



CHANDLER & ASSOCIATES, INC.

1860 LINCOLN

1400 LINCOLN TOWER BUILDING
DENVER, COLORADO 80203
OIL & GAS EXPLORATION AND PRODUCTION

303 863-9100

September 11, 1985

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

RE: Application for Permit to Drill

Orangeville Fed. Unit 1-11
NE NE Sec. 11-19S-7E
Emery County, Utah

Orangeville Fed. Unit 4-1
NW NW Sec. 1-19S-7E
Emery County, Utah

Orangeville Fed. Unit 14-2
SE SW Sec. 2-19S-7E
Emery County, Utah

RECEIVED

SEP 13 1985

DIVISION OF OIL
GAS & MINING

Gentlemen:

Enclosed please find three(3) copies of the APD's captioned above for your consideration and approval.

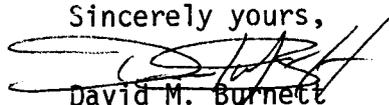
BWAB Incorporated will be drilling and operating these wells. We have enclosed copies of the Designation of Agent forms for your consideration. We have already sent the original DA forms along with a revised Plan of Development to the BLM in Salt Lake City.

Specifically, we have enclosed DA forms for the State location--the Orangeville Fed. Unit 14-2 (Utah minerals and surface). An archeological survey has been completed and representatives from the State office met with us during the onsite inspection and approved our location.

As we reported on the APD's, in order to avoid bad weather and potential lease problems, BWAB would like to commence dirt work on the wells by Sept. 20, 1985 and spud the 4-1 by October 1, 1985.

Thank you for your consideration of these permits. Should you have any questions, please don't hesitate to call.

Sincerely yours,


David M. Burnett

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

5. Lease Designation and Serial No.

U-18134

6. If Indian, Allottee or Tribe Name

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

DRILL

DEEPEN

PLUG BACK

7. Unit Agreement Name

Orangeville Unit

b. Type of Well

Oil Well

Gas Well

Other

Single Zone

Multiple Zone

8. Farm or Lease Name

Orangeville Fed. Unit

2. Name of Operator

BWAB Incorporated

(303) 295-7444

9. Well No.

4-1

3. Address of Operator

1801 California St., Suite 1000 CC4, Denver, Colorado 80202

10. Field and Pool, or Wildcat

Wildcat BUZZARD BENCH

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

At surface

845 FWL; 502 FNL

NW NW

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

Sec. 1-19S-7E

At proposed prod. zone same

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

Approximately 6.2 miles SW of Orangeville, Utah

12. County or Parrish

Emery

13. State

UT

15. Distance from proposed* location to nearest property or lease line, ft.

(Also to nearest drig. line, if any)

502'

16. No. of acres in lease

1,480.44

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.

2640'

19. Proposed depth

8,345

20. Rotary or cable tools

Rotary

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

6101 (Gd)

22. Approx. date work will start*

September 18, 1985

23. PROPOSED CASING AND CEMENTING PROGRAM

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
1 1/2"	13-3/8"	54.5#	1600'	1,230 sx
8-3/4"	5 1/2"	15.5#	8,345'	845

RECEIVED

1. Drill to TD of 8,345 (Kaibab)
2. Run 5 1/2" casing if commercial production is indicated.
3. If dry hole, P&A as instructed by the BLM.
4. Well will be drilled with mud.
5. Well control equipment will include a double hydraulic BOP system of 900 series. A fill-up line will be installed, equipment pressure mechanically checked daily while drilling.

SEP 13 1985

DIVISION OF OIL
GAS & MINING

Well Name: Orangeville Fed. Unit 4-1

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: Robert C. Arceneaux Title: Vice President-Operations Date: September 11, 1985

(This space for Federal or State office use)

Permit No. 43-015-30221

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

DATE: 9/19/85

BY: [Signature]

WELL SPACING: A-3 Unit Well

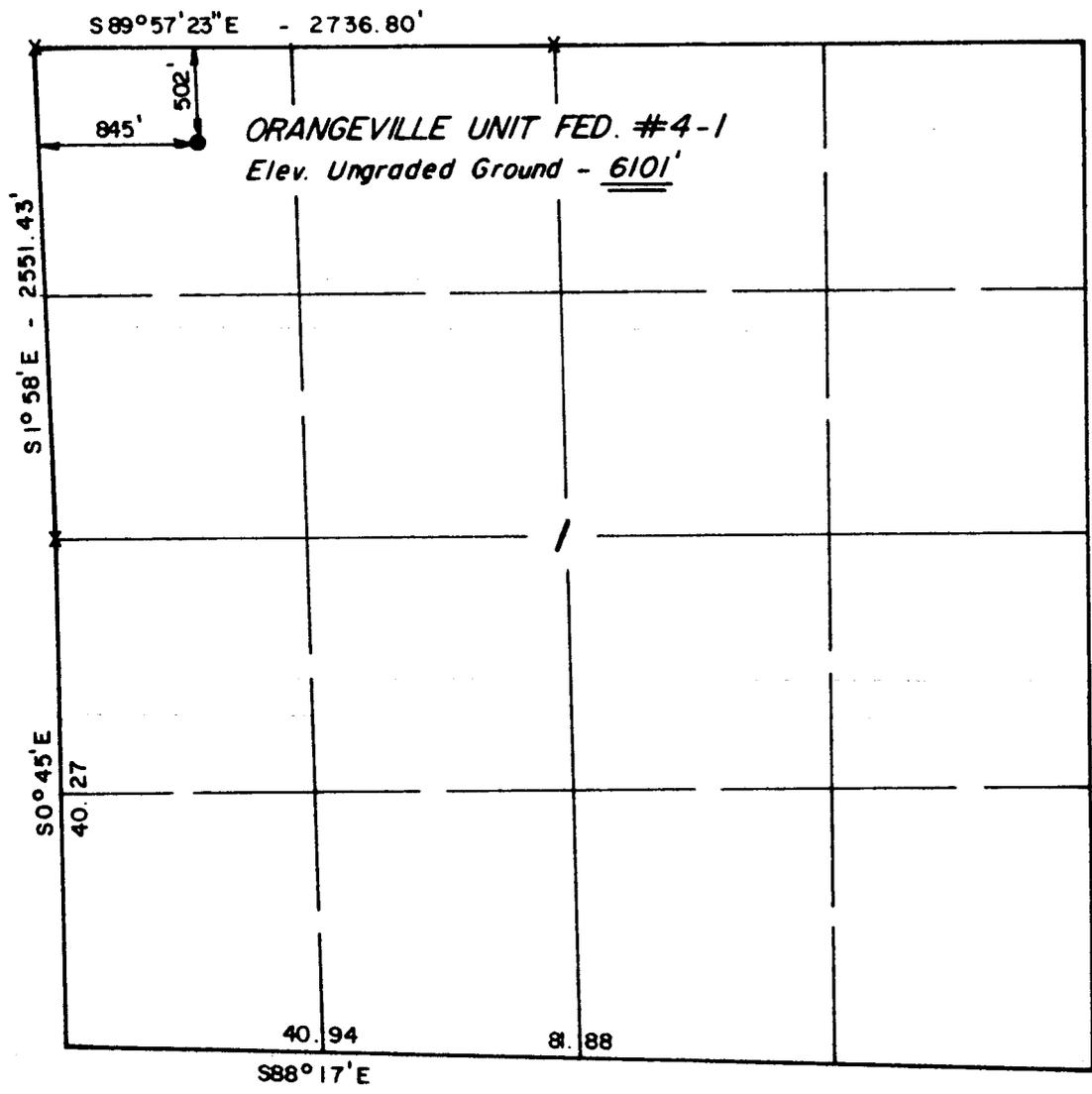
Approved by: _____
Conditions of approval, if any:

Title: _____ Date: _____

PROJECT

T19S, R7E, S.L.B. & M.

Well location, ORANGEVILLE UNIT FED #4-1, located as shown in the NW 1/4 NW 1/4 Section 1, T19S, R7E, S.L.B. & M. Emery County, Utah.



X = Section Corners Located



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Laurence P. Kay
 REGISTERED LAND SURVEYOR
 REGISTRATION NO 3137
 STATE OF UTAH

UINTAH ENGINEERING & LAND SURVEYING P. O. BOX Q - 85 SOUTH - 200 EAST VERNAL, UTAH - 84078			
SCALE	1" = 1000'	DATE	8/26/85
PARTY	DB RB JS RP	REFERENCES	GLO Plat
WEATHER	Fair	FILE	CHANDLER

September 11, 1985

Bureau of Land Management
Moab District Office
Box 970
Moab, Utah 84532

RE: 10 Point Program
Orangeville Fed. Unit 4-1
NW NW Sec. 1-19S-7E
Emery County, Utah

Gentlemen:

Enclosed is the additional information required for permitting the above well.

1. Surface Formation: Emery
2. Geological Markers:
 - Bluegate Shale 625'
 - Ferron 2090'
 - Tunuck Shale 2464'
 - Navajo 4030'
 - Moenkopi 8140'
 - Kaibab 8345'
3. Producing Formations:
 - Ferron - Gas
 - Navajo - Gas/Oil
 - Moenkopi - Oil
 - Kaibab - Oil
4. Expected Water Zones: Ferron
5. Pressure Control Equipment:

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 prevent 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 insure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure-tested before drilling casing plugs. The Resource Area will not be notified in advance when pressure tests are to be conducted. The BOP will be: a) Shaffer 10" 900 double hydraulic w Payne closing unit. One set rams blind and one set 4" drill pipe; b) 10" 900 rotary head for use while a or mist drilling. Schematic diagram attached. The BOP test pressure will be 1500 PSI.
6. Circulating Medium:

Well will be drilled with KCL water/mud system (low solids, nondispersed). Mud weight will be 8.6. Blooie line will be misted to reduce fugative dust when air drilling.

7. Auxiliary Equipment:
- (a) Drill String Floats will be used
 - (b) Float will be used
 - (c) No monitoring on mud system will be used for drilling
 - (d) Stabbing valve will be used for drill pipe
8. Casing Program:
- Surface - 13 3/8, 54.5#, Grade K-55, New
Production - 5 1/2, 15.5#, Grade K-55, New
- Anticipated cement tops will be reported as to depth, not the expected number of sacks. The Resource Area will not be notified in advance when running casing strings and cement.
9. Testing Program:
- CNL-FDC w/ GR and SP
DLL or DIL w/ GR and SP
Mud Log
Drill Stem Tests will be run
Cores are anticipated
- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the District Office not later than thirty (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 analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the rilling, 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 Moab District Manager.
10. Abnormal Conditions
Possible Hazzards
- No abnormal high pressure, temperatures or hydrogen sulfide gas should be encountered. Productive Zone is Normal in pressure and gas analyses indicate no H₂S hazzard.

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 insure compliance.

Anticipated Starting
Dates and Notification
of Operations

The operator will contact the San Rafael Resource Area at (801) 637-4584, forty-eight (48) hours prior to beginning any dirt work on this location.

No location will be constructed or moved, no well will be plugged, and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of the District Manager. If operations are to be suspended, prior approval of the District Manager will be obtained and notification given before resumption of operations.

Anticipated Starting
Dates and Notification
of Operations

The spud date (will/will not) be reported orally to the Area Manager within a minimum of twenty-four (24) hours prior to spudding. Written notification in the form of a Sundry Notice (form 3160-5) will be submitted to the District Office 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.

In accordance with Onshore Oil and Gas Order No. 1, this well will be reported on Form 9-329, "Monthly Report of Operations", starting with the month in which operations commence and continue each month until the well is physically plugged and abandoned. This report will be filed directly with the BLM District Office, P.O. Box 970, Moab, Utah 84532.

Immediate Report: Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported to the Resource Area in accordance with requirements of HTL-3A.

If a replacement rig is contemplated for completion operations, a "Sundry Notice" (Form 3160-5) to that effect will be filed for prior approval of the District Manager, and all conditions of this approved plan are applicable during all operations conducted with the replacement rig. In emergency situations, verbal approval to bring on a replacement rig will be approved by the District Petroleum Engineer.

Should the well be successfully completed for production, the District Manager 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.

A first production conference will be scheduled within fifteen (15) days after receipt of the first production report. The Resource Area Office will coordinate the field conference.

No well abandonment operations will be commenced without the prior approval of the District Manager. In the case of newly-drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the District Petroleum Engineer. A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the District Manager 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 Area Manager or his representative, or the appropriate surface managing agency.

Anticipated Starting
Dates and Notification
of Operations

Approval to vent/flare gas during initial well evaluation will be obtained from the District Office. This preliminary approval will not exceed 30 days or 50 MMCF gas. Approval to vent/flare beyond this initial test period will require District Office approval pursuant to guidelines in NTL-4A.

Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. The marker will be constructed as follows:

The top of the marker will be closed or capped.

The following minimum information will be permanently placed on the marker with a plate, cap or beaded-on with a welding torch:

"Fed" or "Ind", as applicable. "Well number, location by $\frac{1}{4}$ section, township and range". "Lease number".

Estimated Starting Date is September 18, 1985 with operations being conducted for 45 days.

Please notify us if any additional information is necessary for the permitting of this well.

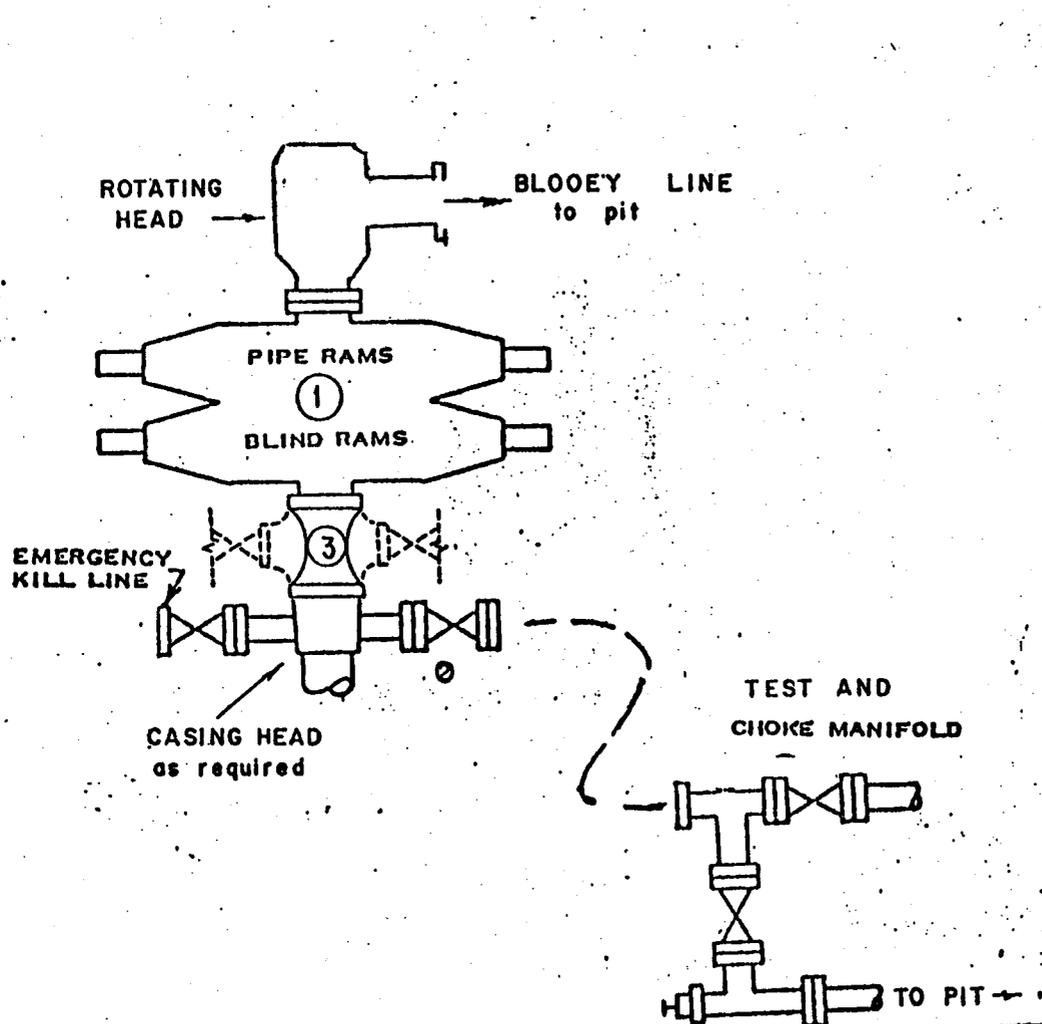
Yours truly,



Robert C. Arceneaux

Attachments

DOUBLE PREVENTER



- ① SERIES 900 RAM-TYPE BOP
- ② 2" SERIES 900 VALVE
- ③ SERIES 900 DRILLING SPOOL

..... OPTIONAL EQUIPMENT

3000 PSI WORKING PRESSURE
 BLOWOUT PREVENTER HOOK-UP
 (SERIES 900 FLANGES OR BETTER)

DESIGNATION OF AGENT

The undersigned is, on the records of the Bureau of Land Management, Unit Operator under the Orangeville unit agreement, Emery County, Utah (state), No. 14-08-0001-20388 approved March 25, 1982 and hereby designates:

NAME: BWAB Incorporated

ADDRESS: 1801 California Street, 1000 CC4
Denver, CO 80202

as its agent, with full authority to act in its behalf in complying with the terms of the Unit Agreement and regulations applicable thereto and on whom the supervisor or his representative may serve written or oral instructions in securing compliance with the Oil and Gas Operating Regulations with respect to drilling, testing, and completing unit well No. Federal 4-1 in Section 1 : NW $\frac{1}{2}$ NW $\frac{1}{2}$, T. 19 S, R. 7 E, Emery County, Utah.

It is understood that this designation of agent does not relieve the Unit Operator of responsibility for compliance with the terms of the unit agreement and the Oil and Gas Operating Regulations. It is also understood that this designation of agent does not constitute an assignment of any interest under the unit agreement or any lease committed thereto.

In case of default on the part of the designated agent, the Unit Operator will make full and prompt compliance with all regulations, lease terms, or orders of the Secretary of the Interior or his representative.

The Unit Operator agrees promptly to notify the Chief, Branch of Fluid Minerals of any change in the designated agent.

This designation of agent is deemed to be temporary and in no manner a permanent arrangement.

This designation is given only to enable the agent herein designated to drill the above-specified unit well. Unless sooner terminated, this designation shall terminate when there is filed in the appropriate district office of the Bureau of Land Management a completed file of all required Federal reports pertaining to subject well. It is also understood that this designation of agent is limited to field operations and does not cover administrative actions requiring specific authorization of the Unit Operator.

ATTEST:

Diana J. Ley
Diana J. Ley, Assistant Secretary

CHANDLER & ASSOCIATES, INC.

Patti H. Simpson
Unit Operator
Patti H. Simpson, Vice President

Applicant: BWAB Incorporated
Address: 1801 California Street
Denver, Colorado 80202
Telephone: (303) 295-7444

APPLICATION AND PERMIT
for
ROADWAY ENCROACHMENT
APPLICATION

BWAB Incorporated (Applicant) hereby applies for a permit to encroach upon a roadway within Emery County known as Justesen Farm Road, 2.5 miles for the purpose of Access road to 3 drill site locations (See enclosed Legal Discriptions). Said encroachment is proposed at the following location upon said roadway: The county road is located in Sections 1,2,3 of T19S-R7E and is described as Justesen Farm Road.

Appliant proposes work to begin on See enclosed memo, 198 and to be completed on or before _____, 198_. Applicant acknowledges that any change in purpose or location requires an amended application.

A processing fee of \$10 is tendered with this Application.

Applicant agrees to comply with all laws, ordinances and regulations of all governmental agencies, including, but not limited to, Emery County, as well as instructions of the Emery County Road Department Supervisor or his indicated representative. Applicant acknowledges receipt of a copy of Ordinance No. 7-6-83C.

Appliant acknowledges that certain fees will be due before any permit is issued. Fees will be calculated according to the Emery County Roadway Right-of-Way Encroachment Ordinance, Ordinance No. 7-6-83C.

DATED this 30 day of August, 1985.

Appliant: BWAB Incorporated
By: David M. Burnett
Title: Agent (Regulatory Coordinator)

PERMIT

Application having been made by BWAB Incorporated through David M Burnett, Agent, its authorized agent and fees and a bond in the above-mentioned amount having been received, reviewed and accepted, and the Application having been reviewed and accepted, permission is hereby granted Applicant to proceed with Access road to 3 drilling locations at the following location, Justesen Farm Road, #5-11, Orangeville, Emery County, Utah.

Ronald Barney
Superintendent

Emery County Road Department

By Carol J Ware

INSPECTION AND RELEASE

Supervisor having inspected said site on _____, 19____, finds the following deficiencies which must be corrected before release can be considered: _____

Superintendent

Emery County Road Department

By _____



Grand River Institute

29 August 1985

BWAB, Inc.
1801 California Street, 1000 CC4
Denver, Colorado 80202

Re: GRI Project No. 8536 - Cultural resources inventory of Orangeville
Units #14-2, 1-11, and 4-1 and related access in Emery County, Utah

Dear Sirs:

Enclosed is a copy of our report on the project cited above. Copies
have been distributed to the individuals listed below as well.

Also enclosed is a statement for this work; I would be grateful if you
would forward it to the appropriate department for payment. Our terms
are 30 days net.

Please give me a call if you have any questions.

Sincerely,

Carl E. Conner
Director

CEC:ld

Enc.

Distribution:

✓ Dave Burnett, Chandler & Associates, Denver - 1
Rich Fike, The Bureau of Land Management, State Office - 1
Bruce Louthan, The Bureau of Land Management, Moab Dist. - 1
Blaine Miller, The Bureau of Land Management, Price Area - 1
LaMar Lindsay, Division of State History - 1

Cultural Resources Inventory Report
on
Proposed Orangeville Units #14-2, 1-11, and 4-1 and Related Access
in Emery County, Utah
for
BWAB, Inc.

GRI Project No. 8536
29 August 1985

Prepared by
Grand River Institute
P. O. Box 3543
Grand Junction, Colorado 81502
Utah BLM Antiquities Permit No. 84-UT-54939
Division of State History Permit No. U-85-21-572BS

Submitted to
The Bureau of Land Management
Moab District Office
P.O. Box 970
Moab, Utah 84532

Department of the Interior
 Bureau of Land Management
 Utah State Office

Summary Report of
 Inspection for Cultural Resources

BLM Report ID No. 1 4 10

Report Acceptable Yes No

Mitigation Acceptable Yes No

Comments: _____

Report Title Orin Lake Wildlife Units 114-2, 11-11, 4 + 11

Development Company BWAB, Inc. of Denver, Colorado 84-UT-54939

Report Date 10/8/85 4. Antiquities Permit No. U-85-21-572BS

Responsible Institution Grand River Inns County Emery

Fieldwork Location: TWN 19S Range 7E Section(s) 2 11 1

TWN 78 Range 82 Section(s) 86 87 88 89 90 91 92 93

Resource Area PR TWN 94 Range 99 Section(s) 102 103 104 105 106 107 108 109

PO = PONY EXPRESS, BR = BEAR RIVER, PR = PRICE RIVER, WS = WARM SPRINGS
 CC = COOK CLIFFS, HR = HOUSE RANGE, SE = SEVIER RIVER
 HM = HENRY MOUNTAINS, BR = BEAVER RIVER, DX = DIXIE
 KA = KANAB, ES = ESCALANTE, SJ = SAN JUAN, GR = GRAND
 SR = SAN RAFAEL, DM = DIAMOND MOUNTAIN

FH in spaces 65, 69, 81, 85, 97, 101 Only if:
 V = Vernal Meridian
 H = Half Township

Description of Examination Procedures:

A 100% pedestrian survey of each of the three well sites was made by walking a pattern of concentric circles around the center stake to a diameter of approx. 750'. Access roads were walked in zigzag transects to cover a swath 200' wide.

Linear Miles Surveyed and/or 0.4 117

Definable Acres Surveyed and/or 310 123

Legally Undefinable Acres Surveyed 124

10. Inventory Type I 130

R = Reconnaissance
 I = Intensive
 S = Statistical Sample

Description of Findings (attach appendices, if appropriate) 12 Number Sites Found: 0 131 133
 No sites = 0

No cultural resources were identified.

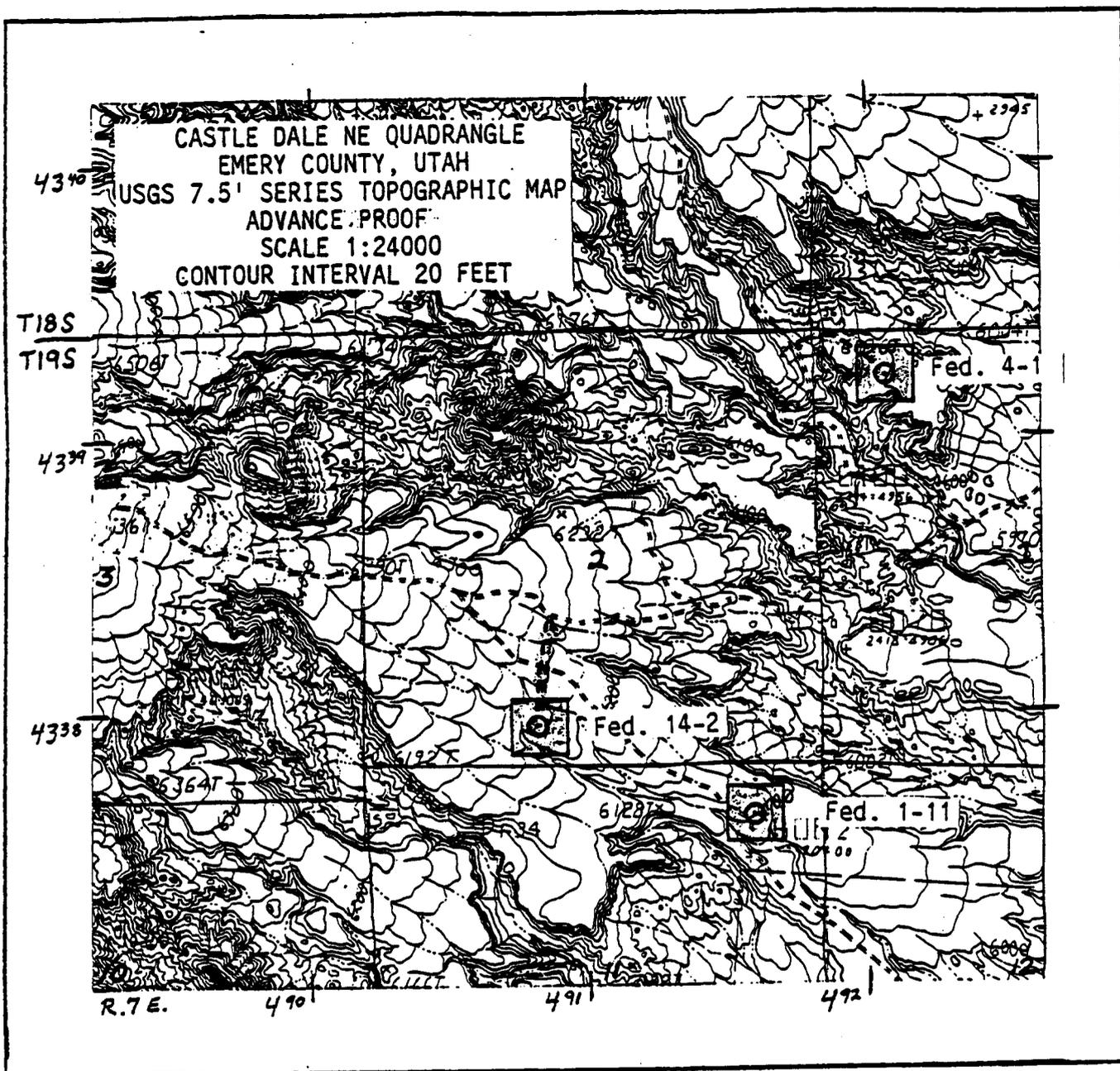
13. Collection: N Y = Yes, N = No 136

Actual/Potential National Register Properties Affected:
 None.

Literature Search, Location/Date: Division of State History, 8/23/85
 BLM Price Area Office 8/23/85

Conclusion/Recommendations:
 No further consideration of cultural resources need be given the surface extent of this project.

Signature of Administrator & Field Supervisor: Administrator Carl E. Conner Carl E. Conner
 Field Supervisor Carl E. Conner Carl E. Conner



Cultural resources inventory of proposed Orangeville Units #14-2, 1-11, and 4-1 and related new access in T. 19S., R. 7E., Sections 2, 11, and 1, Emery County, Utah, for BWAB, Inc. Areas surveyed for cultural resources are highlighted. [GRI 8536, 8/29/85]

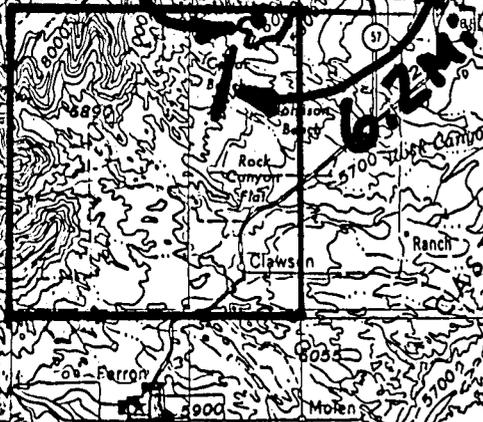
ORANGEVILLE UNIT FED.#4-1
PROPOSED LOCATION

TOPO.

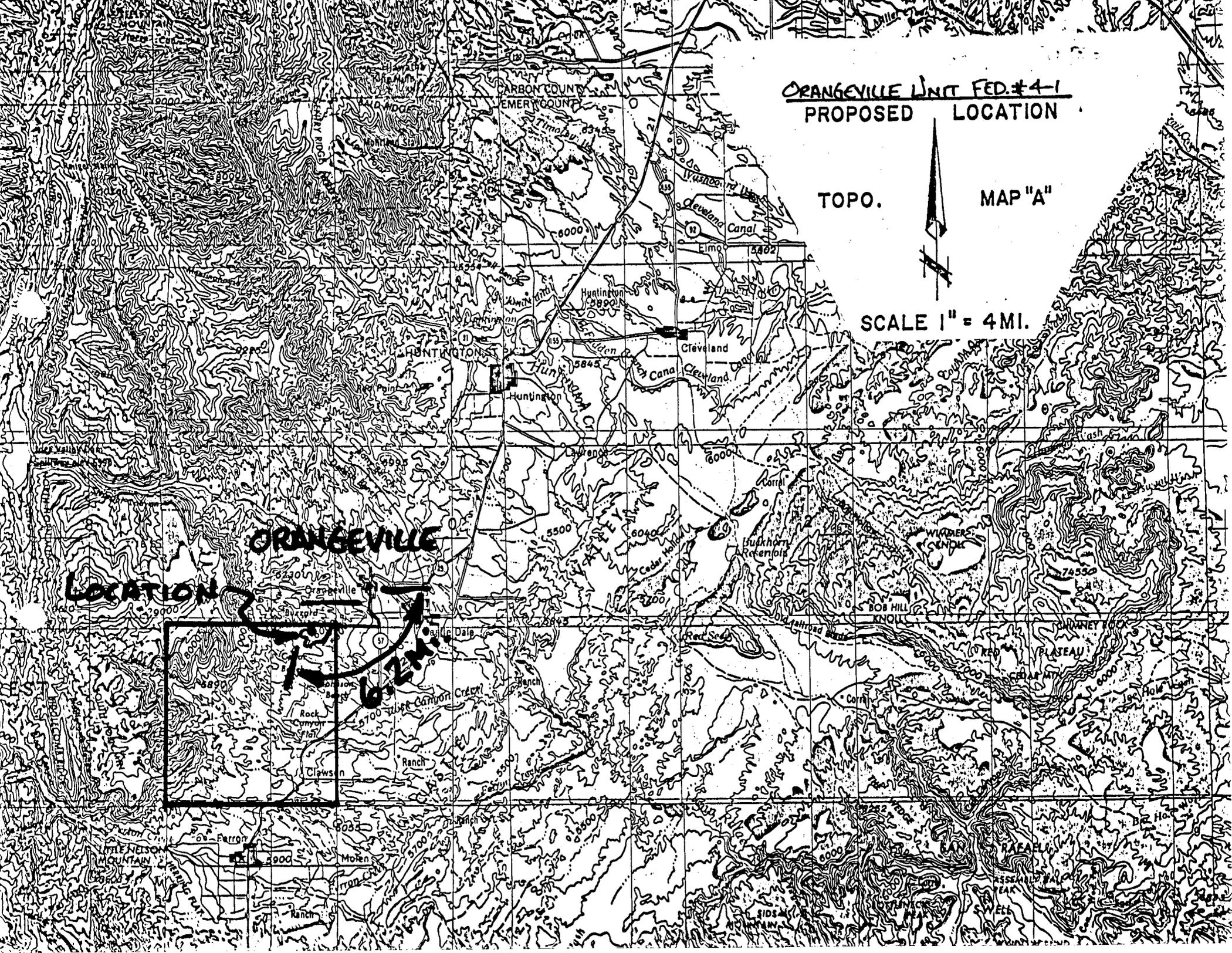
MAP "A"



SCALE 1" = 4 MI.



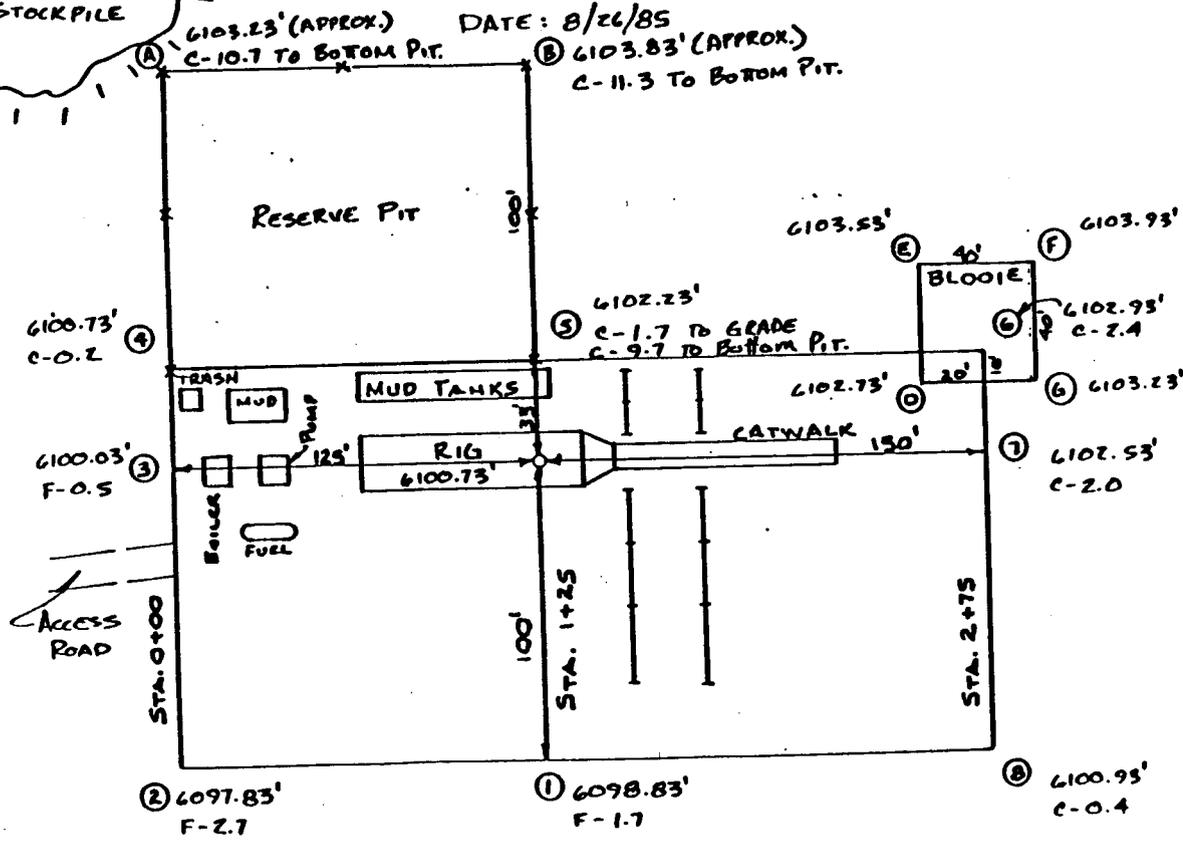
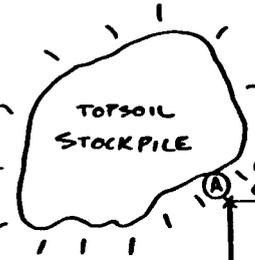
ORANGEVILLE
LOCATION



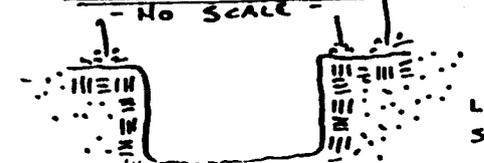


SCALE: 1" = 50'

DATE: 8/26/85



SOILS LITHOLOGY
- NO SCALE -

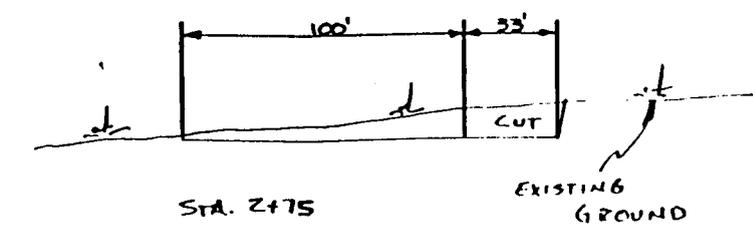
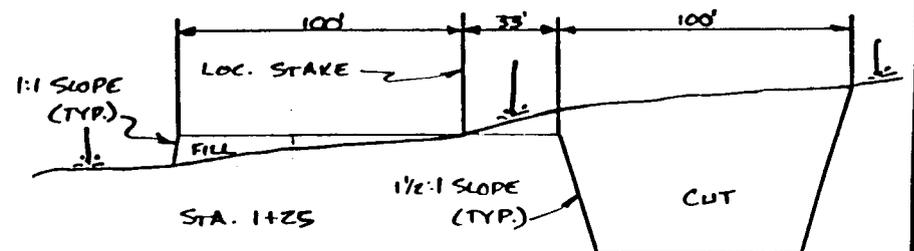
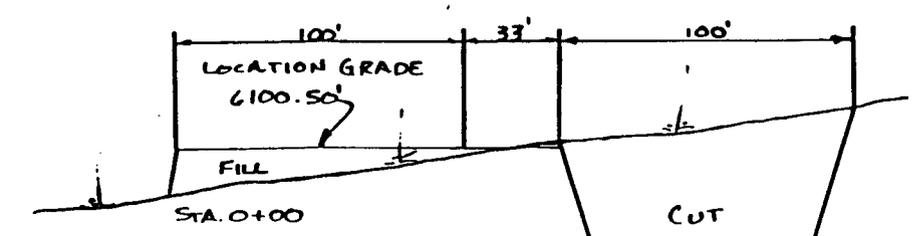


LIGHT BROWN SANDY CLAY

PIT REVISED 9-6-85

ORANGEVILLE UNIT FED. # 4-1
LOCATION LAYOUT & CUT SHEET

C
R
O
S
S
S
E
C
T
I
O
N
S



1" = 10'
SCALES
1" = 50'

APPROXIMATE YARDAGES

CUBIC YARDS CUT - 3,180

CUBIC YARDS FILL - 870

ORANGEVILLE UNIT FED. #4-1
PROPOSED LOCATION

110R

TOPO.

MAP "B"

SCALE 1" = 2000'

ROAD CLASSIFICATION

Light duty road, all weather, Improved surface  Unimproved road fair or dry weather 



QUADRANGLE LOCATION

42

41

40

12'30"

T 18 S

T 19 S

39

38

37

36

10'

91

JOES VALLEY RESERVOIR 11 MI. 5'

93

R 7 E

R 8 E

94

3 (RE)

23

24

19

26

25

30

34

36

31

3

2

6

10

12

7

15

14

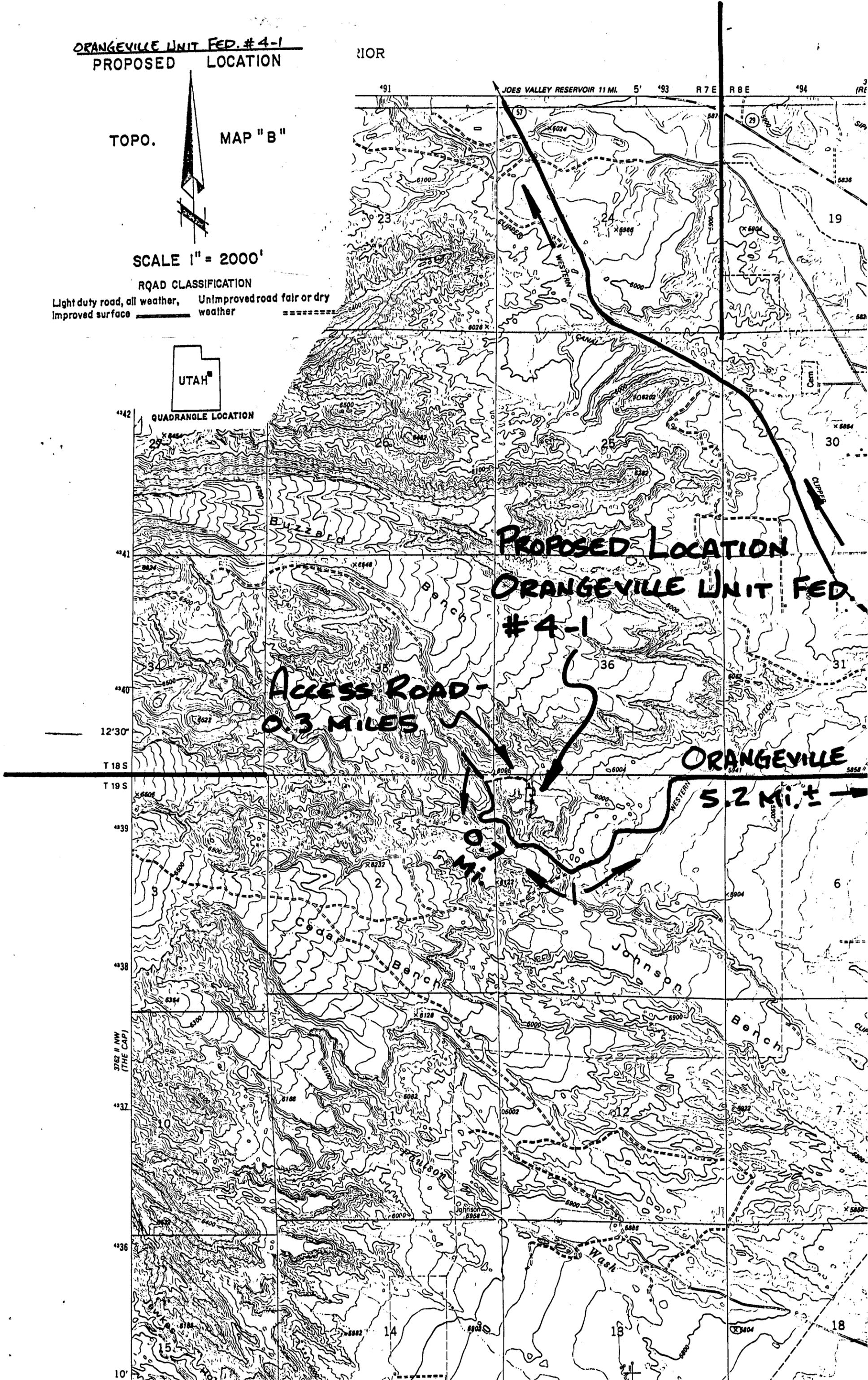
18

**PROPOSED LOCATION
ORANGEVILLE UNIT FED.
#4-1**

**ACCESS ROAD -
0.3 MILES**

0.7 Mi.

**ORANGEVILLE
5.2 Mi. ±**



OPERATOR BWAB DATE 9-18-85

WELL NAME Orangville Unit 4-1

SEC NW NW 1 T 19S R 7E COUNTY Emery

43-015-30221
API NUMBER

Std
TYPE OF LEASE

CHECK OFF:

- PLAT
- LEASE
- BOND
- FIELD
- NEAREST WELL
- POTASH OR OIL SHALE

PROCESSING COMMENTS:

Unit Well - OK on POD

Need water permit

APPROVAL LETTER:

- SPACING: A-3 Orangville c-3-a _____
UNIT CAUSE NO. & DATE
- c-3-b c-3-c

STIPULATIONS:

1 - water



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

September 19, 1985

BWAB Incorporated
1801 California Street, Suite 1000 CCA
Denver, Colorado 80202

Gentlemen:

Re: Well No. Orangeville Unit 4-1 - NW NW Sec. 1, T. 19S, R. 7E
502' FNL, 845' FWL - Emery County, Utah

Approval to drill the above-referenced oil well is hereby granted in accordance with Section 40-6-18, Utah Code Annotated, as amended 1983; and predicated on Rule A-3, General Rules and Regulations and Rules of Practice and Procedure, 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.

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

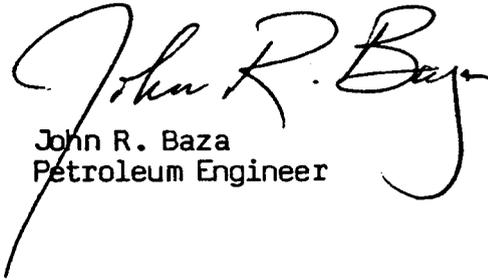
1. Spudding notification to the Division within 24 hours after drilling operations commence.
2. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695, or R. J. Firth, Associate Director, (Home) 571-6068.
4. Compliance with the requirements and regulations of Rule C-27, Associated Gas Flaring, General Rules and Regulations, Oil and Gas Conservation.

Page 2
BWAB Incorporated
Well No. Orangeville Unit 4-1
September 19, 1985

5. 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 43-015-30221.

Sincerely,

A handwritten signature in cursive script that reads "John R. Baza". The signature is written in dark ink and is positioned above the typed name and title.

John R. Baza
Petroleum Engineer

as
Enclosures
cc: Branch of Fluid Minerals

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

RECEIVED
SEP 26 1985

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
 BWAB Incorporated

3. ADDRESS OF OPERATOR
 1801 California St., Suite 1000 CC4, Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*
 At surface 845' FWL; 502 FNL NW NW
 At proposed prod. zone same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 Approximately 6.2 miles SW of Orangeville, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 502'

16. NO. OF ACRES IN LEASE 1,480.44

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. 2640'

19. PROPOSED DEPTH 8,345'

20. ROTARY OR CABLE TOOLS Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.) 6,101' (ground)

22. APPROX. DATE WORK WILL START* September 18, 1985

5. LEASE DESIGNATION AND SERIAL NO.
 U-18134

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
 Orangeville Unit

8. FARM OR LEASE NAME
 Orangeville Fed. Unit

9. WELL NO.
 4-1

10. FIELD AND POOL, OR WILDCAT
 Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
 Sec. 1-19S-7E

12. COUNTY OR PARISH Emery

13. STATE UT

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13-3/8"	54.5#	1600'	1,230 sx
8-4/4"	5 1/2"	15.5#	8,345'	315 sx

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 Robert C. Arceneaux TITLE Vice President-Operations DATE September 11, 1985
 (This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY Kenneth V. Rhea TITLE Acting DISTRICT MANAGER DATE 24 SEP 1985
 CONDITIONS OF APPROVAL, IF ANY:

CONDITIONS OF APPROVAL ATTACHED

FLARING OR VENTING OF GAS IS SUBJECT OF NTL 4-A DATED 1/1/80

*See Instructions On Reverse Side

State of Utah - DOG-M

BWAB Incorporated
Well No. Orangeville Federal Unit 4-1
Sec. 1, T. 19 S., R. 7 E.
Emery County, Utah
Lease U-18134

CONDITIONS OF APPROVAL

B. THIRTEEN-POINT SURFACE USE PLAN

1. Since the well pad and access route are located in critical deer winter range, it is suggested that drilling not be conducted between November 15 and May 1.
2. As a result of this well being located within identified critical wildlife winter range, if the well is completed for production, that portion of the pad and access road needed for production operations will be tabulated and added to overall acreage taken out of critical habitat by unit operations.

At such time the cumulative impacts exceed 10 acres, the Authorized Officer may request a meeting with the Unit Operator to discuss the potential for habitat enhancement within the critical winter range in order to mitigate cumulative habitat loss. Such mitigation, to be mutually agreed upon by the Authorized Officer and Unit Operator, may involve construction of wildlife reservoirs, guzzlers, reseeding, etc.

3. Mitigation of impacts to critical deer winter range will be provided for in the event of a production well (i.e., mufflers on motors, etc.). Actual mitigating measures will be developed by the Authorized Officer, BLM, upon notification by the operator.
4. If any archaeological resources are found during construction and drilling operations, all work will stop and the Area Manager will be notified.

Greg Noble, Petroleum Engineer

Office Phone: 801-259-6111

Home Phone: 801-259-8811

_____, Petroleum Engineer

Office Phone: _____

Home Phone: _____

Address:

82 East Dogwood, P.O. Box 970
Moab, Utah 84532

Your contact with the San Rafael Resource Area Office is:

Mervin S. Miles, Environmental Inspection Specialist

Office Phone: 801-637-4584

Home Phone: 801-748-2249

Address:

900 North 700 East, P.O. Drawer AB
Price, Utah 84501

BWAB INCORPORATED



RECEIVED

September 27, 1985

SEP 30 1985

DIVISION OF OIL
GAS & MINING

State of Utah Natural Resources
Oil, Gas & Mining
355 W. North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

RE: Orangeville Federal Unit #4-1
NWNW Sec 1-T19S-R7E
Emery Co., UT

Gentlemen:

Enclosed herewith please find four (4) copies of the Sundry Notice to revise the drilling plans for the above referenced location. If this meets with your approval, please execute and return one (1) copy to me for our files.

If you have any questions in this regard, please do not hesitate to contact the undersigned.

Respectfully,

BWAB Incorporated

A handwritten signature in cursive script that reads "Michele J. Reser".

Michele J. Reser
Senior Production Assistant

:mjr
enclosures

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

PRINT IN TRIPLICATE*
(Other instructions on reverse side)

5. LEASE DESIGNATION AND SERIAL NO. U-18134
6. IF INDIAN, ALLOTTEE OR TRIBE NAME
7. UNIT AGREEMENT NAME Orangeville Unit
8. FARM OR LEASE NAME Orangeville Fed. Unit
9. WELL NO. #4-1
10. FIELD AND POOL, OR WILDCAT Wildcat
11. SEC., T., R., M., OR B.L. AND SUBST OR AREA Sec 1-T19S-R7E
12. COUNTY OR PARISH Emery
13. STATE UT

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
2. NAME OF OPERATOR BWAB INCORPORATED (303) 295-7444
3. ADDRESS OF OPERATOR 1801 California Street, Suite 1000, Denver, CO 80202
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 845' FWL and 502' FNL NWNW
14. PERMIT NO.
15. ELEVATIONS (Show whether of, ft., or, m.) 6,101' GR

**RECEIVED
SEP 30 1985
DIVISION OF OIL
& MINING**

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FULL 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 checked="" type="checkbox"/>	(Other) <input type="checkbox"/>	
(Other) <input type="checkbox"/>		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

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

Revised drilling plan:

Hole Size	Casing Size	WT/Ft	Setting Depth	Cement
17½"	13-3/8"	54	200'	Circ to surface
12¼"	9-5/8"	36	2950'	Circ to surface
8-3/4"	5½"	15.5	8550'	350 sx

- Air will be used while drilling from 200' to 2950' in order to evaluate the Ferron fm.
- Annular type BOP with rotating head will be installed on 13-3/8" surface casing while air drilling.
- After setting 9-5/8" intermediate casing, well will be drilled with air until mud-up becomes necessary.
- Total depth of well will be 8600'.

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

SIGNED Robert C. Arceneaux TITLE V. P. of Operations DATE 09/27/85

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____

CONDITIONS OF APPROVAL, IF ANY:

Federal approval of this action is required before commencing operations.

**ACCEPTED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING**

DATE: 10/1/85
BY: John R. Duga



STATE OF UTAH
NATURAL RESOURCES
Water Rights

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dee C. Hansen, State Engineer

453 South Carbon Avenue • P.O. Box 718 • Price, UT 84501 • 801-637-1303

BW-3

030716

September 27, 1985

RECEIVED

SEP 30 1985

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

DIVISION OF OIL
GAS & MINING

Re: *BWAB*
Orangeville Unit Federal #4-1 ✓
Orangeville Unit Federal #14-2 ✓
Orangeville Unit Federal #1-11 ✓

43-015-30221 SOW 1957E Sec. 1
43-015-30223 IA 1957E Sec. 2
43-015-30222 SGW 1957E Sec. 11

Dear Arlene:

Enclosed is a copy of the plats pertaining to the three wells which Chandler and Associates are involved with near Orangeville in Emery County, Utah. The water that will be used is based on Stock Certificate No. 1308 for 70 shares of Class A water in the Cottonwood Creek Consolidated Irr. Co. which is in the name of John Nielson and Sons, Inc. The water right number which pertains to these shares is 93-2178, has a priority of 1877, and a flow of 103.113 second feet.

If you have any questions concerning this matter, please feel free to contact me.

Sincerely,

Mark P. Page
Area Engineer

Enclosures

MPP/mjk

May 19, 1985
(Date)

RECEIVED FROM

No 98926

NAME John C. Nielson & Sons

RECEIVED

ADDRESS Huntington, Utah 84528

SEP 30 1985

The following described collateral as security to note of

\$ 100,000.00

Dated 5-19-85

Due 5-19-86

DIVISION OF OIL

Description of collateral:

GAS & MINING

70.00 shares of Cottonwood Creek Consolidated Irrigation Co. Water Stock
in the name of John Nielson & Sons, Inc. Certificate #1308

117.74 shares of Huntington-Cleveland Irrigation Co. Water Stock
in the name of John C. Nielson & Sons Certificate #2215

RECEIVED

SEP 30 1985

WATER RIGHTS
DIVISION

First Security Bank of Utah, N.A.

Bank

By

[Signature]

T19S, R7E, S.L.B. & M.

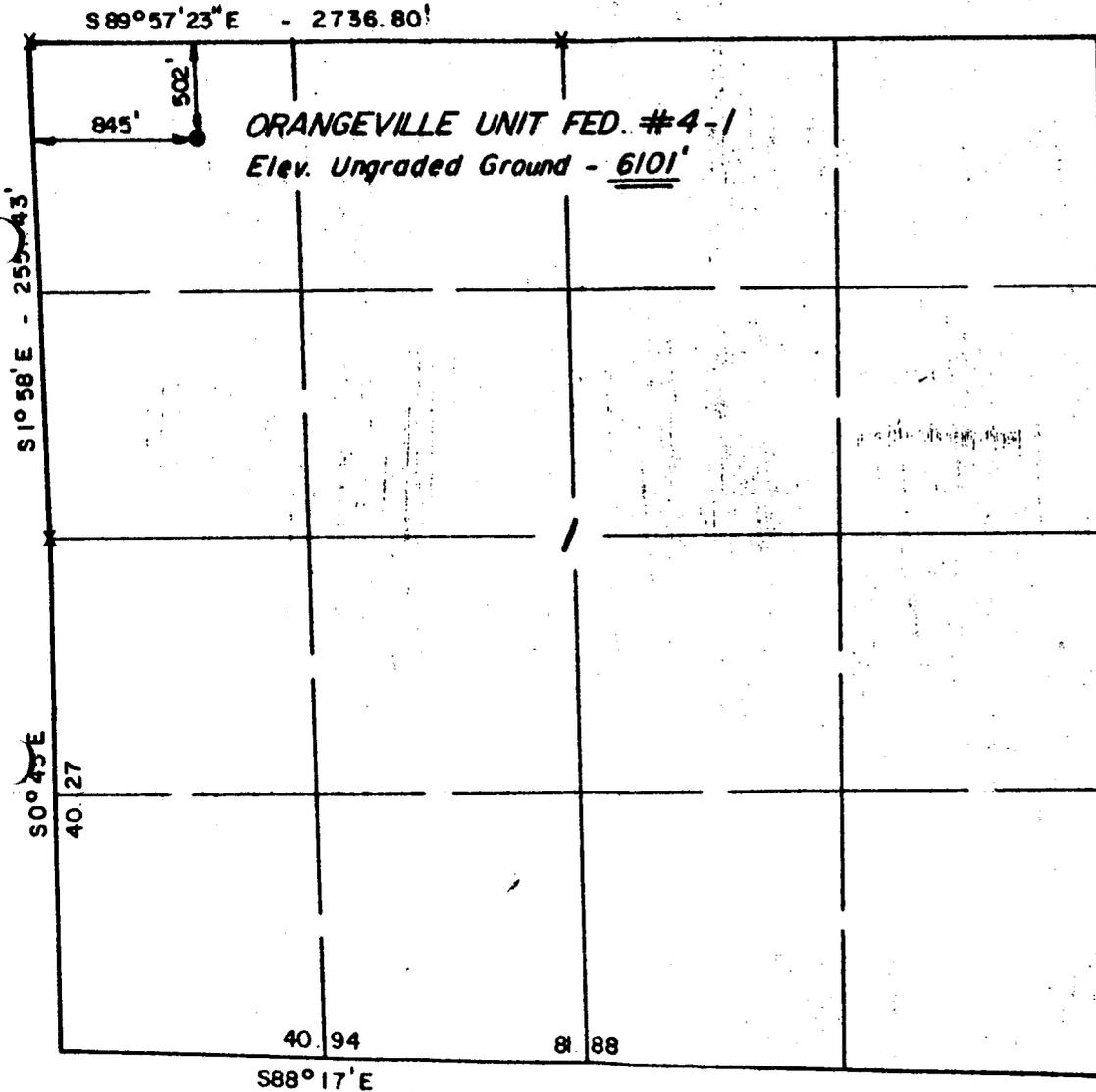
PROJECT

Well location, ORANGEVILLE UNIT FED #4-1, located as shown in the NW 1/4 NW 1/4 Section 1, T19S, R7E, S.L.B. & M. Emery County, Utah.

RECEIVED

SEP 26 1985

WATER RIGHTS PRICE



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Lawrence J. Kay

REGISTERED LAND SURVEYOR
REGISTRATION NO 3137
STATE OF UTAH

UINTAH ENGINEERING & LAND SURVEYING
P.O. BOX 9 - 85 SOUTH - 200 EAST
VERNAL, UTAH - 84078

SCALE	1" = 1000'	DATE	8/26/85
PARTY	DB RB JS RP	REFERENCES	GLO Plat
WEATHER	Fair	FILE	CHANDLER

X = Section Corners Located

T19S, R7E, S.L.B. & M.

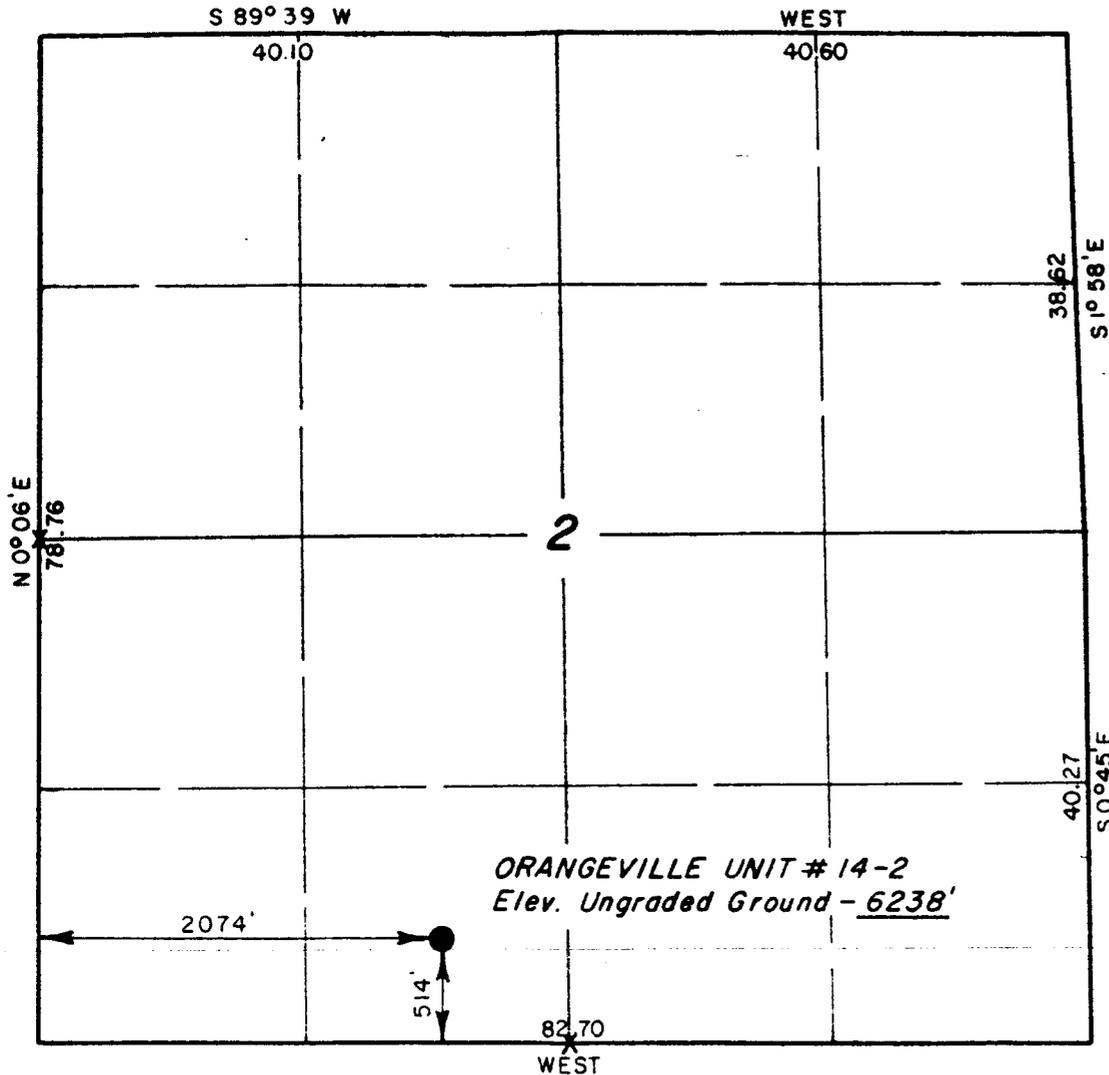
PROJECT
CHANDLER & ASSOCIATES, INC.

Well location, *ORANGEVILLE UNIT #14-2*,
 located in the SE 1/4 SW 1/4, Section 2,
 T19S, R7E, S.L.B. & M., Emery County,
 Utah.

RECEIVED

SEP 26 1985

WATER RIGHTS
 PRICE



ORANGEVILLE UNIT #14-2
 Elev. Ungraded Ground - 6238'



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM
 FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY
 SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE AND BELIEF.

James R. Kay
 REGISTERED LAND SURVEYOR
 REGISTRATION NO 3137
 STATE OF UTAH

X = Located Section Corner

UINTAH ENGINEERING & LAND SURVEYING
 P. O. BOX Q - 85 SOUTH - 200 EAST
 VERNAL, UTAH - 84078

SCALE 1" = 1000'	DATE 8/26/85
PARTY DB, RB, JS DLS	REFERENCES GLO Plat
WEATHER FAIR	FILE Chandler

T 19 S, R 7 E, S.L.B. & M.

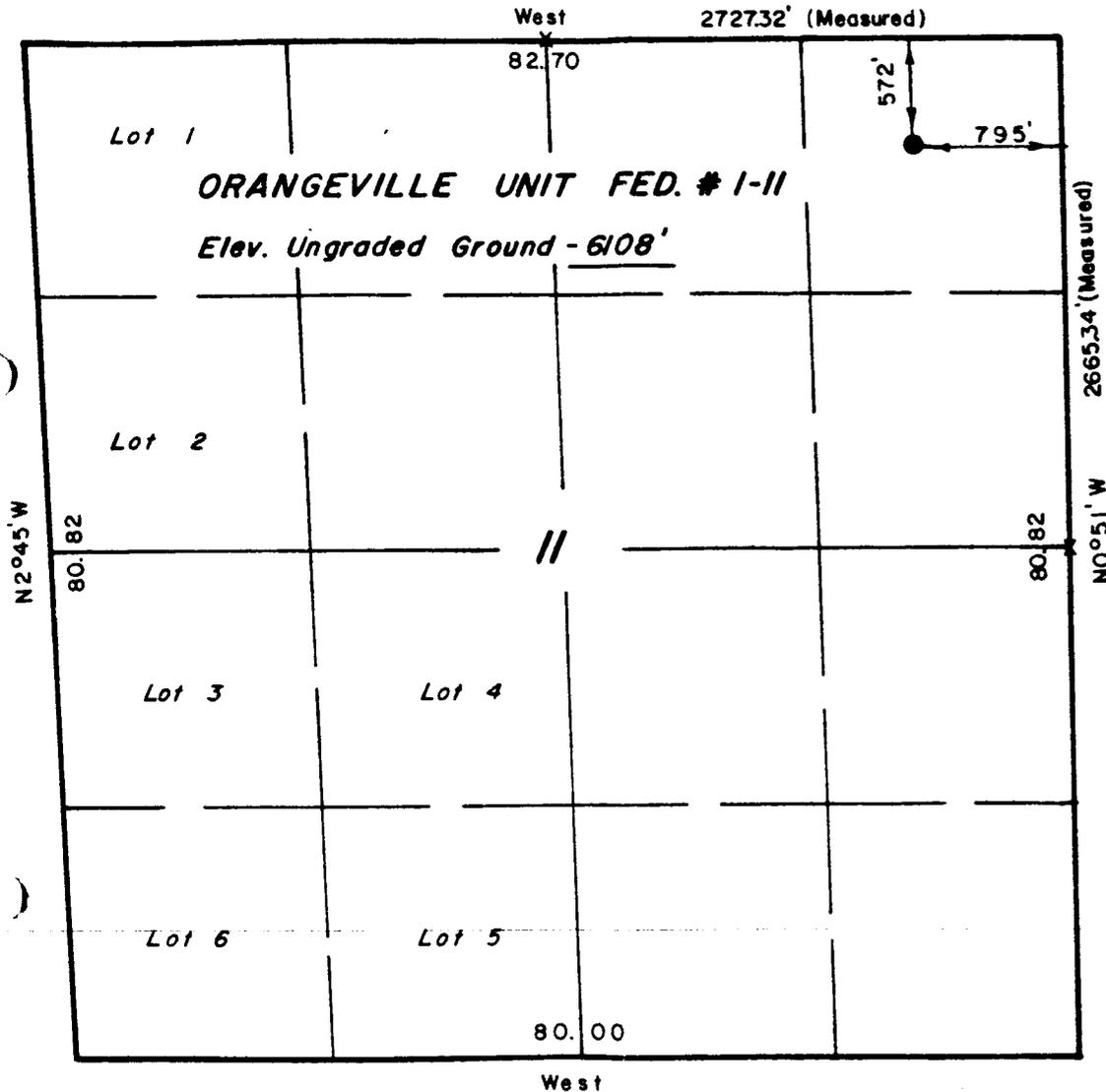
PROJECT
CHANDLER & ASSOCIATES INC.

Well location, **ORANGEVILLE**
UNIT FED. # 1-II, located as shown
in the NE 1/4 NE 1/4 Section II, T19S,
R 7 E, S.L.B. & M. Emery County, Utah.

RECEIVED

SEP 26 1985

WATER RIGHTS
PRICE



APPROPRIATE

THE UNDERSIGNED HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF HIS KNOWLEDGE AND BELIEF.

James L. Key
REGISTERED LAND SURVEYOR
REGISTRATION NO. 3137
STATE OF UTAH

X = Section Corners Located

UINTAH ENGINEERING & LAND SURVEYING
P.O. BOX Q - 85 SOUTH - 200 EAST
VERMILION, UTAH 84404

1" = 1000'

8 / 26 / 85

D.B. R.B. J.S. SB.

GLO Plat

Warm

CHANDLER & ASSOC.

DIVISION OF OIL, GAS AND MINING

SPODDING INFORMATION

API #43-015-30221

NAME OF COMPANY: BWAR INC

WELL NAME: Orangeville Federal 4-1

SECTION NW NW 1 TOWNSHIP 19S RANGE 7E 4 COUNTY Emery

DRILLING CONTRACTOR Loffland Bros.

RIG # 1

SPODDED: DATE 10-15-85

TIME 11:30 AM

HOW Rotary

DRILLING WILL COMMENCE _____

REPORTED BY _____

TELEPHONE ff _____

DATE 10-18-85 SIGNED J. Doure

REPORT NO.
13436F

PAGE NO. 1

TEST DATE:
11-18-85

WELL PERFORMANCE TESTING™ REPORT

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

FLOPETROL JOHNSTON

PROFILING
Schlumberger

NOV 22 1985

DIVISION OF OIL

Company: BWAB, INC.

Well: ORANGE VILLE 4-1 GAS & MINING

TEST IDENTIFICATION

Test Type MFE OH DST
Test No. 1
Formation SHINARUMP
Test Interval (ft) 7149. / 7208.
Reference Depth KELLY BUSHING

WELL LOCATION

Field WILD CAT
County EMERY
State UTAH
Sec/Twn/Rng S1T19SR7E
Elevation (ft) 6109.

HOLE CONDITIONS

Total Depth (MD/TUD) (ft) 7208. / 7208.
Hole Size (in) 8.750
Casing/Liner I.D. (in) 0.000
Perf'd Interval/Net Pay (ft).. 0 / 59.
Shot Density/Diameter (in) ...

MUD PROPERTIES

Mud Type LSND
Mud Weight (lb/gal) 9.0
Mud Resistivity (ohm.m) 4.30 AT 65. D
Filtrate Resistivity (ohm.m).. 1.20 AT 65. D
Filtrate Chlorides (ppm) 500.

INITIAL TEST CONDITIONS

Initial Hydrostatic (psi)
Gas Cushion Type NONE
Surface Pressure (psi) 0.
Liquid Cushion Type NONE
Cushion Length (ft) 0.

TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 6455. / 3.82
Collar Length (ft)/I.D. (in).. 675. / 2.25
Packer Depths (ft) 7149.
Bottomhole Choke Size (in) ... 15/16
Gauge Depth (ft)/Type 7132.

NET PIPE RECOVERY

Volume	Fluid Type	Properties
0.00 BB	OIL	DEG API @60 DEG
0.00 BB	WATER	0. PPM CL
0.07 BB	MUD	800. PPM CL
REPORTED PIPE RECOVERY:		15 FT. SGC MUD
		800 PPM CL.

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
0.00 SCF	GAS	0.0000
0. CC	OIL	@ 60 DEG F
0. CC	WATER	0. PPM CL
2500. CC	MUD	1.20 @ 65. DEGF
Pressure: 12	GOR:	0.00
	BLR:	0.00

INTERPRETATION RESULTS

Model of Behavior
Fluid Type Used for Analysis . MUD
Reservoir Pressure (psi) 0.00
Transmissibility (md.ft/cp) .. 0.00
Effective Permeability (md) .. 0.00
Skin Factor/Damage Ratio 0.00 / 0.00
Storativity Ratio 0.00E+00
Interporosity Flow Coeff. 0.00E+00
Distance to an Anomaly (ft) .. 0.00
Radius of Investigation (ft).. 0.00
Potentiometric Surface (ft) .. 0.00

ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API)
Basic Solids (%) 0.00
Gas Gravity 0.000
Water Cut (%) 0.000
Viscosity (cp) 0.0000
Total Compressibility (1/psi). .000E+00
Porosity (%) 3.5
Reservoir Temperature (F)
Form.Vol.Factor (bbl/STB) 0.000

PRODUCTION RATE DURING TEST: 1.4 BBLs/DAY AVG. RATE

COMMENTS:

DST EVENT SUMMARY

DATE (M/D/Y)	TIME (HR:MIN)	EVENT E.T. (MIN)	EVENT DESCRIPTION	LABEL PT. #	SURFACE PRESSURE (PSIG)	FLOOR MANIFOLD CHOKE SIZE (64ths INCH)
11/18/85	0635	—	SET PACKER	1		1/8" BUBBLE HOSE
	0636	—	OPENED TEST TOOL FOR INITIAL FLOW	2		"
			SURFACE BLOW			
	0652	—	CLOSED TEST TOOL FOR INITIAL SHUT-IN	3,4		"
	0722		FINISHED SHUT-IN	5		"
	0722	—	OPENED TEST TOOL FOR FINAL FLOW	6		"
			NO BLOW FOR DURATION OF TEST			
	0822	—	CLOSED TEST TOOL FOR FINAL SHUT-IN	7,8		"
	1026	—	FINISHED FINAL SHUT-IN	9		"
	1028	—	UNSEATED PACKER	10,11		—
		—	REVERSED OUT			
		—	BEGAN TRIP OUT OF HOLE			

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 13436F

COMPANY : BWAB INC.

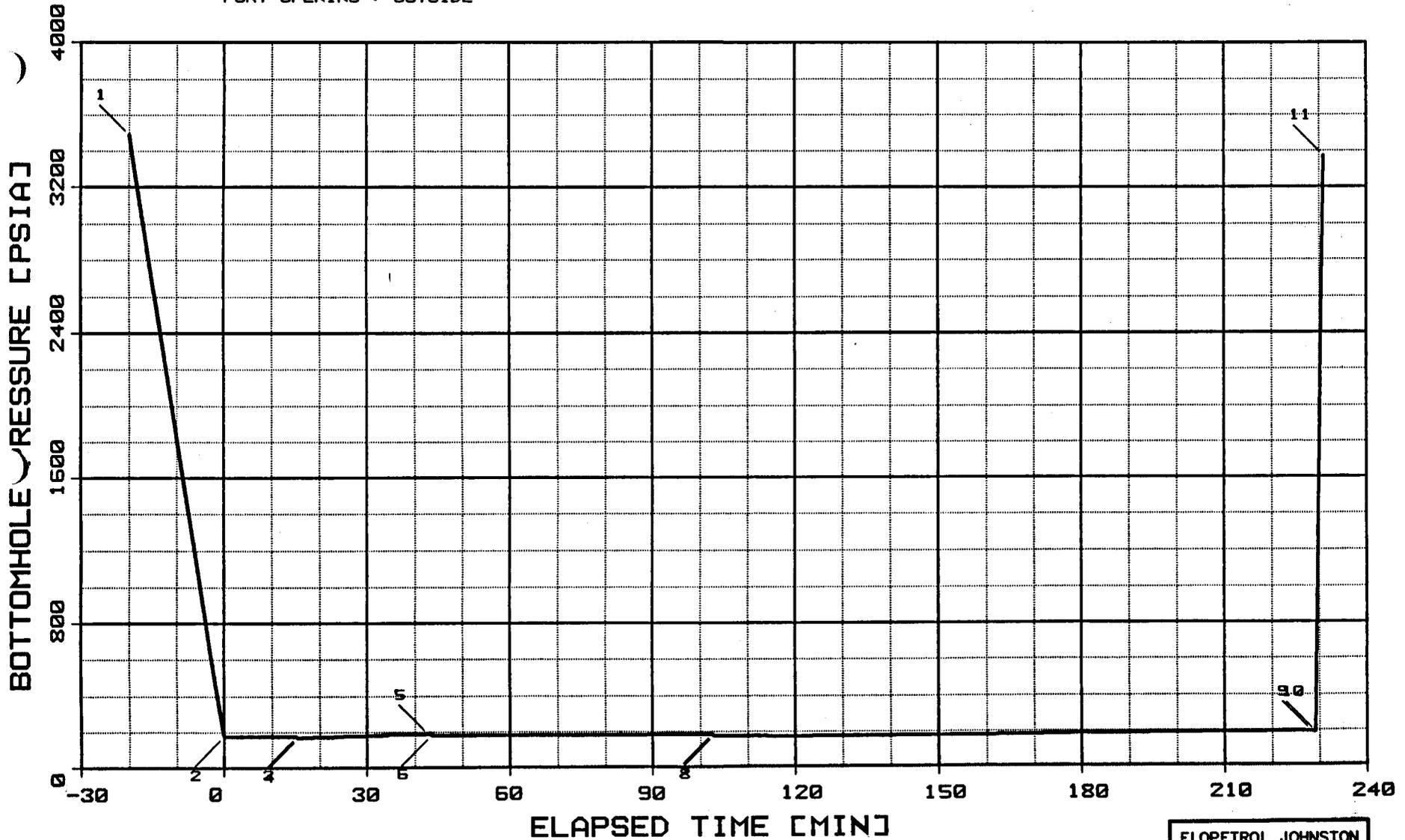
INSTRUMENT NO. 1238

WELL : ORANGEVILLE FED 4-1

DEPTH : 7132 FT

CAPACITY : 4700 PSI

PORT OPENING : OUTSIDE



FLOPETROL JOHNSTON

 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 13436F

INSTRUMENT # : 1238
 CAPACITY [PSI] : 4700.
 DEPTH [FT] : 7132.0
 PORT OPENING : OUTSIDE
 TEMPERATURE [DEG F] : 148.0

COMPANY : BWAB INC.
 WELL : ORANGEVILLE FED 4-1

LABEL POINT INFORMATION

#	TIME OF DAY		DATE	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA
	HH:MM:SS	DD-MM				
1	6:15: 5	18-NO	HYDROSTATIC MUD		-19.91	3489
2	6:35: 0	18-NO	START FLOW		0.00	173
3	6:50:16	18-NO	END FLOW		15.26	171
4	6:50:29	18-NO	START SHUT-IN		15.49	162
5	7:17:53	18-NO	END SHUT-IN		42.88	184
6	7:18:30	18-NO	START FLOW		43.50	177
7	8:17:34	18-NO	END FLOW		102.57	181
8	8:17:49	18-NO	START SHUT-IN		102.81	172
9	10:23:19	18-NO	END SHUT-IN		228.32	189
10	10:24:15	18-NO	PULLED LOOSE		229.25	185
11	10:26: 0	18-NO	HYDROSTATIC MUD		231.00	3372

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA
1	0.00	15.26	15.26	173	171
2	43.50	102.57	59.07	177	181

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	15.49	42.88	27.39	162	184	171	15.26
2	102.81	228.32	125.51	172	189	181	74.33

TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM	*****	*****	*****
6:35:0	18-NO	0.00	0.00	173
6:40:0	18-NO	5.00	5.00	173
6:45:0	18-NO	10.00	10.00	173
6:50:0	18-NO	15.00	15.00	171
6:50:16	18-NO	15.26	15.26	171

TEST PHASE : SHUTIN PERIOD # 1
 FINAL FLOW PRESSURE [PSIA] = 171
 PRODUCING TIME [MIN] = 15.26

TIME OF DAY	DATE	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
6:50:29	18-NO	15.49	0.00	162	-9	
6:51:29	18-NO	16.49	1.00	166	-5	1.211
6:52:29	18-NO	17.49	2.00	167	-5	0.936
6:53:29	18-NO	18.49	3.00	168	-3	0.784
6:54:29	18-NO	19.49	4.00	169	-3	0.683
6:55:29	18-NO	20.49	5.00	169	-2	0.608
6:56:29	18-NO	21.49	6.00	169	-2	0.549
6:57:29	18-NO	22.49	7.00	170	-1	0.502
6:58:29	18-NO	23.49	8.00	172	0	0.464
6:59:29	18-NO	24.49	9.00	173	2	0.431
7:0:29	18-NO	25.49	10.00	173	2	0.402
7:2:29	18-NO	27.49	12.00	174	3	0.356
7:4:29	18-NO	29.49	14.00	175	4	0.320
7:6:29	18-NO	31.49	16.00	178	7	0.291
7:8:29	18-NO	33.49	18.00	180	9	0.267
7:10:29	18-NO	35.49	20.00	182	11	0.246
7:12:29	18-NO	37.49	22.00	182	11	0.229
7:14:29	18-NO	39.49	24.00	182	11	0.214
7:16:29	18-NO	41.49	26.00	182	11	0.201
7:17:53	18-NO	42.88	27.39	184	13	0.192

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM	*****	*****	*****
7:18:30	18-NO	43.50	0.00	177
7:23:30	18-NO	48.50	5.00	177
7:28:30	18-NO	53.50	10.00	177
7:33:30	18-NO	58.50	15.00	178
7:38:30	18-NO	63.50	20.00	178
7:43:30	18-NO	68.50	25.00	178
7:48:30	18-NO	73.50	30.00	178
7:53:30	18-NO	78.50	35.00	178
7:58:30	18-NO	83.50	40.00	178
8: 3:30	18-NO	88.50	45.00	178
8: 8:30	18-NO	93.50	50.00	179
8:13:30	18-NO	98.50	55.00	180
8:17:34	18-NO	102.57	59.07	181

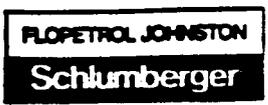
TEST PHASE : SHUTIN PERIOD # 2

FINAL FLOW PRESSURE [PSIA] = 181
 PRODUCING TIME [MIN] = 74.33

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
8:17:49	18-NO	102.81	0.00	172	-9	
8:18:49	18-NO	103.81	1.00	172	-9	1.877
8:19:49	18-NO	104.81	2.00	172	-9	1.582
8:20:49	18-NO	105.81	3.00	172	-9	1.411
8:21:49	18-NO	106.81	4.00	173	-9	1.292
8:22:49	18-NO	107.81	5.00	173	-9	1.200
8:23:49	18-NO	108.81	6.00	173	-9	1.127
8:24:49	18-NO	109.81	7.00	173	-9	1.065
8:25:49	18-NO	110.81	8.00	173	-9	1.012
8:26:49	18-NO	111.81	9.00	173	-9	0.967
8:27:49	18-NO	112.81	10.00	168	-13	0.926
8:29:49	18-NO	114.81	12.00	168	-13	0.857
8:31:49	18-NO	116.81	14.00	168	-13	0.800
8:33:49	18-NO	118.81	16.00	168	-13	0.752
8:35:49	18-NO	120.81	18.00	168	-13	0.710
8:37:49	18-NO	122.81	20.00	169	-12	0.674
8:39:49	18-NO	124.81	22.00	170	-11	0.641
8:41:49	18-NO	126.81	24.00	171	-10	0.612
8:43:49	18-NO	128.81	26.00	172	-9	0.586
8:45:49	18-NO	130.81	28.00	172	-9	0.563
8:47:49	18-NO	132.81	30.00	172	-9	0.541
8:52:49	18-NO	137.81	35.00	172	-9	0.495
8:57:49	18-NO	142.81	40.00	175	-6	0.456
9: 2:49	18-NO	147.81	45.00	175	-6	0.424
9: 7:49	18-NO	152.81	50.00	175	-6	0.396

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 181
 PRODUCING TIME [MIN] = 74.33

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
9:12:49	18-NO	157.81	55.00	175	-6	0.371
9:17:49	18-NO	162.81	60.00	176	-5	0.350
9:22:49	18-NO	167.81	65.00	178	-4	0.331
9:27:49	18-NO	172.81	70.00	179	-2	0.314
9:32:49	18-NO	177.81	75.00	180	-1	0.299
9:37:49	18-NO	182.81	80.00	182	0	0.285
9:42:49	18-NO	187.81	85.00	183	2	0.273
9:47:49	18-NO	192.81	90.00	184	3	0.261
9:52:49	18-NO	197.81	95.00	186	4	0.251
9:57:49	18-NO	202.81	100.00	186	5	0.241
10: 2:49	18-NO	207.81	105.00	186	5	0.232
10: 7:49	18-NO	212.81	110.00	187	6	0.224
10:12:49	18-NO	217.81	115.00	188	7	0.217
10:17:49	18-NO	222.81	120.00	189	8	0.209
10:22:49	18-NO	227.81	125.00	189	8	0.203
10:23:19	18-NO	228.32	125.51	189	8	0.202



DISTRIBUTION FOR TECHNICAL REPORTS

COMPANY BWAB, INC.	WELL ORANGEVILLE	NO. 4-1
CUSTOMER SAME	FIELD WILD CAT	
COUNTY EMERY	STATE UTAH	

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2

2

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OKLAHOMA CITY, OK 73116
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SALT LAKE CITY, UT 84117

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930 W. FIRST ST.
FORT WORTH, TX 76102
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LARRY PRENDERGAST
BOX 353
CASTLE DALE, UT 84513

1

+

+

+

+

REPORT NO.
13462F

PAGE NO. 1

TEST DATE:
11-27-85

WELL PERFORMANCE

TESTING™ REPORT

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

FLOPETROL JOHNSTON

Schlumberger

RECEIVED

DEC 02 1985

Company: BWAB, INC.

Well: ORANGEVILLE #4-1

TEST IDENTIFICATION

Test Type MFE OH DST
Test No. 2
Formation KAIBAB
Test Interval (ft) 8363. / 8403.
Reference Depth KELLY BUSHING

WELL LOCATION

Field DIVISION OF OIL
County HILD. CANYON
State EMERY
Sec/Twn/Rng UTAH
S1T19SR7E
Elevation (ft) 6109.

HOLE CONDITIONS

Total Depth (MD/TUD) (ft) 8403. / 8403.
Hole Size (in) 8.750
Casing/Liner I.D. (in) 0.000
Perf'd Interval/Net Pay (ft).. 0 / 40.
Shot Density/Diameter (in) ...

MUD PROPERTIES

Mud Type LSND
Mud Weight (lb/gal) 8.8
Mud Resistivity (ohm.m) 0.50 AT 49. D
Filtrate Resistivity (ohm.m).. 0.43 AT 52. D
Filtrate Chlorides (ppm) 2300.

INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) 4065.
Gas Cushion Type NONE
Surface Pressure (psi) 0.
Liquid Cushion Type NONE
Cushion Length (ft) 0.

TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 7658. / 3.80
Collar Length (ft)/I.D. (in).. 541. / 2.50
Packer Depths (ft) 8363.
Bottomhole Choke Size (in) ... 15/16
Gauge Depth (ft)/Type 8333.

NET PIPE RECOVERY

Volume	Fluid Type	Properties
0.01 BB	OIL	DEG API @60 DEG
0.35 BB	WATER	7900. PPM CL
2.69 BB	MUD	2400. PPM CL

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
2.83 SCF	GAS	0.0000
0. CC	OIL	@ 60 DEG F
1810. CC	WATER	7900. PPM CL
0. CC	MUD	0.43 @ 52. DEGF
Pressure: 150.	GDR: 0.00	GLR: 248.60

INTERPRETATION RESULTS

Model of Behavior
Fluid Type Used for Analysis .
Reservoir Pressure (psi) 0.00
Transmissibility (md.ft/cp) .. 0.00
Effective Permeability (md) .. 0.00
Skin Factor/Damage Ratio 0.00 / 0.00
Storativity Ratio 0.00E+00
Interporosity Flow Coeff. 0.00E+00
Distance to an Anomaly (ft) .. 0.00
Radius of Investigation (ft).. 0.00
Potentiometric Surface (ft) .. 0.00

ROCK/FLUID/WELLBORE PROPERTIES

Oil Density (deg. API)
Basic Solids (%) 0.00
Gas Gravity 0.000
Water Cut (%)
Viscosity (cp) 0.0000
Total Compressibility (1/psi). .000E+00
Porosity (%) 8.0
Reservoir Temperature (F) 150.0
Form.Vol.Factor (bbl/STB) 0.000

PRODUCTION RATE DURING TEST: 28.0 BBLs/DAY AVG. RATE LIQ.

COMMENTS:

RECOVERED GAS APPEARED TO BE CO2 GAS, NO PERCENTAGES AVAILABLE. NO ANALYSIS OF SHUT-IN PRESSURE BUILD-UPS POSSIBLE, AS DATA IS TOTALLY DOMINATED BY WELLBORE STORAGE EFFECTS.

DST EVENT SUMMARY

DATE (M/D/Y)	TIME (HR:MIN)	EVENT E.T. (MIN)	EVENT DESCRIPTION	LABEL PT. #	SURFACE PRESSURE (PSIG)	FLOOR MANIFOLD CHOKE SIZE (64ths INCH)
11/27/85	0550	—	SET PACKER	1		1/4"
	0552	—	OPENED TEST TOOL FOR INITIAL FLOW	2		"
			LIGHT BUBBLES			
	0558		BLOW TO BOTTOM OF BUCKET			"
	0602	—	CLOSED TEST TOOL FOR INITIAL SHUT-IN	3		"
	0632		FINISHED SHUT-IN	4		"
	0634	—	OPENED TEST TOOL FOR FINAL FLOW	5		"
			LIGHT BUBBLES			
	0644		6 1/2" BLOW IN WATER			"
	0652		15" BLOW IN WATER			"
	0704				1.0	"
	0719				1.0	"
	0734				1.0	"
	0749				1.0	"
	0804				1.0	"
	0819				1.0	"
	0834		15" BLOW IN WATER			"
	0904	—	CLOSED TEST TOOL FOR FINAL SHUT-IN	6		"
			5" BLOW IN WATER			
	1304	—	FINISHED FINAL SHUT-IN	7		"
	1307	—	UNSEATED PACKER	8		—
		—	REVERSED OUT			
			NOTE: RECOVERED GAS APPEARED TO BE			
			CO ₂ - NO PERCENTAGES AVAILABLE.			
		—	BEGAN TRIP OUT OF HOLE			

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 13462F

COMPANY : BBWAB

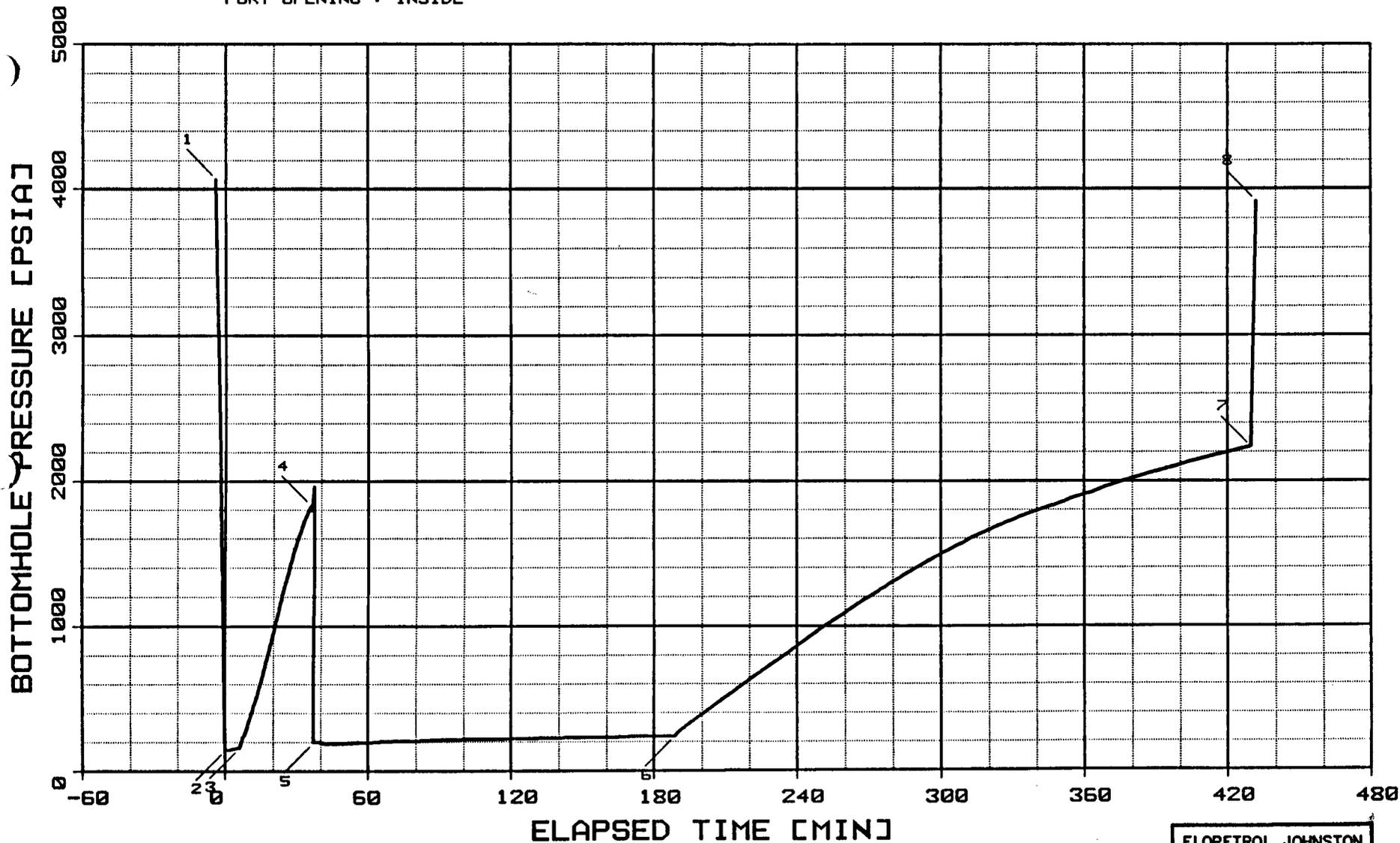
INSTRUMENT NO. J230

WELL : ORINGEVILLE 4-1

DEPTH : 8333 FT

CAPACITY : 6400 PSI

PORT OPENING : INSIDE



FLOPETROL JOHNSTON

 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 13462F
 COMPANY : BWAB
 WELL : ORINGEVILLE 4-1

INSTRUMENT # : J230
 CAPACITY [PSI] : 6400.
 DEPTH [FT] : 8333.0
 PORT OPENING : INSIDE
 TEMPERATURE [DEG F] : 150.0

LABEL POINT INFORMATION

#	TIME OF DAY		DATE	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA
	HH:MM:SS	DD-MM				
1	5:47:54	27	NO HYDROSTATIC MUD		-4.10	4065
2	5:52: 1	27	NO START FLOW		0.01	144
3	5:58: 0	27	NO END FLOW & START SHUT-IN		6.00	157
4	6:27:49	27	NO END SHUT-IN		35.81	1829
5	6:29: 6	27	NO START FLOW		37.10	198
6	9: 0:48	27	NO END FLOW & START SHUT-IN		188.80	235
7	13: 1:48	27	NO END SHUT-IN		429.80	2233
8	13: 3:59	27	NO HYDROSTATIC MUD		431.99	3916

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA
1	0.01	6.00	5.99	144	157
2	37.10	188.80	151.70	198	235

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	6.00	35.81	29.81	157	1829	157	5.99
2	188.80	429.80	241.00	235	2233	235	157.69

TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA
5:52: 1	27-NO	0.01	0.00	144
5:57: 1	27-NO	5.01	5.00	156
5:58: 0	27-NO	6.00	5.99	157

TEST PHASE : SHUTIN PERIOD # 1

FINAL FLOW PRESSURE [PSIA] = 157
 PRODUCING TIME [MIN] = 5.99

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
5:58: 0	27-NO	6.00	0.00	157	0	
5:59: 0	27-NO	7.00	1.00	209	52	0.844
6: 0: 0	27-NO	8.00	2.00	252	95	0.602
6: 1: 0	27-NO	9.00	3.00	295	138	0.477
6: 2: 0	27-NO	10.00	4.00	348	191	0.398
6: 3: 0	27-NO	11.00	5.00	398	241	0.342
6: 4: 0	27-NO	12.00	6.00	449	292	0.301
6: 5: 0	27-NO	13.00	7.00	503	346	0.269
6: 6: 0	27-NO	14.00	8.00	560	403	0.243
6: 7: 0	27-NO	15.00	9.00	617	460	0.222
6: 8: 0	27-NO	16.00	10.00	680	523	0.204
6:10: 0	27-NO	18.00	12.00	810	653	0.176
6:12: 0	27-NO	20.00	14.00	946	789	0.155
6:14: 0	27-NO	22.00	16.00	1082	925	0.138
6:16: 0	27-NO	24.00	18.00	1216	1059	0.125
6:18: 0	27-NO	26.00	20.00	1348	1191	0.114
6:20: 0	27-NO	28.00	22.00	1464	1307	0.105
6:22: 0	27-NO	30.00	24.00	1576	1419	0.097
6:24: 0	27-NO	32.00	26.00	1671	1514	0.090
6:26: 0	27-NO	34.00	28.00	1762	1605	0.084
6:27:49	27-NO	35.81	29.81	1829	1672	0.080

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA
HH:MM:SS	DD-MM	*****	*****	*****
6:29: 6	27-NO	37.10	0.00	198
6:34: 6	27-NO	42.10	5.00	187
6:39: 6	27-NO	47.10	10.00	187
6:44: 6	27-NO	52.10	15.00	192
6:49: 6	27-NO	57.10	20.00	195
6:54: 6	27-NO	62.10	25.00	197
6:59: 6	27-NO	67.10	30.00	200
7: 4: 6	27-NO	72.10	35.00	203
7: 9: 6	27-NO	77.10	40.00	206
7:14: 6	27-NO	82.10	45.00	208
7:19: 6	27-NO	87.10	50.00	211
7:24: 6	27-NO	92.10	55.00	215
7:29: 6	27-NO	97.10	60.00	215
7:34: 6	27-NO	102.10	65.00	219
7:39: 6	27-NO	107.10	70.00	219
7:44: 6	27-NO	112.10	75.00	219
7:49: 6	27-NO	117.10	80.00	219
7:54: 6	27-NO	122.10	85.00	220
7:59: 6	27-NO	127.10	90.00	222
8: 4: 6	27-NO	132.10	95.00	223
8: 9: 6	27-NO	137.10	100.00	226
8:14: 6	27-NO	142.10	105.00	226
8:19: 6	27-NO	147.10	110.00	227
8:24: 6	27-NO	152.10	115.00	228
8:29: 6	27-NO	157.10	120.00	228
8:34: 6	27-NO	162.10	125.00	228
8:39: 6	27-NO	167.10	130.00	230
8:44: 6	27-NO	172.10	135.00	233
8:49: 6	27-NO	177.10	140.00	234
8:54: 6	27-NO	182.10	145.00	235
8:59: 6	27-NO	187.10	150.00	235
9: 0:48	27-NO	188.80	151.70	235

TEST PHASE : SHUTIN PERIOD # 2

FINAL FLOW PRESSURE [PSIA] = 235
 PRODUCING TIME [MIN] = 157.69

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
9: 0:48	27-NO	188.80	0.00	235	0	
9: 1:48	27-NO	189.80	1.00	258	23	2.201
9: 2:48	27-NO	190.80	2.00	272	37	1.902
9: 3:48	27-NO	191.80	3.00	286	50	1.729
9: 4:48	27-NO	192.80	4.00	298	63	1.607
9: 5:48	27-NO	193.80	5.00	311	76	1.512

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 235
 PRODUCING TIME [MIN] = 157.69

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
*****	*****	*****	*****	*****	*****	*****
9: 6:48	27-NO	194.80	6.00	323	88	1.436
9: 7:48	27-NO	195.80	7.00	337	101	1.372
9: 8:48	27-NO	196.80	8.00	349	114	1.316
9: 9:48	27-NO	197.80	9.00	361	125	1.268
9:10:48	27-NO	198.80	10.00	372	137	1.225
9:12:48	27-NO	200.80	12.00	396	161	1.150
9:14:48	27-NO	202.80	14.00	420	185	1.089
9:16:48	27-NO	204.80	16.00	445	210	1.036
9:18:48	27-NO	206.80	18.00	469	234	0.989
9:20:48	27-NO	208.80	20.00	493	257	0.949
9:22:48	27-NO	210.80	22.00	516	281	0.912
9:24:48	27-NO	212.80	24.00	539	304	0.879
9:26:48	27-NO	214.80	26.00	562	327	0.849
9:28:48	27-NO	216.80	28.00	588	353	0.822
9:30:48	27-NO	218.80	30.00	612	376	0.796
9:35:48	27-NO	223.80	35.00	671	436	0.741
9:40:48	27-NO	228.80	40.00	730	494	0.694
9:45:48	27-NO	233.80	45.00	787	552	0.654
9:50:48	27-NO	238.80	50.00	848	613	0.618
9:55:48	27-NO	243.80	55.00	907	671	0.587
10: 0:48	27-NO	248.80	60.00	968	733	0.560
10: 5:48	27-NO	253.80	65.00	1021	786	0.535
10:10:48	27-NO	258.80	70.00	1074	839	0.512
10:15:48	27-NO	263.80	75.00	1130	895	0.492
10:20:48	27-NO	268.80	80.00	1183	948	0.473
10:25:48	27-NO	273.80	85.00	1236	1001	0.456
10:30:48	27-NO	278.80	90.00	1287	1052	0.440
10:35:48	27-NO	283.80	95.00	1339	1104	0.425
10:40:48	27-NO	288.80	100.00	1387	1152	0.411
10:45:48	27-NO	293.80	105.00	1432	1197	0.398
10:50:48	27-NO	298.80	110.00	1478	1243	0.386
10:55:48	27-NO	303.80	115.00	1523	1288	0.375
11: 0:48	27-NO	308.80	120.00	1565	1330	0.364
11: 5:48	27-NO	313.80	125.00	1608	1373	0.354
11:10:48	27-NO	318.80	130.00	1648	1413	0.345
11:15:48	27-NO	323.80	135.00	1682	1447	0.336
11:20:48	27-NO	328.80	140.00	1719	1484	0.328
11:25:48	27-NO	333.80	145.00	1753	1518	0.320
11:30:48	27-NO	338.80	150.00	1784	1549	0.312
11:35:48	27-NO	343.80	155.00	1813	1578	0.305
11:40:48	27-NO	348.80	160.00	1839	1604	0.298
11:45:48	27-NO	353.80	165.00	1872	1637	0.291
11:50:48	27-NO	358.80	170.00	1899	1664	0.285
11:55:48	27-NO	363.80	175.00	1924	1689	0.279
12: 0:48	27-NO	368.80	180.00	1957	1722	0.273
12: 5:48	27-NO	373.80	185.00	1986	1751	0.268
12:10:48	27-NO	378.80	190.00	2011	1776	0.262
12:15:48	27-NO	383.80	195.00	2035	1800	0.257

TEST PHASE : SHUTIN PERIOD # 2
FINAL FLOW PRESSURE [PSIA] = 235
PRODUCING TIME [MIN] = 157.69

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
*****	*****	*****	*****	*****	*****	*****
12:20:48	27-NO	388.80	200.00	2059	1824	0.252
12:25:48	27-NO	393.80	205.00	2081	1846	0.248
12:30:48	27-NO	398.80	210.00	2103	1868	0.243
12:35:48	27-NO	403.80	215.00	2127	1892	0.239
12:40:48	27-NO	408.80	220.00	2150	1915	0.235
12:45:48	27-NO	413.80	225.00	2172	1937	0.231
12:50:48	27-NO	418.80	230.00	2190	1955	0.227
12:55:48	27-NO	423.80	235.00	2210	1974	0.223
13: 0:48	27-NO	428.80	240.00	2229	1994	0.219
13: 1:48	27-NO	429.80	241.00	2233	1998	0.219

ΔT (MIN)

0.061 0.096 0.15 0.25 0.40 0.67 1.1 2.0 4.0 10 00

HORNER PLOT

FIELD REPORT NO. 13462F

INSTRUMENT NO. J230

COMPANY : BBWAB

WELL : ORINGEVILLE 4-1

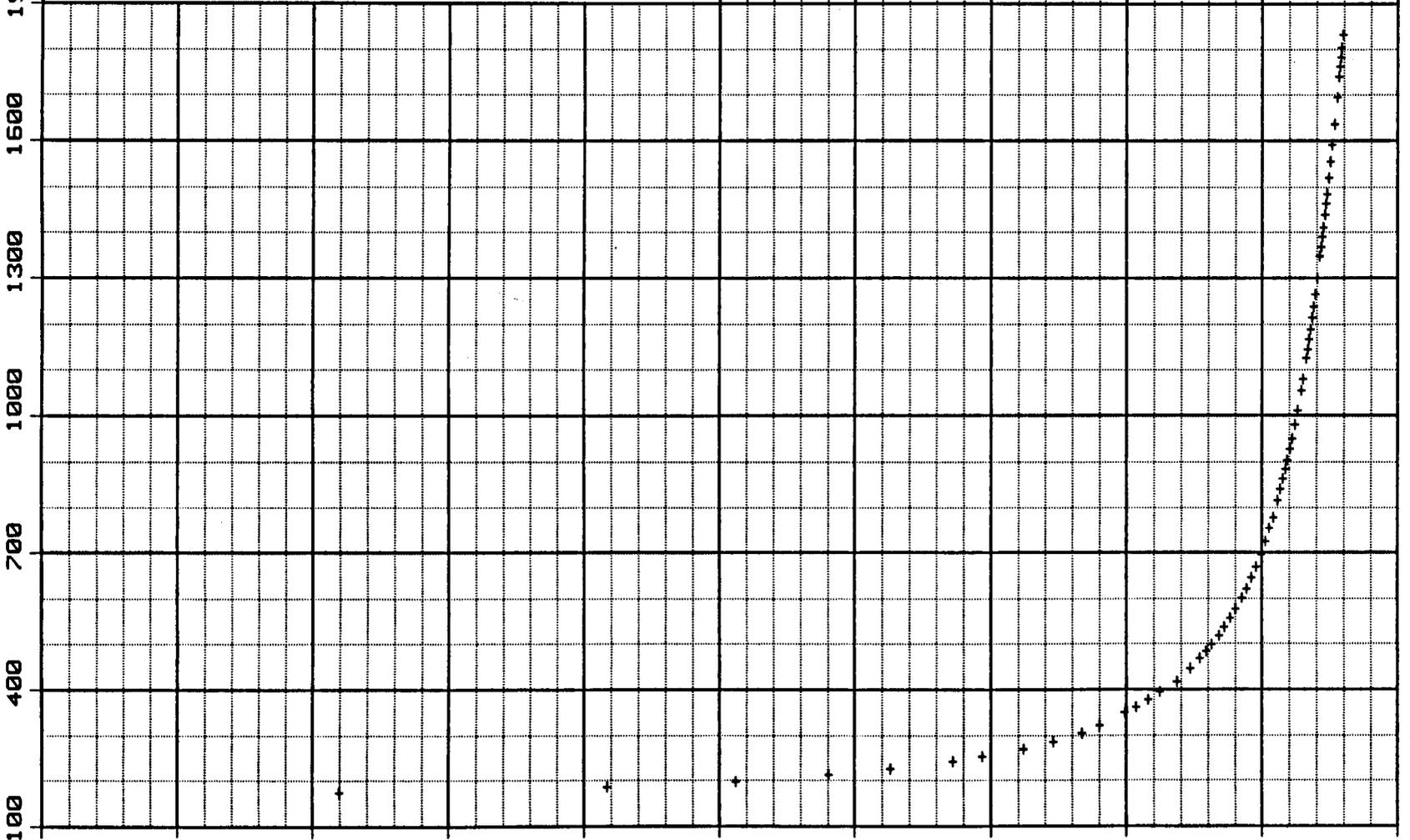
SHUTIN #1 : FINAL FLOW PRESSURE: 157.04 PSIA

PLOT ELAPSED TIME RANGE: 6.2 TO 35.8 MIN

PLOT ΔT TIME RANGE: 0.2 TO 29.8 MIN

PRODUCING TIME (T_p): 6.0 MIN

SHUTIN PRESSURE [PSIA]



2.00 1.80 1.60 1.40 1.20 1.00 0.80 0.60 0.40 0.20 0.00

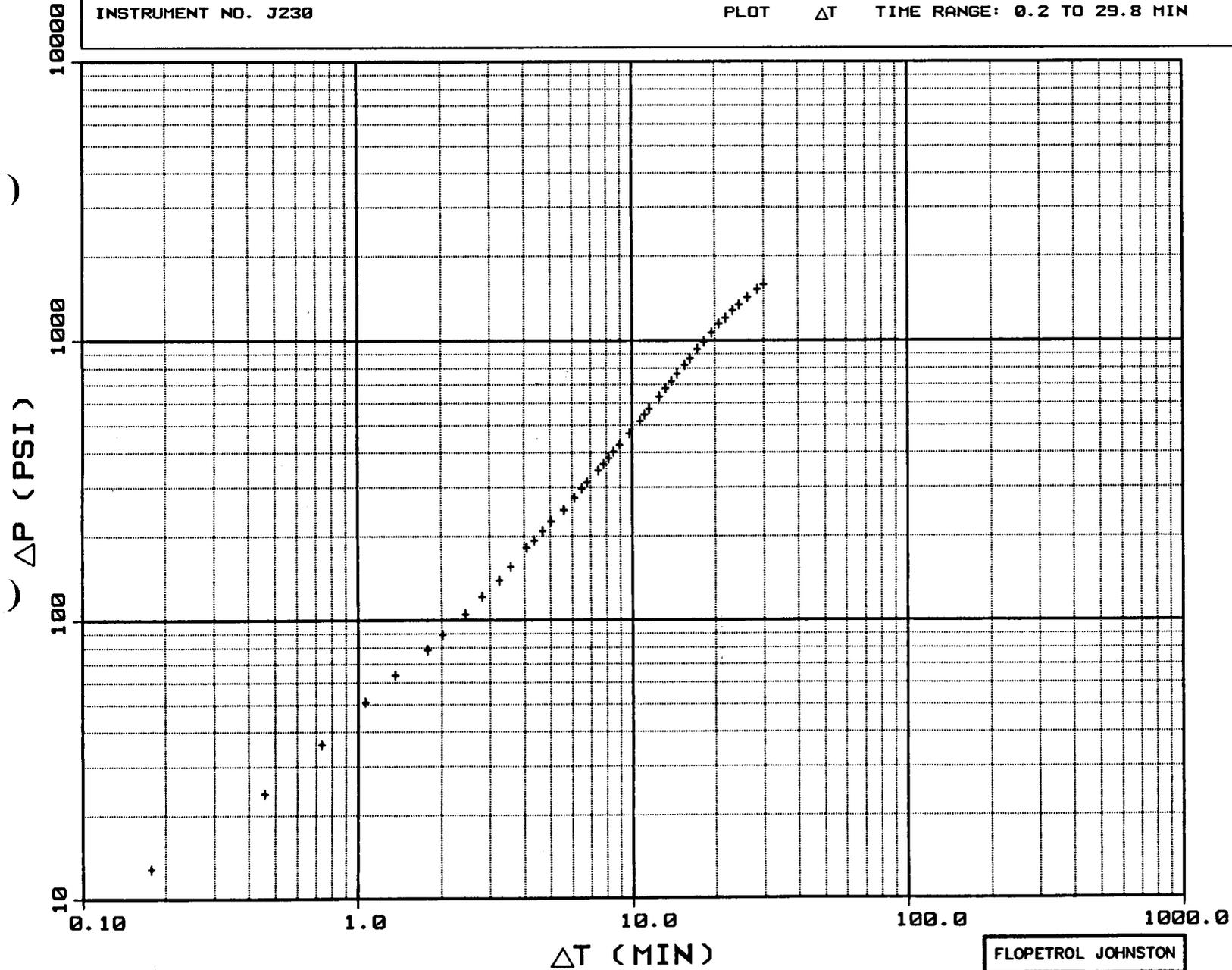
$$\text{LOG} \left[\frac{T_p + \Delta T}{\Delta T} \right]$$

FLOPETROL JOHNSTON
Schlumberger

LOG LOG PLOT

COMPANY : BBWAB
WELL : ORINGEVILLE 4-1
FIELD REPORT NO. 13462F
INSTRUMENT NO. J230

SHUTIN #1 :
FINAL FLOW PRESSURE (PWF) : 157.04 PSIA
PLOT ELAPSED TIME RANGE : 6.2 TO 35.8 MIN
PLOT ΔT TIME RANGE : 0.2 TO 29.8 MIN



ΔT (MIN)

0.16 0.32 0.63 1.3 2.5 5.1 10 22 52 158 00

HORNER PLOT

FIELD REPORT NO. 13462F

INSTRUMENT NO. J230

COMPANY : BBWAB

WELL : ORINGEVILLE 4-1

SHUTIN #2 : FINAL FLOW PRESSURE: 235.13 PSIA

PLOT ELAPSED TIME RANGE: 189.0 TO 429.8 MIN

PLOT ΔT TIME RANGE: 0.2 TO 241.0 MIN

PRODUCING TIME (T_p): 157.7 MIN

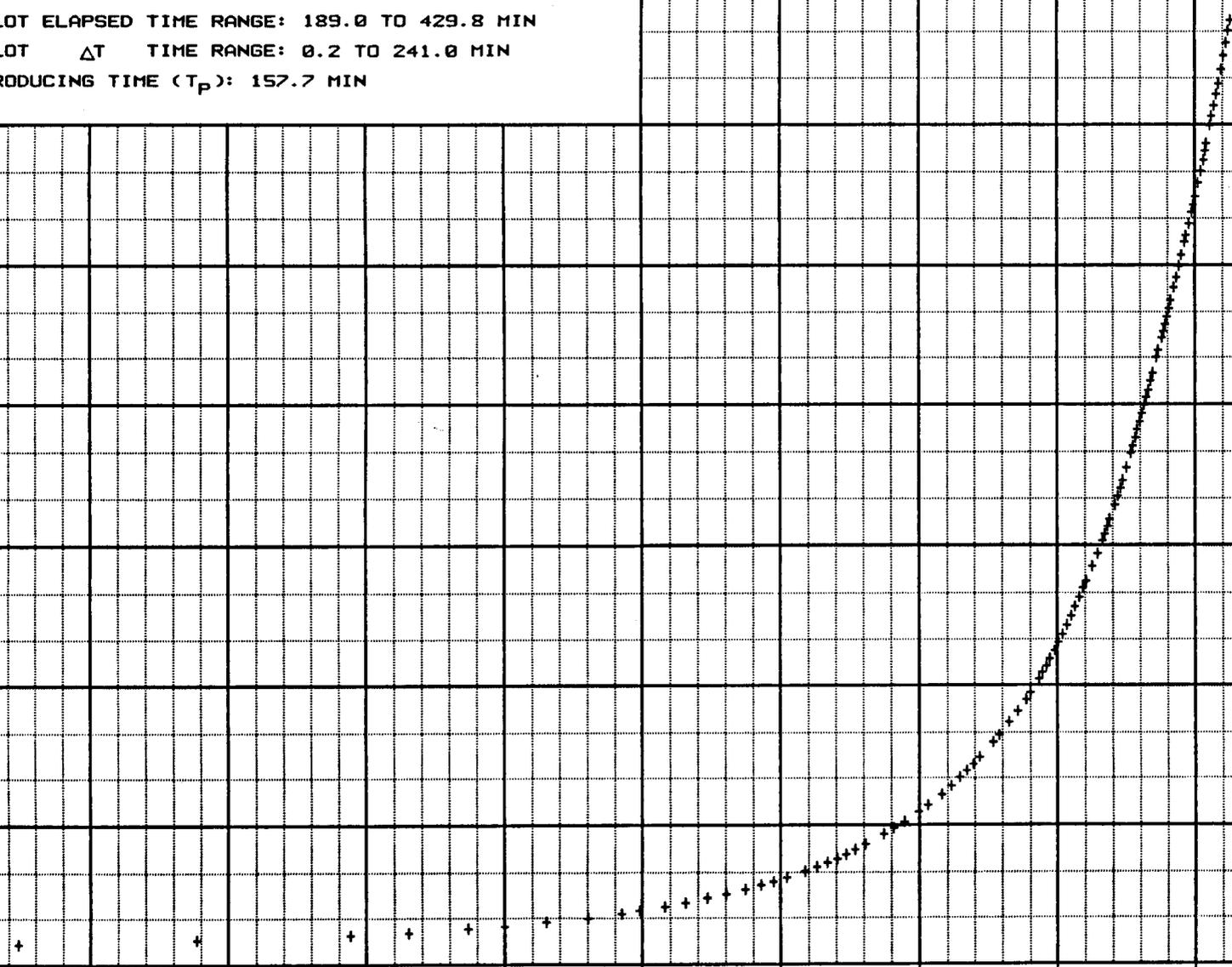
SHUTIN PRESSURE [PSIA]

2600
2300
2000
1700
1400
1100
800
500
200

$\text{LOG} \left[\frac{T_p + \Delta T}{\Delta T} \right]$

FLOPETROL JOHNSTON
Schlumberger

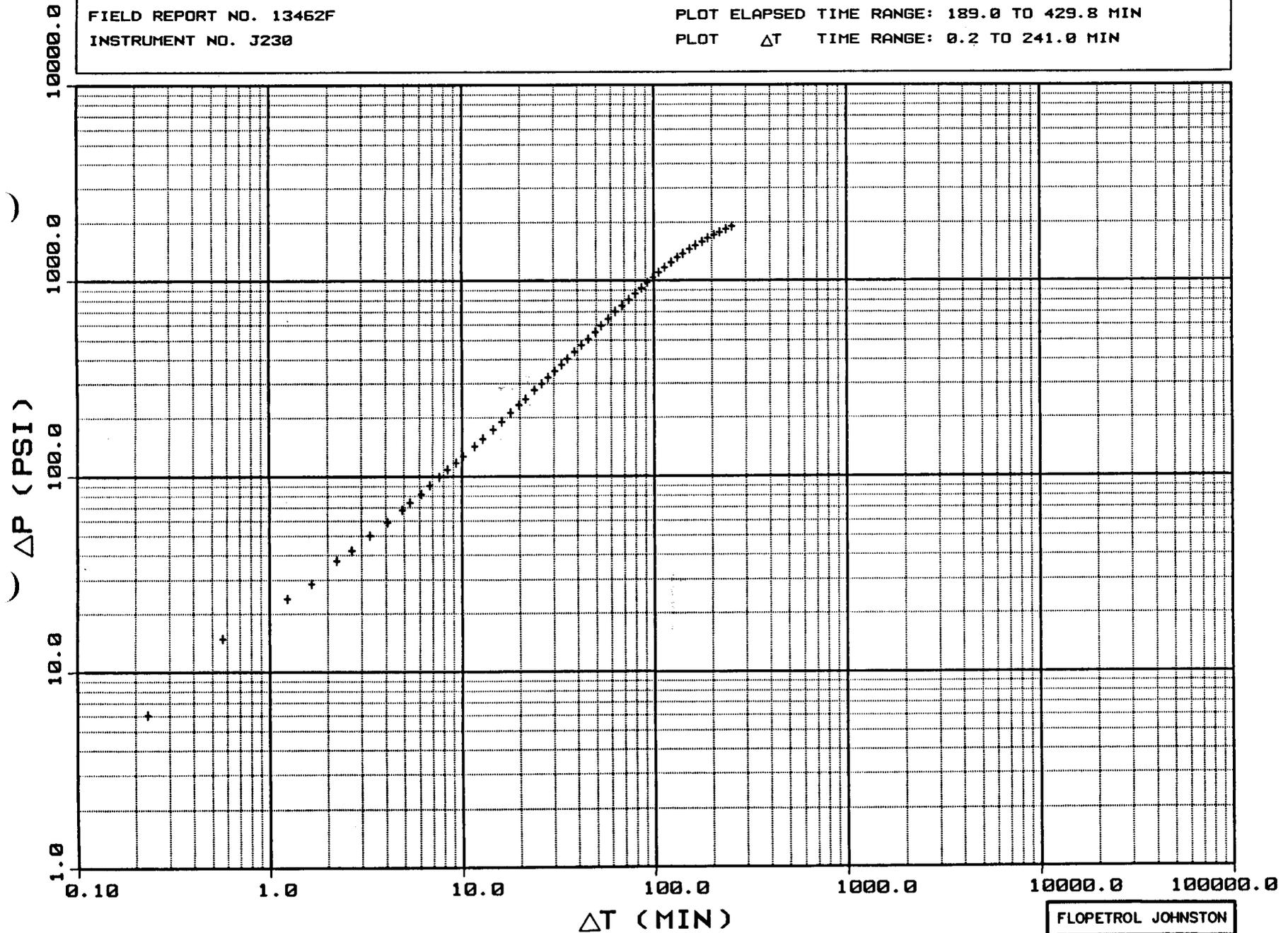
3.00 2.70 2.40 2.10 1.80 1.50 1.20 0.90 0.60 0.30 0.00



LOG LOG PLOT

COMPANY : BBWAB
WELL : ORINGEVILLE 4-1
FIELD REPORT NO. 13462F
INSTRUMENT NO. J230

SHUTIN #2 :
FINAL FLOW PRESSURE (PWF): 235.13 PSIA
PLOT ELAPSED TIME RANGE: 189.0 TO 429.8 MIN
PLOT ΔT TIME RANGE: 0.2 TO 241.0 MIN



FLOPETROL JOHNSTON
Schlumberger

12/10/85
3:30 pm
JRB

BWAB

Orangerville Fed. Unit 4-1
Sec. 1, T19S, RTE, Emery Co.

TD = 8854'

- Planning to plug back to 3000'
& complete.
- Susan Rein
(303) 295-7444 ext. 448
- Will call BEM & get approval to
plug back from them.
- Will send in Sundries describing
work performed.

873

ORANGEVILLE FEDERAL
LEASE NAME
WELL NO. 4-1
TEST NO. 4
TESTED INTERVAL 8411.0 - 8486.0
LEASE OWNER/COMPANY NAME B.V.A.B. INCORPORATED

LEGAL LOCATION
SEC. - TYP. - RNG. 1 19S 7E
FIELD AREA WILDCAT
COUNTY EMERY
STATE UTAH SM

RECEIVED

DEC 15 1985

DIVISION OF OIL
GAS & MINING



TICKET NO. 24562900
10-DEC-85
VERNAL

FORMATION TESTING SERVICE REPORT

EQUIPMENT & HOLE DATA

FORMATION TESTED: KAIBAB
 NET PAY (ft): _____
 GROSS TESTED FOOTAGE: 75.0
 ALL DEPTHS MEASURED FROM: KELLY BUSHING
 CASING PERFS. (ft): _____
 HOLE OR CASING SIZE (in): 8.750
 ELEVATION (ft): 6119.0 KELLY BUSHING
 TOTAL DEPTH (ft): 8486.0
 PACKER DEPTH(S) (ft): 8401, 8411
 FINAL SURFACE CHOKE (in): 0.12500
 BOTTOM HOLE CHOKE (in): 0.750
 MUD WEIGHT (lb/gal): 8.80
 MUD VISCOSITY (sec): 45
 ESTIMATED HOLE TEMP. (°F): _____
 ACTUAL HOLE TEMP. (°F): 164 @ 8482.0 ft

TICKET NUMBER: 24562900
 DATE: 12-3-85 TEST NO: 4
 TYPE DST: OPEN HOLE
 HALLIBURTON CAMP: VERNAL
 TESTER: DOC MC MILLAN
 WITNESS: BUDDY BURKE
 DRILLING CONTRACTOR: LOFFLAND BROTHERS #1

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
<u>MUD PIT</u>	<u>0.290 @ 68 °F</u>	<u>13333 ppm</u>
<u>TOP OF FLUID</u>	<u>0.290 @ 68 °F</u>	<u>13333 ppm</u>
<u>MIDDLE OF FLUID</u>	<u>0.250 @ 68 °F</u>	<u>16969 ppm</u>
<u>BOTTOM OF FLUID</u>	<u>0.210 @ 68 °F</u>	<u>20000 ppm</u>
<u>SAMPLE CHAMBER</u>	<u>0.190 @ 68 °F</u>	<u>22424 ppm</u>
<u>MUD PIT FILTRATE</u>	<u>0.400 @ 68 °F</u>	<u>9393 ppm</u>

SAMPLER DATA

Pstg AT SURFACE: 18.0
 cu.ft. OF GAS: 0.000
 cc OF OIL: _____
 cc OF WATER: 2050.0
 cc OF MUD: _____
 TOTAL LIQUID cc: 2050.0

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): _____ @ _____ °F
 GAS/OIL RATIO (cu.ft. per bbl): _____
 GAS GRAVITY: _____

CUSHION DATA

TYPE	AMOUNT	WEIGHT
_____	_____	_____
_____	_____	_____

RECOVERED:

276 FEET OF SLIGHTLY GAS CUT MUD
 368 FEET OF MODERATE GAS CUT -WATER CUT MUD
 1419 FEET OF MODERATE GAS CUT WATER
 92 FEET OF WATER CUT AND HEAVY GAS CUT MUD

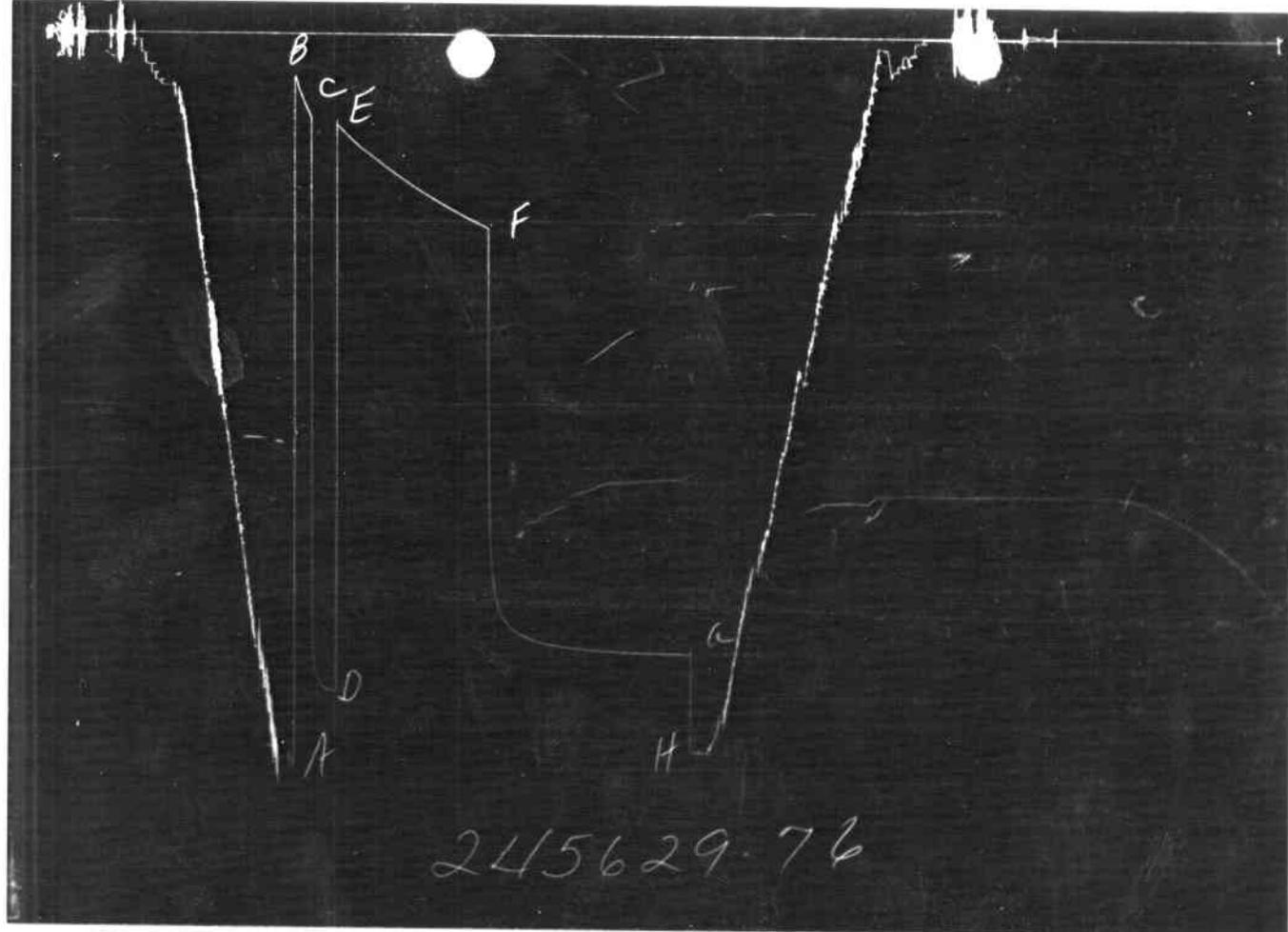
MEASURED FROM TESTER VALVE

REMARKS:

GAUGE # 430 WAS RAN ABOVE SAMPLER.

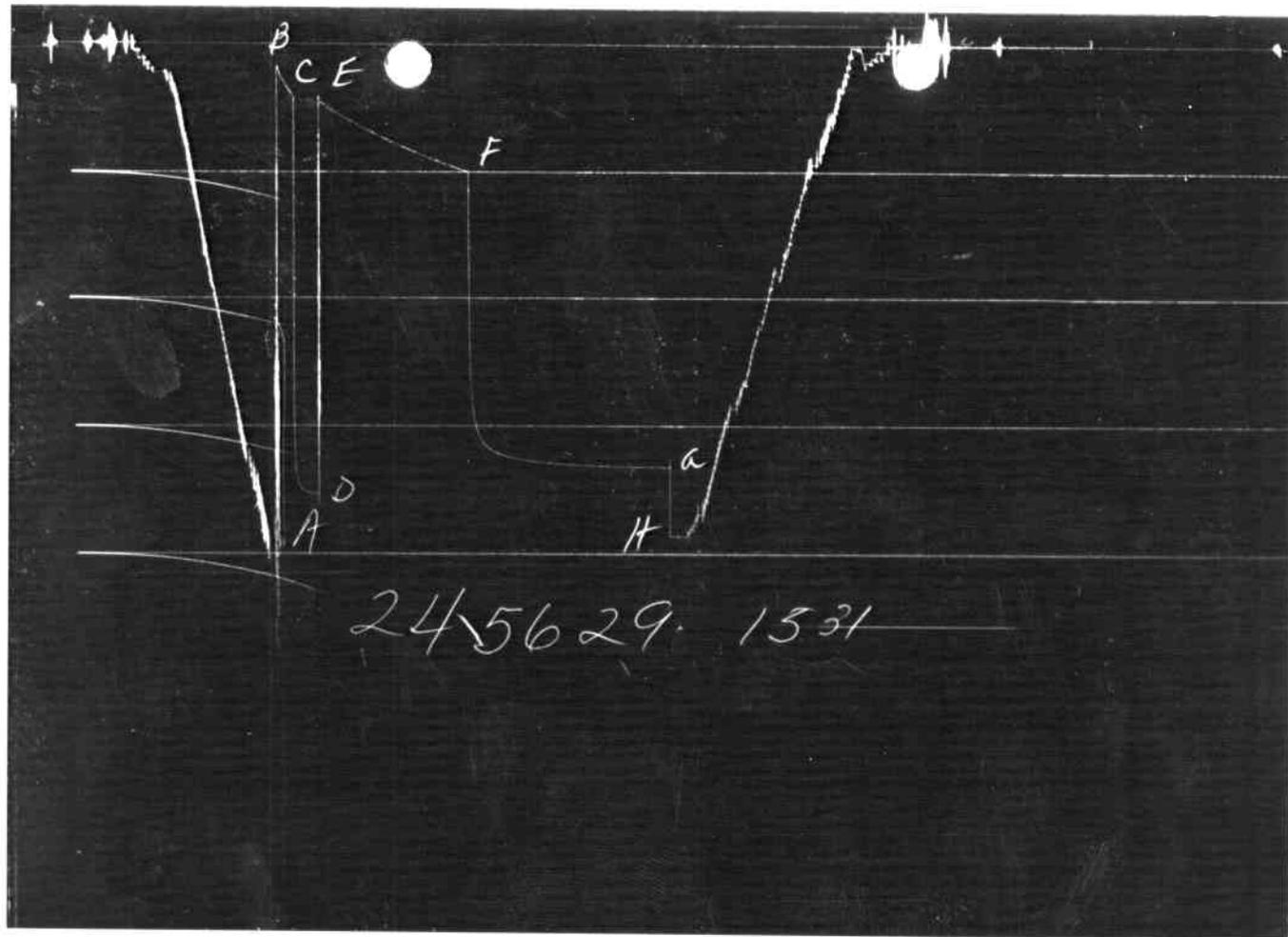
GAUGE NO: 76 DEPTH: 8483.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	3940	3956.9			
B	INITIAL FIRST FLOW	224	232.5			
C	FINAL FIRST FLOW	475	457.8	20.0	19.6	F
C	INITIAL FIRST CLOSED-IN	475	457.8			
D	FINAL FIRST CLOSED-IN	3576	3598.7	31.0	30.7	C
E	INITIAL SECOND FLOW	503	497.0			
F	FINAL SECOND FLOW	1045	1054.1	179.0	178.5	F
F	INITIAL SECOND CLOSED-IN	1045	1054.1			
G	FINAL SECOND CLOSED-IN	3366	3383.4	240.0	241.2	C
H	FINAL HYDROSTATIC	3926	3929.0			



GAUGE NO: 76 DEPTH: 8485.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE	TIME	TEMP
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GAUGE NO: 1531 DEPTH: 0305.0 BLANKED OFF: NO HOUR OF CLOCK: 24

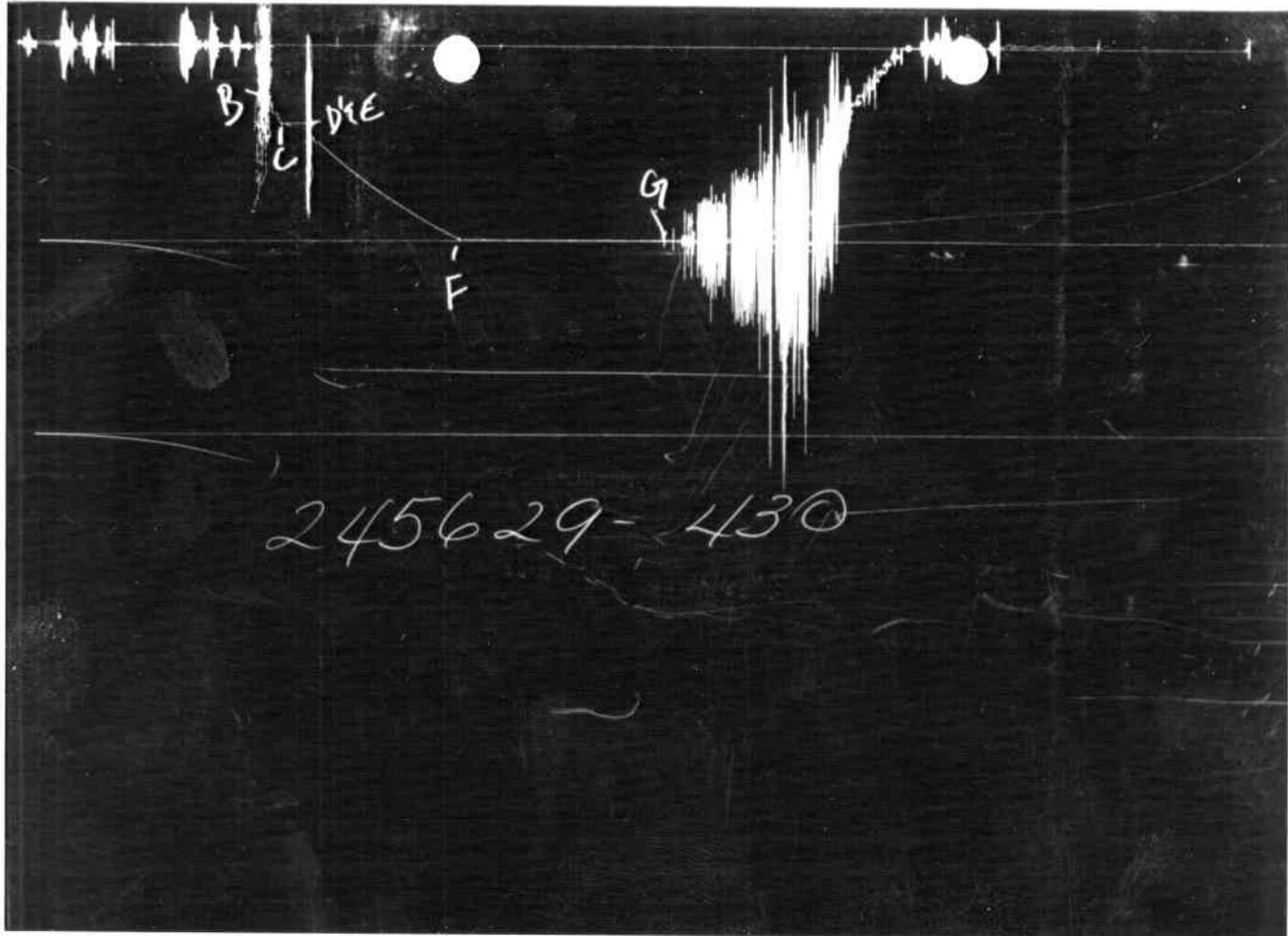
ID	DESCRIPTION	PRESSURE	TIME	TYPE

GAUGE NO: 1531 DEPTH: 8385.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	3922	3907.6			
B	INITIAL FIRST FLOW	163	176.7			
C	FINAL FIRST FLOW	407	425.7	20.0	19.6	F
C	INITIAL FIRST CLOSED-IN	407	425.7			
D	FINAL FIRST CLOSED-IN	3542	3557.3	31.0	30.7	C
E	INITIAL SECOND FLOW	448	453.8			
F	FINAL SECOND FLOW	998	1014.2	179.0	178.5	F
F	INITIAL SECOND CLOSED-IN	998	1014.2			
G	FINAL SECOND CLOSED-IN	3342	3340.9	240.0	241.2	C
H	FINAL HYDROSTATIC	3922	3886.6			

GAUGE NO: 430 DEPTH: 8369.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC					
B	INITIAL FIRST FLOW		291.1			
C	FINAL FIRST FLOW		410.1	20.0	19.6	F
C	INITIAL FIRST CLOSED-IN		410.1			
D	FINAL FIRST CLOSED-IN	397	404.8	31.0	30.7	C
E	INITIAL SECOND FLOW		404.8			
F	FINAL SECOND FLOW		1002.9	179.0	178.5	F
F	INITIAL SECOND CLOSED-IN		1002.9			
G	FINAL SECOND CLOSED-IN	990	1002.9	240.0	241.2	C
H	FINAL HYDROSTATIC					



GAUGE NO: 430 DEPTH: 8365.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE	TIME	CORRECTION
----	-------------	----------	------	------------

TYPE & SIZE MEASURING DEVICE:		LT20 MANIFOLD			TICKET NO: 24562900
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
12-3-85					
0730					ON LOCATION
0800					WOUND CLOCKS
0810					PICKED UP TOOLS
0915					STARTED IN HOLE
1230					RIGGED UP HEAD AND MANIFOLD
1238					ON BOTTOM
1240	.125	2.5 OZ			4" OF WATER-OPENED TOOL
1242	"	4			7" OF WATER
1244	"	4.5			8" OF WATER
1246	"	5			8 1/2" OF WATER
1248	"	6			10" OF WATER
1250	"	6.5			11" OF WATER
1252	"	7			12" OF WATER
1254	"	7			12" OF WATER
1256	"	7.5			13" OF WATER
1258	"	8			14" OF WATER
1300	"	8.5			14 1/2" OF WATER, CLOSED TOOL
1331	"	6.5			11" OF WATER, TOOL OPENED
1335	"	8.5			14 1/2" OF WATER
1340	"	9			16" OF WATER
1345	"	9			16" OF WATER
1350	"	9.5			16 1/2" OF WATER
1355	"	9.5			16 1/2" OF WATER
1400	"	9.5			16 1/2" OF WATER
1405	"	9.5			16 1/2" OF WATER
1410	"	10.5			18 1/2" OF WATER
1415	"	11.5			19 1/2" OF WATER
1420	"	12.5			21 1/2" OF WATER
1425	"	13			22 1/2" OF WATER
1430	"	14			24 1/2" OF WATER
1435	"	14.5			25" OF WATER
1440	"	15			26" OF WATER
1445	"	16			27 1/2" OF WATER
1450	"	17			29" OF WATER
1455	"	17.5			31 1/2" OF WATER
1500	"	18.5			32" OF WATER

TICKET NO: 24562900

CLOCK NO: 32034 HOUR: 24



GAUGE NO: 1531

DEPTH: 8385.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	176.7			
2	2.0	213.2	36.5		
3	4.0	250.5	37.3		
4	6.0	280.0	29.6		
5	8.0	301.0	21.0		
6	10.0	324.0	23.0		
7	12.0	347.5	23.4		
8	14.0	368.9	21.4		
9	16.0	389.3	20.4		
10	18.0	408.0	18.8		
C 11	19.6	425.7	17.7		
FIRST CLOSED-IN					
C 1	0.0	425.7			
2	1.0	2250.5	1824.7	0.9	1.330
3	2.0	3093.4	2667.7	1.8	1.025
4	3.0	3282.7	2857.0	2.6	0.877
5	4.0	3373.8	2948.1	3.3	0.769
6	5.0	3409.2	2983.5	4.0	0.691
7	6.0	3452.1	3026.3	4.6	0.630
8	7.0	3478.7	3052.9	5.2	0.580
9	8.0	3489.1	3063.3	5.7	0.536
10	9.0	3501.9	3076.2	6.2	0.501
11	10.0	3512.7	3087.0	6.6	0.472
12	12.0	3529.9	3104.2	7.5	0.420
13	14.0	3540.1	3114.4	8.2	0.379
14	16.0	3545.9	3120.2	8.8	0.347
15	18.0	3549.5	3123.8	9.4	0.319
16	20.0	3551.1	3125.4	9.9	0.297
17	22.0	3556.1	3130.4	10.4	0.277
18	24.0	3556.5	3130.8	10.8	0.260
19	26.0	3557.1	3131.4	11.2	0.244
20	28.1	3557.1	3131.4	11.5	0.230
D 21	30.7	3557.3	3131.6	12.0	0.215
SECOND FLOW					
E 1	0.0	453.8			
2	10.0	501.1	47.3		
3	20.0	542.5	41.4		
4	30.0	582.1	39.6		
5	40.0	617.6	35.5		
6	50.0	654.1	36.5		
7	60.0	689.0	34.9		
8	70.0	722.7	33.7		
9	80.0	753.9	31.2		
10	90.0	783.7	29.8		
11	100.0	813.7	30.0		
12	110.0	842.5	28.8		

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND FLOW - CONTINUED					
13	120.0	871.7	29.2		
14	130.0	898.2	26.5		
15	140.0	922.7	24.5		
16	150.0	948.8	26.1		
17	160.0	971.4	22.6		
18	170.0	993.5	22.0		
F 19	178.5	1014.2	20.7		
SECOND CLOSED-IN					
F 1	0.0	1014.2			
2	1.0	1698.0	683.9	1.0	2.317
3	2.0	2231.1	1216.9	2.0	1.992
4	3.0	2506.2	1492.0	3.0	1.827
5	4.0	2669.4	1655.2	3.9	1.702
6	5.0	2771.0	1756.8	4.9	1.608
7	6.0	2842.3	1828.1	5.8	1.532
8	7.0	2909.1	1895.0	6.8	1.466
9	8.0	2960.3	1946.2	7.7	1.409
10	9.0	2992.9	1978.7	8.6	1.361
11	10.0	3017.9	2003.7	9.5	1.318
12	12.0	3059.0	2044.8	11.3	1.243
13	14.0	3095.9	2081.7	13.1	1.180
14	16.0	3122.7	2108.5	14.8	1.126
15	18.0	3145.6	2131.4	16.5	1.079
16	20.0	3159.8	2145.6	18.1	1.039
17	22.0	3172.6	2158.4	19.8	1.000
18	24.0	3185.2	2171.1	21.4	0.966
19	26.0	3194.9	2180.7	23.0	0.935
20	28.0	3205.3	2191.1	24.5	0.907
21	30.0	3214.7	2200.5	26.0	0.882
22	35.0	3230.9	2216.7	29.7	0.824
23	40.0	3242.1	2228.0	33.3	0.775
24	45.0	3253.4	2239.2	36.7	0.733
25	50.0	3262.2	2248.0	39.9	0.696
26	55.0	3270.4	2256.2	43.0	0.663
27	60.0	3276.8	2262.6	46.0	0.634
28	70.0	3287.6	2273.5	51.8	0.583
29	80.0	3297.1	2282.9	57.0	0.541
30	90.0	3304.5	2290.3	61.9	0.505
31	100.0	3310.9	2296.7	66.5	0.474
32	110.0	3315.5	2301.3	70.7	0.447
33	120.0	3320.1	2305.9	74.7	0.423
34	135.0	3326.5	2312.3	80.3	0.392
35	150.1	3330.1	2315.9	85.4	0.365
36	165.0	3333.9	2319.7	90.0	0.343
37	180.0	3335.7	2321.5	94.3	0.322
38	195.0	3337.9	2323.7	98.3	0.304
39	210.0	3339.3	2325.1	101.9	0.289
40	225.0	3340.3	2326.2	105.4	0.274
G 41	241.2	3340.9	2326.8	108.8	0.260

REMARKS:

TICKET NO: 24562900

CLOCK NO: 7179 HOUR: 24



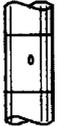
GAUGE NO: 76

DEPTH: 8483.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	232.5			
2	2.0	251.8	19.3		
3	4.0	285.5	33.7		
4	6.0	314.0	28.5		
5	8.0	336.4	22.4		
6	10.0	360.3	23.9		
7	12.0	381.3	21.0		
8	14.0	401.3	20.0		
9	16.0	420.2	18.9		
10	18.0	441.3	21.1		
C 11	19.6	457.8	16.5		
FIRST CLOSED-IN					
C 1	0.0	457.8			
2	1.0	2152.8	1695.0	1.0	1.298
3	2.0	3149.7	2691.9	1.8	1.035
4	3.0	3355.3	2897.5	2.6	0.873
5	4.0	3418.8	2961.1	3.3	0.770
6	5.0	3458.9	3001.1	4.0	0.695
7	6.0	3488.6	3030.8	4.6	0.632
8	7.0	3510.0	3052.2	5.2	0.578
9	8.0	3523.1	3065.4	5.7	0.537
10	9.0	3535.5	3077.7	6.2	0.502
11	10.0	3551.2	3093.4	6.6	0.470
12	12.0	3567.2	3109.4	7.4	0.420
13	14.0	3575.9	3118.1	8.2	0.380
14	16.0	3583.0	3125.2	8.8	0.347
15	18.0	3588.2	3130.4	9.4	0.320
16	20.0	3590.3	3132.5	9.9	0.296
17	22.0	3594.1	3136.3	10.4	0.277
18	24.0	3596.3	3138.6	10.8	0.259
19	26.0	3597.7	3140.0	11.2	0.244
20	28.0	3598.2	3140.4	11.5	0.230
D 21	30.7	3598.7	3141.0	12.0	0.215
SECOND FLOW					
E 1	0.0	497.0			
2	10.0	538.6	41.6		
3	20.0	583.7	45.1		
4	30.0	623.8	40.1		
5	40.0	658.1	34.3		
6	50.0	691.9	33.8		
7	60.0	726.9	35.0		
8	70.0	762.0	35.1		
9	80.0	793.6	31.6		
10	90.0	824.6	31.1		
11	100.0	854.4	29.8		
12	110.0	882.4	28.0		

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND FLOW - CONTINUED					
13	120.0	910.1	27.7		
14	130.0	936.9	26.7		
15	140.0	960.7	23.8		
16	150.0	986.2	25.5		
17	160.0	1009.8	23.7		
18	170.0	1033.5	23.7		
F 19	178.5	1054.1	20.6		
SECOND CLOSED-IN					
F 1	0.0	1054.1			
2	1.0	1952.3	898.2	1.0	2.308
3	2.0	2405.0	1350.8	2.0	2.003
4	3.0	2663.4	1609.3	3.0	1.822
5	4.0	2788.3	1734.2	3.9	1.703
6	5.0	2871.1	1817.0	4.9	1.610
7	6.0	2928.3	1874.2	5.8	1.534
8	7.0	2977.6	1923.5	6.8	1.465
9	8.0	3012.4	1958.3	7.6	1.413
10	9.0	3044.4	1990.3	8.6	1.362
11	10.0	3070.3	2016.2	9.5	1.317
12	12.0	3108.6	2054.5	11.3	1.244
13	14.0	3138.6	2084.5	13.1	1.180
14	16.0	3164.9	2110.8	14.8	1.127
15	18.0	3181.8	2127.7	16.5	1.080
16	20.0	3198.0	2143.9	18.1	1.038
17	22.0	3211.5	2157.4	19.8	1.000
18	24.0	3223.0	2168.9	21.4	0.966
19	26.0	3233.7	2179.6	23.0	0.936
20	28.0	3243.4	2189.2	24.5	0.907
21	30.0	3251.5	2197.3	26.1	0.881
22	35.0	3270.0	2215.9	29.7	0.824
23	40.0	3282.5	2228.3	33.3	0.775
24	45.0	3293.1	2239.0	36.7	0.732
25	50.0	3304.1	2250.0	40.0	0.695
26	55.0	3312.9	2258.8	43.0	0.663
27	60.0	3320.2	2266.0	46.1	0.633
28	70.0	3330.9	2276.8	51.7	0.583
29	80.0	3340.3	2286.2	57.0	0.541
30	90.0	3347.4	2293.3	61.9	0.505
31	100.0	3353.7	2299.6	66.4	0.474
32	110.0	3359.3	2305.1	70.7	0.447
33	120.0	3363.9	2309.7	74.7	0.423
34	135.0	3369.2	2315.1	80.3	0.392
35	150.0	3371.7	2317.6	85.4	0.366
36	165.0	3375.2	2321.1	90.0	0.343
37	180.0	3378.7	2324.6	94.3	0.322
38	195.0	3380.8	2326.6	98.3	0.304
39	210.0	3382.4	2328.3	101.9	0.289
40	225.0	3383.1	2329.0	105.4	0.274
G 41	241.2	3383.4	2329.3	108.8	0.260

REMARKS:

		O.D.	I.D.	LENGTH	DEPTH	
1		DRILL PIPE.....	4.500	3.826	7851.5	
3		DRILL COLLARS.....	7.000	2.500	422.0	
50		IMPACT REVERSING SUB.....	6.125	2.938	1.2	8275.0
3		DRILL COLLARS.....	7.000	2.500	91.3	
5		CROSSOVER.....	6.000	3.000	0.8	
5		CROSSOVER.....	6.000	2.563	0.7	
80		AP RUNNING CASE.....	5.000	3.060	4.1	8369.0
13		DUAL CIP SAMPLER.....	5.000	0.750	7.0	
60		HYDROSPRING TESTER.....	5.000	0.750	5.0	8383.0
80		AP RUNNING CASE.....	5.000	2.250	4.1	8385.0
15		JAR.....	5.000	1.750	5.0	
16		VR SAFETY JOINT.....	5.000	1.000	2.8	
70		OPEN HOLE PACKER.....	7.750	1.530	7.4	8401.0
18		DISTRIBUTOR VALVE.....	5.000	1.680	2.0	
70		OPEN HOLE PACKER.....	7.750	1.530	7.4	8411.0
20		FLUSH JOINT ANCHOR.....	5.750	3.500	69.0	
81		BLANKED-OFF RUNNING CASE.....	5.750		4.5	8483.0
TOTAL DEPTH						8486.0

EQUIPMENT DATA

RECEIVED

JAN 28 1986

DIVISION OF OIL
GAS & MINING

~~CONFIDENTIAL~~

BWAB, INCORPORATED

Orangeville Federal Unit #4-1 Well
Emery County, Utah

TTCS File No. 86119

<u>Core No.</u>	<u>Interval</u>	<u>Formation</u>
1	8381-8398	Kaibab
	8398-8403	Drilled Interval
2	8403-8433	Kaibab

January 24, 1986

BWAB, Inc.
1801 California Street
1000 CC4
Denver, CO 80202

ATTN: Mr. Bob Lent

SUBJECT: Core Analysis Data; Orangeville Federal Unit 4-1;
Emery County, Utah; TTCS File No. 86119

Gentlemen:

Diamond coring equipment and water base mud were used to obtain 4.0-inch diameter cores from the formations and intervals shown on the preceding page in the subject well. A representative of Terra Tek Core Services received the cores at the wellsite where they were preserved in saran film and plastic polytubing and transported to our Salt Lake City laboratory for routine retort analysis.

A core gamma log was recorded and, along with porosity, permeability, grain density and fluid saturation plots, is shown on the enclosed Teklog.

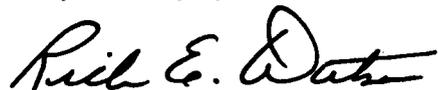
Residual fluid removal was accomplished by the controlled temperature retort extraction method on 100-gram crushed samples selected from each foot of core as specified. Porosities were determined by the summation of fluids technique. Horizontal permeabilities to nitrogen were measured on one-inch diameter plug samples in a hassler sleeve using an orifice-equipped pressure transducer to monitor downstream flow.

Data resulting from the above analysis is tabulated on pages one through three followed by a summary reflecting average data by zones based on permeability, porosity, and fluid saturation variations.

The cores have been slabbed as instructed. The slab sections were delivered to the Utah Geological and Mineral Survey. The butt sections were shipped to your Denver office.

We sincerely appreciate this opportunity to be of service and look forward to working with your group in the future.

Very truly yours,

A handwritten signature in cursive script that reads "Rick E. Dutson".

Rick E. Dutson
Rocky Mtn. Regional Manager

RED/jl

FINAL DISTRIBUTION LIST

BWAB, Incorporated
Orangeville Federal Unit #4-1 Well
Emery County, Utah
TTCS File No. 86119

2 COPIES SENT TO:

BWAB Incorporated
1000 City Center 4
1801 California Street
Denver, CO 80202

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ATTN: Jim Crandal

2 COPIES SENT TO:

Chandler & Associates, Inc.
1860 Lincoln Street, Suite 1400
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ATTN: Don Dayhuff

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Mineral Management Service
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Salt Lake City, UT 84117

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ATTN: John Klabzuba

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Suite 1800
Houston, TX 77027

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Amerada Hess Corporation
1625 Broadway, Suite 2200
Denver, CO 80202
ATTN: Mack Duncan

TerraTek Core Services, Inc.®

University Research Park - 360 Wakara Way - Salt Lake City, Utah 84108 - (801) 584-2480 - TWX 910-925-5284

BWAB, INCORPORATED

Well: Orangeville Fed. Unit 4-1
 Field: Wildcat
 Drilling fluid: Water Base

State: Utah
 County: Emery
 Location: Sec. 1-T19S-R7E

Date: 15-JAN-1986
 ITCS File #: 86119
 Elevation: 6119 KB

RETORT ANALYSIS - SUMMATION OF FLUIDS POROSITY

Sample Number	Depth (feet)	Permeability		Porosity %	Saturation		Grain Density (gm/cc)	Lithology
		Horz (md)	Vert (md)		Oil %	H2O %		
KAIBAB FORMATION								
1	8381.0-82.0	.02 ³		3.4	0.0	70.5		Dol.vfxl,sl/lmy
2	8382.0-83.0	6.6 ³		4.3	0.0	62.8		Dol.vfxl
3	8383.0-84.0	.02 ³		5.6	0.0	48.1		Dol.vfxl,anhy
4	8384.0-85.0	.03 ³		5.2	0.0	62.8		Dol.vfxl,anhy,sl/vgy
5	8385.0-86.0	.38 ³		6.1	0.0	62.5		Dol.vfxl.pyr
6	8386.0-87.0	2.3 ³		3.2	0.0	70.3		Dol.vfxl.pyr
7	8387.0-88.0	<.01		2.2	0.0	75.8		Dol.vfxl,anhy,sl/vgy
8	8388.0-89.0	.01		3.0	0.0	77.6		Dol.vfxl,anhy,sl/vgy
9	8389.0-90.0	.01		2.7	0.0	61.3		Dol.vfxl,anhy,sl/vgy
10	8390.0-91.0	.01		3.0	0.0	55.0		Dol.vfxl,anhy,sl/vgy
11	8391.0-92.0	7.8 ³		3.6	0.0	46.0		Dol.vfxl,anhy,sl/vgy
12	8392.0-93.0	.71 ³		2.2	0.0	53.2		Dol.vfxl,sl/vgy
13	8393.0-94.0	.01		3.1	0.0	70.2		Dol.vfxl,anhy
14	8394.0-95.0	.01 ³		3.9	0.0	70.2		Dol.vfxl,anhy,sl/vgy
15	8395.0-96.0	.03 ³		3.2	0.0	79.1		Dol.vfxl,anhy
16	8396.0-96.8	.01		4.4	0.0	64.7		Dol.vfxl
	8396.8-98.0							Not recovered
	8398.0-03.0							Drilled interval
17	8403.0-04.0	.99 ³		2.4	0.0	69.5		Dol.vfxl,sty

³ Horizontal dehydration crack affecting permeability

TerraTek Core Services, Inc.®

University Research Park - 360 Wakara Way - Salt Lake City, Utah 84108 - (801) 584-2480 - TWX 910-925-5284

BWAB, INCORPORATED

Date: 15-JAN-1986

TICS File #: 86119

Well: Orangeville Fed. Unit 4-1

RETORT ANALYSIS - SUMMATION OF FLUIDS POROSITY

Sample Number	Depth (feet)	Permeability		Porosity %	Saturation		Grain Density (gm/cc)	Lithology
		Horz (md)	Vert (md)		Oil %	H2O %		
18	8404.0-05.0	.01		2.0	0.0	54.8		Dol.vfxf1
19	8405.0-06.0	.02		4.0	0.0	47.5		Dol.vf-fxf1
20	8406.0-07.0	.01		3.0	0.0	62.1		Dol.vfxf1, lmy.sl/chty.sty
21	8407.0-08.0	<.01		2.2	0.0	50.5		Dol.vfxf1
22	8408.0-09.0	.01		3.1	0.0	44.5		Dol.vfxf1
23	8409.0-10.0	.01		2.6	0.0	62.7		Dol.vfxf1
24	8410.0-11.0	.01		2.8	0.0	59.4		Dol.vfxf1
25	8411.0-12.0	.01		3.0	0.0	44.8		Dol.vfxf1
26	8412.0-13.0	.01		2.9	0.0	57.3		Dol.vfxf1, sty
27	8413.0-14.0	.01		3.4	0.0	47.9		Dol.vf-fxf1
28	8414.0-15.0	.01		2.6	0.0	58.8		Dol.vf-fxf1
29	8415.0-16.0	.01		4.1	0.0	39.5		Dol.vf-fxf1
30	8416.0-17.0	.07		7.3	0.0	28.7		Dol.fxf1.pp vgs, lig
31	8417.0-18.0	.03		6.0	0.0	26.5		Dol.fxf1.pp vgs, lig
32	8418.0-19.0	.02		6.3	0.0	25.4		Dol.fxf1.pp vgs, lig
33	8419.0-20.0	.03		6.2	0.0	34.3		Dol.fxf1.pp vgs, lig
34	8420.0-21.0	.01		3.4	0.0	55.8		Dol.fxf1.pp vgs
35	8421.0-22.0	.03		5.1	0.0	23.9		Dol.fxf1.pp vgs
36	8422.0-23.0	.03		6.3	0.0	33.9		Dol.fxf1.pp vgs, sl/lig
37	8423.0-24.0	.02		2.9	0.0	42.4		Dol.vfxf1
38	8424.0-25.0	.01 ³		2.6	0.0	57.8		Dol.vfxf1
39	8425.0-26.0	.21		6.4	0.0	29.0		Dol.fxf1.pp vgs, sl/lig

³ Horizontal dehydration crack affecting permeability

TERRA TEK CORE SERVICES INC.

380 Wakara Way, SLIC Utah 84108 (801) 584-2480

BWAB, INCORPORATED
Orangeville Fed. Unit 4-1

TEKLOG

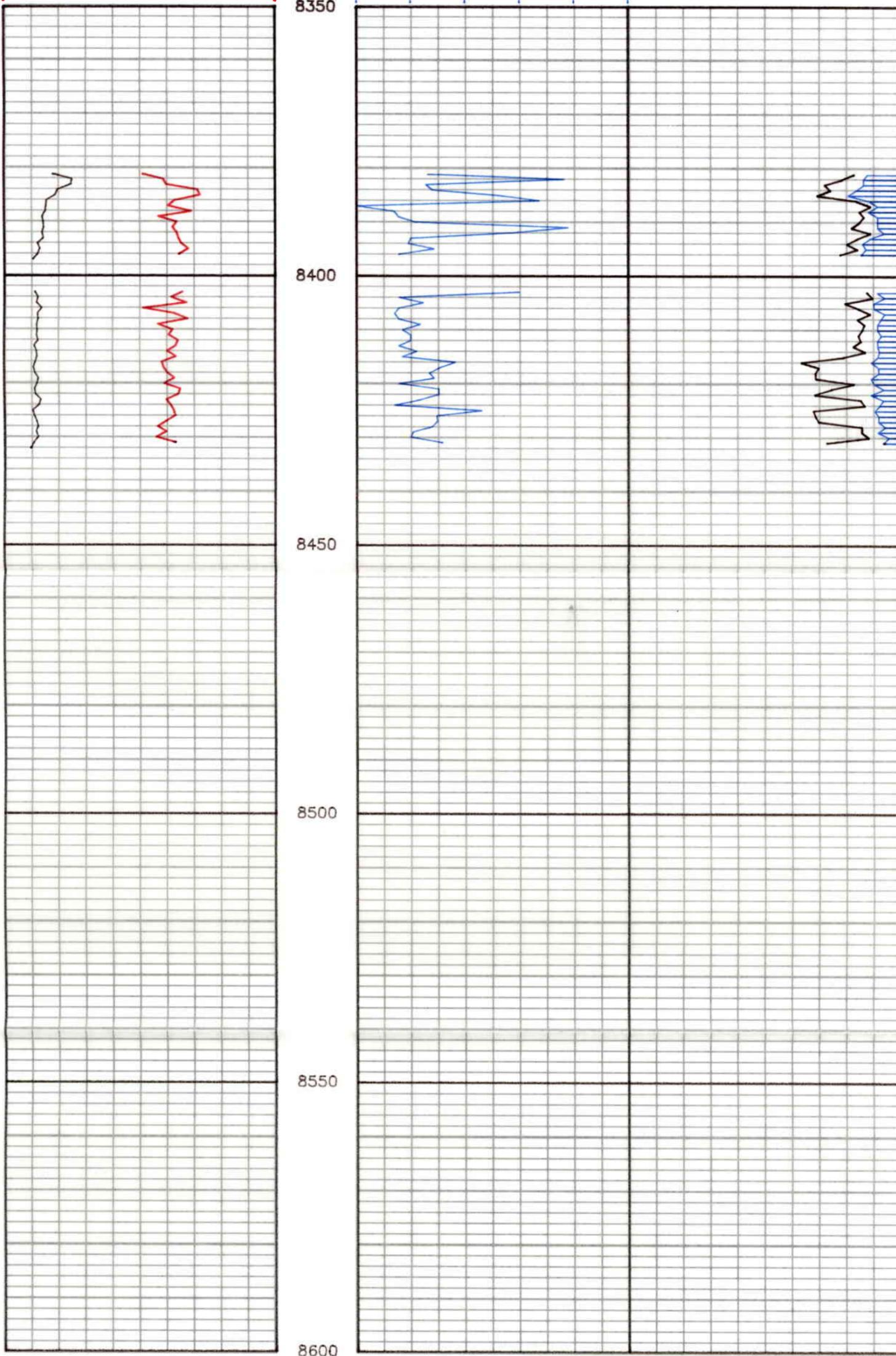
Jan. 15, 1986
TTCS 86119

Core ϕ %

GR CPM 500
2.50 Gd gm/cc 3.00

0.001 Kh mD 100

Fractional Fluids
Oil Void Water



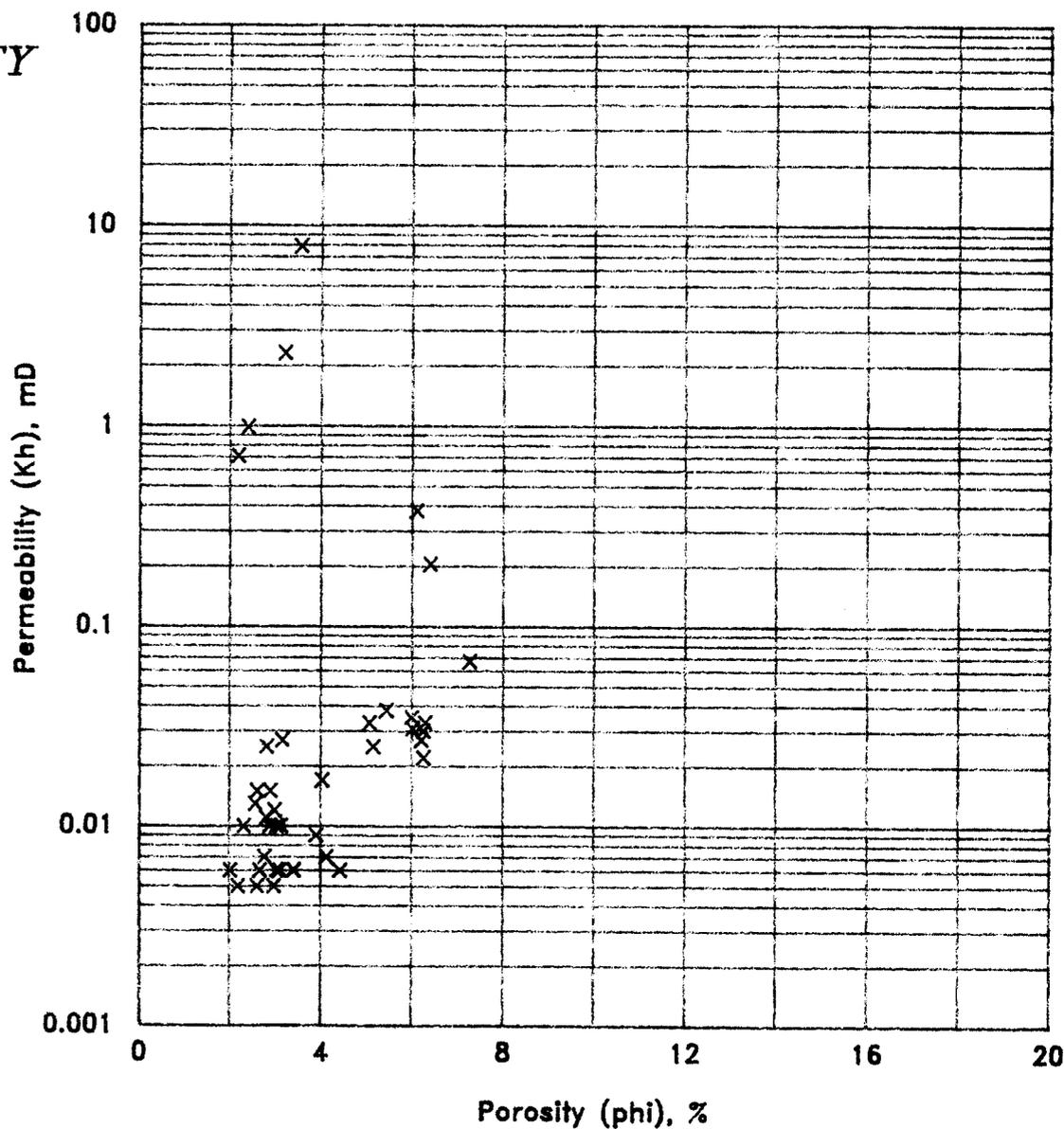
TerraTek Core Services, Inc.®

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HORIZONTAL PERMEABILITY VS POROSITY

BWAB, INCORPATED
Orangville Fed. Unit 4-1
Wildcat
Emery Co., Utah
Jan. 15, 1986

Depth Interval: 8381 to 8433 feet		
Porosity (phi),		
Min	Max	Average
2.017	7.265	3.896
Permeability (Kh), mD		
Min	Max	Geo. Ave
0.005	7.877	0.000



TerraTek Core Services, Inc.®

University Research Park - 360 Wakara Way - Salt Lake City, Utah 84108 - (801) 584-2480 - TWX 910-925-5284

BWAB, INCORPORATED

Well: Orangeville Fed. Unit 4-1
 Field: Wildcat
 Drilling fluid: Water Base

State: Utah
 County: Emery
 Location: Sec. 1-T19S-R7E

Date: 16-JAN-1986
 ITCS File #: 86119
 Elevation: 6119 KB

RETORT ANALYSIS - SUMMATION OF FLUIDS POROSITY DATA SUMMARY

Zone Number	Depth Interval (feet)	Number of Samples	Permeability		Porosity %	Saturation		Grain Density (gm/cc)
			Horz (md)	Vert (md)		Oil %	H2O %	
KAIBAB FORMATION								
1	8381.0-96.8	16	.01 [0.01]		3.7 [1.15]	0.0 [0.00]	64.4 [9.96]	
2	8403.0-15.0	12	.01 [0.00]		2.8 [0.55]	0.0 [0.00]	55.0 [7.96]	
3	8415.0-23.0	8	.03 [0.02]		5.6 [1.28]	0.0 [0.00]	33.5 [10.4]	
4	8423.0-25.0	2	.01 [0.01]		2.8 [0.21]	0.0 [0.00]	50.1 [10.9]	
5	8425.0-28.0	3	.03 [0.00]		6.2 [0.19]	0.0 [0.00]	27.0 [1.84]	
6	8428.0-32.0	4	.02 [0.01]		3.3 [1.41]	0.0 [0.00]	38.6 [14.9]	

[] Sample Standard Deviation

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

5. LEASE DESIGNATION AND SERIAL NO.

U-18134

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

Orangeville Unit

8. FARM OR LEASE NAME

Orangeville Federal Unit

9. WELL NO.

4-1

10. FIELD AND POOL, OR WILDCAT

Wildcat Buzzard Bench

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

Sec 1-T19S-R7E

12. COUNTY OR PARISH

Emery

13. STATE

Utah

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *
RECEIVED

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

1b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESVR. Other _____
JAN 29 1986

2. NAME OF OPERATOR
BWAB INCORPORATED

DIVISION OF OIL
GAS & MINING

3. ADDRESS OF OPERATOR
1801 California Street, Suite 1000, Denver, Colorado 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

At surface 845' FWL & 502' FNL NWNW

At top prod. interval reported below

At total depth same

14. PERMIT NO. 43 015 30221 DATE ISSUED 09-24-85

15. DATE SPUDDED 10/15/86 16. DATE T.D. REACHED 12/05/86 17. DATE COMPL. (Ready to prod.) 01-15-86 18. ELEVATIONS (DF, REB, RT, GR, ETC.)* 6,101' GR 19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 8,560' 21. PLUG, BACK T.D., MD & TVD 2,929' 22. IF MULTIPLE COMPL., HOW MANY* 23. INTERVALS DRILLED BY 0' - 8,560' 24. ROTARY TOOLS 25. CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 2,392' - 2,400' Ferron SS 25. WAS DIRECTIONAL SURVEY MADE No

26. TYPE ELECTRIC AND OTHER LOGS RUN DL w/MSFL, FDL w/CNL, GR-CCL Cy, CBL, BCS, Sample 27. WAS WELL CORDED 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"	54.5#	200'	17-1/2"	235 sx type 2 w/2% CaCl	none
9-5/8"	36#	3081'	12-1/4"	650 sx HOWCO LITE &	
				125 sx Class "A"	
4-1/2"	10.5#	2704'	8-3/4"	275 sx Class "H" 2% CaCl	

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	BACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-7/8"	2,390'	

31. PERFORATION RECORD (Interval, size and number)

2,420' - 2,421' w/4 SPF
2,372' - 2,373' w/4SPF
2,392' - 2,400' w/4SPF

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2420 - 2421	squeezed cement
2372 - 2373	squeezed cement
2392 - 2400	1000 gals 7 1/2% HCL & 50 ball sealer
	24,000 gals 70 quality foam &

33. PRODUCTION 42,000 16/30 sand

DATE FIRST PRODUCTION 01-15-86 PRODUCTION METHOD (Flowing, gas lift, pumping—else and type of pump) Flowing WELL STATUS (Producing or shut-in) Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BSL.	GAS—MCF.	WATER—BSL.	GAS-OIL RATIO
01-16-86	24	1/2"	→	0	140	215	
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BSL.	GAS—MCF.	WATER—BSL.	OIL GRAVITY-API (CORR.)	
90	270	→	0	140	215		

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

35. LIST OF ATTACHMENTS Sent under separate cover.

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

SIGNED Robert C. Arceneaux TITLE V.P. of Operations DATE 01/27/85

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

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:

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

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
DST #1 Shinarump	7149	7208	0 15" SJ 30" 0 60" SI 120" Rec: 15' SGC Mud, No GTS IH: 3489 FH: 3372 IF: 173-171 FF: 171-181 ISIP: 171 FSIP: 181
DST #2 Kaibab	8363	8403	0 10" SI 30" 0 150" SI 240" Rec: 299' GC Mud, 92' M, W, Oil IH: 4065 FH: 3916 IF: 144-157 FF: 198-235 ISIP: 1829 FSIP: 2233
DST #3 Kaibab	8404	8483	MISRUN
DST #4 Kaibab	8411	8486	0 20" SI 30" 0 180" SI 240" REC: 276' slightly GC Mud 368' mod GC & WC Mud 1419' mod GC Water 92' WC & Heavy G Cut Mud Flammable GTS TSTM IH: 3940 FH: 3926 IF: 224-475 FF: 503-1045 ISIP: 3576 FSIP: 3925 BHT 164° F

38. GEOLOGIC MARKERS

Electric Log Tops

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH
Ferron SS	2183	
Tununr Sh	2486	
Dakota	3060	
Morrison	3588	
Curtis	4350	
Entradn	4628	
Carmel	5290	
Navajo	6059	
Wingate	6702	
Chinie	7035	
Shinarump	7150	
U. Moenkopi	7271	
Sinbad	7979	
L. Moenkopi	8110	
Kaibab	8350	
Toroweap	8484	

RECEIVED

JAN 31 1986

**DIVISION OF OIL
GAS & MINING**

**BWAB, INC
ORANGEVILLE FEDERAL UNIT 4-1
EMERY COUNTY, UTAH**

By

**L. A. (Larry) Prendergast
187 Reta Drive
Grand Junction, Colorado 81503
(303) 245-3921**

L. A. PRENDERGAST
CONSULTING GEOLOGIST

GRAND JUNCTION, COLORADO 81503
(303) 245-3921

WELL DATA SUMMARY

Well Name: Orangeville Federal Unit 4-1
Operator: BWAB, Inc.
Location: NW NW Sec. 1, T19S, R7E
Emery County, Utah
Area: Wildcat
Drilling Contractor: Loffland Bros. Rig #1
Elevation: 6101 GR
6119 KB
Depth Logged: 8553
Well Status: Plugged back to 9 5/8" casing
Casing Program: 13 3/8" at 188'
9 5/8" at 3088'
Mechanical Logs Run: FDC/CNL 3088-8553
DLL/MSFL 3088-8553
FDC/CNL 1240-3055
DLL 900-3055
Cores: Core #1 8381-8398
Core #2 8403-8433
D.S.T.: Shinarump
Kaibab
Mudlogging Company: Cate Logging, Park City, Utah
Geologist: L. A. Prendergast - Grand Junction, CO

FORMATION TOPS

FORMATION	PROGNOSIS	ESTIMATED SAMPLE TOP	E-LOGS
Ferron	2105	2179	2184
Dakota	2945	3070	3076
Cedar Mountain	2975		3096
Buckhorn	3605	3579	3574
Morrison	3635	3591	3589
Summerville	3835	3962	3965
Curtis	4315	4359	4350
Entrada	4515		4530
Carmel	5215	5303	5288
Navajo	6065	6054	6042
Kayenta		6547	6530
Wingate	6740	6698	6688
Chinle	7060	7018	7052
Shinarump	7160	7147	7150
U. Moenkopi	7290	7278	7272
Sinbad	8000	8029	7978
L. Moenkopi	8155	8178	8110
Kaibab	8360	8361	8350
Toroweap	8510	8502	8484
Driller TD	8560		
Logger TD	8553		

DEVIATION SURVEYS**Deviation surveys after surface casing**

204	3/4
280	1/4
538	3/4
820	1
971	3/4
1126	1
1400	3/4
1555	3/4
1804	3/4
2054	1/2
2394	3/4
3142	1
3298	2
3422	2 3/4
3483	3
3544	3
3575	2 1/2
3604	2 1/2
3711	1 1/4
3983	2 3/4
3992	2 1/2
4238	2
4418	1 3/4
4911	1
5120	1

DEVIATION SURVEYS

Deviation surveys after surface casing

5402	2
5656	3
5638	3 1/2
5749	3 3/4
5935	4
6028	4
6276	4
6820	5
7100	4 1/4
7293	3 1/2
7541	3 1/4
7823	3 1/2
8093	3 3/4
8386	3 3/4

BIT RECORD

OPERATOR: BWAB, Inc.

WELL NAME: Orangeville Fed. Unit 4-1 **LOCATION NO.:** Sec. 1 - 198 - 7E

CONTRACTOR: Loffland Bros.

RIG NO.: 1 **AREA:** W/C

STATE/COUNTY: Emery Co., Utah

RIG MAKE & MODEL: Unit U-40

SURFACE CASING: _____

INT. CASING: _____

PROD. CASING: _____

NO. 1 PUMP, MAKE & MODEL: Emsco D-700

SPUD DATE: 10-15-85

G. L.: 8101

NO. 2 PUMP, MAKE & MODEL: Emsco DB - 700

T. D. DATE: 12-4-85

K. B.: 8119

BIT NO.	SIZE	MAKE TYPE	JETS	BIT SER. NO.	DEPTH OUT	FEET	HOURS	ACCUM. HOURS	WT. M.	RPM	VERT. DEV.	PUMP PSI	MUD		BIT COND.			REMARKS
													WT.	VIS	T	B	G	
1	17 1/2	Y-11	3/16	Y-27334	163	123	18 1/4	18 1/4	10/15	95	1/2	1000	H ₂ O		6	4	I	Surface, Hard Shale
2	17 1/2	X-3A Reed	open	MX471	200	37	5	23 1/4	10/15	95	3/4	open	H ₂ O		2	2	I	
3	12 1/4	FP-53 Reed	open	T1209	3100	2800	60 3/4	84 1/2	25/30	60/70	3/4	air	150 CFM		4	2	1/8	
4	8 3/4	HP53 Reed	open	J56642	4112	1016	40	120 1/2	10/20	85/90	2 1/2	air			4	2	1/4	
5	8 3/4	HP53A Reed	3/11		4852	740	81 1/2	202	25	65	1 1/2	1200	8.0 42		6	4	1/8	
6	8 3/4	HP53A Reed	10,10	C85426	6276	1424	137	339	40/45	62	5.0	1750	8.8 44		7	5	1/8	
7	8 3/4	HP53J Reed	10,10	B-14899	7108	832	75	414	45	64	4 1/4	1750	8.8 46		8	8	1/2	
8	8 3/4	HPM	10,10	DA6869	7836	728	65 3/4	479 3/4	45	62	3 1/2	2000	8.8 47		8	8	1/2	
9	8 3/4	HPM	10,10	TB0718	8381	545	82	541 3/4	45	60	3 3/4	2100	8.8 45		3	3	I	
10	8 3/4	C-23	TFA45		8398	17	8 3/4	550 1/2	24	60		1500	8.8 55					75% used. core head 40% used. core head
11	6 1/8	C-23	TFA35		8432	30	6 1/2	557	20	54		1100	8.8 47					
RR9	8 3/4	HPM	10,10	TB0718	8432	OPEN CORE HOLE												
RR9	8 3/4	HPM	10,10	TB0718	8436	54	5 1/2	562 1/2	45	60	3 1/2	2100	8.7 47					DST
RR9	8 3/4	HPM	10,10	TB0718	8560	74	9	571 1/2	45	60		2100	8.7 47		8	8	1/2	DST
RR4	8 3/4	HP53	13,13	J56642	8560	0	0	0	0	0		1100	8.8 47					Wiper trip

COMPANY BWAB

WELL NO. Orangeville Fed. Unit 4-1

LOCATION _____

ZONE OF INTEREST NO. 1

INTERVAL: From 7147 To 7168

DRILL RATE: Abv 4.5 - 6 m/ft Thru 5 m/ft Below _____

MUD GAS-CHROMATOGRAPH DATA

	TOTAL	C ₁	C ₂	C ₃	C ₄	C ₅	OTHER
Before	4-6	.10	tr	-	-	-	
During 7150	18	.27	.02	.01	.006	-	
After 7182	28	.25	.06	.05	.05	-	

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

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

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample 5% Poor Slow
 Poor Fair Mod
 Fair % in show lithology 80% Good Fast
 Good COLOR: dull → bright gold COLOR: yel w/yel ring

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

POROSITY: Poor Fair Good Kind Intergranular and possible fracure

LITHOLOGY SS wh, lt.-dark gray, veryfine-fine grained with some med. grain, poor sort, subangular, moderately cemented with some friable, sli. calc. with dark stain
SAMPLE QUALITY poor-fair

NOTIFIED Bob Lent @ _____ HRS. DATE: _____

REMARKS Rec. DST #1 even though poor visible porosity
Shinarump @ 7147

ZONE DESCRIBED BY L. A. Prendergast

COMPANY BWAB

WELL NO. Orangeville Fed. Unit 4-1

LOCATION _____

ZONE OF INTEREST NO. 2

INTERVAL: From 7990 To 7995

DRILL RATE: Abv 6.6 Thru 5.6 Below _____

MUD GAS-CHROMATOGRAPH DATA

	TOTAL	C ₁	C ₂	C ₃	C ₄	C ₅	OTHER
Before	6	.1	.02	-	-	-	
During	27	.6	.06	.04	.02	-	
After	6	.18	.01	tr	-	-	

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

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

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample < 5% Poor Slow
 Poor Fair Mod
 Fair % in show lithology 50% Good Fast
 Good COLOR: lt. yel COLOR: _____

STAIN: None Poor Fair Good Live Dead Residue Even Spotty Lt. Dk. ^{Blk.}

POROSITY: V Poor Fair Good Kind _____

LITHOLOGY SS, lt. gray, very fine grained, silty subangular with common blk stn
yel. fluo. & cut. Lt. gray-wh, clr, med. grain subang - subrdd w/stain
 SAMPLE QUALITY very poor

NOTIFIED _____ @ _____ HRS. DATE: _____

REMARKS Very poor porosity - <1% , no DST rec.

Sinbad 7978 from FDC/CNL

ZONE DESCRIBED BY L. A. Prendergast

COMPANY BWAB

WELL NO. Orangeville Federal Unit 4-1

LOCATION _____

ZONE OF INTEREST NO. 3

INTERVAL: From 8040 To 8045

DRILL RATE: Abv 6 - 6.5 Thru 5 - 6 m/f Below 6-7

MUD GAS-CHROMATOGRAPH DATA

	TOTAL	C ₁	C ₂	C ₃	C ₄	C ₅	OTHER
Before	4 - 6	.07	.01	-	-	-	
During 8045	44	1.0	.13	.06	.02		
After							

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

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

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample 10% Poor Slow
 Poor Fair Mod
 Fair % in show lithology _____ Good Fast
 Good COLOR: pale yel COLOR: yel

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

POROSITY: Poor Fair Good Kind Intercrystalline

LITHOLOGY LS lt. gray, microcrystalline, cream, microsucrosic w/tr. pinpoint porosity. Tite

SAMPLE QUALITY Very poor

NOTIFIED Bob Lent @ _____ HRS. DATE: _____

REMARKS No DST rec.

Sinbad 7978 from FDC/CNL

ZONE DESCRIBED BY _____

COMPANY BWAB

WELL NO. Orangeville Fed. Unit 4-1

LOCATION _____

ZONE OF INTEREST NO. 4

INTERVAL: From 8366 To 8376

DRILL RATE: Abv 6 - 7 Thru 4-5 w/two 3 minute feet Below _____

8376 - 82 3 m/ft.
82 - 84 4 m/ft.
84 - 86 5 m/ft.

MUD GAS-CHROMATOGRAPH DATA

	TOTAL	C ₁	C ₂	C ₃	C ₄	C ₅	OTHER
Before	1-2						
During 8370	20	.32	.025	.01	-		
After 8385	50	1.53	.11	.06	.02	-	-

Type gas increase: Gradual Sharp

Gas variation within zone: Steady Erratic Increasing Decreasing

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

FLUO: Mineral Even Spotty CUT: None Streaming
 None % in total sample < 5% Poor Slow
 Poor Fair Mod
 Fair % in show lithology < 10% Good Fast
 Good COLOR: yel-gold COLOR: milky yel

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

POROSITY: Poor Fair Good Kind Intergranular possible fracture

LITHOLOGY SS lt. - med. gray very fine grained, subrd, silty some med.-coarse grained, subrd, moderately cemented, sli. calc. with dead bkc stn. Trace live brown stain SAMPLE QUALITY poor

NOTIFIED Bob Lent @ _____ HRS. DATE: _____

REMARKS Tr Limestone wh, microcrystalline, very dolo., foss with trace fract; tr. brn stain. Very weak yel. fluor, very weak milky yellow cut

ZONE DESCRIBED BY L. A. Prendergast

DST #1 7149 - 7208

59'

Flopetrol-Johnston Vernal, Utah
 Scott Pitt

Inside Recorder
 Depth 7124
 Clock Stopped

Outside Recorder
 Depth 7132

Time

IH	3473	
IF	151-152	15
ISI	169	30
FF	161-161	60
FSI	175	122
FH	3412	

BHT 148° F

Rec 15' slightly gas cut mud.

R_m 4.4 @ 58° F

Cl 800 ppm

Sample Chamber
 psi = 12

2600 cc mud

Rm 4.4 @ 58° F
 Rf 1.1 @ 58° F

Mud wt. - 9.0
 vis. - 47 - 49
 Rm - 4.3 @ 65
 Rf - 1.2 @ 65

DST #2 8363 - 8403

40'

Flopertrol - Johnston Vernal, Utah
Clifford L. Richards

	Recorder	Recorder	Recorder	Time
	8333	8369	8375	
	Inside	Inside	Outside	
BHT	150° F	150° F	150° F	
IH	4058	4083.9	4099	
IF	122-122	166-142	152-152	10
ISI	1797.8	1825	1817	30
FF	185-210	205-218	200-219	150
FSI	2217	2208.3	2245	240
FH	3918	4058	3956	

Recovery: Drill pipe

299' Gas cut mud Rm 1.5 @ 64° F

92' gas, 2% oil, water cut mud Rm .5 @ 68° F

391' total recovery

Sampler: 150 psi = .283 cu. ft. gas
2810 cc water Rm .42 @ 69° F

NOTE: Contrary to instructions, tester did not catch gas sample from sample chamber.

Mud Wt.	8.8	Rm .45 @ 49°
Vis.	63	Rf .43 @ 52°
WL	5.8	Cl 2300 ppm

DST #3

8405 - 8483

78'

Halliburton Vernal, Utah
Doc Mc Millan

Misrun

DST #4 8411 - 8486 75'

Halliburton Vernal, Utah
Doc Mc Millan

BHT 164° F				
Recorder		Recorder	Recorder	Time
Depth 8483		8385	8369	
IH 3939.8		3922		
IF 223.5 - 474.9		163 - 407.4		20
ISI 3575.7		3542	396.9	31
FF 502.8 - 1044.5		448.1 - 998		179
FSI 3366.3		3342	989.5	240
FH 3925.8		3922		

Recovery: 276' slightly gas cut mud
368' moderately gas cut, water cut mud
1419' moderately gas cut water
92' heavy gas cut, water cut mud

2155' total drill pipe recovery

Sample Chamber 18 psi = .00018 cu. ft. gas
2050 cc water Rw = .19 @ 68° F

Pit Mud	Rm = .29 @ 68°	Bottom	Rm = .21 @ 68°
Top	Rw = .29 @ 68°	Sample Chamber	Rw = .19 @ 68°
Middle	Rw = .25 @ 68°	Pit mud Filtrate	Rf = .40 @ 68°

Blow description:

Open tool with 2 1/2 oz. increasing to 8 1/2 oz. at 20 min.

Shut in for 31 min.

Open tool with 6 1/2 oz. increasing to 20 oz. at 110 min. Gas to surface at 135 minutes at 1.5 psi. 1/8 - 1/4 inch blue flame at bubble hose. Continue increase to 1.75 psi at 179 minutes of final flow.

Shut in for 240 minutes

NOTE: Gas at all times was too small to measure

ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.

DAILY REPORT

11:30 a.m.
TEMP. SPUD 15 Oct. 85 DAY 1 DATE 16 Oct. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 40 TODAY 139 FTG. 99 FT/HR.

OPERATION Drilling surface with Bit #1

BIT NO. 1	TYPE	17 1/2" Reed 11 J	IN 40	OUT	FT.	HRS.
BIT NO.	TYPE		IN	OUT	FT.	HRS.
WOB	REM		PP	SPM	LAG	e
MUD	WT	VIS	WL	CK	PH	CL Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Mancos - Blue Gate Shale

LITHOLOGY Shale dark gray with indurated silty in part

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
-------	-----------	----	----	----	----	----	----	------

REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 2 DATE 17 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 139 TODAY 200 FTG. 61 FT/HR.

OPERATION Nipple up - wait on cement

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Blue Gate Shale member of Mancos

LITHOLOGY

MUD GAS TG BACKGROUND

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	EW	C1	C2	C3	C4	C5	FLOU
-------	-----------	----	----	----	----	----	----	------

REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 3 DATE 18 Oct. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. TODAY 200 FTG. FT/HR.

OPERATION

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	RPM	PP	SEM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION

LITHOLOGY Stand-by

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FLOU
-------	-----------	----	----	----	----	----	----	------

REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 4 **DATE** 19 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 200 **TODAY** 200 **FTG.** --- **FT/HR.**

OPERATION Repair rig - back on daywork @ 3:00 a.m.
 Tag cement at 153' - prepare to drill out cement

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REN	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Blue Gate Shale

LITHOLOGY

MUD GAS **TG** **BACKGROUND**

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
--------------	------------------	-----------	-----------	-----------	-----------	-----------	-----------	-------------

REMARKS

CALLED Bob Lent 303 779 0130

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 5 **DATE** 20 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 200 **TODAY** 569 **FTG.** 369 **FT/HR.**

OPERATION Drilling with Bit #3 Air
 Flare pilot is lit - no gas indicated

		12 $\frac{1}{2}$						
BIT NO.	3	TYPE	FD 53 Reed	IN	200	OUT	FT.	HRS.
BIT NO.		TYPE		IN		OUT	FT.	HRS.
WOB		REM		PP		SPM	LAG	@
		2100 CFM Air						
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca	

SURVEYS 204' - 3/4⁰
 280' - 1/4⁰
 538' - 3/4⁰

GEOLOGICAL

FORM TOPS

FORMATION Blue Gate

LITHOLOGY Predominately Shale dark gray-black very silty with thin very fine grained SS

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
--------------	------------------	-----------	-----------	-----------	-----------	-----------	-----------	-------------

REMARKS

CALLED Bob Lent 303 779 0130

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 6 **DATE** 21 Oct. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION
DEPTH YEST. 569 **TODAY** 1752 **FIG.** 1183 **FT/HR.**
OPERATION Drilling with Bit #3

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@
	2100 CFM Air @ 225 psi		140 psi		
MUD	WT	VIS	WL	CK	PH
					CL
					Fe/Ca

SURVEYS 820' - 1⁰ 1355' - 3/4⁰
 971' - 3/4⁰
 1126' - 1⁰
 1400' - 3/4⁰

GEOLOGICAL

FORM TOPS

FORMATION Blue Gate

LITHOLOGY Sh drk gry-blk w/thin Sltsn & SS

D.T. gas @ 1036 - 15' flare @ 3 seconds
 Intbdd SS 1010 - 30

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
REMARKS	CNL - FDC w/GR & SP	KCL	800	525	7597			

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 7 **DATE** 22 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 1752 **TODAY** 2619 **FTG.** 867 **FT/HR.**

OPERATION Drlg w/Bit #3
 Air 2100 CFM 125 psi Note: flare steady & incr. from 2435' on

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS Ferron - 2179
 Lower Ferron 2402 Tununk 2549
FORMATION Tununk Sh dk gry-blk firm silty calc

LITHOLOGY 2343 blow test 1/2 hr. no gas
 2404 survey (down 20 min) 20' flare - 8 sec
 2425 - 4' steady flare
 2435 - 8' steady flare gauged @ 39.2 MCF on 1/4" orifice; 30-50' flare
 125 psi circ - 8' steady flare with no aircomp. on

MUD GAS **TG** **BACKGROUND**

ZONE OF INTEREST NO. @ **TO**

SEWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS flare became intermittent beginning at 2470 continuing C.G. 20-30'

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 8 **DATE** 23 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 2619 **TODAY** 3100 **FIG.** 481 **FT/HR.**

OPERATION Logging w/Schlumberger #8220
 Kent Fox Engineer

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS Dakota 3070
FORMATION Dakota (possible Cedar Mountain)

LITHOLOGY

MUD GAS **TG** **BACKGROUND**
ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
--------------	------------------	-----------	-----------	-----------	-----------	-----------	-----------	-------------

REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 9 DATE 24 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. TODAY 3100 SML 3100 = 3096
FTG. FT/HR.

OPERATION Cement 9 5/8" csg
Shoe @ 3082

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@

MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca
-----	----	-----	----	----	----	----	-------

SURVEYS

GEOLOGICAL

FORM TOPS Dakota 3070

FORMATION Dakota

LITHOLOGY

MUD GAS TG BACKGROUND

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 10 **DATE** Oct. 25, 1985
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 3100 **TODAY** 3100 **FIG.** 0 **FT/HR.**

OPERATION Test BOP on 9 5/8"

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Dakota

LITHOLOGY

MUD GAS

TG **BACKGROUND**

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
--------------	------------------	-----------	-----------	-----------	-----------	-----------	-----------	-------------

REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 11 **DATE** 26 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 3100 **TODAY** 3296 **FTG.** 196 **FT/HR.**

OPERATION Drillingw/air
 Dakota-Cedar Mtn.

BIT NO. 4	TYPE HP 53A	IN 3100	OUT 3632	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	RPM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca
SURVEYS	3142 - 1 ⁰						

GEOLOGICAL

FORM TOPS

FORMATION Cedar Mtn. ?

LITHOLOGY SS wh, lt tan vf - mg m sort micaceous NSOFC
 Sh lt gry-mgry soft-firm bentic in part

CG 3173 - 4' for 2 sec. (100 units)

CG 3112 - 100 units

Samples very poor pred. cement - very suspect

MUD GAS

TG **BACKGROUND**

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
--------------	------------------	-----------	-----------	-----------	-----------	-----------	-----------	-------------

REMARKS Logging unit on location 24 Oct.
 Rig up 25 Oct.
 Comment drlg 11:00 p.m. 25 Oct. 85

CALLED Bob L. 303 779-0130

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 12 **DATE** 27 Oct. 85
COMPANY EWAB
WELL LOCATION Orangeville Federal 4-1

DEPTH YEST. 3296 **TODAY** 3642 **FIG.** 346 **FT/HR.**

OPERATION

Reed 8 3/4"
BIT NO. 4 **TYPE** HP53A **IN** 3642 **OUT** **FT.** **HRS.**
BIT NO. **TYPE** **IN** **OUT** **FT.** **HRS.**
WOB 12M **REP** 80 **PP** **SPM** **LAG** e
MUD Air WT **VIS** **WL** **CK** **PH** **CL** **Fe/Ca**

SURVEYS 180 - 450 psi 200
 CFM 1400

GEOLOGICAL

FORM TOPS

FORMATION Cedar Mtn. (Possible Buckhorn - 3607 - Did get wet)

LITHOLOGY No cong. in spls
 3555 - 65 - SS
 3579 - 91 - SS - 5-7 m/ft

MUD GAS **TG** **BACKGROUND** 0-tr

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH **LITHOLOGY** HW CL C2 C3 C4 C5 FLOU

REMARKS Began getting wet 3579

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 13 **DATE** 28 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 3642 **TODAY** 4086 **FTG.** 444 **FT/HR.**

OPERATION Drlg

BIT NO.	RR #4 TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 10/15	REM 80	PP	SPM	LAG	@

MUD Air WT	VIS	WL	CK	PH	CL	Fe/Ca
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SURVEYS

3711 - 2 1/4 ⁰
3804 - 2 1/2 ⁰
3898 - 2 3/4 ⁰
3992 - 2 1/2 ⁰

GEOLOGICAL

FORM TOPS Buckhorn 3579 Morrison 3591

FORMATION Summerville 3962

LITHOLOGY		Units
Sh varicolor - pastel v sli - noncalc		
red-brn slty	4023 - tr	3711 CG 9
	4054 - 3	3742 5
	4085 - 4	3773 3
Anh wh, clr xln		3804 5
soft - firm		3961 2
	Survey	3992 11, 5

MUD GAS **TG** **BACKGROUND** 0 - tr

ZONE OF INTEREST NO. @ TO no flare

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS high SP - 5700 look at Entrada

CALLED

GEOLOGY	LOGGING	MILEAGE	EXP.
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ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 14 DATE 29 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4086 TODAY 4113 FIG. 27 FT/HR.

OPERATION Mudding up following jarring out of hole
Change flow line

Reed 8 3/4
BIT NO. 5 TYPE HP53A IN 4112 OUT FT. HRS.
BIT NO. TYPE IN OUT FT. HRS.
WOB REM PP SPM LAG @
MUD WT VIS WL CK PH CL Fe/Ca

SURVEYS 4085 - 2 1/2⁰

GEOLOGICAL

FORM TOPS

FORMATION Summerville

LITHOLOGY

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH LITHOLOGY HW C1 C2 C3 C4 C5 FLOU

REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 15 DATE 30 Oct. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4113 TODAY 4113 FIG. - FT/HR.

OPERATION Wash, ream, condition hole

BIT NO.	TYPE	IN	OUT	FT.	HRS.	
BIT NO.	TYPE	IN	OUT	FT.	HRS.	
WOB	REM	PP	SPM	LAG	@	
MUD 4113	WT 8.5	VIS 44	WL 9.2	CK 1	PH 10	CL 180 Fe/Ca 36

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Summerville

LITHOLOGY

MUD GAS TG BACKGROUND tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 16 **DATE** 31 Oct. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4113 **TODAY** 4113 **FIG.** - **FT/HR.**

OPERATION Condition mud, condition hole

BIT NO. 5	TYPE HP53A	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@
MUD 4113 WT 8.7	VIS 52	WL 5.6	CK 1	PH 8.2	CL 500 Fe/Ca 96

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Summerville

LITHOLOGY

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FLOU
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REMARKS Began adding blown asphalt @ 2:00 a.m. No gas incr noted - anticipate no problems w/sample shows

CALLED

GEOLOGY	LOGGING	MILEAGE	EXP.
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**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 17 **DATE** 1 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4113 **TODAY** 4238 **FIG.** 125 **FT/HR.**

OPERATION Drlg w/bit #5

		Reed					
BIT NO. 5	TYPE	HP 53A	IN 4112	OUT	FT.	HRS.	
BIT NO.	TYPE		IN	OUT	FT.	HRS.	
WOB 25M	REM 65		PP 1100	SPM 60	LAG 4145	@ 135 min.	

MUD 4236 **WT** 8.8 **VIS** 59 **WL** 4.4 **CK** .5 **PH** 9.8 **CL** 800 **Fe/Ca** 60

SURVEYS 4238 - 2⁰

GEOLOGICAL

FORM TOPS

FORMATION Summerville

LITHOLOGY Sh red-brn silty grdng to Siltstone
v th SS wh, lt red-brn

MUD GAS **TG** 0 **BACKGROUND** tr-1

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS 4150-70 lgas to 4130-40 tr SS wh, v lt tan vf-mg fria w/dead stain - no gas incr. tr poor yel cut no fluor

CALLED Bob Lent 800-525-7597

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 18 **DATE** 2 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4238 **TODAY** 4468 **FIG.** 230 **FT/HR.**

OPERATION Drl w/bit #5

BIT NO.	TYPE		IN	OUT	FT.	HRS.
BIT NO.	TYPE		IN	OUT	FT.	HRS.
WOB 25	REM 76		PP 1200	SPM 60	LAG 50	@
MUD 4469	WT 9.0	VIS 42	WL 7	CK 1	PH 9.0	CL 850 Fe/Ca 128

SURVEYS 1 3/4⁰ - 4418

GEOLOGICAL

FORM TOPS Curtis 4359

FORMATION Curtis

LITHOLOGY SS mgry - vf-mg
 subrdd - m cem calc w/Glauc incl

MUD GAS **TG** **BACKGROUND** 0-tr

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 19 DATE 3 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4468 TODAY 4666 FTG. 198 FT/HR.

OPERATION

BIT NO. TYPE IN OUT FT. HRS.
BIT NO. TYPE IN OUT FT. HRS.
WOB 25M REM 76 PP 1200 SPM 60 LAG 50 @ 4388
MID 4666 WT 9.0 VIS 41 WL 10.0 CK 2 PH 8.1 CL 890 Fe/Ca 96

SURVEYS 4642 - 1 1/4⁰
4666 - 1 1/2⁰
4620

GEOLOGICAL

FORM TOPS Entrada 4632

FORMATION Entrada

LITHOLOGY SS vfg red-org w/Anhy matrix

MID GAS TG BACKGROUND tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH LITHOLOGY HW C1 C2 C3 C4 C5 FLOU

REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 20 **DATE** 4 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4666 **TODAY** 4824 **FIG.** 158 **FT/HR.**

OPERATION Drlg w/bit #5

BIT NO.	TYPE		IN	OUT	FT.	HRS.
BIT NO.	TYPE		IN	OUT	FT.	HRS.
WOB 25-30M	REM	76	PP 1200	SPM 60	LAG 46	@ 4697
MUD 4821WT	8.9	VLS 46	WL 4.8	CK 2	PH 10.3	CL 740 Fe/Ca 84

SURVEYS 4758 1 1/2⁰

GEOLOGICAL

FORM TOPS

FORMATION Entrada

LITHOLOGY

4789 - 3 U DT Survey

MUD GAS TG BACKGROUND tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FILOU
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REMARKS

CALLED

GEOLOGY	LOGGING	MILEAGE	EXP.
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ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 21 **DATE** 5 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 4824 **TODAY** 4857 **FTG.** 33 **FT/HR.**

OPERATION Drl w/bit #6

		Reed							
BIT NO. 6	TYPE	HP53J	IN	4852	OUT		FT.		HRS.
BIT NO. 5	TYPE	HP53A	IN	4112	OUT	4852	FT.	740	HRS. 81½
WOB 30-45M	RPM	76	PP	1200	SPM	46	LAG		@
MID 4856	WT	9.0	VIS	47	WL	5.8	CK	2	PH 10.5 CL 1180 Fe/Ca 228

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Entrada

LITHOLOGY 90% Sh red-brn slty firm calc
 10% SS red-org vf-fg

MID GAS 4852 **TG 8 BACKGROUND** tr - 2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 22 **DATE** 6 Nov. 85
COMPANY BWAB
WELL LOCATION Orangeville Federal 4-1
DEPTH YEST. 4857 **TODAY** 5107 **FIG.** 250 **FT/HR.** 10 ft/hr
OPERATION Drlg w/bit #6

BIT NO. 6	TYPE HP53J	IN 4852	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 45 M	REM 56	PP 1850	SPM 60	LAG 64	@ 5095
MUD 5102	WT 9.0	VIS 41	WL 9.8	CK 1	PH 10.8 CL 250 Fe/Ca
SURVEYS	4911 - 1 ⁰				

GEOLOGICAL

FORM TOPS

FORMATION Entrada

LITHOLOGY Sltsn red-brn firm calc w/common Anhy matrix

MUD GAS **TG** **BACKGROUND** tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 23 **DATE** 7 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5107 **TODAY** 5348 **FIG.** 241 **FT/HR.**

OPERATION Drlg w/bit #6

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 45M	REM 56	PP 1850	SPM 60	LAG	@
MUD 5348 WT 9.1	VIS 82	WL 4.0	CK 1	PH 10.8	CL 850 Fe/Ca 36

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Carmel 5303 + 816

LITHOLOGY SS gry-grn vf-fg firm-fria calc
w/Anhy matrix
Anhy wh, pk soft
Sh mgry firm blocky calc

MUD GAS **TG** **BACKGROUND** tr -2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	ELOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 24 **DATE** 8 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5348 **TODAY** 5538 **FIG.** 190 **FT/HR.**

OPERATION Drlg w/bit #6

BIT NO.	TYPE		IN	OUT	FT.	HRS.
BIT NO.	TYPE		IN	OUT	FT.	HRS.
WOB 40M	REM 60		PP 1800	SPM 45	LAG 59	@
MUD 5527	WT 8.9	VIS 44	WL 6.1	CK 1	PH 9.5	CL 800 Fe/Ca 144

SURVEYS 5402 - 2⁰

GEOLOGICAL

FORM TOPS

FORMATION Carmel

LITHOLOGY SS
Sltsn
Anhy

MUD GAS TG BACKGROUND tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

<u>DEPTH</u>	<u>LITHOLOGY</u>	<u>HW</u>	<u>C1</u>	<u>C2</u>	<u>C3</u>	<u>C4</u>	<u>C5</u>	<u>FLOU</u>
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REMARKS Lost circ 5504 - 650 bbl
SS clr vcg lse

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 25 **DATE** 9 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5538 **TODAY** 5648 **FTG.** 110 **FT/HR.**

OPERATION Rig repair - drawworks 2nd gear transmission

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@
MUD 5648 WT 8.8 VIS 44	WL 6.8	CK 1	PH 9.0	CL 1800	Fe/Ca 220

SURVEYS 5638 - 3 1/2⁰

GEOLOGICAL

FORM TOPS

FORMATION Carmel

LITHOLOGY Rocks Sh mgry-grn soft-firm bentic
 aren sli calc s/varicolor
 tr-common Anhy

CG - 5618 - 4u

MUD GAS **TG** **BACKGROUND** tr -3

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS No

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 26 DATE 10 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5698 TODAY 5779 FIG. 131 FT/HR.
OPERATION Drlg w/bit #6

BIT NO. TYPE IN OUT FT. HRS.
BIT NO. TYPE IN OUT FT. HRS.
WOB 35-45M REM 56 PP 1700-1850 SPM 60 LAG 59 @ 5095
MUD 5743 WT 8.7 VIS 61 WL 7.2 CK 1 PH 10.0 CL 2700 Fe/Ca 200
SURVEYS 5749 - 3 3/4⁰

GEOLOGICAL

FORM TOPS

FORMATION Carmel

LITHOLOGY Sh lt-mgry firm sltycalc ANHYDRITIC
Anhy wh, clr pred soft w/s firm xln

MUD GAS 5648
TG 12 BACKGROUND tr -3

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH LITHOLOGY HW C1 C2 C3 C4 C5 ELOU

REMARKS 5690 - water flow from 5503 - 5590 LC zone
coarse SS - c Abundant @ Kcm & Jm Cavings
5708 - work tight hole

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 27 DATE 11 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5779 TODAY 5987 FIG. 208 FT/HR.
OPERATION Drlg

BIT NO. 6 TYPE IN OUT FT. HRS.
BIT NO. TYPE IN OUT FT. HRS.
WOB 35M REM 64 PP 1750 SPM 60 LAG 65 @ 5811
MUD WT 8.8 VIS 48 WL 7.6 CK 1 PH 9.0 CL 3000 Fe/Ca 160

SURVEYS 4⁰ - 5948

GEOLOGICAL

FORM TOPS

FORMATION Carmel

LITHOLOGY LS m-dk gry microxln hd, dnse
pelletal slty in pt, shaley in pt

MUD GAS TG BACKGROUND tr -2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

DEPTH LITHOLOGY HW C1 C2 C3 C4 C5 FLOU

REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 28 **DATE** 12 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 5987 **TODAY** 6240 **FTG.** 273 **FT/HR.**

OPERATION

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 2-10M	REM 60	PP 1750	SPM	LAG	@
MUD	WT 8.5	VIS 48	WL	CK	PH
					CL
					Fe/Ca
SURVEYS =					
	6241 8.9	45 7.4	1 10.8	2950 40	

GEOLOGICAL

FORM TOPS

Navajo 6054

FORMATION

Navajo

LITHOLOGY

SS lt org, lt red brn, wh vf-fg m sort p-m cem. calc s/vlt org-
wh f-mg subrdd-rdd, fria

yel min fluo NSOFC

MUD GAS

TG **BACKGROUND** 2 (tr-1 am)

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FILOU
REMARKS	Before	tr+	tr	-	-	-	-	-
	During	2	250	-	-	-	-	-
CALLED	6045 - 80	.6m/ft	Lost 15 bbls					
	54 - 65	3m/ft						
	- 54	6-8 m/ft						

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 29 **DATE** 13 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 6240 **TODAY** 6412 **FIG.** 72 **FT/HR.**

OPERATION Drlg w/bit #7

BIT NO. 6	TYPE HP53J	IN 4852	OUT 6276	FT. 1424	HRS. 137
BIT NO. 7	TYPE HP53	IN 6276	OUT	FT.	HRS.
WOB 2/35 M	REM 64	PP 1750	SPM 60	LAG 65	@ 5811
MUD 6412	WT 8.8	VIS 52	WL 6.0	CK 1	PH 10.2 CL 3000 Fe/Ca 72

SURVEYS 4⁰ - 6276

GEOLOGICAL

FORM TOPS Navajo 6054

FORMATION Navajo

LITHOLOGY SS lt org. f-mg w/s cg clusters pred. rdd-subrdd

4 @ 6276

MUD GAS **TG** **BACKGROUND** tr - 1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 30 **DATE** 14 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 6412 **TODAY** 6662 **FIG.** 250 **FT/HR.**

OPERATION Drlg w/bit #7

BIT NO. 7	TYPE HP53	IN 6276	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 35/40	REM 64	PP 1750	SPM 16 x 60	LAG	@
MUD 6662 WT 8.8	VIS 57	WL 6.4	CK 2	PH 10.5	CL 3200 Fe/Ca tr

SURVEYS

GEOLOGICAL

FORM TOPS Kayenta 6547

FORMATION Kayenta dk red-org vf-fg slty, shaley
LITHOLOGY SS lt org, org, wh vf-fg s/m, c gr
 subang-subbrdd w/Anhy matrix

VPS Abn cvgs

MUD GAS **TG** **BACKGROUND** tr -1

ZONE OF INTEREST NO. none @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 31 **DATE** 15 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 6662 **TODAY** 6933 **FIG.** 271 **FT/HR.**

OPERATION Drlg w/bit #7

BIT NO. 7	TYPE HP53	IN 6276	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 2-35	REM 64	PP 1700	SPM 60 x 16	LAG 70	e 6544
MUD 6924 WT 8.9	VIS 48	WL 4.0	CK 1	PH 10.0	CL 1900 Fe/Ca tr

SURVEYS 5⁰ - 6820

GEOLOGICAL

FORM TOPS Wingate 6698

FORMATION Wingate

LITHOLOGY SS lt org f-mg subang-subrdd p-mcem
 calc w/wh Anhy matrix

MUD GAS **TG** **BACKGROUND** tr-1

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1

EWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 32 DATE 16 Nov. 85
 COMPANY EWAB
 WELL Orangeville Federal 4-1
 LOCATION

DEPTH YEST. 6933 TODAY 7108 FIG. 175 FT/HR.

OPERATION TOH for Bit #8

BIT NO. 7	TYPE HP53	IN 6176	OUT 7108	FT. 832	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 2-35	REM 64	PP 1760	SPM 60	LAG 70	@ 6544
MUD 7108 WT 8.8	VIS 45	WL 4.0	CK 1	PH 10.5	CL 800 Fe/Ca tr

SURVEYS

GEOLOGICAL

FORM TOPS Chinle 7018 (-899) 644' higher than Tipco @ Chinle

FORMATION Chinle

LITHOLOGY Sh pale gry-grn waxy, brick red slty

Tr in spl - SS wh, clr, lt gr. vfg subrdd-subang w/dead blk str
 S/lt brn NSOFC

MUD GAS tr-1 6945
 TG BACKGROUND 4-6

ZONE OF INTEREST NO. 5.2 - 4.4 m/ft @ TO

SHOWS-BREAKS 6945-55

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 33 **DATE** 17 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 7108 **TODAY** 7168 **FIG.** 601 **FT/HR.**

OPERATION Drlg w/bit #8 HPM

BIT NO.	TYPE		IN	OUT	FT.	HRS.
BIT NO.	TYPE		IN	OUT	FT.	HRS.
WOB 45M	RPM 64		PP 1750	SPM 60	LAG	@
MID 7171	WT 8.8	VIS 48	WL 4.6	CK 1	PH 10.5	CL 700 Fe/Ca tr

SURVEYS

GEOLOGICAL

FORM TOPS Shinarump 7147

FORMATION

LITHOLOGY Refer to show sheet #1

MID GAS **TG** **BACKGROUND** 4-6

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	ELOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

ORANGEVILLE FEDERAL UNIT 4-1

BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 34

DATE 18 Nov. 85

COMPANY BWAB

WELL Orangeville Federal 4-1

LOCATION

DEPTH YEST. 7168

TODAY 7208

FIG. 40

FT/HR.

OPERATION DST #1 7149-7208
Shinarump

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD 7208	WT 8.7	VIS 49	WL 4.4	CK 1	PH 10.5	CL 500	Fe/Ca tr

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION 15 - open w/v weak - 1/4 - 1/2"

30 -

LITHOLOGY 60 - open w/no blow

123

MUD GAS

TG

BACKGROUND

10-14

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 35 **DATE** 19 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 7208 **TODAY** 7316 **FTG.** 108 **FT/HR.**

OPERATION Drilling w/ Bit #8

BIT NO. 8	TYPE HPM	IN 7108	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 45	REM 64	PP 1700	SPM 60	LAG 81	@ 7264
MUD 7305	WT 8.7	VIS 47	WL 4.4	CK 1	PH 9.5
				CL 500	Fe/Ca 7264

SURVEYS

GEOLOGICAL

FORM TOPS Moenkopi 7278

FORMATION

LITHOLOGY Sh red-brn, silty, micaceous hd, vsli. calc. Common gry-grn waxy bentic

SLM 7225 = 7233

MUD GAS

TG 19 BACKGROUND 3-5

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS DST #1 bottom choke 15/16

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 36 **DATE** 20 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 7316 **TODAY** 7545 **FIG.** 229 **FT/HR.**
OPERATION Drlg w/bit #8

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 45M	REM 64	PP 1700	SPM 60	LAG	@
MUD 7545 WT 8.8	VIS 49	WL 6.0	CK 1	PH 9.5	CL 1800 Fe/Ca 60

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Moenkopi

LITHOLOGY Sh red-brn, brick red

MUD GAS TG BACKGROUND 2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY LOGGING MILEAGE EXP.

ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 37 **DATE** 21 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 7545 **TODAY** 7810 **FTG.** 265 **FT/HR.**

OPERATION Drilling

BIT NO.	TYPE		IN	OUT		FT.	HRS.		
BIT NO.	TYPE		IN	OUT		FT.	HRS.		
WOB	REM		PP	SPM		LAG	@		
MUD 7810WT	8.0	VIS 45	WL 7.2	CK 1	PH 9.5	CL 2000	Fe/Ca	200	

SURVEYS 7541 - 3 1/4⁰

GEOLOGICAL

FORM TOPS

FORMATION Moenkopi 7278'

LITHOLOGY Colorchange red grn 7740
 Shale

MUD GAS TG BACKGROUND 2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 38 **DATE** 22 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 7810 **TODAY** 7911 **FIG.** 101 **FT/HR.**

OPERATION Drlg w/bit #9

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB 45M	REM 60	PP 2100	SPM 60	LAG	@
MUD 7912	WT 8.9	VIS 43	WL 6.0	CK 1	PH 10.2
					CL 2450
					Fe/Ca 96

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Moenkopi

LITHOLOGY Shale pale grn w/Pyr incl.
 Sltstn wh, pale grn w/Pyr incl. NSOFC

MUD GAS

TG 8 BACKGROUND 2

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS None

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS 8029 Sinbad

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 39 **DATE** 23 Nov. 85

COMPANY EWAB

WELL Orangeville Federal 4-1

LOCATION

DEPTH YEST. 7911 **TODAY** 8122 **FIG.** 211 **FT/HR.**

OPERATION Drlg w/bit #9

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	e
MOD 8112 WT 8.9	VIS 45	WL 4.8	CK 1	PH 10.5	CL 2400 Fe/Ca 40

SURVEYS 3 3/4⁰ - 8093

GEOLOGICAL

FORM TOPS Sinbad 8029?

FORMATION

LITHOLOGY LS crm, lt gry microcrystalline, hd, dnse
Tr oolites slty in pt, dolo in part
tr pale yel fluo, v poor slo yel cut, vv poor porosity
7995 - 27 8106 - 28
8045 - 44 8120 - 28
8100 - 28

MID GAS **TG** **BACKGROUND** 10 units

ZONE OF INTEREST NO. e TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 40 **DATE** 24 Nov.
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8122 **TODAY** 8303 **FTG.** 181 **FT/HR.**

OPERATION

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	e
MUD 8302 WT	8.8 VIS 46	WL 6.4	CK 1	PH 9.8	CL 2200 Fe/Ca 138

SURVEYS

GEOLOGICAL

FORM TOPS

L. Moenkopi 8178

FORMATION

LITHOLOGY

Sh, sltsn red-brn, red-org w/abn Anhy

16 un @ 8255 SS vfg gry hd, tite w/blk stn, no fluo, no cut

MUD GAS

TG **BACKGROUND** 2-4

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 41 **DATE** 25 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8303 **TODAY** 8386 **FTG.** 83 **FT/HR.**

OPERATION Trip for core bbl.
 Slm 8386 = 8381 5' uphole correction

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	RPM	PP	SPM	LAG	@		
MUD 8386	WT 8.7	VIS 51	WL 6.7	CK 1	PH 10.2	CL 2000	Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Lower Moenkopi

LITHOLOGY SS lt-mgry wh, vfg w/blk stn
 See show sheet

MUD GAS **TG** **BACKGROUND** 2

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 43 **DATE** 27 Nov. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8398 **TODAY** 8403 **FTG.** 51 **FT/HR.**
OPERATION DST #2

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@
MUD 8429WT	8.8 VIS 41	WL 6.4	CK 1	PH 10.5	CL 4000 Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Open 1" to BOB in 5 min. 10
 Shut in 30
LITHOLOGY Open weak BOB in 17 min - 1 psi
 3 hr open 150
 240 shut in 240

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 44 **DATE** 28 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8403 **TODAY** 8403 **FTG.** - **FT/HR.**

OPERATION TIH w/core bbl for core #2

BIT NO.	TYPE	IN	OUT	FT.	HRS.	
BIT NO.	TYPE	IN	OUT	FT.	HRS.	
WOB	REM	PP	SPM	LAG	@	
MUD	WT 8.8	VIS 48	WL 5.9	CK 1	PH 10.7	CL 4000 Fe/Ca 28

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Kaibab

LITHOLOGY

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 45 **DATE** 29 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8403 **TODAY** 8433 **FTG.** 30 **FT/HR.**
OPERATION TIN w/bit following core #2

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	REM	PP	SPM	LAG	@
MUD 8432 WT 8.8	VIS 47	WL 6.0	CK 1	PH 10.5	CL 3350 Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS Kaibab 8361 Begin CO₂ @ 8381 TG

FORMATION Kaibab

LITHOLOGY Suspect CO₂ TG - 51 following DST #2 5-6 while coring
 Cut 50' Toroweap; drill to 8483

MUD GAS **TG** **BACKGROUND**

ZONE OF INTEREST NO. @ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	ELOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 46 **DATE** 30 Nov. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8433 **TODAY** 8483 **FTG.** **FT/HR.**
OPERATION Repair rig

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	RPM	PP	SPM	LAG	@

MUD 8483 **WT** 8.8 **VIS** 49 **WL** 6.0 **CK** 1 **PH** 9.8 **CL** 3400 **Fe/Ca** 36

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION Drill 50' of Kaibab then DST

LITHOLOGY Dolo lt tan - lt. org
 Microxln - vfxln w/blk stn.
 Tr brn stn, vweak yel fluor & cut

MUD GAS **TG** **BACKGROUND** 5-6

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 47 **DATE** 1 Dec. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8483 **TODAY** 8483 **FTG.** **FT/HR.**

OPERATION Short trip for DST #3

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD 8483	WT 8.8	VIS 52	WL 6.0	CK 1	PH 9.5	CL 3500	Fe/Ca 36

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION DST ## 8405 - 8483 = 78' Misrun

LITHOLOGY

MUD GAS

20 u
TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	ELOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 48 **DATE** 2 Dec. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8483 **TODAY** 8483 **FIG.** **FT./HR.**

OPERATION

DST #3 - failed packer/seat TOH
 Open tool w/1" blow incr to 6" in 5 min.
 Packer failure @ 6 min

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REN	PP	SPM	LAG	@		
MOD 8486	WT 8.7	VIS 47	WL 6.4	CK 1	PH 10.8	CL 3800	Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS Kaibab 8361

FORMATION Kaibab

LITHOLOGY

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	ELOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 49 **DATE** 3 Dec. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8483 **TODAY** 8486 **FIG.** 3 **FT/HR.**

OPERATION TOH for DST #4 @ 0400
8412 - 8483 = 71'

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD 8486 WT	8.6	VIS 56	WL 6.4	CK 1	PH 10.5	CL 3800	Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION

LITHOLOGY

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
BWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 DAY 50 **DATE** 4 Dec. 85
COMPANY BWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. 8486 **TODAY** 8486 **FTG.** **FT/HR.**

OPERATION TIH after DST #4

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD 8486	WT 8.6	VIS 56	WL 6.4	CK 1	PH 10.5	CL 3900	Fe/Ca 40

SURVEYS

GEOLOGICAL

FORM TOPS 8502 Toroweap

FORMATION

LITHOLOGY

MUD GAS **TG** **BACKGROUND**

ZONE OF INTEREST NO. @ **TO**

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU

REMARKS

CALLED

GEOLOGY **LOGGING** **MILEAGE** **EXP.**

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 51 **DATE** 5 Dec. 85
COMPANY EWAB
WELL LOCATION Orangeville Federal 4-1

DEPTH YEST. 8486 **TODAY** 8560 **FIG.** 74 **FT/HR.**

OPERATION Wash & circ hole

BIT NO.	TYPE	IN	OUT	FT.	HRS.
BIT NO.	TYPE	IN	OUT	FT.	HRS.
WOB	RPM	PP	SPM	LAG	e
MUD 8560	WT 8.7	VIS 45	WL 6.2	CK 1	PH 11.0
					CL 4000 Fe/Ca 60

SURVEYS

GEOLOGICAL

FORM TOPS Toroweap 8502

FORMATION Toroweap

LITHOLOGY SS lt gry vf-fg subrdd 50% of blk dead stn no fluo, cut
 Logging w/Schl
 Bridge @ 5125

MUD GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	C1	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

**ORANGEVILLE FEDERAL UNIT 4-1
EWAB, Inc.**

DAILY REPORT

TEMP. SPUD 15 Oct. 85 **DAY** 52 **DATE** 6 Dec. 85
COMPANY EWAB
WELL Orangeville Federal 4-1
LOCATION

DEPTH YEST. **TODAY** 8560 **FTG.** 74 **FT/HR.**

OPERATION Logging w/Schl. Log printer
 Burned up - LDT/CNL

BIT NO.	TYPE	IN	OUT	FT.	HRS.		
BIT NO.	TYPE	IN	OUT	FT.	HRS.		
WOB	REM	PP	SPM	LAG	@		
MUD	WT	VIS	WL	CK	PH	CL	Fe/Ca

SURVEYS

GEOLOGICAL

FORM TOPS

FORMATION

Tops picked from DLL
 @ same places as on Tipco correlation log as furnished

LITHOLOGY

MID GAS

TG BACKGROUND

ZONE OF INTEREST NO.

@ TO

SHOWS-BREAKS

DEPTH	LITHOLOGY	HW	CL	C2	C3	C4	C5	FLOU
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REMARKS

CALLED

GEOLOGY

LOGGING

MILEAGE

EXP.

BWAB, INC.
ORANGEVILLE FEDERAL UNIT 4-1

30' Samples - Drilling w/air

200- 230	70%	Shale, dark gray to black, silty, some with very fine grained loose quartz grains; slight cement contamination.
	30%	Sandstone, white, light gray, very fine grained, poorly cemented, calcareous.
230- 260	30%	Shale as above.
	70%	Sandstone as above, predominately unconsolidated.
260- 290	50%	Shale as above.
	50%	Sandstone as above.
290- 320	40%	Shale as above, very silty.
	60%	Sandstone as above, unconsolidated.
320- 350	10%	Shale as above.
	90%	Sandstone, light gray with abundant clear grains; very fine grained, very poorly cemented, calcareous, some grading to Siltstone.
350- 380	10%	Shale as above.
	90%	Sandstone as above.
380- 410	70%	Shale, dark gray-black, silty as above.
	30%	Sandstone as above.
410- 440		No Sample
440- 470	80%	Shale, dark gray-black, very silty, sandy in part.
	20%	Sandstone, very fine grained, grading to Siltstone, very poorly cemented - unconsolidated.
470- 500	90%	Shale as above, some becoming dark gray-brown, very silty.
	10%	Sandstone, very fine grained - grading to Siltstone.

500- 530	100%	Shale as above some very silty grading to Siltstone.
530- 560	100%	Shale as above.
560- 590	100%	Shale dark gray, silty as above.
590- 620	100%	Shale as above.
620- 650	100%	Shale as above. Some very silty grading to Siltstone.
650- 680	100%	Shale as above becoming silty, sandy, some grading to light gray-brown.
680- 710	100%	Shale as above.
710- 740	100%	Shale, dark gray-brown, silty, sandy in part, grading to Siltstone.
740- 770	100%	Shale, dark gray-brown, black silty, sandy in part.
770- 800	100%	Shale as above.
800- 830	100%	Shale as above.
830- 860	100%	Shale as above.
860- 890	100%	Shale as above.
890- 920	100%	Shale as above.
920- 950	100%	Shale as above.
950- 980	100%	Shale as above.
980-1010	100%	Shale as above.
1010-1030	100%	Shale as above.
1030-1050	40%	Sandstone, white, light gray, very fine grained, subrounded. Some slightly calcareous - poorly cemented.
	60%	Shale as above.
	NOTE:	15' flare for 3 seconds at connection 1036.
1050-1080		No sample.

1080-1110	100%	Shale very dark gray - black. Firm, slightly calcareous.
1110-1140	100%	Shale as above.
1140-1620	100%	Shale very dark gray-black, firm, slightly calcareous.
1620-1890	100%	Shale as above.
		Connection & Survey 1814 15" flare 3-4 sec.
1890-2010	100%	Shale as above. Trouble getting to bottom. Connection 2034
2010-2160	100%	Shale as above; some silty, some sandy in part.
2160-2179	100%	Shale as above.
2179-2220	90%	Sandstone light gray, light tan, very fine - fine grained, poor - moderately cemented, calcareous.
2220-2435	100%	Sandstone as above. No show seen in samples.
2435-2549	100%	Sandstone light gray, white, very fine - fine grained, subrounded, poor-moderately cemented, calcareous with abundant loose. No show seen in sample.
2549-2760	100%	Shale dark gray-black, firm, silty, calcareous.
2760-3070	100%	Shale dark gray-black, firm, silty, calcareous.
3070-3100	10%	Shale dark gray-black as above.
	80%	Sandstone light tan, very fine-fine grained with medium grained, subangular - subrounded micaceous, calcareous.
	10%	Shale light-medium gray, firm, calcareous, bentonitic in part.
		CO to run logs and 9 5/8" casing.
		NOTE: Drilling with air, very poor samples.
3100-3130		Very poor sample - predominately cement.
3130-3160		Very poor sample

3160-3190 Very poor sample, predominately cement as above.

3190-3220 90% Sandstone white, clear, light tan.
10% Cement, very fine-fine grained, medium sort, predominately subrounded, loose.

ABOVE SAMPLES VERY SUSPECT

3220-3250 90% Shale pale gray-green, soft-firm, non-calcareous, bentonitic, arenaceous in part.
10% Sandstone white, clear, very fine-fine grained, subrounded-subangular, very poorly cemented, calcareous, loose.

3250-3280 100% Shale as above.
Trace Sandstone as above.

3280-3310 90% Shale as above with some medium gray, some red/gray, mottled.
10% Sandstone as above.
Trace Pyrite.

3310-3340 90% Sandstone white, clear, frosted, very fine-medium grained, medium sort, predominately loose with some very poorly cemented.
10% Shale as above.
Trace Pyrite.

3340-3370 80% Sandstone as above.
20% Shale as above
Trace Pyrite
Trace Limestone cream crypocrystalline hard, dense.

3370-3400 80% Sandstone as above.
20% Shale as above.
Trace Pyrite.
Trace Limestone as above.

3400-3430	100%	Sandstone white, clear frosted, very fine-medium grained, medium sort, loose.
		Trace Shale as above.
3430-3460	90%	Sandstone as above.
	10%	Shale as above.
3460-3490	80%	Sandstone as above.
	20%	Shale as above.
3490-3520	80%	Shale pale gray-green, maroon, varicolor silty in part, bentonitic in part.
	20%	Sandstone as above.
3520-3550	80%	Shale as above with increasing pale gray-green bentonitic.
	20%	Sandstone as above.
		Trace Limestone cream, white cryptocrystalline, hard, dense.
3550-3580	60%	Shale pale gray-green, red-green mottled soft, bentonitic, abundant red-brown silty, sandy, soft-firm calcareous. Some medium-dark gray.
	40%	Sandstone white, clear frosted very fine-fine grained with some medium grained, predominately loose.
		Trace Limestone cream, very light tan, cryptocrystalline, hard, dense.
		Trace Pyrite.
3580-3610	40%	Shale as above with increasing dark gray.
	60%	Sandstone as above.
		Trace Limestone.
		Trace Pyrite.
3610-3640	90%	Sandstone as above.
	10%	Shale as above.
		Trace Limestone and Pyrite as above.

3640-3670	70%	Shale as above with abundant pale lavender.
	30%	Sandstone as above.
		Trace Limestone and Pyrite as above.
3670-3700	90%	Shale as above with abundant lavender, lavender-green mottled, abundant gray-green mudstone.
	10%	Sandstone as above.
3700-3730	100%	Shale as above.
		Trace Sandstone, Limestone and Pyrite as above.
3730-3760	100%	Shale as above.
		Trace Sandstone, Limestone and Pyrite as above.
3760-3790	100%	Shale as above.
		Trace Sandstone, Limestone and Pyrite as above.
3790-3820		No Sample.
3820-3850	80%	Shale predominately dark-medium gray-green, firm, silty, very slightly calcareous, abundant lavender, maroon, abundant mottled.
	20%	Sandstone clear, white, light tan, very fine-fine grained, subangular, with abundant medium clear frosted grains.
		Trace-common medium-coarse grained Chert pebbles, orange, red, tan.
3850-3880	70%	Shale as above.
	30%	Sandstone as above.
		Trace Chert, Limestone and Pyrite.
3880-3910	60%	Shale as above.
	40%	Sandstone as above.
		Trace Chert, Limestone and Pyrite.
3910-3940	80%	Shale dark gray-green, firm silty in part, some varicolor mottled.

	20%	Sandstone as above.
		Trace Chert, Limestone and Pyrite.
3940-3970	80%	Shale as above.
	10%	Shale red-brown silty soft with trace Anhydrite inclusions, trace Anhydrite white, crystalline, soft-slightly firm.
	10%	Sandstone light tan, very fine grained subrounded, very well cemented, calcareous.
		Trace Chert, Pyrite and Limestone (cavings?)
3970-4000	80%	Shale medium-dark gray-green as above.
	10%	Shale red-brown silty as above.
	10%	Sandstone light tan as above.
4000-4030	100%	Shale varicolor red, lavender pale green, gray-green, red-brown.
		Trace-common Anhydrite white, clear, crystalline, soft-firm.
4030-4060	100%	Shale as above with trace-common Anhydrite as above.
4060-4090	100%	Shale as above with increasing red-brown silty, anhydritic.
4090-4120	100%	Shale as above. VERY POOR SAMPLE. Became very wet at 4113. Mudup and condition hole. Experience severe hole problems in Cedar Mountain and Morrison formations.
4120-4130	100%	Shale predominately red-brown very silty, firm calcareous with some red-brown soft bentonitic. Trace-common white Anhydrite inclusions; some very silty grading to Siltstone; common pale gray-green, varicolor mottled bentonitic.
4130-4140	100%	Shale as above with Anhydrite inclusions as above.

- 4140-4150 100% Shale as above. Trace Sandstone red-brown, very fine grained silty, anhydritic, calcareous.
- NOTE: Carbide lag 135 min.
- 4150-4160 100% Shale as above, predominately very silty grading to Siltstone.
- Trace-common Sandstone white, light gray, very fine-medium grained, medium sort, poor-medium cemented, friable, calcareous with trace-common dead brown stain. No fluorescence, slow milky yellow cut with yellow residue ring. No gas increase: Trace stain on Shale fracture faces.
- 4160-4170 100% Shale as above with some pale gray-green bentonitic. Trace Sandstone with dead stain as above; trace-common stain on Shale fracture faces.
- 4170-4180 No Sample.
- 4180-4190 100% Shale as above some very silty grading to Siltstone.
- Trace-common Sandstone white, very light red-brown, friable with calcareous anhydritic matrix. NSOFC
- 4190-4200 100% Shale as above with increasing cavings.
- 4200-4210 100% Shale as above very silty grading to Siltstone.
- Trace Sandstone white friable, calcareous.
- Common cavings.
- 4210-4220 100% Shale very silty common cavings; trace-common Sandstone as above some with Glauconite inclusions (Curtis fragments).
- 4220-4230 50% Shale as above.
- 50% Sandstone light tan, light red-brown, pink, very fine-medium grained, with some cavings, predominately subangular with some subrounded, firm-friable, calcareous some with Anhydrite matrix; trace-common dead dark

stain with very poor-no fluorescence, poor-good cut; no gas increase.

ABUNDANT CAVINGS.

- 4230-4240 90% Shale red-brown silty, grading to Siltstone, brick red, firm, calcareous silty, pale gray-green waxy bentonitic arenaceous, common white, soft Anhydrite inclusions.
- 10% Sandstone as above.
- 4240-4250 100% Shale as above
- Trace Sandstone as above.
- 4250-4260 90% Shale as above some very silty grading to Siltstone.
- 10% Sandstone as above.
- Trace-common Limestone pink, white, light tan, cryptocrystalline, hard, dense.
- Trace Anhydrite.
- 4260-4270 100% Shale as above with increasing pale gray-green waxy bentonitic arenaceous, trace maroon, lavender waxy.
- Trace Sandstone as above, trace Anhydrite.
- 4270-4280 100% Shale as above becoming predominately pale gray-green, pale cream, light gray, waxy, bentonitic, arenaceous with abundant red-brown silty micaceous as above.
- 4280-4290 100% Shale as above.
- Trace Sandstone as above (cavings?).
- 4290-4300 100% Shale as above.
- BEGIN 2 MAN SERVICE WITH LAGGED SAMPLES.
- 4300-4310 100% Shale predominately brick red very silty, micaceous, calcareous with common white Anhydrite inclusions common pale gray-green.
- Trace Sandstone as above.

4310-4320	100%	Shale as above with increasing pale gray-green bentonitic.
4320-4330	100%	Shale as above, abundant pale gray-green, some lavender, maroon.
		Trace Anhydrite white, soft.
4330-4340	100%	Shale as above.
		Trace-common Sandstone white, light tan, very fine-fine grained with some medium grained. Medium sort, friable, calcareous
		Trace Limestone light tan, pink, cryptocrystalline, hard, dense.
4340-4350	100%	Shale as above becoming predominately pale-medium gray-green waxy, bentonitic arenaceous; common brick red silty micaceous.
		Trace Anhydrite white, soft.
		Trace Sandstone as above.
4350-4360	100%	Shale as above.
		Trace Limestone cryptocrystalline as above.
		Trace Anhydrite as above.
4360-4370	40%	Shale as above with Anhydrite inclusions as above.
	60%	Sandstone medium gray very fine-fine grained medium sort. Subangular, moderately cemented, calcareous with abundant green Glauconite inclusions.
		Common cavings.
4370-4380	70%	Shale predominately dark gray green, sandy, firm calcareous with common red-brown silty as above.
	30%	Sandstone medium-dark gray very fine-fine grained subangular - subrounded as above; abundant Glauconite inclusions.

4380-4390	70%	Sandstone as above with Glauconite inclusions as above.
	30%	Shale as above.
		Common cavings.
4390-4400	40%	Sandstone as above with Glauconite inclusions.
	60%	Shale pale gray-green bentonitic, arenaceous.
	Trace	Limestone white, pink cryptocrystalline hard, dense.
4400-4410	70%	Sandstone light-medium gray with Glauconite inclusions as above.
	20%	Predominately Shale red-brown silty with abundant mottled bentonitic.
	10%	Cavings.
4410-4420	80%	Sandstone as above becoming light gray-white, predominately subrounded fine-medium grained.
	10%	Cavings as above.
	10%	Shale as above.
4420-4430	90%	Sandstone as above, trace Limestone hard, dense.
	10%	Shale predominately pale gray-green waxy.
4430-4440	90%	Sandstone as above, trace Limestone hard, dense.
	10%	Shale predominately pale gray-green waxy.
4440-4450	60%	Sandstone as above.
	30%	Shale as above.
	10%	Cavings.
4450-4460	40%	Sandstone light-medium gray with Glauconite inclusions as above.
	50%	Shale pale gray-green waxy bentonitic arenaceous. Abundant red-brown silty, micaceous with white Anhydrite inclusions; some red-green mottled.

	10%	Cavings
	Trace	Limestone white, pink, cryptocrystalline.
4460-4470	90%	Shale as above.
	10%	Sandstone as above.
		Common cavings.
4470-4480	90%	Shale predominately pale gray-green waxy with abundant pale lavender waxy bentonitic, arenaceous.
	10%	Sandstone as above.
		Trace-common cavings.
	Trace	Limestone, white-cream, hard, dense.
4480-4490	80%	Shale as above some red-brown silty.
	20%	Sandstone as above.
	Trace	Cavings.
4490-4500	30%	Sandstone as above.
	70%	Shale as above with abundant red-brown silty anhydritic; abundant white bentontic Shale.
	Trace	Limestone, white-cream, hard, dense as above.
4500-4510	90%	Shale as above.
	5%	Sandstone as above.
	5%	Limestone as above, white, cream, microcrystalline, hard, dense.
		Trace Pyrite.
4510-4520	80%	Shale as above, predominately gray-green waxy.
	15%	Sandstone as above.
	5%	Limestone as above.
4520-4530	80%	Shale as above.
	20%	Sandstone as above.
	Trace	Limestone as above.

4530-4540	80%	Shale as above abundant red-brown silty.
	20%	Sandstone as above.
4540-4560	30%	Sandstone as above predominately very fine- fine grained friable, calcareous with Glauconite inclusions.
	70%	Shale predominately gray-green waxy arenaceous with abundant red-brown, brick red silty.
		Trace red-brown thin Siltstone, increasing medium gray waxy.
4550-4560	100%	Shale predominately pale gray-green, pale cream waxy, bentonitic arenaceous with common lavender waxy; some red-brown silty.
		Trace-common Sandstone light gray, white very fine- fine grained, medium sort, subrounded friable, calcareous with Glauconite inclusions some with white clay matrix.
		Trace Limestone white, cream, pink, hard, dense.
4560-4570	100%	Shale as above increasing in gray.
		Trace-common Sandstone as above.
		Trace Limestone as above.
4570-4580	100%	Shale as above increase in gray.
		Trace Sandstone as above.
		Trace Limestone as above.
4580-4590	100%	Shale as above becoming predominately medium gray.
		Trace Sandstone as above.
		Trace Limestone as above.
4590-4600	100%	Shale as above becoming predominately medium gray.
4600-4610	100%	Shale as above.
		Trace Sandstone as above.

4610-4620	100%	Shale medium gray as above with some pale gray-green, some lavender, some medium gray-green predominately firm, very slightly calcareous.
		Common cavings.
4620-4630	100%	Shale as above.
		Trace-common cavings.
4630-4640	70%	Shale as above.
	20%	Sandstone red-orange very fine grained, subangular, firm, calcareous with common Anhydrite matrix; some very silty grading to Siltstone.
	10%	Shale red-orange firm silty, calcareous.
4640-4650	60%	Shale medium gray-green as above.
	30%	Shale red-orange, brick red silty.
	10%	Sandstone red-orange very fine grained silty as above.
4650-4660	40%	Shale predominately medium gray, medium gray-green, waxy firm, slightly calcareous, bentonitic, arenaceous; some varicolor.
	40%	Shale brick red, red-orange firm blocky, calcareous some very silty, some grading to Siltstone.
	20%	Sandstone red-orange very fine-fine grained, very silty, friable-firm, calcareous; some very anhydritic with white Anhydrite matrix.
4660-4670	70%	Shale medium gray-green as above with abundant cavings.
	20%	Sandstone red-orange some very fine grained silty as above.
	10%	Shale brick red, red-orange as above. Very anhydritic.
4670-4680	20%	Sandstone as above.
	20%	Shale brick red, red-brown as above.

	60%	Shale medium gray-green, varicolor as above. Common cavings.
4680-4690	20%	Sandstone as above. Some very anhydritic.
	20%	Shale brick red silty.
	60%	Shale medium gray-green, varicolor as above.
		Trace Limestone white, cream, pink, hard, dense.
4690-4700	30%	Sandstone as above.
	20%	Shale brick red, silty.
	60%	Shale medium gray-green, varicolor as above. Common cavings.
4700-4710	40%	Sandstone red-orange very fine grained-fine grained with trace medium grained, subangular with some subrounded, firm, calcareous, some very anhydritic, some very silty grading to Siltstone.
	20%	Shale brick red, firm blocky, silty, calcareous.
	40%	Shale varicolor waxy arenaceous with abundant cavings.
4710-4720	50%	Sandstone red-orange very fine-fine grained very silty, anhydritic as above.
	30%	Shale brick red, silty.
	20%	Shale varicolor waxy
4720-4730	70%	Sandstone red-orange very fine-fine grained silty as above.
	20%	Shale brick red silty as above.
	10%	Shale varicolor as above. Common cavings.
4730-4740	20%	Sandstone as above, very fine grained - Siltstone
	40%	Shale brick red silty as above with anhydritic inclusions.

	40%	Shale varicolor, gray-green waxy with abundant cavings.
4740-4750	20%	Sandstone as above some very anhydritic
	30%	Shale brick red, red-orange firm, silty, calcareous with Anhydrite inclusions.
	50%	Shale varicolor, gray-green waxy with abundant cavings.
4750-4760	20%	Sandstone red-orange as above some very anhydritic
	20%	Shale dark brick red silty with anhydritic inclusions.
	60%	Shale med-dark gray-green, varicolor firm, blocky, silty, calcareous some with anhydritic inclusions, very common rounded cavings.
4760-4770	20%	Sandstone as above
	40%	Shale brick red as above
	40%	Shale gray-green, varicolor as above, abundant cavings.
4770-4780	20%	Sandstone as above.
	30%	Shale brick red as above
	50%	Shale gray-green, varicolor as above; abundant cavings.
4780-4790	10%	Sandstone as above
	40%	Shale brick red as above.
	50%	Shale gray-green varicolor as above; abundant cavings.
4790-4800	10%	Sandstone as above.
	30%	Shale brick red as above.
	60%	Shale gray-green varicolor as above. Abundant cavings.
4800-4810	10%	Sandstone red-orange, very fine-fine grained, poor-moderately cemented, calcareous with Anhydrite matrix, some very silty grading to Siltstone.

	90%	Shale red-brown silty, firm, calcareous, anhydritic; gray-green, medium gray, waxy bentonitic, firm slightly calcareous.
		Trace Limestone white, pink, hard, dense
4810-4820	10%	Sandstone as above
	90%	Shale as above with some varicolor
		Trace Limestone white, pink hard, dense
4820-4830	20%	Sandstone as above some friable
	80%	Shale as above
4830-4840	20%	Sandstone as above
	80%	Shale as above, some very silty
4840-4850	20	Sandstone as above
	80%	Shale as above some very silty grading to Siltstone
4850-4860	40%	Sandstone red-orange, red-brown predominately very fine-fine grained with some medium grain subangular-subrounded, medium sort, poor - moderately cemented, calcareous with abundant white Anhydrite matrix; some very silty grading to Siltstone; some becoming arkosic.
	60%	Shale brick red, red-brown firm silty slightly calcareous-calcareous, some very silty grading to Siltstone, common white Anhydrite inclusions, common pale gray-green bentonitic Shale.
4860-4870	50%	Sandstone as above
	50%	Shale as above
4870-4880	60%	Sandstone as above some very anhydritic
	40%	Shale as above
4880-4890	70%	Sandstone as above with very abundant Anhydrite matrix
	30%	Shale as above.

4890-4900	70%	Sandstone as above
	30%	Shale as above, trace gray-green waxy
4900-4910	60%	Sandstone as above. Abundant Anhydrite matrix.
	40%	Shale as above.
4910-4920	40%	Sandstone as above.
	60%	Shale as above some with Anhydrite fracture fill
4920-4930	60%	Sandstone as above with increasing fine-medium grained subrounded.
4930-4940	40%	Sandstone as above
	60%	Shale as above
4940-4950	20%	Sandstone as above
	80%	Shale as above becoming very silty grading to Siltstone
4950-4960	60%	Sandstone red-orange very fine grained subrounded grading to Siltstone
	20%	Siltstone red-orange firm-friable calcareous
	20%	Shale brick red firm calcareous, silty
4960-4970	20%	Sandstone as above
	70%	Siltstone as above
	10%	Shale as above
4970-4980	10%	Sandstone as above
	80%	Siltstone as above
	10%	Shale as above
4980-4990	90%	Siltstone as above some with Anhydrite matrix
	10%	Shale as above
4990-5000	90%	Siltstone red-orange firm calcareous some with Anhydrite matrix

	10%	Shale as above
5000-5010	70%	Siltstone red-orange firm-friable calcareous slightly arkosic with common Anhydrite matrix; some grading to very fine grained subrounded Sandstone
	30%	Shale predominately brick red firm silty calcareous with common medium gray firm slightly calcareous, arenaceous, bentonitic
		Trace Chert orange hard, sharp
5010-5020	80%	Siltstone as above
	20%	Shale as above
		Trace Anhydrite, white, soft
5020-5030	80%	Siltstone as above some grading to very fine grained Sandstone
	20%	Shale as above
		Trace Anhydrite white, soft
		Trace Chert orange, hard, sharp
5030-5040	60%	Siltstone as above
	40%	Shale as above
		Trace Anhydrite white, soft
		Trace Chert orange hard, sharp
5040-5050	80%	Siltstone as above
	20%	Shale as above
		Common Anhydrite white, soft
5050-5060	80%	Siltstone as above
	20%	Shale as above
5060-5070	70%	Siltstone as above
	30%	Shale as above, abundant medium gray firm, slightly calcareous

5070-5080	60%	Siltstone as above grading to very fine grained Sandstone
	40%	Shale as above very common medium gray firm bentonitic
5080-5090	30%	Sandstone red-orange very fine grained silty soft-firm calcareous with Anhydrite matrix
	50%	Siltstone as above with Anhydrite matrix
	20%	Shale as above
5090-5100	20%	Sandstone as above
	60%	Siltstone as above
	20%	Shale as above
5100-5110	10%	Sandstone red-orange very fine grained subangular, moderately cemented, calcareous with Anhydrite matrix
	80%	Siltstone red-orange firm, calcareous some very anhydritic
	10%	Shale brick red, red-brown firm, slightly calcareous; medium gray waxy, very slightly calcareous
5110-5120	10%	Sandstone as above
	80%	Siltstone as above some grading to very fine grained Sandstone
	10%	Shale as above
5120-5130	20%	Sandstone as above
	70%	Siltstone as above
	10%	Shale as above
5130-5140	10%	Sandstone as above
	70%	Siltstone as above with Anhydrite matrix as above
	20%	Shale as above
5140-5150	10%	Sandstone as above

	70%	Siltstone as above
	20%	Shale as above
5150-5160	80%	Siltstone as above with common Anhydrite matrix, common Anhydrite fracture fill
	20%	Shale as above
5160-5170	10%	Sandstone as above
	80%	Siltstone as above
	10%	Shale as above
5170-5180	10%	Sandstone as above
	80%	Siltstone as above some grading to very fine grained Sandstone
	10%	Shale as above
		Trace Chert orange, hard sharp
5180-5190	80%	Siltstone as above with Anhydrite inclusions
	20%	Shale as above
5200-5210	10%	Sandstone red-orange very fine grained sub-rounded friable, calcareous with Anhydrite inclusions
	80%	Siltstone red-brown firm-friable, calcareous with common Anhydrite inclusions some grading to very fine grained Sandstone
	10%	Shale brick red silty firm calcareous medium gray firm, waxy slightly calcareous
5210-5220	10%	Sandstone as above
	80%	Siltstone as above
	10%	Shale as above
5220-5230	No Sample	Roughneck washed sample away
5230-5240	20%	Sandstone very fine grained as above. Trace white, very fine grained subrounded friable
	70%	Siltstone as above

	10%	Shale as above very common Anhydrite
5240-5250	10%	Sandstone as above
	70%	Siltstone as above
	20%	Shale as above
5250-5260	10%	Sandstone as above
	70%	Siltstone as above with Anhydrite inclusions
	20%	Shale as above
5260-5270	90%	Siltstone as above
	10%	Shale brick red firm, silty with common medium gray waxy bentonitic, slightly calcareous
5270-5280	90%	Siltstone as above some becoming very fine grained Sandstone
	10%	Shale as above
		Trace Anhydrite inclusions
5280-5290	90%	Siltstone as above with Anhydrite inclusions
	10%	Shale as above
5290-5300	70%	Siltstone brick red becoming soft with very abundant Anhydrite inclusions
	20%	Shale brick red, pale gray-green, medium gray firm-soft with abundant Anhydrite inclusions
	10%	Anhydrite white, pink soft
		Trace Sandstone as above
5300-5310	60%	Siltstone red-brown soft calcareous with very abundant Anhydrite inclusions
	20%	Shale red-brown, medium gray as above
		Trace Sandstone medium gray-green very fine-fine grained, subrounded medium sort, firm-friable calcareous with very common Anhydrite matrix
	20%	Anhydrite pink, white soft

5310-5320	50%	Sandstone medium gray-green very fine-fine grained friable calcareous with Anhydrite matrix, slightly micaceous
	30%	Siltstone red-brown anhydritic as above
	10%	Shale medium gray firm blocky slightly calcareous with some brick red silty
	10%	Anhydrite pink, white soft
		Trace Chert orange hard, sharp
5320-5330	60%	Sandstone as above, some becoming white-very light gray, very fine grained
	20%	Siltstone as above
	20%	Anhydrite as above
		Trace Chert
		Trace Shale as above
5330-5340	40%	Sandstone as above
	30%	Shale medium gray-green firm, blocky, slightly calcareous
	10%	Siltstone red-brown anhydritic
	20%	Anhydrite, pink, white soft
5340-5350	10%	Sandstone gray-green very fine-fine grained as above
	40%	Shale medium gray-green as above
	30%	Siltstone light red-brown anhydritic
	20%	Anhydrite pink, white, soft
5350-5360	50%	Shale becoming medium gray with common gray-green firm blocky calcareous, some very silty some waxy, bentonitic; some sandy in part
	20%	Siltstone light red-brown very anhydritic, calcareous, very common Anhydrite inclusions
	20%	Anhydrite white, pink, soft, calcareous

	05%	Shale red-brown silty
	05%	Sandstone gray-green
5360-5370	70%	Shale medium gray very anhydritic firm, slightly calcareous
	10%	Siltstone red-orange very anhydritic
	20%	Anhydrite white, pink, soft, slightly calcareous
5370-5380	80%	Shale as above
	10%	Siltstone as above
	10%	Anhydrite as above
5380-5390	20%	Shale as above
	60%	Siltstone red-orange soft shaley, calcareous very anhydritic
	20%	Anhydrite, white, red-orange, soft silty
5390-5400	80%	Shale medium gray, firm silty, very anhydritic
	10%	Siltstone red-orange as above
	10%	Anhydrite as above
5400-5410	90%	Shale medium gray, firm, slightly calcareous, anhydritic
	10%	Anhydrite white, gray soft-firm, silty calcareous
		Trace Siltstone red-orange anhydritic
5410-5420	80%	Shale medium gray anhydritic as above
	10%	Siltstone as above
	10%	Anhydrite as above
		Trace Chert orange, hard, sharp
5420-5430	80%	Shale medium gray as above
	10%	Siltstone as above
	10%	Anhydrite

5430-5440	80%	Shale as above some bentonitic, waxy with micaceous inclusions
	10%	Shale brick red firm, silty
	10%	Anhydrite, white, gray, pink, soft-firm
	Trace	Limestone white, gray cryptocrystalline hard, dense
5440-5450	70%	Shale medium gray silty as above with common pale gray-green waxy bentonitic, arenaceous in part, micaceous in part, some varicolor waxy
	20%	Siltstone red-brown firm, calcareous
	10%	Anhydrite
5450-5460	80%	Shale as above
	20%	Siltstone red-orange as above
		Very common Anhydrite as above
5460-5470	90%	Shale medium gray as above, very anhydritic
	05%	Siltstone as above
	05%	Anhydrite as above
5470-5480	90%	Shale as above
	05%	Siltstone as above
	05%	Anhydrite as above
5480-5490	80%	Shale as above
	10%	Siltstone as above
	10%	Anhydrite as above
	Trace	Chert orange hard, sharp
5490-5500	80%	Shale as above
	10%	Siltstone as above
	10%	Anhydrite as above

5500-5510 Very poor sample. Predominately Lost Circulation Material. Lost 650 barrels mud @ 5504.

5510-5520 100% Sandstone clear quartz grains fine-very coarse grained medium sort, angular-subangular unconsolidated.

Trace Shale, siltstone as above. Abundant lost circulation material

5520-5530 100% Sandstone as above fine-very coarse grained, poor sort, unconsolidated

Trace-common Shale, Siltstone as above. Abundant Lost Circulation Material

5530-5540 100% Sandstone as above becoming predominately medium-coarse grained, medium sort

5540-5550 100% Sandstone as above becoming predominately medium-coarse grained, medium sort

5550-5560 70% Sandstone as above

30% Shale medium gray firm, slightly calcareous, bentonitic some brick red silty, calcareous

Trace-common Anhydrite white, orange, soft

5560-5570 50% Sandstone as above

50% Shale predominately medium gray, medium gray-green as above.

Trace Anhydrite

5570-5580 95% Shale as above some with Anhydrite inclusions

05% Anhydrite white, soft

5580-5590 95% Shale as above with common brick red silty, calcareous; some pale green bentonitic

05% Anhydrite white, soft

5590-5600 100% Shale as above some red-green mottled

Trace Anhydrite white, soft

5600-5610 100% Shale predominately gray-green, medium gray, varicolor waxy bentonitic arenaceous, some

with Pyrite inclusions; common red-brown
silty anhydritic

5610-5620 100% Shale as above
Trace Anhydrite

5620-5630 100% Shale as above
Trace Anhydrite
Trace Sandstone white, very fine-fine grained
medium sort, calcareous

5630-5640 90% Shale as above
Trace Siltstone red-brown firm, calcareous,
anhydritic

10% Sandstone light tan very fine-fine grained
well sorted, poorly cemented, calcareous

5640-5650 Trip Sample - Abundant cavings
90% Shale as above
10% Sandstone as above

5650-5660 100% Shale medium gray-firm, blocky, silty,
calcareous sandy in part, anhydritic in part,
some red-brown silty calcareous
Trace-common Sandstone light tan very fine-fine
grained, well sorted, poorly cemented,
calcareous
Trace-common Anhydrite white, soft

5660-5670 100% Shale as above
Trace Sandstone light red-orange fine-medium
grained subrounded, calcareous with Anhydrite
matrix
Trace Siltstone red-brown firm anhydritic
Trace Anhydrite white, soft

- 5670-5680 Very poor sample - Abundant cavings
 100% Shale as above with Siltstone and Anhydrite
 as above
- 5680-5690 , Very poor sample - Abundant cavings
 100% Shale as above with Siltstone and Anhydrite
 as above
- NOTE: Water flow @ 5690 probably source at 5504-5590
 from Lost Circulation zone - Sandstone coarse-very
 coarse grained, angular-subangular grading to fine-
 medium grained subrounded at bottom 5590±
- Abundant cavings appearing from open Cedar Mountain
 and Morrison Formations. Some Summerville, Entrada
 and Upper Carmel cavings appearing in sample also.
- 5690-5700 Abundant cavings as noted above
 100% Shale medium gray, firm, slightly calcareous,
 anhydritic with common Anhydrite inclusions.
 Trace Anhydrite fracture filling
- Trace Anhydrite white, clear soft-firm
- Trace Limestone light tan microcrystalline hard,
 dense
- 5700-5710 90% Shale as above becoming very anhydritic
 10% Anhydrite as above
- Trace Limestone light tan, microcrystalline hard,
 dense
- Abundant cavings - work tight hole @ 5708'
- 5710-5720 80% Shale as above
 20% Anhydrite predominately white, soft
- Abundant cavings
- 5720-5730 90% Shale light-medium gray firm, calcareous,
 silty anhydritic in part with common
 Anhydrite inclusions
 10% Anhydrite white, light tan soft, silty in
 part.

		Trace Sandstone light tan very fine grained well sorted, subrounded friable, calcareous
		Trace Limestone, light tan-light gray microcrystalline hard, dense
5730-5740	80%	Shale as above
	10%	Anhydrite as above
	10%	Siltstone red-orange soft, calcareous, anhydritic
		Trace Sandstone light tan as above
		Trace Limestone light tan as above
5740-5750	80%	Shale as above some very anhydritic grading to shaley Anhydrite
	10%	Anhydrite as above
	10%	Siltstone red-orange soft as above
		Trace Limestone light tan microcrystalline hard, dense
		Trace Pyrite
5750-5760	50%	Shale, light-medium gray firm, calcareous silty very anhydritic with common Anhydrite inclusions
	50%	Anhydrite white-light gray soft-firm, silty, shaley in part
		Trace Limestone light tan, microcrystalline, hard dense
5760-5770	20%	Shale very light gray-medium gray firm calcareous, very anhydritic waxy in part
	40%	Anhydrite white, soft; clear-light gray, firm, dense, shaley
	40%	Limestone light-medium gray microcrystalline, hard, dense silty in part, shaley in part, anhydritic in part; some white chalky with light tan pelletal inclusions
5770-5780	50%	Anhydrite as above

	50%	Limestone as above with increasing medium gray microcrystalline hard, dense
		Trace Shale as above, trace Chert orange hard, sharp
5780-5790	90%	Limestone light-medium gray microcrystalline hard, dense silty in part, some very shaley grading to limey Shale common Anhydrite inclusions, common cream chalky, marly
	10%	Anhydrite as above
5790-5800	90%	Limestone as above becoming predominately medium gray with some dark gray
	10%	Anhydrite
5800-5810	100%	Limestone as above with common white, chalky, marly anhydritic
		Common Anhydrite
5810-5820	100%	Limestone as above with trace cream chalky pelletal
		Common Anhydrite
5820-5830	100%	Limestone as above, trace Anhydrite inclusions
		Trace Anhydrite
5830-5840	100%	Limestone as above some silty, shaley
		Trace Anhydrite
5840-5850	100%	Limestone as above
		Trace Anhydrite
5850-5860	100%	Limestone as above, trace light gray-brown-light tan, microcrystalline, hard, dense
		Trace Anhydrite
5860-5870	100%	Limestone as above some light tan some cream chalky
		Trace Anhydrite
5870-5880	100%	Limestone as above some very silty
		Trace Anhydrite

5880-5890	100%	Limestone as above with trace-common pelletals
5890-5900	100%	Limestone as above becoming predominately medium-dark gray increasing pelletals
5900-5910	100%	Limestone as above with very common medium-dark gray pellets some very shaley. Trace light tan microcrystalline hard dense
		Trace Anhydrite
5910-5920	100%	Limestone as above with increasing Anhydrite
		Trace Sandstone very light tan very fine-fine grained silty calcareous, very anhydritic
5920-5930	60%	Limestone as above common Anhydrite fracture fill
	30%	Siltstone light red-orange firm calcareous, sandy in part, very anhydritic
	10%	Anhydrite white, cream soft silty
5930-5940	10%	Limestone as above
	80%	Siltstone as above, very anhydritic
	10%	Anhydrite white, cream soft-firm silty in part
5940-5950	90%	Siltstone as above
	05%	Limestone as above
	05%	Anhydrite as above
5950-5960	40%	Siltstone as above some grading to very fine grained Sandstone
	40%	Limestone light-medium gray, microcrystalline, hard, dense, silty with abundant cream chalky with medium gray pelletal inclusions
	20%	Anhydrite clear, white soft some crystalline firm
5960-5970	10%	Siltstone as above some grading to very fine grained Sandstone

NSOFC

	10%	Sandstone white-very light tan predominately fine grained subrounded well sorted, with some medium grained subrounded, moderately cemented, calcareous with clay matrix; some very fine-fine grained, well cemented, calcareous
	10%	Anhydrite white, clear, soft-firm
	50%	Limestone predominately medium-dark gray microcrystalline hard, dense with common white, chalky oolitic/pelletal; some very shaley grading to limey Shale
	20%	Shale medium gray firm, blocky, silty calcareous with common medium gray waxy arenaceous, slightly calcareous, common pale-bright green waxy bentonitic slightly calcareous
5970-5980	80%	Limestone as above with common white, cream chalky oolitic/pelletal
	10%	Anhydrite as above
	05%	Sandstone as above
	05%	Shale as above with common bright green bentonitic
5980-5890	90%	Limestone as above very anhydritic
	05%	Siltstone red-brown sandy in part, anhydritic
	05%	Anhydrite white, soft
5990-6000	100%	Limestone as above
		Trace Shale green waxy, bentonitic
		Common Anhydrite
6000-6010	100%	Limestone as above some very pelletal
		Trace Shale, Anhydrite as above, trace Siltstone as above
6010-6020	100%	Limestone as above common white chalky with brown pelletal inclusions. Trace oolites
		Trace Shale, Anhydrite as above

6020-6030	80%	Limestone as above with some becoming green-brown fossiliferous
	20%	Sandstone red-orange, white very fine-fine grained medium sort, subangular-subrounded, very well cemented, calcareous
		Very common Anhydrite
		Trace Shale medium gray, light green firm, waxy bentonitic
6030-6040	60%	Limestone as above some very pelletal, trace oolites
	40%	Sandstone as above common interlamination of Limestone as above/infilling common Anhydrite
		Very common Anhydrites
6040-6050	40%	Limestone as above with common white, chalky pelletal, trace white, light tan, microcrystalline oolitic
	60%	Sandstone red-orange very fine-fine grained, well sorted, medium-well cemented, calcareous with very common Anhydrite infilling
		Trace Shale as above, common Anhydrites
6050-6060	30%	Limestone as above
	60%	Sandstone as above
NSOFC	10%	Anhydrite white, soft-firm, some crystalline
		Trace-common Sandstone light red-orange, fine-medium grained, medium sort, subrounded-rounded, friable, slightly calcareous with common white clay in filling
6060-6070	30%	Limestone as above some very pelletal
	30%	Sandstone red-orange very well cemented as above
NSOFC	30%	Sandstone light red-orange-white, with clear frosted grains, fine-medium grains, medium sort, subrounded, friable- moderated cemented, slightly calcareous with clay matrix
	10%	Anhydrite white, soft

6070-6080	30%	Limestone as above some very pelletal
	40%	Sandstone red-orange as above
	30%	Sandstone light red-orange-white, friable as above. Common Anhydrites

CO @ 6080'

VERY POOR SAMPLES. ABUNDANT CAVINGS. ABUNDANT LCM

6080-6090	70%	Uphole cavings
	30%	Sandstone very light orange-white with clear frosted quartz grains, fine-medium grain, medium sort, subrounded, friable-moderate cement, slightly calcareous with clay matrix
6090-6100	40%	Cavings
	60%	Sandstone very light orange-white as above. Some with black, orange inclusions
6100-6110	80%	Sandstone as above predominately red fine-medium grain, subrounded with some coarse grain clusters
NSOFC	20%	Cavings
6110-6120	80%	Sandstone as above
	20%	Cavings
6120-6130	80%	Sandstone as above
	20%	Cavings
6130-6140	90%	Sandstone as above
	10%	Cavings
6140-6150	90%	Sandstone as above
	10%	Cavings
6150-6160	80%	Sandstone as above predominately fine-medium grained with some coarse grain clusters
	20%	Cavings predominately red-orange to salmon
6160-6170	80%	Sandstone as above predominately fine-medium grained with some coarse grain clusters

	20%	Cavings predominately red-orange to salmon
6170-6180	80%	Sandstone as above predominately fine-medium grained with some coarse grained clusters
	20%	Cavings predominately red-orange to salmon
6180-6190	80%	Sandstone as above predominately fine-medium grained with some coarse grained clusters
	20%	Cavings predominately red-orange to salmon
6190-6200	80%	Sandstone as above predominately fine-medium grained with some coarse grained clusters
	20%	Cavings predominately red-orange to salmon
6200-6210	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grained clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		
		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
6210-6220	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grained clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		
		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
6220-6230	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grained clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		

- Trace Shale red-brown silty, gray-green waxy
bentonitic very slightly calcareous, very
thinly interlaminated with above Sandstone
- 6230-6240 100% Sandstone light-medium red-orange with some
salmon. Predominately fine-medium grain,
NSOFC medium sort with common coarse grained clus-
ters, predominated subrounded-rounded very
poor cement-friable, very slightly-noncalca-
reous; common clay matrix. Very common frosted
quartz grains. Some fine grain poor-
moderate cement, very slightly calcareous
- Trace Shale red-brown silty, gray-green waxy
bentonitic very slightly calcareous, very
thinly interlaminated with above Sandstone
- 6240-6250 100% Sandstone light-medium red-orange with some
salmon. Predominately fine-medium grain,
NSOFC medium sort with common coarse grain clusters,
predominated subrounded-rounded very poor
cement-friable, very slightly-noncalcareous;
common clay matrix. Very common frosted
quartz grains. Some fine grain poor-moderate
cement, very slightly calcareous
- Trace Shale red-brown silty, gray-green waxy
bentonitic very slightly calcareous, very
thinly interlaminated with above Sandstone
- 6250-6260 100% Sandstone light-medium red-orange with some
salmon. Predominately fine-medium grain,
NSOFC medium sort with common coarse grain clusters,
predominated subrounded-rounded very poor
cement-friable, very slightly-noncalcareous;
common clay matrix. Very common frosted
quartz grains. Some fine grain poor-moderate
cement, very slightly calcareous
- Trace Shale red-brown silty, gray-green waxy
bentonitic very slightly calcareous, very
thinly interlaminated with above Sandstone
- 6260-6270 100% Sandstone light-medium red-orange with some
Trip Sample salmon. Predominately fine-medium grain,
NSOFC medium sort with common coarse grain clusters,
predominated subrounded-rounded very poor
cement-friable, very slightly-noncalcareous;
common clay matrix. Very common frosted
quartz grains. Some fine grain poor-moderate
cement, very slightly calcareous

		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
6270-6280	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grain clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		
		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
6280-6290	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grain clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		
		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
		Abundant Cavings
6290-6300	100%	Sandstone light-medium red-orange with some salmon. Predominately fine-medium grain, medium sort with common coarse grain clusters, predominated subrounded-rounded very poor cement-friable, very slightly-noncalcareous; common clay matrix. Very common frosted quartz grains. Some fine grain poor-moderate cement, very slightly calcareous
NSOFC		
		Trace Shale red-brown silty, gray-green waxy bentonitic very slightly calcareous, very thinly interlaminated with above Sandstone
6300-6310	100%	Sandstone as above with thin Shale partings as above
6310-6320	100%	Sandstone as above with thin Shale partings as above

6320-6330 100% Sandstone as above with thin Shale partings
as above

6330-6340 100% Sandstone as above with thin Shale partings
as above

6340-6350 100% Sandstone as above with thin Shale partings
as above

6350-6360 100% Sandstone light red-orange fine-medium grain
as above with common coarse grained clusters
as above.

Trace Shale red-brown silty, gray-green waxy
bentonitic as above

Increasing cavings - approximately 20% of sample

6360-6370 100% Sandstone light red-orange fine-medium grain
as above with common coarse grained clusters
as above.

Trace Shale red-brown silty, gray-green waxy
bentonitic as above

Increasing cavings - approximately 20% of sample

6370-6380 100% Sandstone light red-orange fine-medium grain
as above with common coarse grained clusters
as above.

Trace Shale red-brown silty, gray-green waxy
bentonitic as above

Increasing cavings - approximately 20% of sample

6380-6390 100% Sandstone light red-orange fine-medium grain
as above with common coarse grained clusters
as above.

Trace Shale red-brown silty, gray-green waxy
bentonitic as above

Increasing cavings - approximately 20% of sample

6390-6400 100% Sandstone light red-orange fine-medium grain
as above with common coarse grained clusters
as above.

Trace Shale red-brown silty, gray-green waxy
bentonitic as above

Increasing cavings - approximately 20% of sample

VERY POOR SAMPLES

6400-6410	100%	Sandstone as above. Very abundant cavings.
6410-6420	100%	Sandstone as above. Very abundant cavings.
6420-6430	100%	Sandstone as above. Very abundant cavings.
6430-6440	100%	Sandstone as above predominately very poorly cemented - loose quartz grains
6440-6450	100%	Sandstone as above with increasing red-brown very fine grained, well cemented; grading to Siltstone
6450-6460	100%	Sandstone as above with increasing red-brown very fine grained, well cemented; grading to Siltstone
6460-6470	100%	Sandstone and Siltstone as above. Very poorly sample. Abundant cavings.
6470-6480	100%	Sandstone as above. Very poor sample. Abundant cavings.
6480-6490	100%	Sandstone as above. Very common red-brown very fine grain, medium-well cemented.
6490-6500	100%	Sandstone as above. Very poor sample. Abundant cavings.

Very poor samples 30 - 40% Cavings

6500-6510	100%	Sandstone predominately white-light salmon, very fine-fine grained, medium sort; poorly cemented, very slightly calcareous-noncalcareous with white clay matrix; some medium-coarse grain, well rounded, moderately cemented clusters; common loose cg quartz grains well rounded, frosted.
6510-6520	100%	Sandstone as above with increasing medium-well cemented, very slightly calcareous with clay matrix increasing fine grain, medium-well sorted.
6520-6530	100%	Sandstone as above. Very poor sample. Abundant cavings.

6530-6540	100%	Sandstone as above. Very poor sample. Abundant cavings.
6540-6550	100%	Sandstone as above
6550-6560	100%	Sandstone as above with common Anhydrite infilling; common white, pink Anhydrite, soft, slightly dolomitic; some red-brown Sandstone very fine-fine grain, shaley, arkosic grading to Siltstone
6560-6570	100%	Sandstone as above with common Anhydrite infilling; common white, pink Anhydrite, soft, slightly dolomitic; some red-brown Sandstone very fine-fine grain, shaley, arkosic grading to Siltstone
6570-6580	100%	Sandstone as above with common Anhydrite infilling; common white, pink Anhydrite, soft, slightly dolomitic; some red-brown Sandstone very fine-fine grain, shaley, arkosic grading to Siltstone
6580-6590	100%	Sandstone as above with common Anhydrite infilling; common white, pink Anhydrite, soft, slightly dolomitic; some red-brown Sandstone very fine-fine grain, shaley, arkosic grading to Siltstone
6590-6600	100%	Sandstone as above with common Anhydrite infilling; common white, pink Anhydrite, soft, slightly dolomitic; some red-brown Sandstone very fine-fine grain, shaley, arkosic grading to Siltstone
6600-6610	100%	Sandstone red-orange very fine-fine grain, poor sort, with some medium grain inclusions; subangular-subrounded, moderately cemented, calcareous with Anhydrite matrix some very silty, very shaley, very common light orange-fine-medium grain, subrounded, poorly cemented, very slightly calcareous some with white Anhydrite matrix; common Anhydrite white, light orange soft, dolomitic in part.
Common uphole cavings		
6610-6620	100%	Sandstone red-orange very fine-fine grain, poor sort, with some medium grain inclusions; subangular-subrounded, moderately cemented, calcareous with Anhydrite matrix some very silty, very shaley, very common light orange-

fine-medium grain, subrounded, poorly cemented, very slightly calcareous some with white Anhydrite matrix; common Anhydrite white, light orange soft, dolomitic in part.

Common uphole cavings

6620-6630 100% Sandstone red-orange very fine-fine grain, poor sort, with some medium grain inclusions; subangular-subrounded, moderately cemented, calcareous with Anhydrite matrix some very silty, very shaley, very common light orange-fine-medium grain, subrounded, poorly cemented, very slightly calcareous some with white Anhydrite matrix; common Anhydrite white, light orange soft, dolomitic in part.

Common uphole cavings

6630-6640 100% Sandstone as above with increasing cavings
 6640-6650 100% Sandstone as above with increasing cavings
 6650-6660 100% Sandstone as above with some red-orange very fine-fine grain, becoming slightly arkosic
 6660-6670 100% Sandstone as above with some red-orange very fine-fine grain, becoming slightly arkosic

Trace Siltstone rick red, dark red-brown firm calcareous. Common Anhydrite white, soft.

6670-6680 100% Sandstone as above with some red-orange very fine-fine grain, becoming slightly arkosic

Trace Siltstone rick red, dark red-brown firm calcareous. Common Anhydrite white, soft.

6680-6690 100% Sandstone as above with some red-orange very fine-fine grain, becoming slightly arkosic

Trace Siltstone rick red, dark red-brown firm calcareous. Common Anhydrite white, soft.

6690-6700 100% Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings- 20 - 30% of sample

6700-6710	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6710-6720	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6720-6730	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6730-6740	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6740-6750	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6750-6760	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings-20 - 30% of sample
6760-6770	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poorly cemented calcareous with very

		common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings- 20 - 30% of sample
6770-6780	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poor-moderately cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings- 20 - 30% of sample
6780-6790	100%	Sandstone light orange with clear frosted grains, fine-medium grain, medium sort, predominately subangular-subrounded; poor-moderately cemented calcareous with very common white Anhydrite matrix. Trace black, orange min. inclusions. Very common cavings- 20 - 30% of sample
6790-6800	100%	Sandstone as above with increasing cavings - 40-70% of sample
6800-6810	100%	Sandstone as above with increasing cavings - 40-70% of sample
6810-6820	100%	Sandstone as above with increasing cavings - 40-70% of sample
6820-6830	100%	Sandstone as above with increasing cavings - 40-70% of sample
6830-6840	100%	Sandstone as above with increasing cavings - 40-70% of sample
6840-6850	100%	Sandstone as above with increasing cavings - 40-70% of sample
6850-6860	100%	Sandstone light orange, salmon predominately very fine-fine grain subangular, medium sort, moderate-poorly cemented, calcareous with clay matrix, Anhydrit matrix, some fine-medium grain subrounded poorly cemented slightly calcareous.

Trace-common Siltstone brick red firm calcareous

Common Anhydrite pink, white soft gummy

Very abundant cavings \pm 40-50% of sample

- 6860-6870 100% Sandstone light orange, salmon predominately very fine-fine grain subangular, medium sort, moderate-poorly cemented, calcareous with clay matrix, Anhydrit matrix, some fine-medium grain subrounded poorly cemented slightly calcareous.
- Trace-common Siltstone brick red firm calcareous
- Common Anhydrite pink, white soft gummy
- Very abundant cavings $\pm 40-50\%$ of sample
- 6870-6880 100% Sandstone light orange, salmon predominately very fine-fine grain subangular, medium sort, moderate-poorly cemented, calcareous with clay matrix, Anhydrit matrix, some fine-medium grain subrounded poorly cemented slightly calcareous.
- Trace-common Siltstone brick red firm calcareous
- Common Anhydrite pink, white soft gummy
- Very abundant cavings $\pm 40-50\%$ of sample
- 6880-6890 100% Sandstone light orange, salmon predominately very fine-fine grain subangular, medium sort, moderate-poorly cemented, calcareous with clay matrix, Anhydrit matrix, some fine-medium grain subrounded poorly cemented slightly calcareous.
- Trace-common Siltstone brick red firm calcareous
- Common Anhydrite pink, white soft gummy
- Very abundant cavings $\pm 40-50\%$ of sample
- 6890-6900 100% Sandstone light orange, salmon predominately very fine-fine grain subangular, medium sort, moderate-poorly cemented, calcareous with clay matrix, Anhydrit matrix, some fine-medium grain subrounded poorly cemented slightly calcareous.
- Trace-common Siltstone brick red firm calcareous
- Common Anhydrite pink, white soft gummy
- Very abundant cavings $\pm 40-50\%$ of sample

6900-6910	100%	Sandstone as above
		Trace Siltstone as above
		Trace Anhydrite as above
		Very abundant cavings
6910-6920	100%	Sandstone as above
		Trace Siltstone as above
		Trace Anhydrite as above
		Very abundant cavings
6920-6930	100%	Sandstone as above
		Trace Siltstone as above
		Trace Anhydrite as above
		Very abundant cavings
6930-6940	100%	Sandstone as above
		Trace Siltstone as above
		Trace Anhydrite as above
		Very abundant cavings
6940-6950	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
6950-6960	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
6960-6970	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
6970-6980	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead

		black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
6980-6990	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
6990-7000	100%	Sandstone as above with trace white, clear, light gray very fine grain silty with dead black asphaltic stain - no permeability and no porosity. NOFS - Associated with 1-2 unit background gas increase
7000-7010	100%	Sandstone light orange as above with trace white, light gray very fine grain, silty with dead stain as above. No porosity; no permeability.
		Very abundant cavings
7010-7020	80%	Sandstone as above
	20%	Shale pale gray-green waxy bentonitic, slightly-noncalcareous arenaceous
7020-7030	80%	Shale as above
	20%	Sandstone as above
		Very poor sample. Abundant cavings
		Very poor sample - abundant cavings 40-60% of sample
7030-7040	100%	Shale as above with thin interbeds of shale brick red, firm silty, slightly calcareous
7040-7050	100%	Shale predominately pale gray-green waxy bentonitic arenaceous with thin interbeds of brick red firm silty.
		Trace Pyrite inclusions in gray-green
7050-7060	100%	Shale as above
		Trace Pyrite inclusions
		Trace Biotite inclusions
		Decreasing cavings

7060-7070	100%	Shale as above with increasing brick red silty
7070-7080	100%	Shale as above
7080-7090	100%	Shale becoming predominately brick red firm silty splintery, noncalcareous with very common pale gray-green waxy
		Trace Siltstone red-brown firm, very slightly calcareous
7090-7100	100%	shale as above
7100-7110	100%	Shale as above. Very poor sample predominately cavings.
		Trip for NB #8 @ 7108
7110-7120	100%	Shale predominately brick red firm fissile silty in part, very slightly-noncalcareous; common pale gray-green firm, waxy bentonitic arenaceous very slightly-non calcareous with trace biotite, pyrite inclusions
7120-7130	100%	Shale as above
		Common cavings
7130-7140	100%	Shale as above
7140-7150	100%	Shale as above
		Trace Sandstone white, light gray very fine-fine grain with some medium grain, poor sort subangular, moderately cemented, calcareous - appears tite with dark brown stain dull-bright gold fluorescence with fast and slow streaming bright yellow cut, yellow residue ring
7150-7160		Very poor sample - abundant cavings
	99%+	Cavings
	<1%	Sandstone as above with Shale as above
7160-7170	50%	Cavings
	50%	Sandstone white, light-dark gray very fine-medium grain poor sort, with show as above; some fragments with bright yellow-green

		fluorescence, medium brown stain yellow cut and yellow residue ring
7170-7180	20%	Cavings
	80%	Sandstone as above with 50-60% having show as above some fine-medium grain clusters are friable subrounded with estimated 7-8% porosity; increasing to 40-50% with fluorescence
7180-7190	80%	Sandstone as above with increase in bright yellow-green fluorescence yellow cut with yellow residue ring, increasing brown stain
	20%	Cavings
7190-7200	90%	Sandstone as above becoming predominately fine-medium grain subangular, moderately cemented - decreasing dark stain
	10%	Cavings
7200-7208	C.O. for	DST #1 7149-7208
	95%	Sandstone as above with show as above
	05%	Cavings
7208-7220		Trip sample; predominately cavings. T.G. 19u
	100%	Sandstone as above with show as above
7220-7230	100%	Sandstone clear white, light gray becoming predominately fine-medium grain angular-subangular, very well cemented hard, tite
		Very abundant cavings. 50% dark brown 05% brown
7230-7240	60%	Sandstone as above
	40%	Shale brick red, red brown firm, fissil silty, splintery very slightly-noncalcareous
7240-7250	60%	Sandstone as above
	40%	Shale as above
		Very abundant cavings
7250-7260	80%	Sandstone white, clear fine-medium grain angular-subangular poor sort, very well

		cemented very slightly-noncalcareous hard, tite some with trace green shale inclusions, very abrupt decrease in dark stain. NSOFC
	20%	Shale red-brown very silty hard, tite, very slightly-noncalcareous
		Abundant cavings; abundant LCM
7260-7270	60%	Sandstone as above
	40%	Shale as above
		Very poor sample; abundant cavings, abundant LCM
7270-7280	80%	Sandstone white, clear fine-medium grain angular-subangular with red loose quartz grains with trace very well cemented clusters
	20%	Shale as above with some gray-green waxy bentonitic
7280-7290	80%	Sandstone as above
	20%	Shale as above with increasing Shale gray-green waxy bentonitic
7290-7300	80%	Shale red-brown silty, gray-green waxy maroon, varicolor waxy firm, bentonitic in part, arenaceous in part; very slightly-noncalcareous
	20%	Sandstone as above
7300-7310	100%	Shale as above predominately gray-green, varicolor waxy with common red-brown silty firm, very slightly calcareous
		Trace Sandstone as above, common cavings
7310-7320	100%	Shale as above
7320-7330	100%	Shale as above
7330-7340	100%	Shale as above
7340-7350	100%	Shale varicolor as above
7350-7360	100%	Shale becoming predominately red-brown silty firm, blocky very slightly calcareous with common varicolor as above, some red-brown anhydritic

7360-7370	100%	Shale as above becoming predominately red-brown silty
7370-7380	100%	Shale as above some micaceous
7380-7390	100%	Shale as above
7390-7400	100%	Shale as above
7400-7410	100%	Shale red-brown silty, varicolor waxy as above
7410-7420	100%	Shale red-brown silty micaceous in part, anhydritic in part. Abrupt decrease in varicolor waxy
7420-7430	100%	Shale as above with increasing Anhydrite Trace Anhydrite white, clear some crystalline
7430-7440	100%	Shale as above Trace Anhydrite as above
7440-7450	100%	Shale as above some brick red Trace Anhydrite
7450-7460	100%	Shale as above some brick red Trace Anhydrite
7460-7470	100%	Shale red-brown, brick red, firm silty some anhydritic Trace Anhydrite as above
7470-7480	100%	Shale as above Trace Anhydrite as above
7480-7490	100%	Shale as above Trace Anhydrite as above
7490--7500	100%	Shale as above Trace Anhydrite as above

7500-7510	100%	Shale red-brown silty, brick red, firm, silty, Anhydritic in part, very slightly calcareous
		Trace Anhydrite white, clear crystalline, some soft
7510-7520	100%	Shale as above
		Trace Anhydrite as above
7520-7530	100%	Shale as above
		Trace Anhydrite
7530-7540	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7540-7550	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7550-7560	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7560-7570	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7570-7580	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7580-7590	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic
		Trace Anhydrite white, clear, crystalline
7590-7600	100%	Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7600-7610 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7610-7620 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7620-7630 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7630-7640 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7640-7650 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7650-7660 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7660-7670 100% Shale red-brown silty, brick red, firm, blocky silty, slightly calcareous, anhydritic in part. Trace varicolor waxy, bentonitic

Trace Anhydrite white, clear, crystalline

7670-7680 100% Shale as above; trace light gray very fine grain silty, friable, slightly calcareous

7680-7690 100% Shale as above; trace Sandstone as above

7690-7700 100% Shale as above with increasing maroon, varicolor waxy

	Trace	Sandstone as above with micaceous inclusions
7700-7710	100%	Shale as above becoming predominately light red-brown, silty, varicolor waxy
	Trace	Sandstone as above
7710-7720	100%	Shale as above some very silty
	Trace	Sandstone as above
7720-7730	100%	Shale as above
7730-7740	100%	Shale as above with increasing gray-green waxy bentonitic, slightly-noncalcareous. Trace Pyrite inclusions.
7740-7750	100%	Shale becoming predominately gray-green waxy, bentonitic slightly-noncalcareous, micaceous in part. Trace Pyrite inclusions.
7750-7760	100%	Shale as above with trace Siltstone white, very light green firm, very slightly-slightly calcareous, micaceous in part, Pyrite in part
7760-7770	90%	Shale as above with Pyrite inclusions
	10%	Siltstone as above with Pyrite inclusions
7770-7780	90%	Shale gray-green, pale green waxy
	10%	Siltstone white, very light green micaceous, with Pyrite inclusions
7780-7790	80%	Shale as above
	20%	Siltstone as above, with Pyrite inclusions
7790-7800	70%	Shale as above with micaceous inclusions
	30%	Siltstone as above with Pyrite inclusions
7800-7810	70%	Shale pale green waxy bentonitic in part, silty in part, firm slightly calcareous with common Pyrite inclusions, common micaceous inclusions
NSOFC	30%	Siltstone white, very pale green firm, friable, slightly calcareous with common Pyrite inclusions

7810-7820	60%	Shale as above with Pyrite inclusions
	40%	Siltstone as above with Pyrite inclusions
7820-7830		Trip sample - common cavings predominately brick red Shale
7830-7840	70%	Shale as above with some varicolor waxy
	30%	Siltstone as above
7840-7850	90%	Shale as above
	10%	Siltstone as above
7850-7860	80%	Shale as above with Pyrite inclusions
	20%	Siltstone as above with Pyrite inclusions
7860-7870	60%	Shale as above, trace varicolor waxy
	40%	Siltstone as above
7870-7880	60%	Shale as above with Pyrite inclusions
	40%	Siltstone as above
7880-7890	60%	Shale as above with Pyrite inclusions, trace varicolor waxy
	40%	Siltstone as above
7890-7900	80%	Shale becoming predominately varicolor, maroon waxy with very common pale green as above
	20%	Siltstone as above, common cavings
Samples becoming predominately cavings from Upper Moenkopi, red Shales and Siltstones		
7900-7910	90%	Shale predominately varicolor, pale green waxy bentonitic as above with some Anhydrite inclusions
	10%	Siltstone pale green, white soft-firm slightly calcareous
7910-7920	90%	Shale as above with trace Pyrite inclusions
	10%	Siltstone as above with Pyrite inclusions Very poor sample, abundant cavings

7920-7930	90%	Shale as above
	10%	Siltstone as above
		Very poor sample, abundant cavings
7930-7940	80%	Shale as above
	10%	Siltstone as above
	10%	Sandstone white, light gray very fine grain-medium grain, subangular, silty very well cemented, very slightly calcareous, some with trace black stain, yellow fluorescence and cut. Increasing brick red Shale, Siltstone, cavings.
7940-7950	80%	Shale as above
	10%	Siltstone as above
	10%	Sandstone as above with some becoming predominately medium grain medium sort with black stain, yellow fluorescence, yellow cut. Very poor sample, very abundant brick red Shale, Siltstone, cavings
7950-7960	60%	Cavings
	30%	Shale pale green waxy, very slightly calcareous with Pyrite inclusions
	05%	Siltstone with Pyrite inclusions
	05%	Sandstone as above with show as above. No porosity and permeability visible
7960-7970	80%	Cavings
	20%	Shale as above
	Trace	Siltstone, Sandstone as above
7970-7980	60%	Cavings
	30%	Shale as above
	10%	Sandstone white, light gray predominately very fine grain silty with some white medium-coarse grain subangular well cemented, slightly calcareous. Trace with black stain, yellow fluorescence and cut

7980-7990	60%	Cavings
	40%	Shale predominately very pale green with some varicolor. Trace Pyrite inclusions
	Trace	Sandstone as above; trace Siltstone white, pale green as above.
7990-8000	60%	Cavings as above
	30%	Shale as above; trace Siltstone as above
	10%	Sandstone as above with trace black stain, yellow fluorescence and cut
8000-8010	60%	Cavings - brick red Shale and Siltstone, varicolor Shale
	30%	Shale pale green waxy slightly calcareous with Pyrite inclusions
	10%	Siltstone white, very pale green firm, slightly calcareous with Pyrite inclusions
	Trace	Sandstone white, light gray very fine grain, medium-coarse grain, moderately-well cemented very slightly calcareous; trace with black stain, yellow fluorescence and cut
8010-8020	40%	Cavings as above
	40%	Shale as above; trace Pyrite inclusions
	10%	Siltstone as above
	10%	Sandstone as above
8020-8030	30%	Cavings as above
	40%	Shale as above
	10%	Siltstone as above
	10%	Sandstone as above
	10%	Limestone light gray, cream microcrystalline hard, dense with medium gray oolites
8030-8040	30%	Cavings as above
	40%	Shale pale green as above

	10%	Sandstone as above
	20%	Limestone cream, light gray microcrystalline hard, dense with medium gray oolites; trace pale yellow fluorescence, very scant poor yellow cut
8040-8050	40%	Cavings red-brown Shale and Siltstone
	10%	Shale pale green with Pyrite inclusions
	50%	Limestone light gray, cream microcrystalline hard, dense with trace medium gray oolites silty in part, dolomitic in part; trace pale yellow fluorescence, very scant poor slow yellow cut
VERY POOR SAMPLES		
8050-8060	50%	Cavings
	50%	Limestone cream, light gray microcrystalline hard, dense silty in part, dolomitic in part with trace oolites; trace fossil fragments
8060-8070	40%	Cavings
	60%	Limestone as above; trace oolites
8070-8080	60%	Cavings
	40%	Limestone as above; trace oolites
8080-8090	60%	Cavings
	40%	Limestone as above; trace oolites
8090-8100	40%	Cavings
	60%	Limestone as above becoming predominately cream microcrystalline
8100-8110	30%	Cavings
	70%	Limestone as above some light gray very dolomitic
8110-8120	30%	Cavings
	70%	Limestone as above some cream becoming very silty

8120-8130	30%	Cavings
	70%	Limestone as above; trace fossil fragments
8130-8140	40%	Cavings
	60%	Limestone as above; trace fossil fragments
8140-8150	50%	Cavings
	50%	Limestone as above
8150-8160	50%	Cavings
	50%	Limestone light gray microcrystalline, hard, dense, cream chalky oolitic with fossil fragments, trace light tan microcrystalline, hard, dense; trace Pyrite inclusions
8160-8170	40%	Cavings
	60%	Limestone as above, very scant trace dark stain on fracture face; no fluorescence, no cut
8170-8180	40%	Cavings
	50%	Limestone as above
	10%	Siltstone red orange, light red orange soft, shaley, anhydritic
8180-8190	50%	Cavings red-brown Siltstone and Shale
	30%	Limestone as above
	20%	Siltstone red-orange soft, anhydritic as above
8190-8200	50%	Cavings red-brown splintery Shale and Siltstone
	10%	Limestone as above
	40%	Siltstone light red-orange soft-firm, slightly calcareous, anhydritic
8200-8210	20%	Cavings as above
	60%	Siltstone red-brown, light red orange shaley in part, predominately very well cemented,

		very slightly calcareous with common soft anhydritic
	20%	Shale red-brown silty anhydritic
8210-8220	10%	Cavings as above
	60%	Siltstone as above
	30%	Shale red-brown soft-firm very slightly calcareous anhydritic in part; micaceous in part some very silty grading to Siltstone
8220-8230	60%	Shale as above some cavings
	40%	Siltstone as above
8230-8240	40%	Shale sa above; common cavings
	60%	Siltstone as above red-brown, light red-brown
8240-8250	60%	Shale as above with increasing light red-orange soft, Anhydritic
	40%	Siltstone red-brown, light red orange, firm, very slightly calcareous
8250-8260	40%	Shale as above becoming predominately light red-brown silty, anhydritic in part, micaceous in part
	60%	Siltstone as above becoming predominately very light red-orange shaley, well cemented, slightly calcareous
	Trace	Sandstone medium-dark gray very fine-medium grain, poor sort, very well cemented, very slightly-noncalcareous with dead black stain, no fluorescence, cut
8260-8270	60%	Shale as above with common gray-green waxy slightly calcareous; trace varicolor waxy
	40%	Siltstone as above with some white very well cemented hard, tite
	Trace	Sandstone as above becoming predominately very fine-fine grain, silty with black stain; no fluorescence, no cut

8270-8280	50%	Shale light red-brown silty, gray-green waxy splintery micaceous with Pyrite inclusions; trace varicolor waxy
	40%	Siltstone very light red-orange soft-firm anhydritic slightly calcareous; white well cemented, hard, tite clay filled
	10%	Sandstone white, light gray very fine grain-Siltstone some fine-medium grain subangular predominately moderately cemented, very slightly calcareous with some friable; abundant dead black stain with very scant pale yellow fluorescence, weak milky yellow cut
8280-8290	30%	Shale as above with increasing gray-gray-green
	60%	Siltstone as above
	10%	Sandstone as above with dead black stain
8290-8300	30%	Shale as above
	70%	Siltstone as above
		Trace Sandstone as above
8300-8310	50%	Shale pale gray-green, varicolor firm splinery, blocky very slightly calcareous with trace Pyrite inclusions; common red-brown silty blocky very slightly calcareous
	50%	Siltstone white, gray-white blocky, very slightly calcareous, dolomitic hard, tite; some red-brown Anhydritic
	Trace	Sandstone light gray, white very fine grain, friable clay filled with dead black stain
8310-8320	60%	Shale as above with Pyrite inclusions
	40%	Siltstone as above
		Trace Sandstone as above
8320-8330	40%	Shale as above
	60%	Siltstone as above
		Trace Sandstone as above some grading to Siltstone

8330-8340	40%	Shale as above
	60%	Siltstone as above some white becoming dolomitic, with Pyrite inclusions
8340-8350	60%	Shale light gray, light gray-green waxy splintery non-very slightly calcareous with Trace Pyrite inclusions some red-brown silty, micaceous splintery-blocky, very slightly calcareous; trace Anhydrite inclusions
	40%	Siltstone white, very light tan firm blocky very slightly calcareous - dolomitic; trace Pyrite
	Trace	Sandstone medium gray, very fine grain firm-friable, very slightly calcareous, clay filled with black dead stain
8350-8360	40%	Shale as above
	60%	Siltstone as above
	Trace	Sandstone as above
8360-8365	40%	Shale as above
	60%	Siltstone as above
	Trace	Sandstone as above
8365-8370	30%	Shale as above
	50%	Siltstone as above some becoming very dolomitic
	20%	Sandstone light-medium gray, very fine grain silty, firm-friable, slightly calcareous clay filled with dark brown-black stain some medium-coarse grain clusters of subrounded quartz Sandstone friable with trace brown stain; trace pale yellow fluorescence with slow yellow milky cut
8370-8375	30%	Shale as above with Pyrite inclusions
	40%	Siltstone as above some with dark stain
	30%	Sandstone as above with increasing fine-medium grain subrounded; trace intergranular porosity; trace medium-coarse grain subrounded clusters as above

8375-8380	10%	Shale as above
	20%	Siltstone as above some with dark stain; trace fluorescence, cut
	70%	Sandstone predominately very fine grain hard, tite clayfilled with some dark stain; trace fluorescence, weak milky yellow cut; some fine-medium grain subrounded moderately cemented; trace medium-coarse grained subrounded clusters
8380-8386	10%	Shale as above; trace Pyrite inclusions
	20%	Siltstone as above; trace Pyrite inclusions
	70%	Sandstone as above with trace intergranular and fracture porosity
		Trace Limestone white, microcrystalline hard, dense; trace brown stain on fracture face; trace Pyrite inclusions
SLM 8386-8381		
8381-8382		Dolomite, cream, white, crypocrystalline hard, dense, sandy no fluorescence, cut, no visible porosity
8382-8383		Dolomite, medium-dark gray, microcrystalline, very silty, sandy with cream calcite inclusions, pyritic, saturated with black stain, very weak yellow fluorescence in part, very weak trace milky yellow cut; strong H ₂ S odor. Large fracture with dead black stain, calcite filling
8383-8384		Dolomite medium gray microcrystalline silty, sandy as above with trace fracture porosity; trace black stain as above some light gray-cream microcrystalline with trace permeability and porosity and fracture porosity; common black stain, no fluorescence, cut
8384-8385		Dolomite as above with black stain as above; strong odor
8385-8386		Dolomite as above with black waxy stain (stylolite) with no fluorescence, very poor slow yellow cut, strong odor

- 8386-8387 Dolomite light tan-cream microcrystalline hard, dense with trace Pyrite inclusions, trace green Shale inclusions - no visible porosity, trace fracture porosity; no stain, fluorescence, cut; strong H₂S odor
- 8387-8388 Dolomite light tan-cream microcrystalline hard, dense with Pyrite, green Shale inclusions as above. No stain, fluorescence, cut, weak H₂S odor. No visible porosity
- 8388-8389 Dolomite light gray, light gray-brown microcrystalline hard, dense with common Pyrite, green Shale, calcite inclusions; common black stain; no fluorescence, cut
- 8389-8390 Dolomite light gray microcrystalline hard, dense as above with stain as above; no fluorescence, cut
- 8390-8391 Dolomite medium-dark gray, very silty, very pyritic, saturated with black stain; no fluorescence, no cut. Black waxy residue; strong H₂S odor, very weak gold residue ring
- 8391-8392 Dolomite medium-gray microcrystalline hard, dense, black residue on fracture face, very scant trace pin point porosity, no fluorescence, cut. Strong odor in fresh core
- 8392-8993 Dolomite as above with dead black residue on fracture faces, trace Calcite fracture fill; trace pinpoint 1 mm vug porosity; no fluorescence, no cut.
- 8393-8394 Dolomite medium-dark gray, very silty, pyritic with black stain, black waxy residue.
- 8394-8395 Dolomite cream, light tan microcrystalline hard, dense with Pyrite inclusions, green Shale inclusions, trace Pyrite fracture fill
- 8395-8396 Dolomite light tan-light gray microcrystalline hard, dense with trace pin point and 1 mm vuggy porosity with light brown stain; abundant black stain; no fluorescence, cut. Medium H₂S odor
- 8396-8396.8 Dolomite as above with calcite fracture fill (large fracture); no stain, fluorescence, cut

- 8398-8403 Dolomite as above white, light cream microcrystalline hard, dense with stain as above; very weak fluorescence; trace very weak yellow cut
- 8403-8404 Dolomite cream-light tan, microcrystalline-very fine crystalline, hard, dense with trace Pyrite inclusion, trace green Shale inclusions; trace pin point and 1 mm vuggy porosity with pale yellow fluorescence; very weak milky yellow cut (very weak)
- 8404-8405 Dolomite as above with trace black dead stain; no fluorescence, cut; very scant tract pinpoint porosity
- 8405-8406 Dolomite as above no stain, no visible porosity
- 8406-8407 Dolomite as above becoming predominately very fine crystalline microcrystalline with trace pinpoint and very small vuggy porosity; trace brown stain with yellow fluorescence; very weak yellow cut, milky
- 8407-8408 Dolomite cream, light tan microcrystalline hard, dense as above. Common dead black stain with very weak yellow fluorescence, very weak milky yellow cut
- 8408-8409 Dolomite light gray with trace medium gray microcrystalline hard, dense with dead black stain; trace Pyrite inclusion; no fluorescence, cut
- 8409-8410 Dolomite cream predominately very fine crystalline with trace pin point and 1 mm vuggy porosity; trace brown stain with yellow fluorescence; trace poor milky yellow cut (est. 2-3% porosity)
- 8410-8411 Dolomite cream microcrystalline-very fine crystalline hard, dense with trace pin point porosity; scant trace brown stain with show as above
- 8411-8412 Dolomite cream, very light tan microcrystalline hard, dense, no visible porosity; no show
- 8412-8413 Dolomite light gray-tan microcrystalline hard, dense, no visible porosity, no show;

Trace Pyrite, green Shale inclusions

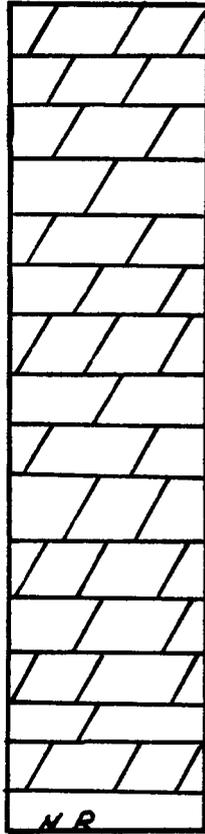
- 8413-8414 Dolomite light gray-tan microcrystalline hard, dense as above; no show; no porosity visible
- 8414-8415 Dolomite cream - light tan microcrystalline hard, dense. No visible porosity; no show
- 8415-8416 Dolomite cream-very light tan microcrystalline-very fine crystalline with common black dead stain; trace brown stain with very weak yellow fluorescence, very weak milky yellow cut; 1 mm and pin point porosity (fragments are crumbly in part)
- 8416-8417 Dolomite very light gray, very light cream with very common black dead stain with yellow fluorescence weak, milky. 1 mm and pinpoint porosity; yellow cut; trace pinpoint porosity (fragments are crumbly in part)
- 8417-8418 Dolomite as above with black stain, fluorescence and cut as above; porosity as above appears to be partially filled with dead stain as above
- 8418-8419 Dolomite light tan microcrystalline hard, dense with trace black stain; very scant trace porosity
- 8419-8420 Dolomite light tan microcrystalline hard, dense, with trace black stain, very scant trace brown stain with weak yellow fluorescence; very weak milky yellow cut; very scant pin point porosity
- 8420-8421 Dolomite light tan microcrystalline hard, dense with trace black stain, weak yellow fluorescence, very weak yellow cut, very scant trace pinpoint porosity; trace Pyrite inclusions
- 8421-8422 Dolomite as above
- 8422-8423 Dolomite light tan microcrystalline hard, dense with trace pinpoint porosity; trace brown stain on fracture face with weak yellow fluorescence, very weak yellow cut
- 8423-8424 Dolomite light tan-cream microcrystalline hard, dense; trace black dead stain on

- fracture face with very weak yellow fluorescence; very weak yellow cut; no other visible porosity
- 8424-8425 Dolomite light tan microcrystalline hard, dense with trace brown stain on fracture face with very weak yellow fluorescence; very weak yellow cut
- 8425-8426 Dolomite light tan predominately microcrystalline with some very fine crystalline; common black dead stain; trace brown stain 3-4% pinpoint porosity appears partially filled with black stain; trace with brown stain, weak yellow fluorescence, weak yellow cut
- 8426-8427 Dolomite very light cream, very fine crystalline-microsacrosic with 50% crumbly texture; very common dead black stain weak yellow fluorescence; very weak yellow cut, 3-4% pinpoint and 1/2 mm vuggy porosity
- 8427-8428 Dolomite light tan microcrystalline hard, dense with scant trace dead black stain; 1 very weak yellow fluorescence and cut as above - appears very tight; trace visible porosity
- 8428-8429 Dolomite light tan microcrystalline hard, dense with no visible porosity as above
- 8429-8430 Dolomite light tan microcrystalline hard, dense with very scant trace pin point porosity
- 8430-8431 Dolomite light tan microcrystalline hard, dense as above
- 8431-8432 Dolomite light tan microcrystalline hard, dense as above
- 8430-8440 Very poor sample; abundant cavings
100% Dolomite light cream-very light gray microcrystalline hard, dense with common dead black stain, very weak yellow fluorescence and cut
- 8440-8450 100% Dolomite as above, very poor sample 20% cavings
- 8450-8460 90% Cavings

	10%	Dolomite as above some with Pyrite inclusions
8460-8470	90%	Cavings
	10%	Dolomite with trace show as above
8470-8480	90%	Cavings
	10%	Dolomite as above
8480-8485	90%	Cavings
	10%	Dolomite as above with decreasing black stain
8485-8490	30%	Cavings
	40%	Dolomite light cream-very light gray microcrystalline hard, dense with scant trace dead black stain; no fluorescence, cut
	30%	Shale pale green waxy bentonitic with Pyrite inclusions
8490-8500	30%	Cavings
	50%	Dolomite as above
	20%	Shale as above
		Very scant trace Sandstone; very light gray, very fine-fine grain, subrounded firm-friable siliceous with common dead black stain; no fluorescence, cut
		NOTE: Samples 8500-8560 are 70-80% cavings
8500-8510	70%	Cavings with very common Shale pale green waxy, splintery slightly-noncalcareous with Pyrite inclusions
	30%	Sandstone white, light gray very fine-fine grain, subrounded, medium sort, well-moderately cemented, very slightly-noncalcareous with trace black dead stain; no fluorescence, cut
8510-8520	70%	Cavings as above
	30%	Sandstone as above
		NOTE: LCM sweep ran - samples are exceedingly poor

8520-8530	60%	Cavings as above
	40%	Sandstone as above with trace orange chert inclusions
8530-8540	90%	Cavings
	10%	Sandstone as above, trace Pyrite
8540-8550	70%	Cavings
	30%	Sandstone as above
8550-8560	70-80%	Cavings
	30%	Sandstone as above
TD 8560'		

CORE 1



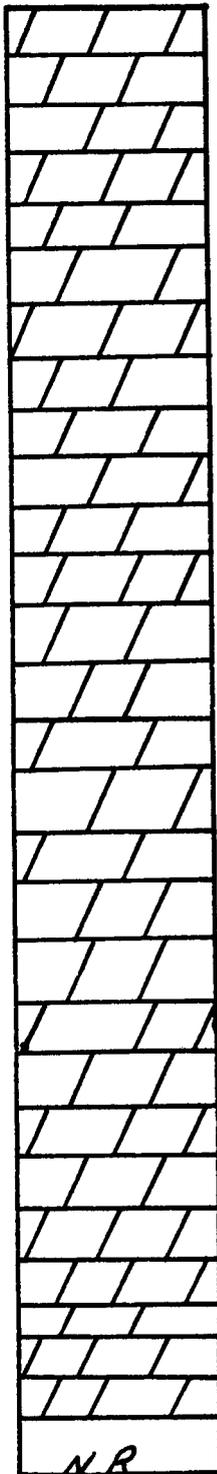
8381
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8398

8381-98 Rec'd 15.8'
Calcite blebs



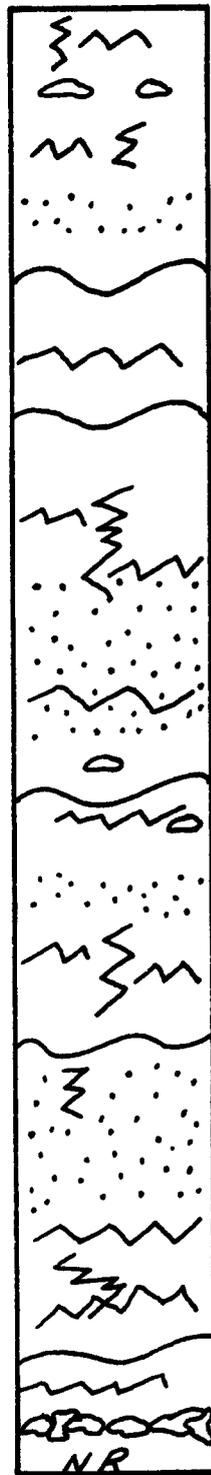
Rubble
Stylolite
H & V Fracture
Stylolite
PP Seeps & Stain
Stylolite
Rubble

CORE 2



8403
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8403-33 Rec'd 29'



H&V Fracture
 Calcite blebs
 Stain
 Stylolite
 H Fracture
 Stylolite
 H&V Fracture
 Stain
 Stylolite
 Stain
 Stylolite
 Stain
 H&V Fracture
 Stylolite
 Stain
 H&V Fracture
 Stylolite
 Rubble
 NR

SUMMARY

BWAB, Inc. Orangeville Federal Unit 4-1 spudded 11:30 a.m. 15 October 1985 in the Emery Sandstone Member of the Mancos Shale. Two hundred feet of 17 1/2" hole was drilled and 188' of 13 3/8" casing was set.

Drilling with 12 1/4" bit under surface casing commenced 19 October with air. A continuous pilot was placed at the end of the blooey line to evaluate possible gas shows.

The Blue Gate Cretaceous Shale was drilled without event except for one 15' flare lasting 3 seconds on a long connection at 1036'.

The Ferron Sandstone (2179' sample; 2184' log) was penetrated 22 October. At depth 2343', a 30 minute blow test produced no show. At 2404', a 20 minutes down-time build-up produced a 20' flare for 8 seconds following resumption of circulation. A 4' steady flare began at 2425' while drilling with 2100' cfm at 125 psi. This flare increased to 8' at 2435'. Drilling was suspended while the gas was gauged at the surface. While using a 1/4" orifice, the gas was gauged at 39.2 MCF. Later tests while pressure testing the choke manifold at intermediate depths showed at least one valve washed out and leaking so that the flow test did not reflect the true total amount of gas present in this zone.

This zone did give a 30' to 50' continuous flare with the air compressors shut off.

When drilling resumed, the flare became intermittent at 2470' with continuing 20'-30' flares on connections.

Dakota (3070' spl, 3076' log)

The light tan very fine to fine grained sandstone typical of the Dakota was used for casing point. 9 5/8" casing was set at 3088'. Dakota lithology was light tan, clear, white very fine to fine grained sandstone with light to medium gray shales interbedded.

Cedar Mountain (3096' log)

Because of cement contamination, no sample top of the Cedar Mountain was picked. Continuing with air drilling and very poor samples, the Cedar Mountain lithology was primarily Shale with pale gray-green and varicolored bentonitic soft non-calcareous types dominating. Light tan and white very fine to medium grained sandstones were noted.

Minor flares at 3112' and 3178' were noted on connections. These flares of 4' for 2 seconds gave 100 units on the total gas detector of the mudlogging unit.

Buckhorn (3579' spl; 3574' log)

In the OFU 4-1, the Buckhorn appeared as a very fine to fine grained clear frosted unconsolidated sandstone. No show was noted.

JURASSIC

Morrison (3591' spl; 3589' log)

The Morrison was primarily varicolored bentonitic shales very similar to Cedar Mountain. Clear frosted very fine to fine grained sandstone was noted in the upper part. Very minor cream to light tan dense Limestone was also noted. Very minor gas shows were noted on connections at depths as noted: 3711' - 9 units; 3742' - 5 units; 3773' - 3 units; 3804' - 5 units; 3961' - 2 units; 3992' - 11 units. The last two were noted after the Summerville was penetrated.

Summerville (3962' spl; 3965' log)

The Summerville was noted at the appearance of red-brown silty anhydritic shale and light tan very fine grained very well cemented sandstone. The red-brown anhydritic shale was very dominant. The bore hole became wet at 4113' and extremely tight hole was encountered with the Cedar Mountain and Morrison shales falling in on the drill pipe. Mudding up was begun at this time and the drill string was jarred out of the hole to the intermediate casing at 3088'. The hole was conditioned with mud and the bit washed and reamed to bottom. Two-man mud logging service commenced with lagged samples beginning at 4300'.

Curtis (4359' spl; 4350' log)

The Curtis in the OFU 4-1 was typical very fine to medium grained glauconitic sandstone. Some pale gray-green shale was noted at the bottom. No significant shows were noted.

Entrada (4530' log)

The Entrada Formation in the OFU 4-1 was primarily red-brown very silty shale and red-brown siltstone. Some very fine grained very silty sandstone was noted also. Anhydrite inclusions were noted throughout. Medium gray to gray-green firm slightly calcareous shales were found throughout.

No significant shows were noted.

Carmel (5303' spl; 5288' log)

The Carmel of the OFU 4-1 was a highly variable complex of gray and gray-green shales, siltstones, and sandstones with abundant Anhydrite throughout. Several two to four foot beds of Anhydrite were noted. The lower portion of the Carmel was dominated by light to medium gray dense pelletal limestone. Oolites were noted from 5950' to 6050' indicating a higher energy environment.

A loss of circulation and water flow occurred at 5504' where a very coarse grained loose sandstone was encountered. This water flow zone will continue to contaminate the mud and cause poor sample quality for the remainder of the well.

No significant shows were noted.

JURASSIC - TRIASSIC**Navajo** (6054' spl; 6042' log)

Typical light red orange very fine to fine grained sub-rounded sandstone marked the top of the Navajo. Some bleached white sandstone appeared at the top of the formation but did not dominate. Samples were circulated at 6080' but no shows were encountered that merited further evaluation.

TRIASSIC**Kayenta** (6547' spl; 6530' log)

The Kayenta was very difficult to distinguish in the OFU 4-1 from the poor samples available. The top was picked from the more erratic drill time and the slight darkening of the sandstone from red orange to red-brown.

No shows were noted.

Wingate (6698' spl; 6688' log)

The Wingate Sandstone in the OFU 4-1 was light orange with clear frosted grains fine to medium grained, subangular to subrounded, poorly to moderately cemented with common Anhydrite matrix.

No shows were noted.

Chinle (7018' spl; 7052' log)

Very poor samples with very abundant cavings at the base of the Wingate complicated the distinguishing of the Chinle top. The sample top was picked at the increase of pale gray-green waxy, bentonitic shale that occurred in the 7010-20' sample while the traditional gamma log anomaly occurred at 7052'. The Chinle

included a mixed lithology of claystone, sandstone, siltstone and shale of red-brown, gray-green and variegated colors.

No shows were noted.

Shinarump (7147' spl; 7150' log)

The Shinarump of OFU 4-1 consisted of white and light gray very fine to fine grained Sandstone, some medium grained sandstone was present also. This poorly sorted moderately to well cemented sandstone had a dark brown stain with a dull to bright gold fluorescence and a slow to fast streaming bright yellow cut and yellow residue ring. A maximum of 28 units was noted on the hot wire (See Showsheet #1). This information was evaluated with DST #1. Formation pressures indicated a lack of porosity and permeability.

Upper Moenkopi (7278' spl; 7272' log)

The Upper Moenkopi was primarily red-brown silty and varicolor and gray-green waxy shales with thin siltstones and sandstones interbedded. Varying small amounts of Anhydrite were noted also. No significant shows were found in the Upper Moenkopi.

Sinbad (8029' spl; 7978' log)

An intertonguing relationship of the Sinbad with the Moenkopi Formation of the OFU 4-1 led to a discrepancy of sample top and log top of both the Sinbad and the underlying Lower Moenkopi. A tight very fine grained sandstone with dead black stain was noted in the 7970-80' sample that corresponds with the log top. At that time the samples consisted of at least 60% uphole cavings. The first limestone was noted in the 8020-30' sample. Even though a 44 unit gas increase was noted at 8045, no DST was recommended due to the poor sample show and the lack of visible porosity. No significant drill rate increase was noted within the Sinbad interval.

Lower Moenkopi (8178' spl; 8110' log)

As noted above, the sample quality during this portion of the OFU 4-1 approached the unusable with uphole cavings totally flooding the drilled cuttings.

The Lower Moenkopi appeared to be primarily red-brown shales and siltstones in the upper part with a color change to predominately very light red-orange occurring at 8250-60'. By 8300-10' the drilled cuttings reflected a total change to pale gray-green shale and white to gray-white Siltstone.

At corrected depth 8361', a drill rate increase was noted. Samples were circulated at correct depth 8371'.

Show #4 (see Showsheet #4) was recorded at 8361' - 8381' corrected depth.

PERMIAN

Kaibab (8361' spl; 8350' log)

It was determined that the upper most member of the Kaibab had been penetrated with the appearance of the light to medium gray very fine grained sandstone. This sandstone had a spotty dark stain (dead) and a smaller amount of medium brown live stain; there was a weak, dull gold fluorescence and a weak milky yellow cut.

Core #1 was taken from 8381' to 8398'. Recovery was from 8381' to 8396.8'. This core revealed 100% Dolomite ranging from cream to light tan to medium gray. (See Core #1 description) Highly fractured, this core was also damaged by being jarred on at depth 8385' and at 8398' when the drill string became stuck.

The hole was drilled to 8403' where DST #2 was run from 8363' to 8403'. (See DST #2) Even though the sample chamber had 150 psi pressure, the Drill Stem Tester failed to sample the gas as instructed.

Core #2 was taken from 8403' to 8433' with recovery to 8432'.

This core was also 100% Dolomite (See Core #2 description)

Following Core #2, the well was drilled to 8483'. DST #3 from 8405' to 8483' was a misrun.

Following the misrun of DST #3, the hole was conditioned and drilled to 8486'. DST #4 from 8411' to 8486' was ran to evaluate the lower portion of the Kaibab. This DST was successful in the mechanical sense in that 2155 feet of gas and water cut mud was recovered. Gas too small to measure was noted at the surface at 135 minutes of the final flow. (See DST #4.)

Toroweap (8502' spl; 8484' log)

The sample quality following DST #4 deteriorated even more, to the point of approaching unusability. The first trace of Toroweap sandstone was noted in the 8490-8500' sample. This light gray very fine to fine grained subrounded sandstone had a common dead black strain with no fluorescence, no cut and no gas increase.

The well reached drillers Total Depth at 8560 in the Toroweap.

Following the drilling to T.D. of OFU 4-1, Schlumberger logged from T.D. to the base of intermediate casing.

Logs Run:

Run #1

CNL/FDC	3055	1240
DLL	3055	900

Run #2

CNL/FDC	8549	3094
DLL/MSFL	8553	3094

The gamma log was pulled to 3000 feet on Run #2 for a tie-in with Run #1.

The drilling and evaluation of OFU 4-1 was greatly facilitated by the cooperation and expert assistance of Mr. Buddy Burke, Drilling Consultant and Mr. Mike McAuley and Mr. Tony Cate of Cate Mudlogging.

Their assistance and knowledge proved to be of supreme value during the course of evaluating this prospect.

Should any questions arise or if I may be of further assistance, please feel free to call me at any time.

Respectfully submitted,


L. A. (Larry) Prendergast
187 Reta Drive
Grand Junction, CO 81503
303-245-3921

BWAB INCORPORATED

082608



DIVISION OF
OIL, GAS & MINING

August 7, 1986

Mineral Management Service
P. O. Box 5760
Denver, Colorado 80217
Attention: Ms. Melitta Fuerst

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

CC: Tax Commission
(George Bowman)

STATE LANDS
(Doug Johnson)

DTS
8-20-86

State of Utah Natural Resources
Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
Attention: Mr. Norman C. Stout

Re: Production Reporting

Well Name	API #	Entity #	Lease #	Operator Account #
Orangeville Federal #4-1	4301530221	99997	U-18134	N4320
Orangeville Federal #1-11	4301530222	99997	U-18134	N4320

To Whom It May Concern:

Please be advised that the gas production reported on the attached sheets is exempt from royalty and taxation obligations under the provisions of NTL-4A Section III Part C and State of Utah statute.

The gas reported on the attached reports was vented during initial production testing to provide information necessary to obtain a pipeline connection. The subject gas wells were previously completed but had not been tested for more than a couple of days as weather and operational problems at the time of completion did not allow adequate testing to satisfy pipeline requirements. All tests were less than 30 days in length and involved the venting of less than 50 MIMCF of gas. These tests were approved through Mervin Milés at the Resource Area level and Lynn Jackson at the Moab District Office of the BLM. Mr. Jackson indicated a sundry notice would not be necessary, he indicated only reporting of the production on the appropriate federal production forms would be necessary.

We hope this letter will clarify this report. The wells are now shut-in and will remain so until a gas sales contract can be finalized and the wells connected.

Production & Disposition Reports for June 1986

August 7, 1986
Mineral Management Service
Bureau of Land Management
State of Utah Natural Resources
Page Two



If additional information is necessary please contact the undersigned.

Respectfully,

BWAB INCORPORATED

A handwritten signature in black ink, appearing to read "John R. Keller".

John R. Keller
Production Superintendent

Attachments

JRK/sk

BWAB INCORPORATED



January 16, 1988

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
355 W. North Temple
3 Triad Center
Suite 350
Salt Lake City, UT 84180

RECEIVED
JAN 18 1989

DIVISION OF
OIL, GAS & MINING

RE: Orangeville Fed. Unit #4-1
NWNW Sec. 1-T19S-R7E
Emery Co., UT

Gentlemen:

Enclosed herewith is one (1) original and two (2) copies of our Sundry Notice regarding the intention to abandon the above captioned well. If this meets with your approval, please execute and return one (1) copy to me for our files.

If you have any questions in this regard, please do not hesitate to contact the undersigned.

Very truly yours,

BWAB Incorporated

Carrie M. Sullivan

:CMS

Enclosures (3)

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

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug wells in different reservoirs. Use "APPLICATION FOR PERMIT—" for such proposals.)

RECEIVED JAN 18 1989

5. LEASE DESIGNATION AND SERIAL NO. U-18134
6. IF INDIAN, ALLOTTEE OR TRIBE NAME
7. UNIT AGREEMENT NAME Orangeville
8. FARM OR LEASE NAME Orangeville Fed. Uni
9. WELL NO. 4-1
10. FIELD AND POOL, OR WILDCAT Wildcat
11. SEC., T., R., N., OR S.E. AND SURVEY OR AREA Sec. 1-T19S-R7E
12. COUNTY OR PARISH 13. STATE Emery UT

1. OIL WELL [] GAS WELL [X] OTHER []
2. NAME OF OPERATOR BWAB Incorporated
3. ADDRESS OF OPERATOR 1801 California St., Suite 1000, Denver, CO 80202
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.) At surface 845' FWL & 502' FNL NWNW
14. PERMIT NO. 43-015-30221
15. ELEVATIONS (Show whether of, ft., or, etc.) 6101' GL

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data
NOTICE OF INTENTION TO: TEST WATER SHUT-OFF [], FRACTURE TREAT [], SHOOT OR ACIDIZE [], REPAIR WELL [], (Other) []
PULL OR ALTER CASING [], MULTIPLE COMPLETE [], ABANDON* [X], CHANGE PLANS []
SUBSEQUENT REPORT OF: WATER SHUT-OFF [], FRACTURE TREATMENT [], SHOOTING OR ACIDIZING [], (Other) []
REPAIRING WELL [], ALTERING CASING [], ABANDONMENT* []
(NOTE: Report results of multiple completion 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 and 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.)

BWAB Incorporated respectfully requests to plug and abandon the referenced well as follows:

- 1. Set CIBP above perforations at approximately 2300'. Dump 20 sxs (100' plug) Class "G" or "H" neat cement on top. Spot 20 sxs Class "G" or "H" neat cement 1/2 in and 1/2 out of 13-3/8" surface casing at 200'. Spot 10 sxs cement at surface. Cut casing off below ground level. Weld plate on top. Set dry hole marker. Restore location as per BLM instructions, weather permitting.

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

SIGNED [Signature] John R. Keller (This space for Federal or State office use)

TITLE Drlg. & Prod. Manager DATE 1/13/89

APPROVED BY [Signature] FEDERAL APPROVAL OF THIS ACTION IS REQUIRED BEFORE COMMENCING OPERATIONS

ACCEPTED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING DATE 1-20-89 BY [Signature]

RECEIVED
NOV 20 1989



BWAB INCORPORATED

DIVISION OF
OIL, GAS & MINING

November 15, 1989

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Orangeville Federal #1-11
NENE Section 11, T19S-R7E
Emery County, Utah

Orangeville Federal #4-1
NWNW Section 1, T19S-R7E
Emery County, Utah

Buzzard Bench Federal #3-24
NWSESW Section 3, T19S-R7E
Emery County, Utah

Gentlemen:

Enclosed please find one (1) original and three (3) copies of a Sundry Notice for each of the referenced wells.

Upon approval, please return one (1) executed copy to our offices for our files.

If you have any questions, please contact the undersigned.

Sincerely,

BWAB INCORPORATED

Erin K. Pettigrew
Operations Secretary

/ep
enclosures

cc: Chandler & Associates, Inc.
Attn: Hugo Cartaya

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

5. LEASE DESIGNATION AND SERIAL NO.
U-18134

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Orangeville

8. FARM OR LEASE NAME
Orangeville Fed. Unit

9. WELL NO.
#4-1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA
Sec. 1-T19S-R7E

12. COUNTY OR PARISH
Emery

13. STATE
Utah

SUNDRY NOTICES AND REPORTS ON WELLS

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

RECEIVED
NOV 20 1989

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
BWAB INCORPORATED

3. ADDRESS OF OPERATOR
555-17th St., Suite 1900, Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
845' FWL & 502' FNL (NWNW)

14. PERMIT NO.
43-015-30221

15. ELEVATIONS (Show whether DF, RT, CR, etc.)
6101' GL

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) CHANGE OF OPERATOR <input type="checkbox"/>		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting and 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.)*

Please be advised that effective November 1, 1989, the referenced well has been sold to and will be operated by:

Chandler & Associates, Inc.
Attn: Hugo Cartaya
1860 Lincoln Street, Suite 770
Denver, CO 80203
303-863-9100

Chandler & Associates is operating under BLM Bond No. 19S40787BCA.

OIL AND GAS	
DRN	RJF
JRB	GLH
2 DPTS	SLS
1-TAS	
3	MICROFILM <input checked="" type="checkbox"/>

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

SIGNED John R. Keller TITLE Drlg & Production Mgr FILE DATE 11/15/89

(This space for Federal or State office use)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE
(Other instructions on reverse side)

Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug wells. Use "APPLICATION FOR PERMIT" for such purposes.)

RECEIVED
DEC 04 1989

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
CHANDLER & ASSOCIATES, INC.

3. ADDRESS OF OPERATOR
1860 Lincoln St., Suite 770, Denver, CO 80203

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
845° FWL, 502° FNL (NW NW)

14. PERMIT NO.
43-015-30221

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
GL 6101'

5. LEASE DESIGNATION AND SERIAL NO.
U-18134

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

7. UNIT AGREEMENT NAME
Orangeville

8. FARM OR LEASE NAME
ORANGEVILLE FED

9. WELL NO.
4-1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 1-T19S-R7E

12. COUNTY OR PARISH
Emery

13. STATE
Utah

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

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

(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.)*

Please be advised that on November 1, 1989, the referenced well was purchased from BWAB and will be operated by:

CHANDLER & ASSOCIATES, INC.
Attn: Hugo Cartaya
1860 Lincoln St., Suite 770
Denver, CO 80203
(303) 863-9100

Chandler & Associates, Inc. is operating under BLM Bond No. 19S40787BCA

OIL AND GAS	
DRN	RJF
JRB	GLH
2-DIRECTS	SLS
1-TAG	
3-	MICROFILM ✓
4	FILE

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

SIGNED Hugo Cartaya TITLE Petroleum Engineer DATE November 30, 1989
Hugo Cartaya

(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

PERMIT IN TRIPLICATE
(Other instructions on
reverse side)

Form approved by
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 wells in different reservoirs.
Use "APPLICATION FOR PERMIT" for each well.)

RECEIVED
MAR 12 1990

5. LEASE DESIGNATION AND SERIAL NO.
U-18134

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

UNIT AGREEMENT NAME
Orangeville Unit

FARM OR LEASE NAME
ORANGEVILLE FED

8. WELL NO.
4-1

10. FIELD AND POOL, OR WILDCAT

11. SEC. T. R. M. OR B.L.K. AND
SUBDIV. OR AREA
Sec 1-19S-7E

12. COUNTY OR PARISH
Emery

13. STATE
Utah

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
CHANDLER & ASSOCIATES, INC.

3. ADDRESS OF OPERATOR
1860 Lincoln St., Suite 770, Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.
See also space 17 below.)
At surface
845° FWL, 502° FNL (NW NW)

14. PERMIT NO.
43-015-30221

15. ELEVATIONS (Show whether DT, ST, OR, ETC.)
GR 6101'

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 checked="" type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) <u>Extension of SI Status</u>	

(NOTE: Report results of multiple completion or 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 economic and marketing conditions for gas sales or pipeline connection for this well have not changed. Chandler & Associates, Inc. is therefore requesting an extension of shut-in status.

OIL AND GAS	
DRN	DT
1-JRB ✓	CLM
DTS	SLS
2-TAS	
3-	MICROFILM
4-	FILE

cc: State of Utah
Div of Oil, Gas, Mining

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

SIGNED Hugo Cartaya TITLE Petroleum Engineer DATE March 8, 1990

(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

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

CHANDLER & ASSOCIATES, INC.

3. Address and Telephone No.

1850 Anaconda Tower, 555 - 17th St., Denver, CO 80202 (303) 295-0400

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

845' FWL, 502' FNL (NWNW) Sec 1-19S-7E

5. Lease Designation and Serial No.

U-18134

6. If Indian, Allottee or Tribe Name

N/A

7. If Unit or CA, Agreement Designation

ORANGEVILLE UNIT

8. Well Name and No.

ORANGEVILLE FED 4-1

9. API Well No.

43-015-30221

10. Field and Pool, or Exploratory Area

Buzzard Bench

11. County or Parish, State

Emery County, 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"/> Other <u>Annual Status Report</u>
	<input type="checkbox"/> Other <u>Extension of SI Status</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.)*

Chandler & Associates, Inc. plans to test this well in the Spring of this year for possible hookup to pipeline. We are therefore requesting an extension of shut-in status at this time.

FEB 12 1993

cc: State of Utah
Div. of Oil, Gas, Mining

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

Signed Hugo Carriera

Title Petroleum Engineer

Date February 10, 1993

(This space for Federal or State office use)

Approved by _____

Title _____

Date _____

Conditions of approval, if any:

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

*See Instruction on Reverse Side

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

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 checked="" type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. U-18134
2. NAME OF OPERATOR Chandler and Associates, Inc.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME N.A.
3. ADDRESS OF OPERATOR 475 17th Street, Suite 1000 Denver, CO 80202		7. UNIT AGREEMENT NAME Orangeville Unit
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface NW NW (845' FWL & 502' FNL)		8. FARM OR LEASE NAME Orangeville Unit Fed.
14. PERMIT NO. 43-015-30221	15. ELEVATIONS (Show whether DT, RT, GR, etc.) 6101' GL	9. WELL NO. 4-1
		10. FIELD AND POOL, OR WILDCAT Wildcat
		11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA Section 1-T19S-R7E
		12. COUNTY OR PARISH Emery
		13. STATE Utah

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

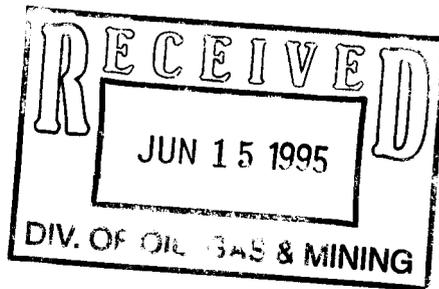
NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>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

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

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

We are requesting permission to build a pit 15'x 15' x 6'; set production equipment and lay a gas sales line above ground to our nearest gathering point at the Orangeville State #10-2 which is located at the SE/4 of S2. Would then test the well for a sixty day period and then decide to recomplete or produce from existing formation.

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



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

SIGNED [Signature] TITLE Manager of Operations DATE 06-13-95

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:
Federal Approval of this Action is Necessary

Utah Division of Oil, Gas and Mining

Attachment to Sundry Notice and Report on Wells
dated June 13, 1995.

Subject: Request of Chandler and Associates, Inc. for permission to construct on-site pit, lay above ground line and test well for 60 days.
4-1 well, sec. 1, T19S, R7E, Emery, County.
API = 43-015-30221

Surface and testing (except for underground injection) activities on BLM managed land and leases are primarily under regulation of the BLM. The Division of Oil, Gas and Mining in general does not require an additional approval for these activities.

Surface activities such as pipeline construction etc. on State Land may require additional approval from the appropriate state land management agency (School & Institutional Trust Lands Administration) if not included in the lease provisions.

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

RECEIVED IN TRIPLICATE*
See instructions on reverse side
NOV 20 1995

5. LEASE DESIGNATION AND SERIAL NO.
U-18134

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

7. UNIT AGREEMENT NAME
ORANGEVILLE UNIT

8. FARM OR LEASE NAME
ORANGEVILLE UNIT FEDERAL

9. WELL NO.
4-1

10. FIELD AND POOL, OR WILDCAT
ORANGEVILLE

11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA
Section 1-T19S-R7E

12. COUNTY OR PARISH
EMERY

13. STATE
UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
CHANDLER & ASSOCIATES, INC.

3. ADDRESS OF OPERATOR
475 17th Street, Suite 1000 Denver, CO 80202 (303)295-0400

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
NW NW (845'FWL & 502" FNL)

14. PERMIT NO.
43-015-30221

15. ELEVATIONS (Show whether OF, RT, GR, etc.)
6101' GL

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"/>	FULL 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) <u>FIRST PRODUCTION</u>	<input checked="" type="checkbox"/>
(Other) <input type="checkbox"/>		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

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

Turned thru sales on October 26, 1995 @ 2:00 p.m. with 1000# SITP. 1000# SICP.
IP RATE: 0 BO 1 BW (est) 120 MCF 8/64 ck. FTP 200# SICP 590#.

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

SIGNED [Signature] TITLE Vice President-Operations DATE 11-17-95

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

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

6. Lease Designation and Serial Number
7. Indian Allottee or Tribe Name
8. Unit or Communitization Agreement
9. Well Name and Number
10. API Well Number
11. Field and Pool, or Wildcat

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 - for such proposals

1. Type of Well
 Oil Well Gas Well Other (specify)

2. Name of Operator
Shenandoah Energy Inc.

3. Address of Operator
475 17th Street, Suite #1000 Denver, Colorado 80202

4. Telephone Number
303-295-0400

5. Location of Well
Footage : Please see attached spreadsheet County :
QQ, Sec. T., R., M. : State :

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

<p align="center">NOTICE OF INTENT (Submit in Duplicate)</p> <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 _____ <p>Approximate Date Work Will Start _____</p>	<p align="center">SUBSEQUENT REPORT (Submit Original Form Only)</p> <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 <u>Change of Operator</u> <p>Date of Work Completion _____</p> <p>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.</p>
--	--

13. 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.)

Please be advised that effective 1/1/200 Chandler & Associates, Inc has changed its name to Shenandoah Energy Inc. Shenandoah Energy Inc. is responsible under the terms and conditions of the lease for the operation conducted upon the leased lands. Shenandoah Energy Inc. is bonded in the amount of \$80,000.00 to the School and Inst. Trust Lands via a name change rider filed with the State. Continental Casualty Bond # 159261960.

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

Name & Signature Thomas D. Taylor Title Production Geologist Date 05/25/2000

(State Use Only)

RECEIVED

MAY 30 2000

DIVISION OF
OIL, GAS AND MINING

SHENANDOAH ENERGY INC.
UTAH OPERATED WELLS

A.P.I. #	ENTITY	WELL NAME	WELL #	LOCATION	FIELD NAME	PROD. ZONE	FORMATION	WELL TYPE	AGREEMENT
43-047-15090-00	04915	WRU	#31-4	SWSE 4, 8S-22E	WHITE RIVER		GREENRIVER	WSW	8910035090
43-047-15081-00	04915	WRU	#16-9	SWSE 9, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-15084-00	04915	WRU	#20-9	NESW 9, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-15087-00	04915	WRU	#25-9	NENE 9, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-31354-00	05170	WRU	#43-16	NENW 16, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	
43-047-31399-00	09915	WRU	#45-16	NENE 16, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	
43-047-32052-00	11468	DESERT SPRINGS FED.	#20-1	NESW 20, 10S-18E	WILDCAT	GRRV	GREEN RIVER	OW	
43-013-32088-00	12497	W. DESERT SPRING	#11-20	NESW 20, 10S-17E	WILDCAT	WSTC	WASATCH	OW	
43-013-32057-00	12497	W. RIVER BEND	#16-17-10-17	SESE 17, 10S-17E	WILDCAT	GRRV	GREEN RIVER	OW	
43-013-31888-00	12497	W. RIVER BEND	#3-12-10-15	NENW 12, 10S-15E	WILDCAT	GRRV	GREEN RIVER	OW	
43-013-32084-00	12497	WILKIN RIDGE	#13-23	SWSW 23, 10S-16E	WILDCAT	WSTC	GREEN RIVER	OW	
43-047-33163-00		DESERT SPRING	#7-30-10-18	SWNE 30, T10S-R18E	APD	WSTC			

RECEIVED

MAY 30 2000

DIVISION OF
OIL, GAS AND MINING

RECEIVED

MAY 30 2000

DIVISION OF
OIL, GAS AND MINING

SHENANDOAH ENERGY INC.
UTAH OPERATED WELLS

A.P.I. #	ENTITY	WELL NAME	WELL #	LOCATION	FIELD NAME	PROD. ZONE	FORMATION	WELL TYPE	AGREEMENT
43-015-30168-00	10684	BUZZARD BENCH FED	#8-3	SENW 3, 19S-7E	BUZZARD BENCH	FRSD	FERRON	GW	8910204190
43-015-30229-00	10670	BUZZARD BENCH FED	#3-24	SESW 3, 19S-7E	BUZZARD BENCH	FRSD	FERRON	GW	8910204190
43-015-30110-00	10685	FERRON FED	#16-20	SESE 20, 17S-8E	BUZZARD BENCH	FRSD	FERRON	OW	
43-015-30257-00	11837	FERRON FEDERAL	#7-12-19-7	SWNE 12, 19S-7E	BUZZARD BENCH	FRSD	UPPER FERRON	GW	
43-015-30000-00		FERRON FEDERAL	#16-9-10-7	SESE 9, 19S-7E	FERRON		FERRON	DRG	
43-015-3025300	11836	FERRON STATE	#4-36	SWNW 36, 18S-7E	BUZZARD BENCH	FRSD	FERRON	GW	
43-015-30222-00	11029	ORANGEVILLE FED	#1-11	NENE 11, 19S-7E	BUZZARD BENCH	FRSD	UPPER FERRON	GW	891020388A
43-015-30221-00	10600	ORANGEVILLE FED	#4-1	NWNW 1, 19S-7E	BUZZARD BENCH	FRSD	UPPER FERRON	GW	
43-015-30102-00	10920	ORANGEVILLE ST	#1-36	SESE 36, 18S-7E	BUZZARD BENCH	FRSD	UPPER FERRON	GW	8910203880
43-015-30179-00	00535	ORANGEVILLE STATE	#10-2	NWSE 2, 19S-7E	BUZZARD BENCH	FRSD	LOWER FERRON	GW	891020388A
43-015-30108-00	10978	ORANGEVILLE UNIT	#16-6	SESE 6, 18S-8E	BUZZARD BENCH	FRSD	FERRON	OW	
43-047-33164-00	12496	DESERT SPRING	#16-19-10-18	SESE 19, 10S-18E	DESERT SPRING	GRRV	GREEN RIVER	OW	
43-047-3316200	12523	DESERT SPRING	#3-29-10-18	NWNE 29, 10S-18E	DESERT SPRING	GRRV	GREEN RIVER	OW	
43-047-32493-00	11630	E COYOTE FEDERAL	#14-4-8-25	SESW 4, 8S-25E	EAST COYOTE FEDERAL	GRRV	GREENRIVER	OW	
43-047-31555-00	09497	ANTELOPE DRAW	#2-17-4C	SESW 17, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-31556-00	09498	ANTELOPE DRAW	#3-17-3C	SESE 17, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-32476-00	11862	GLEN BENCH	#8-19	SENE 19, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-31257-00	11587	GLEN BENCH FED	#44-19	L 20 19, 8S-22W	GLEN BENCH	GRRV	GREEN RIVER	OW	UTU73974X
43-047-31355-00	11588	GLEN BENCH FED	#13-20	NWSW 20, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-31356-00	06135	GLEN BENCH FED	#22-20	SENW 20, 8S-22E	GLEN BENCH		GREEN RIVER	WIW	UTU73974X
43-047-31433-00	06196	GLEN BENCH FED	#31-20	NWNE 20, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-31008-00	06045	GLEN BENCH FED	#31-30	L 6 30, 8S-22E	GLEN BENCH	GRRV	GREEN RIVER	OW	UTU73974X
43-047-31260-00	06050	GLEN BENCH FED	#22-30	SENW 30, 8S-22E	GLEN BENCH	GRRV	GREEN RIVER	OW	UTU73974X
43-047-32549-00	11716	GLEN BENCH STATE	#6-16	SENW 16, 8S-22E	GLEN BENCH	GRRV	GREENRIVER	OW	UTU73974X
43-047-32582-00	11716	GLEN BENCH STATE	#7-16	SENE 16, 8S-22E	GLEN BENCH		GREENRIVER	WIW	UTU73974X
43-047-32583-00	11732	GLEN BENCH STATE	#12-16	NWSW 16, 8S-22E	GLEN BENCH		GREENRIVER	WIW	UTU73974X
43-047-32756-00	11955	GLEN BENCH UNIT	#15-19-8-22	SWSE 19, 8S-22E	GLEN BENCH		GREEN RIVER	WIW	UTU73974X
43-047-32755-00	12014	GLEN BENCH UNIT	#4-30-8-22	NWNW 30, 8S-22E	GLEN BENCH	GRRV	GREEN RIVER	OW	UTU73974X
43-047-32857-00	12219	GLEN BENCH UNIT	#11-16-8-22	NESW 16, 8S-22E	GLEN BENCH	GRGBS	GREEN RIVER	OW	UTU73974X
43-013-3147700	12248	UTD WALTON	#26-03	NENW 26, 9S-16E	MONUMENT BUTTE	GRRV	GREEN RIVER	OW	
43-047-33252-00	12527	GLEN BENCH STATE	#2-36-8-21	NENW 36, 8S-21E	NATURAL BUTTES	WSTC	WASATCH	GW	
43-047-33037-00	12377	GLEN BENCH STATE	#8A-36-8-21	SWNE 36, 8S-21E	NATURAL BUTTES	WSTC	WASATCH	GW	
43-047-33038-00	12378	GLEN BENCH STATE	#6-36-8-21	SENW 36, 8S-21E	NATURAL BUTTES	WSTC	WASATCH	GW	
43-047-32746-00	11944	SAGE GROUSE FEDERAL	#6-14-8-22	SENW 14, 8S-22E	NATURAL BUTTES	GRRV	GREEN RIVER	GW	
43-047-32724-00	12361	SAGE GROUSE FEDERAL	#8-36-8-21	SENE 36, 8S-21E	NATURAL BUTTES	GRRV	GREEN RIVER	GW	
43-047-3309500	12528	WHITE RIVER UNIT	#13-35-8-22	SWSW 35, 8S-22E	NATURAL BUTTES	WSTC	WASATCH	GW	891003509B
43-047-3306100	12528	WHITE RIVER UNIT	#15-35-8-22	SWSE 35, 8S-22E	NATURAL BUTTES	WSTC	WASATCH	GW	891003509B
43-047-3275400	12003	FLU KNOLLS FED.	#23-3	NESW 3, 10S-18E	UTELAND BUTTE	GRRV	GREEN RIVER	OW	
43-047-15083-00	04915	WHITE RIVER UNIT	#19-9	SWNE 9, 8S-22E	WHITE RIVER		GREENRIVER	WIW	891003509D
43-047-15080-00	04915	WRU	#15-9	NESE 9, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-15085-00	04915	WRU	#24-10	NESW 10, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-15086-00	04915	WRU	#27-10	SWNE 10, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	891003509D
43-047-31561-00	10000	WRU	#47-10	L1 10, 8S-22E	WHITE RIVER	GRRV	GREENRIVER	OW	

OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH		4-KAS ✓
2. CDW		5-810 ✓
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: **8-24-2000**

FROM: (Old Operator):
CHANDLER & ASSOCIATES INC
Address: 475 17TH STREET STE 1000
DENVER, CO 80202
Phone: 1-(303)-295-0400
Account No. N3320

TO: (New Operator):
SHENANDOAH ENERGY INC
Address: 475 17TH STREET STE 1000
DENVER, CO 80202
Phone: 1-(303)-295-0400
Account No. N4235

CA No.

Unit: **ORANGEVILLE**

WELL(S)

NAME	API NO.	ENTITY NO.	SEC. TWN RNG	LEASE TYPE	WELL TYPE	WELL STATUS
ORANGEVILLE STATE 1-36	43-015-30102	10920	36-18S-07E	STATE	GW	S
ORANGEVILLE FEDERAL 16-6	43-015-30108	10978	06-18S-08E	FEDERAL	OW	S
ORANGEVILLE FEDERAL 4-1	43-015-30221	10600	01-19S-07E	FEDERAL	GW	S
ORANGEVILLE STATE 10-2	43-015-30179	535	02-19S-07E	STATE	GW	S
ORANGEVILLE FEDERAL 1-11	43-015-30222	11029	11-19S-07E	FEDERAL	GW	P

OPERATOR CHANGES DOCUMENTATION

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 05/30/2000
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 05/30/2000
- The new company has been checked through the **Department of Commerce, Division of Corporations Database** on: 11/02/2000
- Is the new operator registered in the State of Utah: YES Business Number: 1467732-0143
- 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: 06/05/2000
- Federal and Indian Units:** The BLM or BIA has approved the successor of unit operator for wells listed on: 08/24/2000
- Federal and Indian Communization Agreements ("CA"):** The BLM or the BIA has approved the operator

change for all wells listed involved in a ~~UIC~~ on: N/A

9. Underground Injection Control ("UIC") Prog: 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** on: 11/03/2000
2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 11/03/2000
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.: 159261960

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: _____

FILMING:

1. All attachments to this form have been **MICROFILMED** on: 3-2-01

FILING:

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

COMMENTS:



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155

In Reply Refer To:
3100
U-058 et al
(UT-932)

JUN 5 2000

NOTICE

Shenandoah Operating Company, LLC : Oil and Gas Leases
475 17th Street, Suite 1000 :
Denver, CO 80202 :

Name Change Recognized

Acceptable evidence has been received in this office concerning the change of name of Chandler & Associates, LLC to Shenandoah Operating Company, LLC on Federal oil and gas leases.

The oil and gas lease files identified on the enclosed exhibit have been noted as to the name change. The exhibit was compiled from a list of leases obtained from our automated records system. We have not abstracted the lease files to determine if the entity affected by the name change holds an interest in the leases identified nor have we attempted to identify leases where the entity is the operator on the ground maintaining no vested record title or operating rights interests. We are notifying the Minerals Management Service and all applicable Bureau of Land Management offices of the name change by a copy of this notice. If additional documentation for changes of operator are required by our Field Offices, you will be contacted by them.

A rider to statewide Surety Bond No. 124 29 03 64 (BLM Bond No. UT0969) changing the name on the bond from Chandler & Associates, LLC to Shenandoah Energy Inc. has been accepted by this office effective January 26, 2000. However, the rider makes no mention of Shenandoah Operating Company, LLC. A rider to the above bond adding the name of Shenandoah Operating Company, LLC needs to be submitted to this office.

/s/ Robert Lopez

Robert Lopez
Chief, Branch of
Minerals Adjudication

Enclosure
Exhibit of Leases

RECEIVED

JUN 06 2000

DIVISION OF
OIL, GAS AND MINING



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155

IN REPLY REFER TO
UT-931

August 24, 2000

Attn: Scott M. Webb
Shenandoah Energy Inc.
465 17th Street, Suite 1000
Denver, Colorado 80202

Re: Orangeville Unit
Emery County, Utah

Gentlemen:

On August 24, 2000, we received an indenture dated August 18, 2000, whereby Shenandoah Operating Company, L.L.C. resigned as Unit Operator and Shenandoah Energy Inc. was designated as Successor Unit Operator for the Orangeville Unit, Emery County, Utah.

This indenture was executed by all required parties and the signatory parties have complied with Sections 5 and 6 of the unit agreement. The instrument is hereby approved effective August 24, 2000. In approving this designation, the Authorized Officer neither warrants nor certifies that the designated party has obtained all required approval that would entitle it to conduct operations under the Orangeville Unit Agreement.

Your statewide (Utah) oil and gas bond No. 0969 will be used to cover all operations within the Orangeville Unit.

It is requested that you notify all interested parties of the change in unit operator. Copies of the approved instruments are being distributed to the appropriate federal offices, with one copy returned herewith.

Sincerely,

/s/ Robert A. Henricks

Robert A. Henricks
Chief, Branch of Fluid Minerals

Enclosure

bcc: Field Manager - Moab (w/enclosure)
Division of Oil, Gas & Mining
Minerals Adjudication Group U-932
File - Orangeville Unit (w/enclosure)
MMS - Data Management Division
Agr. Sec. Chron
Fluid Chron

UT931:TAThompson:tt:8/24/00

ORANGEVILLE PP GAS			
Participating Area	MMS Number	LR2000 Number	Percent Federal
UNIT	<u>891020388X</u>	<u>UTU63079X</u>	33.33%
FERRON "A" PA	<u>8910203880</u>	<u>UTU63079O</u>	0.00%
FERRON "B" PA	<u>891020388A</u>	<u>UTU63079A</u>	37.14%

DISCLAIMER for online data: No warranty is made by the BLM for use of the data for purposes not intended by the BLM.

Results of query for MMS Account Number 8910203880

API Number	Operator	Well Name	Well Status	Lease or CA Number	Inspection Item	Township	Range	Section	Quarter/
4301530102	SHENANDOAH ENERGY INCORPORATED	1-36 STATE	GSI	STATE	8910203880	18S	7E	36	SESE

DISCLAIMER for online data: No warranty is made by the BLM for use of the data for purposes not intended by the BLM.

Results of query for MMS Account Number 891020388A

API Number	Operator	Well Name	Well Status	Lease or CA Number	Inspection Item	Township	Range	Section
4301530179	SHENANDOAH ENERGY INCORPORATED	10-2 ORANGEVILLE STA	GSI	STATE	891020388A	19S	7E	2
4301530222	SHENANDOAH ENERGY INCORPORATED	1-11 ORANGEVILLE UNI	GSI	UTU18134	891020388A	19S	7E	11

DISCLAIMER for online data: No warranty is made by the BLM for use of the data for purposes not intended by the BLM.

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 <u>See Exhibit A</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: <u>See Exhibit A</u>
2. NAME OF OPERATOR: <u>MERRION OIL & GAS CORPORATION</u>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
3. ADDRESS OF OPERATOR: <u>610 Reilly Avenue</u> CITY <u>Farmington</u> STATE <u>NM</u> ZIP <u>87401-2634</u> PHONE NUMBER: <u>(505) 327-9801</u>		7. UNIT or CA AGREEMENT NAME:
4. LOCATION OF WELL FOOTAGES AT SURFACE: <u>See Exhibit A</u> QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: <u>See Exh A</u>		8. WELL NAME and NUMBER: <u>See Exhibit A</u>
		9. API NUMBER: <u>Exhibit A</u>
		10. FIELD AND POOL, OR WILDCAT: <u>See Exhibit A</u>
		COUNTY: <u>Emery</u>
		STATE: <u>UTAH</u>

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 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 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 checked="" type="checkbox"/> OTHER: <u>Change of Operator</u>
	<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.

Shenandoah Energy, Inc., 475 17th St., Suite 1000, Denver, CO 80202, (303) 295-0400, hereby resigns effective
May 1, 2002.

SHENANDOAH ENERGY, INC.

NAME (Please Print) Gary L. Nordloh TITLE President

SIGNATURE [Signature] DATE 5/7/02

Please be advised that effective May 1, 2002, Merrion Oil & Gas Corporation, 610 Reilly Avenue, Farmington, NM 87401-2634, 505-327-9801, has assumed the operatorship of the wells described on Exhibit A attached hereto and made a part hereof. Merrion Oil & Gas Corporation is now responsible under the terms and conditions of the lease for the operations conducted upon the lease lands. Bond coverage for the lease activities is provided by NM 0883
State Fee Bonding in process.

MERRION OIL & GAS CORPORATION

NAME (PLEASE PRINT) George F. Sharpe TITLE President Investment Mgr

SIGNATURE [Signature] DATE 5-15-02

(This space for State use only)

EXHIBIT A

Attached to and made a part of that certain Form 9, dated effective May 1, 2002, by
SHENANDOAH ENERGY, INC. and MERRION OIL AND GAS CORPORATION

Box 1	Box 4	Box 4	Box 5	Box 8	Box 9	Box 10
<u>Type of Well</u>	<u>Footages at Surface</u>	<u>Q/Q/Sec/T/R/M</u>	<u>Lease Designation & Serial #</u>	<u>Well Name and Number</u>	<u>API Number</u>	<u>Field and Pool</u>
Gas	1994' FNL & 1867' FEL	SWNE 12-19S-7E	UTU-18134	Ferron Fed 7-12-19-7	43-015-30257	Buzzard Bench
Gas	511' FSL & 899' FEL	SESE 9-19S-7E	UTU-69403	Ferron Fed 16-9-19-7	43-015-30256	Lone Mountain
Oil	770' FSL & 684' FEL	SESE 20-17S-8E	UT ST ML-48176	Ferron Fed 16-20-17-8	43-015-30110	Lone Mountain
Gas	1011' FNL & 520' FWL	NWNW 36-18S-7E	UT ST ML-28195	Ferron State 4-36-18-7	43-015-30253	Buzzard Bench
Gas	502' FSL & 845' FWL	NWNW 1-19S-7E	UTU-18134	Orangeville U 4-1-19-7	43-015-30221	Buzzard Bench
Oil	775' FSL & 507' FEL	SESE 6-18S-8E	UT ST ML-48265	Orangeville Fed 16-6-18-8	43-015-30108	Lone Mountain
Gas	1236' FSL & 1595' FWL	SESW 3-19S-7E	U-18897-A	Buzzard Bench Fed 3-24-19-7	43-015-30229	Buzzard Bench
Gas	2264' FNL & 1965' FWL	SENW 3-19S-7E	U-18897-A	Buzzard Bench Fed 6-3-19-7	43-015-30168	Buzzard Bench
Gas	572' FNL & 795' FEL	NENE 11-19S-7E	U-18134	Orangeville U 1-11-19-7	43-015-30222	Buzzard Bench
Gas	1992' FSL & 2073' FEL	NWSE 2-19S-7E	UT ST ML-28199	Orangeville 10-2-19-7	43-015-30179	Buzzard Bench

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or reenter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No.
UTU-18134

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.
Orangeville U 4-1-19-7

9. API Well No.
43-015-30221-00-00

10. Field and Pool, or Exploratory Area
Buzzard Bench

11. County or Parish, State
Emery County, Utah

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
Merrion Oil & Gas Corporation

3a. Address
610 Reilly Avenue
Farmington, NM 87401-2634

3b. Phone No. (include area code)
505-327-9801

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
502' FSL & 845' FWL
NWNW 1-19S-7E

12. CHECK APPROPRIATE BOX(ES) 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"/> Acidize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Fracture Treat <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input checked="" type="checkbox"/> Other <u>Change of Operator</u>
	<input type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal

13. Describe Proposed or Completed Operations (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Shenandoah Energy Inc. / Shenandoah Operating Company, LLC / Chandler & Associates, LLC / Chandler & Associates, Inc.
475 17th St., Suite 1000, Denver, CO 80202 Phone No. 303-295-0400
Shenandoah Energy Inc., Operator, hereby resigns effective May 1, 2002.
Shenandoah Energy Inc.

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

Name (Printed/Typed) Gary L. Nordloh	Title President
Signature <i>[Signature]</i>	Date 4-17-02

Please be advised that effective _____, 2002, Merrion Oil & Gas Corporation is now considered to be the Operator of the following well:
Orangeville U 4-1-19-7; NWNW of Section 1, T19S-R7E, Lease UTU-18134, Emery County, Utah
Merrion Oil & Gas Corporation is now responsible under the terms and conditions of the Lease for the operations conducted upon the leased lands. Bond coverage is provided by BLM No. NM 0883.
Merrion Oil & Gas Corporation

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

Name (Printed/Typed) T. Greg Merrion	Title President
Signature <i>T. Greg Merrion</i>	Date 4-19-02

RECEIVED
MAY - 3 2002
MERRION OIL & GAS FIELD OFFICE
DEPT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

THIS SPACE FOR FEDERAL OR STATE USE

Approved by RECEIVED ACCEPTED	Title Division of Resources Moab Field Office	Date MAY - 3 2002
--	---	----------------------

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title 18 U.S.C. Section 1001 and Title 18 U.S.C. Section 112, make 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 communications as to any matter within its jurisdiction.

Conditions of Acceptance Attached

Merrion Oil and Gas Corporation
Well No. 4-1-19-7
NWNW Sec. 1, T. 19 S., R. 7 E.
Lease UTU18134
Grand County, Utah

CONDITIONS OF ACCEPTANCE

Acceptance 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 Merrion Oil and Gas Corporation is considered to be the operator of the above well effective May 1, 2002, 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 NM0883 (Principal - Merrion Oil and Gas Corporation) 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
MAY 23 2002
DIVISION OF
OIL, GAS AND MINING

7. Federal and Indian Units:

The BLM or BIA has approved the successor of unit operator for wells listed on: 06/18/2002

8. Federal and Indian Communization Agreements ("CA"):

The BLM or BIA has approved the operator for all wells listed within 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 on: 06/24/2002
2. Changes have been entered on the Monthly Operator Change Spread Sheet on: 06/24/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

1. State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: NM0883

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: N/A

FEE WELL(S) BOND VERIFICATION:

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

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:

RECEIVED

SEP 20 2010

FORM 9

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

DIV. OF OIL, GAS & MINING

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: See attached well list

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

8. WELL NAME and NUMBER: See attached well list

9. API NUMBER:

10. FIELD AND POOL, OR WILDCAT: See attached well list

1. TYPE OF WELL: OIL WELL GAS WELL OTHER _____

2. NAME OF OPERATOR: Coastal Plains Energy, Inc. N2170

3. ADDRESS OF OPERATOR: 420 Throckmorton CITY Fort Worth STATE Tx ZIP 76102 PHONE NUMBER: 817 882-9055

4. LOCATION OF WELL: FOOTAGES AT SURFACE: COUNTY: Emery

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: STATE: 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 (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input 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.

See attached list

BLM Bond No UTB000213

STATE BLANKET BOND CTCS 267895

INDIVIDUAL BONDS FUZZBALL 1 TETS 899537

FERRON ST 4-36-18-7 TETS 899542

ORANGVILLE U 10-2 TETS 899545

NAME (PLEASE PRINT) William R Biggs TITLE President

SIGNATURE William R Biggs DATE 9-14-10

(This space for State use only)

APPROVED 12/30/2010

Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

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: Merrion Oil & Gas Corporation		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA
3. ADDRESS OF OPERATOR: 610 Reilly Ave CITY Farmington STATE NM ZIP 87401		7. UNIT or CA AGREEMENT NAME:
4. LOCATION OF WELL FOOTAGES AT SURFACE: _____ COUNTY: Emery		8. WELL NAME and NUMBER: See Attached
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: _____ STATE: UTAH		9. API NUMBER: 43-015-
		10. FIELD AND POOL, OR WILDCAT: Buzzard Bench
		PHONE NUMBER: (505) 324-5300

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 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 checked="" type="checkbox"/> OTHER: <u>Change of Operator</u>
	<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.
Merrion Oil & Gas Corporation has sold the attached list of wells to Coastal Plains effective 9/1/2010

NAME (PLEASE PRINT) <u>Philana Thompson</u>	TITLE <u>Regulatory Compliance Specialist</u>
SIGNATURE	DATE <u>8/24/2010</u>

(This space for State use only)

APPROVED 12/30/2010

Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

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SEP 16 2010
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N2170

LIST OF UTAH PROPERTIES SOLD TO COASTAL PLAINS ENERGY, INC EFFECTIVE JULY 1, 2010

RECEIVED

AUG 30 2010

DIV. OF OIL, GAS & MINING

WELL NAME	QTR/QTR	SECTION	TWNSHP	RANGE	API NO.	LEASE NO.	COUNTY
BUZZARD BENCH 3-24	SESW	SEC 3	19S	7E	43-015-30229	U-18897-A	EMERY
BUZZARD BENCH 6-3	SENW	SEC 3	19S	7E	43-015-30168	U-18897-A	EMERY
CAHILL 1R	SWNW	SEC 15	19S	7E	43-015-30627	U-69403	EMERY
CROWSFOOT 1R	SENE	SEC 9	19S	7E	43-015-30613	U-69403	EMERY
FERRON FEDERAL 16-9	SESE	SEC 9	19S	7E	43-015-30256	U-69403	EMERY
FERRON FEDERAL 16-20	SESE	SEC 20	17S	8E	43-015-30110	ML 48176	EMERY
FERRON FEDERAL 7-12	SWNE	SEC 12	19S	7E	43-015- ³⁰²⁵⁷ 30254	U-18134	EMERY
FERRON STATE 4-36	NWNW	SEC 36	18S	7E	43-015-30253	ML-28195	EMERY
FUZZBALL 1	SWNW	SEC 2	19S	7E	43-015-30557	ML-28199	EMERY
HUMPY 1	SWNE	SEC 3	19S	7E	43-015-30348	U-51015	EMERY
KLINKHAMMER 1	NENW	SEC 34	18S	7E	43-015-30610	U-72356	EMERY
ORANGEVILLE 1-11	NENE	SEC 11	19S	7E	43-015-30222	U-18134	EMERY
ORANGEVILLE 16-6	SESE	SEC 6	18S	8E	43-015-30108	ML-48777 ✓	EMERY
ORANGEVILLE 4-1	NWNW	SEC 1	19S	7E	43-015-30221	U-18134	EMERY
ORANVEVILLE 10-2	NWSE	SEC 2	19S	7E	43-015-30179	^{ML 28199} U-18134	EMERY
SPARKLE DUN 1	NENE	SEC 16	19S	7E	43-015-30615	ML-49168	EMERY

Plugged
8/23/2007

PUMP AND DEHYDRATOR



August 24,2010

Utah Division of Oil, Gas and Mining
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Ladies & Gentlemen:

Effective date July 1,2010 Merrion Oil & Gas Corp. sold all of its interest in the Buzzard Bench Field. The New operator and owner: Coastal Plains Energy,Inc. 420 Throckmorton, Suite 630 Fort Worth, Texas 76102. Merrion Oil & Gas will no longer be reporting production and revenue for these wells. Also Severance Tax reports and Conservation reports will not be filed after the effective date of sale.

A List of the wells has been included with a Form 9.

Respectfully,
Merrion Oil & Gas Corp.

A handwritten signature in cursive script, appearing to read "Wayne", is written in black ink.

Wayne O'berg
Staff Accountant

RECEIVED
AUG 30 2010
DIV. OF OIL, GAS & MINING

610 Reilly Avenue
Farmington, NM 87401
main 505-324-5300
fax 505-324-5350