FILE NOTATIONS

Entered in N I D File .....
Entered On S R Sheet .....
Location Map Pinned .....
Card Indexed .....
I W R for State or Fee Land .....

Checked by Chief .....
Copy N I D to Field Office .....
Approval Letter .....
Disapproval Letter .....

COMPLETION DATA:

Date Well Completed .....
OW..... WW..... TA.....
GW..... OS..... PA.....

Location Inspected .....
Bond released
State of Fee Land .....

LOGS FILED

Driller's Log.....
Electric Logs (No.).....
E..... I..... E-I..... GR..... GR-N..... Micro.....
Lat..... Mi-L..... Sonic..... Others.....

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

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

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
Box 3280, Casper, Wyoming 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
At proposed prod. zone 2429' ~~2443'~~ FNL & 1958' ~~1972'~~ FWL SE NW

5. LEASE DESIGNATION AND SERIAL NO.
U-8927-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
No. 2

10. FIELD AND POOL, OR WILDCAT
~~Wildcat~~

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14, T6S-R7W

14. DISTANCE ~~IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*~~
Approx. 15 miles south of Duchesne, Utah

12. COUNTY OR PARISH: Duchesne
13. STATE: Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1972'	720	640
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
NA	15,300'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
7233' Gr. (ungraded)

22. APPROX. DATE WORK WILL START*
June - July, 1980

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"	limited service	80' ±	Cement to surface
17-1/2"	13-3/8"	54.5#	1000'	Cement to surface
12-1/4"	9-5/8"	47#	9000'	500 sx.
8-1/2"	7" or 5½"	32# or 20#	15,300'	500 sx.

Energy Reserves Group, Inc. proposes to drill the above referenced to well as explained on the attached plan.

RECEIVED
JUL 1 (1980
DIVISION OF
OIL, GAS & MINING

APPROVED BY THE DIVISION
OF OIL, GAS, AND MINING
DATE: 8-7-80
BY: M. J. Minder

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 William J. Adams TITLE Field Services Administrator DATE 5-14-80

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY W P Martens TITLE FOR E. W. GUYNN DISTRICT ENGINEER DATE JUL 17 1980

CONDITIONS OF APPROVAL, IF ANY:

CONDITIONS OF APPROVAL ATTACHED
TO OPERATOR'S COPY
*See Instructions On Reverse Side

NOTICE OF APPROVAL

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

Utah Oil & Gas

United States Department of the Interior
Geological Survey
2000 Administration Bldg.
1745 West 1700 South
Salt Lake City, Utah 84104

USUAL ENVIRONMENTAL ASSESSMENT

Date: July 16, 1980

Operator: Energy Reserves Group Project or Well Name and No.: 2

Location: 2429' FNL & 1958' FWL Section 14, T. 6S, R. 7W

County: Duchesne State: Utah Field/Unit: Indian Canyon

Lease No.: U-8927-A

Joint Field Inspection Date: June 5, 1980

Participants and Organizations:

Joel Frandsen	U. S. Forest Service - Duchesne
John Lowe Mining Engineer	U. S. Forest Service - Wasatch National Forest
Dave Black	U. S. Forest Service - Vernal
Terry Hopson	U. S. Forest Service - Vernal
Greg Darlington	U. S. Geological Survey - Vernal
Mark Christensen	U. S. Geological Survey - Vernal
Harry Engel	U. S. Geological Survey - Denver
Bill Fiant	Energy Reserves Group
Leonard Heeney	Ross Construction
Evan Stevenson	Utah Highway Department

EA Prepared By:

Greg Darlington
Environmental Scientist
Vernal, Utah

GS/sh

DESCRIPTION OF PROPOSED ACTION

Proposed Action:

1. Location State: Utah

   County: Duchesne

   2429' FNL, 1958' FWL, SE¼ NW¼

   Section 14, T. 6S, R. 7W, USB&M

2. Surface Ownership Location: Public

   Access Road: Public

   Status of
   Reclamation Agreements:

3. Dates APD Filed: May 20, 1980

   APD Technically Complete: May 30, 1980

   APD Administratively Complete: May 20, 1980.

4. Project Time Frame

   Starting Date: July, 1980

   Duration of Drilling Activities: 180 days

   A period of 30 to 60 days is normally necessary to complete a well for production if hydrocarbons are discovered. If a dry hole is drilled, recontouring and reseeding would normally occur within one year; revegetation or restoration may take several years. If the well is a producer, an indefinite period of time would occur between completion and rehabilitation.

5. Related Actions of Other Federal or State Agencies and Indian Tribes:

   None known.

6. Nearby Pending Actions Which May Affect or be Affected by the Proposed Action:

   None known.

7. Status of Variance Requests:

   None known.

The following elements of the proposed action would/could result in environmental impacts:

1. A drill pad 215' wide x 430' long and a reserve pit 100' x 200' and at least 10' deep would be constructed. Approximately 600' of new access road, averaging an 18' driving surface, would be constructed from a maintained highway.

2.9 acres of disturbed surface would be associated with the project. Maximum disturbed width of access road would be limited to 30'.

The reserve pits would begin their backslope at the present state highway right-of-way line and this line would be very close to where the fence around the pits would be. The pit may be enlarged near corner 4 by being lengthened to 100' x 250' if necessary.

2. Drilling: Drilling would be to a proposed depth of 15,300'.

3. Waste Disposal.

4. Traffic: Highway warning signs would be posted about 700' from the access road to warn traffic.

5. Water Requirements.

6. Completion.

7. Production.

8. Transportation of Hydrocarbons.

Details of the proposed action are described in the Application for Permit to Drill.

The location was moved to avoid a drainage at the onsite. The move was 20' northwest to keep the pad away from the banks of Indian Canyon Creek.

Environmental Considerations of the Proposed Action:

Regional Setting/Topography: The location is on the west side of Indian Canyon Creek between Indian Canyon Creek and the Utah State highway 33. Indian Canyon is a fairly steep narrow canyon and, with regards to the general nearby topography, this is a fairly flat location. Cut is estimated at 10,404 cubic yards because of the large size of the proposed pad.

PARAMETER

A. Geology:

1. Other Local Mineral Resources to be Protected: Possible oil shale at about 1,800'.

Information Source: Mineral Evaluation Report

2. Hazards:

a. Land Stability: Adequate for the proposed project. Any existing drainages will be routed around the pad.

Information Source: Field observation

b. Subsidence: No significant problems are anticipated.

Information Source: APD

c. Seismicity: The location is in an area of moderate seismicity.

Information Source: "Geologic Atlas of the Rocky Mountain Region", "Earthquakes of Record and Interpreted Seismicity 1852-1969", Rocky Mountain Association of Geologists

d. High Pressure Zones/Blowout Prevention: No high pressure zones anticipated. B.O.P. equipment is described in detail in the APD.

Information Source: APD

B. Soils:

1. Soil Character: Sandy clay with some alluvial character. Shale and sandstone gravels also present.

Information Source: Field observation

2. Erosion/Sedimentation: Significant efforts will be made during construction to keep erosional/sedimentational impacts minimal from this project.

Information Source: APD and field observation

C. Air Quality:

Air quality will be temporarily impacted during construction and drilling operations.

D. Noise Levels:

Noise levels will be temporarily impacted during construction and drilling operations.

Information Source: Field Observation

E. Water Resources:

1. Hydrologic Character:

a. Surface Waters: The location is close to Indian Canyon Creek, which is about 30' from corner 2 of the locations, and about 50' from the southeast side of the location. The pits are about 200 to 300' from the creek. This creek proceeds to the Duchesne River, which is a tributary of the Green River.

Information Source: APD

b. Ground Waters: No fresh water is anticipated.

Information Source: Mineral Evaluation Report

2. Water Quality:

a. Surface Waters: The pits will be lined with bentonite and the pad will be constructed in such

a manner as to minimize impacts to surface water. The access roads to this location will all be all-weather roads.

Information Source: Onsite considerations and field observations

b. Ground Waters: 80' of 20 inch casing and 980' of 13-3/8 inch casing will be used for surface casing. The APD describes in more detail a casing program which should adequately protect any ground water aquifers involved.

Information Source: APD

F. Flora and Fauna:

1. Endangered and Threatened Species Determination:

Based on the formal comments received from the U. S. Forest Service in Duchesne, Utah, on July 16, 1980, we determine that there would be no effect on endangered and threatened species and/or their critical habitat.

2. Flora: Oakbrush juniper, tall sagebrush and rabbit brush, and native grasses. Predominant vegetation is sagebrush, often in excess of 6' tall.

Information Source: Field observation

3. Fauna: Deer, bear, rabbits, squirrels, skunks, and various birds such as raptors,magpies, crows, and sparrows.

Information Source: Joel Frandsen of U. S. Forest Service - Duchesne, Utah

G. Land Uses:

1. General: Grazing is the primary land use. Efforts have been made to arrange it so cattle can graze this area now, then move to another area when construction begins.

Information Source: Joel Frandsen - U. S. Forest Service - Duchesne, Utah

2. Affected Floodplains and/or Wetlands: The location is quite close to Indian Canyon Creek. A 20' move of the pad northwest of the original staking will cause a 10-12' high bank to separate the pad from the creek and the pad should be at least 8' above the level of the creek at all points on the pad.

Information Source: Field observation

to a major state highway between Duchesne and Price.

Information Source: Field observation

H. Aesthetics:

A definite intrusion to many highway users. This location is close enough to the highway for any driver to see it.

Information Source: Field observation

I. Socio-economics:

The presence of one well is not a major socio-economic impact. This well, if successful, will very probably eventually lead to considerable further cumulative socio-economic impacts typical of further development and drilling of additional sites and construction of production facilities.

Information Source: Greg Darlington - Environmental Scientist - U. S. Geological Survey - Vernal, Utah

J. Cultural Resources Determination:

Based on the formal comments received from the U. S. Forest Service in Duchesne on July 16, 1980, we determine that there would be no effect on cultural resources subject to recommended stipulations be U.S.G.S. and U.S.F.S.

Information Source: SMA stipulations

K. Adequacy of Restoration Plans:

The adequacy of restoration plans meets the minimum requirements of NTL-6. The location will be rehabilitated as soon as drilling and completion operations takes place. Reseeding will be conducted under the supervision of the U. S. Forest Service.

ALTERNATIVES TO THE PROPOSED ACTION

1. Disapproving the proposed action or no action - If the proposed action is denied, no action would occur, the existing environment would remain in its present state, the lessee/operator would not realize any return on investments and the public would be denied a potential energy source.

2. Approving the project with the recommended stipulations - Under Federal oil and gas leasing provisions, the Geological Survey has a responsibility to approve mineral development if the environmental consequences are not too severe or irreversible. Permanent damage to the surface and subsurface would be prevented as much as possible under U.S.G.S. and SMA supervision. Environmental impacts would be significantly mitigated.

ADVERSE ENVIRONMENTAL EFFECTS

1. If Approved as Proposed:

   a. About 2.9 acres of vegetation would be removed, increasing and accelerating erosion potential.

   b. Pollution of ground water systems could occur with the introduction of drilling fluids into the aquifer(s). The potential for interaquifer leakage and lost circulation is ever present, depending on the casing program.

   c. Minor air pollution would be induced on a temporary basis due to exhaust emissions from rig engines and support traffic.

   d. The potential for fires, leaks, spills of gas and oil or water exists.

   e. During construction and drilling phases of the operation, noise and dust levels would increase.

   f. Distractions from aesthetics during the lifetime of the project would exist.

   g. Erosion from the site would eventually be carried as sediment in the Duchesne River. The potential for pollution to Indian Canyon Creek would exist through leaks and spills.

   h. If hydrocarbons would be discovered and produced, further development of the area could be expected to occur, which would result in the extraction of an irreplaceable resource, and further negative environmental impacts. These impacts include the cumulative loss of wildlife habitat due to the areas necessary for roads, pipelines, drillsites, and transmission lines. These actions may disrupt wildlife social behavior and force habitat relocation over an extended period of time. In addition, the cumulative effects of non-point erosion become substantial in a developing field, primarily those located near perennial streams where siltation and sedimentation are critical to aquatic life cycles.

2. Conditional Approval:

   a. All adverse impacts described in section 1 above would occur.

RECOMMENDED APPROVAL CONDITIONS

Drilling should be allowed, provided the following mitigative measures are incorporated into the proposed APD and adhered to by the operator:

1. See attached Lease Stipulations. None

2. See attached U.S.F.S. Stipulations.

3. The mining supervisor requests the operator to furnish resistivity, density, gamma ray, or other appropriate electric logs covering all formations containing potentially valuable minerals subject to the Minerals Leasing Act of 1920.

4. The fence for the pits will be placed approximately on the present highway right-of-way and the pits may be extended to 10' deep x 100' x 250' if necessary. Pits would be at least 10' deep and lined with bentonite.

CONTROVERSIAL ISSUES AND CONSERVATION DIVISION RESPONSE

At the onsite, suitable agreements were reached with Evan Stevenson of the Utah Highway Department to allow the pits to be placed adjacent to the highway right-of-way which is at the northwest edge of the pits.

We have considered the proposed action in the preceding pages of this EA and find, based on the analysis of environmental considerations provided therein, no evidence to indicate that it will significantly (40 CFR 1508.27) impact the quality of the human environment.

DETERMINATION

I determine that the proposed action (as modified by the recommended approval conditions) does not constitute a major Federal action significantly affecting the quality of the human environment in the sense of NEPA, Section 102 (2)(C).

DISTRICT ENGINEER — JUL 17 1980

Signature & Title of Approving Official — Date

Energy Reserves Well #2
Indian Canyon Creek
SE corner pad 6/5

Energy Reserves Well #2
Indian Canyon
North View 6/5

Energy Reserves Well #2
Sec 14, T6S, R7W USM
South View 6/5

FROM : DISTRICT GEOLOGIST, OGS, SALT LAKE CITY, UTAH

TO : DISTRICT ENGINEER, OGS, SALT LAKE CITY, UTAH

SUBJECT: APD MINERAL EVALUATION REPORT LEASE NO. U 8927-A

OPERATOR: ENERGY RESERVES GROUP INC WELL NO. 2

LOCATION: SE ¼ SE ¼ NW ¼ sec. 14, T. 6S, R. 7W, USM

DUCHESNE County, UTAH

---

1. Stratigraphy:

GREEN RIVER FM	O (SURFACE)	BLUE GATE MEM	10,140'
MAHOGANY OIL SH	1800'	FERRON SS MEM	14,000'
COLTON FM	2800'	TUNUNK SH MEM	14,560'
FLAGSTAFF L.S.	4500'	DAKOTA SS	14,870'
MESAVERDE GP	6530'	MORRISON FM	15,300'
MANCOS SH	8700'	TD	15,300
EMERY SS MEM.	9380'		

2. Fresh Water:

NONE ANTICIPATED

3. Leasable Minerals:

OIL SHALE POSSIBLE IN GREEN RIVER FM, ABOUT 1800'.

GAS POSSIBLE FROM MESAVERDE GP (6530'), EMERY SS (9380'), FERRON SS (14,000'), DAKOTA SS (14,870') OR MORRISON FM (15,300')

4. Additional Logs Needed:

LOGGING PROGRAM SUFFICIENT

5. Potential Geologic Hazards:

NONE ANTICIPATED

6. References and Remarks: STRUCTURE MAP, MAHOGANY OIL SH BED, UNPUBLISHED. GEOLOGIC ATLAS, ROCKY MTN REGION.

Signature: Kenneth J Stahl Date: 03 -JUN -1980

4

Greg Darlington

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ASHLEY NATIONAL FOREST
DUCHESNE RANGER DISTRICT
P. O. Box I
Duchesne, Utah 84021

7/15/80

IN REPLY REFER TO: 2820
Energy Reserves Group
Indian Canyon 14-2
(Wildcat)
S. 14, T.6S., R.7W.,
U.S.M., SE¼NW¼.
Duchesne County, Utah
Lease No. U-8927 A

Mr. Ed Guynn
U.S.G.S.
2000 Administration Building
1745 W. 1700 S.
Salt Lake City, Utah 84104

Dear Mr. Guynn:

On June 5, 1980, we had a joint on-site inspection for the proposed wildcat well of Energy Reserves Group, Inc., Well 14-2, in the Indian Canyon Unit, in Section 14, T.6S., R.7W., U.S.M. Those participating in the on-site inspection were Mr. Bill Fiant of Energy Reserves Group, Mr. Leonard Hanney, of Ross Construction Co., the earth contractor, Mr. Greg Darlington, et al, of the U.S.G.S., and Dave Black, John Lowe and A. J. Frandsen, of the U.S.F.S. Mr. Evan Stephanson, of the State Department of Transportation accompanied us on part of the review.

At this on-site inspection we jointly agreed that the entire pad should be moved 20-25' to the north and west along points 1-5 as shown on the Location Layout Sheet. The purpose was to move the east edge of the pad from its proximity to a small riparian zone and the large gully in Indian Creek.

Concerning the 13 point Surface Use Plan submitted by Energy Reserves Group, Inc., we agreed to the following changes as submitted by items:

Item 2:
Planned Access Route. We agreed to the proposed access route to the pad off the Indian Canyon Highway #33. Where this access road enters the location, it should be 20-25' to the west, due to the shift of the pad. The State Highway Department mentioned that an encroachment permit for ingress and egress off the highway would be needed by Energy Reserves Group and that warning signs would need to be installed 700' in each direction on the Highway (i.e. "Trucks Entering Highway").

Item 7:
We agreed the reserve pit can be deepened and can extend to the south west if needed. In a subsequent phone call we received from Mr. Bill Fiant, he stated that they may not need that large a reserve pit as they

may install a separator on the site that would allow them to recycle the drilling fluids. All solid material that is left after the drilling fluid is recycled should be hauled to a sanitary land fill. We agree with the telephone proposal, but in the event they do need a larger reserve pit they would be free to extend it 50' to the south and west, as shown on the Location Lay-out Sheet.

We desire that the reserve pit should be lined with bentonite to prevent possible contamination to Indian Creek. In the event that oil is encountered, we would desire to have this oil either burned in the pit or pumped and removed to a sanitary land fill before the reserve pit is covered during reclamation activities. (See rehabilitation prescription)

Item 9:
The fuel and storage tank as shown on the Location Lay-out Sheet should be moved to a site as far away from the creek as is practicable and can serve their needs. The reason, of course, is to prevent potential contamination by petroleum products from entering Indian Creek.

Item 10:
Because of the large amount of brush and vegetative material on the site, it will be necessary that this material be cleaned from the pad in advance of stripping the topsoil. This vegetation should be moved to the southwest near where the access road enters the pad while the topsoil is being stripped. After the pad is constructed, this vegetation should be moved back to the reserve pit where it can be burned and disposed of. In accordance with the Utah Forestry and Fire Control laws a burning permit will be necessary to burn during the closed fire season (Junel-October 31). This permit can be issued at the Forest Service office in Duchesne, Utah to Energy Reserves Group, Inc.

The area proposed for storing topsoil on their Location Lay-out Sheet should be moved. It was agreed the material should be deposited to the south and west above the pad by point 3. This will allow downhill placementof the topsoil when rehabilitation commences. The specifications of topsoil removal is covered further in the Rehabilitation Prescription attached.

The Location Lay-out Sheet shows the drainage coming from the culvert under the highway to be re-routed around the location. As agreed, during the on-site inspection, the Forest Service desires to work with Energy Reserves Group, Inc.'s contractor on the specifications of this re-routing, as we feel that the water can be re-spread instead of confined and routed to the creek.

Another problem that will be encountered this summer on this location is Forest Service permitted cattle grazing in this area. As the pad location is restricted between the highway right-of-way and the creek, it will be necessary that livestock permittees trail their cattle between the pad location and the creek.

The fence proposed around the reserve pits should be constructed according to the attached specifications. From our evaluation there are no endangered flora or fauna that would be affected by this location, and we do not feel that impacts are sufficient that would negatively affect the quality of the human environment to warrant the preparation of an Environmental Impact Statement.

The Forest Service has prepared an Environmental Assessment of this proposal and a copy of it is attached. We also desire to have a copy of the Environmental Assessment prepared by your agency. An archaeological survey was conducted by the Utah Archaeological Research Corporation and a copy is attached. Our Forest Service Zone Archaeologist has advised us that construction can commence.

The Forest Service does not desire the option of development of a water well on this location.

In the event that this is a producing well and production facilities would need to be installed, new applications for surface use would be needed (Item 4, of 13 Point Program) by Energy Reserves Group, Inc. This would allow the Forest Service to work with the U.S.G.S. and the Company to negotiate the area to be occupied and how we could best incorporate the design and color of the production facilities in accordance with our visual quality standards along the Indian Canyon Highway.

All internal combustion engines must be equipped with spark arrestors and mufflers during the period of fire danger (closed fire season) and a fire tool cache should be located on the drill site. This cache should consist of the minimum of 3 pulaskis and 3 shovels in a box plainly marked "For Fire Use Only". A. J. Frandsen, P. O. Box I, Duchesne, Utah 84021, office phone number 738-2482, home phone 728-2576, will be the Forest Service representative for the activities on this lease.

We recommend that you approve Energy Reserves Group, Inc.'s application to drill subject to the items discussed in this letter. If you have any questions, please call.

Sincerely,

A. J. Frandsen
District Forest Ranger

cc: Energy Reserves Group, Inc.
Forest Supervisor

Enc: Rehabilitation Prescription
Finding of No significant Impact and Decision Notice, E. A.
Archaeological Evaluation

REHABILITATION PRESCRIPTION

LEFT FORK INDIAN CANYON
FEDERAL #14-2

CONSTRUCTION PHASE

1. As a part of pad construction the vegetation (heavy brush and scattered juniper trees) will be cleared from the site and stockpiled by point 3 as shown on the Location Lay-out Sheet.

2. The topsoil to a depth of 2 feet deep from the cut portion of the pad will be stripped and stockpiled off the location by point 3. This would amount to the upper part of the pad or everything up canyon from point 3 to 5 including the top soil over the reserve pit.

3. Once the pad is constructed, the cleared vegetation will be moved to the reserve pit for burning. A special burning permit will be required from the Forest Service office in Duchesne, Utah.

REHABILITATION PHASE

In the event the well is a non-producer, the following steps will need to be taken before rehabilitation.

1. The mud pits (oil and slicks)burned on site (burning permit required) or pumped and hauled to a sanitary land fill.

2. The drilling waste (solids, salts, etc...) hauled to the sanitary land fill.

3. Backfill the reserve pits.

4. Rip the compacted area 6" to 12" deep in two directions.

5. Restore pad to original contour as per item 10 of the 13 point Surface Use Plan.

6. Spread stored topsoil back over disturbed area at a uniform depth.

7. Fertilize the area with a 20-20-0 fertilizer at the rate of 250 pounds per acre. This should be done prior to drilling.

8. Drill the disturbed area with the following seed mixture and rate:

a.	Russian Wild Rye	4 lbs./acre
b.	Orchard Grass	4 lbs./acre
c.	Intermediate Wheatgrass	4 lbs./acre
d.	Crested Wheatgrass	4 lbs./acre
e.	Ladak Alfalfa (dryland)	1 lb./acre*
f.	Yellow Sweetclover	1 lb./acre*

*These seeds to be innoculated with nitrogen fixing bacteria.

9. Drill above seed mixture to a depth not more than ¼ inch. Pull a light compactor or roller behind the drill to reduce the amount of soil movement so the soil will not blow and cover the seeds too deep.

10. Water as necessary to insure establishment of a grass and forb stand.

11. Construct a temporary three wire fence with steel posts every 16" around the area revegetated (excluding access road) to insure that livestock are excluded. Once an adequate stand is established the fence can be removed.

A. J. Frandsen
District Forest Ranger

United States Department of the Interior

GEOLOGICAL SURVEY
Conservation Division
8440 Federal Building
Salt Lake City, Utah 84138

Well #2
Energy Reserves Group
14-65-700
Duchesne County
ER # 449-80

Mr. Peter Rutledge
Area Oil Shale Supervisor
Area Oil Shale Office
131 North Sixth, Suite 300
Grand Junction, Colorado 81501

Dear Mr. Rutledge,

The Office of Oil and Gas Operations, Conservation Division, received the attached Application for Permit to Drill, Deepen, or Plug Back (Form 9-331C).

Please review this proposal for any conflict with any of the resources in the oil shale tracts and withdrawal areas. If needed, set forth the stipulations you determine necessary for adequate protection. Please use the following space for your response (if there is none, so state), together with date and initials of person responsible and return to the Office of Oil and Gas Operations.

U.S. Geological Survey
8440 Federal Building
125 South State Street
Salt Lake City, Utah 84138

Energy Reserves #2 June 2, 1980

Proposed casing and cementing program is acceptable to this office. The 13-3/8 inch casing, cemented to the surface, adequately protects the Green River Formation.

Ray A. Brady
Geologist

Memorandum

To: District Oil and Gas Engineer, Mr. Edward Guynn

From: Mining, Supervisor, Mr. Jackson W. Moffitt

Subject: Application for Permit to Drill (form 9-331c) Federal oil and gas lease No. U-8927-A Well No 2

1. The location appears potentially valuable for:

   [ ] strip mining*

   [x] underground mining** oil Shale

   [ ] has no known potential.

2. The proposed area is

   [ ] under a Federal lease for _____ under the jurisdiction of this office.

   [x] not under a Federal lease under the jurisdiction of this office.

   [x] Please request the operator to furnish resistivity, density, Gamma-Ray, or other appropriate electric logs covering all formations containing potentially valuable minerals subject to the Mineral Leasing Act of 1920.

*If location has strip mining potential:

Surface casing should be set to at least 50 feet below the lowest strip minable zone at _____ and cemented to surface. Upon abandonment, a 300-foot cement plug should be set immediately below the base of the minable zone.

**If location has underground mining potential:

The minable zones should be isolated with cement from a point 100 feet below the formation to 100 feet above the formation. Water-bearing horizons should be cemented in like manner. Except for salines or water-bearing horizons with potential for mixing aquifers, a depth of 4,000 feet has been deemed the lowest limit for cementing.

Signed Allen J Sauer

** FILE NOTATIONS **

DATE: July 21, 1980

OPERATOR: Energy Reserves Group, Inc

WELL NO: Indian Cyn. Unit #2

Location: Sec. 14 T. 6S R. 7W County: Duchesne

File Prepared: ✓ Entered on N.I.D: ✓

Card Indexed: ✓ Completion Sheet: ✓

API Number 43-013-30538

CHECKED BY:

Petroleum Engineer: M.J. Minder 8-7-80

Director:

Administrative Aide:

APPROVAL LETTER:

Bond Required: ☐ Survey Plat Required: ☐

Order No. ☐ O.K. Rule C-3 ☐

Unit

Rule C-3(c), Topographic Exception - company owns or controls acreage within a 660' radius of proposed site

Lease Designation ☐ Plotted on Map ☐

Approval Letter Written ☐

Hot Line ✓ P.I. ✓

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14, T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☒
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other)			

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled 30" hole to 96' G.L. & set 20" Limited Service Casing at 96' G.L. Cemented w/400 sx Type "H" cement w/2% $CaCl_2$. Job completed @ 7:30 AM 7-23-80.
7-25-80 - Move in Rotary Tools - W.O.C.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED R. C. Gillespie TITLE Drlg Supt. - RMD DATE July 25, 1980

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

August 8, 1980

Energy Reserves Group, Inc.
P.O. Box 3280
Casper, Wyoming 82602

RE: Well No. Indian Canyon Unit #2
Sec. 14, T. 6S, R. 7W.,
Duchesne County, Utah

Insofar as this office is concerned, approval to drill the above referred to gas well is hereby granted in accordance with Section 40-6-11, Utah Code Annotated 1953; and predicated on Rule A-3, General Rules and Regulations and Rules of Practice and Procedure.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

MICHAEL T. MINDER - Petroleum Engineer
OFFICE: 533-5771
HOME: 876-3001

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) are encountered during drilling. Your cooperation in completing this form will be appreciated.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is Indian CAnyon Unit #2: 43-013-30538.

Sincerely,

DIVISION OF OIL, GAS AND MINING

Michael T. Minder
Petroleum Engineer

/bh

cc: USGS

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. - 7,233'; K.B. - 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☒
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other)		

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled from under 20" casing w/17-1/2" bits to 1,138'.

Ran 13-3/8" O.D., 54.5#, K-55, R-3, SS, 8Rth, ST&C new casing set @ 1,138' (K.B.) Cemented w/890 sx of 65-35 Pozmix w/6% gel, 3% $CaCl_2$ & 1/4# Flocele/sx.; followed by 365 sx of Class "B" cement w/2% $CaCl_2$ & 1/4# Flocele/sx. Plug down @ 3:45 a.m; 8-7-80. Good cement returns.

Cemented thru 1" pipe @ 105' w/50 sx of regular cement.

Nippled up & pressure tested BOPE to 4000 psi - held o.k. Hydril was tested to 1800 psi.

8-11-80: Drilling 12-1/4" hole @ 1,310'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED Roscoe C. Gillespie TITLE Drlg. Supt.-RMD DATE August 11, 1980

(This space for Federal or State office use)

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

RECEIVED
AUG 13 1980
DIVISION OF
GAS, & MINING

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE-NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 7,233' - KB 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled cement out from 5,311' to 5,664' - Cleaned out to bottom and drilled ahead w/12-1/4" bit.

Drilled from 6,772' to 7,430' w/full returns.

9-29-80: Drilling 12-1/4" hole @ 7,430' - No mud lost

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Drilling Foreman - RMD DATE 9-29-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE-NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
[redacted]

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
[redacted]

12. COUNTY OR PARISH [redacted] | 13. STATE Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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 above referenced well was drilled from 7,430' to 8,274' w/12-1/4" bit.

Tested B.O.P.E. to 5000 psi on trip @ 8,128' - held o.k.

10-06-80: Drilling 12-1/4" hole @ 8,274'.

OCT 9 1980

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. D. Thomas TITLE Drilling Foreman - RMD DATE 10-06-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

RECEIVED
OCT 22 1980
DIVISION OF
OIL, GAS & MINING

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled above referenced well from 9,032' to 9,494' w/12-1/4" bit.

Lost circulation @ 9,236' - Regained circulation W/L.C.M.

Lost circulation @ 9,494'

10-20-80 - Prepare to spot Halliburton Flo-chek to regain circulation.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED R. D. Thomas TITLE Drlg Foreman - RMD DATE 10-20-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc,

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE-NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Spotted 1500 gal of Halliburton Flo-chek w/bit @ 9,190'

Drilled 12-1/4" hole form 9,494' to 10,087'. Losing mud slowly from 9,941' to 10,032' - Regained full returns.

10-27-80 - Drlg 12-1/4" hole @ 10,087'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED R. L. Thomas TITLE Drlg Foreman-RMD DATE 10-27-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
NOV 5 1980
DIVISION OF OIL, GAS & 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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 12-1/4" hole from 10,087' to 10,468'.

Losing mud slowly from 10,188' to 10,430' - Regained full returns w/L.C.M.

11-3-80 - Drlg @ 10,468'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. W. Thomas TITLE Drlg Foreman RMD DATE 11-3-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 12-1/4" hole from 10,468' to 10,825' w/no mud loss

11-10-80 - Drilled @ 10,825'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. W. Thomas TITLE Drlg Foreman-RMD DATE 11-10-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,239' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

NOV 20 1980

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

DIVISION OF
OIL, GAS & MINING

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.)*

Drilled 12-1/4" hole from 10,825' to 11,121' w/no mud loss.

11-17-80: Drlg @ 10,825'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N.D. Thomas TITLE Drlg Forman - RMD DATE 11-17-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Well History		X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

RECEIVED
DEC 08
DIVISION OF OIL, GAS & MINING

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.)*

Drilled 12-1/4" hole from 11,429' to 11,669' w/no mud loss.

12-1-80 - Tripping for new bit @ 11,669' - (In advertently left out following information on previous reports) Tested BOPE to 5000 psi on 11-3-80 @ 10,436' K.B. Held o.k.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED M. R. Freeman TITLE Drlg Foreman-RMD DATE 12-01-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

12-15-80 - Drilling 12-1/4" hole @ 12,300'.

RECEIVED
DEC 15 1980
DIVISION OF
OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED A. C. Dillingham TITLE Drlg. Supt. - RMD DATE 12-15-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

RECEIVED

DEC 29 1980

DIVISION OF
OIL, GAS & MINING

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280, Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL
AT TOP PROD. INTERVAL: (SE NW)
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Section 14, T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - KB 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Well History		X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 12-1/4" hole to 12,400' & ran logs
Ran 312 Jts. 9-5/8", 47# & 53.5#, N80-C95 - S95 & SS95, LT&C & BT&C new csg. landed @ 12,393' K.B. w/stage collar @ 6,500'. Cemented w/1350 sx 65-35 Class G/ Litepoz 3 w/6% Gel, 0.5% D65, 0.3% D 13, 0.2% D46, +10# Gilsonite/sk. Followed by 325 sx Class G cement w/35% D 30, 0.75% D 65, 0.2% D8, + 0.2% D 46, Plug down 12:01 am 12-21-80 - Good circulation until last 10 bbl. Displacement. W.O.C. 6 hr., opened stage collar & cemented 2nd stage w/1613 sx 65-35 Litepoz w/6% Gel, 0.5% D65, + 0.2% D46. Plug down 12:45 P.M. 12-22-80 Had 1-1/2" stream returns last 30 minutes of displacement - Nipple up B.O.P.E.

12-23-80 - Prepare to run temp survey on second stage -

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Drlg Foreman DATE 12-23-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc,

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			x

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Ran temp survey. Top of cement @ 5,950' - Pressure tested B.O.P.E. to 5000 psi & Hydril to 2500 psi - held o.k.

Ran McCullough C.B.L. Ran McCullough & perforated w/4 shots @ 12,285' to 12,289'. Set packer. Failed to establish communication.

Drilled 8-1/2" hole to 12,412'.

12-29-80 - Prepare to squeeze casing shoe.

RECEIVED
JAN 02
DIVISION OF
OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Drilling Foreman-RMD DATE 12-20-80

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE-NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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

Set HOWCO cement retainer @ 12,320'. Squeezed casing shoe w/100 sx Class "H" cement w/30% SSA-1, 0.75% CFR-2, 10% Salt, & 0.5% HR-8. Cement in place @ 2:30 AM 12-30-80.

Converted to KCl mud. Drilled 8-1/2" hole to 12,710'.

1-5-81 - Drlg @ 12,710'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. M. Thomas TITLE Drlg Foreman-RMD DATE 1-6-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled 8-1/2" hole from 12,710' to 13,135'.

1-12-81 - Drilling @ 13,135'.

DIVISION OF OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED T. A. Truman TITLE Drlg Foreman-RMD DATE 1-12-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE-NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☒
(other) Well History			

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 8-1/2" hole from 13,135' to 13,779'.

1-19-81 - Drlg @ 13,779'.

RECEIVED
JAN 21 1981
DIVISION OF
OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Drlg. Foreman-RMD DATE 1-19-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2429' FNL & 1958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled from 13,792' to 14,505'.

On 2-1-81 @ 14,505', pressure tested B.O.P.E. to 5,000 psi, held o.k.

2-2-81 - Drilling 8-1/2" hole @ 14,635'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. K. Thomas TITLE Drlg Foreman- RMD DATE 2-2-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indican Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled 8-1/2" hole from 13,779' to 13,792'.

At 13,792' set RTTS packer in casing @ 12,152' and flow-tested well @ 34 MCFD gas.

Drilled 8-1/2" hole to 13,932'.

1-26-81 - Drilling @ 13,932'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED M. L. Thomas TITLE Drlg Foreman-RMD DATE 1-26-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			x

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 8-1/2" hole from 15,348' to 16,132'.

2-16-81 - Drilling @ 16,132'.

RECEIVED
FEB 19 1981
DIVISION OF
OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Drlg Foreman-RMD DATE 2-17-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 8-1/2" hole from 16,132' to 16,925'.

2-23-81 - Drilling at 16,925'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Drlg Foreman-RMD DATE 2-23-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' - K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Drilled 8-1/2" hole from 16,925' to 17,404'.

3-2-81 - Tripping f/new bit @ 17,404'.

RECEIVED
MAR 4 1981
DIVISION OF OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED Ronald C. Gillespie TITLE Drlg Supt - RMD DATE 3-2-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

RECEIVED
MAR 20 1981
DIVISION OF
OIL, GAS & MINING

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Plug Back	X	

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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 above referenced well was drilled to a total depth of 18,003' w/8-1/2" bits & logs were run to 17,958'.

Last string of casing was 9-5/8" O.D., set @ 12,393'.

Permission is requested to plug back per telecon w/Mr. Bill Martens on 3-16-81 as follows:

Plug No. 1 - 17,700' to 17,500' w/175 sx of Class "G" cement w/0.3% D-8 (Retarder)

Plug No. 2 - 14,200' to 14,000' w/100 sx of Class "G" cement w/0.1% D-8

Plug No. 3 - 12,500' to 12,300' w/100 sx of Class "G" cement w/0.1% D-8

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED Roger C. Gillespie TITLE Drlg Supt-RMD DATE 3-17-81

(This space for Federal or State office use)

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

APPROVED BY THE DIVISION
OF OIL, GAS, AND MINING
DATE: 3-27-81
BY: M. J. Minder

*See Instructions on Reverse Side

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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.)*

Drilled 8-1/2" hole to 18,003' and ran logs.

3-16-81 - W.O. Orders.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED N. K. Thomas TITLE Drlg Foreman-RMD DATE 3-16-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233' K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Well History			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

3-9-81 - Drilling 8-1/2" hole @ 17,850'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE _____ DATE _____

(This space for Federal or State office use)

APPROVED BY Ronald C. Gillespie TITLE Drlg Supt-RMD DATE 3-10-81
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14 - T6S - R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L.-7,233'; K[illegible]

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Plug back			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

RECEIVED
MAR 24 1981
DIVISION OF
OIL, GAS & MINING

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 above referenced well was plugged back to 12,292' on 3-17-81 as follows:

Plug No. 1 - 17,700' to 17,500' w/175-sx of class"G" cement w/0.3% D-8 (retarder)

Plug No. 2 - 14,200' to 14,000' w/100-sx of class"G" cement w/0.1% D-8

Plug No. 3 - 12,500' to 12,300' w/100-sx of class"G" cement w/0.1% D-8

Tagged cement plug at 12,292' after 16-hours
It is proposed to perforate, stimulate & test some or all of the following zones:
8,970'-9,046'; 10,000'-10,100'; 10,470'-10,524'; 10,590'-10,665';
11,175'-11,560'; 11,690'-11,720'; 11,484'-11,848'; 12,040'-12,062'

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED Ronnie C. Billingsley TITLE Drlg. Supt. RMD DATE 3-20-1981

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

GEOLOGICAL REPORT

ON

ENERGY RESERVES GROUP, INC.

#2 INDIAN CANYON UNIT

SE NW SECTION 14 - 6S - 7W

DUCHESNE COUNTY, UTAH

MARCH 1981

Compiled by

Roy D. Brown
Consultant Geologist
Denver, Colorado

TABLE OF CONTENTS

Pertinent Data

Name of Well: Energy Reserves Group, Inc. #2 Indian Canyon Unit

Location: SE NW Sec. 14 - 6S - 7W, Duchesne County, Utah (2443' SNL - 1972 EWL)

Elevation: 7233' Grd. 7256.43 KB

Objectives: Primary: Emery, Ferron & Dakota all cretaceous.

Secondary: Any other potential zones encountered.

Drilling Contractor: American Drilling Co. Rig #1

Prospect: Minnie Maude

Date Spudded: August 1, 1980

Surface Casing: Ran 26 jts 13 3/8" K-55 54½ lbs. cmt w/890 sxs. 35/65 pos. + 6% gel + 3% $CaCl_2$ + ¼ lbs. per sx. D-29 (lost circulation material) followed w/369 sxs. class B cmt. + 2% $CaCl_2$ + ¼ lbs. D-29; landed @ 1138 KB; good surface returns

Intermediate Csg.: Set 9 5/8" csg. landed at 12,395' KB

Hole Size: 17½" sfc. hole; 12¼" intermediate; 8½" main hole

Total Depth: 18003 Driller; 17958 Logs

Date Reached TD: March 12, 1981

Well Status: Potential Gas Well

Rig Released: March 19, 1981

Logs Run: Run #1 Schlumberger Dual Induction - SFL
2" Scf. csg. -12395
5" Scf. csg. -12395
Schlumberger BHC Sonic w/GR-Cal.
2" Scf. csg. -12389
5" Scf. csg. -12389
GR to surface on 5"
Schlumberger CNL Density w/GR-Cal.
5" Scf. csg. -12398
GR to surface

Logs Run: (Continued)

Run #2 Schlumberger Dual Laterolog
2" 12170 - 17944
5" 12170 - 17944
Schlumberger BHC Sonic W/GR-Cal.
2" 12393 - 17947
5" 12393 - 17947
Schlumberger CNL Density W/GR-Cal.
5" 12393 - 17955
Schlumberger Cyberlook
5" 12393 - 17955
McCullough Temperature Survey
2" 12160 - 13792

Stratigraphy (KB 7256')

Formation Names	Sample Tops	(Sub sea)	Logs	(Sub sea)
Tertiary (Eocene)				
Green River	Surface?			
Wasatch	4054	+3202	4080	+3176
Cretaceous				
Mesaverde	8870	-1614	8870	-1614
Emery	12073	-4817	12040	-4784
Mancos	13030?	-5774	13000?	-5744
Ferron (First)	15770?	-8514	15784?	-8528
(Basal)	17140?	-9884	17140?	-9884
Mowry	17150?	-9894	17206?	-9950
Dakota	17576?	-10320	17553?	-10297

Total Depth 18003

It is the writer's opinion that the hole bottomed within 100 feet of the Cedar Mountain (Morrison).

Conclusions and Recommendations

The Tertiary Green River consists primarily of shales varicolored, light gray, light greenish gray, gray to rarely dark gray, or brown or brownish gray, locally silty, calcareous, rarely micromicaceous or carbonaceous, blocky to platey, soft to occasionally medium hard with a few interbedded limestones, tan to buff to brown, crypto to microcrystalline locally argillaceous (shaley) occasionally fossiliferous (ostracods) medium hard with some interbedded thin sandstones, predominately light gray and brown, very fine to fine, subangular, occasionally salt and pepper, locally silty, calcareous or argillaceous, medium hard to occasionally frangible with occasional traces of poor to rarely fair porosity and frequent shows of possible hydrocarbons.

The following thin zones are considered the most prospective sandstones within the Green River. These zones have been selected from the better sample shows, the better gas detector kicks and in turn isolated on the mechanical logs (10% is considered the minimum productive porosity):

Depths	Comments
1932-44	Seven broken feet of porosity.
2430-62	Twenty broken feet of porosity with the top eight feet (2430-38) probably to low (9.5%).
2552-62	Six to seven broken feet of porosity.
2985-92	Seven feet of porosity; had no gas kicks and a poor show in samples.
3312-22	Nine broken feet of porosity.
4067-76	Seven broken feet of porosity.

Drill stem test number one (2447-2500) tested the lower twelve feet of porosity in the above 2430-62 zone and had gas to the surface plus recovered gas and oil cut mud with no formation water (refer to Drill Stem Test Summary). Pressure curves on the above test indicate a low porosity-permeability reservoir and it is the writer's opinion that probably most of the above zones are of that type. Should all other zones at this location be dry, then it is recommended further evaluation of the above zones be conducted.

Comment should be made here concerning the CNL-Density log. When this log was initially run, the neutron-density gas crossover was observed for a number of the above Green River Sandstones but when a new film of the above log was made from the tapes the crossover was erradicated. The original print and film of the above log were destroyed.

The Tertiary Wasatch (4080-8870) consists primarily of Claystone reddish brown to brownish red, occasionally calcareous, silty, rarely very fine sandy and rarely locally anhydritic, usually blocky and soft with minor gray to greenish gray and light gray calcareous shales and siltstone with some interbedded sandstones, light gray to rarely light brown and dirty white very fine to fine and occasionally poorly sorted very fine to medium and rarely coarse grained, usually subangular and frequently salt and pepper, rarely glauconitic occasionally calcareous and/or with clay infilling, medium hard to frangible with rare traces poor to very poor porosity and rare poor indications from samples of possible hydrocarbons.

From mechanical logs the following zones have the most potential:

Depths	Comments
4475-90	This zone has 15 feet of 10 to 13% porosity and probably relates to the gas kick at 4499-4506 and to the sandstone in the 4490-4530 samples which was frangible to friable, had traces poor to fair porosity, traces bright yellow fluorescence and traces pale yellow white fluorescence cut, neg. stain.
5348-54	This zone has 26 feet 10 to 16% porosity with some broken crossover on the CNL-Density. No gas kicks and/or any shows or porosity were observed in the samples for this zone. The Rt values are also low which indicates this zone as rather poor.

Logs, samples and poor or no gas kicks illustrate the remaining section of Wasatch as non-prospective.

The Cretaceous Mesaverde (8870-13000) samples revealed sandstones, predominately light gray to frequently dirty white and gray, fine to occasionally very fine and medium, predominately subangular, occasionally salt and pepper, usually siliceous (hard to very hard) occasionally silty and calcareous (mostly in the lower one third), occasionally bituminous (dead oil, no cut and/or fluorescence) mostly hard to rarely frangible, tight to rare traces of poor porosity with a few interbedded shales, mostly dark gray to black and carbonaceous occasionally gray, locally silty to very fine sandy blocky to occasionally platey, medium hard to soft with numerous thin coal seams in the upper one third and in the lower one third. The sandstones in the lower one fourth of the section becoming mostly very fine calcareous argillaceous and grading occasionally to siltstones.

Numerous gas kicks were recorded throughout the Mesaverde and most of these shows are related to carbonaceous shale, coals and/or very thin high pressure low volume zones. All of the gas was methane except for the gas kicks at 10465-83 and 10502-19 which had minor amounts C_2 and C_3.

The following zones are considered the most prospective but all are believed as non productive and/or marginal with the exception of the 12050-61 zone:

Depths	Comments
9472-88	Eight feet of broken 11-14% porosity; tight on Sonic log. Has neutron-density crossover. No gas kicks were recorded. Samples revealed a sandstone with traces poor porosity and no shows.
10008-28	Eight feet of broken 11-12% porosity; tight on Sonic log. Has neutron-density crossover. A gas kick at 9980-10006 is believed related to this zone (100 units over a background of 30 with 85 C_1). Samples revealed a sandstone with traces poor porosity, locally bituminous, no show.
10486-524	The CNL-Density log is questionable in this zone and no porosity or porosity thickness is calculated, tight on Sonic log. Has neutron-density crossover. One gas kick occurred above at 10465-85 (155 units over a background of 20 with 130 C_1; 10 C_2; 2 C_3) and a gas kick at 10502-19 (50 units over a background of 40 with 90 C_1; 5 C_2). Samples revealed a sandstone with poor porosity and poor shows (traces bituminous material and/or gilsonite). The writer was not present when the above zone was penetrated but did look at the dried samples at a later date.
12050-61	Nine feet of broken questionable 19-24% porosity; tight on Sonic log; has neutron-density crossover. A gas kick was recorded at 12046-54 (329 units over background of 56 with 170 C_1). Samples (12070-90) revealed a sandstone with traces very poor porosity with no shows (the above sand is lower than the mentioned zone but is believed to be related).
12509-61	Thirty eight feet of broken low porosity (6-8%); low porosity on sonic. Has neutron-density crossover. Gas kicks were recorded at 12453-63, 12477, and 12490. Samples revealed some sandstones with traces poor porosity and some coals within the zone. A temperature survey indicates gas at 12510-30.

Depths	Comments
12739-62	Nineteen feet of broken indicated high porosity with neutron-density crossover; 8% porosity on sonic log; had a slight drilling break from 12724'-42' and a gas kick from 12714 to approximately 12750. (This gas kick may in part be related to connection and down time.) Samples revealed some sandstone with traces very poor porosity and questionable dead oil staining.

Test #2 (12152'-13792' open hole) indicated the above last two zones as high pressure, low volume type reservoirs (refer to Drill Stem Test Summary).

It is the writer's opinion that secondary stimulation (acid-sand fracturing) of the above Mesaverde zones may make them productively economical.

No additional potential productive zones were revealed in samples and by mechanical logs below the Mesaverde (Mancos & Ferron) and therefore, no further evaluation is recommended below 12800'.

Sample Descriptions

Occasional Chip	≤1%
Trace	>1% - ≤5%
Very Minor	>5% - ≤15%
Minor	>15% - ≤25%
Some	>25% - ≤35%
Abundant	>35% - ≤45%
And	>45% - ≤50%

1330-1350 Shale, gray to medium dark gray, locally greenish gray, locally slightly silty, calcareous to slightly calcareous, locally sparcely micromicaceous, blocky to hackly, medium hard.

1350-1370 Shale as above with minor limestone light gray to rarely light brown, cryptocrysatlline, silty to very fine sandy, argillaceous, rarely locally micaceous and/or marly medium hard grading to a very fine sparcely salt and pepper very calcareous sandstone.

1370-1410 Limestone, tan to buff and light gray, cryptocrystalline, argillaceous (locally marly) medium hard occasionally grading to a very limey shale with some shale as above; traces sandstone as above and trace light brown to brown blocky very calcareous, locally carbonaceous (irregular thin partings) shale.

1410-1430 Limestone, dirty white to buff, cryptocrystalline (marlstone) and traces limestone as above with abundant shale as 1330.

1430-1470 Shale as 1330; trace limestone as above; traces dark gray, calcareous blocky shale in 1450 sample. (A rare ostracod in the limestones.)

1470-1510 Shale etc. as above with traces to very minor slightly calcareous and/or dolomitic blocky brown shale.

1510-1550 Limestones as 1370 and 1410 with some shale, brown to dark brown (possible oil shale), slightly calcareous and/or dolomitic blocky, medium hard and very minor shale as 1330; rare trace sandstone, dirty white, very fine to fine, subangular to subrounded and rounded, slightly calcareous, rarely locally pyrobituminous and/or heavy black crude (gilsonite), tight to some fair porosity, amber cut., neg. fluorescence.

1550-1570	Limestone etc. as above wtih some light brown blocky argillaceous cryptocrystalline limestone (marlstone).
1570-1610	Shale as 1330 with some interbedded limestones as above rarely locally ostracodal and very minor sandstone, light gray, very fine, subangular calcareous, sparcely salt and pepper, rarely locally micaceous hard.
1610-1630	Shale and some interbedded limestone as above with traces sandstone as above.
1630-1650	Shale and minor limestone as above with traces dark brown to brown calcareous blocky shale.
1650-1710	Shale as above predominately greenish gray and gray with traces brown to dark reddish brown shale as above and traces limestones as before.
1710-1730	Sandstone as 1570 and minor shales as above.
1730-1750	Limestone, tan to buff to rarely light brown and gray, cryptocrystalline, slightly argillaceous, rarely locally chalky, medium hard and some shales as above.
1750-1770	Shales as 1650 with some interbedded limestone as above.
1770-1810	Shales as 1650 with rare traces limestone as above.
1810-1830	Shales as 1650 with trace sandstone as 1570.
1830-1850	Shales as 1650 with increase in dark brown blocky dolomitic shales (oil shale?) rarely grading to a cryptocrystalline very argillaceous hard dolomitic limestone; traces limestone as 1730.
1850-1860	Shales etc. as above with minor limestone dark brown, cryptocrystalline, argillaceous, hard, trace dull fluorescence in brown limestone, neg. cut, stain (show gas at 1850-54 is believed related to oil shale.)
1860-1870	Limestone, tan to very light brown and light brownish gray, rarely dark brown, cryptocrystalline, argillaceous, medium hard and shales as 1330.
1870-1890	Shales as 1330 and very minor limestone as above; trace pyrite in shales.
1890-1910	Shales as 1330 and some minor shale dark brownish gray to dark brown, calcareous, locally very silty to rarely very fine sandy, blocky, medium hard; traces limestones as before.

1910-1930	Sandstone, light gray, very fine, (to silt sized), very silty, calcareous, argillaceous, hard to medium hard, grading occasionally into a very fine sandy argillaceous calcareous siltstone; traces to very minor shales as above.
1930-1950	Shale and some limestones as 1890 and 1860 with minor sandstone, light gray to brown, very fine to fine, subangular, very sparcely and locally salt and pepper, locally slightly calcareous, firm to frangible, tight to some poor to fair intergranular porosity (in brown sandstone chips), neg. visual cut, some light brown to brown stain, yellow fluorescence, streaming yellow fluorescence cut in chlorathane (at 1936-37 had 110 units gas over 10 units background with 100 C_1.)
1950-1970	Shale, gray to medium dark gray and dark grayish brown, very calcareous, locally silty, blocky, medium hard and some limestone, brown to gray brown cryptocrystalline, argillaceous, hard.
1970-1990	Shales as 1330 and 1950, rarely in part red to reddish brown hard to soft blocky claystone with minor limestone as above.
1990-2010	Shales as above, locally very silty with some gray to light gray argillaceous slightly calcareous and/or dolomitic siltstone.
2010-2050	Shales as 1990 with minor limestones as 1860 and 1950; traces siltstone as above.
2050-2090	Shales as 1970 with minor micromicaceous siltstone as 1990, locally soft and medium hard.
2090-2110	Limestone, brown to dark brown, cryptocrystalline, argillaceous, medium hard occasionally grading to limey shale with abundant shale as 1950 and 1330.
2110-2150	Shale as 1330 predominately greenish gray with very minor shale as 1950 in part dark reddish brown to red claystone with traces locally ostracodal limestone as above, locally marly; traces siltstone and rare trace (2130 to 2150 sample) sandstone, brownish gray, very fine, subangular, slightly calcareous, frangible to firm, poor intergranular porosity, neg. cut, possible brown oil stain, pale yellow fluorescence and pale yellow fluorescence cut in chlorathane.
2150-2210	Shale, gray to greenish gray and rarely dark gray and dark reddish brown, locally silty, micromicaceous and calcareous to slightly calcareous, blocky to hackly, medium hard with some interbedded limestone tan to buff to brown, rarely black and ostracodal, cryptocrystalline, argillaceous (marly) medium hard;trace light gray calcareous slightly argillaceous locally very fine sandy micaceous siltstone.

2210-2230	Shale, varicolored brown, light brown, gray, greenish gray and rarely dark reddish brown, very thin, irregular laminated to fissile to rarely blocky, locally very calcareous, soft with traces gray to gray black argillaceous ostracodal limestone and traces shale as above; an occasional piece secondary calcite (minute veining in fracturing). The overall sample had a very faint brownish yellow fluorescence. Any gas from this zone would come from fracturing.
2230-2250	Shales as 2150 and 2210 with abundant sandstone,dirty white to light gray, very fine (grading to silt sized), subangular, locally very sparcely salt and pepper, locally micaceous, very calcareous firm to rarely frangible grading to a very fine sandy siltstone, tight, neg. cut, stain, UVL; rare chip or ostracodal limestone as above; traces white soft calcite (chalk).
2250-2270	Limestones, tan to buff to brown as 2150 with minor shale as 2150 (non-fossiliferous).
2270-2290	Limestones as above with some shale as 2150 predominately gray to dark gray.
2290-2310	Shale as 2150, predominately gray to dark gray, blocky, medium hard.
2310-2330	Shale as 2150 with some limestone as 2150 (non-fossiliferous) with trace sandstone, dirty white to very light gray, very fine, subangular, silty, calcareous, firm to rarely frangible, tight to traces poor porosity, neg. cut, stain, UVL.
2330-2370	Shale as 2150 varicolored with increase in dark reddish brown to dark brown shales, medium hard to soft.
2370-2390	Shale, brown to dark reddish brown to dark brown, locally calcareous to slightly calcareous blocky to platey and locally hackly, soft to medium hard (has a dull orange yellow fluorescence) with some shale as 2150; trace subbituminous coal.
2390-2410	Shale as 2150 predominately dark gray to gray, locally very silty with minor shale as above and minor shale very dark gray to gray black, carbonaceous, blocky to hackly; trace sandstone and siltstone.
2410-2430	Limestone, light brown to tan, cryptocrystalline, very argillaceous, medium hard to soft grading to a limey (marlstone) shale (has dull yellow fluorescence and some shales as 2150); traces shale as 2370; an occasional piece secondary calcite (minute veining).

2430-2450 Shales as 2150 with some siltstone, very light gray, calcareous, locally slightly argillaceous and very fine sandy, medium hard to rarely soft, traces to very minor shales as 2370' trace sandstone, light gray, very fine, subangular, silty,slightly calcareous, firm, tight, trace dull yellow fluorescence.

2450-2460 Sandstone, light gray and brown, very fine, subangular, locally very sparcely salt and pepper, calcareous to slightly calcareous, locally silty, firm to frangible, sandy to friable, tight to some poor intergranular porosity, scattered light brown stain, no visual cut, a bright yellow fluorescence cut, dull yellow fluorescence (scattered) in overall sample with some siltstone and very minor shale as above (at 2451-62 had 620 units over background of 100 units with 600 C_1; 25 C_2; 10 C_3; 20 C_4; 5 C_5; tr C_6. Had scum brown oil in shaker tank with some kicking gas. Drilling break 2451-62; 5"-6" to 2"-3".

2460-2470 Sandstone as above, predominately brown, firm to frangible, tight to minor poor porosity, some light brown to brown stain, dull yellow fluorescence, streaming bright yellow fluorescence cut, an occasional very faint visual amber cut; slight petroliferous odor with some siltstone and traces to very minor shale as above, trace secondary calcite (minute veining in fracturing??).

2470-2490 Shales as 2150 and siltstone as 2430 with traces limestone and sandstone as before.

2490-2500 Siltstone, very light gray, calcareous, very fine sandy, medium hard, grading occasionally to a very silty very fine sandstone, tight with minor shales as above.

2500-2510 Shales as 2150 and some limestone as 2150 with very minor siltstone as above.

2510-2530 Shales as 2150 with very minor limestone and siltstone as above.

2530-2550 Shales as 2150 and some limestone as 2150.

2550-2570 Sandstone, light gray and brown, very fine, subangular, sparcely salt and pepper, calcareous, locally silty, firm to frangible to rarely friable, tight to poor to rarely fair intergranular porosity, neg. visual cut, scattered very light brown stain, dull yellow fluorescence and dull yellow fluorescence chlorathane cut with minor shale and limestone as above.

2570-2590 Shales and some limestones as above, rarely oolitic and very minor sandstone as above. At 2553-64 had drilling break from 5 minutes per foot to 3 minutes per foot with 900 units gas over background of 100 units and 700 C_1.

2590-2610	Shales as 2150 and siltstone grading to very silty, very fine calcareous, light gray firm and tight sandstone; traces limestone as above.
2610-2670	Shale, gray to brownish gray to medium dark gray to grayish brown and greenish gray, calcareous to very calcareous, blocky medium hard with occasional traces siltstone.
2670-2690	Shale as above with minor sandstone, dirty white, very fine, subangular, silty, calcareous, medium hard to hard, occasionally grading to a very fine sandy siltstone, trace dark reddish brown blocky shale.
2690-2730	Shales as above with very minor siltstone as above and some sandstone, dirty white to light gray to gray and light brown, very fine, subangular, locally very sparcely salt and pepper, slightly calcareous, argillaceous to silty, firm to frangible, tight to some local poor porosity, scattered light brown to brown stain, scattered yellow fluorescence, neg. visual cut, yellow white fluorescence cut; trace limestone, varicolored, tan, light gray and brown, to dirty white cryptocrystalline, rarely locally chalky. (Drilling break from 2708-2724 with a gas kick of C_1).
2730-2750	Shales varicolored as 2670 with minor varicolored cryptocrystalline locally argillaceous limestone as before, traces sandstone as above.
2750-2790	Shales varicolored as above with some limestone, varicolored, tan, light brown and gray to brown, cryptocrystalline, locally argillaceous, medium hard; light brown and tan fluoresence yellow; traces sandstone and siltstone.
2790-2810	Sandstone, very light gray, very fine to fine, subangular to subrounded, salt and pepper, locally micaceous, calcareous and silty, firm to frangible, tight to traces poor porosity, neg. cut, stain, UVL with very minor shales as above.
2810-2830	Shales varicolored as before locally platey in brown colored shales with minor limestone as before.
2830-2850	Shales as above with very minor light gray very fine sandy calcareous rarely locally carbonaceous (very thin partings and/or films) siltstone.
2850-2870	Limestone varicolored as 2730 rarely locally oolitic with very minor shale, sandstones and siltstones as before.
2870-2890	Shales and very minor limestone and traces siltstone and sandstone as above.

2890-2910	Limestone, varicolored as 2730 with traces dark reddish brown very argillaceous limestone and some varicolored shales as 2670.
2910-2930	Sandstone, very light gray, very fine, subangular, sparcely salt and pepper, calcareous, silty, firm, tight grading to a very fine sandy calcareous siltstone with some shales as above, predominately greenish gray and locally silty and traces limestone as above, rarely locally ostracodal.
2930-2970	Shale, greenish gray to gray to locally reddish brown and dark gray, locally silty and calcareous, blocky with traces limestone and minor siltstone as 2910.
2970-2990	Sandstone, very light gray and brown, very fine to fine, subangular, sparcely salt and pepper, slightly calcareous, local white clay infilling, firm to locally frangible and friable, tight to some poor to fair intergranular porosity, no visual cut, yellow white fluorescence cut, scattered light brown stain, overall bright yellow fluorescence, no gas kicks with very minor shale as above.
2990-3010	Sandstone, very light gray to dirty white, very fine, subangular, calcareous, rarely locally siliceous, silty, medium hard to hard grading occasionally to a very fine sandy siltstone with minor shale as above, locally micromicaceous; trace sandstone as above, trace limestone.
3010-3050	Shale varicolored as 2730, some dark brown (oil shale?) and occasional traces dark reddish brown, locally very sparcely micromicaceous, rarely locally fossiliferous shale (pos. forams??) with traces limestone and occasional secondary calcite, traces siltstone.
3050-3070	Siltstone, very light gray, very fine sandy, very calcareous locally finely pyritic and micaceous, hard grading to a very silty and calcareous, very fine sandstone with some shales as above, locally fossiliferous and very minor to traces limestone, very light gray cryptocrystalline to microcrystalline, argillaceous to locally silty (marly), medium hard.
3070-3090	Sandstone, dirty white to very light gray, very fine, subangular, sparcely salt and pepper, calcareous, silty, locally siliceous and sparcely micaceous rarely grading to siltstone as above, tight, hard to medium hard, very minor shales as above; trace limestone as above.
3090-3110	Shales varicolored as above with very minor sandstone and siltstone as above and traces limestone as before with trace limestone, very dark brown and gray, cryptocrystalline, argillaceous, very fossiliferous.

3110-3130	Shales varicolored as above, predominately very dark gray to dark reddish brown to gray and brown, blocky to hackly (oil shale) with traces limestone, sandstone and siltstone as above.
3130-3150	Shales varicolored as above, predominately brown to dark brown and dark brownish gray to dark gray with a rare chip of green, calcareous to slightly calcareous, blocky to hackly, medium hard, some faint or dull yellow fluorescence (oil shale?).
3150-3230	Shale as above, predominately dark brown to brown with traces to very minor limestone, dark brown to very dark brown, crystocrystalline, very argillaceous, rarely locally fossiliferous hard, trace dull yellow fluorescence.
3230-3250	Shale etc. as above with very minor siltstone, light gray, calcareous, very fine sandy, medium hard.
3250-3270	Shale etc. as above; trace fossiliferous limestone as 3090.
3270-3290	Shale as above.
3290-3310	Shale as 2930, predominately gray to medium dark gray, micromicaceous, silty, calcareous, hard with some siltstone, light gray, calcareous, very fine sandy, micaceous, hard and trace light gray to gray locally silty, micro to cryptocrystalline.
3310-3350	Sandstone, light gray to brown, very fine, subangular, silty to argillaceous, firm to rarely frangible, tight to traces very poor porosity, very faint or pale visual amber cut, streaming bright yellow white fluorescence cut some brown stain, scattered yellow fluorescence with some shale and traces siltstone as above.
3350-3370	Shales varicolored as 2610, traces sandstone and siltstone.
3370-3390	Shales as above, predominately dark gray and dark reddish brown and brown, blocky to rarely platey, traces sandstone as 3310; trace secondary calcite (veining in minute fractures).
3390-3450	Shales as above, predominately dark brown and dark gray (oil shale) to brown, rarely locally carbonaceous, calcareous to slightly calcareous trace yellow fluorescence in 3410-30, an occasionaly piece secondary calcite.
3450-3470	Shale as above with some brown to tan and dark brown locally marly (argillaceous) micro to crystocrystalline medium hard to hard limestone; traces subbituminous coal (4" seam).

3470-3490	Shales as 2610 rarely locally carbonaceous with very minor limestone as above; trace sandstone.
3490-3510	Shales as 2610 locally very dark gray and carbonaceous; traces limestone as above.
3510-3530	Siltstone, very light gray, calcareous, locally very fine sandy, slightly argillaceous rarely grading to a very fine silty sandstone, trace pyrobitumin, medium hard; rare chip coal and some shale as above.
3530-3550	Shale as above with some sandstone, dirty white to light gray, very fine, subangular, sparcely salt and pepper, calcareous to argillaceous, silty, hard to rarely frangible tight.
3550-3590	Sandstone as above local light brown to brown stain, dull yellow fluorescence, neg. cut, tight with some shale and very minor limestone as 3450; trace secondary calcite and siltstone.
3590-3610	Shale as 2610, predominately gray to greenish gray, rarely locally silty, calcareous, blocky medium hard with some siltstone grading to sandstone as 3510, tight, trace yellow fluorescence (cavings from above after trip); trace very dark brown shale.
3610-3630	Siltstone grading to sandstone as 3510 with minor shale as above.
3630-3650	Shale and minor siltstone grading to sandstone as above.
3650-3670	Shale, varicolored, dark gray, gray to dark brownish gray to dark brown, locally silty, calcareous, rarely locally carbonaceous, blocky, medium hard with minor siltstone grading to sandstone as above; trace coal and calcite.
3670-3690	Shale as above; trace light gray to gray, dark gray and dark brown, microcrystalline argillaceous hard silty limestone.
3690-3710	Shale and very minor siltstone and limestone as above, fossiliferous (gastropods??).
3710-3730	Sandstone, light gray, very fine to fine, subangular, sparcely salt and pepper, calcareous, micaceous, some white clay infilling, locally silty, firm to rarely frangible, tight to rare trace very poor porosity; neg. visual cut, yellow white fluorescence cut, scattered yellow fluorescence, neg. stain with minor shale as above.

3730-3750	Shale as above predominately dark gray, locally pyritic with some sandstone as above and siltstone as 3510.
3750-3770	Shale as 3650 with trace siltstone and sandstone.
3770-3790	Shale as 3650 with some siltstone and light gray grading to sandstone as 3510.
3790-3810	Shale as above with very minor limestone, dark brown and gray, micro to cryptocrystalline argillaceous, fossiliferous (ostracods) medium hard.
3810-3890	Shales varicolored as 3650; occasional piece secondary calcite; trace coal in 3850; very minor coal in 3870; trace coal in 3890.
3890-3910	Shales as above predominately brown to dark brown and dark gray to gray black and carbonaceous (oil shales).
3910-3930	Shales as above; trace coal; trace limestone as above, non fossiliferous dull yellow fluorescence, pale yellow white fluorescence cut, neg. stain.
3930-3990	Shales as 3890, predominately dark gray and dark brown; traces brown limestone, coal (in 3950) and calcite.
3990-4010	Shales varicolored as 3650, rarely carbonaceous, blocky to rarely platey with some sandstone, light gray and brown, fine to very fine with occasional medium grains, subangular to subrounded, salt and pepper, poorly sorted, argillaceous and calcareous, firm to occasionally frangible, tight to rare trace very poor porosity, dull yellow fluorescence and occasional yellow white fluorescence cut, neg. visual cut, neg. stain with trace limestone as 3790.
4010-4030	Sandstone and shale as above with minor limestone as 3790.
4030-4050	Limestone as 3790 and minor shale as above; traces sandstone as above.
4050-4070 (Spl top) (Wasatch) (4054)	Sandstone, very light gray to light gray, fine to very fine, subangular, salt and pepper, finely pyritic, rarely locally micromiceous, calcareous, rarely locally glauconitic (minute spheroids), locally silty, rarely pyrobituminous and slightly argillaceous (white clay infilling) firm to frangible, tight scattered dull yellow fluorescence and yellow white fluorescence cut, neg. stain (the above sandstone is probably uphole cavings as the shaker had a red colored (Wasatch) mud at approximately 4050. (Had partial lost circulation at approximately 4050), with minor limestone and shales as before.

4070-4090	Shales as 3590 and 3650 with some sandstone as above locally mottled (stained) reddish brown and minor claystone, reddish brown (Wasatch) calcareous, blocky to rarely platey, soft, trace limestone (cavings?).
4090-4130	Claystone, reddish brown to brownish red, slightly calcareous, rarely silty, blocky to hackly, soft with some shale, greenish gray to gray, locally calcareous, rarely locally silty, soft to medium hard; with very minor sandstone (cavings?) as above and traces light gray siltstone and limestone as before (cavings?) a rare piece pyrite and secondary calcite (samples are very poor with abundant uphole cavings).
4130-4190	The following samples are very poor and unreliable; probably cavings but it is the writer's opinion that most of the true sample would be claystone as above.
4190-4230	Sandstone, light gray to dirty white, very fine to fine, sub-angular to subrounded, salt and pepper, calcareous, some white clay infilling, locally silty, rarely mottled reddish brown, firm to frangible, tight with minor claystone as above and traces shales and siltstone as before; traces secondary calcite. (Poor sample) sandstone increases with depth.
4230-4250	Claystone as above locally silty with traces greenish gray and gray shale; traces siltstone and sandstone as above, rare piece pyrite.
4250-4270	Claystone as above, locally very silty and very fine sandy, soft to medium, blocky to hackly with some greenish gray to gray shale as 4090 and minor sandstone as 4190.
4270-4370	Claystone and some shales above with traces sandstone as 4190 and sandstone very light brown and reddish grays to gray, very fine, calcareous, argillaceous and silty, medium hard tight, grading to a very fine sandy gray siltstone.
4370-4390	Claystone etc. as above with a rare trace secondary white aphanic anhydrite.
4390-4430	Claystone etc. as 4270, locally mottled reddish brown and gray.
4430-4450	Claystone etc. as above with traces secondary calcite and anhydrite (minute fracture infilling); a rare piece pyrite.

4450-4490	Claystone as above and minor shales as 4230 with some sandstone, light gray to light brownish gray, very fine to fine, subangular, sparcely salt and pepper, calcareous to argillaceous, locally micaceous (biotite), rarely glauconitic, frangible, tight; trace anhydrite in 4490.
4490-4530	Claystone etc. as above with abundant sandstone, light gray to dirty white, fine to very fine, rarely locally medium, subangular, salt and pepper, locally calcareous to slightly argillaceous, frangible to friable, traces poor to fair porosity, trace bright yellow fluorescence and traces pale yellow white fluorescence cut, neg. stain (probably is a water sandstone).
4530-4550	Claystone as before locally very silty and very fine sandy grading occasionally to a very fine sandy very argillaceous calcareous light reddish brown siltstone with very minor sandstone as above and sandstone, light reddish brown to pale reddish white, very fine, subangular, calcareous and very argillaceous and silty, tight, medium trace gray shale; rare piece secondary anhydrite.
4550-4610	Claystone grading to very fine sandy siltstone as above with minor sandstone (very argillaceous) as above; trace anhydrite and a rare piece secondary calcite as before; traces to very minor gray to greenish gray blocky to hacky shale as before.
4610-4630	Claystone as above with very minor sandstone as 4530; traces gray shales as above.
4630-4650	Claystone as above with traces sandstone and shale as above; rare trace secondary anhydrite (claystone is locally very sandy.)
4650-4710	Claystone as above with some interbedded sandstone, light gray to light brownish gray and light brown, very fine to fine, subangular, calcareous silty and argillaceous, firm, tight with traces to very minor shales as before (samples are poor).
4710-4770	Claystone etc. as above with very minor sandstone as above.
4770-4870	Claystone etc. as above with traces to very minor sandstones as above. Claystone becoming locally less silty and sandy.
4870-4890	Claystone as above with minor sandstone as 4450 and 4530 and very minor gray shales as before.
4890-5190	Claystone as above with traces to very minor interbedded sandstones as above; traces to very minor light gray to gray and dark gray shales as before (samples poor; some shale

and the lighter colored sandstones are probably uphole cavings?); trace dull yellow fluorescence in the 5050 sample with neg. cut and stain.

5190-5250 Claystone, reddish brown, calcareous to slightly calcareous, locally silty to very fine sandy, blocky, soft to medium rarely grading to a very fine sandy argillaceous siltstone; trace gray to greenish gray silty calcareous shale grading rarely to siltstone with trace to very minor sandstone, dirty white to light gray and brown, fine to very fine, subangular to rarely subrounded, salt and pepper, predominately quartz grains, rare pinkish felspar, rare glauconite grains, calcareous, locally argillaceous and silty, frangible to firm, tight to trace poor porosity, neg. cut, stain, UVL. (The traces of biotite mica and a green vitreous crystalline mineral (Beryl or epidote??) are part of the lost circulation materials.

5250-5290 Claystone grading occasionally to very fine sandy siltstone as above with some sandstone, light reddish brown to reddish brown to brownish white and gray, very fine to rarely locally fine, locally sparcely salt and pepper, calcareous, silty to very argillaceous, medium to medium hard, tight with traces gray shales as above.

5290-5350 Claystone as above, rarely locally mottled light gray with minor sandstone as above; trace gray shale as before.

5350-5390 Claystone with very minor sandstone as above, rarely locally glauconitic (very fine spheroids).

5390-5450 Claystone as above with minor sandstone as 5190 and 5250, tight, neg. cut, stain, UVL; trace gray shales as before.

5450-5590 Claystone as above with very minor sandstone as 5190 and 5250 tight; traces gray shales as before; occasional fragment secondary quartz (veining) in 5550 and 5570; rare chip light reddish brown cryptocrystalline argillaceous hard limestone in 5550; increase to minor sandstone in 5570 sample.

5590-5610 Claystone as above with minor sandstones as above, predominately very fine, argillaceous, silty, calcareous and occasionally micaceous, tight, traces gray shales as before, occasional piece secondary quartz (veining).

5610-5650 Claystone etc, as above with very minor sandstones as above.

5650-5670 Claystone etc. as above with minor sandstone as above.

5670-5710 Claystone as above with some sandstone as 5250 and sandstone, dirty white, fine to very fine, rare medium grains, subangular, quartz with rare felspar and glauconite grains, salt and pepper, calcareous, locally slightly argillaceous, sparcely

micaceous, medium hard to rarely frangible tight; a rare fragment secondary quartz (veining); trace gray shales and an occasional chip limestone as 5450.

5710-5730 Claystone as above with minor sandstones as above and 5250.

5730-5770 Claystone as above with traces sandstone as 5250 (samples very poor due to lost circulation material; biotite plus quartz and a green mineral), some of the clear angular quartz fragments may be secondary and related to the true formation rock in the form of veining??

5770-5790 Claystone as above locally very calcareous and traces sandstone as 5250; trace secondary quartz as above??; rare secondary anhydrite.

5790-5890 Claystone with very minor sandstone as above; rare trace secondary (clear) quartz fragments?? (possibly from lost circulation material); a rare piece secondary calcite in 5870.

5890-5930 Claystone with very minor sandstone (very fine to fine as 5250 and traces sandstone as 5670) trace light gray siltstone and gray to greenish gray locally silty block calcareous shale as before.

5930-5970 Claystone as above with minor shales above and very minor limestone, gray to brown and light gray, cryptocrystalline, locally very argillaceous (marly in part) and silty medium hard to soft; traces sandstone as above.

5970-5990 Claystone with minor sandstone and traces shale as above; a rare chip limestone, gray black, cryptocrystalline argillaceous, fossiliferous, hard.

5990-6030 Shale, gray to dark gray to greenish gray and brownish gray, locally silty, calcareous to very calcareous, soft to medium hard, blocky with very minor claystone, limestone (as 5930) and sandstone as above with traces limestone, dirty white, chalky silty to very fine sandy soft (samples are very poor); drilling with aeriated mud. Some of the above shales and carbonates are possibly uphole cavings); a rare gastropod in shales.

6030-6070 Shale as above with some sandstone, dirty white to light gray, very fine to fine, subangular to rarely subrounded, sparcely salt and pepper, locally micaceous, calcareous, locally argillaceous and silty medium hard to frangible, tight with traces claystone as before and limestone as 5990 and 5930.

6070-6090 Claystone and abundant shale and minor sandstone as above with traces limestone as above.

6090-6130	Claystone and some shale and minor very argillaceous limestone as above with traces sandstone; traces secondary calcite in 6130.
6130-6190	Shale and minor claystone and limestone with traces to very minor sandstone as above (some of the shales grade occasionally to a very argillaceous lithographic limestone).
6190-6250	Shale and very minor claystone as above with traces gray to light gray calcareous siltstone and very minor sandstone as above; traces limestone as before.
6250-6290	Shale and minor claystone and sandstone as above with very minor limestone as before predominately gray to dark gray and rarely brown, argillaceous to very argillaceous (marly in part) cryptocrystalline to microcrystalline, rarely fossiliferous, medium hard to hard; traces siltstone.
6290-6330	Claystone and shale as above with very minor siltstone and traces limestone and sandstone as above.
6330-6370	Shale and minor claystone with very minor siltstone with traces sandstone and limestone as above; non-fossiliferous.
6370-6410	Shale and claystone as above with traces limestone and sandstone as above, predominately very fine to fine rarely locally medium grained, tight.
6410-6490	Claystone, reddish brown to brownish red, calcareous to slightly calcareous, locally silty to rarely locally very fine sandy, soft to rarely medium, blocky with some shale, light gray to gray, rarely silty, slightly calcareous to locally very calcareous, soft to medium, blocky to hackly rarely grading to a very argillaceous light gray to brownish gray cryptocrystalline limestone; occasional traces sandstone and siltstone as before, occasional pieces white chalk and/or marl; rare pieces anhydrite.
6490-6590	Claystone and very minor shales as above with traces sandstone and siltstone as before.
6590-6630	Claystone. etc. as above with very minor sandstone, very light gray to very light reddish gray, very fine to fine, subangular, locally sparcely salt and pepper, argillaceous to calcareous locally silty firm, tight; rare piece secondary calcite.
6630-6670	Claystone etc. as 6490; traces chalk and/or marl.
6670-6690	Claystone etc. as above with very minor sandstone as 6590.

6690-6730	Claystone and sandstone, dirty white to very light gray, fine to very fine, subangular salt and pepper, calcareous to locally argillaceous and silty, firm, tight, traces shale as before.
6730-6770	Claystone and very minor sandstone as above; traces shale as before.
6770-6790	Claystone and traces sandstone and shale as above (samples have some cement and gilsonite from drilling cement plug thru lost circulation zones); samples continue very poor.
6790-6830	Sandstone, light gray to dirty white to mottled a very light reddish brown, fine to very fine with occasional medium grains, subangular to rarely subrounded, locally very sparcely salt and pepper, calcareous, some calcarous white clay infilling, firm to medium hard, tight, neg. cut, stain, UVL; traces shale and claystone as above; a few loose medium to coarse subangular to angular translucent quartz grains and/or fragments in the 6810 sample.
6830-6870	Shale, grays and claystones reddish brown and brownish red — as before.
6870-6950	Claystone and very minor shale as before and traces sandstone as 6790.
6950-6970	Claystone and some shale with slight increase in sandstone as 6790. Claystone is locally very silty and medium hard.
6970-7030	Claystone etc. as above with minor sandstone as 6790.
7030-7090	Claystone with very minor shale and occasional traces sandstone as above; claystone becoming locally very calcareous (marly).
7090-7130	Claystone with very minor shale and traces light gray calcareous siltstone.
7130-7150	Claystone, traces siltstone as above and very minor sandstone, light gray, very fine to medium, rarely coarse, poorly sorted, subangular to angular, coarsely salt and pepper, locally felspathic, slightly calcareous, rarely glauconitic, medium hard, tight to rare trace poor intergranular porosity.
7150-7170	Claystone etc. with minor sandstone as above.
7170-7210	Claystone and some interbedded sandstone as above, predominately very fine to fine, rarely medium grained with rare coarse angular brown translucent chert grains; the claystone in locally very calcareous and medium hard.
7210-7270	Claystone as above predominately light reddish brown to brown and dark brownish gray with traces sandstone as above.

7270-7310	Claystone as above with some sandstone, light gray and brown, fine to occasionally very fine and medium, poorly sorted, subangular, salt and pepper locally siliceous, calcareous to argillaceous rarely glauconitic medium hard to rarely frangible tight.
7310-7350	Claystone and minor interbedded sandstone as above with traces light gray calcareous to argillaceous soft siltstone.
7350-7390	Claystone and traces sandstone and siltstone as above.
7390-7430	Claystone and very minor siltstone light gray to gray, locally very argillaceous, calcareous, locally very fine sandy, soft to medium hard with very minor sandstone, light gray and brown to gray, very fine to fine, subangular, argillaceous and calcareous to silty, locally siliceous, medium hard, tight, occasional traces gray to dark gray calcareous medium hard blocky shale.
7430-7470	Claystone as above varicolored, light reddish brown, brownish gray to gray and rarely dark brownish gray, locally very silty to very fine sandy, calcareous, blocky medium hard to occasionally soft with very minor siltstone and traces sandstone as above; a rare piece light brown argillaceous cryptocrystalline limestone.
7470-7490	Sandstone, light gray, fine with some very fine and medium grains (poorly sorted) subangular to angular, salt and pepper rarely locally siliceous calcareous, occasional white clay infilling, trace glauconite grains, medium hard to rarely frangible, tight and some claystone and traces siltstone as above.
7490-5710	Claystone and sandstone and traces siltstone as above.
7510-7550	Claystone with very minor siltstone as above with very minor sandstone as above and as 7390.
7550-7570	Claystone with some sandstone as 7390 and as above, predominately very fine to fine tight and very minor siltstone.
7570-7590	Sandstone as 7470 and 7390 rarely locally siliceous and some claystone, very minor siltstone and rare traces limestone shale as before.
7590-7610	Sandstone, light gray to rarely light brown and dirty white, very fine to medium, a rare coarse grain, subangular, salt and pepper, rarely locally glauconitic or felspathic, calcareous, some white clay infilling, medium hard to frangible, tight and very minor claystone as before and shale, gray to greenish gray with traces dark gray micromicaceous blocky shale.
7610-7630	Shale, gray, greenish gray to rarely medium dark gray, locally slightly calcareous, blocky and some claystone and light gray siltstone as before with very minor sandstone as above; an occasional piece argillaceous various shades gray and brown dense limestone.

7630-7650	Sandstone, light gray, fine to very fine, subangular to angular, sparcely salt and pepper, calcareous, locally siliceous and local white clay infilling, a rare glauconite grain, medium hard, tight with minor claystone,shale and limestone as above.
7650-7670	Claystone and minor shales as above with very minor sandstone and limestone (locally marly) as above; traces siltstone as before.
7670-7690	Claystone and very minor shales and sandstone as above; traces limestone and siltstone as above.
7690-7710	Claystone, reddish brown to brownish red, locally silty, calcareous, rarely very fine sandy, blocky, soft to rarely medium hard and minor shale, greenish gray and gray, calcareous, soft blocky to rarely platey, occasionally splintery to hackly; trace siltstone.
7710-7750	Shale and very minor claystone as above; trace dark gray slightly calcareous blocky shale with traces siltstone and sandstone.
7750-7770	Shale as above grading into a very light gray marlstone with minor claystone locally mottled light greenish gray as above with trace sandstone,light gray, fine to very fine, subangular, locally very sparcely salt and pepper, locally felspathic, calcareous medium hard to frangible, tight, trace dark gray shale as above.
7770-7790	Sandstone and shale occasionally grading to marlstone as above; traces dark gray shale and light gray calcareous argillaceous siltstone as before.
7790-7810	Sandstone, very light gray and brown, fine to occasional very fine and medium grains, subangular to subrounded, calcareous, some white clay infilling, medium hard, tight with minor shales, greenish gray to medium dark gray with traces claystone, marlstone and an occasional piece limestone.
7810-7830	Shales, sandstone and claystone with minor marlstone and traces limestone as above.
7830-7890	Shales as before locally very silty and very fine sandy and calcareous occasionally grading to a light gray marlstone with very minor claystone and sandstone and traces limestone as before.
7890-7910	Shales and claystone with traces sandstone and siltstone as before.

7910-7930	Claystone predominately reddish brown to brownish red, locally silty, calcareous, blocky, medium to soft and very minor various gray colored shales occasionally grading to a locally very silty light gray marlstone.
7930-7950	Claystone as above with traces shale and a light gray calcareous siltstone as before.
7950-7990	Claystone as above rarely in part light gray, locally silty to very fine sandy and very calcareous with minor sandstone, light gray to gray very fine to fine, subangular, salt and pepper, calcareous, to locally argillaceous, medium hard, tight and very minor various colored (grays) shale and traces dirty white very calcareous soft clay (marl) and traces varicolored argillaceous dense limestone.
7990-8070	Claystone, reddish brown to brownish red and light brown, rarely locally mottled a very light gray, calcareous, locally silty to rarely locally very fine sandy, blocky predominately soft with traces to very minor various colored gray shales as before; an occasional trace very fine to gray to light gray rarely light reddish brown, calcareous argillaceous sandstone occasionally grading to a very fine sandy siltstone; a rare piece marl as above.
8070-8130	Claystone and varicolored (light to rarely dark) gray shales as above with traces to very minor interbedded sandstone, siltstone and marlstone as above.
8130-8190	Claystone and shale etc. as above with very minor interbedded sandstone as 7950.
8190-8270	Claystone and very minor interbedded sandstone as 7790 and 7950 and very minor shale as above; traces siltstone and occasional pieces marlstone and limestone as before.
8270-8310	Claystone and minor light gray calcareous siltstone and very minor shales and traces sandstone and limestone as above with occasional pieces marlstone.
8310-8350	Shale, gray to light gray, locally silty and very calcareous (marly) rarely grading to a very argillaceous limestone medium hard to soft and some claystone and traces sandstone and siltstone as before.
8350-8370	Sandstone, light gray, very fine to fine, subangular, sparcely salt and pepper, calcareous, locally silty to rarely locally slightly argillaceous, frangible to medium hard, tight, a rare fleck black bituminous material (pyrobitumin) and some shale and claystone as above; traces siltstone, a rare piece dense light brown and gray limestone.

8370-8410	Sandstone as above light gray to dirty white predominately fine, rarely locally felspathic, frangible to medium hard, tight to rare trace very poor intergranular porosity, neg. overall sample fluorescence no stain (a rare spot of black bituminous material (gilsonite?) which has a yellow fluorescence cut) and very minor claystone and shale as above.
8410-8470	Shale, gray to light gray, rarely locally medium dark gray to greenish gray, locally silty to very silty to locally but rarely very fine sandy, calcareous to very calcareous, blocky to rarely platey, medium to soft with minor interbedded sandstone rarely locally siliceous and very minor claystone as above, occasional traces limestone and siltstone as before.
8470-8490	Shale as above, locally marly and very minor claystone with traces sandstone, limestone and siltstone as before.
8490-8510	Shale as above with minor light gray calcareous and argillaceous siltstone; traces sandstone and claystone as before.
8510-8530	Shale as above and sandstone with very minor siltstone and traces claystone and limestone as before.
8530-8550	Sandstone and shale with traces claystone and an occasional chip limestone as above.
8550-8570	Shale as above with very minor claystone and very minor siltstone, light gray, calcareous to locally argillaceous, locally very fine sandy grading occasionally to a silty very fine sandstone.
8570-8590	Sandstone, dirty white to very light gray, fine to very fine, subangular, locally very sparcely salt and pepper, calcareous, rarely locally siliceous (secondary silica cement), medium hard to hard, rarely frangible, tight to traces poor porosity, and very minor shale and claystone as above; a rare piece dark gray to gray black soft carbonaceous shale.
8590-8610	Sandstone with some shale and very minor claystone as above with trace limestone as before.
8610-8630	Shale, light gray (marly) to gray and rarely greenish gray, calcareous, rarely locally silty, soft to medium hard, blocky (some of the light gray is a marlstone); with very minor shale, dark gray to rarely gray black, locally slightly calcareous, rarely locally carbonaceous, locally very thin laminated, blocky to rarely platey, medium hard to soft with very minor sandstone and claystone as above, a rare piece limestone as before.
8630-8650	Shale, light gray to gray as above becoming locally marlstone; traces claystone and sandstone as above.

8650-8670 Shale as above with trace dark gray to gray black carbonaceous shale as 8610; trace siltstone as 8550.

8670-8690 Sandstone, very light gray, fine to very fine with an occasional medium grain, subangular, salt and peper, calcareous, local white clay infilling, rarely locally silty and/or siliceous (hard), frangible to medium hard, tight to traces poor porosity; very minor light gray to gray shale as 8610; trace siltstone and a rare chip gray black shale as 8650.

8690-8710 Sandstone, tight as above with some light gray to gray shale as 8610 with trace claystone and a rare chip dark gray to gray black shale as 8650; a rare chip dense gray to brown argillaceous limestone.

8710-8770 Shale light gray to gray as 8610 with traces to very minor sandstone and a rare chip limestone and dark gray shale as above, an occasional trace claystone and siltstone .

8770-8790 Sandstone, dirty white to light gray,very fine to fine, subangular, calcareous to locally slightly argillaceous, locally siliceous medium hard to hard, tight and some light gray to gray shale as 8610 locally micromicaceous, a rare chip gray black shale as 8650 and a rare piece (minute veinlet) subbituminous coal; traces siltstone, claystone and limestone as before.

8790-8810 Shale, light gray to gray as above with traces sandstone and claystone as above (cavings?).

8810-8830 Shale as above with some sandstone light gray, very fine, subangular, calcareous, locally very sparcely salt and pepper, silty, medium hard to frangible, tight grading to a very fine sandy siltstone; a rare chip dark gray to gray black locally carbonaceous and fissile shale.

8830-8850 Shale as above locally very silty and marly occasionally grading to an argillaceous calcareous siltstone with minor locally very silty and argillaceous sandstone as above.

8850-8870 Sandstone as above, locally siliceous, rarely locally carbonaceous and/or bituminous (very thin films and/or partings) tight to trace very poor porosity with some shale as above and rare traces dark gray to gray black shale as 8810.

8870-8890 (Ques. spl.) (top Mesaverde) (8870) Shale gray to light gray to greenish gray as above with some shale dark gray to black (occasionally weathered reddish brown to brown), locally very slightly calcareous, locally carbonaceous, platey to blocky, locally fissile with trace subbituminous coal veinlets, soft to medium with traces sandstone and a rare piece limestone and secondary calcite (veinlets).

8890-8910 Sandstone, light gray, fine to medium, rarely locally very fine, subangular, densely salt and pepper, calcareous, locally siliceous (hard), locally carbonaceous and/or bituminous medium hard to frangible, tight to rare trace very poor porosity; some shales as above (light and dark); traces claystone (cavings?).

8910-8930 Sandstone as above tight with some light gray to gray shale as above and shale dark gray to gray black, locally very slightly calcareous, locally carbonaceous, predominately blocky to rarely platey, medium hard to soft; trace claystone.

8930-8950 Shales (light and dark colored grays) as above with some sandstone as above locally becoming very fine grained and very silty grading occasionally to siltstone (light colored shales continue to be locally marly).

8950-8990 Shales as above predominately light gray and gray with very minor dark gray shale as above and minor sandstone as above with traces gray to brown argillaceous dense limestone; a rare chip coal in 8990 sample.

8990-9010 Sandstone, light gray, medium to very fine, subangular to angular to rare subrounded grains, densely salt and pepper, locally calcareous to siliceous (hard), traces white clay infilling, rarely locally carbonaceous and/or bituminous, medium hard to rarely frangible, tight; very minor shales as above, trace siltstone.

9010-9050 Sandstone as above predominately fine with local medium to very fine grains and minor shales as above and claystone as before increasing to some in 9050.

9050-9070 Shale, gray to light gray and greenish gray, slightly calcareous, locally silty, blocky to occasionaly platey, soft to medium, occasionally locally marly with minor shale, dark gray to gray black to black, locally carbonaceous grading occasionally to a very poor grade coal (minute veinlets), locally very slightly calcareous, platey to blocky, locally fissile, soft with trace claystone (cavings?) as before and an occasional chip brown to gray dense limestone and very minor sandstone.

9070-9090 Shales, etc. as above with minor sandstone as above and very minor light gray argillaceous calcareous siltstone.

9090-9110 Shales as above with increase in dark gray to black locally carbonaceous shales and very minor sandstone, light gray, very fine to occasional fine, subangular, calcareous, to locally argillaceous, locally very sparcely salt and frangible to medium hard occasionally grading to a very fine sandy siltstone.

9110-9130 Shales as above (light and dark grays) with minor sandstone, predominately fine grained as 8990; rare chip and low grade coal (minute veinlets).

9130-9190 Shales as above with some to minor interbedded sandstone grading to siltstone as 9090; some of the lighter shales continue to be locally marly; a rare piece poor grade coal in 9170; a rare chip light gray to gray dense limestone in 9190 sample.

9190-9210 Sandstone, light gray to rarely gray, fine to locally very fine, subangular, salt and pepper, calcareous to locally siliceous (hard) locally but rarely silty, medium hard to rarely frangible, tight with very minor shales as above and an occasional chip light gray to gray and brown dense limestone.

9210-9230 Shales and abundant sandstone as above (shales continue to be locally marly) with an occasional chip limestone as above (sample poor after trip).

9230-9270 Sandstone, light gray to rarely gray, fine to very fine, subangular, locally salt and pepper, calcareous, rarely locally siliceous (hard), locally silty, medium hard to frangible, tight and abundant shales (light and dark grays) as before, rarely locally micromicaceous, and traces limestone, light gray and brown dense, argillaceous; rare secondary calcite veining.

9270-9290 Sandstone as above rarely locally grading to a very fine sandy siltstone and shales as above (lighter shales a very marly) with traces limestone as above.

9290-9330 Sandstone, rarely locally felspathic and some shale as 9230 with occasional pieces limestone as above.

9330-9390 Shales as above with minor interbedded sandstone as above, predominately fine but locally very fine and medium grained and locally but rarely cherty (dark shales continue to be locally carbonaceous and the lighter shale locally marly); an occasional piece limestone as above.

9390-9410 Shales as above (light and dark grays) with very minor sandstone as above; an occasional piece limestone as above; traces claystone (some of the light shales and claystone are probably uphole cavings).

9410-9450 Sandstone, dirty white to pale green and light gray, very fine to fine, subangular, locally very slightly calcareous, locally siliceous (secondary silica cement predominately hard, tight and some shales and an occasional piece limestone as above (some uphole shale and claystone cavings?); traces secondary calcite veining.

9450-9470	Shale and sandstone, etc. as above (sandstones grade locally to a very fine sandy siliceous very hard dirty white to pale green siltstone) some uphole cavings as above.
9470-9490	Sandstone, dirty white to very light gray to rarely pale green, predominately fine to locally very fine (siliceous) to locally fine to near medium (salt and pepper) subangular to occasionally subrounded, rarely locally slightly calcareous, medium hard to frangible (coarser sand) to hard (very fine siliceous sand), tight to traces poor porosity in coarser sand and abundant shales as above with traces gray argillaceous to calcareous siltstone; some uphole cavings (Lost circ. 9494).
9490-9530	Shales varicolored light and some dark gray as above with very minor sandstone, siltstone and traces limestone as above with some uphole claystone, shale and sandstone cavings? (samples are very poor after cementing off lost circulation zones.)
9530-9550	Shale, gray to medium dark gray and brownish gray, locally very fine sandy to siliceous and/or dolomitic, blocky, hard rarely grading to a very argillaceous dense calcitic dolomite with minor sandstones, shales and claystones as before (samples continue poor and probably contaminated).
9550-9570	Sandstone, dirty white to light gray, fine to occasionally very fine, subangular, salt and pepper, calcareous, some white clay infilling, rarely locally siliceous, rarely bituminous, frangible to medium hard, tight with some shales as 9490 and a trace dolomitic shale as above with an occasional piece limestone as before.
9570-9590	Sandstone as above and as 9470 with minor shales, gray to dark gray to black, locally slightly calcareous and rarely locally silty and/or micromicaceous, locally carbonaceous, (black), soft to medium, block to platey with occasional pieces limestone and shale as 9530.
9590-9610	Sandstones as above with some to abundant shales gray to dark gray as above with occasional pieces limestone and shale as 9530.
9610-9670	Shales, light to dark gray as 9570 and minor interbedded sandstones as above; traces uphole cavings.
9670-9690	Sandstone, light gray, fine to very fine, subangular, locally sparcely salt and pepper, very slightly calcareous, locally siliceous to silty and locally carbonaceous and/or bituminous (minute partings and/or films along fracturing) medium hard to rarely frangible, tight, neg. cut, stain, UVL and very minor shale as above.

9690-9710	Sandstone as above, light gray to dirty white locally grading to a very fine sandy argillaceous slightly calcareous siltstone with very minor shales as 9570.
9710-9750	Shales and abundanat sandstone as above and minor uphole cavings.
9750-9770	Sandstone, light gray to dirty white, fine to very fine, subangular to rarely subrounded, locallysalt and pepper and locally slightly calcareous, siliceous and argillaceous, locally micaceous, medium hard, tight neg. cut, stain, UVL with minor shales as 9570; traces siltstone and marl.
9770-9790	Sandstone as above, locally light brown and rarely locally carbonaceous and/or bituminous as 9670 and minor shale and traces siltstone and marl.
9790-9830	Shale and abundant sandstone etc. as above; traces uphole cavings.
9830-9850	Sandstone, light gray and brown, fine to very fine, subangular, locally salt and pepper, rarely siliceous, slightly calcareous locally slightly argillaceous to silty, some carbonaceous and/or bituminous material along minute fracture plains and occasionally interstitial (dead oil), medium hard to frangible tight to traces poor porosity and shale light gray to dark gray and black, locally calcareous and occasionally carbonaceous, rarely locally micromicaceous and silty, blocky to platey soft to medium hard occasional traces gray argillaceous siltstone; occasional uphole cavings.
9850-9870	Sandstone and some interbedded shale etc. as above (shale is rarely locally marly.)
9870-9890	Shale and interbedded sandstone etc. as above.
9890-9950	Shale and minor interbedded sandstone, etc. as above.
9950-9980	Sandstone as 9830, tight with possible traces fracture porosity, locally carbonaceous and/or bituminous as before and some shales as 9830.
9980-10010	Sandstone, dirty white to very light gray and rarely very light brown, fine to rarely locally very fine with occasional grains near medium sized, subangular, locally salt and pepper, rarely silty to siliceous (very fine and hard) locally slightly argillaceous and very slightly calcareous, frangible to medium hard, traces carbonaceous and/or bituminous material as before, neg. cut, UVL, tight to traces poor porosity and very minor shales as 9830; traces marl?
10010-10050	Sandstone as above predominately, dirty white to very light gray, fine to medium, subangular clear to translucent quartz grains, rarely locally very fine and siliceous (hard and tight) sparcely salt and pepper, locally slightly calcareous with traces white clay infilling, friable to

frangible (some loose grains) to medium hard minor poor intergranular porosity to locally tight (finer grained sands) a rare fleck carbonaceous or bituminous material, neg. cut, stain, UVL and very minor shale as 9830 (possible water sand).

10050-10090 Sandstone as above, predominately fine to occasionally locally very fine with a few scatterd medium sized grains rarely locally argillaceous or siliceous (hard), medium hard to frangible, tight to occasional traces poor intergranular porosity, neg. cut, stain, UVL and some shale as 9830 with an occasional piece brown dense limestone; an occasional piece marl.

10090-10110 Shale as 9830 and sandstone as 10010 and 10050 (some loose quartz grains as before); sample is very poor.

10110-10130 Shale as 9830 with some sandstones as above and very minor uphole shale (greenish gray) and claystone (reddish brown) cavings? (Sample is poor after trip.)

10130-10150 Sandstone as 10010 and 10050, locally very sparcely salt and pepper, neg. cut, stain, UVL, and abundant shale as 9830; some uphole claystone and shale cavings as above.

10150-10170 Shale and some sandstone etc. as above.

10170-10190 Shale and very minor sandstone, etc., as above.

10190-10210 Shale etc. as above with some sandstone, dirty white to very light gray, fine to very fine, subangular, salt and pepper, very slightly calcareous, rarely locally siliceous (hard) to rarely slightly argillaceous or silty medium hard to occasionally frangible, tight to traces poor intergranular porosity, neg cut, stain, UVL.

10210-10290 Sandstone and some interbedded shale, etc. as above, sandstone is very rarely locally carbonaceous and/or bituminous with a very rare glauconite grain, predominately tight, neg. cut, stain, UVL, predominately tight from 10220.

10290-10330 Shale with some interbedded sandstone as above; traces light gray very fine sandy siltstone, traces secondary silica (veining?).

10330-10370 Sandstone, light gray to dirty white, predominately fine, subangular, occasionally locally very fine with rare near medium sized grains, salt and pepper, locally slightly calcareous to rarely locally slightly argillaceous or siliceous (secondary silica cement), rarely locally carbonaceous and/or bituminous, medium hard to occasionally frangible, tight with some interbedded shale, gray to dark gray, occasionally black (carbonaceous) locally silty and micromicaceous and slightly calcareous, blocky rarely fissile, medium hard to soft with very minor uphole shale (greenish gray) and claystone (reddish brown) cavings.

10370-10390 Sandstone as above, locally carbonaceous and/or bituminous, tight to rare trace, poor porosity, neg. cut, UVL with minor shale etc. as above; an occasional chip dark brownish gray very argillaceous microcrsytalline clastic limestone.

10390-10410 Sandstone as 10330 and some shale, etc. as above.

(The following sample description (10410-11030) are by C. Thornton)

10410-10430 Sandstone, dirty white, carbonaceous, bituminous as above, no fluorescence, no cut, angular to sub-angular, quartz grains with minor dark carbonaceous and/or chert grains, calcareous cement, very minor siliceous cement, usually fine grained, some medium grained, very minor very fine and trace coarse grained. Some shale as above.

10430-10450 (First sample following trip). 60% sandstone generally as above. Mostly fine, very minor very fine and very minor near medium, one fragment with reddish brown interstitial stain, extremely faint fluorescence. Very faint fluorescence to C_2H_2Cl after several minutes. 30% dark gray blocky shale as above, 10% red and greenish shale and claystone cavings. One piece reddish brown limestone with some fine crystals on a microcrystalline body. Faint oily sheen to many of the sands when wet, faint dull brownish stain when dry, bituminous looking. Extremely faint dull yellowish fluorescence. No visable cut.

10450-10466 40% sandstone as above, 50% dark shales as above (some have brownish bituminous appearance) 10% red and greenish shale cavings as above. Slight increase in dull brownish stain in sandstones.

10466-10483 Good drilling break, broke from average of 13 minutes per foot to 6 minutes per foot. Increased from 20 units on the hot wire to 175. Had 130 units of C_1, 10 units of C_2 and two units C_3. 50 to 60 percent sandstone, 5 to 10% tertiary type shale and claystone as above and the remainder is the dark gray blocky shale as above, frequently bituminous, sandstone is mainly light gray to dirty light gray, 20 to 50% with a very faint dull brown bituminous stain, trace with dark brown bituminous stain. Trace with a very faint dull yellow brown fluorescence and an extremely faint cut in C_2H_5Cl, when left standing and when the samples were fresh. One fragment gave a fair to good fast streaming yellow cut in C_2H_5Cl. No visable oil in the streamers. The sandstone is primarily very fine, 95%+ quartz grains with a trace of black grains as previous. Moderately calcareous, minor secondary silica. Rare interstitial pyrite. Trace to very minor fine grained sandstone as previous with minor dark carbonaceous - bituminous and/or chert grains.

10483-10490 As above.

10490-10510 75% of sample is sandstone, with heavy dark brown, dirty slightly greasy stain, gives sand a medium to dark brownish gray color, fine grain and very fine grain, sub-angular, slightly friable, poor porosity, 95%+ quartz grains with a trace of dark grains as previous, 15% of sample is sandstone, light dirty gray and very fine with a faint bituminous stain as above. 5%+ of sample is dark gray shale as above. Trace red and green shale cavings as above.

10510-10530 95% sandstone with dark dead oil stain as above, 5% mixture of lighter standstone as above. Tertiary shale and dark gray and brown gray sandstone as previous. The dark stained sandstone has no fluorescence and no cut. The sandstone is less friable and tighter than above, has very minor secondary silica cement and is calcareous as above. It is difficult to determine the dark grain to quartz ratio because of masking by the dark stain, but it appears to be very low as above.

10530-10550 98%+ sandstone as above with very dark brown dead oil stain as above. Trace other materials as above.

10550-10570 As above.

10570-10590 Sandstone (80-90%). 20% is as above with the dark brown dirty stain. Remainder is light to medium dirty gray, with trace to moderate brown stain as previous. Very fine and fine, subangular mainly quartz grains with a minor amount of the sandstone having a trace of dark grains as previous. Slightly to moderately calcareous. Some slight secondary silica cement. Occasional piece white calcite. No fluorescence. No cut. 10 to 20% shale, dark gray to dark brownish gray, blocky, organic to bituminous, has a silty texture. Slight trace red and green. Tertiary shale cavings.

10590-10610 Sandstone and shale as above with minor sandstone. Light gray, fine with some medium, angular to sub angular, quartz grains with 20 to 30% dark carbonaceous and/or bituminous grains, slight trace brown mica, generally is moderately calcareous. This is first sample after a trip and is possibly cavings. With the remaining sandstone the dark oil stain is slightly lighter than that up the hole. No fluorescence. No cut.

10610-10630 80% sandstone. 10 to 20% with dark dead oil stain as previous, 40 to 50% with light to moderate dead oil stain, 10 to 20% with no stain. Sandstone is light gray to dirty gray to medium gray, very fine and fine grained. Occasionally approaches medium grain. The very fines are slightly calcareous, and usually have abundant silica cement and are near orthoquartzites and very tight, and are quartz sands

with trace of dark grains. The fine grained sandstone are slightly to moderately calcareous and frequently have some secondary silica cement with low porosity to tight. They are quartz sands with a trace to 20% dark bituminous and/or carbonaceous grains. Rare pyrite. Sand grains are all sub-angular. No fluorescence, no cut. 20% of samples is shale, dark brown and gray and silty and organic as previous. Trace tertiary claystone and shale, greenish gray, green and maroon.

10630-10650 As above with 20 to 30% of the sandstone being unstained. The shale can occasionlly be found as very thin ($\leq$ 0.1 mm) partings within the sandstones.

10650-10670 90% sandstone. 20 to 30% is as above with light to moderate bituminous stain, trace with dark stain. Remainder of sandstone is light gray, fine with minor very fine and minor medium. Rare floating coarse grains. Angular to subangular, quartz sand with trace dark grains as previous, minor sandstone with no dark grains. Usually non-calcareous, minor is slightly calcareous, generally slightly siliceous and hard, probable low porosity. Minor thin irregular carbonaceous incisions. Very rare pyrite. No oil stain. No cut. No fluorescence. 10% of sample is dark shale as above. Scattered trace of coal fragments, sub-bituminous to bituminous. Rare tertiary cavings as above.

10670-10690 95% sandstone as above. Trace with dark stain. 50-60% with light to moderate stain, this frequently occurs as a dark mottling. Remainder is unstained. Generally no fluorescence or cut. One piece with a brown stain has a very faint dull yellow brown fluorescence, probably cavings. 5% dark shale as above. Slight trace reddish and greenish gray. Tertiary shale and claystone.

10690-10710 60-70% sandstone, light gray, very fine to fine, fair sorting, trace is mottled with dark bituminous stain, no fluorescence, no cut. Slightly calcareous with very common silica cement, a trace is a sub-orthoquartzite, generally very hard and probably has no porosity. Slightly more peppered with dark grains than above, sub angular, very rare interstitial pyrite. 30-40% of sample is shale, minor dark brown gray as above, rest is black and very carbonaceous to argillaceous coal, shining luster. Minor coal. The erratic drilling time probably indicates thinly interbedded sandstone, shale and coal.

10710-10730 80% sandstone. 10% has dark brown bituminous stain and is very fine grained to silt, occasionally very argillaceous, slightly calcareous, usually siliceous and very hard, tight, no fluorescence, no cut. 70% of sample is sandstone, dirty light gray, very fine to fine subangular quarts sand with trace to zero dark grains. The very fine is totally hard and tight and siliceous, suborthoquartzite. The fine sandstone

is slightly to moderately calcareous with minor silica cement, may have rare local low porosity, but is usually very hard and tight. 20% of sample is shale, black and coaly as above and dark brown gray to brown gray, carbonaceous and/or bituminous partly very silty and may locally grade to a siltstone. Slight trace coal. Still probably thinkly interbedded as above.

10730-10750 As above except, 30 to 40% of sandstone is stained with a dull dirty brown dead oil type of stain. The cuttings are both mottled and completely stained. No fluorescence, no cut. Slight trace gilsonite. Rare medium to coarse asphaltic grains in lighter colored sandstone. Some dirty light gray sandstone, fine with occasional medium grains, angular to subangular, with dark grains as above, more calcareous and less siliceous than above with probable low porosity. 30% of sample is dark shale as above. Trace coal. Trace red and green tertiary shale and claystone.

10750-10770 60% sandstone, commonly speckled with brown dead oil stain as above, minor is totally stained with dark dead oil stain as above. The speckled is very fine to fine and the totally stained is very fine and very hard, siliceous, slightly calcareous and tight. The speckled sandstone is slightly to moderately calcareous, usually slightly siliceous with minor very siliceous. Minor has very low porosity. Quartz sands, some with a trace of dark grains as previous. Rare asphaltic grains as above. Slight trace gilsonite as above. 20% of sample is very dark brown to black siltstone, with very dark brown asphaltic and/or dead oil stand. Very hard, siliceous, grades to sub-orthoquartzite. 20% of sample is dark gray to dark brown gray carbonaceous shale as above. Rare coal, trace of tertiary as above.

10770-10790 Sample looks highly contaminated by cavings. 50% sandstone, light dirty gray, very fine to fine minor is lightly speckled by dirty brown dead oil stains as above with rare total dark stain. The sandstone is generally as above but there is also a trace of sandstone, light gray, medium grained with common dark grains, calcareous and siliceous, probably cavings. 10% of sample is the sub-orthoquartzite siltstone with dark stain as above. This occasionally grades to extremely fine sandstone. 20 to 25% is dark gray shale, blocky, partly carbonaceous, partly calcareous, 15 to 20% is tertiary claystones and shales, reds, grays, browns and green grays. Rare coal.

10790-10810 40% sandstone, as above (very fine to fine) half is lightly mottled with stain as above, minor has complete dark stain as above, remainder is unstained. Calcareous and siliceous as previous. Usually the darker and greater the amount of

staining, the tighter the sandstone is. 20% siltstone and occasionally very fine sandstone, siliceous and with dark stain as previous. 20% dark shale, as above, 20% tertiary cavings as above. Trace of dolomitic shale, brown gray, dense, may grade to very argillaceous dolomite, probably cavings.

10810-10830 60% sandstone, dirty light gray to light gray, fine with very minor very fine, mainly unstained with trace being lightly to moderately mottled with dark stain, occasional asphaltic inclusions, slightly calcareous to non-calcareous, moderate to lightly siliceous, hard and tight, quartz sand with trace to zero dark grains, angular to sub-angular. No fluorescence, no cut. 10% of sample is the sub-quartzite siltstone as above with the very dark asphaltic and/or bituminous stain. 15% is shale, dark gray to black, blocky, carbonaceous. 15% is tertiary cavings as above.

10830-10850 80% to 90% sandstone, light gray, (common light brown mud stain). Very fine to locally fine, very slightly to moderately siliceous, rarely slightly calcareous, trace is slightly friable with low porosity, quartzose with rare dark grains scattered throughout, subangular. Trace of partially stained sandstone as above. Trace of dark stained siltstone as above. Slight trace sandstone, medium, with very common dark grains. These last three are probably all cavings. 5% red tertiary shale cavings. 5% shale, dark gray to black, part shiney and waxy and coaly. Rare coal fragments. No fluorescence, no cut in sample.

10850-10870 60% light gray sandstone as above, has very rare black irregular platey black asphaltic specks and very rare large irregular asphaltic grains. 10% sandstone, with speckled to total dull brown asphaltic stain, very fine to fine, calcareous, siliceous, and tight as previous. 20% siltstone, very dark brown, with asphaltic stain, very argillaceous, hard, partly siliceous. Siltstone is locally sandy, very fine. 10% dark carbonaceous shales as above. Trace tertiary shales and claystones as previous. Rare oil shale cavings. No fluorescence. No cut in sandstones or siltstones.

10870-10890 50% light gray sandstone, as above. It is now very fine to fine grained, slightly more friable and porous.

25% sandstone with medium brown to dark brown asphaltic stain, usually totally stained and occasional large irregular asphaltic inclusions. The sandstone is very fine, very siliceous, rarely calcareous, very hard and tight.

20% siltstone with dark brown to black asphaltic stain as above.

5% shale, very dark gray to black and very carbonaceous as previous. Rare coal. Very slight trace tertiary cavings.

10890-10910 75% sandstone, light gray to dirty light gray, very fine to fine, quartzose with trace to rare dark grains throughout (asphaltic and/or carbonaceous), very rare irregular platey asphaltic partings. 20% of this sandstone has light to heavy mottling with dark brown to black asphaltic stain. No fluorescence, no cut. Sandstone is siliceous, non-calcareous, hard tight.

10% sandstone,with dark brown asphaltic stain, very fine, very siliceous, very hard and tight.

10% siltstone as above with asphaltic stain.

5% shale as above.

Very rare salt and pepper sandstone cavings and trace tertiary cavings as above.

One drop of very dark brown to black dead oil, on a piece of shale. No flouorescence, but has good cut.

10910-10930 75% sandstone, light gray to light dirty gray, salt and peppered, fine, locally very fine, and not salt and peppered, scattered trace asphaltic stain as previous, possibly cavings. Quartzose with trace to minor black asphaltic and/or carbonaceous grains, sub-angular, lightly to moderately siliceous, non-calcareous, some low intergranular porosity. Very fine interstitial pyrite.

10% sandstone with very dark brown to black asphaltic stain, very fine, hard, siliceous and tight as previous.

10% siltstone, dark brownto black, asphaltic, hard and siliceous as previous.

5% shale, dark gray to black, carbonaceous, blocky occasionally coaly.

Trace tertiary shales and claystones.

10930-10950 40% salt and peppered sandstone as above, with scattered trace to minor asphaltic mottling,

20% sandstone, light gray, very fine, siliceous and unstained.

10% very fine sandstone with dark asphaltic stain as above.

10% asphaltic siltstone as above.

20% shale, dark gray, black and dark brown, carbonaceous. The brown shale is very calcareous. Trace tertiary cavings.

10950-10970 10% salt and pepper sandstone as above with minor asphaltic mottling as above, occasional large asphaltic grains.

20% light gray sandstone as above with no stain, some is fine grained.

40% sandstone, light dirty gray to brownish gray, fine, locally very fine, light to heavy mottling with asphaltic stain, quartzose, scattered trace dark grains, angular to sub angular, slightly calcareous to non-calcareous, moderately to very siliceous, occasional secondary quartz overgrowth crystals, usually very hard and tight, no fluorescence or cut.

10% very fine siliceous sandstone with total asphalt stain as previous.

10% asphaltic siltstone as previous.

10% shale, dark gray to black, blocky carbonaceous, silty, hard.

Trace tertiary as previous.

10970-10990 30% sandstone, light gray, trace salt and pepper, dark grains, fine and locally very fine, quartzose, siliceous, tight, locally low porosity.

20% sandstone with mottled asphaltic stain as above, no fluorescence, no cut.

15% asphaltic very fine sandstone as above.

15% asphaltic siltstone as above.

15% shale as above.

5% tertiary cavings as above.

10990-11010 50% sandstone, dirty light gray, trace to sparce dark grains, 20 to 30 percent with light to moderate asphaltic mottling, no fluorescence, no cut, fine, locally very fine, slightly calcareous, lightly to moderately siliceous, scattered low porosity, quartzose, subangular.

20% very fine asphaltic sandstone as above.

25% asphaltic siltstone as above.

5% dark shale as above.

Rare medium to large pyrite grains, anhidral. Slight trace tertiary cavings.

11010-11030 50% sandstone, light dirty gray as above.

30% has mottled to total asphaltic stain.

10% very fine asphaltic sandstone as previous.

30% siltstone, very dark brown gray, very argillaceous, possibly grades to a very silty shale, finely sandy, very bituminous and/or asphaltic.

10% shale, black, very carbonaceous to coaly, hard, brittle.

Trace coal.

Very slight trace tertiary cavings.

(The following sample descriptions (11030'-11170') are by T. Williams:)

11030-11050 Sandstone, dirty gray, fine to medium, salt and pepper, some oil stain, neg. UVL and cut with some interbedded shale gray to dark gray, silty grading occasionally to argillaceous siltstone.

11050-11070 Sandstone, generally as above.

11070-11100 Shale, predominately dark gray to black, carbonaceous, silty, soft.

11100-11130 Sandstone, white, fine, siliceous, argillaceous with occasional dead oil and/or asphalt staining, neg. cut. UVL.

11130-11170 Shale and sandstone as above.

11170-11190 Sandstone, dirty white to light gray and gray, and occasionally dark gray (vitreous) very fine, subangular, rarely locally sparcely salt and pepper, locally silty, argillaceous to siliceous, medium hard to hard, tight, locally bituminous (dead oil staining) interstitially and in thin laminations with minor shale, dark gray to black to brownish dark gray, occasionally very slightly calcareous, locally silty to occasionally carbonaceous and/or bituminous, blocky, soft to medium and occasionally grading to a very argillaceous locally very fine sandy medium dark gray siltstone; traces uphole cavings.

Comment: It should be noted here in the sample descriptions by C. Thornton (10410-11030) when using dead oil staining within the interstitial portions of sandstones the writer uses bitumin or bituminous when there is no fluorescence or cut. Both dead oil and bitumin in this case relate to the same

condition. When a cut and/or fluorescence is observed all the volatile constituents are not absent and therefore cannot be classified as dead oil or bitumin. When Thornton uses asphalt with no cut or fluorescence it also applies to the above.

11190-11210 Sandstone with abundant shale etc. as above.

11210-11290 Sandstone as above with trace sandstone, dirty white to light gray, fine, subangular, salt and pepper, slightly calcareous, some white clay infilling, tight and some shale as above, with occasional chip subbituminous coal and traces uphole caving.

11290-11330 Sandstone etc. as above with increase in dirty white and salt and papper medium hard sandstone as above.

11330-11390 Sandstone, dirty white to light gray, fine to occassionally very fine with an occasional medium grain, subangular to rarely subrounded, salt and pepper, locally slightly calcareous, rarely locally bituminous, rarely micaceous, occasionally siliceous, medium hard tight with very minor sandstone as 11170 and shale as above; trace uphole cavings, a rare piece coal in 11370.

11390-11490 Sandstone as above, locally very slightly calcareous, occasionally locally siliceous and bituminous with very minor sandstone as 11170 and traces to rarely very minor shale as above, locally very carbonaceous; an occasional trace uphole cavings; tight. neg. cut, stain, UVL.

11490-11550 Sandstone as above and very minor sandstone, dirty white to mottled vitreous dark gray and gray very fine, locally bituminous, very siliceous (suborthoquartzite) rarely locally sparcely, salt and pepper, hard to very hard with very minor shale, dark gray and dark brownish gray to gray, locally silty to rarely very fine sandy, occasionally carbonaceous and/or bituminous, rarely siliceous, blocky, rarely fissile, medium hard to soft; traces uphole cavings.

11550-11610 Sandstone etc. as above with slight increase in thin interbedded shale as above.

11610-11650 Sandstone, dirty white to light gray, very fine to fine, subangular, very sparcely salt and pepper, very rarely locally slightly calcareous to slightly locally siliceous, locally stained dark gray and brown to black (bitumin) medium hard to rarely frangible, neg. cut, UVL with minor sandstones as 11490 and very minor shale as above: trace coal and traces gray and brown argillaceous siltstones.

11650-11670 Sandstones as above with minor shale as above, locally very silty to very fine sandy, rare piece coal.

11670-11690 Sandstone as above becoming locally more siliceous and some shale as above; trace uphole cavings.

11690-11710 Sandstones and abundant shale as above with uphole cavings (sample very poor); traces gray to light gray argillaceous siltstone.

11710-11730 Sandstone, dirty white to light gray, very fine to occasionally fine, subangular, locally very slightly calcareous, locally silty and argillaceous, rarely locally bituminous, (spotty) occasionally siliceous, medium hard to hard, rarely frangible, traces very poor porosity, neg. cut, UVL with abundant shale, dark gray to dark brownish gray and grayish brown to black (carbonaceous), locally very silty to occasionally very fine sandy, locally very slightly calcareous, blocky, medium hard to soft; trace salt and pepper sandstone as 11330 and very minor uphole Tertiary shale cavings.

11730-11750 Sandstone as above locally gray to vitreous medium dark gray (very bituminous and siliceous) very fine frequently siliceous, medium hard to very hard and some shale as above with minor uphole cavings as above.

11750-11770 Sandstone and abundanat shale as above with traces brownish gray very argillaceous siltstone; a rare piece coal and very minor uphole cavings as above.

11770-11790 Sandstone etc. as above with some shale as above; an occasional piece coal and/or gilsonite.

11790-11810 Sandstone as above, occasionally very sparcely salt and pepper with abundant shale as above and minor uphole Tertiary shale and claystone cavings.

11810-11830 Sandstone and shale as above with minor uphole cavings as above.

11830-11850 Sandstone, light gray to gray and light brown, very fine, subangular, locally very slightly calcareous, frequently argillaceous and occasionally locally siliceous, and silty, medium hard to hard, rare trace very poor porosity, scattered black and dark brown dead oil stain (bituminous), neg. cut, UVL and abundant carbonaceous and/or bituminous, silty, blocky rarely fissile, dark gray and black shale as before; trace brown argillaceous siltstone and an occasional piece coal; minor uphole cavings as above.

11850-11870 Sandstone as above, locally very argillaceous tight and abundant interbedded shale, dark gray to dark brownish gray and locally black (coaly), frequently very silty to very fine sandy, rarely locally very slightly calcareous, blocky, medium hard to soft, minor uphole cavings as above.

11870-11890 Sandstone as above, rarely locally bituminous and interbedded shale, etc. as above.

11890-11910 Shale and abundant sandstone as above and traces siltstone as before and very minor uphole cavings as above.

11910-11950 Shale and minor sandstone and traces siltstone and uphole cavings as above.

11950-11970 Shale as above locally very carbonaceous (coaly) and very fine sandy and very silty and occasionally micromicaceous rarely grading to a very argillaceous silty sandstone and minor sandstone as above; occasionally bituminous tight, neg. cut, UVL and traces uphole cavings. Had small gas kicks at 11957-59 and 11963-73 which are related to the carbonaceous shales.

11970-11990 Shales and minor sandstone etc. as above with very minor sandstone, very light grayish brown to light brown and gray, very fine, subangular to rarely subrounded, locally sparcely salt and pepper, silty, dolomitic, hard, tight, neg. cut, stain, dull (pale) orangish yellow fluorescence; trace uphole cavings. Had gas kick of 330 units over a background of 60 (225 C_1) at 11987-92.

11990-12010 Shale etc. as above with trace coals.

12010-12070 Shale, dark gray to black to brownish gray, locally very sandy and silty to locally very slightly calcareous, occasionally very calcareous (coaly), blocky to rarely fissile, soft to medium hard, rarely grading to a very fine very argillaceous, silty sandstone with minor sandstone, light gray to gray, very fine, subangular, locally very slightly calcareous and/or dolomitic and silty, locally very sparcely salt and pepper, occasionally argillaceous and bituminous and/or carbonaceous (spotty), rarely siliceous, medium hard, tight, neg. cut, UVL, traces sandstone as 11970; occasional pieces coal.

12070-12090 Shale and sandstone, predominately very light gray and brown to gray and rarely dark gray as above; neg. cut, UVL; trace very poor porosity.

12090-12150 Sandstone, tight and abundant shale as above; occasional traces coal.

12150-12250 Shale as 12010 and interbedded sandstone, tight as above, becoming locally brownish gray and argillaceous and occasionally dark vitreous gray and siliceous with very minor very argillaceous brownish gray slightly calcareous siltstone; traces coal; occasional traces uphole Tertiary cavings; very minor coal in 12250 (samples very poor).

12250-12270	Coal? and some sandstone and minor shale as above.
12270-12290	Sandstone as above, predominately light gray to brown gray, very fine, grading occasionally to siltstone and shale as above with some coal (samples poor).
12290-12310	Shale, dark gray to black to dark brownish gray, locally very silty to very fine sandy carbonaceous, blcoky, soft to medium hard, rarely grading to siltstone with very minor sandstone as above; an occasional piece coal.
12310-12330	Sandstone, light grayish brown to gray and brownish gray, very fine, subangular, frequently silty and argillaceous, locally very slightly calcareous, rarely siliceous or bituminous, medium hard to hard, tight occasionally grading to an argillaceous very fine sandy siltstone and interbedded shale as above; occasional piece coal; very minor uphole cavings.
12330-12370	Shale and sandstone as above with traces coal and very minor uphole cavings.
12370-12390	Sandstone and shale etc. as above; an occasional piece coal.
12390-12400	Shale and abundant sandstone as above with minor coal (cavings from 12340) and very minor uphole Tertiary cavings. (Set 9 5/8" casing @ 12395')
12400-12430	Shale, dark gray to gray black to black and dark grayish brown, locally very silty to very fine sandy, occasionally carbonaceous, rarely locally calcareous, medium hard to soft blocky grading to a gray argillaceous locally carbonaceous calcareous siltstone; traces coal and minor casing cement.
12430-12450	Shale and siltstone as above, locally siliceous and hard with abundant coal and traces cement as above.
12450-12470	Coal and very minor shale and siltstone as above.
12470-12490	Sandstone, gray to light gray and brown, very fine to rarely fine, subangular, calcareous, silty to locally argillaceous or siliceous, rarely locally salt and pepper, hard to rarely frangible with some shale and siltstone as above and very minor coal; trace secondary calcite veining.
12490-12510	Sandstone, light gray to very light gray, fine, subangular, salt and pepper, locally very slightly calcareous and argillaceous, occasionally siliceous, medium hard, tight, trace bituminous material with very minor shale and siltstone as 12430 and trace sandstone as above.
12510-12530	Sandstone as 12470 and shale and siltstone as 12430; trace coal.

12530-12550 Sandstone as 12490, very light gray to dirty white, predominately fine with an occasional medium grain, subangular to subrounded, tight to rare trace poor porosity medium hard to rarely frangible, neg. cut, stain, UVL with very minor shale as above; trace.

12550-12570 Shale and siltstone as 12430 with very minor sandstones as 12470 and 12490 and minor coal.

12570-12590 Shale and siltstone as above with minor sandstones as above; trace coal (samples poor).

12590-12630 Sandstone, light gray to gray, very fine to silt sized grains, locally very sparcely salt and pepper, calcareous, locally argillaceous, medium hard to frangible, tight grading to a very fine sandy argillaceous calcareous siltstone with minor dark gray to dark brownish gray and black silty locally carbonaceous shale as before; an occasional piece coal; traces uphole Tertiary cavings?; traces secondary calcite veining.

12630-12650 Siltstone, light gray to gray, very fine sandy, calcareous, locally argillaceous, medium hard grading to a gray to medium dark gray silty slightly calcareous blocky shale with minor sandstone as above; an occasional piece coal.

12650-12670 Shale and minor siltstone and sandstone as above; trace coal (above two samples locally marly).

12670-12710 Shale, dark gray and medium dark brownish gray, locally very silty and calcareous, blocky, soft to medium with very minor siltstone and sandstone, as above.

12710-12730 Sandstone, dirty white to light gray, fine to occasional medium grains, subangular to rarely subrounded, salt and pepper, calcareous to rarely locally siliceous, rarely locally bituminous, medium hard to rarely frangible, tight to rare trace very poor porosity, neg. cut, questionable trace light brown dead oil stain, neg. UVL with very minor to trace shale and siltstone as above.

12730-12750 Sandstone as above with trace siltstone and shale as above; an occasional piece coal (cavings?). Had slight drilling break from 12724'-12742' down from 16-18 minutes per foot to 7-10 minutes per foot. At 12714 at a connection plus some down time the background gas went from 200 to 650 units. This was carried to 12750 until the mud weight was raised; gas then went down to 160 units.

12750-12770 Sandstone, light gray, very fine, subangular, very sparcely salt and pepper, silty, calcareous, locally argillaceous, medium hard to rarely frangible, tight with very minor shale (locally carbonaceous) and siltstone as above; an occasional piece coal.

12770-12790 Sandstone as 12710 locally medium grained, locally rarely bituminous with secondary quartz and calcite veining (minute fracturing) tight to rare traces very poor porosity, neg. cut, stain, UVL with traces siltstone and shale as above; an occasional piece coal.

12790-12810 Sandstone as 12750 with minor sandstone as above with very minor siltstone and shale as above; trace secondary quartz and calcite (minute fracture filling).

12810-12830 Sandstones as above locally grading to an argillaceous calcareous very fine sandy gray siltstone; traces shale as above.

12830-12870 Sandstone as 12770 with very minor sandstone as 12750 and traces to very minor shale and siltstone as above.

12870-12890 Sandstone, light gray, very fine to rarely fine, subangular finely salt and pepper, calcareous to locally slightly argillaceous, locally silty, rarely bituminous, medium hard to rarely frangible tight with traces to very minor light gray to gray very fine sandy siltstone; traces secondary calcite (veining).

12890-12950 Sandstone as above grading to a very fine sandy gray siltstone as above; traces secondary calcite (veining); traces shale as before; an occasional chip sandstone as 12770.

12950-12970 Sandstone grading to siltstone as above becoming locally more argillaceous; traces shale and secondary calcite as above.

12970-12990 Sandstones grading to siltstone as above and some shale as above.

12990-13030 Siltstone, gray, very fine sandy, argillaceous, calcareous, medium hard to rarely frangible grading to a light gray very fine silty to locally slightly argillaceous sandstone with some shale, dark gray, locally silty to very silty, calcareous to slightly calcareous, blocky, medium hard to soft; occasional pieces secondary quartz to calcite.

13030-13050 (Spl. Top) (Mancos) (13030) Shale as above, dark gray to dark brownish gray and dark grayish brown, micromicaceous occasionally grading to siltstone as above; traces sandstone as above. (Shale is locally marly.)

13050-13070 Shale as 12990 predominately dark gray with traces sandstone and siltstone as above.

13070-13090 Shale as above rarely locally dolomitic and hard and some sandstone, light gray, very fine, subangular, locally sparcely salt and pepper, calcareous, silty to slightly argillaceous, medium hard, tight; trace siltstone.

13090-13110 Sandstone, rarely locally bituminous, neg. cut, UVL, tight and some shale as above; traces marl.

13110-13190 Sandstone, light gray to gray, very fine, subangular, locally very sparcely salt and pepper, calcareous to locally argillaceous, silty, medium hard, occasionally grading to a very fine sandy argillaceous calcareous gray siltstone; occasional traces shale as before; traces light gray very calcareous slightly silty clay (marl).

13190-13270 Siltstone, gray to medium dark gray, calcareous, very argillaceous, very fine sandy occasionally grading to an argillaceous gray sandstone as above medium hard to soft; traces to very minor very silty shale as before and clay as above; an occasional piece secondary calcite (veining).

13270-13310 Sandstone as above non-salt and pepper, argillaceous and calcareous frangible occasionally grading to gray siltstone as above with some very light gray to dirty white silty to occasionally very fine sandy calcareous soft clay (marl); occasion trace shale.

13310-13330 Shale, medium dark gray and brown gray to gray, locally silty slightly calcareous and/or dolomitic, soft to medium, platey to blocky with very minor clay and traces sandstone as above.

13330-13350 Sandstone as 13110 frangible to friable, rarely locally grading to siltstone as 13190 with minor clay and traces shale as above (sandstone has some very poor porosity, neg. cut, stain, UVL).

13350-13390 Siltstone as 13190 grading to sandstone as 13270, frangible to medium, locally very argillaceous with minor shale, medium dark gray to dark gray, very silty to locally very fine sandy, marly (light calcareous soft clay), blocky to rarely platey, soft and an occasional piece secondary calcite.

13390-13450 Siltstone as above, locally very argillaceous (shaley) grading to a very silty to locally very fine sandy shale as above; an occasional piece secondary calcite with traces to very minor sandstone as above in the 13450 sample.

13450-13470 Sandstone, light gray to gray, very fine, subangular, locally sparcely salt and pepper, calcareous to locally argillaceous and silty, medium hard to frangible, tight, neg. cut, stain, UVL with minor siltstone and shale as above; trace secondary calcite (minute fracturing).

13470-13490 Sandstone as above becoming more argillaceous and silty occasionally grading to a gray very fine sandy argillaceous calcareous siltstone with very minor silty to very fine sandy calcareous blocky medium dark gray shale (the above two samples are marly as before).

13490-13530 Shale, medium dark gray to dark gray, calcareous, very silty to very fine sandy, locally marly (light gray soft calcareous silty clay), blocky, soft to medium grading occasionally to siltstone as 13390 with minor very argillaceous calcareous silty very fine, gray siltstone as before.

13530-13590 Shale, predominately dark gray to dark brownish gray, calcareous, locally carbonaceous and very silty, soft, platey to blocky with traces sandstone as before (shale is locally marly).

13590-13630 Shale, varicolored, gray, dark gray, medium dark gray and brown to brownish gray and light gray, locally marly, silty to very fine sandy, calcareous, soft, platey to blocky, rarely fissile, locally but rarely carbonaceous with traces sandstone and siltstone as before.

13630-13650 Shale etc. as above with a few pieces secondary calcite (minute fracturing).

13650-13670 Shale etc. as 13590, more marly.

13670-13710 Shale, predominately medium dark gray to gray, very silty to locally very fine sandy, slightly calcareous and/or dolomitic, locally marly (light gray calcareous and soft clay), medium hard to soft, blocky rarely grading to a very argillaceous calcareous very fine sandy siltstone; trace sandstone as before.

13710-13790 Shale, medium dark gray to gray, locally very silty to very fine sandy, calcareous, locally marly, soft to occasionally medium hard, blocky rarely grading to siltstone as above; an occasional trace sandstone as before; an occasional piece secondary calcite in 13790.

13790-13830 Shale as above predominately gray to light gray, soft, marly with minor medium dark gray and dark gray (locally rarely carbonaceous) with very minor stringers sandstone, light gray, very fine, subangular, locally salt and pepper, slightly calcareous to argillaceous and locally silty, medium hard and traces siltstone as above; occasional piece secondary calcite.

13830-13870 Shale grading to siltstone as 13710 with minor sandstone light gray to dirty white as above; a rare trace dark gray to black carbonaceous shale, (cavings??); rare piece calcite as above.

13870-13890 Shale etc. as above with trace sandstone as above; the sandstones are rarely locally black and bituminous, neg. cut and UVL.

13890-14190 Shale as 13710 predominately gray to light gray (marly) to medium dark gray locally micromicaceous grading to siltstone

as before; occasional traces sandstone as 13790; trace carbonaceous shale and secondary calcite in 13950 and 14190; an occasional piece carbonaceous shale in 13990 and in 14130.

14190-14210 Shale as above and very minor sandstone light gray to gray, very fine, subangular, rarely locally sparcely salt and pepper, silty, calcareous to slightly argillaceous, medium hard, tight; an occasional piece secondary calcite; a rare piece carbonaceous shale.

14210-14230 Shale as above very silty to very sandy grading occasionally to a very argillaceous calcareous very fine sandy siltstone; trace sandstone as above; an occasional piece secondary calcite.

14230-14290 Shale as above, predominately gray to medium dark gray, rarely light gray (soft and marly), calcareous, silty to locally very fine sandy, locally sparcely micromicaceous, blocky, soft to medium rarely grading to a very argillaceous calcareous very fine sandy siltstone; occasional trace very argillaceous silty calcareous very fine sandstone; trace secondary calcite in 14270; shales locally carbonaceous in 14290.

14290-14390 Shales as above, rarely locally carbonaceous and rarely grading to siltstone and a rare chip sandstone as above; an occasional piece secondary calcite in 14390.

14390-14410 Shale etc. as above becoming locally very sandy to very marly with very minor sandstone, gray to light gray, very fine, calcareous to very argillaceous and silty, medium hard to frangible, tight, neg. cut, stain, UVL; an occasional piece secondary calcite.

14410-14430 Shales and abundant sandstone as above.

14430-14450 Shales and very minor sandstone as above.

14450-14490 Shales and traces sandstone as above.

14490-14510 Shales and very minor sandstone as above, locally sparcely salt and pepper and fine grained.

14510-14590 Shale, gray to medium dark gray and dark gray, silty to locally very fine sandy, calcareous, occasionally locally marly (soft calcareous light gray clay), locally sparcely micromicaceous, medium hard to soft, blocky with an occasional trace sandstone as before.

14590-14630 Shale as above, locally very sandy rarely grading to a very argillaceous calcareous silty very fine medium hard gray sandstone (sandstone is very close to siltstone size).

14630-14790	Shale as 14510, very silty to locally very sandy, rarely locally carbonaceous with an occasional trace sandstone as 14390. (On occasion some of the above shale could be considered a very argillaceous calcareous very fine sandy siltstone grading to sandstone, but under 10 power and with approximately 50 percent argillaceous material is considered and/or classified as a shale.)
14790-14890	Shale medium to dark gray, silty, with some grading to an argillaceous, calcareous, very fine, hard light to medium gray sandstone.
14890-14950	Shale - medium to dark gray, firm to hard, silty, calcareous, minor amounts grading to an argillaceous, very fine hard calcareous sandstone. (This sandstone is very near silt size.) Very minor amounts of the shale are locally marly.
14950-14990	Shale - medium to dark gray, silty, firm to hard, calcareous, some grading to a very fine, hard to frangible, slightly calcareous sandstone. This sandstone ranges from hard/tight, "clean", to frangible (and rarely friable) with abundant clay matrix, with little to no porosity.
14990-15050	Shale, as above; sandstone, as above, with a minor amount of sandstone, medium to light gray to white, very fine grain, slightly friable, with abundant clay matrix and little to no porosity.
15050-15110	Shale, medium to dark gray, firm, brittle, calcareous, locally marly; very minor amounts grading to a very fine, hard, calcareous, salt and pepper, sandstone with clay matrix.
15110-15170	Shale, as above, with trace of calcite filled fractures; slight trace of inoceramus?(aragonite needles); minor amounts of sandstone, as above.
15170-15190	Shale, medium to dark gray, sandy, hard, calcareous; slight trace of very fine, calcareous sandstone with abundant clay matrix.
15190-15250	Shale with very minor amounts of sandstone as above.
15250-15330	Shale, medium to dark gray, very sandy, firm to hard, calcareous with minor to very minor amounts of sandstone, light to medium gray, salt and pepper, very fine, firm, calcareous, with abundant clay matrix.
15330-15390	Shale and sandstone as above, slight trace inoceramus.
15390-15450	Shale, medium to dark gray, silty, firm, calcareous, with minor amounts becoming locally marly; very minor to minor amounts of sandstone, light gray, salt and pepper, very fine, hard, tight, calcareous, with abundant clay matrix.

15450-15510	Shales and sandstone as above, with a trace of calcite filled fractures in dark gray shales.
15510-15590	Shale, gray, medium gray, with minor amounts of slightly carbonaceous dark gray, silty to some sandy, traces mica, with minor amounts becoming locally marly; minor amounts of sandstone, light to medium gray, very fine, calcareous, with abundant clay matrix.
15590-15610	Shale and sandstone generally as above, with very minor amounts of additional sandstone, white, light gray, salt and pepper, very fine, hard/tight, argillaceous,non-calcareous.
15610-15650	Shale generally as above, with minor amounts of sandstone, white to light gray, salt and pepper, very fine with silty matrix, calcareous, friable,with traces of spotty brown stain; no fluorescence.
15650-15730	Shale, medium to dark gray, silty, sandy with some locally marly, calcareous. Minor to some sandstone, generally as above.
15730-15770	Shale, medium to dark gray, sandy, calcareous, hard, with minor amounts becoming marly. Minor amounts of sandstone, light gray, salt and pepper, very fine, firm to hard, calcareous, with abundant silty matrix.
15770-15830	Shale, as above; minor amounts to some sandstone, white to light gray, very fine, subrounded, friable, calcareous with minor amounts of clay matrix. Trace of visable porosity, no fluorescence, no cut. Some fracture evidence.
15830-15890	Shale, medium to dark gray, silty, hard, calcareous with minor amounts becoming marly. Some sandstone, light gray, salt and pepper, very fine, silty, friable, calcareous with clay matrix to hard tight quartzitic in part.
15890-15930	Shale and sand, generally as above.
15930-15950	Shale, medium to dark gray, predominately silty, firm, calcareous with minor amounts locally marly, and minor amounts of sandstone, light to medium gray, grading from very fine, frangible to friable, calcareous, with abundant silt-size matrix to hard, non calcareous,becoming quartzitic.
15950-15990	Shales and sandstone, as above.
15990-16030	Shale, medium to predominately dark gray, firm to hard, brittle, locally becoming marly and sandstone, light gray, slightly salt and pepper, very fine, grading from hard, non-calcareous, quartzitic in party, to friable, calcareous with abundant silt-size matrix.

16030-16060 Shale with very minor to minor amounts of sandstone, as above.

16060-16090 Shale, medium to dark gray, firm, brittle, calcareous with minor amounts becoming marly. Minor amounts of sandstone, white to light gray, salt and pepper, very fine, argillaceous, friable to frangible, calcareous. Slight trace medium to dark gray sandstone, hard/tight, quartzitic in part.

16090-16120 Shale, as above with traces of imbedded aragonite(inoceramus?) Minor amounts of sandstone, white to light gray, very fine, frangible, calcareous with abundant silt size matrix, slight trace spotty brown stain. No shows.

16120-16150 Shale and sandstone,as above.

16150-16190 Shale, medium to dark gray, silty, firm, calcareous. Very slight trace partially healed calcite filled fracs. Slight trace aragonite. Trace sandstone, medium gray, very fine, hard, calcareous, becoming quartzitic.

16190-16240 Shale, gray, medium to dark gray, silty-sandy, firm, calcareous, with minor amounts locally marly. Traces of sandstone, white to medium gray, slightly salt and pepper, very fine, hard, tight, calcareous, argillaceous, becoming quartzitic.

16240-16280 Shale, as above.

16280-16300 Shale, medium to dark gray, silty, firm, calcareous, minor amounts to locally marly; traces of sandstone, light to medium gray, very fine, hard/tight, calcareous.

16300-16340 Shale, predominately medium gray to minor amounts of dark gray shale, firm, calcareous, some slightly silty-sandy; minor amounts becoming locally marly; traces of loose calcite; minor to very minor amounts of sandstone, very fine, grading from light gray, firm, with abundant clay matrix to medium dark gray, very hard/tight.

16340-16370 Shale, sandstone, generally as above.

16370-16400 Shale as above, minor amounts of sandstone, light to medium gray, very fine, grading from firm with abundant clay matrix to very hard/tight; traces of light tan Bentonite throughout samples.

16400-16440 Shale, medium to dark gray, with some grading to siltstone, firm, calcareous, occasional traces of loose calcite; minor amounts of mudstone becoming marly; trace light tan bentonite; very minor amounts of sandstone, light to medium gray, salt and pepper, very fine with abundant clay matrix, firm, calcareous.

16440-16460	Shale and sandstone, generally as above.
16460-16500	Shale, medium to dark gray, silty, firm, calcareous, with some grading to marlstone (very calcareous soft mudstone); traces of sandstone, medium gray, salt and pepper, very fine with abundant clay matrix, firm, calcareous; trace of light tan bentonite in samples.
16500-16550	Samples as above, with additional traces of sandstone, light to medium gray, very fine, hard/tight, become quartzitic.
16550-16640	Shale, medium to dark gray, silty; firm, calcareous, minor amounts becoming locally marly; minor amounts of sandstone, light gray, salt and pepper, very fine with abundant clay matrix; traces hard/tight, becoming quartzitic.
16640-16670	Shale, medium to dark gray, silt, firm, calcareous, with some locally marly.
16670-16690	Shale, as above, with traces of loose calcite in sample; trace sandstone, light gray, very fine, friable, with some clay matrix, slightly calcareous, no fluorescence, no shows.
16690-16700	Shale as above; sandstone, as above,with additional traces of sandstone, buff, white, very fine, firm to friable, calcareous, abundant clay matrix.
16700-16720	Shale, medium to dark gray, silty, firm, calcareous, minor amounts locally marly; very minor amounts of sandstone, white, light gray, salt and pepper, very fine, firm, grading from hard, tight, quartizitc in part to friable - frangible with abundant clay matrix; trace loose calcite in samples.
16720-16760	Shale as above; sandstone as above, increasing to 25-30% of sample; occasional fracture evidence (trace loose calcite).
16760-16800	Shale, medium to dark gray, frim, calcareous, with minor amounts locally marly. Minor amounts of sandstone, white, buff, medium gray, very fine, hard/tight, argillaceous in part, calcareous; trace loose calcite in samples.
16800-16830	Shale, as above with very minor sandstone, light gray, slightly salt and pepper, very fine, hard, tight, slightly calcareous, no visible porosity; trace of sandstone, white, buff, very fine with abundant calcite cement, firm to friable, no visible porosity, no fluorescence.
16830-16860	Shale, very dark gray, black, hard, brittle, slightly calcareous.
16860-16910	Shale, as above with traces to minor amounts of sandstone, very fine, silty in part, firm to friable, calcareous; trace tan bentonite in samples.

16910-16940 Shale, as above with minor sandstone, light gray, white, very fine, argillaceous, from very hard, tight, to some friable, calcareous, no visible porosity.

The above sample descriptions from 14790 to 16940 are by Bill Hickman.

16940-16980 Shale, medium dark gray to dark gray, calcareous, locally silty to very fine sandy (occasionally black and carbonaceous) blocky, medium hard to soft with minor marl (shales are marly) with very minor to minor light gray silty rarely in part siliceous argillaceous, calcareous very fine, hard sandstone as above with occasional traces gray argillaceous calcareous very fine sandy siltstones.

16980-16990 Shale, dark gray to black, calcareous, locally slightly silty, blocky, soft with some shale as above and very minor sandstone as above; traces siltstone.

16990-17000 Shale dark gray to black, locally carbonaceous as above; trace sandstone.

17000-17030 Shale, medium dark gray to gray black, locally silty to very fine sandy, calcareous, occasionally carbonaceous (black) to locally marly, blocky, medium to soft with very minor sandstone, dirty white to light gray, very fine, occasionally salt and pepper, calcareous to rarely siliceous, mostly argillaceous and/or silty, medium hard to frangible, tight; occasional trace secondary calcite veining in shales; trace bentonite in 17020 and 17030.

17030-17050 Shale etc. as above with minor sandstone as above, locally fine grained, rarely friable.

17050-17070 Shale etc. as above and some sandstone, dirty white to gray, very fine to fine as above; no secondary calcite.

17070-17090 Shale and minor sandstone as 17000, locally siliceous gray and hard; predominately very fine to occasionally fine.

17090-17110 Shale and very minor sandstone as above; rare secondary calcite veining.

17110-17140 Shale as above predominately medium hard with minor sandstone, light gray to gray, very fine, calcareous to locally argillaceous and siliceous (hard and vitreous gray to dark gray) predominately medium hard and traces sandstone as 17000; an occasional piece aragonite (shales are locally but rarely siliceous and hard); trace secondary calcite veining in 17130.

17140-17150 Sandstone, light gray to dirty white, very fine, subangular to subrounded, salt and pepper, calcareous, locally silty to rarely siliceous (hard), locally argillaceous (gray) medium hard to frangible, tight, neg. cut, stain, UVL with some shale, dark gray, locally silty to rarely locally very fine sandy, calcareous, rarely marly, medium hard to soft, blocky.

17150-17190 Shale as above rarely locally carbonacoues and minor to some interbedded sandstone as above becoming locally sparcely salt and pepper and more argillaceous.

17190-17200 Shale as above blocky to rarely platey with trace sandstone as above and rare pieces of secondary calcite (veining in shale,and tan bentonite.

17200-17250 Shale as above, rarely marly, locally hackly with traces to very minor sandstone as above; occasional piece tan bentonite in 17240 and 17250.

17250-17360 Shale and traces sandstone as above; occasional pieces bentonite and secondary calcite as above.

17360-17400 Shale and traces sandstone as above; an occasional piece argonite; piece pyrite and secondary calcite in 17400.

17400-17410 Shale as above, predominately gray black to dark gray, locally slightly silty, calcareous, medium, hard, blocky with an occasional piece aragonite.

17410-17440 Shale as above etc. with traces secondary calcite, veining and an occasional piece bentonite in 17420 (cavings?); shales are rarely locally carbonaceous.

17440-17500 Shale as above etc. with traces secondary calcite veining and rarely locally finely pyritic; an occasional piece bentonite with increase in calcite veining in 17490.

17500-17560 Shale as above, locally slightly more silty; occasional trace gray medium dark gray calcareous soft clay shale (mudstone); an occasional chip bentonite in 17510; trace secondary calcite veining in 17530 and 17540; a rare piece argonite.

17560-17576 Shale as above, locally finely pyritic traces mudstone with increase in secondary calcite and argonite.

17576-17583 Shale and traces mudstone as above with trace sandstone, dirty white, fine, subangular to rarely subrounded, salt and pepper, very slightly calcareous, some white clay infilling, a rare fleck of pyrobitumin, medium hard, no visible porosity, neg. cut, stain, faint whitish blue

fluorescence and very minor sandstone, light gray to gray, very fine, calcareous argillaceous and silty, medium hard to hard grading occasionally to a very fine sandy siltstone (samples are very poor and questionable due to lost circulation at 17579); a rare chip carbonaceous shale as before.

17583-17590 Shale as 17500 locally finely pyritic and trace mudstone as above; a few pieces secondary calcite and an occasional chip of the light gray to gray very fine sandstone as above grading to siltstone.

17590-17610 Shale as above predomiantely dark gray to black slightly calcareous to calcareous, locally silty, blocky, medium hard with some secondary calcite (veining) and trace very faint light gray - gray sandstone grading to siltstone as above.

17610-17650 Shale as above with an occasional piece secondary calcite with an occasional trace very fine sandy gray siltstone and a rare chip dirty white sandstone as 17576; trace mudstone as before.

17650-17660 Shale as 17590, rarely locally finely pyritic, rarely locally carbonaceous with trace dirty white very fine sandy calcareous siltstone with an occasional chip tan bentonite.

17660-17750 Shale as above, very rarely locally carbonaceous with an occasional piece aragonite and secondary calcite (veining) with a rare chip micaceous bentonite, traces gray mudstone as before.

17750-17800 Shale as 17590 with an occasional piece aragonite and a rare chip light gray very fine sandy calcareous siltstone; trace secondary calcite and light gray bentonite in 17790 and 17800.

17800-17840 Shale as above with an occasional piece tan bentonite and a rare piece secondary calcite (veining).

17840-17870 Shale as above predominately dark gray to gray black with an occasional piece aragonite; a few chips tan bentonite (cavings?) in 17860 and 17870.

17870-17900 Shale as above, locally slightly more silty with occasional chips bentonite (cavings?) and pieces aragonite, pyrite in 17880; trace siltstone and sandstone in 17880.

17900-17980 Shale as above; trace secondary calcite veining in 17910 with a rare chip gray calcareous argillaceous very fine sandy siltstone.

17980-18003	Shale as above with a rare chip sandstone, dirty white to light gray, very fine, locally sparcely salt and pepper, silty calcareous, medium hard to frangible, no visible porosity, neg. cut, stain, UVL; occasional secondary calcite, a few pieces aragonite and pyrite in 17990 and 18000.

Total Depth 18003' Driller

Gas Detector Summary

Depth	Background	Over Background	Chromatograph
1852-1854 (49-52)	2 Units	12 Units	6 C_1; trace C_2
1857-1860	4 Units	31 Units	25 C_1; 1 C_2; 1 C_3
1920-1926	5 Units	295 Units	100 C_1
1936-1937	10 Units	110 Units	100 C_1
1972-1975	5 Units	27 Units	20 C_1; 3 C_2; 1 C_3 (?)
			(no vis. show pos. recycle)
2115-2250	10 Units	300 Units	300 C_1; 30 C_2; 20 C_3
2226-2228	20 Units	70 Units	130 C_1
2248-2250	28 Units	302 Units	300 C_1
2384-2389	10 Units	98 Units	100 C_1; 12 C_2; 2 C_3
2415-2430	10 Units	240 Units	300 C_1; 65 C_2; 15 C_3
2451-2462	100 Units	620 Units	600 C_1; 25 C_2; 10 C_3, 20 C_4; 5 C_5; tr C_6
2553-2564	100 Units	900 Units	700 C_1
2708-2721	300 Units	1200 Units	2000 C_1

(The above show of gas may be a combination of connection and down time gas giving it a false higher reading).

3310-40	15 Units	25 Units	75 C_1; tr C_2
3375-95	40 Units	40 Units	100 C_1; 10 C_2
3415-27	60 Units	90 Units	100 C_1; 10 C_2
3466-70	50 Units	30 Units	80 C_1; 2 C_2
3568-80	15 Units	70 Units	100 C_1

Depth	Background	Over Background	Chromatograph
3870-80	30 Units	70 Units	100 C_1; 10 C_2; tr C_3
3928-30	60 Units	80 Units	150 C_1; 25 C_2; 8 C_3
4069-74	15 Units	25 Units	35 C_1; 4 C_2
4205-10	30 Units	55 Units	100 C_1; 5 C_2
4215-20	40 Units	90 Units	110 C_1; 4 C_2
4499-4506	40 Units	110 Units	100 C_1
7586-7600	5 Units	33 Units	5 C_1
8778-80	6 Units	12 Units	0 C_1
9665-78	8 Units	100 Units	25 C_1
9762-71	8 Units	57 Units	20 C_1
9783-87	8 Units	24 Units	
9827-46	10 Units	46 Units	20 C_1
9918-20	6 Units	17 Units	8 C_1
9962-67	18 Units	42 Units	80 C_1
9980-10006	30 Units	100 Units	85 C_1
10,465-10,483	20 Units	155 Units	130 C_1; 10 C_2; 2 C_3
10,502-10,519	40 Units	50 Units	90 C_1; 5 C_2
10,848-10,853	10 Units	6 Units	7 C_1
10,971-10,985	19 Units	24 Units	23 C_1
10,999-11,105	16 Units	109 Units	100 C_1
11,629-11,639	50 Units	55 Units	40 C_1
11,705-11,720	50 Units	60 Units	63 C_1
11,839-11,851	45 Units	163 Units	74 C_1
11,957-11,959	64 Units	100 Units	39 C_1
11,963-11,973	66 Units	119 Units	38 C_1

Depth	Background	Over Background	Chromatograph
11,988-93	60	330	225 C_1
12,046-54	56	329	170 C_1
12,074-84	100	290	125 C1
12,172-73	60	120	200 C_1
12,188-90	180	110	300 C_1
12,229-31	75	225	144 C_1
12,279-80	25	77	68 C_1
12,286-87	22	62	32 C_1
12,337-40	60	165	170 C_1
12,453-63	10	490	110 C_1
12,477	20	380	110 C_1
12,490	10	250	85 C_1
12,674	100	250	180 C_1
12,714-50?	200	450??	650 C_1
13,343-48	30	120	50 C_1
13,447-58	30	750	590 C_1
13,636	200	340	200 C_1
13,945	100	250	200 C_1
14,182	22	328	200 C_1
14,195	22	74	200 C_1
14,200	30	96	58 C_1
14,995	30	330	450 C_1
15,765	235	150	1360 C_1
16,676	150	230	800 C_1
17,418	200	170	830 C_1

Depth	Background	Over Background	Chromatograph
17,483	250	80	380 C_1
17,653	300	300	1100 C_1
17,740	260	370	650 C_1
17,990?	200	330	450 C_1
17,579?	-0-	340	300 C_1

Drill Stem Test Summary

DST #1

Zone: Lower Green River

Interval: 2447'-2500'(53')

Type of Test: Bottom Hole (2 packers)

Testing Co.: Johnstons

Times: IF 5" ISI 45" FF 60" FSI 120"

Description of Blow: Open on initial flow with immediate very strong air blow, gas to surface in 2 minutes at rate of 900 MCFPD on 1 inch surface choke; open on final flow with gas immediately at rate of 380 MCFPD on ½ inch surface choke.

PSI	Gas Rate (MCF)	Minutes	Surface Choke
45	380	0	½
35	320	5	½
25	260	10	½
46	85	15	¼
57	100	20	¼
63	110	25	¼
65	115	30	¼
65	115	35	¼
61	105	40	¼
57	100	45	¼
53	95	50	¼
49	89	55	¼
48	88	60	¼

Drill Pipe Recovery: 447 feet gas cut mud slightly gas charged plus 90 feet oil (very dark brown) cut mud plus 150 feet very heavily oil cut mud.

Sample Chamber Recovery: 2.5 cu. ft. gas at 380 PSI plus scum oil cut mud.

Pressures:

Top Recorder

IH 1139	IF 243/203	ISI 930
FH 1117	FF 214/277	FSI 822

Bottom Recorder

IH 1145	IF 280/223	ISI 935
FH 1151	FF 263/286	FSI 815

Bottom Hole Temp.: 110°

Resistivities:

Rm (Pit.) 1.9 @ 73°
Rm (Top) 2.1 @ 68°
Rm (Mid.) 2.5 @ 64°
Rm (Bot.) Oil cut mud?
Rm (Spl. Ch.) Predominately all gas?

Comment: No formation water was believed in the test zone.

Pressure curves indicate the reservoir tested is of the low porosity permeability type.

DST #2 12152 - 13792 (open hole)

Zone: Lower Mesaverde and Upper Mancos

Operation: Set packer @ 12152 in 9 5/8" intermmediate csg:

Displaced mud in drill pipe with 12 barrels KCL water.

Displaced KCL water with N_2 with 3800 pounds to start moving fluid and steadied at 2500 pounds. Total N_2 used was 230,000 standard cubic feet.

Opened packer with 3,000 pounds pressure at surface.

Used 1/8" surface choke for 5 minutes; a 3/8" choke for 55 minutes and a 1" choke for 65 minutes; dead in 2 hours; no gas or fluid to surface.

In 50 minutes air blow to surface and in 20 minutes gas to surface at too small to measure; in 60 minutes gas measured at (¼" surf. ck.) 5 PSI (20.7 MCF); (3:30 PM).

	Additional Time		
(3:35)	Plus 5 minutes	10 PSI	30.8 MCF
(3:40)	Plus 5 minutes	12 PSI	34.0 MCF
(3:45)	Plus 5 minutes	12 PSI	34.0 MCF
(4:00 PM)	Plus 15 minutes	11 PSI	32.4 MCF
(4:15)	Plus 15 minutes	12 PSI	34.0 MCF
(4:30)	Plus 15 minutes	13 PSI	35.9 MCF
(4:45)	Plus 15 minutes	13 PSI	35.9 MCF
(4:46 PM)	Fluid to surf. KCL water (muddy)		

(Jan. 21) (On 1" surf. ck.); Est. 20-25 barrels total; had occasional light sprays fluid throughout the evening and early hours of the morning (Jan. 22).

No measure of the gas was made during this period.

(Jan. 22) At 8 AM still unable to get an accurate reading on gas volume because of fluid (predominately mud). Pressure readings using ¼" choke measured approximately 29.8 MCF on first reading, but mud back pressure on the choke made all other reading inacurrate. A 1" choke was put on and an estimated 5 barrels unloaded. Gas a present is estimated at approximately 30 MCF.

(Jan. 23) Gas blow est. lower than above; Ran temp. log: Gas zones indicated at 12090-150 (-4°) and 12520-30 (-3°).

Lost Circulation Zones

Depth

5173 - Total

5180 - 40% returns

5495 - 50% returns

5710 - Total returns

5010 - Partial returns

4130 - Total

9236 - Total

9494 - Total

10151? - Total

17579 - Total

Survey Record

Depth	Deviation	Depth	Deviation
216	1	2627	3 1/2
680	2	2644	3
740	1 3/4	2674	3 1/2
1009	3	2859	3
1133	3 1/2	2920	3 1/2
1159	3	2983	3
1435	3 1/2	3106	3 1/2
1467	3	3759	4
1557	3 1/4	3825	3 1/2
1745	3	3886	4
1835	3 1/4	3917	3 1/2
1958	3 1/2	4043	4
2080	3 1/4	4199	3 3/4
2267	3+	4230	4
2337	3 1/2	4447	4 3/4
2347	3	4478	5
2431	3 1/2	4509	4
2446	3	4583	3
2496	9 1/2	4600	4
2523	3	4784	4 1/2
2582	3 1/2	4814	4
2612	3	4845	4 1/2

Depth	Deviation
4933	5
4966	4 1/2
5121	5
5154	4 1/2
5279	5
5370	4 1/2
5432	5
5463	5
5495	5
5527	4 1/2
5568	4 1/4
5588	4 1/2
5619	4 1/2
5650	4 3/4
5680	Miss Run
5713	4 3/4
5773	4 1/4
5840	4 1/4
5868	4 1/2
5928	4 1/4
6235	3 3/4
6332	4 3/4
6363	4 1/4
6487	4
6609	3 3/4

Depth	Deviation
6703	4
6772	3 3/4
6828	4 3/4
6851	3 1/2
6882	4
6914	3 1/2
6975	3
7004	3 3/4
7036	3 1/2
7099	3
7161	3 1/2
7191	3
7221	3 1/2
7252	3
7285	3 1/2
7345	3
7409	4
7443	3
7500	3 1/2
7563	3
7844	3 1/8
7874	3
8058	3 1/2
8090	3
8128	3 1/2

Depth	Deviation
8241	3
8302	3 1/2
8392	4
8424	3 1/2
8551	4
8563	4 1/4
8582	3 1/2
8738	4
8799	3 1/2
8870	4
8922	3
8953	4
8983	3 1/2
9032	4 1/4
9043	3 1/2
9106	4
9137	4 1/2
9169	3 1/2
9200	4
9226	3 3/4
9263	3 1/2
9294	4 1/2
9356	4
9382	4 1/2
9388	3 1/2
9544	3
9607	3 1/2
9636	3
9668	3 1/2
9690	3
9731	3 1/2
9762	3
9979	3 1/2
10010	4
10041	3
10071	3 1/2
10116	4 1/8
10134	3 1/2
10186	3
10249	3 1/2
10342	3 1/2
10403	3
10434	3 1/2
10468	3
10530	3 1/2
10684	4
10808	3 1/2
10900	4
11084	3 1/2
11266	3

	Depth	Deviation
	11297	3 1/2
	11327	3
	11350	4
	11378	3 1/2
	11410	4
	11454	3 1/2
	11523	4
	11536	3 1/2
	11609	4
	11640	3 1/2
	11648	4 1/4
	11701	3 1/2
	11739	4 1/2
	11770	5
	11777	3 1/4 ?
	11818	3 1/2 ?
TOTCO	11818	4 3/4 ?
	11832	3 1/2
	11896	3
	11916	4
	11952	3 1/2
	11983	3
	12045	4
	12077	3
	12108	3 1/2

Depth	Deviation
12140	4
12148	3 1/2
12171	4 1/2
12203	4
12253	3 1/2
12265	4 1/2
12297	3 1/2
12328	4
12391	3 1/2
12400	4 3/4
12625	4 1/4
12760	4
12938	3 1/2
12968	4
13028	3 1/2
13119	3
13180	3 1/2
13212	3
13274	3 1/4
13305	3
13581	3 1/2
13611	3
13792	3 3/4
13866	3
13960	2 3/4

Depth	Deviation
13989	3
14019	3 1/2
14051	3
14113	3 1/2
14143	3
14174	3 1/2
14330	3
14361	4
14392	3 1/2
14437	3 3/4
14484	4
14516	3 1/2
14637	3
14762	4
14856	3
14886	4
14919	3 1/2
14950	4
15072	4 1/2
15109	3 1/2
15198	4
15321	3
15350	4
15445	3 1/2
15475	4
15719	3 1/2
15781	4
15842	3 1/2
15901	3
15933	3 1/2
16055	4
16149	3 1/2
16334	3
16367	3 1/2
16399	3
16925	2 1/2
16956	3
17202	2 1/2
17231	2
17260	2 1/2
17505	2 3/4
17538	3
17600	2 1/2
17971	2

Bit Record

No.	Size	Type	Make	From	Footage	Hours Run
1	17 ½	OSC3A	HTC	-0-	145	11 1/2
2	17 ½	OSC3J	HTC	145	558	47 1/2
3 RR	17 ½	OSC3J	HTC	703	272	15
4	17 ½	Y13J	Reed	975	163	18 1/2
5	12 ¼	S-4	Sec.	1138	7 (Drilled) (Cement)	4 1/2
6	12 ¼	F-2	Smith	1145	1122	94 1/2
7	12 ¼	F-2	Smith	2267	1324	104 3/4
8	12 ¼	S84F	Sec.	3591	539	56 3/4
9	12 ¼	F-3	Smith	4130	164	31
10	12 ¼	J-22	HT	4294	733	102 1/2
11	12 ¼	S84F	Sec.	5027	542	89 1/2
12	12 ¼	F-2	Smith	5569	822	121 1/2
13	12 ¼	J-22	HT	6391	381	58
14	12 ¼	FP-53	Reed	6772	232	52 1/2
15	12 ¼	F-2	Smith	7004	728	125
16	12 ¼	S84F	Sec.	7732	396	65
17	12 ¼	2JS	Smith	8128	435	76 1/2
18	12 ¼	F-2	Smith	8563	307	55
19	12 ¼	S86F	Sec.	8870	162	30
20	12 ¼	J-44	HT	9032	194	44
21	12 ¼	F-3	Smith	9226	156	38
22	12 ¼	F-4	Smith	9382	112	21 1/2

No.	Size	Type	Make	From	Footage	Hours Run
23	12 ¼	F-5	Smith	9494	113	27 1/2
24	12 ¼	F-57	Smith	9607	425	80
25	12 ¼	M89TF	Sec.	10032	84	13 1/2
26	12 ¼	F-6	Smith	10116	160	32
27	12 ¼	F-5	Smith	10276	161	40
28	12 ¼	J44	HTC	10437	162	34
29	12 ¼	J55R	HTC	10599	78	20 1/2
30	12 ¼	F7	Smith	10677	53	22 1/2
31	12 ¼	FP63	Reed	10730	43	17
32	12 ¼	F7	Smith	10773	60	26 1/2
33	12 ¼	F7	Smith	10833	43	13 1/2
34	12 ¼	S83	Reed	10876	45	18 1/2
35	12 ¼	F-7	Smith	10921	48	20 1/2
36	12 ¼	F-7	Smith	10969	74	24
37	12 ¼	F-7	Smith	11043	78	27
38	12 ¼	S-72	Reed	11121	31	12 1/2
39	12 ¼	F-7	Smith	11152	32	12 1/2
40	12 ¼	F-9	Smith	11184	48	20
41	12 ¼	F-9	Smith	11232	118	38
42	12 ¼	F-9	Smith	11350	79	23 1/2
43	12 ¼	F-9	Smith	11429	94	23
44	12 ¼	S83	Reed	11523	39	13 1/2
45	12 ¼	F-9	Smith	11562	28	18
46	12 ¼	F-9	Smith	11590	10	18 1/2
47	12 ¼	F-7	Smith	11600	48	18 1/2

No.	Size	Type	Make	From	Footage	Hours Run
48	12 ¼	F-7	Smith	11648	80	30
49	12 ¼	F-7	Smith	11728	49	21
46 RR	12 ¼	F-9	Smith	11777	41	23 1/2
50	12 ¼	F-7	Smith	11818	45	24
51	12 ¼	F-7	Smith	11863	52	25 1/2
52	12 ¼	F-5	Smith	11915	233	62 1/2
53	12 ¼	F-7	Smith	12148	105	33
54	12 ¼	S-72	Reed	12253	51	29
55	12 ¼	F-5	Smith	12304	96	26
56	8 ½	L4H	Smith	12400	2 + Cmt.	
57	8 ½	S-21	Reed	12402	32	9
58	8 ½	F-4	Smith	12434	174	38
59	8 ½	J-55	HTC	12608	152	47 1/2
60	8 ½	F-5	Smith	12760	215	72 1/2
61	8 ½	J-44	HTC	12975	299	91 1/2
62	8 ½	F-4	Smith	13274	518	118 1/2
63	8 ½	F-3	Smith	13792	645	135 1/2
64	8 ½	F-3	Smith	14437	756	155
65	8 ½	F-3	Smith	15193	829	156 1/2
66	8 ½	F-3	Smith	16022	798	147 1/2
67	8 ½	J-33	HTC	16820	323	69
68	8 ½	F-4	Smith	17143	261	60
69	8 ½	J-55-R	HTC	17404	101	42 1/2
70	8 ½	F-4	Smith	17505	356	91
71	8 ½	FP-625J	Reed	17861	142	34
72	8 ½	J-44	HTC	18003	-0-	

FORM OGC-8-X

FILE IN QUADRUPLICATE

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
1588 West North Temple
Salt Lake City, Utah 84116

REPORT OF WATER ENCOUNTERED DURING DRILLING

Well Name & Number Indian Canyon Unit No. 2

Operator Energy Reserves Group, Inc. Address P.O. Box 3280, Casper, WY 82602. 307-265-7331

Contractor American Drilling Company Address P.O. Box 122, Casper, WY 82602, 307-265-0485

Location SE ¼ NW ¼ Sec. 14 T. 6 (N)(S) R. 7 (E)(W) Duchesne County, Utah

Water Sands:

	Depth		Volume	Quality
	From	To	Flow Rate or Head	Fresh or Salty
1.	Observed at 703'		± 50 gal/min	Fresh
2.				
3.				
4.				
5.				

(Continue on reverse side if necessary)

Formation Tops:

Remarks:

NOTE:
(a) Upon diminishing supply forms, please inform this office.
(b) Report on this form as provided for in Rule C-20, General Rules and Regulations and Rules of Practice and Procedure, (See Back of form).
(c) If a water analysis has been made of the above reported zone, please forward a copy along with this form.

9–331
1973

Form Approved.
Budget Bureau No. 42–R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9–331–C for such proposals.)

RECEIVED
AUG 10 1981
DIVISION OF
OIL, GAS & MINING

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 7,233'; KB 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Plug Back			X

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

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 Castlegate formation was opened from 9,998'-10,080', broken down w/2% KCl water and found to be nonproductive. A cement retainer was set @ 9,960'. The zone was acidized w/10,000 gal 7-1/2% HCl w/additives. Maximum production 40 MCFPD and decreasing. Squeezed perfs w/200 sx "H" cement w/additives. Next zone to be tested in Wasatch from 5,350' to 74'.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Prod. Engr - RMD DATE 8-7-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

RECEIVED
AUG 13 1981
DIVISION OF OIL, GAS & MINING

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233', K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		
MULTIPLE COMPLETE	☐		
CHANGE ZONES	☐		
ABANDON*	☐		☐
(other) Plug Back			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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 Wasatch formation was opened from 5,350'-74', broken down w/2% KCl water, and found to be nonproductive. A cement retainer was set @ 5,308', and the perfs were squeezed w/100 sx Class "H" cement to 1500 psi. 50 sx of Class "H" cement was then spotted on the retainer.

Plans are to perforate and test the Green River Formation at several zones between 2,451' and 2,992', after perforating and circulating cement behind the casing across these zones.

Verbal approval obtained from Mr. Martins on 8-6-81 for the plug back.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Prod. Engr. - RMD DATE 8-11-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

P&A

Look for well completion

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233'; K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☒	☐
(other)		

SEP 30 1981

DIVISION OF
OIL, GAS & MINING

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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 above mentioned well was found to be nonproductive. Energy Reserves Group, Inc., as operator requests approval to plug the well by spotting a cement plug over the Green River perfs. The plug will be from 2,430'-3,000'. The plug will be tagged to verify that it is in the proper place. A 20 sx plug will be placed at the surface, and the 9-5/8"-13-3/8" annulus will be squeezed w/100 sx cement.

Verbal approval was given by Mr. Jim Raffoul on 9-25-81.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED J E Jones for Ronald Shanuman TITLE Production Engr-RMD DATE 9-25-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
OCT 08 1981
DIVISION OF
OIL, GAS & 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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233'; K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☒
(other)			

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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.)*

Well was spudded on 8-1-80 and drilled to a T.D. of 18,003'. 13-3/8", 54.5#, K-55 csg was set @ 1,138' & cmt'd w/890 sx 65-35 Pozmix + additives, followed by 365 sx "B" + additives. Ran 9-5/8", 47# & 53.5#, N-80, C-95, S-95, & SS-95 csg set @ 12,393', w/1350 sx Litepoz followed by 325 sx "G" + additives. Cmt'd 2nd stage w/1613 sx Litepoz. Completion was attempted in various zones and the zones were abandoned per previous Sundry Notices.

Verbal permission was received on 9-25-81 by Mr. Jim Raffoul w/USGS @ Salt Lake to plug and abandon the well.

(OVER)

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED _____ TITLE Prod. Engr-RMD DATE 10-6-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Well was plugged and abandoned as follows:

1. Spotted 200 sx "H" + additives from 3,000' - 2,400'.
2. Tagged cmt @ 2,500'. Set CIBP @ 2,410' & spotted 50 sx "H" +additives on CIBP.
3. Pumped 1000 gal Flocheck down 13-3/8" x 9-5/8" annulus and followed w/100 sx "H"+ additives.
4. Pumped 175 sx "H" + additives down 13-3/8" x 9-5/8" annulus followed by 150 sx 50-50 Pozmix + additives @ surface down 13 3/8" x 9-5/8" csg. Set dry hole marker.
5. Spotted 25 sx "H" + additives down 9-5/8" csg.
6. Pumped 150 sx "Light" + additives.

Location will be cleaned up and rehabilitated as per previous instructions. When ready for inspection, we will notify you.

Instructions

General: This form is designed for submitting proposals to perform certain well operations, and reports of such operations when completed, as indicated, on Federal and Indian lands pursuant to applicable Federal law and regulations, and, if approved or accepted by any State, on all lands in such State, pursuant to applicable State law 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.

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 17: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by local Federal and/or State offices. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones, or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to top of any left in the hole; method of closing top of well; and date well site conditioned for final inspection looking to approval of the abandonment.

9-331
1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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 Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2,429' FNL & 1,958' FWL (SE/NW)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U-8927A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Indian Canyon Unit

8. FARM OR LEASE NAME

9. WELL NO.
2

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14-T6S-R7W

12. COUNTY OR PARISH
Duchesne

13. STATE
Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
G.L. 7,233'; K.B. 7,255'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Plug Back			X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

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 Blackhawk formation was opened from 12,047'-12,061', broken down with 2% KCl water and found to be unproductive. A CIBP was set @ 11,990', and 35 sx of "H" w/35% SSA-1, & 0.3% HR-12 was spotted upon the CIBP. The Castlegate will be opened from 9,998'-10,080' after the casing is blacked squeezed above and below the zone of interest.

Verbal approval obtained from Mr. Bill Martins on 6-22-81 for the plug back.

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 7/2/81
BY: CB Feight

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED D C Cashman TITLE Prod. Engr - RMD DATE 6-25-81

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE (See other instructions on reverse side)

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

6

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other

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

2. NAME OF OPERATOR: Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR: P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface 2,429' FNL & 1,958' FWL (SE/NW)
At top prod. interval reported below
At total depth

RECEIVED
OCT 13 1981
DIVISION OF OIL, GAS & MINING

5. LEASE DESIGNATION AND SERIAL NO.: U-8927A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT AGREEMENT NAME: Indican Canyon Unit
8. FARM OR LEASE NAME:
9. WELL NO.: 2
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 14-T6S-R7W
12. COUNTY OR PARISH: Duchesne
13. STATE: Utah

14. PERMIT NO. 43-013-30538 DATE ISSUED 8-7-80

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
8-1-80	3-31-81	9-30-81	G.L. 7,233'; K.B. 7,255'	----------

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
18,003'	--------	NA	→	0-TD	----------

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: Dry Hole P & A

25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dual Induction-SFL; Comp Neutron-Form Density; BHC Sonic

27. WAS WELL CORED: NO

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#	1,138' KB	17-1/2"	890 sx Lite w/3% $CaCl_2$ & 1/4 # Flocele/sx, 365 sx "B" w/2% $CaCl_2$ & 1/4# Flocele/sx.	-0-
9-5/8"	47# & 53.5#	12,393' KB	12-1/4"	See Back	-0-

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (*Interval, size and number*): See Attachment #1

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
	P & A	DRY

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

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

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS: Sample description containing DST results, Record of perfs & plug backs.

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

SIGNED [signature] TITLE Production Engrineer-RMD DATE 10-8-81

*(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.
			Sample Description Attached Drill stem tests included in sample description. 9-5/8" cementing - 1350 sx 65-35 "G" Litepoz ^{3} w/6% Gel, 0.5% D-65, 0.3% D-13, 0.2% D-46, 10# Gilsonite/sx followed by 325 sx "G" w/35% D-30, 0.75% D-65, 0.2% D-8, 0.2% D-46. 2nd Stage - 1613 sx 65-35 Litepoz w/6% Gel, 0.5% D-65, + 0.2% D-46. Stage Collar @ 6,500'.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
LOG TOPS		
Green River	Surface	
Wasatch	4,080'	
Mesaverde	8,870'	
Emery	12,040'	
Mancos	13,000'	
Ferron	15,784'	
Mowry	17,206'	
Dakota	17,553	

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636

GPO 680-378

INDIAN CANYON UNIT #2

Record of Perfs and Plug Backs

Perf 9-5/8" 12,284'-12,279' w/2 JSPF (10 holes) cement first stage.

Perf 9-5/8" 12,285'-12,289' w/1 JSPF (4 holes) squeeze shoe w/100 sx "H" w/30% SSA-1, 0.75% CFR-2, 10% Salt & 0.5% HR-8.

Plugged back 17,697'-17,497' w/175 sx "G" w/0.3% D-8; 14,200'-14,000' w/100 sx "G" w/ 0.1% D-8; 12,500'-12,300' w/100 sx "G" .

Set retainer @ 12,225'. Squeezed 9-5/8" csg leak w/100 sx "H" w/35% SSA-1, 10% Salt, 0.6% Halad-24, & 0.4% HR-12. Left cmt top @ 12,175'.

Perf Blackhawk @ 12,047'-48', 12,050'-56', & 12,058'-61' w/2 JSPF (23 perfs) Broke down w/KCl water + ball sealers. Set CIBP @ 11,990' spotted 35 sx "H" w/35% SSA-1 & 0.3% HR-12.

Perf @ 10,134' (4 holes) Set cmt retainer @ 10,110'. Squeezed w/200 sx "H" w/0.5% D-65, 0.4% gal/sx D-108, & 0.2% D-13.

Perf @ 9,987'-88' (4 holes). Squeezed w/200 sx "H" w/0.5% D-65, 0.4 gal/sx D-108, & 0.2% D-13.

Perf Castlegate @ 9,998'-10,002', 10,005'-16', 10,019'-21', 10,023'-26', 10,065'-70' & 10,074'-80' (37 perfs). Broke down w/2% KCl + ball sealers. Squeezed perfs w/250 sx "G" w/3/4% CFR-2, 0.4% Halad-24, & 0.2% HR-5.

Reperf Castlegate 9,998'-10,002', 10,005'-16', 10,019'-21', 10,023'-26', 10,065'-70', & 10,074'-80' (37 perfs). Broke down w/2% KCl + ball sealers. Acidized w/10,000 gal 7½% HCl w/10% Methanol + 500 SCF N_2/bbl. Set cmt retainer @ 9,960' squeezed perfs w/200 sx "H".

Perf @ 5,450' (4 perfs). Set cmt retainer @ 5,415' squeeze w/300 sx 50-50 Poz followed w/ 100 sx "G" w/2% $CaCl_2$.

Perf Wasatch 5,350'-54', 5,360'-63', & 6,369'-74' (15 perfs). Set cmt retainer @ 5,308'. Squeezed perfs w/100 sx "H" w/2% $CaCl_2$. Spotted 50 sx "H" w/2% $CaCl_2$ on retainer.

Perf @ 3,110' (4 perfs). Set cmt retainer @ 3,075'. Squeezed w/450 sx 50-50 Pozmix w/ 2% Gel, 1% CFR-2 + 2% $CaCl_2$.

Perf @ 2,925' (4 perfs) squeezed w/450 sx 50-50 Pozmix w/2% Gel, 1% CFR-2, & 2% $CaCl_2$. Squeezed w/400 sx 50-50 Pozmix w/2% Gel, 2% $CaCl_2$, 10#/sx Gilsonite, 1/2# Flocele, & .5% Halad-9 followed by 100 sx "H" w/2% $CaCl_1$, & 0.4% Halad-9.

Perf @ 2,720'-21' (4 perfs) squeezed 400 sx 50-50 Pozmix w/2% Gel, 2% $CaCl_2$, 0.5% Halad-9, 10#/sx Gilsonite & 1/2#/sx Flocele followed by 100 sx "H" w/2% $CaCl_2$, 0.3% Halad-9.

Perf @ 2,482'-83' (4 perfs) and 2,280'-81' (4 perfs). Set cmt retainer @ 2,300'. Squeezed w/400 sx 50-50 Pozmix w/2% Gel, 2% $CaCl_2$, 10# Gilsonite & 1/2#/sx Flocele, followed by 100 sx "H" w/2% $CaCl_2$. Drilled out retainer & cmt.

Perf Green River @ 2,986'-2,992' (13 perfs). Acidized w/500 gal 15% HCl + ball sealers.

Perf Green River @ 2,715'-2,720' (11 perfs). Acidized w/500 gal 15% HCl + ball sealers. Acidized w/3000 gal 15% HCl + ball sealers.

Perf Green River @ 2,451'-56', 2,493'-94', 2,496'-2,500', 2,553'-54', 2,556'-59', 2,561'-63' (22 perfs). Acidized w/1000 gal 15% HCl + ball sealers. Acidized w/1000 gal 15% HCl + ball sealers.

Frac'd Green River 2,451'-2,500' w/4700 gal foamed diesel + 700# 10-20 sand. Screened out.

Spotted 500 gal 7½% HCl. Reperf'd Green River 2,351'-56', 2,493'-94' & 2,496'-2,500' w/2 JSPF frac'd w/45,000 gal Versagel w/65,000# 10-20 sand.

Spotted 200 sx "H" w/2% $CaCl_2$ from 3,000'-2,400'. Tagged cmt @ 2,500'. Set CIBP @ 2,410' & spotted 50 sx "H" w/2% $CaCl_2$ on CIBP.

Pumped 1000 gal "Flochek" followed by 100 sx "H" w/2% $CaCl_2$ down 13-3/8" x 9-5/8" annulus.

Pumped 175 sx "H" w/2% $CaCl_2$ down 13-3/8" 9-5/8" annulus.

Spotted 25 sx "H" w/2% $CaCl_2$ @ surface in 9-5/8" csg.

Pumped 150 sx Light w/10#/sx Gilsonite, 1/4# Flocele & 2% $CaCl_2$ down 13-3/8" x 9-5/8" annulus.

STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

January 18, 1982

Energy Reserves Group, Inc.
P. O. Box 3280
Casper, Wyoming 82602

Re: Well No. Indian Canyon Unit #2
Sec. 14, T. 6S, R. 7W
Duchesne County, Utah

Gentlemen:

According to our records, a "Well Completion Report" filed with this office October 8, 1981, from above referred to well, indicates the following electric logs were run: Dual Induction-SFL, Comp Neutron-Form Density, BHC- Sonic. As of todays date, this office has not received these logs.

Rule C-5, General Rules and Regulations and Rules of Practice and Procedure, requires that a well log shall be filed with the Commission together with a copy of the elctric and radioactivity logs.

Your prompt attention to the above will be greatly appreciated.

Sincerely,

DIVISION OF OIL, GAS AND MINING

Cari Furse

Cari Furse
Clerk Typist

Energy Reserves Group, Inc.
P.O. Box 3280
Casper, Wyoming 82602
Phone 307 265 7331

Energy Reserves Group

January 27, 1982

State of Utah
Natural Resources & Energy
Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

Attn: Cari Furse

RE: Indian Canyon Unit #2
Sec. 14-T6S-R7W
Duchesne County, Utah

Dear Ms. Furse:

Enclosed are the logs you requested for the above mentioned well. If more information is required, please contact me.

Sincerely,
ENERGY RESERVES GROUP, INC.

Ron E. Schanaman
Production Engineer
Rocky Mountain District

RES:erl

enclosures