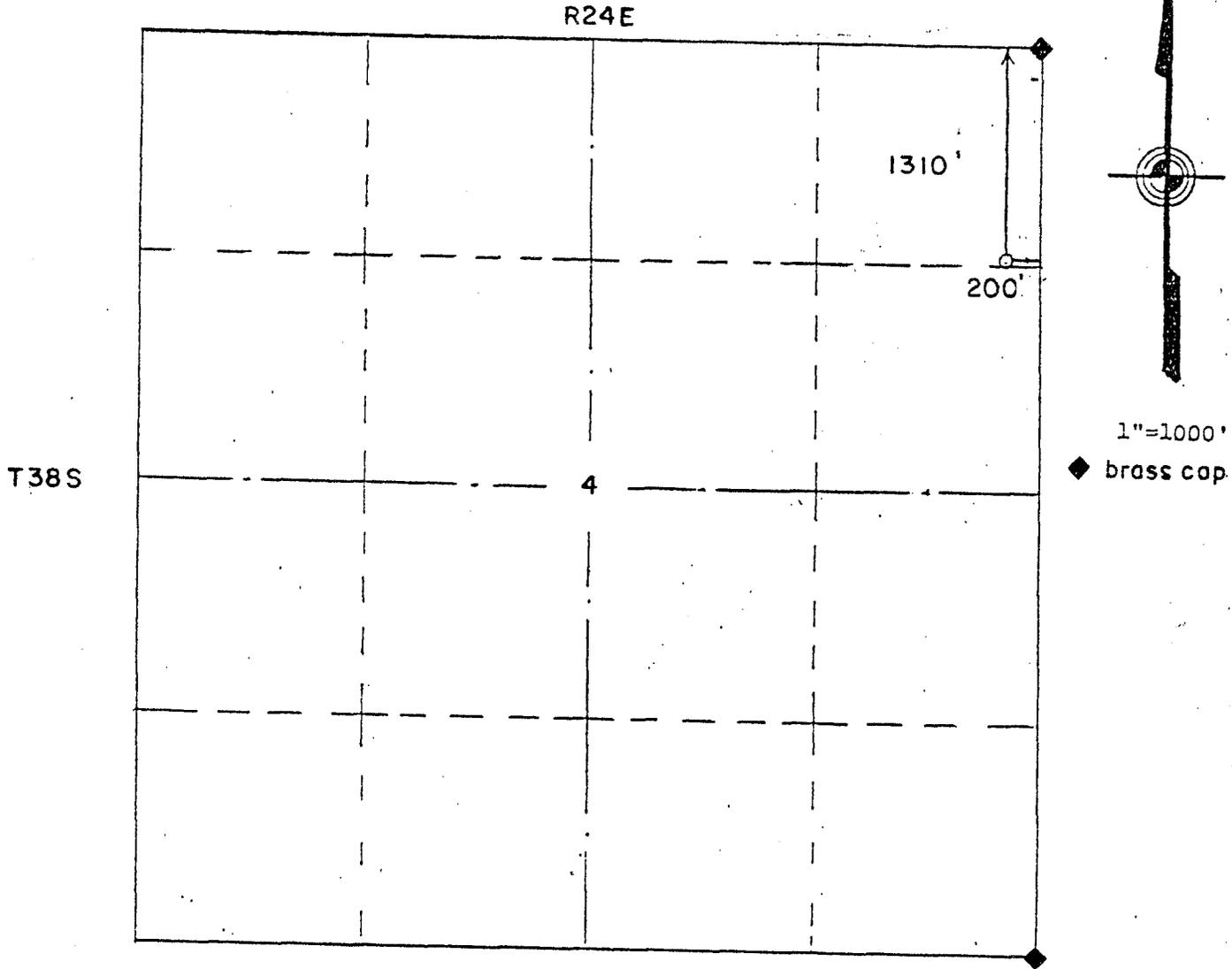
(This space for Federal or State office use)  
Permit No. 43-037-31414 Approval Date  
Approved by: [Signature] Title: APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING  
Conditions of approval: any DATE: 5-4-88  
MAY 2 1988

DIVISION OF OIL, GAS & MINING

\*See Instructions On Reverse Side

BY: [Signature]  
WELL SPACING: R/L 15-3-3

WELL LOCATION AND ACREAGE DEDICATION PLAT



WELL LOCATION DESCRIPTION:  
 R.T. Duncan, Cave Canyon #4-3  
 1310'FNL & 200'FEL  
 Section 4, T.38 S., R.24 E., SLM  
 San Juan County, Utah  
 5336' ground elevation  
 Alternate: 1400'FNL & 200'FEL, 5226' grd.

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

25 April 1988

REGISTERED LAND SURVEYOR  
 No. 5705  
 GERALD G. HUDDLESTON  
 STATE OF UTAH  
*Gerald G. Huddleston*  
 Gerald G. Huddleston, LS

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

(Other instructions on reverse side)

5. Lease Designation and Serial No.

U-47876

6. If Indian, Allottee or Tribe Name

N/A

7. Unit Agreement Name

N/A

8. Farm or Lease Name

Cave Canyon Federal

9. Well No.

#4-3

10. Field and Pool, or Wildcat

Cave Canyon

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

Sec. 4, T38S - R24E

12. County or Parrish 13. State

San Juan Utah

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

DRILL [X]

DEEPEN [ ]

PLUG BACK [ ]

b. Type of Well

Oil Well [X]

Gas Well [ ]

Other [ ]

Single Zone [X]

Multiple Zone [ ]

2. Name of Operator 303/759-3303

Raymond T. Duncan

1777 S. Harrison St., PH I

Denver, CO 80210

3. Address of Operator 303/322-7878

Permitco Inc. - Agent

P.O. Box 44065

Denver, CO 80201-4065

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

At surface

1310' FNL and 200' FEL

At proposed prod. zone

NE NE

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Rotary

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

5336' GR

22. Approx. date work will start\*

Immediately upon approval of this application

PROPOSED CASING AND CEMENTING PROGRAM

Table with 5 columns: Size of Hole, Size of Casing, Weight per Foot, Setting Depth, Quantity of Cement. Rows include 17-1/2", 12-1/4", and 7-7/8" hole sizes.

Raymond T. Duncan proposes to drill a well to 6110' to test the Ismay and Desert Creek formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

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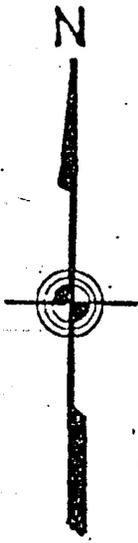
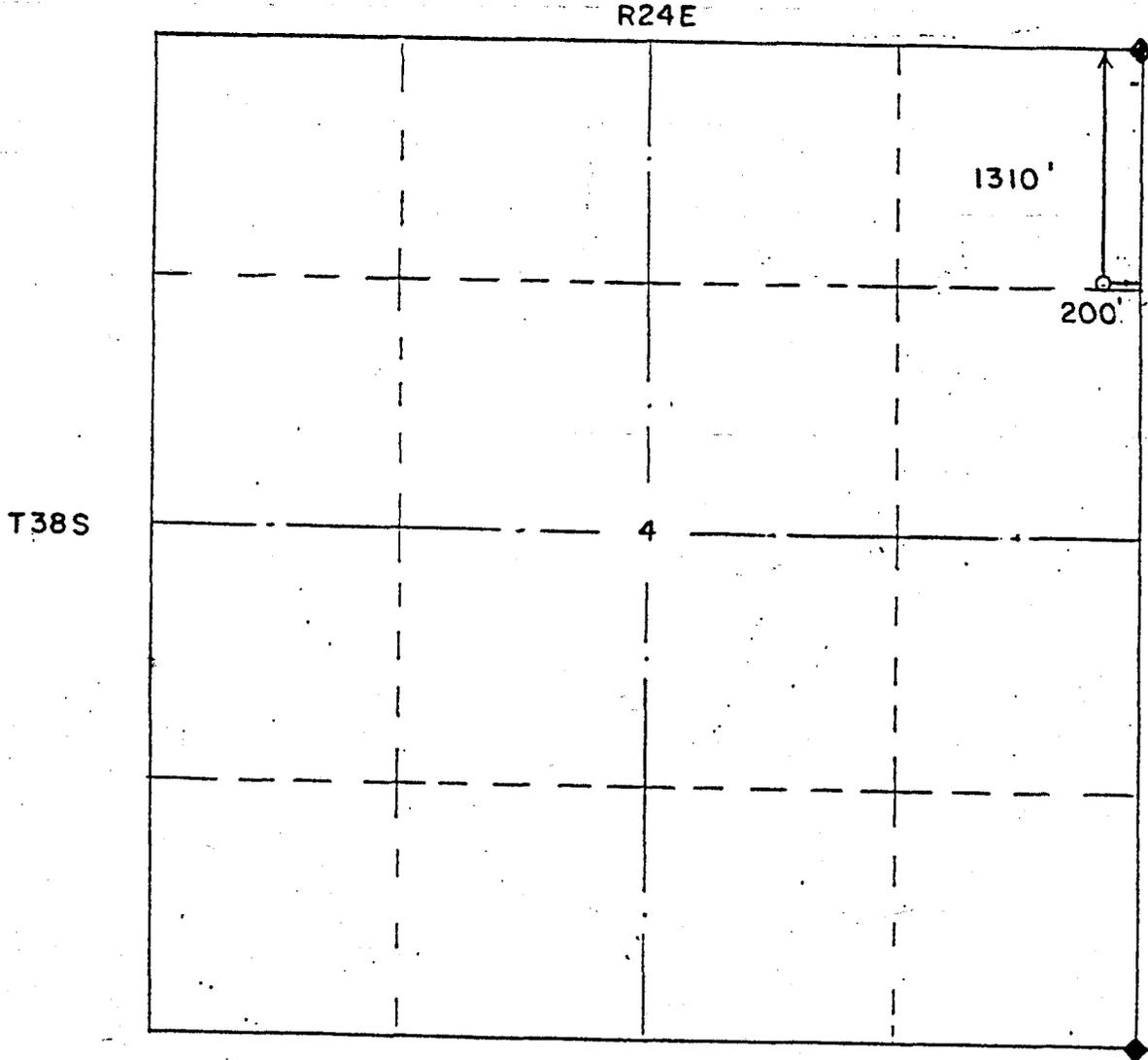
24. Signed [Signature] Title: Consultant for Raymond T. Duncan Date: 4/28/88

Permit No. Approval Date

Approved by Title Date

Conditions of approval, if any:

WELL LOCATION AND ACREAGE DEDICATION PLAT



1"=1000'  
 ◆ brass cap.

WELL LOCATION DESCRIPTION:  
 R.T. Duncan, Cave Canyon #4-3  
 1310'FNL & 200'FEL  
 Section 4, T.38 S., R.24 E., SLM  
 San Juan County, Utah  
 5336' ground elevation  
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25 April 1988

REGISTERED LAND SURVEYOR  
 No. 5705  
 GERALD G. HUDDLESTON  
*Gerald G. Huddleston*  
 Gerald G. Huddleston, LS  
 STATE OF UTAH

Raymond T. Duncan  
Well No. Cave Canyon Federal 4-3  
Sec. 4, T. 38 S., R. 24 E.  
San Juan County, Utah  
Lease U-47876

CONDITIONS OF APPROVAL

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

Raymond T. Duncan is the bonded entity on this application. Liability will remain with the bonded party named above until we are formally notified by letter of the new bonded entity in reference to this Application for Permit to Drill.

A. DRILLING PROGRAM

1. B.O.P. specifications and testing:
  - a) All ram-type preventers will be tested to the rated working pressure to the stack or to 70% of the internal yield of the casing, whichever is less.
  - b) Surface casing (8-5/8") shall be set at least 50' into the Chinle formation and cement circulated to surface.

B. THIRTEEN POINT SURFACE USE PLAN

1. All site security guidelines identified in 43 CFR 3162.7-4 regulations will be adhered to.
2. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed.
3. If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligation determined by the authorized officer.

NOTIFICATIONS

Notify the San Juan Resource Area, at (801) 587-2141 for the following:

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

1 day prior to spudding;

Notify the Moab District Office, Branch of Fluid Minerals at (801) 259-6111 for the following:

No well abandonment operations will be commenced without the prior approval of the District Manager. In the case of newly drilled dry holes, and in emergency situations, verbal approval can be obtained by calling the following individuals, in the order listed.

Dale Manchester, Petroleum Engineer      Office Phone: (801) 259-6111

Home Phone: (801) 259-6239

Lynn Jackson, Chief, Branch of Fluid Minerals

Office Phone: (801) 259-6111

Home Phone: (801) 259-7990

Paul Brown, I&E Coordinator

Office Phone: (801) 259-6111

Home Phone: (801) 259-7018

24 hours advance notice is required for all abandonments.

# FILING FOR WATER IN THE STATE OF UTAH

RECEIVED  
Rec. by: JD  
Fec Rec. 38 00  
Receipt # 4163  
Microfilmed  
Roll #

TEMPORARY

## APPLICATION TO APPROPRIATE WATER RIGHTS

MAY 0 1988  
WATER RIGHTS  
LAKES

MAY 2 1988

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of Title 73, Chapter 3 of the Utah Code Annotated (1953, as amended).

\* WATER RIGHT NO. 09 - 1572 \* APPLICATION NO. A T63217

1. \*PRIORITY OF RIGHT: May 2, 1988 \* FILING DATE: May 2, 1988

2. OWNER INFORMATION 303/322-7878  
Name(s): Raymond T. Duncan c/o Permitco Inc. \* Interest: 100 %  
Address: P.O. Box 44065  
City: Denver State: CO Zip Code: 80202  
Is the land owned by the applicant? Yes        No XX  
(If "No", please explain in EXPLANATORY section.)

3. QUANTITY OF WATER: XX cfs and/or 5 ac-ft

4. SOURCE: Artesian Well \* DRAINAGE:         
which is tributary to         
which is tributary to         
POINT(S) OF DIVERSION:        COUNTY: San Juan  
N 531' and E 1810' from West 1/4 of Section 1, T38S - R24E  
(Permit No. 09-156) (Richard Gore)

Description of Diverting Works: Enclosed pump truck w/the capacity of 80-100 bbls.  
\* COMMON DESCRIPTION: 8 1/2 miles North of Hatch Trading Post Monument Canyon Quad

5. POINT(S) OF REDIVERSION  
The water will be rediverted from N/A at a point:  
        
      

Description of Rediverting Works: N/A

6. POINT(S) OF RETURN  
The amount of water consumed will be        cfs or 5 ac-ft  
The amount of water returned will be        cfs or 0 ac-ft  
The water will be returned to the natural stream/source at a point(s): N/A

7. STORAGE  
Reservoir Name: N/A Storage Period: from        to         
Capacity: N/A ac-ft. Inundated Area:        acres  
Height of dam: N/A feet  
Legal description of inundated area by 40 acre tract(s):       

\* These items are to be completed by the Division of Water Rights

TEMPORARY

Appropriate

8. List any other water rights which will supplement this application None that will be  
used by Raymond T. Duncan

9. NATURE AND PERIOD OF USE

Irrigation: From \_\_\_\_\_ to \_\_\_\_\_  
Stockwatering: From \_\_\_\_\_ to \_\_\_\_\_  
Domestic: From \_\_\_\_\_ to \_\_\_\_\_  
Municipal: From \_\_\_\_\_ to \_\_\_\_\_  
Mining: From \_\_\_\_\_ to \_\_\_\_\_  
Power: From \_\_\_\_\_ to \_\_\_\_\_  
Other: Oil & Gas Well Drilg. From 5/1/88 to 5/1/89 (for a period of 45 days during that period)

10. PURPOSE AND EXTENT OF USE

Irrigation: N/A acres. Sole supply of \_\_\_\_\_ acres.  
Stockwatering (number and kind): N/A  
Domestic: N/A Families and/or \_\_\_\_\_ Persons  
Municipal (name): N/A  
Mining: N/A Mining District in the \_\_\_\_\_ Mine  
Ores mined: \_\_\_\_\_  
Power: Plant name: N/A Type: \_\_\_\_\_ Capacity: \_\_\_\_\_  
Other (describe): Oil & Gas well drilling

11. PLACE OF USE

Legal description of place of use by 40 acre tract(s):  
Cave Canyon Fed. #4-3 - 1310' FNL and 200' FEL, Sec. 4, T38S - R24E, San Juan  
Cave Canyon Fed. #3-3 - 2635' FNL and 1390' FWL, Sec. 3, T38S - R24E, San Juan  
#4-3: S. 1310 ft. & W. 200 ft. from NE Cor. Sec. 4, T38S, R24E, SLB&M (NE1/4).  
#3-3: S. 2635 ft. & E. 1390 ft. from NW Cor. Sec. 3, T38S, R24E, SLB&M (SE1/4).  
(4-3) 43-037-31414-Dril. Cont. (3-3) 43-037-31413-Dril. Cont.

12. EXPLANATORY

The following is set forth to define more clearly the full purpose of this application. (Use additional pages of same size if necessary):

The surface at the drillsite is owned by the Bureau of Land Management, the minerals are owned by the Federal Government and the extraction rights to Federal Lease No. U-47876 are owned by Raymond T. Duncan

\*\*\*\*\*  
The applicant(s) hereby acknowledges that he/she/they are a citizen(s) of the United States of America or intends to become such a citizen(s). The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purposes herein described. The undersigned hereby acknowledges that even though he/she/they may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the Division of Water Rights, all responsibility for the accuracy of the information contained herein, at the time of filing, rests with the applicant(s).

Lisa L. Green  
Signature of Applicant(s)  
Lisa L. Green - Authorized Agent for:  
RAYMOND T. DUNCAN

TEMPORARY

STATE ENGINEER'S ENDORSEMENT

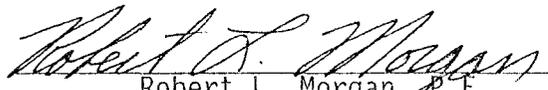
WATER RIGHT NUMBER: 09 - 1572

APPLICATION NO. T63217

1. May 2, 1988                      Application received by MP.
  2. May 3, 1988                      Application designated for APPROVAL by MP and KLJ.
  3. Comments:
- 
- 

Conditions:

This application is hereby APPROVED, dated May 13, 1988, subject to prior rights and this application will expire on May 13, 1989.

  
Robert L. Morgan, P.E.  
State Engineer

ONSHORE OIL & GAS ORDER NO. 1

Approval of Operations on Onshore  
Federal and Indian Oil and Gas Leases

CAVE CANYON FEDERAL #4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

Prepared For:

RAYMOND T. DUNCAN

By:

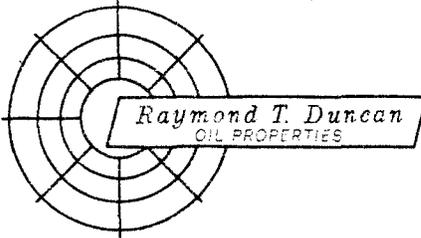
PERMITCO INC.  
P.O. Box 44065  
Denver, Colorado 80201-4065  
303/322-7878

Copies Sent To:

- 4 - BLM - Moab, Utah
- 1 - BLM - Monticello, Utah
- 1 - Div. of Oil, Gas & Mining - SIC, Utah
- 3 - Raymond T. Duncan - Denver, CO



Permitco Incorporated  
A Petroleum Permitting Company



1777 SOUTH HARRISON STREET • PENTHOUSE ONE  
TELEPHONE (303) 759-3303 • DENVER, COLORADO 80210

April 18, 1988

Bureau of Land Management  
P. O. Box 970  
Moab, Utah 84532

Re: Cave Canyon No. 4-3  
Lease U-47876  
1400' FNL & 200' FEL  
SE NE Sec. 4-38S-24E  
San Juan Co., UT

Cave Canyon No. 3-3  
Lease U-47876  
1150' FWL & 2450' FSL  
NW SW Sec. 3-38S-24E  
San Juan Co., UT

Gentlemen:

This letter is to inform you that Permitco is authorized to act as Agent and to sign documents on behalf of Raymond T. Duncan when necessary for filing County, State, and Federal permits including Onshore Order No. 1, Right-of-Way applications, etc., for the above captioned wells.

It should be understood that Permitco is acting as Agent only in those matters stated above and is not responsible for drilling, completion, production, or compliance with regulations.

Raymond T. Duncan agrees to accept full responsibility for operations conducted in order to drill, complete, and produce the above captioned wells.

Very truly yours,  
RAYMOND T. DUNCAN

W.S. Fallin  
Production Manager

WSF:nr

ONSHORE ORDER NO. 1  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

DRILLING PROGRAM

ONSHORE OIL & GAS ORDER NO. 1  
Approval of Operations on Onshore  
Federal and Indian Oil and Gas Leases

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil and Gas Order No. 1, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

1. The surface formation and estimated formation tops to be encountered are as follows:

<u>Formation</u>	<u>Depth</u>	<u>Subsea</u>
Dakota	Surface	
Hermosa Group	4737'	+ 612'
Ismay	5689'	- 340'
Upper Ismay Porosity	5729'	- 380'
Lower Ismay	5901'	- 552'
Gothic Shale	5951'	- 602'
Desert Creek	5977'	- 628'
Lower Desert Creek Por.	6035'	- 686'
Chimney Rock Shale	6059'	- 710'
Akah	6083'	- 734'
T.D.	6110'	- 761'

2. The estimated depths at which oil, gas, water or other mineral bearing zones are expected to be encountered are as follows:

<u>Substance</u>	<u>Formation</u>	<u>Anticipated Depth</u>
Oil	Ismay	5689'
Oil	Desert Creek	5977'

All fresh water and prospectively valuable minerals (as described by BLM at onsite) encountered during drilling, will be recorded by depth cased and cemented. All oil and gas shows will be tested to determine commercial potential.



Permitco Incorporated  
A Petroleum Permitting Company

ONSHORE ORDER NO.  
 Raymond T. Duncan  
 Cave Canyon Federal 4-3  
 1310' FNL and 200' FEL  
 Section 4, T38S - R24E  
 San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

DRILLING PROGRAM

3. Pressure control equipment will consist of a 10", 3000# BOP. (See BOP Diagram attached.)

BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

4. a. Casing

The proposed casing program is as follows:

<u>Purpose</u>	<u>Depth</u>	<u>Hole Size</u>	<u>O.D.</u>	<u>Wt.</u>	<u>Grade</u>	<u>Type</u>	<u>New or Used</u>
Conductor	0-100'	17-1/2"	13-3/8"	48#	----	-----	New
Surface	0-1900'	12-1/4"	8-5/8"	24#	K-55	ST&C	New
Produc.	0-6110'	7-7/8"	5-1/2"	15.5#	K-55	LT&C	New

- b. Cement

The cementing program will be as follows:

<u>Conductor</u> 0-100'	<u>Type and Amount</u> Sufficient to circulate to surface
<u>Surface</u> 0-1900'	<u>Type and Amount</u> 1100 sx or sufficient to circulate to surface.
<u>Production</u>	<u>Type and Amount</u> 400 sx or - sufficient to cover zones of interest.

Anticipated cement tops will be reported as to depth, not the expected number of sacks.

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

DRILLING PROGRAM

c. Auxiliary Equipment will be as follows:

1. Kelly cock.
2. Float above the bit.
3. A sub with a full opening valve will be on the floor when the kelly is not in use.

5. Drilling fluid will be as follows:

<u>Interval</u>	<u>Mud Type</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>F/L</u>	<u>PH</u>
0-4400'	Natural	9.0-9.2	35	10-20	--
4400-T.D.	Chem. Gel	9.5-12.0	45	10 thru pays	

Monitoring of the system will be done visually.

6. Coring, logging and testing programs are as follows:

- a. No cores are anticipated.
- b. The logging program will consist of the following: A Dual Induction will be run from 1900' to T.D. A BHC Acoustic and BHC Density/CNL will be run from 4500' to T.D.
- c. No drill stem tests are anticipated.

Whether the well is completed as a dry hole or as a producer, "Well Completion or Recompletion Report and Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analysis, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the District Manager.

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

DRILLING PROGRAM

7. Abnormal conditions, bottom hole pressures and potential hazards.
  - a. The maximum bottom hole pressure to be expected is 2500 psi.
  
8. Anticipated Starting Dates and Notifications of Operations
  - a. Raymond T. Duncan plans to spud the Cave Canyon Federal #4-3 immediately upon approval of this application and intends to complete the well within approximately one month after the well has reached T.D.
  - b. Written notification in the form of a Sundry Notice will be submitted to the Div. of Oil, Gas & Mining within twenty-four (24) hours after spudding. If the spudding occurs on a weekend or holiday, the written report will be submitted on the following regular work day.
  - c. Immediate Report: Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported to the Div. of Oil, Gas & Mining.
  - d. Should the well be successfully completed for production, the Div. of Oil, Gas & Mining will be notified when the well is placed in a producing status. Such notification will be sent by telegram or other written communication, not later than five (5) business days following the date on which the well is placed on production.
  - e. A "Subsequent Report of Abandonment" will be filed with the Div. of Oil, Gas & Mining within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the surface owner.

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

DRILLING PROGRAM

- f. Approval to vent/flare gas during initial well evaluation will be obtained from the Div. of Natural Resources - State of Utah, Moab. This preliminary approval will not exceed 30 days. Approval to vent/flare beyond this initial test period will require approval from the Div. of Natural Resources.
- g. Upon completion of approved plugging, a regulation marker will be erected. The marker will be constructed as follows: Above ground pipe. The top of the marker will be closed or capped.
- h. The following minimum information will be permanently placed on the marker with a plate, cap, or beaded-on with a welding torch:

"Well number, location by 1/4 1/4, section, township and range". "Lease number".

COLEMAN DRILLING CO.

WELL NAME: \_\_\_\_\_

LOCATION : \_\_\_\_\_

9-5/8" Drilling Nipple / " 7" Circulating Line

B.O.P. Bld Rams 10 "x 3000 W.P.

B.O.P. D.P. Rams 10 "x 3000 W.P.

Not Required

Hyd. Valve - " - - W.P. (Omit)

Check Valve 2 "x 3000 W.P.

Valve 2 " 3000 W.P.

Valve 2 " 3000 W.P.

Valve 2 " 3000 W.P.

2 " Line  
MANIFOLD LINE  
3000 W.P.  
(See Exhibit "B")

KILL LINE MANIFOLD

Spool 10 "x 3000 W.P.

Ground Level

WELL HEAD B.O.P.

3000 #W.P.

Hydraulic

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

ONSHORE OIL & GAS ORDER NO. 1

Thirteen Point Surface Use Plan

1. Existing Roads

- a. The proposed well site is located 12.5 miles northwest of Hatch Trading Post.
- b. Directions to the location from Hatch Trading Post are as follows:  
  
Go north and west on the Perkins Road #206 for 9.2 miles to the intersection of the Montezuma Creek Road. Continue west on the Perkins Road #206 for 2.7 miles. Turn north onto the existing lease road and proceed northwesterly for approximately 3/4 mile. Turn left (west) onto new access (flagged) and proceed approximately 175 feet to the location.
- c. The roads in the area are primarily county roads. See Map #1.
- d. Improvement to the existing access will not be necessary.
- e. All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.
- f. An encroachment permit will be obtained from the San Juan County Road Department, 801/587-2231, ext. 43.

2. Planned Access Roads

- a. There will be approximately 175 feet new access. This access was flagged at the time of staking.
- b. The maximum total disturbed width will be 30 feet.
- c. The grade will be 5% or less.
- d. No turnouts will be necessary. No additional drainage will be necessary during drilling operations.

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

2. Planned Access Roads (cont.)
  - e. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance by the surface owner.
  - f. The access road will be water barred or brought to Class III Road Standards within 60 days of dismantling of the drilling rig. If this time frame cannot be met, the San Juan Area Manager will be notified so that temporary drainage control can be installed along the access road.
  
3. Location of Existing Wells Within a 1-Mile Radius of the Proposed Location. (See Map #2).
  - a. Water Wells - none
  - b. Injection or disposal wells - none
  - c. Producing Wells - five
  - d. Drilling Wells - none
  
4. Location of Tank Batteries and Production Facilities.
  - a. All permanent structures (onsite for six months or longer) constructed or installed (including oil well pump jacks) will be painted a flat, nonreflective, earthtone color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded. The color will be neutral to blend in with the terrain.
  - b. If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 1-1/2 times the storage capacity of the largest tank.

ONSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

4. Production Facilities (cont.)

- c. If the well is productive, the production facilities will be located at a central tank battery located at the Cave Canyon #3-2 in the NE SW Section 3, T38S - R24E, San Juan County, Utah.
- d. All loading lines will be placed inside the berm surrounding the tank battery.
- e. Any necessary pits will be properly fenced to prevent any wildlife entry. The production pit will be flagged overhead.
- f. All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the State of Utah - Natural Resources Office, Moab, Utah.
- g. Gas meter runs for each well will be located within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and 500 feet downstream of the meter run or any production facilities. Meter runs will be housed and/or fenced.
- h. The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first three months on new meter installations and at least quarterly thereafter. The Area Manager will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the Resource Area Office. All meter measurement facilities will conform with the API standards for liquid hydrocarbons and the AGA standard for natural gas measurement.

5. Location and Type of Water Supply

- a. All water needed for drilling purposes will be obtained from a private source.
- b. Water will be trucked to location over the county roads in the area.

ONSHORE ORDER NO  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

5. Type and Source of Water Supply (cont.)
- c. No water well is to be drilled on this lease.
  - d. Use of water for this operation will approved by obtaining a temporary use permit from the Utah State Engineer, in Price, Utah, 801/637-1303.
  - e. Water obtained on private land, or land administered by another agency, will require approval from the owner or agency for use of the land.
6. Source of Construction Material
- a. Road surfacing material will be obtained from a commercial source. Pad construction material will be native.
  - b. The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3.
7. Methods for Handling Waste Disposal
- a. The reserve pit will not be lined unless pourous material is encountered. At least half the capacity will be in cut.
  - b. Three sides of the reserve pit will be fenced with four strands of barbed wire before drilling starts. The fourth side will be fenced as soon as the drilling is completed. The fence will be kept in good repair while the pit is drying.
  - c. All trash will be contained in a trash cage. If burning is required, a permit will be obtained from the State Fire Warden, 801/587-2237. This permit is required for burning from May 1 through October 31.
  - d. Produced waste water will be confined to a unlined pit for a period not to exceed 90 days after initial production. During the 90-day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for approval.

CNSHORE ORDER NO.  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

8. Ancillary Facilities

- a. There are no airstrips, camps, or other facilities planned during the drilling of the proposed well.

9. Well Site Layout

- a. See Diagram #1 for rig layout. See Diagram #2 for cross section of drill pad. See Diagram #3 for cuts and fills.
- b. The location of mud tanks; reserve, trash cage; pipe racks; living facilities and soil stockpiles will be shown on Diagram #1 and #3. The location will be laid out and constructed as discussed during the predrill conference.
- c. No topsoil material will be removed from the location.
- d. Access to the well pad will be from the existing access leading to the #3-1 location.

10. Reclamation

- a. Immediately upon completion of drilling, the location and surrounding area will be cleared of all remaining debris, materials, trash and junk not required for production.
- b. Before any dirt work to restore the location takes place, the reserve pit must be completely dry.
- c. All disturbed areas will be recontoured to approximate natural contours.
- d. Prior to reseeding, all disturbed areas, including the access roads, will be scarified and left with a rough surface. The location and access road will be ripped 6 inches deep with the rips 18 inches apart.

ONSHORE ORDER NO  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

10. Reclamation of Surface (cont.)

- e. Seed will be broadcast or drilled at a time specified by the BLM. If broadcast, the seed mixture will be increased by 30% and a harrow or some other implement will be dragged over the seeded area to assure seed coverage. Seeding will be done between October 1 and February 28.
- f. The following seed mixture will be used:

<u>Species</u>	<u>Lbs./acre</u>
Crested Wheatgrass	6
Fourwing Saltbush	2
Yellow Sweetclover	1/2

- h. The reserve pit and that portion of the location and access road not needed for production and production facilities will be reclaimed.

11. a. Surface Ownership

Bureau of Land Management

b. Mineral Ownership

Bureau of Land Management

12. Other Information

- a. Due to a deer wintering range stipulation, there will be no drilling on this lease between December 1st and March 1st.
- b. There will be no deviation from the proposed drilling and/or workover program without prior approval from the District Manager. Safe drilling and operating practices must be used.
- c. "Sundry Notice and Report on Wells" will be filed for approval for all changes of plans and other operations.
- d. The dirt contractor will be provided with an approved copy of the surface use plan.

ONSHORE ORDER NO  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

SURFACE USE PLAN

12. Other Information (cont.)

- e. All persons in the area who are associated with the project will be informed by the operator that they will be subject to prosecution for disturbing archaeological sites or collecting artifacts. If subsurface cultural material is exposed during construction, work at that spot will stop immediately and the BLM, San Juan Resource Area Office will be contacted (801/587-2141.) The operator will be responsible for the cost of evaluation of the discovery and proper mitigation measures. Any decision as to proper mitigation shall be made by the authorized officer after consulting with the operator.
- f. This permit will be valid for a period of one year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.
- g. An archeological study was conducted by LaPlata Archeological Consultants. No significant cultural resources were found and clearance is recommended. A copy of this report will be submitted directly by LaPlata Archeological Consultants.

13. Lessee's or Operator's Representative and Certification

Permit Matters  
PERMITCO INC.  
Lisa L. Green  
P.O. Box 44065  
Denver, CO 80201-4065  
303/322-7878

Drilling & Completion Matters  
RAYMOND T. DUNCAN  
1777 S. Harrison St.  
Penthouse One  
Denver, CO 80210  
303/759-3303 (W) -  
303/733-3604 (H) - John Bettridge

Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Raymond T. Duncan and its contractors and subcontractors in conformity with the plan and the terms and conditions under which it is approved.

ONSHORE ORDER NO. 1  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

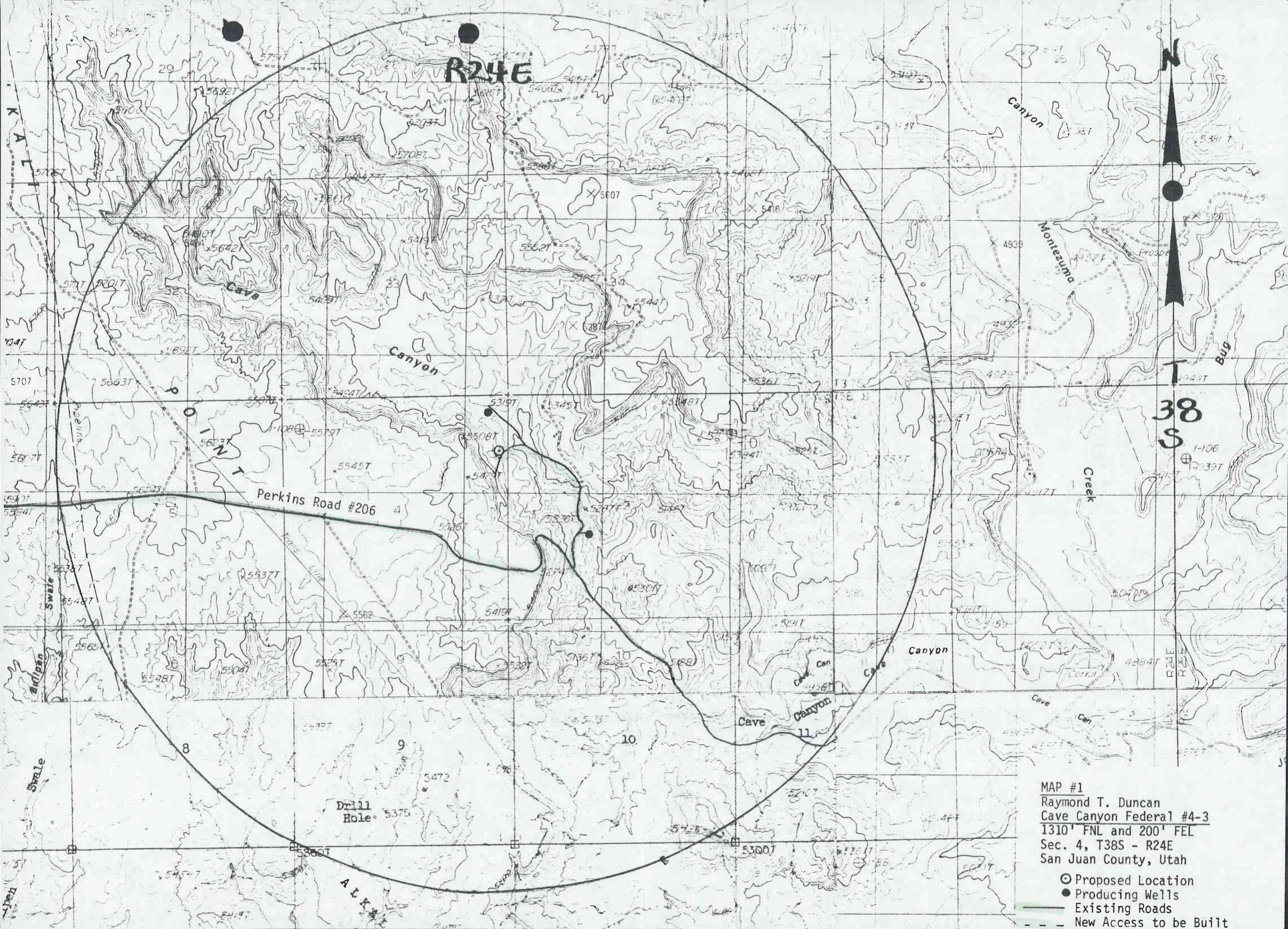
SURFACE USE PLAN

13. Certification (cont.)

This statement is subject to the provision of 18 U.S.C. 1001 for the filing of a false statement.

April 28, 1988  
Date:

  
Lisa L. Green - PERMITCO INC.  
Authorized Agent for:  
RAYMOND T. DUNCAN



R24E

T38S

MAP #1  
Raymond T. Duncan  
Cave Canyon Federal #4-3  
1310' FNL and 200' FEL  
Sec. 4, T38S - R24E  
San Juan County, Utah

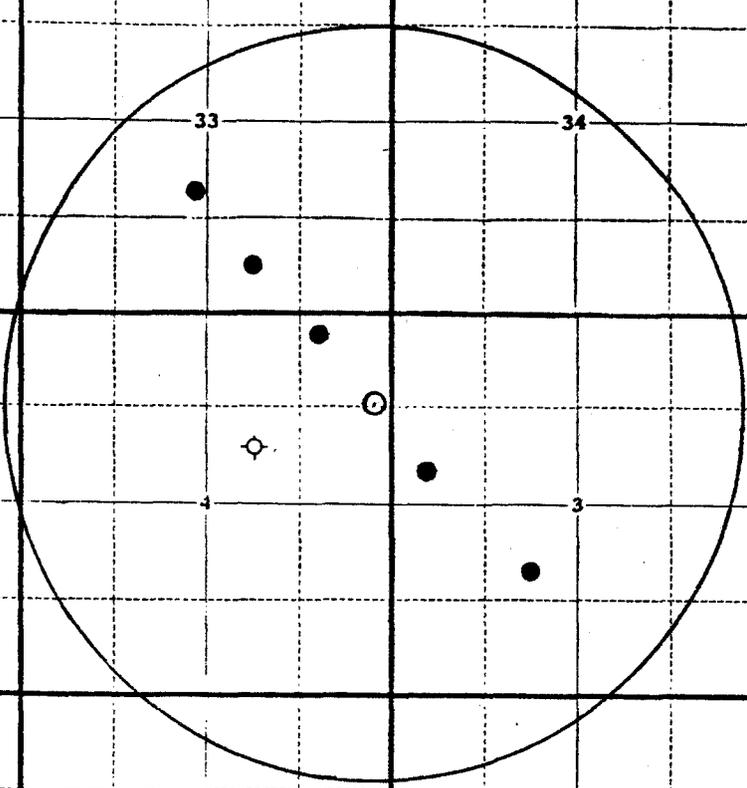
- Proposed Location
- Producing Wells
- Existing Roads
- - - New Access to be Built

R24E

N



T  
38  
S



MAP #2  
Raymond T. Duncan  
Cave Canyon Federal #4-3  
1310' FNL and 200' FEL  
Sec. 4, T38S - R24E  
San Juan County, Utah

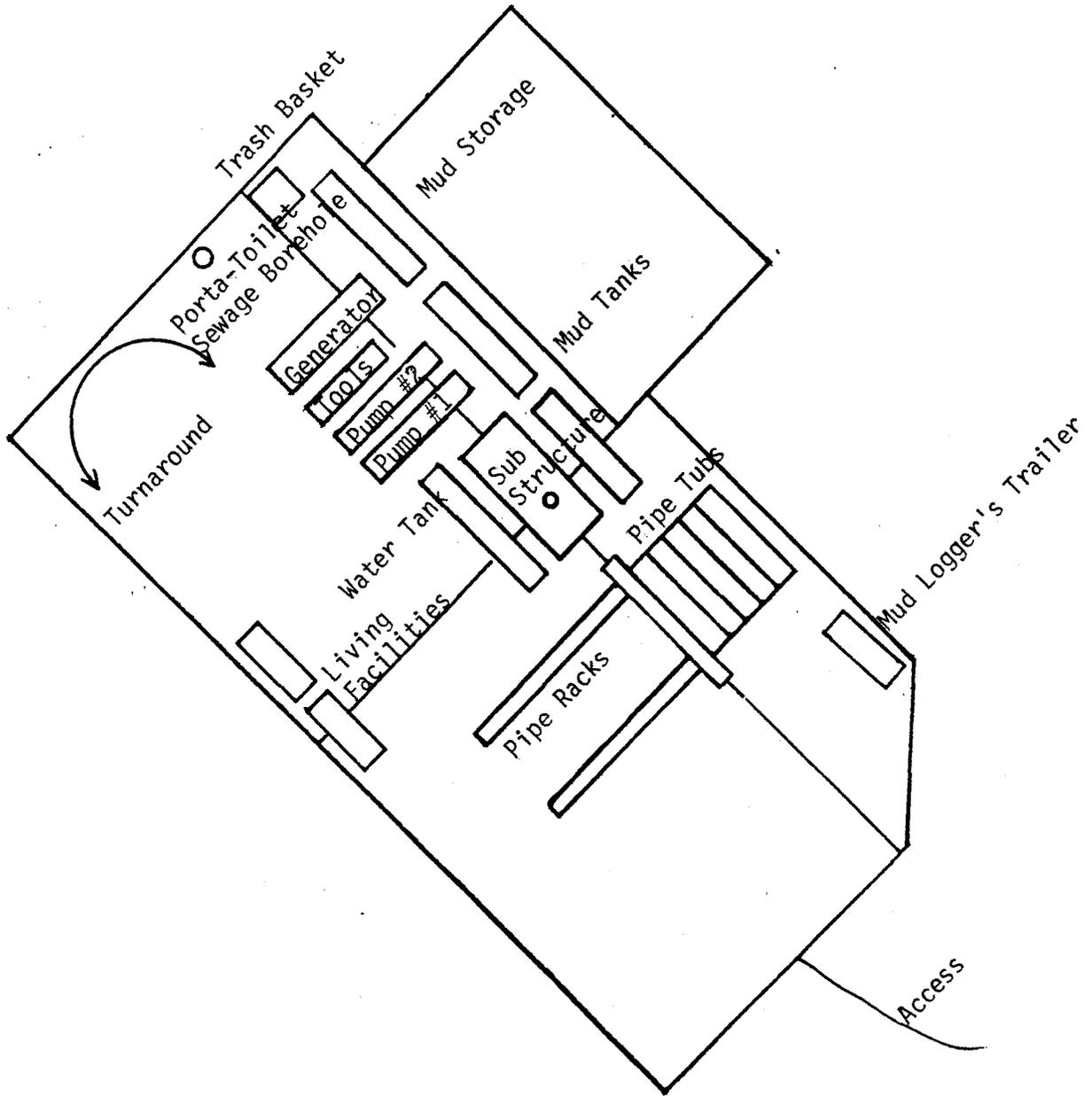
- Proposed Location
- Producing Wells
- ◊ Dry Holes



Scale: 1" = 60'

DIAGRAM #1  
Rig Layout

Raymond T. Duncan  
Cave Canyon Federal #4-3  
1310' FNL and 200' FEL  
Sec. 4, T38S - R24E  
San Juan County, Utah

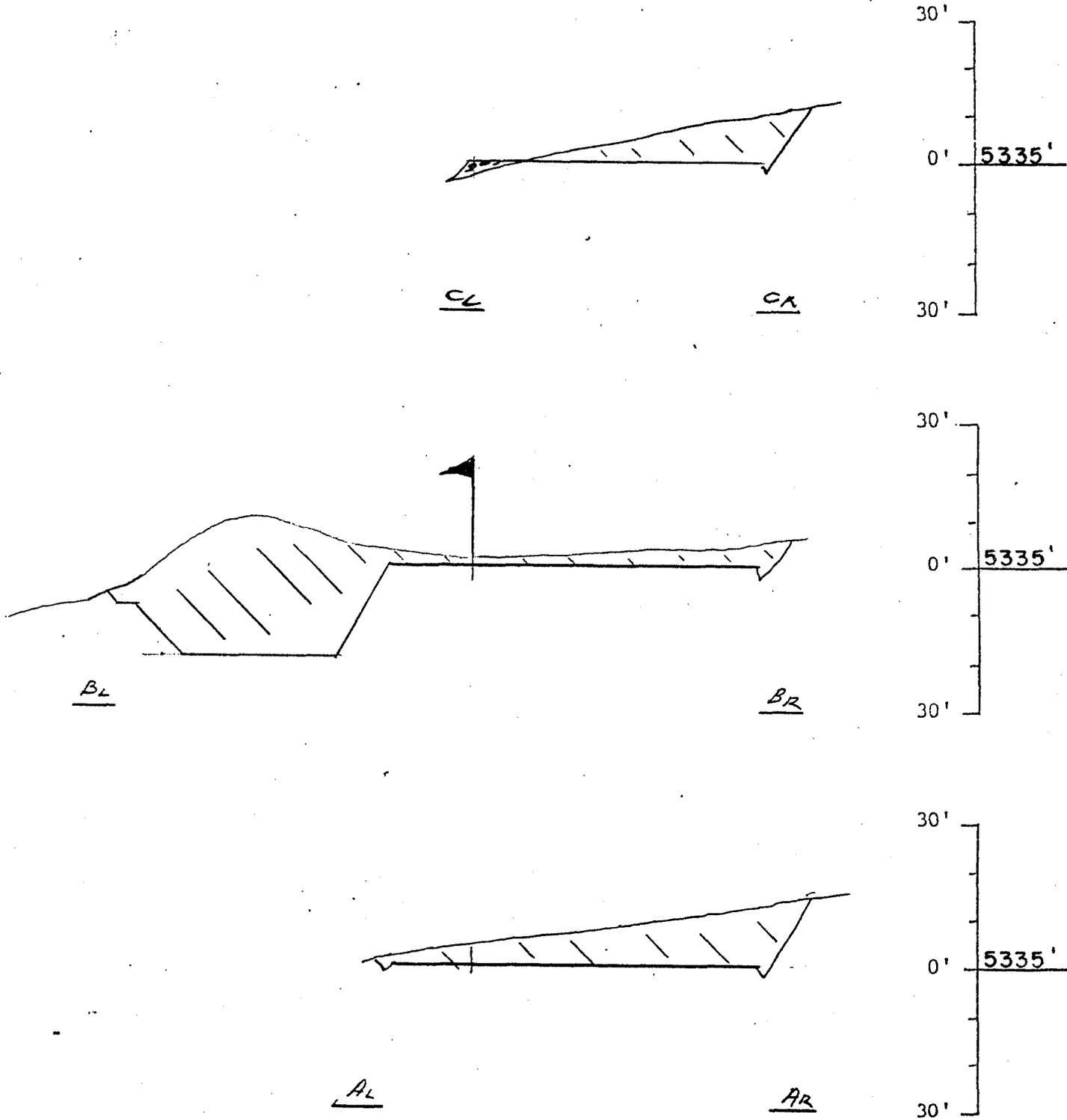


WELL PAD CROSS-SECTION

Cave Canyon 4-3  
1310' FNL and 200' FEL  
Section 4, T38S - R24E  
San Juan County, Utah

Cut /////  
Fill 

Scales: 1" = 60' H.  
1" = 30' V.



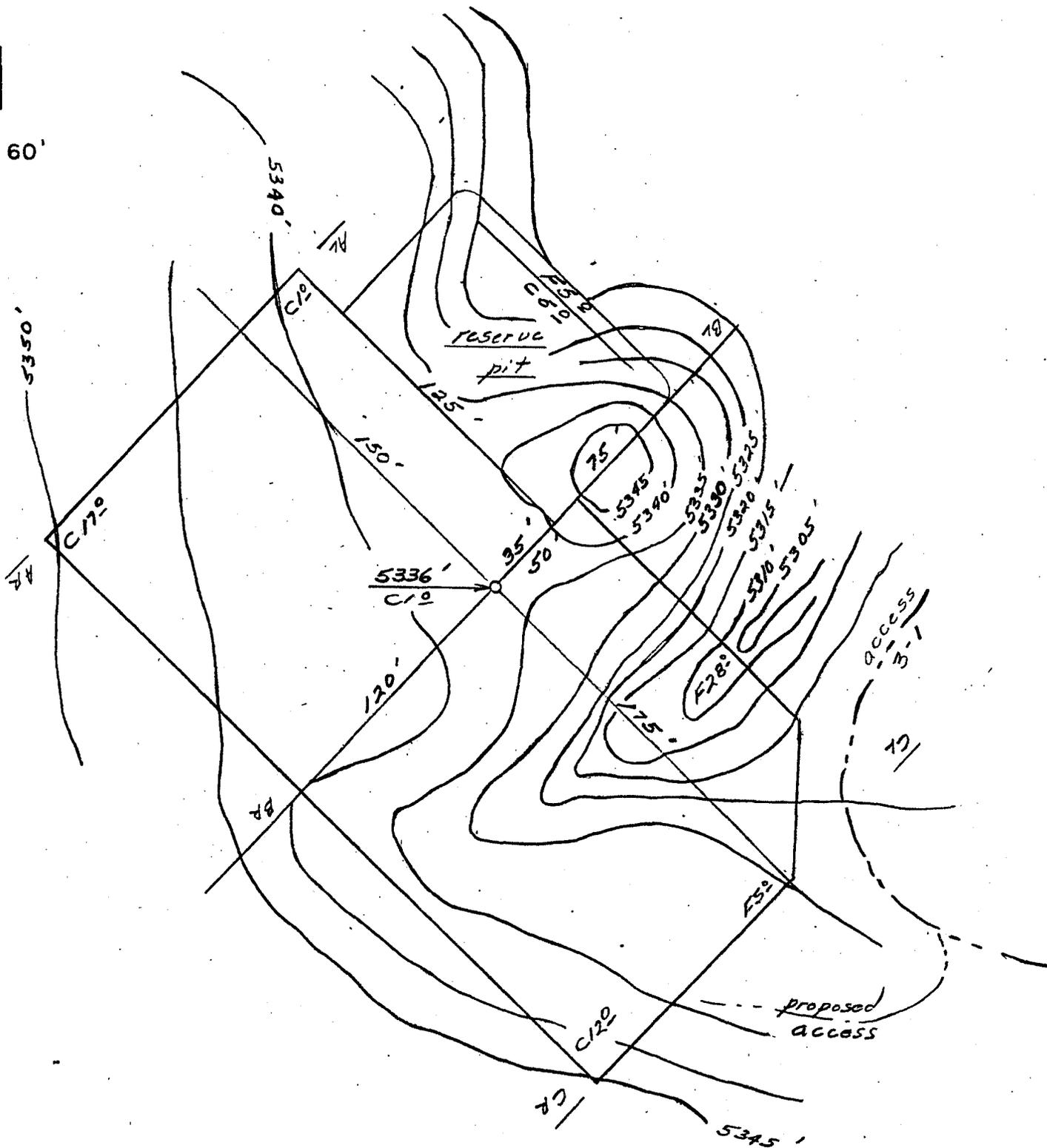
WELL PAD PLAN VIEW

DIAGRAM #3

Well Cave Canyon 4-3

1310' FNL and 200' FEL  
Sec. 4, T38S - R24E  
San Juan County, Utah

1" = 60'



Review of APDS

① CAVE CANYON Fed 4-3

T38S, R24E, sec 4 San Juan County Utah.

13<sup>3</sup>/<sub>8</sub>" casing at 100'

8<sup>5</sup>/<sub>8</sub>" casing at 1900'

7<sup>7</sup>/<sub>8</sub> casing at 6110

Dakota - surface.

Hermosa Group 4737'

Ismay 5689'

} Estimated Tops

② CAVE CANYON Fed 3-3

T38S, R24E sec 3 San Juan County

13<sup>3</sup>/<sub>8</sub> 100'

8<sup>5</sup>/<sub>8</sub> 1900

5<sup>1</sup>/<sub>2</sub> 6080

Dakota

surface

} Estimated

Hermosa Group

4711

Ismay

5675

— note The Raymond Duncan Well in

T38S R24E sec 4

GL 5330 Federal # 1 set 8<sup>5</sup>/<sub>8</sub> at 2500 ft.

The 3-2, and 3-1 well in

T38S R24E sec 3

both set 8<sup>5</sup>/<sub>8</sub> at 1900 feet

It appears that Chino comes in at approx - 1900-2000 — according to a Log from

38S. 24E sec 16.

APD review (cont)

③

Quintana Petroleum  
Caballo Federal 3-7  
T36 S. R23E Sec 9  
95/8 set at 2235  
5 1/2 set at 6837

Chinle	2235	} Estimated Tps.
Shinarump	2898	
Hermosa	5110	

Casing Programs appear to be sufficient  
to protect all important water bearing sands.

reviewed by D. Jones  
3/4/88

# CONFIDENTIAL

OPERATOR Raymond T. Duncan DATE 5-2-88  
WELL NAME Cave Canyon Fed. 4-3  
SEC N E 4 T 38S R 24E COUNTY San Juan

43-037-31414  
API NUMBER

Fed.  
TYPE OF LEASE

CHECK OFF:

PLAT

BOND

NEAREST WELL

LEASE

FIELD

POTASH OR OIL SHALE

PROCESSING COMMENTS:

wells within 920' are operated by Raymond T. Duncan  
need water permit  
exception location requested

APPROVAL LETTER:

SPACING:  R615-2-3 \_\_\_\_\_ UNIT \_\_\_\_\_  R615-3-2  
 \_\_\_\_\_ CAUSE NO. & DATE \_\_\_\_\_  R615-3-3

STIPULATIONS:

1- need water permit

CONFIDENTIAL  
PERIOD  
EXPIRED  
ON 10-12-89



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Norman H. Bangerter, Governor  
Dee C. Hansen, Executive Director  
Dianne R. Nielson, Ph.D., Division Director

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

May 4, 1988

Raymond T. Duncan  
c/o Permitco Inc.  
P. O. Box 44065  
Denver, Colorado 80201-4065

Gentlemen:

Re: Cave Canyon Federal 4-3 NE NE Sec. 4, T. 38S, R. 24E  
1310' FNL, 200' FEL - San Juan County, Utah

Approval to drill the referenced well is hereby granted in accordance with Rule R615-3-3, 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.

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

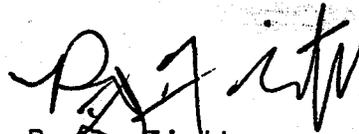
1. Spudding notification within 24 hours after drilling operations commence.
2. Submittal of an Entity Action Form within five working days following spudding and whenever a change in operations or interests necessitates an entity status change.
3. Submittal of the Report of Water Encountered During Drilling, Form OGC-8-X.
4. Prompt notification if it is necessary to plug and abandon the well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695, or Jim Thompson, Lead Inspector, (Home) 298-9318.
5. Compliance with the requirements of Rule R615-3-22, Gas Flaring or Venting, Oil and Gas Conservation General Rules.

Page 2  
Raymond T. Duncan  
Cave Canyon Federal 4-3  
May 4, 1988

6. Prior to commencement of the proposed drilling operations, plans for facilities for disposal of sanitary wastes at the drill site shall be submitted to the local health department. These drilling operations and any subsequent well operations must be conducted in accordance with applicable state and local health department regulations. A list of local health departments and copies of applicable regulations are available from the Division of Environmental Health, Bureau of General Sanitation, telephone (801) 538-6121.
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 43-037-31414.

Sincerely,



R. J. Firth  
Associate Director, Oil & Gas

1r  
Enclosures  
cc: Branch of Fluid Minerals  
D. R. Nielson  
8159T



RAYMOND T. DUNCAN

N0360

OPERATOR \_\_\_\_\_

OPERATOR CODE \_\_\_\_\_

ENTITY ACTION FORM - SIGN FORM 6

ADDRESS \_\_\_\_\_

PHONE NO. ( ) \_\_\_\_\_

**CONFIDENTIAL**

OPERATORS MUST COMPLETE FORM UPON SPUDDING NEW WELL OR WHEN CHANGE IN OPERATIONS OR INTERESTS NECESSITATES CHANGE IN EXISTING ENTITY NUMBER ASSIGNMENT.

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
B	99999	9775	43-037-31414	CAVE CANYON FED. 4-3	NENE	4	38S	24E	SAN JUAN	6-29-88	

COMMENTS: FIELD-CAVE CANYON PRODUCING ZONE-ISMV  
LEASE-FEDERAL (ONE OTHER WELL IN SEC. 4, SAME PRODUCING ZONE, SAME OPERATOR, ENTITY 9775. ASSIGN)  
NOT IN A UNIT CAVE CANYON FED. 4-3 THE SAME ENTITY ON 12-15-88. LCR

--	--	--	--	--	--	--	--	--	--	--	--

COMMENTS: \*\* BROUGHT TO MY ATTENTION 12-15-88. SPUD REPORT WAS NEVER CALLED IN BUT CAME ON A SUNDRY BACK IN JULY.

--	--	--	--	--	--	--	--	--	--	--	--

COMMENTS:

--	--	--	--	--	--	--	--	--	--	--	--

COMMENTS:

--	--	--	--	--	--	--	--	--	--	--	--

COMMENTS:

- ACTION CODES:
- A - ESTABLISH NEW ENTITY FOR NEW WELL
  - B - ADD NEW WELL TO EXISTING ENTITY
  - C - RE-ASSIGN WELL FROM ONE EXISTING ENTITY TO ANOTHER EXISTING ENTITY
  - D - RE-ASSIGN WELL FROM ONE EXISTING ENTITY TO A NEW ENTITY
  - E - OTHER (EXPLAIN IN COMMENTS SECTION)
- (SEE INSTRUCTIONS)

LCR  
\_\_\_\_\_  
SIGNATURE  
ADMINIS. ANALYST 12-15-88  
TITLE DATE

DUNCAN EXPLORATION COMPANY  
CAVE CANYON NO. 4-3  
NE NE SECTION 4, T38S-R24E  
SAN JUAN COUNTY, UTAH

43-037-31414

RECEIVED  
JUL 26 1988

OIL AND MINING

CONFIDENTIAL

WELL SITE GEOLOGIST: Jim Holst  
Intermountain Wellsite Geologists  
P. O. Box 4007  
Casper, Wyoming 82604  
(307) 266-2009

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WELL DATA

OPERATOR: Duncan Exploration Company  
1777 South Harrison Street, Penthouse No. 1  
Denver, Colorado 80210  
(303) 759-3303  
Geologist: Bob Lentz

WELL NAME: Cave Canyon 4-3

WELL LOCATION: 1310' FNL & 200' FEL (NE NE) Section 4  
Township 38 South, Range 24 East  
San Juan County, Utah

SPUD DATE: June 28, 1988

DATE DRILLING COMPLETED: July 11, 1988

ELEVATIONS: Ground Level: 5335'  
Kelly Bushing: 5349'

SURFACE CASING: 8 5/8" surface casing set at 1910' K.B.  
13 3/8" conductor set at 73'

OPEN HOLE SIZE: 7 7/8"

TOTAL DEPTH: Driller: 6105'  
Logger: 6104'

DRILLING CONTRACTOR: Coleman Drilling Company, Rig No. 4  
P. O. Box 3337  
Farmington, New Mexico 87401  
(505) 327-4935  
Toolpusher: Don Vestar

DRILLING SUPERVISION: J.A. "Arkie" Browning  
P. O. Box 1058  
Cortez, Colorado 81321  
Home: (303) 565-8806

DRILLING MUD: Mustang Drilling Fluids  
2557 East  
Vernal, Utah 84078  
(801) 789-0533  
Engineer: Carroll Hart

CORE NO. 1 Homco Coring Services  
P. O. Box 2379  
Mills, Wyoming 82644  
(307) 472-6657  
Core Engineer: Harold Johnson

CORE NO. 1:  
(continued)

Core Laboratories  
10703 East Bethany Drive  
Aurora, Colorado 80014-2696  
(303) 751-9334

WIRELINE LOGS:

Schlumberger Well Services  
P. O. Box 250  
Farmington, New Mexico 87401  
(505) 325-5006  
Engineer: Matt Garber

WELLSITE GEOLOGY:

Intermountain Wellsite Geologists  
P. O. Box 4007  
Casper, Wyoming 82604  
(307) 266-2009  
Geologist: Jim Holst

SAMPLES:

30' samples caught by rig crews  
unlagged 4500' - 5500'  
10' samples caught by rig crews  
unlagged 5500' - Total Depth

PRESENT WELL STATUS:

Production casing 5 1/2", Upper Ismay Zone

WELL LOCATIONS IN PROSPECT AREA

Township 37 South, Range 24 East, San Juan County, Utah

Section 31

● Marathon	McCraken #1-31	2140' FNL & 940' FEL (SW NE)
-○- Marathon	McCraken #1-32	1550' FSL & 550' FWL (NW SW)

Section 33

● Yates	No. 1-33 Cave Canyon	535' FSL & 2025' FEL (SW SE)
● Yates	No. 2-33 Cave Canyon	1200' FSL & 2520' FWL (SE SW)

Township 38 South, Range 24 East, San Juan County, Utah

Section 3

* ● Duncan	No. 3-1 Cave Canyon	2140' FNL & 200' FWL (SW NW)
● Duncan	No. 3-2 Cave Canyon	1925' FSL & 1925' FWL (NE SW)
● Duncan	No. 3-3 Cave Canyon	2635' FNL & 1390' FWL (SE NW)

Section 4

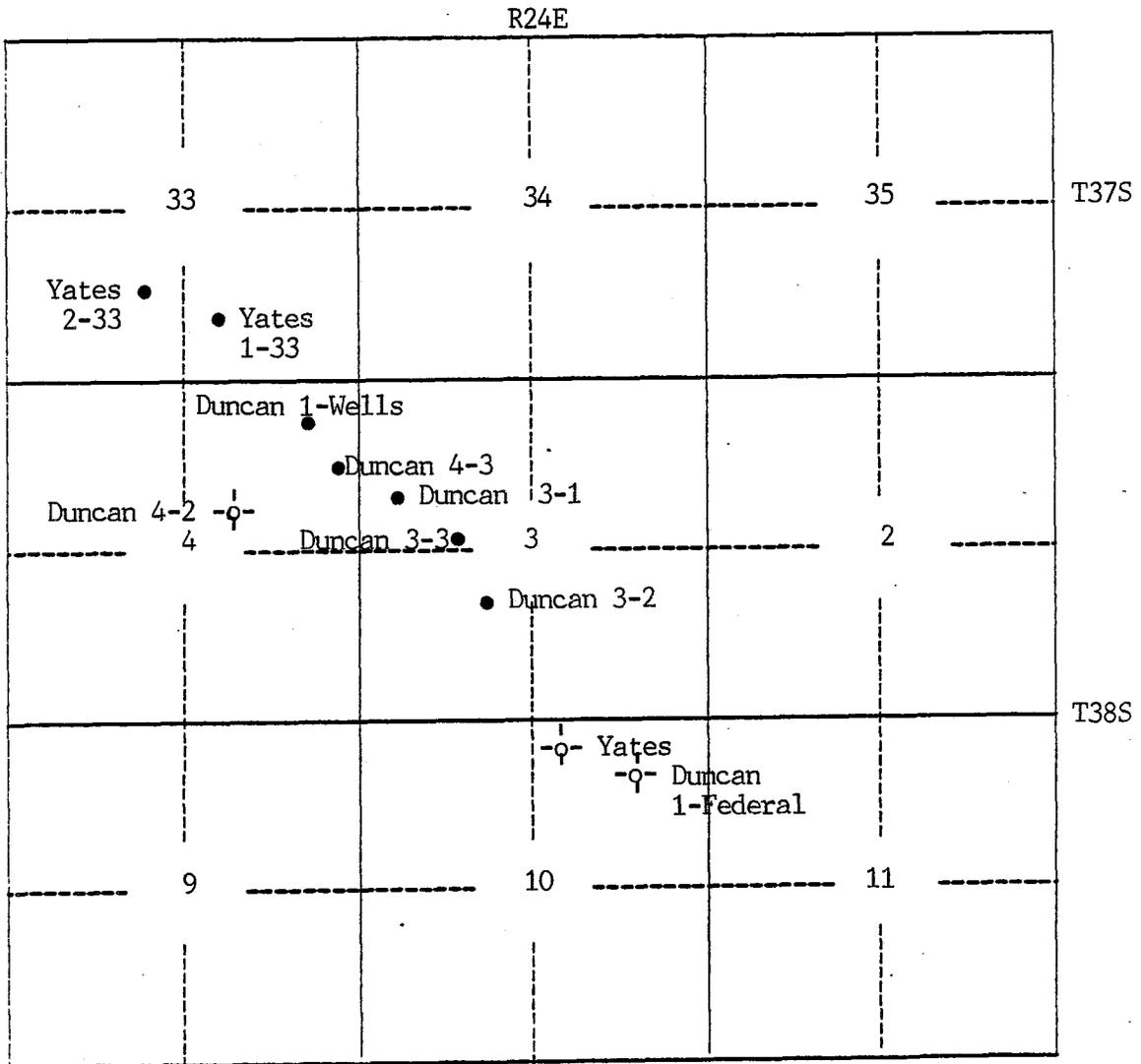
* ● Duncan	No. 1 Wells	500' FNL & 500' FEL (NE NE)
● Duncan	No. 4-3 Cave Canyon	1310' FNL & 200' FEL (NE NE)
-○- Duncan	No. 4-2 Cave Canyon	1820' FNL & 1860' FEL (SW NE)

Section 10

-○- Yates	Arabian Federal No. 1	460' FNL & 1800' FEL (NW NE)
-○- Duncan	Dec Federal No. 1	860' FNL & 1050' FEL (NE NE)

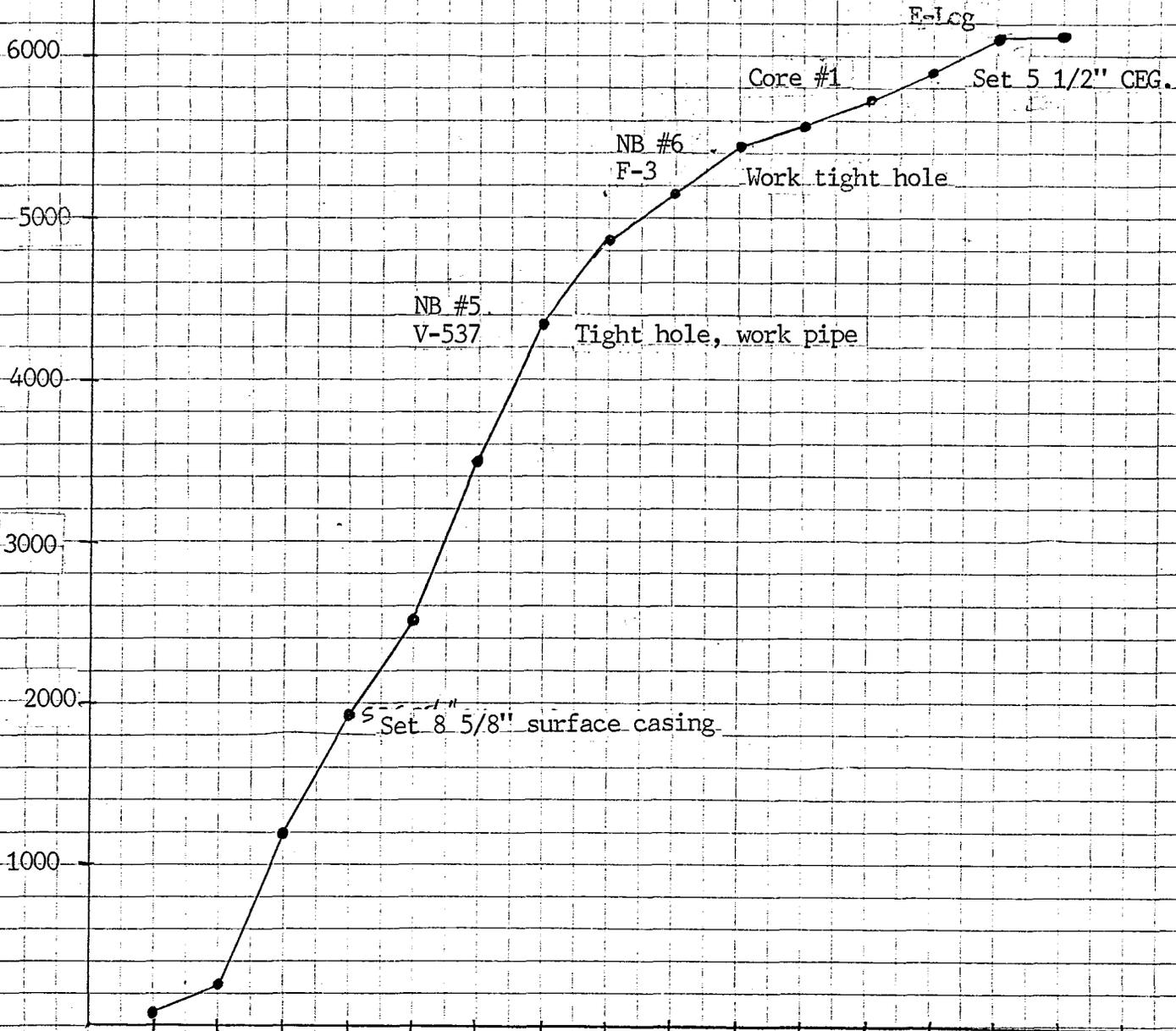
\* Raymond T. Duncan No. 3-1 and No. 1 Wells was used for correlation.

BASE MAP OF PROSPECT AREA



SAN JUAN COUNTY, UTAH

DRILLING CURVE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
$\frac{6}{28}$	$\frac{6}{29}$	$\frac{6}{30}$	$\frac{7}{1}$	$\frac{7}{2}$	$\frac{7}{3}$	$\frac{7}{4}$	$\frac{7}{5}$	$\frac{7}{6}$	$\frac{7}{7}$	$\frac{7}{8}$	$\frac{7}{9}$	$\frac{7}{10}$	$\frac{7}{11}$	$\frac{7}{12}$	$\frac{7}{13}$

Depth at Midnight

WELL DRILLING CHRONOLOGY

NOTE: Days are described here and on the following charts based on the I.A.D.C Daily Drilling Report from 12:00 A.M. to 12:00 P.M. M.D.T. Footage drilled and cumulative footage per day is listed in parenthesis below the date.

June 28, 1988  
(0' - 46'/46') Drill rat and mouse hole, pick up 17 1/2" bit and spud well at 11:55 P.M. Drilled from 0' to 46', drilling 17 1/2" hole with bit No. 1A (HTC) OWV.

June 29, 1988  
(46' - 250'/204') Drilled from 46' to 73'. Circulate, trip out of hole. Run 3 joints 13 3/8" conductor casing set at 73' K.B. Wait on cement, nipple up conductor, drilling 12 1/4" hole with bit No. 2A (STC) F-4. Drilled from 73' to 250'.

June 30, 1988  
(250' - 1200'/950') Drilled from 250' to 560'. Trip for bit No. 3A (STC) F-3. Drilled from 560' to 1200'.

July 1, 1988  
(1200' - 1910'/710') Drilled from 1200' to 1910'. Run 45 joints 8 5/8" surface casing. Cement casing, wait on cement.

July 2, 1988  
(1910' - 2525'/615') Nipple up, weld on head, pressure test B.O.P. Pick up Bit No. 4 (STC) F-27. Drill up cement, drilled from 1910' to 2525'.

July 3, 1988  
(2525' - 3476'/951') Drilled from 2525' to 3476'.

July 4, 1988  
(3476' - 4360'/884') Drilled from 3476' to 4360'.

July 5, 1988  
(4360' - 4857'/497') Drilled from 4360' to 4857'. Trip for new bit no. 5 (STC) RR F-3. Drop survey, clean suction tank, begin to mud up. Trip into hole, circulate and work pipe in tight hole.

July 6, 1988  
(4857' - 5164'/307') Work pipe in tight hole. Work pipe to bottom. Drilled 4857' to 5164'.

July 7, 1988  
(5164' - 5403'/239') Drilled from 5164' to 5403'. Trip for new bit no. 6 (STC) F-3. S.L.M. 5403.75'.

July 8, 1988  
(5403' - 5543'/140') Trip into hole, hit bridge, tight hole at 2710'. Work pipe, condition hole, circulate, drilled from 5403' to 5543'.

July 9, 1988  
(5543' - 5722'/179') Drilled from 5543' to 5722'. Circulate, trip out of hole to core. Pick up core barrel and jars, trip into hole to core.

July 10, 1988  
(5722' - 5895'/173')

Finish tripping into hole. Core 5722' to 5782'. Trip out of hole with core, lay down core, trip into hole with RR bit no. 8 F-3. Drilled from 5782' to 5895'.

July 11, 1988  
(5895' - 6105'/210')

Drilled from 5895' to 6105'. Circulate, condition mud, trip out of hole for e-logs. Rig up electrical loggers. Run e-logs.

July 12, 1988  
(6105' - 6105'/0')

Finish running electrical logs, e-log total depth 6104'. Trip into hole, circulate out gas bubble, trip out of hole laying down drill pipe. Run 5 1/2" production casing.

July 13, 1988  
(6104' - 6104'/0')

Cement casing.

BREAKDOWN OF RIG TIME

<u>1988</u> <u>DATE</u>	<u>DRILLING</u>	<u>COND/ CIRC</u>	<u>TRIPS</u>	<u>RIG SERVICE</u>	<u>SURVEY</u>	<u>LOGGING</u>	<u>OTHER</u>	<u>COMMENTS</u>
6/28	1						23	Rig up & spud
6/29	12	.5			.5		11	Run 13 3/8 conductor csg
6/30	21		2.0		1.0			Trip bit bit no. 3A
7/1	13.75	.75	1.75		.25		4.0	Run 8 5/8 surf csg
7/2	12.75		2.0		.25		9.0	
7/3	22.75	.25			1.0			
7/4	23.5				.5			
7/5	15.5	5.5	1.5	.5	.5		.5	New bit no. 5 mud up
7/6	21	2.5		.5				
7/7	19.5		3.5	.5	.5			New bit no. 6 tight hole
7/8	12.5	8.5	3.0					
7/9	15.25	1.5	5.25	.5			1.5	
7/10	15.0		5.5				3.5	Core no. 1
7/11	15.75	2	2.25			4.0		T.D. start e-logs
7/12		1.5	6.0			9.0	7.5	E-logs
7/13								Cement casing

SUMMARY DRILLING DATA

<u>1988 DATE</u>	<u>WOB</u>	<u>RPM</u>	<u>PP</u>	<u>FOOTAGE DRILLED</u>	<u>CUMULATIVE FOOTAGE</u>	<u>FT/HR</u>	<u>COMMENTS</u>
6/28	A11	100	1100	0' - 46'	46	46	Spud well
6/29	A11	100/80	1100/850	46' - 250'	204	17	Set conductor csg.
6/30	A11/50	100	850/1100	250' - 1200'	950	45.2	Trip for bit no. 3A
7/1	50	100	1100	1200' - 1910'	710	51.6	Set 8 5/8" surface csg.
7/2	45	65	1500	1910' - 2525'	615	48.2	
7/3	45	65	1500	2525' - 3476'	951	41.8	
7/4	45	65	1500	3476' - 4360'	884	37.6	
7/5	45	65	1500	4360' - 4857'	497	32.1	NB no. 5 RR V-537
7/6	40	60	1350	4857' - 5164'	307	14.6	
7/7	40	60	1350	5164' - 5403'	239	12.3	NB no. 6 F-3
7/8	45	65	1700	5403' - 5543'	140	11.2	
7/9	45	65	1700	5543' - 5722'	179	11.7	
7/10	18/45	74/65	1000/1700	5722' - 5895'	173	11.5	Core #1
7/11	45	65	1700	5895' - 6105'	210	13.3	E-log
7/12	--	65	1700	6105' - 6105'	0		Run casing
7/13							Cement casing

BIT RECORD

<u>BIT NO.</u>	<u>SIZE</u>	<u>MANUF.</u>	<u>TYPE</u>	<u>FOOTAGE RUN</u>	<u>TOTAL FOOTAGE</u>	<u>HOURS RUN</u>	<u>FT/HR</u>
1A	17 1/2"	HTC	OWV	0' - 73'	73	4	18.25
2A	12 1/4"	STC	F-4	73' - 560'	487	18	27.1
3A	12 1/4"	STC	F-3	560' - 1910'	1350	25.75	52.4
4	7 7/8"	STC	F-27	1910' - 4857'	2947	74.5	39.6
5	7 7/8"	Varel	(RR) V-537	4857' - 5403'	546	40.5	13.5
6	7 7/8"	STC	F-3	5403' - 5722'	319	27.75	11.5
7	7 7/8"	Hycalog Dia Core	CRCF	5722' - 5782'	60	8.5	7.06
8	7 7/8"	STC	(RR) F-3	5783' - 6105'	<u>322</u>	<u>22.25</u>	<u>14.5</u>
					<u>6105'</u>	<u>221.25</u>	<u>27.6</u>

SURVEY DATA

<u>1988 DATE</u>	<u>SURVEY DEPTH</u>	<u>SURVEY TYPE</u>	<u>DEGREES DEVIATION</u>
6/29	156'	Wireline	1/4°
6/30	500'	Wireline	1/2°
6/30	997'	Wireline	1/2°
7/1	1453'	Wireline	1/2°
7/1	1910'	Dropped	1/4°
7/2	2407'	Wireline	3/4°
7/3	2900'	Wireline	3/4°
7/3	3396'	Wireline	1°
7/4	3927'	Wireline	3/4°
7/5	4415'	Wireline	1°
7/5	4817'	Dropped	1°
7/6	5157'	Wireline	3/4°
7/7	5403'	Dropped	1°
7/11	6105'	Dropped	1 1/2°

DEPTH CORRECTIONS

<u>1988 DATE</u>	<u>BOARD DEPTH</u>	<u>S.L.M. DEPTH</u>	<u>CORRECTION &amp; COMMENTS</u>
7/7	5403.23	5403.75	0' No Correction Made

MUD DATA

<u>1988</u> <u>DATE</u>	<u>DEPTH</u>	<u>Wt</u>	<u>FV</u>	<u>PV</u>	<u>YP</u>	<u>GEL</u> <u>STR</u>	<u>pH</u>	<u>Fil</u>	<u>FC</u>	<u>CL</u>	<u>Ca</u>	<u>%</u> <u>SOL</u>	<u>COMMENTS</u>
6/28													Rig-up
6/29	73												Water
6/30	447	8.4	27				9.0			1400	140		Water
7/1	1525	8.4	27				9.0			900	80		Water
7/1	1702	8.4	27				9.0			800	100		Water
7/2	1910												Cmt csg.
7/3	2950	8.4	27				10.0			3400	140		Water
7/4	3825	8.4	27				10.5			900	160		Water
7/5	4665	8.4	27				8.0			2400	100		Water
7/6	4860	8.9	34	6	4	1/5	9.5	12.6	2/32	3100	50		Gel Chem
7/6	4912	9.0	40	8	5	1/6	9.0	9.2	2/32	3100	50	4%	Gel Chem
7/6	5060	9.4	56	11	10	4/7	8.0	8.8	2/32	3400	70	6%	Gel Chem
7/7	5217	9.7	55	16	11	3/7	11.5	6.2	2/32	3400	60	10%	Disp
7/7	5250	9.8	52	16	9	3/6	11.0	7.0	2/32	3800	80	10.5%	Disp
7/8	5403	10.0	78	23	15	4/12	11.0	5.6	2/32	3400	50	12%	Disp
7/9	5620	10.3	63	26	20	4/10	11.0	6.4	2/32	3700	200	14%	Disp-Wt
7/10	5722	10.2	68	24	19	4/12	12.5	6.8	2/32	3700	120	13%	Wt Disp
7/11	5940	10.2	64	23	19	3/12	12.5	6.0	2/32	3400	120	13%	Wt Disp
7/11	6050	10.3	62	25	20	3/10	13.0	6.8	2/32	3400	200	14%	Wt Disp
7/12	6105												

E-LOG INFORMATION

FORMATION TOPS

K.B. - 5349'

<u>FORMATION</u>	<u>SAMPLE TOP</u>	<u>E-LOG TOP</u>	<u>SUBSEA</u>
Pennsylvanian Period			
Hermosa Group			
(Honaker Trail Formation)	4726'	4722'	+627'
Paradox Formation			
Upper Ismay Zone	5691'	5691'	-342'
Upper Ismay Porosity	5719'	5719'	-370'
Hovenweep Shale	5885'	5886'	-537'
Lower Ismay Zone	5910'	5915'	-566'
Gothic Shale Zone	5957'	5954'	-605'
Desert Creek Zone	5982'	5984'	-635'
Lower Desert Creek Zone	6032'	6031'	-682'
Chimney Rock Shale Zone	6050'	6048'	-699'
Akah	6074'	6073'	-724'
T.D.	6105'	6104'	-755'

STRUCTURAL/STRATIGRAPHIC COMPARISON W/OFFSETS

<u>FORMATION TOPS</u>	Duncan No. 4-3 Cave Canyon Sec. 4, T38S, R24E GL: 5335' KB: 5349'			Duncan No. 3-1 Cave Canyon Sec. 3, T38S, R24E GL: 5328' KB: 5342'			Duncan No. 1 Wells Sec. 4, T38S, R24E GL: 5330' KB: 5344'		
	<u>LOG TOP</u>	<u>SUBSEA</u>	<u>h</u>	<u>LOG TOP</u>	<u>SUBSEA</u>	<u>h</u>	<u>LOG TOP</u>	<u>SUBSEA</u>	<u>h</u>
Pennsylvanian Period									
Hermosa Group	4722'	+627	969	4730'	+612	972	4712'	+632	980
Paradox Formation									
Upper Ismay	5691'	-342	28	5702'	-360	32	5692'	-348	65
Upper Ismay Porosity	5719'	-370	167	5734'	-392	148	5757'	-413	85
Hovenweep	5886'	-537	29	5882'	-540	34	5842'	-498	32
Lower Ismay	5915'	-566	39	5916'	-574	45	5874'	-530	54
Gothic Shale	5954'	-605	30	5961'	-619	28	5928'	-584	24
Desert Creek	5984'	-635	47	5989'	-647	54	5952'	-608	64
Lower Desert Creek	6031'	-682	17	6043'	-701	18	6016'	-672	28
Chimney Rock Shale	6048'	-699	25	6061'	-719	24	6044'	-700	25
Akah	6073'	-724		6085'	-743		6069'	-725	

LOG SUITE

Dual Induction/SFL with Gamma Ray, Caliper & S.P.

Base of Surface Casing to Total Depth  
Gamma Ray to Surface

Simultaneous Borehole Compensated Neutron/Formation

Density with Gamma Ray and Caliper  
4500' to Total Depth

Bore Hole Compensated Sonic Log with Gamma Ray and Caliper

4500' to Total Depth

Dipmeter - Stratigraphic - (3 passes)

5600' to Total Depth

Cyberlook

5700' to Total Depth

EVALUATION OF LOG QUALITY

All logs appeared to be of good quality. No electrical or tool problems were encountered with no hole problems during logging.

LOG CALCULATIONS

Upper Ismay Porosity Zone of the Paradox Formation

<u>DEPTH</u>	<u>1</u> <u>Øs</u>	<u>2</u> <u>ØN</u>	<u>3</u> <u>ØD</u>	<u>4</u> <u>N/D</u> <u>X-PLOT</u> <u>Ø</u>	<u>5</u> <u>AVE</u> <u>Ø</u>	<u>6</u> <u>1</u> <u>Ø<sup>2</sup></u> <u>F</u>	<u>7</u> <u>Rt</u>	<u>8</u> <u>Rt</u> <u>F</u> <u>Rwa</u>	<u>9</u> <u>Rw</u>	<u>10</u> <u>FRw</u> <u>Ro</u>	<u>11</u> <u>Sw %</u>
5720	.13	.12	.11	.115	.12	69.4	2000	28.8	.04	2.78	.04
5722	.19	.15	.23	.19	.19	27.7	2000	72.2	.04	1.10	.02
5724	.19	.16	.26	.21	.20	24.2	2000	82.6	.04	0.97	.02
5726	.15	.14	.25	.195	.18	30.9	2000	64.7	.04	1.23	.02
5728	.15	.12	.20	.16	.16	40.7	2000	49.1	.04	1.63	.03
5730	.19	.18	.25	.215	.21	23.4	2000	85.5	.04	0.94	.02
5732	.19	.20	.24	.22	.21	22.7	400	17.6	.01	0.91	.05
5734	.21	.21	.26	.235	.23	19.5	160	8.2	.04	0.78	.07
5736	.20	.22	.29	.255	.24	17.9	175	9.8	.04	0.71	.06
5738	.10	.12	.20	.16	.14	51.0	700	13.7	.04	2.04	.05
5740	.04	.04	.08	.06	.05	351.6	2000	5.7	.04	14.06	.08
5742	.04	.03	.05	.04	.04	625	2000	3.2	.04	25.0	.11
5744	.06	.05	.05	.05	.05	351.6	2000	5.7	.04	14.06	.08
5746	.14	.10	.12	.11	.12	69.4	600	8.6	.04	2.78	.07
5748	.12	.11	.17	.14	.13	56.3	400	7.1	.04	2.25	.07
5750	.12	.06	.15	.105	.11	82.6	1000	12.1	.04	3.31	.06
5752	.11	.06	.16	.115	.11	82.6	2000	24.2	.04	3.31	.04
5754	.12	.06	.18	.12	.12	69.4	2000	28.8	.04	2.78	.04
5756	.11	.06	.16	.115	.11	82.6	200	2.42	.04	3.31	.13
5758	.18	.16	.20	.18	.18	30.9	25	0.81	.04	1.23	.22
5760	.20	.19	.25	.215	.21	21.9	20	0.91	.04	0.88	.21
5762	.15	.17	.25	.21	.19	27.7	50	1.81	.04	1.10	.15
5764	.13	.08	.15	.115	.12	69.4	250	3.6	.04	2.78	.11
5766	.15	.10	.10	.10	.117	73.5	2000	27.2	.04	2.94	.04
5768	.16	.11	.13	.12	.13	56.3	2000	35.5	.04	2.25	.03
5770	.16	.10	.11	.105	.12	65.7	2000	30.4	.04	2.63	.04
5772	.16	.11	.14	.125	.14	53.5	2000	37.4	.04	2.14	.03
5774	.13	.08	.06	.07	.09	123.5	2000	16.2	.04	4.94	.05
5776	.14	.11	.16	.135	.137	53.5	1000	18.7	.04	2.14	.05
5778	.10	.10	.10	.10	.10	100	1000	10.0	.04	4.0	.06
5780	.09	.11	.11	.11	.103	93.7	1000	10.7	.04	3.75	.06
5782	.10	.11	.15	.13	.12	69.4	2000	28.8	.04	2.78	.04
5784	.12	.12	.14	.13	.127	62.3	2000	32.1	.04	2.49	.04
5786	.13	.11	.12	.115	.12	69.4	2000	28.8	.04	2.78	.04
5788	.16	.13	.13	.13	.14	51.0	2000	39.2	.94	2.04	.03
5790	.17	.13	.16	.145	.153	42.5	2000	47.1	.04	1.7	.03
5792	.15	.12	.13	.125	.133	56.3	2000	35.5	.04	2.25	.03
5794	.15	.11	.12	.115	.127	62.3	2000	32.1	.04	2.5	.04
5796	.13	.09	.09	.09	.103	93.7	2000	21.3	.04	3.75	.04
5798	.14	.11	.14	.125	.13	59.2	2000	33.8	.04	2.37	.03
5800	.15	.11	.14	.125	.133	56.3	2000	35.5	.04	2.25	.03
5802	.11	.10	.10	.10	.103	93.7	2000	21.3	.04	2.5	.04
5804	.12	.10	.10	.10	.107	87.9	1500	17.1	.04	3.5	.05
5806	.20	.24	.16	.20	.20	25.0	600	24.0	.04	1.0	.04
5808	.11	.13	.10	.115	.113	77.9	200	2.57	.04	3.1	.12

DEPTH	$\phi_s$	$\phi_N$	$\phi_D$	N/D X-PLOT	Ave $\phi$	F	Rt	Rwa	Rw	Ro	% Sw
5810	.07	.06	.02	.04	.05	400	190	0.48	.04	16.0	.29
5812	.10	.07	.06	.065	.08	170.1	400	2.35	.04	6.8	.13
5814	.06	.05	.04	.045	.05	400	1000	0.48	.04	16.0	.13
5816	.08	.06	.03	.045	.06	311	800	2.57	.04	12.5	.12
5818	.15	.16	.10	.13	.137	53.5	900	16.8	.04	2.14	.05
5820	.12	.09	.09	.09	.10	100	600	6.0	.04	4.0	.08
5822	.14	.10	.15	.125	.13	59.2	2000	33.8	.04	2.37	.03
5824	.12	.10	.12	.11	.113	77.9	2000	25.7	.04	3.1	.04
5826	.10	.07	.07	.07	.08	156.25	2000	12.8	.04	6.25	.06
5828	.11	.09	.06	.075	.087	133.1	2000	15.0	.04	5.3	.05
5830	.12	.07	.07	.07	.087	133.1	2000	15.0	.04	5.3	.05
5832	.14	.09	.12	.105	.117	73.5	1500	20.4	.04	2.94	.04
5834	.10	.06	.06	.06	.073	185.9	500	2.69	.04	7.44	.12
5836	.10	.04	.05	.045	.063	251.9	300	1.19	.04	10.08	.18
5838	.13	.07	.09	.08	.10	107	450	4.2	.04	4.3	.10
5840	.09	.06	.05	.055	.07	225	1000	4.4	.04	9.0	.09
5842	.12	.08	.09	.085	.10	107	2000	18.7	.04	4.28	.05
5844	.13	.07	.10	.085	.10	107	2000	18.7	.04	4.28	.05
5846	.14	.08	.12	.10	.113	77.9	2000	25.7	.04	3.11	.04
5848	.13	.09	.11	.10	.11	82.6	2000	24.2	.04	3.31	.04
5850	.13	.09	.11	.10	.11	82.6	2000	24.2	.04	3.31	.04
5852	.12	.08	.10	.09	.10	100	1800	18.0	.04	4.0	.05
5854	.12	.08	.11	.095	.103	93.7	2000	21.3	.04	3.75	.04
5856	.13	.07	.10	.085	.10	100	2000	24.2	.04	3.31	.04
5858	.11	.06	.10	.08	.09	123.5	2000	16.2	.04	4.94	.05
5860	.12	.07	.09	.08	.093	114.8	2000	17.4	.04	4.59	.05
5862	.12	.08	.09	.085	.097	107.0	2000	18.7	.04	4.28	.05
5864	.12	.08	.06	.07	.087	133.1	600	4.5	.04	5.3	.09
5866	.14	.09	.10	.095	.11	82.6	350	4.24	.04	3.31	.10
5868	.13	.09	.12	.105	.113	77.9	500	6.42	.04	3.11	.08
5870	.08	.06	.06	.06	.067	225	400	1.78	.04	9.0	.15
5872	.10	.07	.05	.06	.073	185.9	250	1.34	.04	7.44	.17
5874	.10	.06	.06	.06	.073	185.9	275	1.48	.04	7.44	.16
5876	.05	.05	.04	.045	.047	459.2	300	0.65	.04	18.4	.25
5878	.04	.05	.03	.04	.04	625	550	0.88	.04	25	.21
5880	.05	.04	.01	.025	.033	900	150	0.17	.04	36	.49
5882	.05	.06	.03	.045	.047	452.7	50	0.11	.04	18.1	.60
5884	.06	.09	.03	.06	.06	277.8	30	0.10	.04	11.1	.61

Total Average  
5720 - 5886

11.5      75.6      1300      17.2      .04      3.02      .05

Gross pay 167' Oil Column  
Net pay 135'

Average Porosity 11.5%  
Average Porosity 13.3%

Sw .05  
Ave Sw .04

<u>DEPTH</u>	<u>Øs</u>	<u>ØN</u>	<u>ØD</u>	<u>N/D</u> <u>X-PLOT</u>	<u>AVE</u> <u>Ø</u>	<u>F F</u>	<u>Rt</u>	<u>Rwa</u>	<u>Rw</u>	<u>Ro</u>	<u>%</u> <u>Sw</u>
<u>Desert Creek Zone</u>											
5986	.12	.07	.11	.09	.10	100	19	0.19	.035	3.5	43
5988	.16	.13	.15	.14	.147	46.3	9	1.94	.035	1.62	42
5990	.12	.11	.11	.11	.113	77.9	7.5	0.96	.035	2.73	60
5992	.16	.13	.12	.125	.137	53.5	6.5	0.12	.035	1.87	54
5994	.18	.16	.13	.145	.157	40.6	6.0	0.15	.035	1.42	49
6006	.16	.17	.13	.15	.153	42.7	6.0	0.14	.035	1.49	50
6008	.12	.11	.11	.11	.113	77.9	7.0	0.09	.035	2.73	62
6010	.07	.05	.09	.07	.07	225	20	0.09	.035	7.9	63
6012	.10	.09	.10	.095	.097	107	20	0.19	.035	3.75	43
6014	.14	.13	.12	.125	.13	59.2	10	0.17	.035	2.07	46
6016	.13	.10	.11	.105	.113	77.9	10	0.13	.035	2.73	52
6018	.12	.07	.11	.09	.10	100	20	0.2	.035	3.5	42
6020	.09	.05	.05	.05	.063	251.9	20	0.08	.035	8.82	66
6022	.14	.11	.09	.10	.113	77.9	15	0.19	.035	2.73	43
6024	.14	.13	.10	.115	.123	66.1	10	0.15	.035	2.31	48
6026	.10	.06	.10	.08	.087	133.1	13	0.1	.035	4.66	60

Lower Desert Creek

6032	.13	.11	.11	.11	.117	73.5	10	0.14	.035	2.57	51
6034	.14	.11	.11	.11	.12	69.4	6.5	0.09	.035	2.43	61
6038	.10	.07	.10	.085	.09	123.5	11	0.09	.035	4.32	63
6042	.10	.07	.11	.09	.093	114.8	15	0.13	.035	4.02	52
6044	.11	.07	.10	.085	.093	114.8	17	0.15	.035	4.02	49
6046	.11	.10	.10	.10	.103	93.7	16	0.17	.035	3.28	45

FORMULAS AND ASSUMPTIONS USED IN CALCULATIONS

1. Sonic Porosity,  $\phi_s$

a. 
$$\phi_s = \frac{\Delta t - \Delta t_{ma}}{\Delta t_{ma} - \Delta t_f}$$
 where  $\Delta t_{ma} = 4.76$  sec/ft and  $\Delta t_f = 189.0$  sec/ft

b. Sonic  $\phi$  valid for clean formations

2. Neutron Porosity,  $\phi_N$

a. Limestone matrix was run for Ismay zones

b. Dolomite matrix was run as repeat for Desert Creek zones and Ismay (both Upper and Lower)

c. Dolomite was used for dolomitic zones in Upper Ismay

3. Density Porosity,  $\phi_D$

a. 
$$\phi_D = \frac{p_{ma} - p_b}{p_{ma} - p_f}$$
 where  $p_{ma} = 2.87$  for Desert Creek  
 $p_{ma} = 2.71$  for Ismay zones  
 $p_b$  = formation bulk density  
 $p_f = 1.0$  fresh mud

b. Dolomite density was used in dolimitic zones in Upper Ismay

4. Neutron/Density cross plot, X-plot  $\phi$ .

a. Neutron porosity and density porosity average

5. Average Porosity,  $\phi$

a. Sonic porosity, neutron porosity and density porosity average.

6. Formation Resistivity Factor, F.

a. 
$$F = \frac{1}{\phi^2}$$
 for carbonates

b. F is sonic, neutron and density derived

7. True Formation Resistivity,  $R_t$ .

a.  $R_t$  assumed to be equal to RILD and is valid for little or no invasion, thick beds, and clean formations.

8. Resistivity of Apparent Formation Water,  $R_{wa}$ .

a. 
$$R_{wa} = \frac{R_t}{F}$$

b.  $R_{wa} = R_w$  then  $S_w = 100\%$

c. Quicklook for hydrocarbon detection

9. Resistivity of Formation Water,  $R_w$ .
  - a.  $R_w = 0.04$  OHMS for Upper Ismay Zones
  - b.  $R_w = 0.035$  OHMS used for Desert Creek Zones
10. Resistivity of Formation Wet Resistivity,  $R_o$ .
  - a.  $R_o = FR_w$
  - b.  $R_o = R_t$  in wet zones
  - c. Quicklook for hydrocarbon detection
11. Water Saturation,  $S_w$ .
  - a.  $S_w = \sqrt{\frac{FR_w}{R_t}}$

FORWARD TO SAMPLE DESCRIPTIONS

Samples are described based on a personal format which will be provided upon request.

Samples have been lagged to corresponding depths and matched as close as possible to electric log depths.

- 4500' - 4520'      Shale - predominately gray to dark reddish brown, red, brick red, blocky to splintery in part, calcareous to slightly limy in part, soft to moderately firm, scattered silty, subwaxy in part.  
Sandstone - light gray white, fine grained to very fine grained, subrounded to subangular, calcareous, clay filled, tight.
- 4520' - 4560'      Sandstone - light gray white to clear, very fine to fine grained, calcareous, clay filled, tight.  
Shale - brick red, dark reddish brown, greenish gray (cavings), blocky to splintery.  
Siltstone - red, blocky, shaly, moderately firm to soft, slightly calcareous.
- 4560' - 4580'      Shale - red, brick red, gray to dark reddish brown, blocky to splintery, scattered noncalcareous to slightly limy in part, soft to moderately firm, silty in part, subwaxy in part, traces of black coal.
- 4580' - 4600'      Sandstone - white, light gray, very fine grained, subangular to subrounded, clay filled.  
Siltstone - red to gray, blocky, shaly in part, moderately firm to soft.  
Shale - greenish gray (cavings), red, brick red, gray to dark reddish brown, slightly limy in part, subwaxy in part, traces of black coal.
- 4600' - 4640'      Shale - red, light gray, light red, reddish brown, medium gray, blocky to splintery, moderately firm, slightly calcareous, silty, subwaxy.  
Sandstone - white, light gray, very fine grained to medium grained, clay filled, tight, traces black coal.
- 4640' - 4680'      Shale - red, light to medium gray, reddish brown, blocky to splintery, soft, scattered moderately firm, silty in part, slightly calcareous, scattered slightly limy in part.  
Sandstone - light gray, white, fine graining to scattered medium grained, subangular to subrounded, calcareous, clay filled, tight, no stain, fluorescence or cut, scattered black coal.
- 4680' - 4690'      Sandstone - light gray, white, fine grained to scattered medium grained, clay filled, tight, no shows.

- 4690' - 4720' Shale - red, medium gray, dark reddish brown, blocky to splintery, silty in part, subwaxy, slightly calcareous to scattered limy in part, abundant greenish gray cavings. Sandstone - light gray, white to clear, fine grained to scattered medium grained, clay filled, tight.
- Hermosa Group (Sample top 4726'; E-log top 4722')
- 4720' - 4740' Shale - gray, red, blocky to splintery, noncalcareous to slightly limy in part, silty to scattered sandy in part, soft to moderately firm. Sandstone - light gray, white to clear, fine grained to medium grained, subrounded, calcareous. Limestone - light tan, white, dense, cryptocrystalline, argillaceous in part, no visible porosity.
- 4740' - 4760' Sandstone - light gray, clear to white, fine grained to scattered medium grained, partially clay filled, tight, no visible porosity to poor porosity. Shale - medium gray, greenish gray (cavings), red, reddish brown, blocky to splintery, noncalcareous to scattered calcareous, silty in part.
- 4760' - 4840' Shale - gray, greenish gray, brown, reddish brown, red, brick red, soft to moderately firm, scattered noncalcareous to slightly calcareous, silty in part, scattered slightly sandy. Limestone - light tan, brown, light gray, dense, cryptocrystalline, argillaceous in part. Sandstone - light gray to clear, white, fine grained to medium grained, clay filled tight, trashy, no visible porosity.
- 4840' - 4890' Limestone - light gray, light brown, cryptocrystalline, shaly in part, no visible porosity. Shale - light to medium gray, blocky to splintery, soft to moderately firm, calcareous to limy in part, scattered silty. Sandstone - white, light gray, very fine grained to fine grained, clay filled, moderately sorted, tight.
- 4890' - 4910' Shale - light to medium gray, dark reddish brown, blocky to splintery, silty in part, carbonaceous in part. Limestone - light gray to light brown, cryptocrystalline, shaly in part, no visible porosity. Sandstone - light gray to clear, white, clay filled, tight, very fine grained to scattered medium grained.
- 4910' - 4930' Shale - light gray, medium gray, reddish brown, blocky, silty. Limestone - light brownish gray, cryptocrystalline, shaly to argillaceous in part.

- 4930' - 4950' Limestone - light brown to brown, grayish brown, dense, cryptocrystalline, argillaceous in part, no visible porosity, no stain, fluorescence, no cut.  
Shale - greenish gray (cavings), light to medium gray, reddish brown, blocky to splintery, soft to moderately firm, slightly calcareous to slightly limy in part, silty in part.
- 4950' - 4970' Shale - greenish gray (cavings), medium gray, dark brown, blocky to splintery, scattered platy, soft to scattered moderately firm, calcareous to slightly limy in part, subwaxy.  
Limestone - light brown, white, dense, cryptocrystalline, argillaceous in part, traces of scattered fossils, no visible porosity.
- 4970' - 5000' Shale - brown, dark brown, dark reddish brown, medium gray, scattered dark gray, blocky to splintery, soft to moderately firm, calcareous, scattered limy in part, silty in part, micaceous, carbonaceous in part.  
Limestone - light brown, light gray, dense, cryptocrystalline, argillaceous in part, fossiliferous in part, no visible porosity.
- 5000' - 5050' Sandstone - light gray, white to clear, light yellow, pink, very fine grained to scattered medium grained, subrounded to subangular, calcareous, clay filled to argillaceous, mica flakes, trashy.  
Shale - dark brown, dark reddish brown, gray to dark gray, soft to moderately firm, calcareous, scattered slightly limy, silty to slightly sandy, trashy.  
Limestone - light brown, light gray, brownish gray, dense, scattered fossils.
- 5050' - 5070' Limestone - light gray, cream, light brownish gray, dense, cryptocrystalline, fossiliferous, argillaceous in part, no visible porosity, no stain.
- 5070' - 5100' Limestone - light gray, light brown, cream, dense, cryptocrystalline to microcrystalline, slightly argillaceous in part, scattered fossils, no visible porosity.  
Shale - medium to dark brown, dark reddish brown, scattered medium to dark gray, blocky to splintery, calcareous to slightly limy in part, soft to moderately firm, silty in part.
- 5100' - 5120' Sandstone - gray, light gray, greenish gray, fine grained to medium grained, clay filled, tight, micaceous.  
Limestone - light gray, light brown, white to cream, dense, cryptocrystalline to microcrystalline, scattered fossils, no visible porosity.  
Shale - medium to dark brown, dark reddish brown, gray to dark gray, blocky, soft, slightly silty in part.

- 5120' - 5160' Shale - medium to dark brown, gray, blocky, calcareous to slightly limy,  
Limestone - light gray, cream, light brown, dense, crypto-crystalline to microcrystalline, argillaceous in part, scattered fossils, no visible porosity.
- 5160' - 5170' Sandstone - light to medium gray, white to clear, fine grained to medium grained, subangular to subrounded, tight, clay filled, no visible porosity.
- 5170' - 5190' Shale - dark reddish brown, gray to dark gray, blocky, blocky, calcareous to slightly limy.  
Limestone - light gray, light brown, dense, argillaceous in part, scattered fossils.
- 5190' - 5210' Shale - gray to dark gray, dark reddish brown, blocky, calcareous to limy in part, silty in part.  
Limestone - light brownish gray, brown, light brown, dense, argillaceous in part, scattered fossils.
- 5210' - 5230' Limestone - gray, light gray, dense, cryptocrystalline to microcrystalline, scattered fossils, no visible porosity, argillaceous.  
Shale - medium gray, brownish gray, splintery to blocky, soft to moderately firm, calcareous to limy in part, silty in part to slightly sandy in part.
- 5230' - 5250' Shale - brown, medium gray, brownish gray, soft to scattered moderately firm, calcareous, limy in part, silty to slightly sandy in part.  
Limestone - light grayish brown, dense, scattered fossils.
- 5250' - 5280' Limestone - light gray, light brown, dense, cryptocrystalline, scattered fossils.  
Shale - dark brown, dark gray to black, splintery to platy, moderately firm to firm, silty in part, calcareous to limy in part.
- 5280' - 5300' Limestone - medium brown, grayish brown, dense, argillaceous in part, cryptocrystalline to microcrystalline, scattered fossils, no visible porosity.  
Shale - dark gray, dark brownish gray, splintery to blocky, moderately firm, calcareous to limy.
- 5320' - 5320' Sandstone - light gray, white to clear, trashy, mica flakes, subrounded to subangular, poorly sorted, calcareous, clay filled, tight.  
Limestone - medium brown, dense, argillaceous, cryptocrystalline, fossils, no visible porosity.
- 5320' - 5350' Shale - medium gray, dark gray, brown to dark brown, dark reddish brown, blocky, soft to moderately firm, slightly limy, silty to scattered sandy in part.  
Sandstone - light gray to clear, trashy, mica flakes, clay filled, tight, calcareous.

- 5350' - 5400' Limestone - brown, grayish brown, abundant cherty, cryptocrystalline, scattered microcrystalline, dense, argillaceous in part, no visible porosity.  
Shale - brown, dark brown, gray to dark gray, blocky, firm to moderately firm, calcareous, scattered limy, silty to slightly sandy in part.
- 5400' - 5440' Limestone - medium brown, light to medium grayish brown, cryptocrystalline to microcrystalline, dense, abundant light brown cherty, scattered fossils, no visible porosity, no stain fluorescence, no cut, scattered argillaceous, scattered pyrite.
- 5440' - 5470' Shale - black, dark gray, carbonaceous in part, earthy, platy to splintery, slightly calcareous to limy, soft, silty in part.  
Limestone - gray, brownish gray, part brownish gray, firm, dense, shaly in part, scattered chert.
- 5470' - 5500' Limestone - medium gray, brownish gray, cryptocrystalline to microcrystalline, dense, argillaceous in part, scattered fossils, scattered chert, no visible porosity.  
Shale - dark gray, black, platy to splintery, soft, calcareous to slightly limy, silty in part.
- 5500' - 5530' Limestone - light gray, light brown, light to medium brownish gray, cryptocrystalline to microcrystalline, dense, argillaceous, cherty, scattered fossils.
- 5530' - 5550' Shale - dark gray to black, scattered carbonaceous, platy to splintery, soft, silty in part, calcareous to limy.
- 5550' - 5590' Limestone - light to medium gray, brownish gray, predominately cryptocrystalline to scattered microcrystalline, dense, slightly argillaceous in part, no visible porosity.
- 5590' - 5620' Shale - dark gray to black, blocky, platy to splintery, silty in part, limy, soft to firm, earthy in part.  
Limestone - dark brown, dark grayish brown, shaly, dense, microcrystalline to cryptocrystalline, no visible porosity, pyritic and cherty.
- 5620' - 5630' Limestone - light gray, light brownish gray to dark brownish gray, dense, slightly argillaceous in part, cryptocrystalline to microcrystalline, scattered chert.
- 5630' - 5660' Limestone - light to medium brownish gray, dense, argillaceous in part, cryptocrystalline to microcrystalline, fossils in part.
- 5660' - 5680' Limestone - dark gray, dark brownish gray, shaly in part, dense, firm, microcrystalline to cryptocrystalline, no visible porosity.  
Shale - medium to dark gray, limy, firm, blocky to splintery, slightly silty in part.

- 5680' - 5690' Shale - black, dark gray, platy to splintery, silty in part, earthy, soft to moderately firm.
- Upper Ismay (Sample top 5691'; E-log top 5691')
- 5690' - 5720' Limestone - light to medium brown, scattered dark brown, dense, cryptocrystalline, no visible porosity.  
Anhydrite - white, cream, soft.
- 5720' - 5740' Dolomite - light to medium brown, microsucrosic to sucrosic, limy to very limy in part, abundant pinpoint to vugs up to 2 MM. Scattered anhydrite crystals and inclusions, abundant brown to black oil stain and odor, abundant yellow hydrocarbon fluorescence with yellow immediate bleeding to slow streaming cut.
- 5740' - 5745' Limestone - light to medium gray, microcrystalline to microsucrosic, good pinpoint porosity to small vugs up to 3 MM, lined with brown to black oil stain, scattered thin layers of anhydritic tight zones.
- 5745' - 5750' Dolomite - brown, brownish gray, sucrosic to microcrystalline, abundant pinpoint porosity to vugs up to 1", abundant brown to black oil stain, good fluorescence and cut.
- 5750' - 5758' Limestone - brown to gray, dolomitized vuggy porosity, abundant oil stain, vugs up 1/4", some 1".
- 5758' - 5765' Dolomite - brown, dark brown, cryptocrystalline to microcrystalline, slightly tight, scattered pinpoint to scattered small vugs, scattered anhydrite crystals and inclusions.
- 5765' - 5810' Limestone - light to medium gray, light to medium brown, microcrystalline to sucrosic, abundant pinpoint porosity to vugs some up to 1", most 1/8" to 1/4", oil lined vugs with black to brown oil stain, good fluorescence and immediate to slow cut, dolomitic.
- 5810' - 5820' Limestone - light to medium grayish brown, microcrystalline, tight, scattered pinpoint with oil stain.
- 5820' - 5870' Limestone - light to medium brown, light to medium gray, cryptocrystalline to sucrosic, dolomitic in part, pinpoint to small vugs, traces of scattered fossils, slightly anhydritic, good dark brown and black oil stain, good to fair yellow fluorescence with good to fair yellow bleeding cut, spotty tight zones.
- 5870' - 5880' Limestone - light to medium grayish brown, cryptocrystalline to microcrystalline, tight, slight pinpoint to no porosity.

- Hovenweep Shale (Sample top 5885'; E-log top 5886')
- 5880' - 5910' Shale - black, dark gray, blocky to splintery, scattered platy, soft to moderately firm, slightly silty in part, slightly calcareous to slightly limy, carbonaceous in part.
- Lower Ismay Zone (Sample top 5910'; E-log top 5915')
- 5910' - 5930' Limestone - medium gray, scattered light brownish gray, dense, microcrystalline to sucrosic, dolomitic in part, hard, anhydritic in part, no visible porosity.
- 5930' - 5950' Anhydrite - white, creamy white.  
Limestone - light brownish gray to medium gray, dolomitic in part, hard, anhydritic.
- Gothic Shale Zone (Sample top 5957'; E-log top 5954')
- 5950' - 5980' Shale - black, dark gray, splintery to platy, soft to very soft, silty in part, calcareous to slightly limy in part.
- Desert Creek Zone (Sample top 5982'; E-log top 5984')
- 5980' - 6000' Dolomite - medium gray, medium brown, medium grayish brown, microsucrosic to sucrosic, dense, very limy, scattered anhydritic, argillaceous in part, no visible to poor porosity.
- 6000' - 6010' Anhydrite - white, creamy white, soft.
- 6010' - 6030' Dolomite - brown, medium grayish brown, microcrystalline to slightly sucrosic, dense, hard, slightly limy, argillaceous in part, no visible porosity, no stain, fluorescence or cut.  
Anhydrite - white, soft.
- Lower Desert Creek Zone (Sample top 6032'; E-log top 6031')
- 6030' - 6050' Dolomite - predominately medium brown, medium grayish brown, microsucrosic to slightly sucrosic, dense, slightly argillaceous to slightly anhydritic, limy in part, spotty pinpoint porosity, tight with traces of spotty black oil stain, traces very faint to predominately, no cut.
- Chimney Rock Shale Zone (Sample top 6050'; E-log top 6048')
- 6050' - 6070' Shale - black, dark gray, dark brownish black, firm to moderately firm, silty in part, calcareous to slightly calcareous, splintery, scattered platy, carbonaceous in part.
- Akah Zone (Sample top 6074'; E-log 6073')

6070' - 6110'

Dolomite - medium to dark grayish brown, dark brown, dense, microcrystalline to slightly sucrosic, hard, argillaceous, no visible porosity, traces of pyrite, no stain fluorescence, no cut.

Anhydrite - white, creamy white, soft.

Salt - by penetration rate.

CORE NO. 1

5722' - 5782' Cut 60', recovered 60.5'  
(5721' - 5781' E-log)

5722' - 5723'  
10 Minutes

Dolomite - light to medium brown, grayish brown, micro-sucrosic to sucrosic, limy to very limy, abundant pinpoint porosity, scattered small vugs up to 1 MM, very small anhydrite inclusions, argillaceous, spotty oil stain.

5723' - 5724'  
10 Minutes

Dolomite - medium brown, sucrosic, abundant pinpoint to small vugs up to 2 MM, limy in part, scattered small anhydrite crystals, abundant oil stain and odor, bright yellow hydrocarbon fluorescence and yellow cut.

5724' - 5725'  
11 Minutes

Dolomite - as above, oil saturated.

5725' - 5726'  
12 Minutes

Dolomite - as above, anhydrite inclusions, oil saturated.

5726' - 5727'  
9 Minutes

Dolomite - as above, oil saturated.

5727' - 5728'  
10 Minutes

Dolomite - brown, sucrosic, anhydrite inclusions, oil saturated.

5728' - 5729'  
10 Minutes

Anhydrite - light to medium gray, dense, massive interbedded with brown dolomite.

5729' - 5730'  
11 Minutes

Dolomite - brown, sucrosic, scattered anhydrite inclusions, abundant pinpoint to small vugs 1 - 2 MM, oil saturated, excellent stain, fluorescence.

5730' - 5731'  
12 Minutes

Dolomite - as above, oil stained.

5731' - 5732'  
11 Minutes

Dolomite - as above, oil saturated, small anhydrite inclusions.

5732' - 5733'  
9 Minutes

Dolomite - as above, oil stained

5733' - 5734'  
9 Minutes

Dolomite - as above, oil saturated.

5734' - 5735'  
9 Minutes

Dolomite - brown, sucrosic, oil saturated, scattered anhydrite inclusions or interbedded anhydrite and dolomite.

5735' - 5736' 6 Minutes	Dolomite - as above, less anhydrite, oil saturated, small anhydrite inclusions.
5736' - 5737' 7 Minutes	Dolomite - as above, oil saturated.
5737' - 5738' 7 Minutes	Dolomite - as above, increasing anhydrite inclusions, good oil stain.
5738' - 5739' 7 Minutes	Limestone - light to medium gray, microcrystalline to microsucrosic, pinpoint to small vugs, lined with oil, slightly tight, scattered anhydrite crystals.
5739' - 5740' 7 Minutes	Limestone - as above.
5740' - 5741' 8 Minutes	Limestone - as above, increasing pinpoint to small vugs up to 3 - 4 MM, abundant black stain, abundant live oil.
5741' - 5742' 7 Minutes	Limestone - as above, scattered to abundant pinpoint to small vugs with good oil stain.
5742' - 5743' 8 Minutes	Limestone - as above, oil stained.
5743' - 5744' 8 Minutes	Limestone - as above, abundant oil stain, scattered slightly tight with anhydrite.
5744' - 5745' 9 Minutes	Limestone - medium gray, microcrystalline to microsucrosic, abundant pinpoint to small vugs 1/8" to 1/4", with good oil stain, fluorescence and cut, scattered layers of thin anhydrite.
5745' - 5746' 9 Minutes	Limestone - as above, scattered tight.
5746' - 5747' 6 Minutes	Limestone - as above, interbedded layers of anhydrite and vuggy limestone, pinpoint porosity to vugs 1/8" to 1/4", good oil shows.
5747' - 5748' 7 Minutes	Dolomite - brown, sucrosic, pinpoint porosity, anhydrite inclusions, oil saturated, good oil stain and cut.
5748' - 5749' 5 Minutes	Dolomite - brown, gray, grayish brown, microcrystalline to sucrosic, limy, abundant pinpoint to small vugs 1/8" to 1/4" oil lined, oil saturated, good shows, traces of crystalline anhydrite.
5749' - 5750' 8 Minutes	Dolomite - as above, vugs up to 1", scattered 2", abundant oil stain.
5750' - 5751' 8 Minutes	Limestone - as above, dolomitic, oil saturated, dolomitized vugs lined with oil, soft.

5751' - 5752' 7 Minutes	Limestone - saturated oil lined vugs, brown to gray limestone, slightly dolomitized.
5752' - 5753' 7 Minutes	Limestone - as above, oil saturated.
5753' - 5754' 7 Minutes	Limestone - as above.
5754' - 5755' 6 Minutes	Limestone - as above.
5755' - 5756' 7 Minutes	Limestone - as above, scattered anhydrite inclusions and crystals.
5756' - 5757' 6 Minutes	Limestone - as above, dolomitized in parts, abundant vugs, oil saturated.
5757' - 5758' 6 Minutes	Limestone - as above.
5758' - 5759' 6 Minutes	Dolomite - brown, dark brownish gray, cryptocrystalline to microcrystalline, scattered pinpoint porosity to small vugs with oil, slightly tight.
5759' - 5760' 4 Minutes	Dolomite - as above, interbedding carbonaceous, black shale, tight to pinpoint.
5760' - 5761' 5 Minutes	Dolomite - brown, dark brown, sucrosic, pinpoint porosity, scattered small vugs, oil saturated.
5761' - 5762' 5 Minutes	Dolomite - as above, oil saturated.
5762' - 5763' 5 Minutes	Dolomite - as above.
5763' - 5764' 5 Minutes	Dolomite - as above, increasing anhydrite inclusions and crystals.
5764' - 5765' 7 Minutes	Limestone - medium gray, inclusions of brown sucrosic dolomite oil, saturated pinpoint porosity to small vugs 1/8" to 1/4".
5765' - 5766' 8 Minutes	Limestone - light to medium gray, brown, dolomitic in part, microcrystalline to sucrosic, abundant pinpoint to vugs up to 1", oil lined and oil saturated, good shows, scattered fossils, crinoid stems.
5766' - 5767' 6 Minutes	Limestone - as above, dolomitic, sucrosic, soft, oil saturated.
5767' - 5768' 7 Minutes	Limestone - as above, oil saturated.

5768' - 5769' 6 Minutes	Limestone - as above.
5769' - 5770' 7 Minutes	Limestone - as above, dolomitic, oil saturated, abundant large vugs.
5770' - 5771' 9 Minutes	Limestone - dolomitic, sucrosic, oil saturated, large vugs.
5771' - 5772' 7 Minutes	Limestone - as above.
5772' - 5773' 6 Minutes	Limestone - as above, oil saturated, large vugs, less dolomitic.
5773' - 5774' 7 Minutes	Limestone - as above.
5774' - 5775' 7 Minutes	Limestone - as above, scattered traces of anhydrite crystals.
5775' - 5776' 8 Minutes	Limestone - as above, oil saturated, very vuggy.
5776' - 5777' 7 Minutes	Limestone - as above, abundant black to brown stain, oil saturated.
5777' - 5778' 8 Minutes	Limestone - as above.
5778' - 5779' 7 Minutes	Limestone - light gray, microsucrosic, abundant small vugs lined with oil stain, vugs up to 1/8" to 1/4", good oil fluorescence, scattered anhydrite.
5779' - 5780' 7 Minutes	Limestone - as above.
5780' - 5781' 6 Minutes	Limestone - as above, less porosity, good pinpoint.
5781' - 5782' 6 Minutes	Limestone - gray to brownish gray, microcrystalline to sucrosic, abundant pinpoint to small vugs 1/8" to 1/4" oil lined, good oil fluorescence and cut.

## SUMMARY

### Prospect Overview

The primary objective of Duncan Exploration Company No. 4-3 Cave Canyon was the porosity interval of the Upper Ismay zone of the Paradox Formation. The well was drilled to 6104' on the NW-SE trend of an algal mound discovered by Duncan in 1984 (No. 1 Wells Federal). This discovery well located the existence of a leached and dolomitized algal mound in the Upper Ismay zone. The mound at the wells location had 40' of potential pay. This well was offset to the southeast along the trend 1/2 mile by Duncan in late 1984. This well (3-1 Cave Canyon) established the true existence of a significant mound. 139' of mound buildup was present at 3-1 Cave Canyon. The next year (1985) a southwest offset was drilled to establish the width of the mound. This well (4-2 Cave Canyon) was dry with no mound buildup indicating that the mound dropped rapidly to the southwest. Another southeast well (3-2 Cave Canyon) was drilled and established a continuation of the mound to the southeast. 3-2 Cave Canyon recorded 79' of potential pay in the Upper Ismay. The 4-3 Cave Canyon location is almost halfway between the discovery well (No. 1 Wells Federal) and 3-1 Cave Canyon on the trend of the mound. Another Duncan well (3-3 Cave Canyon) was drilled slightly to the northeast off the trend approximately halfway between 3-1 and 3-2 Cave Canyon. 3-3 Cave Canyon recorded 119' of mound buildup. The Lower Desert Creek zone was the secondary target, and Lower Ismay and Upper Desert Creek zones were tertiary targets.

### Formation Summary

#### Hermosa Group (Honaker Trail Formation 4737' - 5689')

Several sand intervals were penetrated at this location. They were all partially to completely clay filled with small gas shows. Larger gas shows were associated with highly carbonaceous shales. The limestones of the Honaker Trail were predominately cryptocrystalline dense and slightly argillaceous and more fossiliferous toward the bottom. Significant zones of light brown chert were also observed to increase with depth.

#### Upper Ismay Zone (5691' - 5886'; porosity interval 5719' - 5886') 167' total mound buildup

Abundant evidence of hydrocarbons existed while coring and drilling this interval. Primary leached algal porosity existed as well as secondary dolomitized porosity was present at this location. Several intervals of exposure were evident by the amount of dolomitization of the mound. Good to excellent porosity with good permeability was present through some intervals of this 167' mound. 60' of the upper interval was cored and significant porosity and hydrocarbons

was observed with good the excellent intercrystalline primary leached to vuggy porosity. Good oil stain was observed through the entire core, even through the tight zones.

The mound was stratigraphically higher than 3-1 Cave Canyon indicating that 4-3 may be at the peak of the mound. An average porosity value through the entire mound (167') was 11.5% and calculated a water saturation value of only 5%. The net pay of 135' of this interval recorded an average porosity value of 13.3% with a water saturation value of only 4%.

More gas was observed while coring and drilling this interval compared to the other wells in the field. E-logs also revealed a density/neutron cross over indicating gas. This location, since it is on the peak of the mound, may be in the gas cap of the mound. No indication of formation water was observed from coring, drilling or logging this interval.

#### Lower Ismay Zone (5915' - 5954')

No significant porosity was observed in this interval. The limestones were tight and anhydritic.

#### Upper Desert Creek Zone (5984' - 6031')

The dolomites of this interval did not exhibit the presence of hydrocarbons. Slight increases in gas was observed but the samples exhibited a limy, slightly anhydritic to argillaceous dolomite with no oil stain. Prohibitive water saturation values were calculated and even though fair to good porosity values were recorded from e-logs, low resistivity values offset the porosity values.

#### Lower Desert Creek Zone (6031' - 6048')

This zone was thin and tight and not well developed at this location. Poor porosity and poor to no shows were observed. The dolomites were slightly to highly argillaceous and anhydritic with very spotty pinpoint to no visible porosity. Traces of spotty black stain was noted. Prohibitive porosity and high water saturation values were obtained indicating that a very poor to no mound development was present.

#### Post Drilling Comments

5 1/2" production casing was set to produce the hydrocarbons of the Upper Ismay Zone of the Paradox Formation. Excellent to good porosity with good permeability and a large reservoir (135' of net pay) exists in this zone. From core examination, abundant ivanovia leaves were leached and partial to complete dolomitization was present. The mound was subjected to several intervals of intertidal and supratidal exposure. The carbonate mud was deposited in a shallow subtidal environment, this was evident by the existence of crinoid fossils which prefer bank crests.

**CORE ANALYSIS RESULTS**

for

Duncan Exploration Company

Cave Canyon No. 4-3 Well  
Cave Canyon Field  
San Juan County, Utah  
File Number: 57121-8215

*43-037-31414*

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# CORE LABORATORIES

Company : Duncan Exploration Company  
 Well : Cave Canyon No. 4-3  
 Location : NE NE Sec. 4 T38S R24E  
 Co,State : San Juan, Utah

Field : Cave Canyon  
 Formation : Paradox  
 Coring Fluid : Water Base Mud  
 Elevation : 5349 KB

File No.: 57121-8215  
 Date : 18-Jul-1988  
 API No. :  
 Analysts: DS MW FD JS

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
Core No.1 Upper Ismay Zone 5322.0-5382.5' Cut 60.0' Recovered 60.5'									
1	5322.0- 23.0	29.5	28.4	26.9	23.1	12.1	24.3	2.90	Dol brn f xln sl anhy
2	5323.0- 24.0	41.0	33.8	24.1	21.1	7.7	21.3	2.87	Dol brn f xln sl anhy
3	5324.0- 25.0	15.2	12.2	0.42	17.3	18.1	28.7	2.86	Dol brn f xln sl anhy
4	5325.0- 26.0	26.3	23.9	8.71	22.1	15.8	22.7	2.83	Dol brn f xln sl anhy
5	5326.0- 27.0	1351.	32.4	26.8	23.4	12.7	21.2	2.82	Dol brn f xln sl anhy
6	5327.0- 28.0	2.11	0.77	0.54	6.8	10.0	12.5	2.90	Dol brn f xln sl anhy
7	5328.0- 29.0	0.76	0.61	0.25	5.7	0.0	32.5	2.89	Dol brn f xln sl anhy
8	5329.0- 30.0	26.8	25.5	18.0	23.5	16.6	28.8	2.83	Dol brn f xln sl anhy
9	5330.0- 31.0	31.1	30.7	27.0	24.3	16.6	27.4	2.86	Dol brn f xln sl anhy
10	5331.0- 32.0	30.6	27.9	4.90	23.6	17.8	23.9	2.81	Dol brn f xln sl anhy
11	5332.0- 33.0	33.8	30.2	27.0	23.1	20.2	30.7	2.84	Dol brn f xln sl anhy
12	5333.0- 34.0	9.24	7.56	8.93	21.1	22.1	34.0	2.83	Dol brn f xln sl anhy
13	5334.0- 35.0	11.9	11.2	3.06	24.3	20.3	44.0	2.80	Dol brn f xln sl anhy
14	5335.0- 36.0	8.36	7.87	3.64	26.2	17.4	37.4	2.80	Dol brn f xln sl anhy
15	5336.0- 37.0	8.49	7.53	8.92	25.9	22.3	30.2	2.84	Dol brn f xln sl anhy
16	5337.0- 38.0	8.56	7.96	5.43	23.9	19.5	25.7	2.80	Dol brn f xln sl anhy
17	5338.0- 39.0	6.84	6.18	0.70	18.0	27.8	13.0	2.82	Dol brn f xln sl anhy
18	5339.0- 40.0	0.02	0.01	0.24	4.0	0.0	31.5	2.83	Ls gry vf xln anhy sl dol
19	5340.0- 41.0	0.20	0.11	0.19	4.9	12.3	16.3	2.81	Ls gry vf xln anhy sl dol
20	5341.0- 42.0	0.27	0.15	0.24	3.1	34.5	19.7	2.82	Ls gry vf xln anhy sl dol
21	5342.0- 43.0	0.03	0.03	0.23	2.4	27.8	23.5	2.80	Ls gry vf xln anhy sl dol
22	5343.0- 44.0	0.03	0.03	0.14	3.1	9.9	15.8	2.81	Ls gry vf xln anhy sl dol
23	5344.0- 45.0	0.38	0.22	0.58	6.7	18.0	22.8	2.81	Ls gry vf xln anhy sl dol
24	5345.0- 46.0	4.84	4.34	0.99	7.6	20.4	51.1	2.78	Ls gry vf xln anhy sl dol
25	5346.0- 47.0	0.09	0.07	0.18	4.2	8.8	11.3	2.72	Ls gry vf xln sl anhy sl dol

# CORE LABORATORIES

Company : Duncan Exploration Company  
Well : Cave Canyon No. 4-3

Field : Cave Canyon  
Formation : Paradox

File No.: 57121-8215  
Date : 18-Jul-1988

## C O R E A N A L Y S I S R E S U L T S

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
26	5347.0- 48.0	4.85	4.50	0.48	14.5	16.1	12.1	2.81	Ls gry vf xln anhy sl dol
27	5348.0- 49.0	2.62	2.54	1.67	20.2	19.6	22.4	2.80	Dol brn f xln sl anhy
28	5349.0- 50.0	8.00	3.50	0.40	7.7	11.3	59.6	2.73	Ls gry vf xln sl dol vug
29	5350.0- 51.0	7.13	4.98	8.09	11.6	28.4	20.3	2.72	Ls gry vf xln sl dol vug
30	5351.0- 52.0	2.96	1.51	1.84	10.7	24.9	17.8	2.73	Ls gry vf xln sl dol vug
31	5352.0- 53.0	1.84	1.16	0.63	10.7	26.7	19.1	2.71	Ls gry vf xln sl dol vug
32	5353.0- 54.0	2.80	2.51	0.85	12.3	26.4	27.8	2.71	Ls gry vf xln sl dol vug
33	5354.0- 55.0	1.87	0.84	0.61	9.7	16.3	20.4	2.72	Ls gry vf xln sl dol vug
34	5355.0- 56.0	7.84	3.84	1.23	14.0	15.1	17.3	2.72	Ls gry vf xln sl dol vug
35	5356.0- 57.0	2.38	0.94	0.62	11.1	16.4	18.3	2.70	Ls gry vf xln sl dol vug
36	5357.0- 58.0	0.19	0.12	0.44	4.8	13.5	9.0	2.74	Ls gry vf xln sl dol vug
37	5358.0- 59.0	1.52	1.21	0.71	20.0	24.1	19.1	2.75	Dol brn f xln sl anhy
38	5359.0- 60.0	1.40	1.24	0.37	17.4	23.7	36.2	2.76	Dol brn f xln sl anhy
39	5360.0- 61.0	3.18	2.81	0.64	16.5	20.6	40.6	2.75	Dol brn f xln sl anhy
40	5361.0- 62.0	7.28	6.72	0.51	23.7	17.6	30.6	2.83	Dol brn f xln sl anhy
41	5362.0- 63.0	6.47	6.36	0.43	27.7	44.8	12.8	2.79	Dol brn f xln sl anhy
42	5363.0- 64.0	1.71	1.55	0.64	8.2	21.9	21.9	2.80	Dol brn f xln sl anhy sl calc
43	5364.0- 65.0	160.	99.9	0.44	16.7	4.5	26.9	2.74	Dol brn f xln sl anhy sl calc
44	5365.0- 66.0	129.	5.33	0.62	8.4	6.9	11.1	2.72	Ls gry vf xln sl dol vug
45	5366.0- 67.0	1.87	1.62	1.85	10.0	24.6	17.5	2.76	Ls gry vf xln sl dol vug
46	5367.0- 68.0	121.	50.5	64.6	14.3	26.6	17.8	2.72	Ls gry vf xln sl dol vug
47	5368.0- 69.0	22.4	11.6	1.23	14.2	10.7	15.3	2.75	Ls gry vf xln sl dol vug
48	5369.0- 70.0	132.	45.0	22.3	17.1	6.1	18.3	2.75	Ls gry vf xln sl dol vug
49	5370.0- 71.0	9.37	1.23	0.60	12.1	23.8	34.0	2.77	Ls gry vf xln sl dol vug
50	5371.0- 72.0	56.9	9.71	0.12	14.7	8.8	29.3	2.76	Ls gry vf xln sl dol vug
51	5372.0- 73.0	75.8	66.9	1.69	15.4	21.6	18.0	2.73	Ls gry vf xln sl dol vug
52	5373.0- 74.0	70.8	50.2	36.0	12.5	29.5	12.6	2.74	Ls gry vf xln sl dol vug
53	5374.0- 75.0	1.27	0.58	0.28	10.0	16.7	26.8	2.80	Ls gry vf xln sl dol vug
54	5375.0- 76.0	2.47	1.12	2.29	11.6	9.8	29.3	2.77	Ls gry vf xln sl dol vug

# CORE LABORATORIES

Company : Duncan Exploration Company  
 Well : Cave Canyon No. 4-3

Field : Cave Canyon  
 Formation : Paradox

File No.: 57121-8215  
 Date : 18-Jul-1988

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
55	5376.0- 77.0	6.70	2.78	245.	17.4	9.1	10.5	2.81	Ls gry vf xln sl dol vug
56	5377.0- 78.0	25.7	9.78	27.9	16.9	31.7	10.6	2.77	Ls gry vf xln sl dol vug
57	5378.0- 79.0	1.30	1.01	0.23	7.4	20.4	11.7	2.75	Ls gry vf xln sl dol vug
58	5379.0- 80.0	1.95	1.36	0.13	10.0	16.9	19.3	2.75	Ls gry vf xln sl dol vug
59	5380.0- 81.0	0.53	0.51	0.07	12.4	19.6	11.2	2.81	Dol lt brn f xln sl anhy sl calc
60	5381.0- 82.5	9.53	1.96	0.17	11.1	5.7	22.7	2.81	Ls gry vf xln sl anhy sl dol

# CORE LABORATORIES

Company : Duncan Exploration Company  
 Well : Cave Canyon No. 4-3

Field : Cave Canyon  
 Formation : Paradox

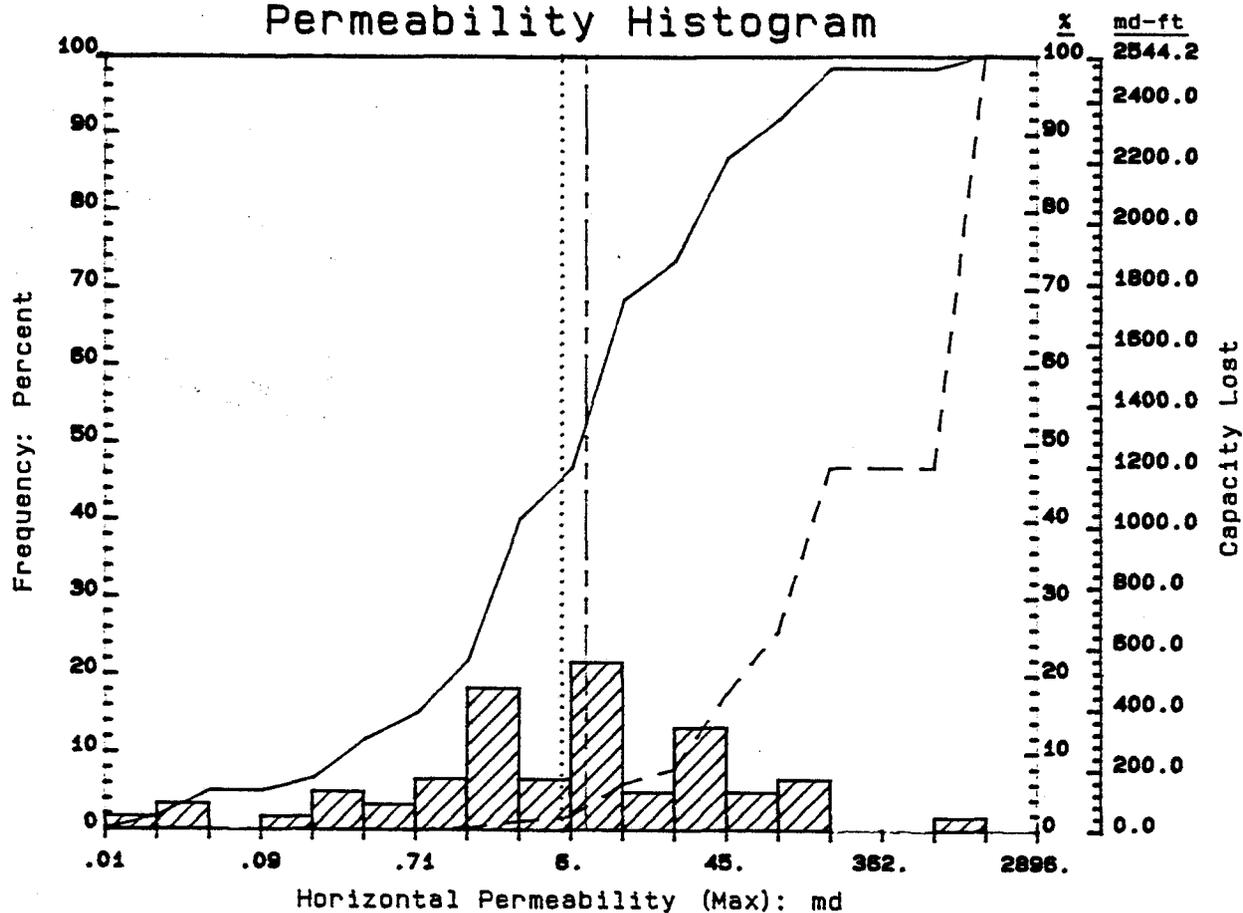
File No.: 57121-8215  
 Date : 18-Jul-1988

## TABLE I

### SUMMARY OF CORE DATA

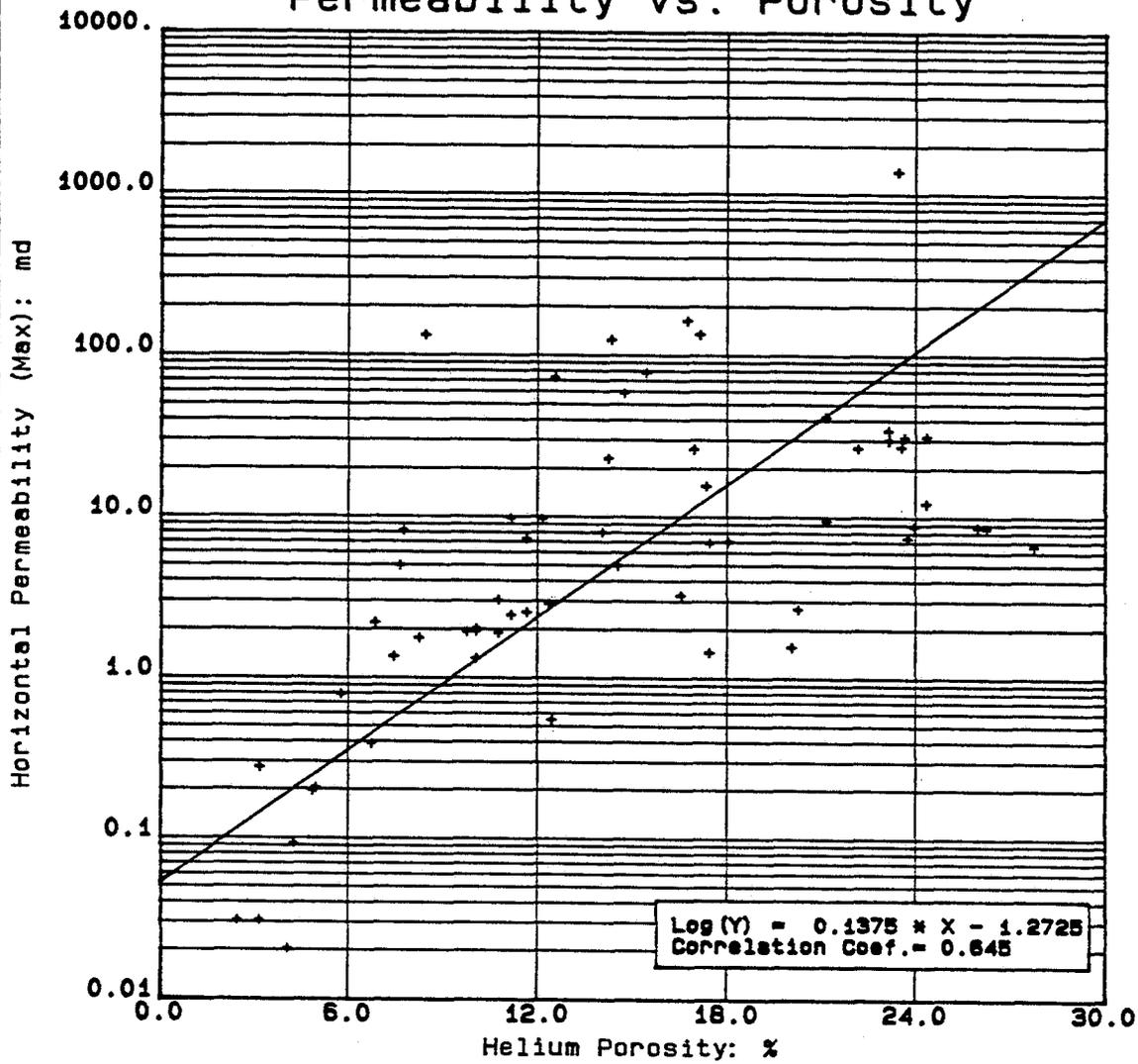
ZONE AND CUTOFF DATA	CHARACTERISTICS REMAINING AFTER CUTOFFS	
<b>ZONE:</b>	<b>ZONE:</b>	<b>PERMEABILITY:</b>
Identification ----- Upper Ismay	Number of Samples ----- 60	Flow Capacity ----- 2544.2 md-ft
Top Depth ----- 5322.0 ft	Thickness Represented - 60.5 ft	Arithmetic Average ---- 42.1 md
Bottom Depth ----- 5382.5 ft		Geometric Average ---- 5.01 md
Number of Samples ----- 60	<b>POROSITY:</b>	Harmonic Average ----- 0.38 md
	Storage Capacity ----- 868.0 $\phi$ -ft	Minimum ----- 0.02 md
<b>DATA TYPE:</b>	Arithmetic Average ---- 14.3 %	Maximum ----- 1351. md
Porosity ----- (HELIUM)	Minimum ----- 2.4 %	Median ----- 6.77 md
Permeability ----- (MAXIMUM) Kair	Maximum ----- 27.7 %	Standard Dev. (Geom) -- $K \cdot 10^{\pm 0.958}$ md
	Median ----- 14.1 %	<b>HETEROGENEITY (Permeability):</b>
<b>CUTOFFS:</b>	Standard Deviation --- $\pm 7.0$ %	Dykstra-Parsons Var. -- 0.845
Porosity (Minimum) ----- 0.0 %	<b>GRAIN DENSITY:</b>	Lorenz Coefficient ---- 0.814
Porosity (Maximum) ----- 100.0 %	Arithmetic Average ---- 2.79 gm/cc	<b>AVERAGE SATURATIONS (Pore Volume):</b>
Permeability (Minimum) --- 0.0000 md	Minimum ----- 2.70 gm/cc	Oil ----- 18.5 %
Permeability (Maximum) --- 100000. md	Maximum ----- 2.90 gm/cc	Water ----- 24.2 %
Water Saturation (Maximum) 100.0 %	Median ----- 2.80 gm/cc	
Oil Saturation (Minimum) - 0.0 %	Standard Deviation --- $\pm 0.05$ gm/cc	
Grain Density (Minimum) -- 2.00 gm/cc		
Grain Density (Maximum) -- 3.00 gm/cc		
Lithology Excluded ----- NONE		

# Permeability Histogram



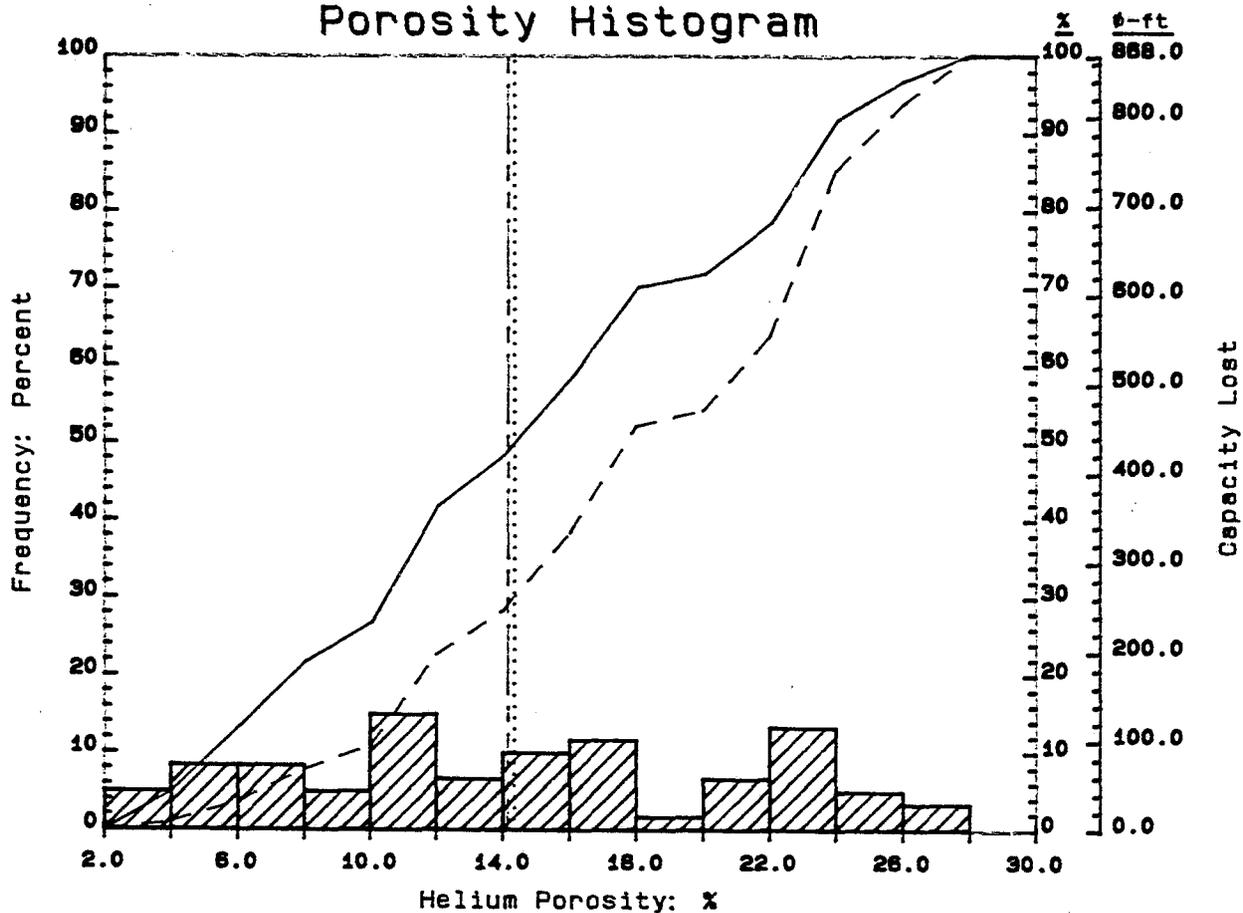
<p style="text-align: center;"><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5322.0-5382.5 feet)</p> <p>Core Laboratories <span style="float: right;">18-Jul-1988</span></p>	<p style="text-align: center;">- LEGEND -</p> <p>— — — Median Value (6.77)                  ..... Geom. Average (5.01)                  ——— Cumulative Frequency                  - - - Cumulative Capacity Lost</p> <p style="text-align: center;">60 Samples</p>
--	--

# Permeability vs. Porosity



<p style="text-align: center;"><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5322.0-5382.5 feet)</p> <p><b>Core Laboratories</b> <span style="float: right;">18-Jul-1988</span></p>	<p>- LEGEND -                  Upper Ismay</p>
---	--

# Porosity Histogram



<p style="text-align: center;"><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5322.0-5382.5 feet)</p> <p style="text-align: left;">Core Laboratories <span style="float: right;">18-Jul-1988</span></p>	<p style="text-align: center;">- LEGEND -</p> <p>— Median Value (14.1)                  ..... Arith. Average (14.3)                  — Cumulative Frequency                  - - - Cumulative Capacity Lost</p> <p style="text-align: center;">60 Samples</p>
--	---

# CORE LAB SPECTRAL GAMMA-RAY PLOT

Duncan Exploration Company  
Cave Canyon No. 4-3  
Cave Canyon Field  
San Juan County, Utah  
Upper Ismay Zone (5322.0-5382.5 feet)

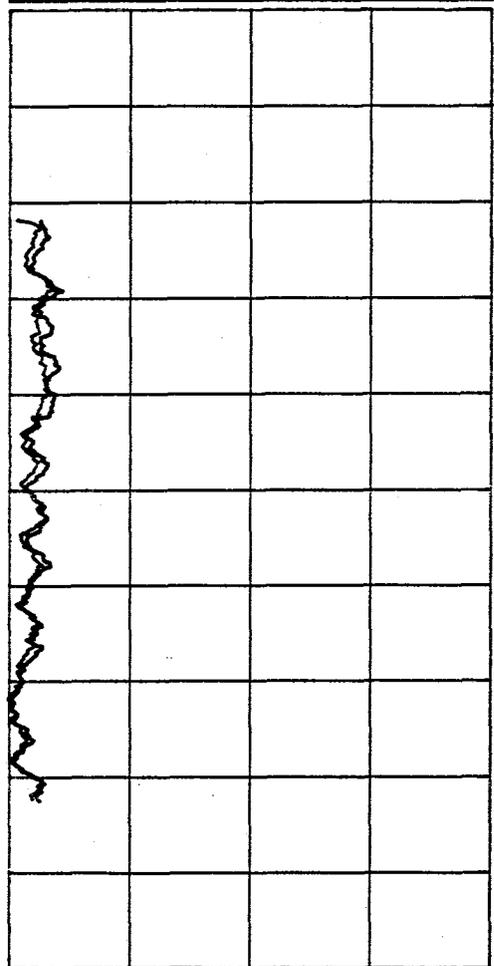
Vertical Scale  
5.00 in = 100.0 ft

Core Laboratories

18-Jul-1968

Total Gamma  
API 0. 200

Uranium Free Gamma  
API 0. 200



Depth  
Feet  
5300

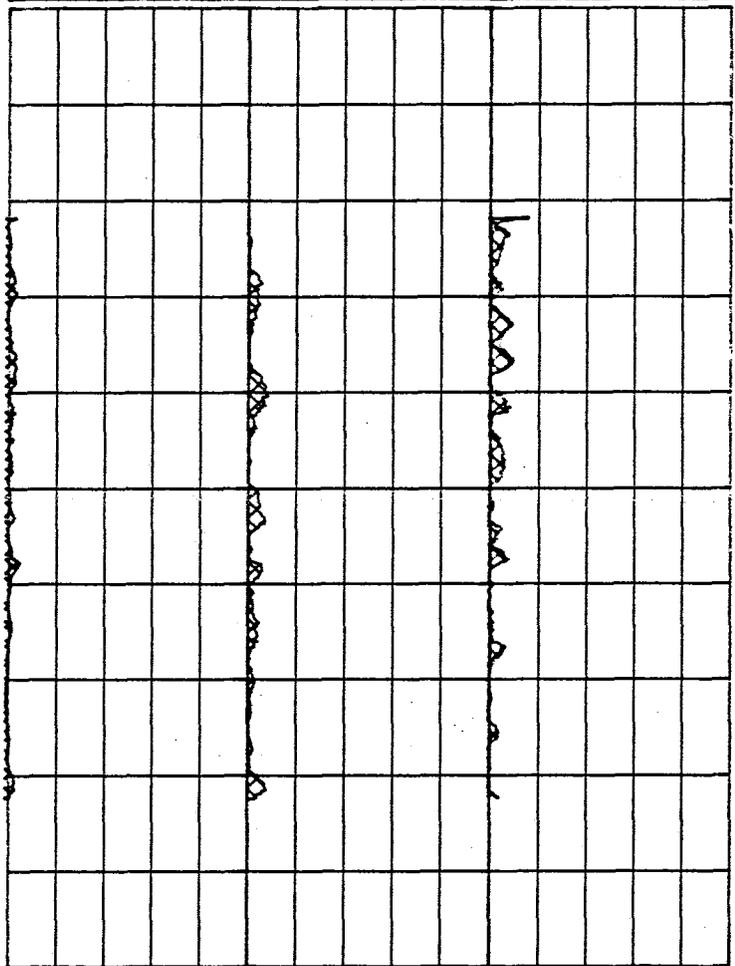
Potassium  
% 0. 10 10. 15 10. 10  
Thorium  
ppm  
Uranium  
ppm 10

5325

5350

5375

5400



# Correlation Coregraph

**Duncan Exploration Company**  
 Cave Canyon No. 4-3  
 Cave Canyon Field  
 San Juan County, Utah  
 Upper Ismay Zone (5322.0-5382.5 feet)

**Vertical Scale**  
 5.00 in = 100.0 ft

Core Laboratories

18-Jul-1988

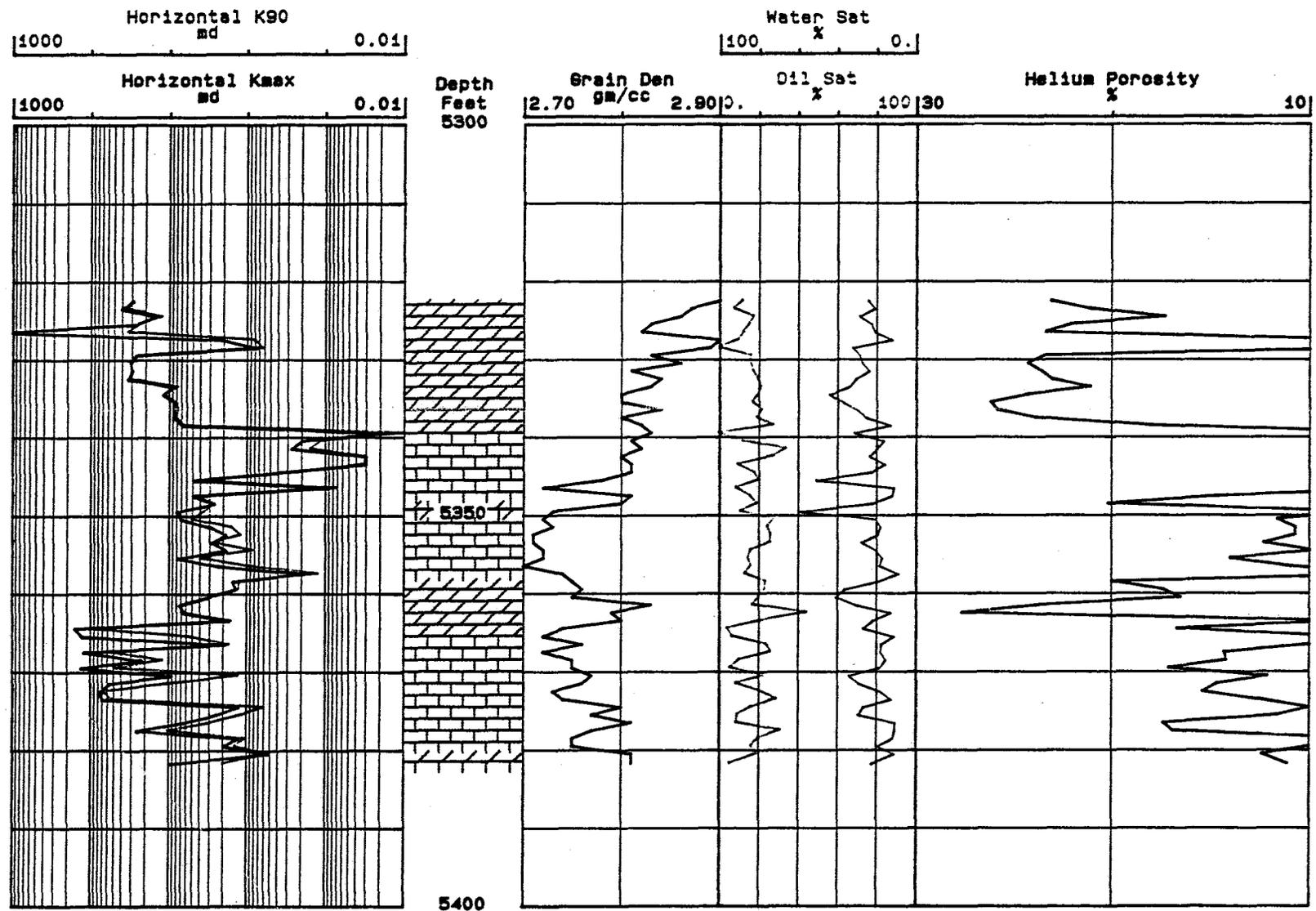
- Lithology Legend -



Dolomite



Limestone



**CORE ANALYSIS RESULTS**

for

Duncan Exploration Company

Cave Canyon No. 4-3 Well

Cave Canyon Field

San Juan County, Utah

File Number: 57121-8215

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# CORE LABORATORIES

Company : Duncan Exploration Company  
 Well : Cave Canyon No. 4-3  
 Location : NE NE Sec. 4 T38S R24E  
 Co,State : San Juan, Utah

Field : Cave Canyon  
 Formation : Paradox  
 Coring Fluid : Water Base Mud  
 Elevation : 5349 KB

File No.: 57121-8215  
 Date : 18-Jul-1988  
 API No. :  
 Analysts: DS MW FD JS

## CORE ANALYSIS RESULTS (43-037-31414)

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
Core No.1 Upper Ismay Zone 5722.0-5782.5' Cut 60.0' Recovered 60.5'									
1	5722.0- 23.0	29.5	28.4	26.9	23.1	12.1	24.3	2.90	Dol brn f xln sl anhy
2	5723.0- 24.0	41.0	33.8	24.1	21.1	7.7	21.3	2.87	Dol brn f xln sl anhy
3	5724.0- 25.0	15.2	12.2	0.42	17.3	18.1	28.7	2.86	Dol brn f xln sl anhy
4	5725.0- 26.0	26.3	23.9	8.71	22.1	15.8	22.7	2.83	Dol brn f xln sl anhy
5	5726.0- 27.0	1351.	32.4	26.8	23.4	12.7	21.2	2.82	Dol brn f xln sl anhy
6	5727.0- 28.0	2.11	0.77	0.54	6.8	10.0	12.5	2.90	Dol brn f xln sl anhy
7	5728.0- 29.0	0.76	0.61	0.25	5.7	0.0	32.5	2.89	Dol brn f xln sl anhy
8	5729.0- 30.0	26.8	25.5	18.0	23.5	16.6	28.8	2.83	Dol brn f xln sl anhy
9	5730.0- 31.0	31.1	30.7	27.0	24.3	16.6	27.4	2.86	Dol brn f xln sl anhy
10	5731.0- 32.0	30.6	27.9	4.90	23.6	17.8	23.9	2.81	Dol brn f xln sl anhy
11	5732.0- 33.0	33.8	30.2	27.0	23.1	20.2	30.7	2.84	Dol brn f xln sl anhy
12	5733.0- 34.0	9.24	7.56	8.93	21.1	22.1	34.0	2.83	Dol brn f xln sl anhy
13	5734.0- 35.0	11.9	11.2	3.06	24.3	20.3	44.0	2.80	Dol brn f xln sl anhy
14	5735.0- 36.0	8.36	7.87	3.64	26.2	17.4	37.4	2.80	Dol brn f xln sl anhy
15	5736.0- 37.0	8.49	7.53	8.92	25.9	22.3	30.2	2.84	Dol brn f xln sl anhy
16	5737.0- 38.0	8.56	7.96	5.43	23.9	19.5	25.7	2.80	Dol brn f xln sl anhy
17	5738.0- 39.0	6.84	6.18	0.70	18.0	27.8	13.0	2.82	Dol brn f xln sl anhy
18	5739.0- 40.0	0.02	0.01	0.24	4.0	0.0	31.5	2.83	Ls gry vf xln anhy sl dol
19	5740.0- 41.0	0.20	0.11	0.19	4.9	12.3	16.3	2.81	Ls gry vf xln anhy sl dol
20	5741.0- 42.0	0.27	0.15	0.24	3.1	34.5	19.7	2.82	Ls gry vf xln anhy sl dol
21	5742.0- 43.0	0.03	0.03	0.23	2.4	27.8	23.5	2.80	Ls gry vf xln anhy sl dol
22	5743.0- 44.0	0.03	0.03	0.14	3.1	9.9	15.8	2.81	Ls gry vf xln anhy sl dol
23	5744.0- 45.0	0.38	0.22	0.58	6.7	18.0	22.8	2.81	Ls gry vf xln anhy sl dol
24	5745.0- 46.0	4.84	4.34	0.99	7.6	20.4	51.1	2.78	Ls gry vf xln anhy sl dol
25	5746.0- 47.0	0.09	0.07	0.18	4.2	8.8	11.3	2.72	Ls gry vf xln sl anhy sl dol

# CORE LABORATORIES

Company : Duncan Exploration Company  
Well : Cave Canyon No. 4-3

Field : Cave Canyon  
Formation : Paradox

File No.: 57121-8215  
Date : 18-Jul-1988

## CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
26	5747.0- 48.0	4.85	4.50	0.48	14.5	16.1	12.1	2.81	Ls gry vf xln anhy sl dol
27	5748.0- 49.0	2.62	2.54	1.67	20.2	19.6	22.4	2.80	Dol brn f xln sl anhy
28	5749.0- 50.0	8.00	3.50	0.40	7.7	11.3	59.6	2.73	Ls gry vf xln sl dol vug
29	5750.0- 51.0	7.13	4.98	8.09	11.6	28.4	20.3	2.72	Ls gry vf xln sl dol vug
30	5751.0- 52.0	2.96	1.51	1.84	10.7	24.9	17.8	2.73	Ls gry vf xln sl dol vug
31	5752.0- 53.0	1.84	1.16	0.63	10.7	26.7	19.1	2.71	Ls gry vf xln sl dol vug
32	5753.0- 54.0	2.80	2.51	0.85	12.3	26.4	27.8	2.71	Ls gry vf xln sl dol vug
33	5754.0- 55.0	1.87	0.84	0.61	9.7	16.3	20.4	2.72	Ls gry vf xln sl dol vug
34	5755.0- 56.0	7.84	3.84	1.23	14.0	15.1	17.3	2.72	Ls gry vf xln sl dol vug
35	5756.0- 57.0	2.38	0.94	0.62	11.1	16.4	18.3	2.70	Ls gry vf xln sl dol vug
36	5757.0- 58.0	0.19	0.12	0.44	4.8	13.5	9.0	2.74	Ls gry vf xln sl dol vug
37	5758.0- 59.0	1.52	1.21	0.71	20.0	24.1	19.1	2.75	Dol brn f xln sl anhy
38	5759.0- 60.0	1.40	1.24	0.37	17.4	23.7	36.2	2.76	Dol brn f xln sl anhy
39	5760.0- 61.0	3.18	2.81	0.64	16.5	20.6	40.6	2.75	Dol brn f xln sl anhy
40	5761.0- 62.0	7.28	6.72	0.51	23.7	17.6	30.6	2.83	Dol brn f xln sl anhy
41	5762.0- 63.0	6.47	6.36	0.43	27.7	44.8	12.8	2.79	Dol brn f xln sl anhy
42	5763.0- 64.0	1.71	1.55	0.64	8.2	21.9	21.9	2.80	Dol brn f xln sl anhy sl calc
43	5764.0- 65.0	160.	99.9	0.44	16.7	4.5	26.9	2.74	Dol brn f xln sl anhy sl calc
44	5765.0- 66.0	129.	5.33	0.62	8.4	6.9	11.1	2.72	Ls gry vf xln sl dol vug
45	5766.0- 67.0	1.87	1.62	1.85	10.0	24.6	17.5	2.76	Ls gry vf xln sl dol vug
46	5767.0- 68.0	121.	50.5	64.6	14.3	26.6	17.8	2.72	Ls gry vf xln sl dol vug
47	5768.0- 69.0	22.4	11.6	1.23	14.2	10.7	15.3	2.75	Ls gry vf xln sl dol vug
48	5769.0- 70.0	132.	45.0	22.3	17.1	6.1	18.3	2.75	Ls gry vf xln sl dol vug
49	5770.0- 71.0	9.37	1.23	0.60	12.1	23.8	34.0	2.77	Ls gry vf xln sl dol vug
50	5771.0- 72.0	56.9	9.71	0.12	14.7	8.8	29.3	2.76	Ls gry vf xln sl dol vug
51	5772.0- 73.0	75.8	66.9	1.69	15.4	21.6	18.0	2.73	Ls gry vf xln sl dol vug
52	5773.0- 74.0	70.8	50.2	36.0	12.5	29.5	12.6	2.74	Ls gry vf xln sl dol vug
53	5774.0- 75.0	1.27	0.58	0.28	10.0	16.7	26.8	2.80	Ls gry vf xln sl dol vug
54	5775.0- 76.0	2.47	1.12	2.29	11.6	9.8	29.3	2.77	Ls gry vf xln sl dol vug

# CORE LABORATORIES

Company : Duncan Exploration Company  
 Well : Cave Canyon No. 4-3

Field : Cave Canyon  
 Formation : Paradox

File No.: 57121-8215  
 Date : 18-Jul-1988

## C O R E   A N A L Y S I S   R E S U L T S

SAMPLE NUMBER	DEPTH ft	PERMEABILITY			POROSITY (HELIUM) %	SATURATION		GRAIN DENSITY gm/cc	DESCRIPTION
		(MAXIMUM) Kair md	(90 DEG) Kair md	(VERTICAL) Kair md		(PORE VOLUME) OIL %	WATER %		
55	5776.0- 77.0	6.70	2.78	245.	17.4	9.1	10.5	2.81	Ls gry vf xln sl dol vug
56	5777.0- 78.0	25.7	9.78	27.9	16.9	31.7	10.6	2.77	Ls gry vf xln sl dol vug
57	5778.0- 79.0	1.30	1.01	0.23	7.4	20.4	11.7	2.75	Ls gry vf xln sl dol vug
58	5779.0- 80.0	1.95	1.36	0.13	10.0	16.9	19.3	2.75	Ls gry vf xln sl dol vug
59	5780.0- 81.0	0.53	0.51	0.07	12.4	19.6	11.2	2.81	Dol lt brn f xln sl anhy sl calc
60	5781.0- 82.5	9.53	1.96	0.17	11.1	5.7	22.7	2.81	Ls gry vf xln sl anhy sl dol

# CORE LABORATORIES

Company : Duncan Exploration Company  
Well : Cave Canyon No. 4-3

Field : Cave Canyon  
Formation : Paradox

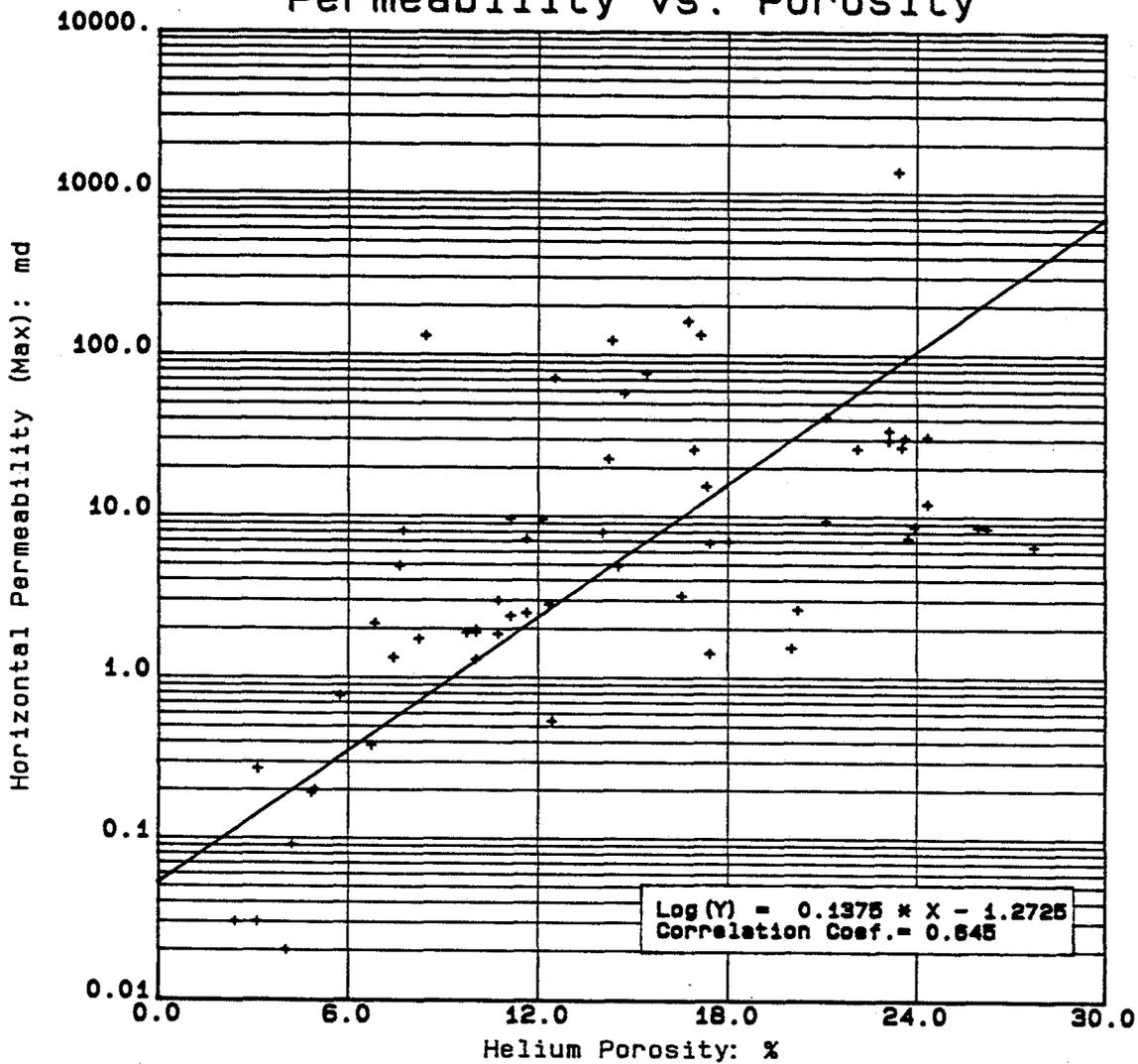
File No.: 57121-8215  
Date : 18-Jul-1988

## TABLE I

### SUMMARY OF CORE DATA

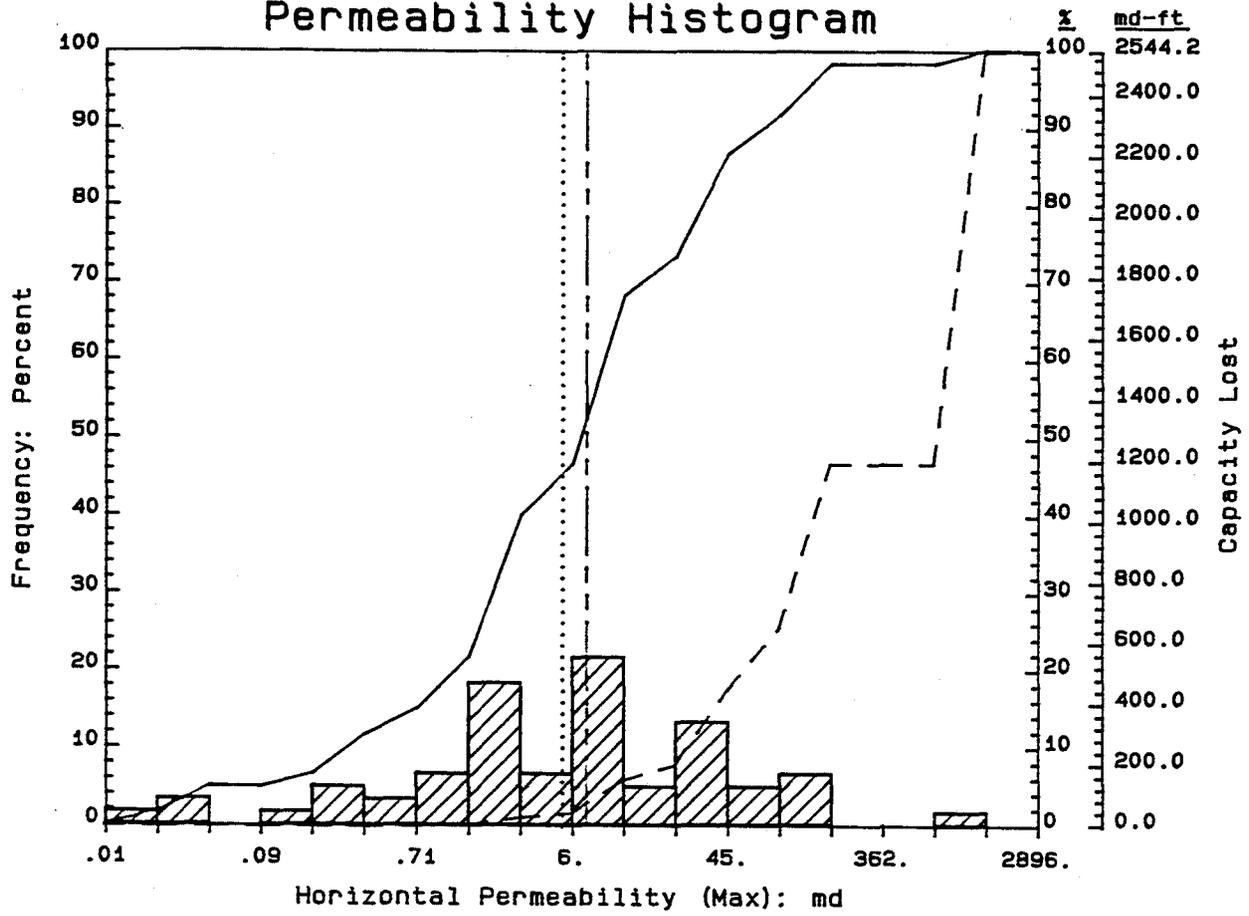
ZONE AND CUTOFF DATA	CHARACTERISTICS REMAINING AFTER CUTOFFS	
<b>ZONE:</b>	<b>ZONE:</b>	<b>PERMEABILITY:</b>
Identification ----- Upper Ismay	Number of Samples ----- 60	Flow Capacity ----- 2544.2 md-ft
Top Depth ----- 5722.0 ft	Thickness Represented - 60.5 ft	Arithmetic Average ---- 42.1 md
Bottom Depth ----- 5782.5 ft		Geometric Average ----- 5.01 md
Number of Samples ----- 60		Harmonic Average ----- 0.38 md
	<b>POROSITY:</b>	Minimum ----- 0.02 md
<b>DATA TYPE:</b>	Storage Capacity ----- 868.0 $\phi$ -ft	Maximum ----- 1351. md
Porosity ----- (HELIUM)	Arithmetic Average ---- 14.3 %	Median ----- 6.77 md
Permeability ----- (MAXIMUM) Kair	Minimum ----- 2.4 %	Standard Dev. (Geom) -- $K \cdot 10^{\pm 0.958}$ md
	Maximum ----- 27.7 %	
<b>CUTOFFS:</b>	Median ----- 14.1 %	
Porosity (Minimum) ----- 0.0 %	Standard Deviation ---- $\pm 7.0$ %	<b>HETEROGENEITY (Permeability):</b>
Porosity (Maximum) ----- 100.0 %		Dykstra-Parsons Var. -- 0.845
Permeability (Minimum) --- 0.0000 md	<b>GRAIN DENSITY:</b>	Lorenz Coefficient ---- 0.814
Permeability (Maximum) --- 100000. md	Arithmetic Average ---- 2.79 gm/cc	
Water Saturation (Maximum) 100.0 %	Minimum ----- 2.70 gm/cc	<b>AVERAGE SATURATIONS (Pore Volume):</b>
Oil Saturation (Minimum) - 0.0 %	Maximum ----- 2.90 gm/cc	Oil ----- 18.5 %
Grain Density (Minimum) -- 2.00 gm/cc	Median ----- 2.80 gm/cc	Water ----- 24.2 %
Grain Density (Maximum) -- 3.00 gm/cc	Standard Deviation ---- $\pm 0.05$ gm/cc	
Lithology Excluded ----- NONE		

# Permeability vs. Porosity



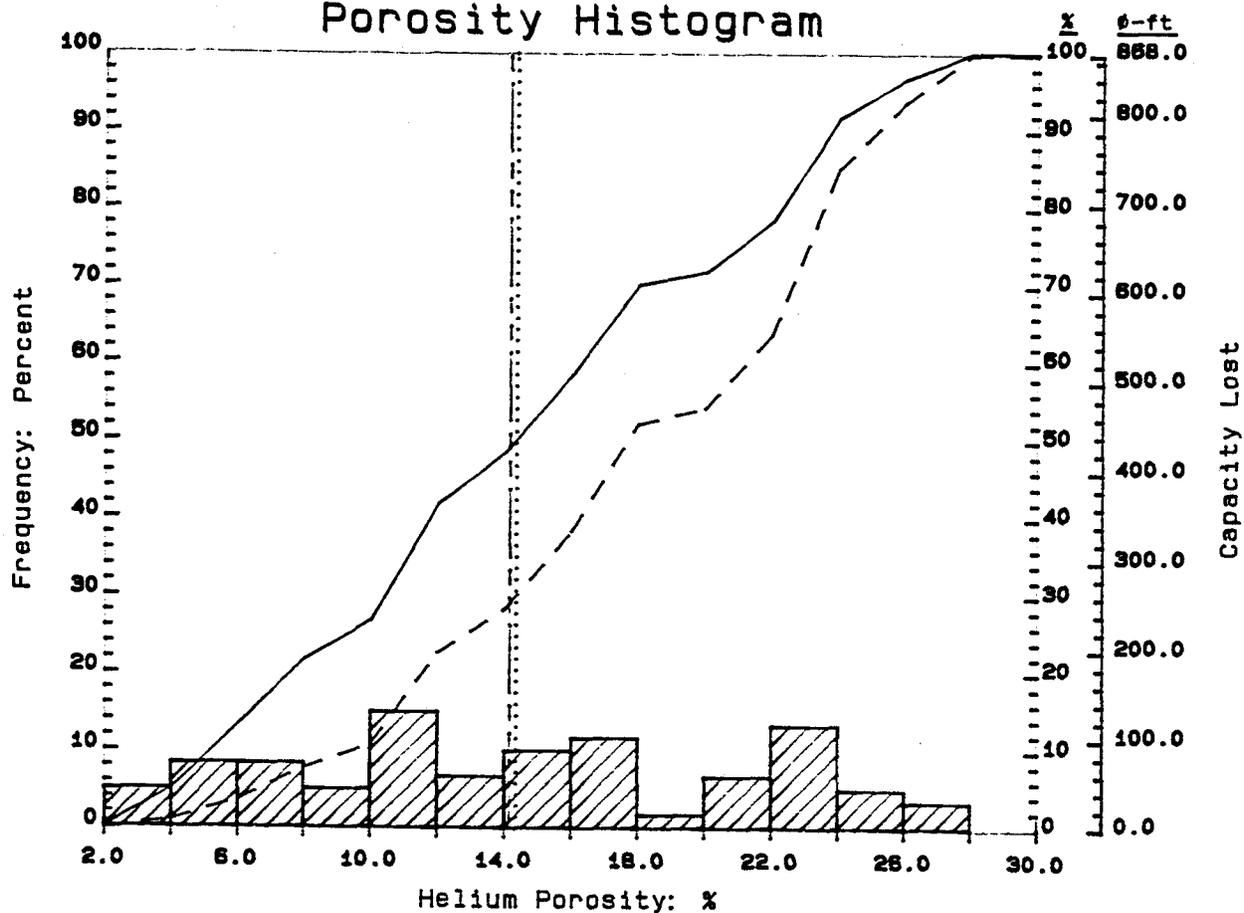
<p style="text-align: center;"><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5722.0-5782.5 feet)</p> <p><b>Core Laboratories</b> <span style="float: right;">18-Jul-1988</span></p>	<p style="text-align: center;">- LEGEND -                  Upper Ismay</p>
---	--

# Permeability Histogram



<p style="text-align: center;"><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5722.0-5782.5 feet)</p> <p style="font-size: small;">Core Laboratories <span style="float: right;">18-Jul-1968</span></p>	<p style="text-align: center;">- LEGEND -</p> <p>— Median Value (6.77)                  ..... Geom. Average (5.01)                  — Cumulative Frequency                  - - - Cumulative Capacity Lost</p> <p style="text-align: center;">60 Samples</p>
--	--

# Porosity Histogram



<p><b>Duncan Exploration Company</b>                  Cave Canyon No. 4-3                  Cave Canyon Field                  San Juan County, Utah                  Upper Ismay Zone (5722.0-5782.5 feet)</p> <p>Core Laboratories <span style="float: right;">18-Jul-1988</span></p>	<p align="center">- LEGEND -</p> <p>— Median Value (14.1)                  ..... Arith. Average (14.3)                  — Cumulative Frequency                  - - - Cumulative Capacity Lost</p> <p align="center">60 Samples</p>
--	---

# CORE LAB SPECTRAL GAMMA-RAY PLOT

Duncan Exploration Company

Cave Canyon No. 4-3

Cave Canyon Field

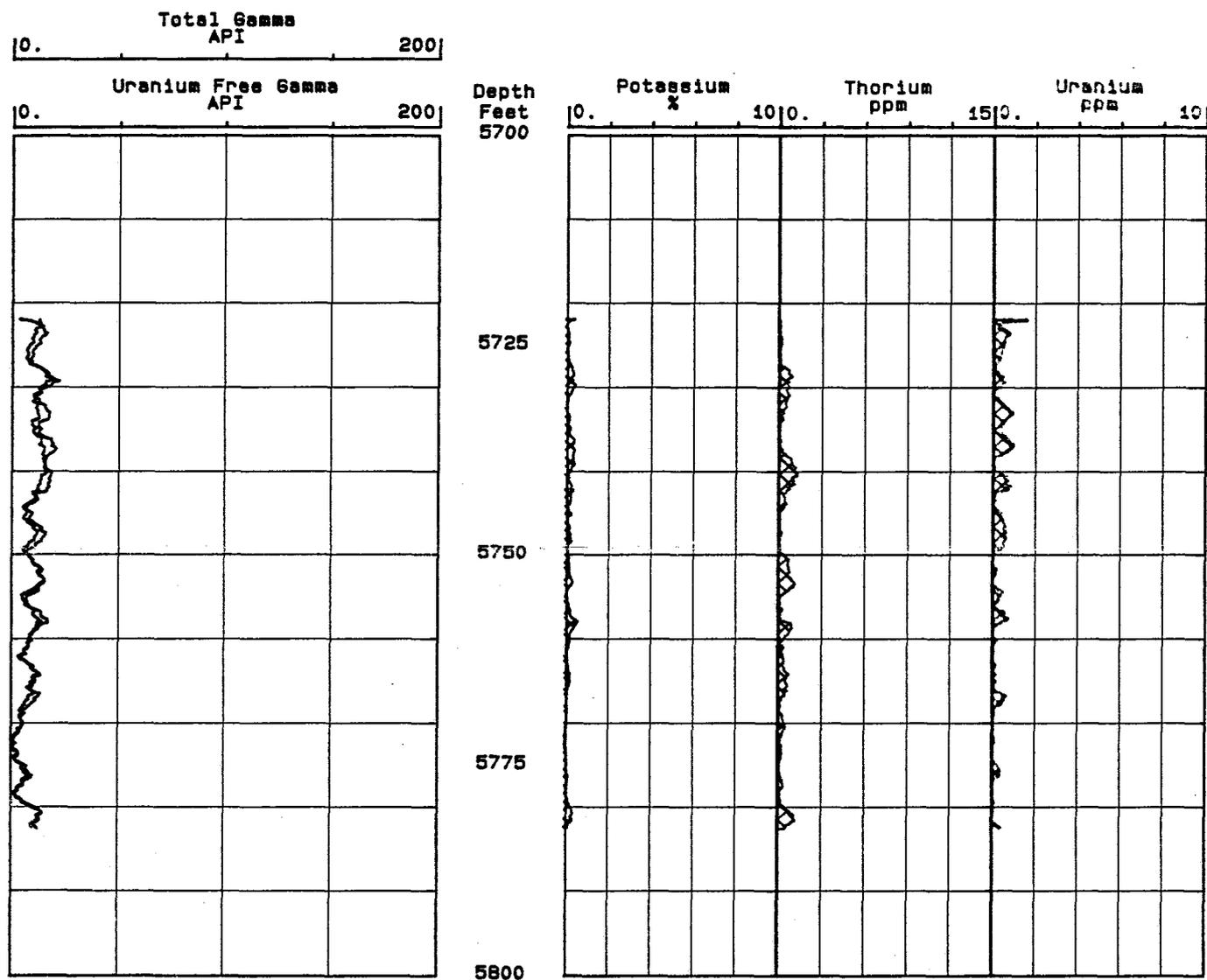
San Juan County, Utah

Upper Ismay Zone (5722.0-5782.5 feet)

Vertical Scale  
5.00 in = 100.0 ft

Core Laboratories

18-Jul-1988



# Correlation Coregraph

**Duncan Exploration Company**

Cave Canyon No. 4-3

Cave Canyon Field

San Juan County, Utah

Upper Ismay Zone (5722.0-5782.5 feet)

Core Laboratories

18-Jul-1988

Vertical Scale  
5.00 in = 100.0 ft

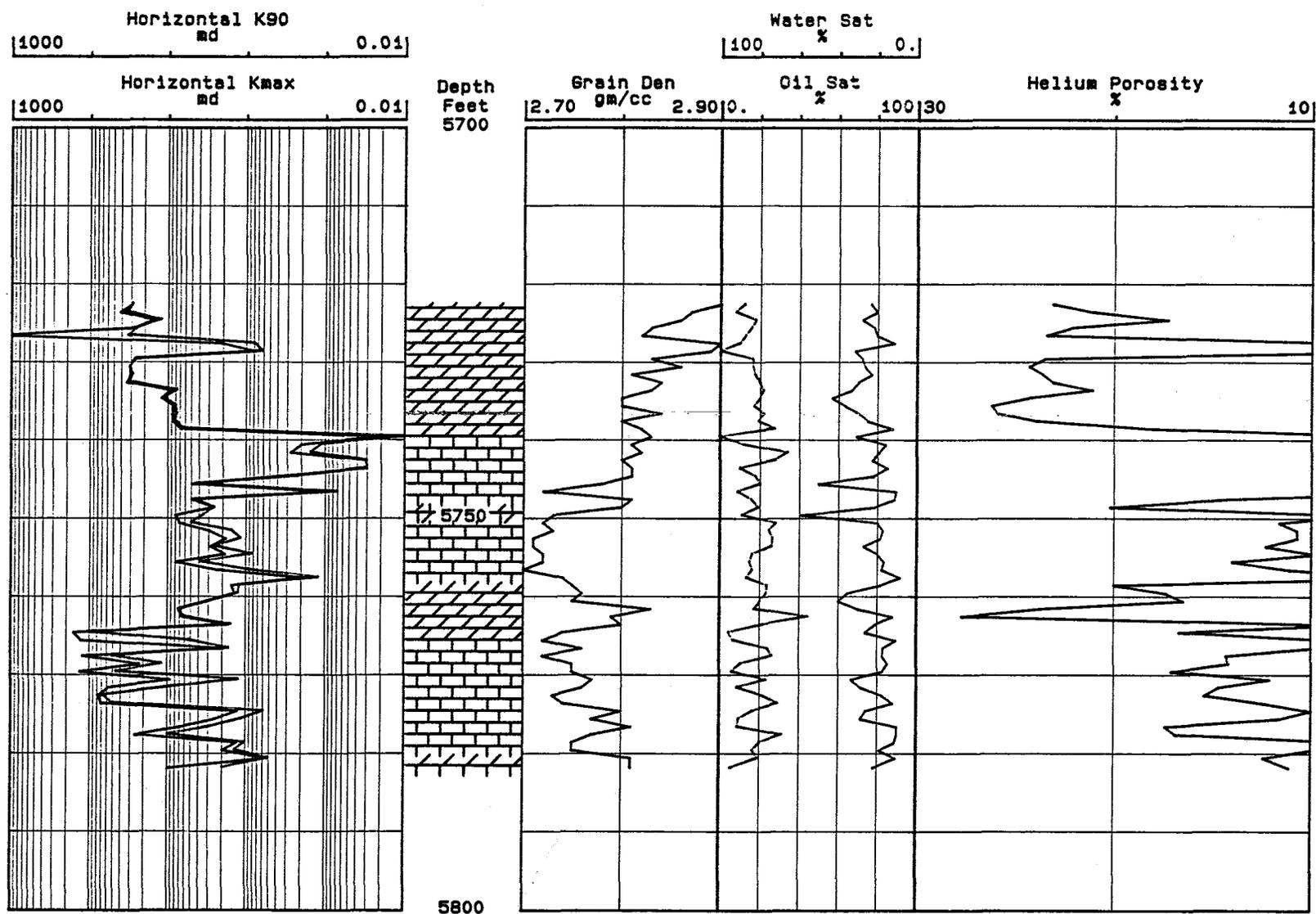
- Lithology Legend -



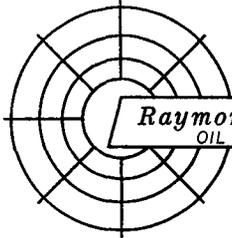
Dolomite



Limestone



TAS



Raymond T. Duncan  
OIL PROPERTIES

1777 SOUTH HARRISON STREET · PENTHOUSE ONE  
TELEPHONE (303) 759-3303 · DENVER, COLORADO 80210

**RECEIVED**  
OCT 24 1988  
DIVISION OF  
OIL, GAS & MINING

October 20, 1988

State of Utah  
Division of Oil, Gas & Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Attn: Tammy Searing

Re: Cave Canyon #3-3 & #4-3  
Sec. 3 & 4 , T38S, R24E  
San Juan County, Utah

Gentlemen:

Enclosed please find the BIM forms of the Sundry Notices for the above captioned wells that include reports of spud date, first sales, and completions reports.

Thank you for your nice phone call regarding the processing of these reports. Please contact me if you have any questions or need additional information.

Very truly yours,

RAYMOND T. DUNCAN

*Nancy Rutherford*

Nancy Rutherford  
Engineering Tech/Prod. Clerk

Enclosures

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 checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. U-47876
2. NAME OF OPERATOR Raymond T. Duncan		6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
3. ADDRESS OF OPERATOR 1777 So. Harrison, PH-1, Denver, CO 80202		7. UNIT AGREEMENT NAME N/A
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface 1310' FNL and 200' FEL (NE NE)		8. FARM OR LEASE NAME Cave Canyon Federal
14. PERMIT NO. 43-037-31414		9. WELL NO. 4-3
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 5336' GR		10. FIELD AND POOL, OR WILDCAT Cave Canyon
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 4-T38S-R24E
		12. COUNTY OR PARISH San Juan
		13. STATE UT

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OCT 24 1988

DIVISION OF  
OIL, GAS & 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"/>	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) <input type="checkbox"/>	

(Other) Notification of Spud

(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.)\*

The subject well was spud June 28, 1988 at 11:55 P.M. with Coleman rig #4.

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

SIGNED J. A. Bettridge TITLE Operations Superintendent DATE July 11, 1988

(This space for Federal or State office use)

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

\*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.)

5. LEASE DESIGNATION AND SERIAL NO.  
U-47876

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
N/A

7. UNIT AGREEMENT NAME  
N/A

8. FARM OR LEASE NAME  
Cave Canyon Federal

9. WELL NO.  
4-3

10. FIELD AND POOL, OR WILDCAT  
Cave Canyon

11. SEC., T., R., M., OR BLK. AND SURVEY OR ARMA  
Sec. 4-T38S-R24E

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

RECEIVED  
OCT 24 1988  
DIVISION OF  
OIL, GAS & MINING

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
Raymond T. Duncan

3. ADDRESS OF OPERATOR  
1777 So. Harrison St., PH-1, Denver, Colorado 80210

4. LOCATION OF WELL (Report location clearly and in accordance with any State law.  
See also space 17 below.)  
At surface  
1310' FNL and 200' FEL (NE NE)

14. PERMIT NO.  
43-037-31414

15. ELEVATIONS (Show whether DF, RT, GR, etc.)  
5336' GR

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) <input type="checkbox"/>	

(Other) Report of First Production  
(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.)\*

First sales for the subject well was August 18, 1988. The well was put on production to the battery on September 9, 1988.

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

SIGNED J. A. Bertridg TITLE Operations Superintendent DATE September 12, 1988

(This space for Federal or State office use)

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

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NO.  
U-47876

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
N/A

7. UNIT AGREEMENT NAME  
N/A

8. FARM OR LEASE NAME  
Cave Canyon Federal

9. WELL NO.  
4-3

10. FIELD AND POOL, OR WILDCAT  
Cave Canyon

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA  
Sec. 4-T38S-R24E

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

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

**RECEIVED**  
OCT 24 1988

2. NAME OF OPERATOR  
Raymond T. Duncan

3. ADDRESS OF OPERATOR  
1777 So. Harrison St., PH-1, Denver, Colorado

DIVISION OF  
OIL, GAS & MINING

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)  
At surface 1310' FNL & 200' FEL (NE NE)  
At top prod. interval reported below  
At total depth

**CONFIDENTIAL**

PERMIT NO. 43-037-31414 DATE ISSUED 5/26/88

12. COUNTY OR PARISH San Juan 13. STATE UT

15. DATE SPUDDED 6-29-88 16. DATE T.D. REACHED 7-12-88 17. DATE COMPL. (Ready to prod.) 9-12-88 18. ELEVATIONS (DF, RES, RT, GR, ETC.) 5349' KB: 5335' GR 19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 6105' 21. PLUG BACK T.D., MD & TVD 5955' 22. IF MULTIPLE COMPL. HOW MANY 23. INTERVALS DRILLED BY ROTARY TOOLS 0-6105' CABLE TOOLS

24. PRODUCING INTERVAL(S) OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD) 5722-5874' (4 JSPF) - Ismay 25. WAS DIRECTIONAL SURVEY MADE No

26. TYPE ELECTRIC AND OTHER LOGS RUN DIL/SFL, BHC, FDC/CNL, SHDL, CBL *Cy mud* 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
13 3/8"	48#	73'	17 1/2"	90 sx w/ 3% CaCl	None
8 5/8"	24#	1911'	12 1/4"	900 sx lite, 150 sx B w/ 2% CaCl	None
5 1/2"	15.5#	6102'	7 7/8"	400 sx B w/5#/sx salt & 3/4% D31	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	5710'	5547'

31. PERFORATION RECORD (Interval, size and number) 5722-5874' (4 JFSP)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5722-5874'	6400 gal. 28% FE acid

33. PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
9-7-88	Flowing	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
9-10-88	24	25/64"	→	455	955	0	2100

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
425	0	→	455	955	0	44.3

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

35. LIST OF ATTACHMENTS Core Analysis, Geological Report

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED *J. A. Bottridge* TITLE Operations Superintendent DATE Sept. 21, 1988

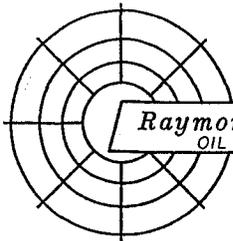
See Spaces for Additional Data on Reverse Side

37. SUMMARY OF POROUS ZONES;  
 SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, IN-  
 CLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES.

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.																
			<p style="text-align: center;">See Attached Core Analysis and Geological Report</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"><b>OIL AND GAS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRN</td> <td style="width: 50%;">RJF</td> </tr> <tr> <td>JRB</td> <td>GLH</td> </tr> <tr> <td>DTS</td> <td>SLS</td> </tr> <tr> <td>1-TAS</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">MICROBIAL</td> </tr> <tr> <td>3-</td> <td>FILE</td> </tr> </table> </div>	DRN	RJF	JRB	GLH	DTS	SLS	1-TAS						MICROBIAL		3-	FILE
DRN	RJF																		
JRB	GLH																		
DTS	SLS																		
1-TAS																			
MICROBIAL																			
3-	FILE																		

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH



Raymond T. Duncan  
OIL PROPERTIES

1777 SOUTH HARRISON STREET • PENTHOUSE ONE  
TELEPHONE (303) 759-3303 • DENVER, COLORADO 80210

RECEIVED  
DEC 12 1988

DIVISION OF  
OIL, GAS & MINING

December 9, 1988

Bureau of Land Management  
P. O. Box 970  
Moab, Utah 84532

Re: Cave Canyon Battery  
T38S-R24E  
San Juan Co., Utah

Gentlemen:

Enclosed is the sundry notice regarding the installation of a IACT Unit on the above captioned battery.

Please contact me if you have any questions or need additional information.

Very truly yours,

RAYMOND T. DUNCAN

*J. A. Betteridge*

J. A. Betteridge  
Operations Superintendent

JAB:nr  
Enclosures

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

Form approved  
Budget Bureau No. 1004-0115  
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. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Central Battery</u>		3. LEASE DESIGNATION AND SERIAL NO. U-47876	
2. NAME OF OPERATOR Raymond T. Duncan		6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A	
3. ADDRESS OF OPERATOR 1777 So. Harrison St., PH-1, Denver, CO 80210		7. UNIT AGREEMENT NAME N/A	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface NE SW		8. FARM OR LEASE NAME Cave Canyon Federal	
14. PERMIT NO. N/A		9. WELL NO. Central Battery	
15. ELEVATIONS (Show whether DF, RT, GR, etc.) N/A		10. FIELD AND POOL, OR WILDCAT Wildcat	
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA T38S-R24E	
		12. COUNTY OR PARISH San Juan	13. STATE UT

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF   
FRACTURE TREAT   
SHOOT OR ACIDIZE   
REPAIR WELL   
(Other)

PULL OR ALTER CASING   
MULTIPLE COMPLETE   
ABANDON\*   
CHANGE PLANS

WATER SHUT-OFF   
FRACTURE TREATMENT   
SHOOTING OR ACIDISING   
(Other) Operations

REPAIRING WELL   
ALTERING CASING   
ABANDONMENT\*

(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.)\*

LACT Unit has been installed on the main battery. LACT was proved and put into operation on December 2, 1988. Proving was witnessed by Mike Wade of the BLM. Updated site security diagram will be sent.

I hereby certify that the foregoing is true and correct

SIGNED

J. A. Bettridge

TITLE

Operations Superintendent

DATE

Dec. 9, 1988

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

**DUNCAN ENERGY COMPANY**

PENTHOUSE ONE

1777 SOUTH HARRISON STREET

DENVER, COLORADO 80210-3925

TELEPHONE (303) 759-3303

FAX (303) 757-0252

**RECEIVED**  
JAN 23 1991

January 21, 1991

Bureau of Land Management  
P.O. Box 970  
Moab, Utah 84532

DIVISION OF  
OIL, GAS & MINING

Gentlemen:

Enclosed please find sundry notice for the change of operatorship from Raymond T. Duncan to Duncan Energy Company for the Cave Canyon Lease Waterflood.

If you require further data please contact Marie O'Keefe of this office.

Sincerely,

*Marie O'Keefe*

Marie O'Keefe  
Engineering Technician

/mo

cc: State of Utah  
3 Triad Center #350  
Salt Lake City, UT 84180-1203

Effective 6-21-90  
per Marie O'Keefe *for*

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

SUBMIT IN TRIPLICATE

RECEIVED  
JAN 23 1991

DIVISION OF  
OIL, GAS & MINING

1. Type of Well  
 Oil Well     Gas Well     Other

2. Name of Operator  
 Raymond T. Duncan

3. Address and Telephone No.  
 1777 S. Harrison St. P-1 Denver, CO 80210 303-759-3303

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 T37S R24E Sec 33 SWSE

5. Lease Designation and Serial No.  
 UTU40751

6. If Indian, Allottee or Tribe Name  
 NA

7. If Unit or CA, Agreement Designation  
 Cave Canyon Lease Waterflood

8. Well Name and No.  
 Cave Canyon Fed. 1-33

9. API Well No.  
 43-037-31276

10. Field and Pool, or Exploratory Area  
 Cave Canyon Ismay

11. County or Parish, State  
 San Juan, UT

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other <u>Change of Operator</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

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

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

Raymond T. Duncan was the previous operator of the referenced well. Duncan Energy Company is now the operator of record. Offices, personnel and all operations will continue to be the same for Duncan Energy Company as they were for Raymond T. Duncan. Duncan Energy Company is responsible under the terms and conditions of the lease for operations conducted on the leased lands. This referenced well is in the Cave Canyon Lease Waterflood.

cc: State of Utah

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

Signed W. S. Falls Title Production Manager Date January 21, 1991

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
 Conditions of approval, if any:

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

RECEIVED  
JAN 23 1991

1. Type of Well  
 Oil Well  Gas Well  Other See Below

2. Name of Operator  
Raymond T. Duncan

3. Address and Telephone No.  
1777 S. Harrison St. P-1 Denver, CO. 80210 303-759-3303

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

5. Lease Designation and Serial No.  
U-47876

6. If Indian, Allottee or Tribe Name  
NA

7. If Unit or CA, Agreement Designation  
Cave Canyon Lease  
Waterflood

8. Well Name and No.  
See Below

9. API Well No.  
See Below

10. Field and Pool, or Exploratory Area  
Cave Canyon Ismay

11. County or Parish, State  
San Juan, Utah

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other <u>Change of Operator</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

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

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

Raymond T. Duncan was the previous operator of the Cave Canyon Lease Waterflood. Duncan Energy Company is now the operator of record for the Cave Canyon Lease Waterflood. Offices, personnel and all operations will continue to be the same for Duncan Energy Company as they were for Raymond T. Duncan. Duncan Energy Co. is responsible under the terms and conditions of the lease for operations conducted on the leased lands.

WELL NAME	LOCATION	WELL STATUS	API #
Cave Canyon 3-2	T38S R24E Sec 3	NESW Producing Oil Well	43-037-31120
Cave Canyon 4-3	" " " 4	NENE " " "	43-037-31414
Cave Canyon 3-3	" " " 3	SESW Shut in Oil Well	43-037-31413
Wells Federal 1-4	" " " 4	NENE Producing Oil Well	43-037-31028
Cave Canyon 3-1	" " " 3	SWNW Water Injection Well	43-037-31095
1-Cave Canyon WSW	" " " 3	NESW Water Supply Well	43-037-99998
Cave Canyon 4-4	" " " 4	NENE Producing Oil Well	43-037-31539
Cave Canyon 12-3	" " " 3	SWNW Completing Oil Well	43-037-31567
Cave Canyon 13-3	" " " 3	NWSW Approved Drlg Location	43-037-31570
Cave Canyon 3-4	" " " 3	NWNW " " "	43-037-31542
Cave Canyon 3-5	" " " 3	NWSE " " "	43-037-31541

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

Signed J. Fallon Title Production Manager Date January 21, 1991

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any:

Division of Oil, Gas and Mining  
**PHONE CONVERSATION DOCUMENTATION FORM**

Route original/copy to:

Well File \_\_\_\_\_  Suspense \_\_\_\_\_  Other \_\_\_\_\_  
(Location) Sec \_\_\_ Twp \_\_\_ Rng \_\_\_ (Return Date) \_\_\_\_\_ OPERATOR CHANGE  
(API No.) \_\_\_\_\_ (To - Initials) \_\_\_\_\_ FILE.  
\_\_\_\_\_

1. Date of Phone Call: 1-28-91 Time: 10:00

2. DOGM Employee (name) L. ROMERO (Initiated Call )  
Talked to:

Name MARIE O'KEEFE (Initiated Call ) - Phone No. (303) 759-3303  
of (Company/Organization) DUNCAN ENERGY COMPANY/N3370

3. Topic of Conversation: EFFECTIVE DATE OF OPERATOR CHANGE

4. Highlights of Conversation: EFFECTIVE DATE 6-21-90, ALSO NO DOCUMENTATION  
REQUIRED FROM RAYMOND T. DUNCAN (DUNCAN ENERGY COMPANY & RAYMOND T. DUNCAN ARE  
ONE IN THE SAME COMPANY).



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter  
Governor  
Dee C. Hansen  
Executive Director  
Dianne R. Nielson, Ph.D.  
Division Director

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

January 30, 1991

Duncan Energy Company  
PH 1, 1777 S. Harrison St.  
Denver, Colorado 80210

Gentlemen:

RE: Transfer of Authority to Inject - Cave Canyon #3-1 Well, Sec. 3, T. 38S,  
R. 24E - San Juan County, Utah

The Division has received a request of operator change for the Cave Canyon #3-1 Well, from Raymond T. Duncan to Duncan Energy Company.

Please complete and return to our office the enclosed UIC Form 5, as required by R615-8-21 of the Oil and Gas Conservation General Rules.

If I can be of assistance, please contact me at (801)538-5340.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gil Hunt".

Gil Hunt  
UIC Manager

lr  
Enclosure

Routing:

1-
2-
3-
4-
5-
6-

Attach all documentation received by the division regarding this change.  
 Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold)       Designation of Agent  
 Designation of Operator       Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: \_\_\_\_\_)

TO (new operator)	<u>DUNCAN ENERGY COMPANY</u>	FROM (former operator)	<u>DUNCAN, RAYMOND T.</u>
(address)	_____	(address)	_____
	_____		_____
	_____		_____
	phone ( ) _____		phone ( ) _____
	account no. <u>N 3370</u>		account no. <u>N0360</u>

Well(s) (attach additional page if needed):

Name: <u>CAVE CANYON FED 13-3/DRL</u>	API: <u>4303731570</u>	Entity: <u>99999</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U-47876</u>
Name: <u>CAVE CYN FED 3-4/DRL</u>	API: <u>4303731542</u>	Entity: <u>99999</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U-47876</u>
Name: <u>CAVE CYN FED 3-5/DRL</u>	API: <u>4303731541</u>	Entity: <u>99999</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U-47876</u>
Name: <u>CAVE CANYON #1-33/ISMY</u>	API: <u>4303731276</u>	Entity: <u>9775</u>	Sec <u>33</u> Twp <u>37S</u> Rng <u>24E</u>	Lease Type: <u>U-40751</u>
Name: <u>CAVE CANYON 1 (WSW)</u>	API: <u>(NOT ON SYS)</u>	Entity: _____	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U-47876</u>
Name: <u>(Water Rights)</u>	API: _____	Entity: _____	Sec _____ Twp _____ Rng _____	Lease Type: _____
Name: _____	API: _____	Entity: _____	Sec _____ Twp _____ Rng _____	Lease Type: _____

**OPERATOR CHANGE DOCUMENTATION**

- \_\_\_ 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form).
- \_\_\_ 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form).
- \_\_\_ 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) \_\_\_ If yes, show company file number: \_\_\_\_\_.
- \_\_\_ 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of Federal and Indian well operator changes should take place prior to completion of steps 5 through 9 below.
- \_\_\_ 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above.
- \_\_\_ 6. Cardex file has been updated for each well listed above.
- \_\_\_ 7. Well file labels have been updated for each well listed above.
- \_\_\_ 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission.
- \_\_\_ 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

ENTITY REVIEW

- 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) \_\_\_\_ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).
- 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

- 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
- 2. A copy of this form has been placed in the new and former operators' bond files.
- 3. The former operator has requested a release of liability from their bond (yes/no) \_\_\_\_ . Today's date \_\_\_\_\_ 19\_\_\_\_. If yes, division response was made by letter dated \_\_\_\_\_ 19\_\_\_\_.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated \_\_\_\_\_ 19\_\_\_\_, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
- 2. Copies of documents have been sent to State Lands for changes involving State leases.

INDEXING

- 1. All attachments to this form have been microfilmed. Date: \_\_\_\_\_ 19\_\_\_\_.

FILED

- 1. Copies of all attachments to this form have been filed in each well file.
- 2. The original of this form and the original attachments have been filed in the Operator Change file.

REMARKS

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Routing:

1- LCR	<input checked="" type="checkbox"/>
2- DTS	<input checked="" type="checkbox"/>
3- VLC	<input checked="" type="checkbox"/>
4- RJF	<input checked="" type="checkbox"/>
5- RWM	<input checked="" type="checkbox"/>
6- LCR	<input checked="" type="checkbox"/>

Attach all documentation received by the division regarding this change.  
 Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold)       Designation of Agent  
 Designation of Operator       Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 6-21-90)

TO (new operator) DUNCAN ENERGY COMPANY      FROM (former operator) DUNCAN, RAYMOND T.  
 (address) PH 1, 1777 S. HARRISON ST.      (address) 1777 S. HARRISON ST., PH 1  
DENVER, CO 80210      DENVER, CO 80210  
 phone ( 303 ) 759-3303      phone ( 303 ) 759-3303  
 account no. N 3370      account no. N 0360

Well(s) (attach additional page if needed):

Name: CAVE CANYON #3-2/ISMY	API: 4303731120	Entity: 9775	Sec 3 Twp 38SRng 24E	Lease Type: U-47876
Name: CAVE CYN FED 4-3/ISMY	API: 4303731414	Entity: 9775	Sec 4 Twp 38SRng 24E	Lease Type: U-47876
Name: CAVE CYN FED 3-3/ISMY	API: 4303731413	Entity: 9775	Sec 3 Twp 38SRng 24E	Lease Type: U-47876
Name: WELLS FED #1/ISMY	API: 4303731028	Entity: 9775	Sec 4 Twp 38SRng 24E	Lease Type: U-47876
Name: CAVE CANYON #3-1/ISMY	API: 4303731095	Entity: 9775/ww	Sec 3 Twp 38SRng 24E	Lease Type: U-47876
Name: CAVE CANYON FED 4-4/ISMY	API: 4303731539	Entity: 9775	Sec 4 Twp 38SRng 24E	Lease Type: U-47876
Name: CAVE CANYON FED 12-3/DR	API: 4303731567	Entity: 9775	Sec 3 Twp 38SRng 24E	Lease Type: U-47876

**OPERATOR CHANGE DOCUMENTATION**

1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Rec. 1-23-91)
2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Rec. 1-23-91)
3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) yes If yes, show company file number: # 110244. (1-28-91)
4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of Federal and Indian well operator changes should take place prior to completion of steps 5 through 9 below.
5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (1-31-91)
6. Cardex file has been updated for each well listed above.
7. Well file labels have been updated for each well listed above.
8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission.
9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

ENTITY REVIEW

- 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) NO (If entity assignments were changed, attach copies of Form 6, Entity Action Form). *Cave Cyn. Unit / Ismy P.A.*
- 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

- 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
- 2. A copy of this form has been placed in the new and former operators' bond files.
- 3. The former operator has requested a release of liability from their bond (yes/no) \_\_\_\_\_. Today's date \_\_\_\_\_ 19\_\_\_\_. If yes, division response was made by letter dated \_\_\_\_\_ 19\_\_\_\_.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

- 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated \_\_\_\_\_ 19\_\_\_\_, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
- 2. Copies of documents have been sent to State Lands for changes involving State leases.

MICROFILMING

- 1. All attachments to this form have been microfilmed. Date: February 5 1991.

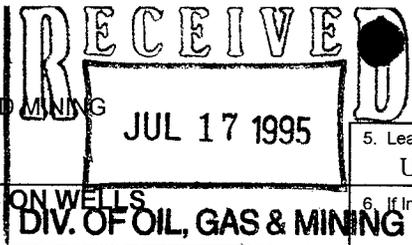
FILED

- 1. Copies of all attachments to this form have been filed in each well file.
- 2. The original of this form and the original attachments have been filed in the Operator Change file.

REMARKS

910128 Btm/meab Have received documentation, bonding looks ok. Is not approved as of yet. will call when approved.

910129 Btm Approved all wells eff. 6-21-90. (Unit Oper. Dunbar Energy Company)



SUNDRY NOTICES AND REPORTS ON WELLS

5. Lease Designation and Serial Number:

UTU 47876

6. If Indian, Allottee or Tribe Name:

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.

Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

7. Unit Agreement Name:

1. Type of Well:

OIL  GAS  OTHER:

8. Well Name and Number:

Cave Canyon Federal 4-3

2. Name of Operator:

Giant Exploration & Production Company

9. API Well Number:

43-037-31414

3. Address and Telephone Number:

P.O. Box 2810, Farmington, New Mexico 87499 (505)326-3325

10. Field and Pool, or Wildcat:

Cave Canyon

4. Location of Well:

Footages: 1310' FNL, 200' FEL

County: San Juan

QQ, Sec., T.,R.,M.: NE/4, NE/4, Sec. 4, T38S, R24E

State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT

(Submit in Duplicate)

- Abandonment
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Multiple Completion
- Other \_\_\_\_\_
- New Construction
- Pull or Alter Casing
- Recompletion
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

Approximate date work will start \_\_\_\_\_

SUBSEQUENT REPORT

(Submit Original Form Only)

- Abandonment \*
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Other Change of Operator
- New Construction
- Pull or Alter Casing
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

Date of work completion \_\_\_\_\_

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Giant Exploration & Production Company purchased the above mentioned well from Duncan Energy Company effective 06-23-95.

13.

Name & Signature Jeffrey R. Vaughan

Title: Vice President/Operations

Date: JUL 14 1995

(This space for State use only)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
95 JUL 10 11 11 AM '95  
SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE

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

5. Lease Designation and Serial No.  
UTU47876

6. Indian, Allottee or Tribe Name

7. If Unit or CA. Agreement Designation

1. Type of Well  
 Oil Well  Gas Well  Other

8. Well Name and No.

2. Name of Operator  
Giant Exploration & Production Company

9. API Well No.

3. Address and Telephone No.  
P.O. Box 2810, Farmington, New Mexico 87499 (505)326-3325

10. Field and Pool, or Exploratory Area  
Cave Canyon

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

11. County or Parish, State  
San Juan, Utah

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

TYPE OF SUBMISSION

TYPE OF ACTION

- Notice of Intent
- Subsequent Report
- Final Abandonment Notice

- Abandonment
- Recompletion
- Plugging Back
- Casing Repair
- Altering Casing
- Other Change of Operator

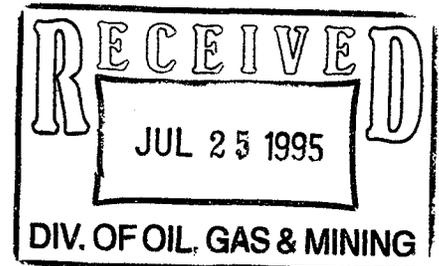
- Change of Plans
  - New Construction
  - Non-Routine Fracturing
  - Water Shut-Off
  - Conversion to Injection
- (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent 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.)\*

Giant Exploration & Production Company purchased the above mentioned lease from Duncan Energy Company effective 06-23-95. Giant's bond number is SLR 111 3289 3097.

Listed below is the purchased well and API # for Lease Number UTU47876:

- Cave Canyon Federal 3-1 - API # 43-037-31095
- Cave Canyon Federal 3-2 - API # 43-037-31120
- Cave Canyon Federal 3-3 - API # 43-037-31413
- Cave Canyon Federal 4-3 - API # 43-037-31414
- Cave Canyon Federal 4-4 - API # 43-037-31539
- Cave Canyon Federal 4-5 - API # 43-037-31695
- Cave Canyon Federal 12-3 - API # 43-037-31567
- Cave Canyon WSW 1 - API # 43-037-99998
- Wells Federal 1-4 - API # 43-037-31028



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

Signed Jeffrey R. Vaughan Title Vice President/Operations Date JUL 14 1995

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any:

**Associate District Manager**  
CONDITIONS OF APPROVAL ATTACHED

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

\*See Instruction on Reverse Side

Giant Exploration & Production Company  
Several Wells  
Secs. 3 & 4, T. 38 S., R. 24 E.  
San Juan County, Utah  
Lease UTU47876

CONDITIONS OF APPROVAL

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

Be advised that Giant Exploration & Production Company is considered to be the operator of the above wells and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by NM1759 (Principal - Giant Exploration & Production Company) via surety consent as provided for in 43 CFR 3104.2.

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

m OGCC-1 b\*

STATE OF UTAH  
OIL & GAS CONSERVATION COMMISSION

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

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 type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. UTU47876
2. NAME OF OPERATOR Duncan Energy Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR 1777 South Harrison Street, P-1, Denver, CO 80210		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 See Below		8. FARM OR LEASE NAME
14. PERMIT NO.		9. WELL NO.
15. ELEVATIONS (Show whether DF, ST, GR, etc.)		10. FIELD AND FOOT, OR WILDCAT Cave Canyon
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
		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

PULL OR ALTER CASING

WATER SHUT-OFF

REPAIRING WELL

FRACTURE TREAT

MULTIPLE COMPLETE

FRACTURE TREATMENT

ALTERING CASING

SHOOT OR ACIDIZE

ABANDON\*

SHOOTING OR ACIDIZING

ABANDONMENT\*

REPAIR WELL

CHANGE PLANS

(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.)\*

Effective 6-23-95, Giant Exploration & Production Company has taken over operations of the above-mentioned lease. Listed below are the purchased wells and API #s for Lease Number UTU47876:

- Cave Canyon Federal 3-1 - API #43-037-31095, Sec. 3-T38S-R24E
- Cave Canyon Federal 3-2 - API #43-037-31120, Sec. 3-T38S-R24E
- Cave Canyon Federal 3-3 - API #43-037-31413, Sec. 3-T38S-R24E
- Cave Canyon Federal 4-3 - API #43-037-31414, Sec. 4-T38S-R24E
- Cave Canyon Federal 4-4 - API #43-037-31539, Sec. 4-T38S-R24E
- Cave Canyon Federal 4-5 - API #43-037-31695, Sec. 4-T38S-R24E
- Cave Canyon Federal 12-3 - API #43-037-31567, Sec. 3-T38S-R24E
- Cave Canyon WSW 1 - API #43-037-99998, Sec. 3-T38S-R24E
- Wells Federal 1-4 - API #43-037-31028, Sec. 4-R38S-R24E

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

SIGNED Van E. Spence

TITLE Sr. Production Engineer

DATE 8/4/95

(This space for Federal or State office use)

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

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

Division of Oil, Gas and Mining  
**OPERATOR CHANGE WORKSHEET**

Routing:

1-LEC / GIL	<input checked="" type="checkbox"/>
2-LWP 7-PL	<input checked="" type="checkbox"/>
3-DEFS-8-SJ	<input checked="" type="checkbox"/>
4-VL 9-FILE	<input checked="" type="checkbox"/>
5-RJF	<input checked="" type="checkbox"/>
6-LWP	<input checked="" type="checkbox"/>

Attach all documentation received by the division regarding this change.  
 Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold)       Designation of Agent  
 Designation of Operator             Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 6-23-95)

TO (new operator) <u>GIANT EXPLOR &amp; PROD CO</u>	FROM (former operator) <u>DUNCAN ENERGY COMPANY</u>
(address) <u>PO BOX 2810</u>	(address) <u>1777 S HARRISON ST PH #1</u>
<u>FARMINGTON NM 87499</u>	<u>DENVER CO 80210</u>
phone ( <u>505</u> ) <u>326-3325</u>	phone ( <u>303</u> ) <u>759-3303</u>
account no. <u>N 0075</u>	account no. <u>N3370</u>

Well(s) (attach additional page if needed): **\*WIW (CAVE CANYON SECONDARY RECOVERY UNIT)**

Name: <u>CAVE CANYON 1-33/ISMY</u>	API: <u>43-037-31276</u>	Entity: <u>9775</u>	Sec <u>33</u> Twp <u>37S</u> Rng <u>24E</u>	Lease Type: <u>U40751</u>
Name: <u>*CAVE CANYON 3-1/ISMY</u>	API: <u>43-037-31095</u>	Entity: <u>9775</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>
Name: <u>CAVE CANYON 3-2/ISMY</u>	API: <u>43-037-31120</u>	Entity: <u>9775</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>
Name: <u>CAVE CANYON 3-3/ISMY</u>	API: <u>43-037-31413</u>	Entity: <u>9775</u>	Sec <u>3</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>
Name: <u>CAVE CANYON FED 4-3/IS</u>	API: <u>43-037-31414</u>	Entity: <u>9775</u>	Sec <u>4</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>
Name: <u>CAVE CANYON FED 4-4/IS</u>	API: <u>43-037-31539</u>	Entity: <u>9775</u>	Sec <u>4</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>
Name: <u>CAVE CANYON FED 4-5/IS</u>	API: <u>43-037-31695</u>	Entity: <u>9775</u>	Sec <u>4</u> Twp <u>38S</u> Rng <u>24E</u>	Lease Type: <u>U47876</u>

CONT...

**OPERATOR CHANGE DOCUMENTATION**

- Le 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). *(Reg. 7-18-95) (Reg. 7-26-95) (Rec'd 8-4-95)*
- Le 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). *(Rec'd 7-17-95)*
- N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) \_\_\_\_ If yes, show company file number: \_\_\_\_\_.
- Le 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.
- Le 5. Changes have been entered in the Oil and Gas Information System (Wan IBM) for each well listed above. *(8-8-95)*
- Le 6. Cardex file has been updated for each well listed above. *8-14-95*
- Le 7. Well file labels have been updated for each well listed above. *8-14-95*
- Le 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. *(8-8-95)*
- Le 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

**ENTITY REVIEW**

- Yes 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) no (If entity assignments were changed, attach copies of Form 6, Entity Action Form).
- N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

**BOND VERIFICATION (Fee wells only)**

- N/A Yes 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.
2. A copy of this form has been placed in the new and former operators' bond files.
3. The former operator has requested a release of liability from their bond (yes/no)     . Today's date                      19    . If yes, division response was made by letter dated                      19    .

**LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY**

- N/A Yes 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated                      19    , of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
- N/A 2. Copies of documents have been sent to State Lands for changes involving State leases.

**FILMING**

- ✓ 1. All attachments to this form have been microfilmed. Date: August 21 1995.

**FILING**

1. Copies of all attachments to this form have been filed in each well file.
2. The original of this form and the original attachments have been filed in the Operator Change file.

**COMMENTS**

950718 Reg. "WICF5" (Rec'd 7-31-95)  
950725 Blm/Moab Appr. eff. 6-23-95.

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.  
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

1. Type of Well: OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> OTHER:	5. Lease Designation and Serial Number: UTU 47876
2. Name of Operator: Giant Exploration & Production Company	6. If Indian, Allottee or Tribe Name:
3. Address and Telephone Number: P.O. Box 2810, Farmington, New Mexico 87499 (505)326-3325	7. Unit Agreement Name:
4. Location of Well:  Footages: 1310 'FNL, 200' FEL  QQ, Sec., T.,R.,M.: NE/4, NE/4, Sec. 4, T38S, R24E	8. Well Name and Number: Cave Canyon Federal 4-3  9. API Well Number: 43-037-31414  10. Field and Pool, or Wildcat: Cave Canyon  County: San Juan  State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA	
NOTICE OF INTENT (Submit in Duplicate)	SUBSEQUENT REPORT (Submit Original Form Only)
<input type="checkbox"/> Abandonment <input type="checkbox"/> Casing Repair <input type="checkbox"/> Change of Plans <input type="checkbox"/> Conversion to Injection <input type="checkbox"/> Fracture Treat <input type="checkbox"/> Multiple Completion <input type="checkbox"/> Other _____  Approximate date work will start _____	<input type="checkbox"/> Abandonment * <input type="checkbox"/> Casing Repair <input type="checkbox"/> Change of Plans <input type="checkbox"/> Conversion to Injection <input type="checkbox"/> Fracture Treat <input checked="" type="checkbox"/> Other <u>Annual Status Report</u>  Date of work completion _____  Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.  * Must be accompanied by a cement verification report.
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)  <p style="margin-left: 40px;">Annual Status Report:</p> <p style="margin-left: 40px;">The Cave Canyon Federal 4-3 well is shut-in due to uneconomic production. The well is being evaluated for future use.</p>	

13. Name & Signature <u>Gregory E. McIntosh</u>	Title: <u>Senior Area Engineer</u>	Date: <u>FEB 21 1996</u>
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STATE OF UTAH  
 DIVISION OF OIL, GAS AND MINING  
 1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

DIANE G JARAMILLO  
 GIANT EXPLOR & PROD CO  
 PO BOX 2810  
 FARMINGTON NM 87499

UTAH ACCOUNT NUMBER: N0075

REPORT PERIOD (MONTH/YEAR): 8 / 96

AMENDED REPORT  (Highlight Changes)

Well Name			Producing Zone	Well Status	Days Oper	Production Volumes		
API Number	Entity	Location				OIL(BBL)	GAS(MCF)	WATER(BBL)
<del>4303731120</del>	<del>09775</del>	<del>38S 24E 3</del>	ISMY			u 47876	Cave Cyn Unit	
<del>4303731276</del>	<del>09775</del>	<del>37S 24E 33</del>	ISMY			u 40751	"	
<del>4303731413</del>	<del>09775</del>	<del>38S 24E 3</del>	ISMY			u 47876	"	
<del>4303731414</del>	<del>09775</del>	<del>38S 24E 4</del>	ISMY			"	"	
<del>4303731539</del>	<del>09775</del>	<del>38S 24E 4</del>	ISMY			"	"	
<del>4303731567</del>	<del>09775</del>	<del>38S 24E 3</del>	ISMY			"	"	
<del>4303731695</del>	<del>09775</del>	<del>38S 24E 4</del>	ISMY			"	"	
<del>4303731766</del>	<del>09775</del>	<del>38S 24E 3</del>	ISMY			"	"	
GAGE FOSTER #1								
4303731463	10991	37S 23E 32	DSCR			ml 43698		
HATCH POINT #1								
4303731658	11356	29S 21E 14	LDLL			u 61791		
Gothic mesa 16-11								
43-037-15042	10008	41S 23E 16	DSCR / W1W			1420602243	Gothic Mesa Unit / Nav.	
Cave Canyon 3-1								
43-037-31095	9775	38S 24E 3	ISMY / W1W			u 47876	Cave Cyn Unit	
<b>TOTALS</b>								

COMMENTS:

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I hereby certify that this report is true and complete to the best of my knowledge.  
 Name and Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Telephone Number: \_\_\_\_\_

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

5. Lease Designation and Serial Number:  
U-47876

6. If Indian, Allottee or Tribe Name:  
NA

7. Unit Agreement Name:  
NA

8. Well Name and Number:  
Cave Canyon Fed. 4-3

9. API Well Number:  
43-037-31414

10. Field and Pool, or Wildcat:  
Cave Canyon, Ismay

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.  
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

1. Type of Well: OIL  GAS  OTHER:

2. Name of Operator:  
Central Resources, Inc.

3. Address and Telephone Number:  
1775 Sherman Street, Suite 2600 Denver, CO 80203 303-830-0100

4. Location of Well:  
Footages: 1310' FNL & 200' FEL County: San Juan  
QQ, Sec., T.,R.,M.: NE NE Sec. 4-T38S-R24E State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

**NOTICE OF INTENT**  
(Submit in Duplicate)

- Abandonment
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Multiple Completion
- Other \_\_\_\_\_
- New Construction
- Pull or Alter Casing
- Recompletion
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

Approximate date work will start \_\_\_\_\_

**SUBSEQUENT REPORT**  
(Submit Original Form Only)

- Abandonment \*
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Other Change of Operator
- New Construction
- Pull or Alter Casing
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

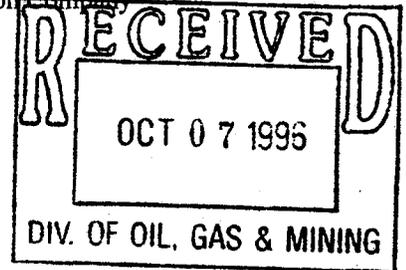
Date of work completion \_\_\_\_\_

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Effective 9/1/96 operations of the subject well were transferred from Giant Exploration & Production Company to Central Resources, Inc.



Giant Exploration & Production Company  
Name & Signature *Diene Perumillo*

Title: Production/Regulatory Manager Date: August 30, 1996

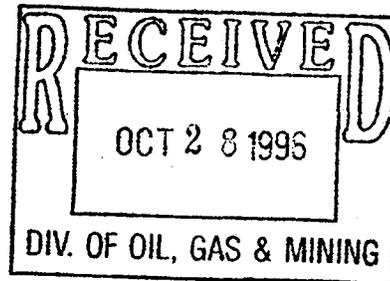
13. Central Resources, Inc.  
Name & Signature *Gene Martiny*

Title: Engineering Technician Date: August 30, 1996

# CENTRAL

RESOURCES, INC.

October 23, 1996



Ms. Lesha Cordova  
State of Utah  
Division of Oil, Gas & Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801

Re: Monthly Oil & Gas Production Report

Dear Ms. Cordova:

Central Resources, Inc. purchased all assets from Giant Exploration & Production Company effective September 1, 1996.

Central is in the process of acquiring a Utah Account Number. However, to avoid mailing the enclosed Monthly Oil and Gas Production Report late, the account number on the report has been left blank.

If you have any questions regarding this matter, please contact Edna Wageman or myself at (505) 326-3325.

Sincerely,

*Diane G. Jaramillo* <sup>by EW</sup>

Diane G. Jaramillo  
Office Supervisor

DGJ/

Enclosure

*\* 9/6/028 not. hand Oper. N 6935 "Central Res. Inc."  
(Chg. not finalized yet!)*

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

**SUBMIT IN TRIPLICATE**

**1. Type of Well**

Oil Well       Gas Well       Other

**2. Name of Operator**

Central Resources, Inc.

**3. Address and Telephone No.**

1775 Sherman Street, Suite 2600, Denver, Colorado 80203 (303)830-0100

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

1310' FNL & 200' FEL  
NE NE Sec. 4-T38S-R24E

**5. Lease Designation and Serial No.**

UTU47876

**6. If Indian, Allotte or Tribe Name**

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

**8. Well Name and No.**

Cave Canyon 4-3

**9. API Well No.**

43-037-31414

**10. Field and Pool, or Exploratory Area**

Cave Canyon, Ismay

**11. County or Parish, State**

San Juan, UT

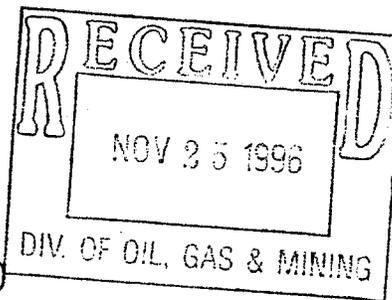
**12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Surface Casing/Cementing
	<input checked="" type="checkbox"/> Other: CHANGE OF OPERATOR
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

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

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

Please be advised that effective September 1, 1996, Central Resources, Inc. assumed operatorship of the referenced well. Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by Central Resources, Inc. under their statewide bond, BLM Bond No. B06175. They will be responsible for compliance under the lease terms and conditions for that portion of the lease associated with this notice.



CONDITIONS OF APPROVAL ATTACHED

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

Signed: *Jane Martony*

Title: Engineering Technician

Date: November 1, 1996

(This space for Federal or State office use)

Approved by: */s/ Brad D. Palmer*

**Assistant Field Manager,  
Resource Management**

Date: NOV 19 1996

Conditions of approval, if any:

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

Central Resources, Inc.  
Well No. Cave Canyon 4-3  
NENE Sec. 4, T. 38 S., R. 24 E.  
San Juan County, Utah

**CONDITIONS OF APPROVAL**

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

Be advised that Central Resources, Inc., is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased land.

Bond coverage for this well is provided by BLM Bond UT1053 (Principle - Central Resources, Inc.) as provided for in 43 CFR 3104.2.

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

**OPERATOR CHANGE WORKSHEET**

Routing	
1-LEE ✓	6-LEE ✓
2-SEE ✓	7-KDR ✓
3-DTS ✓	8-SJ ✓
4-VLD ✓	9-FILE
5-RJF ✓	

Attach all documentation received by the division regarding this change.  
Initial each listed item when completed. Write N/A if item is not applicable.

- Change of Operator (well sold)       Designation of Agent  
 Designation of Operator             Operator Name Change Only

The operator of the well(s) listed below has changed, effective: 9-1-96

**TO: (new operator)** CENTRAL RESOURCES INC  
 (address) 1775 SHERMAN ST STE 2600  
DENVER CO 80203-4313  
IRENE MARTINEZ  
 Phone: (303)830-0100  
 Account no. N6935 (10-25-96)

**FROM: (old operator)** GIANT EXPLOR & PROD CO  
 (address) PO BOX 2810  
FARMINGTON NM 87499  
DIANE JARAMILLO  
 Phone: (505)326-3325  
 Account no. N0075

WELL(S) attach additional page if needed:                      \*CAVE CANYON UNIT

Name: <b>**SEE ATTACHED**</b>	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____
Name: _____	API: _____	Entity: _____	S	T	R	Lease: _____

**OPERATOR CHANGE DOCUMENTATION**

- See 1. (r649-8-10) Sundry or other legal documentation has been received from the **FORMER** operator (attach to this form). *(Rec'd 10-7-96)*
- See 2. (r649-8-10) Sundry or other legal documentation has been received from the **NEW** operator (Attach to this form). *(Rec'd 10-7-96)*
- See 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is the company registered with the state? (yes/no) \_\_\_\_\_ If yes, show company file number: #CO193111. *(r# 8-2-96)*
- See 4. **FOR INDIAN AND FEDERAL WELLS ONLY.** The BLM has been contacted regarding this change. Make note of BLM status in comments section of this form. BLM approval of Federal and Indian well operator changes should ordinarily take place prior to the division's approval, and before the completion of steps 5 through 9 below.
- See 5. Changes have been entered in the Oil and Gas Information System (3270) for each well listed above. *(11-25-96)*
- See 6. Cardex file has been updated for each well listed above. *(11-25-96)*
- See 7. Well file labels have been updated for each well listed above. *(11-25-96)*
- See 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to Trust Lands, Sovereign Lands, UGS, Tax Commission, etc. *(11-25-96)*
- See 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

**ENTITY REVIEW**

- YUC 1. (r649-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) no If entity assignments were changed, attach copies of Form 6, Entity Action Form.
- N/A 2. Trust Lands, Sovereign Lands, Tax Commission, etc., have been notified through normal procedures of entity changes.

**BOND VERIFICATION - (FEE WELLS ONLY)**

- N/A 1. (r649-3-1) The NEW operator of any fee lease well listed above has furnished a proper bond.
- YUC 2. A copy of this form has been placed in the new and former operator's bond files.
3. The FORMER operator has requested a release of liability from their bond (yes/no)     , as of today's date     . If yes, division response was made to this request by letter dated     .

**LEASE INTEREST OWNER NOTIFICATION OF RESPONSIBILITY**

- N/A 1. Copies of documents have been sent on      to      at Trust Lands for changes involving State leases, in order to remind that agency of their responsibility to review for proper bonding.

**FILMING**

- VB 1. All attachments to this form have been microfilmed. Today's date: 12-30-96.

**FILING**

1. Copies of all attachments to this form have been filed in each well file.
2. The original of this form, and the original attachments are now being filed in the Operator Change file.

**COMMENTS**

9/6/11/25 BLM/Moab Aprv. 11-19-96.

5. Lease Designation and Serial Number:

UTU 47876

**SUNDRY NOTICES AND REPORTS ON WELLS**

6. If Indian, Allottee or Tribe Name:

7. Unit Agreement Name:

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.

Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

1. Type of Well:

OIL  GAS  OTHER:

8. Well Name and Number:

Cave Canyon 4-3

2. Name of Operator:

Central Resources, Inc.

9. API Well Number:

43-037-31414

3. Address and Telephone Number:

P.O. Box 2810, Farmington, New Mexico 87499 (505) 326-3325

10. Field and Pool, or Wildcat:

Cave Canyon, Ismay

4. Location of Well:

Footages: 1310' FNL, 200' FEL

County: San Juan

QQ, Sec., T.,R.,M.: NE/4 NE/4, Sec. 4, T38S, R24E

State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

**NOTICE OF INTENT**

(Submit in Duplicate)

- |  |   |
|--|---|
| <input type="checkbox"/> Abandonment             | <input type="checkbox"/> New Construction     |
| <input type="checkbox"/> Casing Repair           | <input type="checkbox"/> Pull or Alter Casing |
| <input type="checkbox"/> Change of Plans         | <input type="checkbox"/> Recompletion         |
| <input type="checkbox"/> Conversion to Injection | <input type="checkbox"/> Shoot or Acidize     |
| <input type="checkbox"/> Fracture Treat          | <input type="checkbox"/> Vent or Flare        |
| <input type="checkbox"/> Multiple Completion     | <input type="checkbox"/> Water Shut-Off       |
| <input type="checkbox"/> Other _____             |   |

Approximate date work will start \_\_\_\_\_

**SUBSEQUENT REPORT**

(Submit Original Form Only)

- |  |   |
|--|---|
| <input type="checkbox"/> Abandonment *                         | <input type="checkbox"/> New Construction     |
| <input type="checkbox"/> Casing Repair                         | <input type="checkbox"/> Pull or Alter Casing |
| <input type="checkbox"/> Change of Plans                       | <input type="checkbox"/> Shoot or Acidize     |
| <input type="checkbox"/> Conversion to Injection               | <input type="checkbox"/> Vent or Flare        |
| <input type="checkbox"/> Fracture Treat                        | <input type="checkbox"/> Water Shut-Off       |
| <input checked="" type="checkbox"/> Other Annual Status Report |   |

Date of work completion \_\_\_\_\_

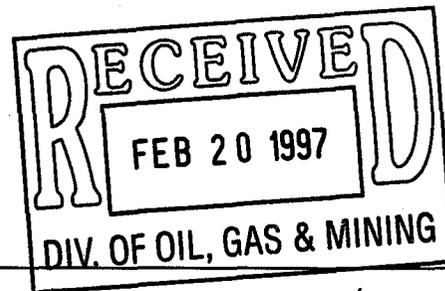
Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

**Annual Status Report:**

The Cave Canyon Well No. 4-3 is shut-in due to uneconomic production. The well is being evaluated for return to production.



13.

Name & Signature

*Gregory McIntosh*

Gregory McIntosh

Title:

Operations Engineer

Date:

2/12/97

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.  
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

1. Type of Well: OIL  GAS  OTHER: \_\_\_\_\_

2. Name of Operator:  
Central Resources, Inc.

3. Address and Telephone Number:  
P.O. Box 2810, Farmington, New Mexico 87499 (505) 326-3325

4. Location of Well:  
Footages: 1310' FNL, 200' FEL  
County: San Juan  
QQ, Sec., T.,R.,M.: NE/4 NE/4, Sec. 4, T38S, R24E  
State: Utah

5. Lease Designation and Serial Number:  
UTU 47876

6. If Indian, Allottee or Tribe Name:

7. Unit Agreement Name:

8. Well Name and Number:  
Cave Canyon 4-3

9. API Well Number:  
43-037-31414

10. Field and Pool, or Wildcat:  
Cave Canyon, Ismay

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

**NOTICE OF INTENT**  
(Submit in Duplicate)

Abandonment       New Construction

Casing Repair       Pull or Alter Casing

Change of Plans       Recompletion

Conversion to Injection       Shoot or Acidize

Fracture Treat       Vent or Flare

Multiple Completion       Water Shut-Off

Other \_\_\_\_\_

Approximate date work will start \_\_\_\_\_

**SUBSEQUENT REPORT**  
(Submit Original Form Only)

Abandonment \*       New Construction

Casing Repair       Pull or Alter Casing

Change of Plans       Shoot or Acidize

Conversion to Injection       Vent or Flare

Fracture Treat       Water Shut-Off

Other Annual Status Report

Date of work completion \_\_\_\_\_

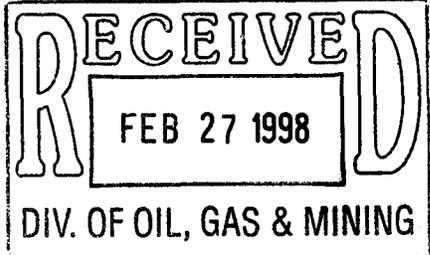
Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Annual Status Report:

The Cave Canyon Well No. 4-3 is shut-in due to uneconomic production. The well is being evaluated for future use.



13. Name & Signature: Gregory McIntosh Title: Operations Engineer Date: 2/12/98

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.  
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

1. Type of Well: OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> OTHER: _____	5. Lease Designation and Serial Number: UTU 47876
2. Name of Operator: Central Resources, Inc.	6. If Indian, Allottee or Tribe Name:
3. Address and Telephone Number: P.O. Box 1247, Bloomfield, New Mexico 87413 (505) 632-3476	7. Unit Agreement Name:
4. Location of Well: Footages: 1310' FNL, 200' FEL County: San Juan QQ, Sec., T., R., M.: NE/4 NE/4, Sec. 4, T38S, R24E State: Utah	8. Well Name and Number: Cave Canyon 4-3
	9. API Well Number: 43-037-31414
	10. Field and Pool, or Wildcat: Cave Canyon, Ismay

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)	SUBSEQUENT REPORT (Submit Original Form Only)
<input type="checkbox"/> Abandonment	<input type="checkbox"/> Abandonment *
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Casing Repair
<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Change of Plans
<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Conversion to Injection
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Fracture Treat
<input type="checkbox"/> Multiple Completion	<input checked="" type="checkbox"/> Other Annual Status Report
<input type="checkbox"/> Other _____	
Approximate date work will start _____	Date of work completion _____
	Report results of Multiple Completions and Re Completions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.
	* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Annual Status Report:

The Cave Canyon Well No. 4-3 is shut-in due to uneconomic production. The well is being evaluated for return to production.

**RECEIVED**

FEB 28 2000

DIVISION OF  
OIL, GAS AND MINING

13. Name & Signature: Rodney L. Seale Title: District Manager Date: February 21, 2000

(This space for State use only)

Accepted by the  
Utah Division of  
Oil, Gas and Mining

Date: 2-28-00  
By: RSL

**COPY SENT TO OPERATOR**  
Date: 3-1-00  
Initials: CAD

5. Lease Designation and Serial Number:  
U-47876

**SUNDRY NOTICES AND REPORTS ON WELLS**

6. If Indian, Allottee or Tribe Name:  
N/A

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.  
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

7. Unit Agreement Name:  
N/A

1. Type of Well:  
OIL  GAS  OTHER:

8. Well Name and Number:  
Cave Canyon Fed. 4-3

2. Name of Operator:  
Elm Ridge Resources, Inc.

9. API Well Number:  
43-037-31414

3. Address and Telephone Number:  
312 W. LaPlata Street, Farmington, New Mexico (505) 326-7099

10. Field and Pool, or Wildcat:  
Cave Canyon, Ismay

4. Location of Well:  
Footages: 1310' FNL & 200' FEL  
County: San Juan  
QQ, Sec., T.,R.,M.: NE NE Sec. 4-T38S-R24E  
State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

**NOTICE OF INTENT**  
(Submit in Duplicate)

- Abandonment
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Multiple Completion
- Other
- New Construction
- Pull or Alter Casing
- Recom
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

Approximate date work will start \_\_\_\_\_

**SUBSEQUENT REPORT**  
(Submit Original Form Only)

- Abandonment \*
- Casing Repair
- Change of Plans
- Conversion to Injection
- Fracture Treat
- Other Change of Operator
- New Construction
- Pull or Alter Casing
- Shoot or Acidize
- Vent or Flare
- Water Shut-Off

Date of work completion \_\_\_\_\_

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Effective October 1, 2000, operations of the subject well were transferred from Central Resources, Inc. to Elm Ridge Resources, Inc.

**RECEIVED**

OCT 10 2000

DIVISION OF  
OIL, GAS AND MINING

Central Resources, Inc.  
Name & Signature Jane Martinez

Title: Engineering Technician Date: 09/29/00

13. Elm Ridge Resources, Inc.  
Name & Signature Dary Erdelyi

Title: Operations Manager Date: 09/29/00

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

**SUBMIT IN TRIPLICATE**

**1. Type of Well**  
 Oil Well     Gas Well     Other

**2. Name of Operator**  
 Elm Ridge Resources, Inc.

**3. Address and Telephone No.**  
 312 W. LaPlata Street, Farmington, New Mexico (505) 326-7099

**4. Location of Well (Footage, T, R, M, or Survey Description)**  
 1310' FNL & 200' FEL  
 NE NE Sec. 4-T38S-R24E

**5. Lease Designation and Serial No.**  
 UTU47876

**6. If Indian, Allotte or Tribe Name**

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

**8. Well Name and No.**  
 Cave Canyon 4-3

**9. API Well No.**  
 43-037-31414

**10. Field and Pool, or Exploratory Area**  
 Cave Canyon, Ismay

**11. County or Parish, State**  
 San Juan, UT

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Surface Casing/Cementing
	<input checked="" type="checkbox"/> Other: CHANGE OF OPERATOR
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

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

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

**Please be advised that effective October 1, 2000, Elm Ridge Resources, Inc. assumed operatorship of the referenced well. Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by Elm Ridge Resources, Inc. under their statewide bond, BLM Bond No. 435700. They will be under the lease terms and conditions for that portion of the lease associated with this notice.**

RECEIVED  
 BLM FIELD OFFICE  
 2000 OCT 17 P 2:17  
 DEPT OF THE INTERIOR  
 BUREAU OF LAND MGMT

*Bond obtained 3/20/01  
 Change of operator effective 4/1/01.  
 BLM Bond # UT1216*

RECEIVED  
 JUN 11 2001  
 070 FARMINGTON, NM  
 2000 OCT 10 AM 2:37

**DIVISION OF  
OIL, GAS AND MINING**

**14. I hereby certify that the foregoing is true and correct.**  
 Signed: *Daryn Willey* Title: Operations Manager Date: September 29, 2000

(This space for Federal or State office use)  
 Approved by: *William Stunzer* Title: Assistant Field Manager,  
Division of Resources Date: 6/6/01

Conditions of approval, if any:

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

cc: UDOEM 6/6/01

Elm Ridge Resources, Inc.  
Well No. Cave Canyon 4-3  
NENE Sec. 4, T. 38 S., R. 24 E.  
Lease UTU47876  
San Juan County, Utah

CONDITIONS OF APPROVAL

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

Be advised that Elm Ridge Resources, Inc. is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UT1216 (Principal - Elm Ridge Resources, Inc.) via surety consent as provided for in 43 CFR 3104.2.

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

**RECEIVED**

JUN 11 2001

DIVISION OF  
OIL, GAS AND MINING

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

FORM 9

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER:

UTU 47876

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

8. WELL NAME and NUMBER:

Cave Canyon 4-3

9. API NUMBER:

4303731414

10. FIELD AND POOL, OR WILDCAT:

Cave Canyon, Ismay

1. TYPE OF WELL

OIL WELL

GAS WELL

OTHER \_\_\_\_\_

2. NAME OF OPERATOR:

Elm Ridge Resources, Inc.

3. ADDRESS OF OPERATOR:

PO Box 189

CITY Farmington

STATE NM

ZIP 87499

PHONE NUMBER:

(505) 632-3476

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 1310' FNL & 200' FEL

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NE/4 4 38S 24E

STATE:

UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate)  Approximate date work will start: _____  <input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only)  Date of work completion: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input checked="" type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

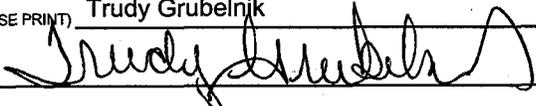
Elm Ridge Resources, Inc. currently has a rig in the Cave Canyon area. We purchased this well in a non-productive state and once we rig up, we will determine what the problem is. If the well is fixable, we will return to production. If not, we will submit a P&A procedure.

Certified Return Receipt # 7001 0320 0001 0934 5230

COPY SENT TO OPERATOR  
Date: 11-5-01  
Initials: CHD

NAME (PLEASE PRINT) Trudy Grubelnik

TITLE Production Technician

SIGNATURE 

DATE 10/16/2001

(This space for State use only)

Accepted by the  
Utah Division of  
Oil, Gas and Mining

Federal Approval Of This  
Action Is Necessary

**RECEIVED**

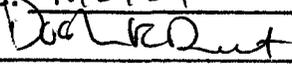
OCT 24 2001

DIVISION OF  
OIL, GAS AND MINING

(5/2000)

Date: 11/2/01

(See Instructions on Reverse Side)

By: 

**OPERATOR CHANGE WORKSHEET**

**ROUTING**

1. GLH		4-KAS
2. CDW	<input checked="" type="checkbox"/>	5-LP <i>b/s</i>
3. JLT		6-FILE

Enter date after each listed item is completed

**X Change of Operator (Well Sold)**

Designation of Agent

Operator Name Change (Only)

Merger

The operator of the well(s) listed below has changed, effective: **04-01-2001**

<b>FROM:</b> (Old Operator):
CENTRAL RESOURCES INC
Address: P. O. BOX 189
FARMINGTON, NM 87499-189
Phone: 1-(505)-632-3476
Account N6935
<b>CA No.</b>

<b>TO:</b> ( New Operator):
ELM RIDGE RESOURCES INC
Address: P. O. BOX 189
FARMINGTON, NM 87499-189
Phone: 1-(505)-632-3476
Account N1440
<b>Unit: CAVE CANYON PROJECT</b>

**WELL(S)**

NAME	API NO.	ENTITY NO.	SEC. TWN RNG	LEASE TYPE	WELL TYPE	WELL STATUS
CAVE CANYON 1-33	43-037-31276	9775	33-37S-24E	FEDERAL	OW	P
CAVE CANYON 3-2	43-037-31120	9775	03-38S-24E	FEDERAL	OW	P
CAVE CANYON 3-3	43-037-31413	9775	03-38S-24E	FEDERAL	OW	S
CAVE CANYON 12-3	43-037-31567	9775	03-38S-24E	FEDERAL	OW	S
CAVE CANYON 13-3	43-037-31766	9775	03-38S-24E	FEDERAL	OW	S
CAVE CANYON 1-4	43-037-31028	9775	04-38S-24E	FEDERAL	OW	P
CAVE CANYON 4-3	43-037-31414	9775	04-38S-24E	FEDERAL	OW	S
CAVE CANYON 4-4	43-037-31539	9775	04-38S-24E	FEDERAL	OW	P
CAVE CANYON 4-5	43-037-31695	9775	04-38S-24E	FEDERAL	OW	P

**OPERATOR CHANGES DOCUMENTATION**

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 10/10/2000
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 10/10/2000
- The new company has been checked through the **Department of Commerce, Division of Corporations Database** on: 06/12/2001
- Is the new operator registered in the State of Ut YES Business Number: 4830075-1150
- If **NO**, the operator was contacted on: \_\_\_\_\_
- Federal and Indian Lease Wells:** The BLM and or the BIA has approved the (merger, name change, or operator change for all wells listed on Federal or Indian leases on: 06/06/2001
- Federal and Indian Units:** The BLM or BIA has approved the successor of unit operator for wells listed on: N/A

8. **Federal and Indian Communization Agreements ("CA"):** The BLM or the BIA has approved the operator change for all wells listed involved in a CA on: N/A

9. **Underground Injection Control ("UIC"):** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

**DATA ENTRY:**

- 1. Changes entered in the **Oil and Gas Database** 06/12/2001
- 2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 06/12/2001
- 3. Bond information entered in RBDMS on: N/A
- 4. Fee wells attached to bond in RBDMS on: N/A

**STATE BOND VERIFICATION:**

- 1. State well(s) covered by Bond No.: N/A

**FEE WELLS - BOND VERIFICATION/LEASE INTEREST OWNER NOTIFICATION:**

- 1. (R649-3-1) The **NEW** operator of any fee well(s) listed has furnished a bond: N/A
- 2. The **FORMER** operator has requested a release of liability from their bond on: N/A  
The Division sent response by letter on: N/A
- 3. (R649-2-10) The **FORMER** operator of the Fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: N/A

**FILMING:**

- 1. All attachments to this form have been **MICROFILMED** on: 7.12.01

**FILING:**

- 1. **ORIGINALS/COPIES** of all attachments pertaining to each individual well have been filed in each well file on: \_\_\_\_\_

**COMMENTS:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

FORM 9

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

		5. LEASE DESIGNATION AND SERIAL NUMBER: <b>UTU-47876</b>
		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
		7. UNIT or CA AGREEMENT NAME:
1. TYPE OF WELL <input checked="" type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER _____		8. WELL NAME and NUMBER: <b>Cave Canyon 4-3</b>
2. NAME OF OPERATOR: <b>Elm Ridge Resources, Inc</b>		9. API NUMBER: <b>4303731414</b>
3. ADDRESS OF OPERATOR: <b>PO Box 189                      CITY Farmington                      STATE NM                      ZIP 87499</b>		10. FIELD AND POOL, OR WILDCAT: <b>Cave Canyon Ismay</b>
		PHONE NUMBER: <b>(505) 632-3476</b>
4. LOCATION OF WELL FOOTAGES AT SURFACE: <b>1310 FNL &amp; 200 FEL</b>		COUNTY: <b>San Juan</b>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: <b>NENE <sup>4</sup>/<sub>8</sub> 38S 24E S</b>		STATE: <b>UTAH</b>

**11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> (Submit in Duplicate)  Approximate date work will start: _____  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> (Submit Original Form Only)  Date of work completion: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input checked="" type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Elm Ridge Resources, Inc. request the Cave Canyon 4-3 to be T&A'd until we can move a rig onto this well and determine what the problem is. If fixable, we will return to production. If the well proves to be incapable of producing payable quantities, Elm Ridge Resources will submit a P&A procedure.

**THIS SUNDRY IS BEING RETURNED; INSUFFICIENT DATA WAS SUBMITTED TO APPROVE THE REQUESTED ACTION (see attached sheet).**

*[Signature]* June 23, 2003  
Utah Division of Oil, Gas and Mining

COPY SENT TO OPERATOR  
 Date: 6-25-03  
 Initials: CHD

NAME (PLEASE PRINT) <u>Trudy Grubelnik</u>	TITLE <u>Production Technician</u>
SIGNATURE <i>[Signature]</i>	DATE <u>5/1/2003</u>

(This space for State use only)

**RECEIVED**  
**MAY 05 2003**  
DIV. OF OIL, GAS & MINING

## ***INFORMATION REQUIRED TO EXTEND SI/TA OF WELL***

Well Name and Number: Cave Canyon 4-3  
API Number: 43-037-31414  
Operator: Elm Ridge Resources, Inc.  
Reference Document: Original Sundry dated May 1, 2003, received by  
DOGGM on May 5, 2003

The well has been Shut-in for 1 year 2 months. Insufficient information was submitted to the Division to approve the referenced well for continued Shut-in or Temporary Abandonment (SI/TA) beyond this date. The following requirements of R649-3-36 have not been met with this request for SI/TA approval.

1. The length of time the well is expected to be SI/TA (R649-3-36-1.2), and
2. An explanation and supporting data if necessary, for showing the well has integrity, meaning that the casing, cement, equipment condition, static fluid level, pressure, existence or absence of Underground Sources of Drinking Water and other factors do not make the well a risk to public health and safety or the environment. (R649-3-36-1.3)

Submitting the information suggested below may help show well integrity and may help qualify your well for extended SI/TA. Note: As of July 1, 2003, wells in violation of the SI/TA rule R649-3-36 may be subject to full cost bonding (R649-3-1-4.2, 4.3).

1. Copy of recent casing pressure test and/or;
2. Current pressures on the wellbore (tubing pressure, casing pressure, and casing/casing annuli pressure) showing wellbore has integrity.

If the required information is not received within 30 days of the date of this notice, further actions may be initiated. If you have any questions concerning this matter, please contact me at (801) 538-5281.



Dustin K. Doucet  
Petroleum Engineer

June 23, 2003

Date

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

FORM 9.

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER _____		5. LEASE DESIGNATION AND SERIAL NUMBER:
2. NAME OF OPERATOR: Elm Ridge Exploration Company, LLC <i>N2985</i>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
3. ADDRESS OF OPERATOR: 12225 Greenville, Suite 950 CITY Dallas STATE TX ZIP 75243		7. UNIT or CA AGREEMENT NAME:
4. LOCATION OF WELL FOOTAGES AT SURFACE: _____ COUNTY: _____ QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: _____ STATE: <b>UTAH</b>		8. WELL NAME and NUMBER: <b>See attached Exhibit "A"</b>
PHONE NUMBER: <b>(972) 889-2100</b>		9. API NUMBER:
		10. FIELD AND POOL, OR WILDCAT:

11 CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12 DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
Effective February 18, 2005, Elm Ridge Resources, Inc. transferred all responsibility of Operations for the wells described on the attached Exhibit "A" to Elm Ridge Exploration Company, LLC.

Current Operator:

Name Elm Ridge Resources, Inc. N1440 Title Land Manager  
Signature Cathleen Colly Date December 1, 2005

New Operator:

NAME (PLEASE PRINT) Elm Ridge Exploration Company, LLC TITLE Land Manager  
SIGNATURE Cathleen Colly DATE December 1, 2005

(This space for State use only)

RECEIVED  
DEC 05 2005

Exhibit "A"  
Operator Change  
Effective February 18, 2005

Old Operator:	Elm Ridge Resources, Inc.									
New Operator:	Elm Ridge Exploration Company, LLC									
Lease Designation / Serial Number	Indian, Allottee or Tribe Name	Unit or CA Agreement	Well Name and Number	API Number	Type Well	Field and Pool or Wildcat	Location of Well Footages at Surface	1/4/1/4 Section Township, Range	County	State
14-20-603-239A	Navajo	Gothic Mesa Unit	Gothic Mesa 7-41	43-037-15032	Oil Well	Gothic Mesa	625' FNL, 710' FEL	NENE-7-41S-23E	San Juan	UT
14-20-603-239A	Navajo	Gothic Mesa Unit	Gothic Mesa 6-34	43-037-15034	Oil Well	Gothic Mesa	660' FSL, 1980' FEL	SWSE-6-41S-23E	San Juan	UT
14-20-603-240	Navajo	Gothic Mesa Unit	Gothic Mesa 17-31	43-037-15040	Oil Well	Gothic Mesa	820' FNL, 2140' FEL	NWNE-17-41S-23E	San Juan	UT
UTU-47876	N/A	N/A	Wells Federal 1-4	43-037-31028	Oil Well	Cave Canyon	500' FNL, 500' FEL	NENE-4-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 3-2	43-037-31120	Oil Well	Cave Canyon	1925' FSL, 1925' FWL	NESW-3-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 1-33	43-037-31276	Oil Well	Cave Canyon	535' FSL, 2025' FEL	SWSE-33-37S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 3-3	43-037-31413	Oil Well	Cave Canyon	2635' FNL, 1390' FWL	SENE-3-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon Federal 4-3	43-037-31414	Oil Well	Cave Canyon	1310' FNL, 200' FEL	NENE-4-38S-24E	San Juan	UT
ST of UT ML-43698	N/A	N/A	Gage Foster 1	43-037-31463	Oil Well	Road Canyon	2180' FNL, 1780' FWL	SENE-32-37S-23E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 4-4	43-037-31539	Oil Well	Cave Canyon	1150' FNL, 1070' FEL	NENE-4-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon Federal 12-3	43-037-31567	Oil Well	Cave Canyon	1610' FNL, 1300' FWL	SWNW-3-38S-24E	San Juan	UT
14-20-603-239	Navajo	Gothic Mesa Unit	Gothic Mesa 6-43	43-037-31643	Oil Well	Gothic Mesa	1900' FSL, 500' FEL	NESE-6-41S-23E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon Federal 4-5	43-037-31695	Oil Well	Cave Canyon	50' FNL, 1800' FEL	NWNE-4-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 13-3	43-037-31766	Oil Well	Cave Canyon	2045' FSL, 1180' FWL	NWSW-3-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	WSW. No. 1	43-037-31820	Water Source	Cave Canyon	1800' FSL, 1845' FWL	NESW-3-38S-24E	San Juan	UT
UTU-47876	N/A	N/A	Cave Canyon 3-1	43-037-31095	Water Injection	Cave Canyon	2140' FNL, 200' FWL	SWNW-3-38S-24E	San Juan	UT
14-20-603-243	Navajo	Gothic Mesa Unit	Gothic Mesa 16-11	43-037-15042	Water Disposal	Gothic Mesa	500' FNL, 500' FWL	NWNW-16-41S-23E	San Juan	UT



7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: not yet

8. **Federal and Indian Units:**

The BLM or BIA has approved the successor of unit operator for wells listed on: not yet

9. **Federal and Indian Communization Agreements ("CA"):**

The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 12/7/2005

**DATA ENTRY:**

1. Changes entered in the **Oil and Gas Database** on: 12/8/2005
2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 12/8/2005
3. Bond information entered in RBDMS on: 12/8/2005
4. Fee/State wells attached to bond in RBDMS on: 12/8/2005
5. Injection Projects to new operator in RBDMS on: 12/8/2005
6. Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

**FEDERAL WELL(S) BOND VERIFICATION:**

1. Federal well(s) covered by Bond Number: UT00126

**INDIAN WELL(S) BOND VERIFICATION:**

1. Indian well(s) covered by Bond Number: 886936C

**FEE & STATE WELL(S) BOND VERIFICATION:**

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 1116000107

2. The **FORMER** operator has requested a release of liability from their bond on: n/a  
The Division sent response by letter on: \_\_\_\_\_

**LEASE INTEREST OWNER NOTIFICATION:**

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

**COMMENTS:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU-47876
		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well		<b>7. UNIT or CA AGREEMENT NAME:</b> CAVE CANYON WTR FLD PROJ
<b>2. NAME OF OPERATOR:</b> ELM RIDGE EXPLORATION COMPANY		<b>8. WELL NAME and NUMBER:</b> CAVE CANYON FED 4-3
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 156 , Bloomfield, NM, 87413		<b>9. API NUMBER:</b> 43037314140000
<b>PHONE NUMBER:</b> 505 632-3476 Ext		<b>9. FIELD and POOL or WILDCAT:</b> CAVE CANYON
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1310 FNL 0200 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NENE Section: 04 Township: 38.0S Range: 24.0E Meridian: S		<b>COUNTY:</b> SAN JUAN
		<b>STATE:</b> UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 6/24/2013	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input checked="" type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: <input style="width: 100px;" type="text"/>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Elm Ridge Exploration Company LLC Plugged and Abandoned the above well as follows: 6-24-13: Move in rig up. 6-25-13: PLUG #1- Set 5 1/2" cement retainer @ 5691'. Pump 15 sks below retainer and 6 sks on top of retainer. PLUG #2- Balance Plug with 17 sks of cement from 4900'-4750'. PLUG #3- Perf 4 holes @ 2700'. Set retainer @ 2650'. Pump 36 sks below and 6 sks of cement on top. PLUG #4 - Perf 4 holes @ 1961'. Set retainer @ 1911'. Pump 38 sks below and 6 sks on top of retainer. PLUG #5- Perf 4 holes @ 100'. Pump 25 sks of cement down 5 1/2" casing. Circulate cement up 8 5/8" casing. Top well off with cement. Jeff Brown with the BLM witnessed all plugs.

**Accepted by the  
Utah Division of  
Oil, Gas and Mining  
FOR RECORD ONLY  
February 06, 2014**

<b>NAME (PLEASE PRINT)</b> Amy Mackey	<b>PHONE NUMBER</b> 505 632-3476	<b>TITLE</b> Sr. Regulatory Supervisor
<b>SIGNATURE</b> N/A	<b>DATE</b> 2/6/2014	