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

POWERS ELEVATION

OIL WELL ELEVATIONS AND LOCATIONS
CHERRY CREEK PLAZA, SUITE 1201
600 SOUTH CHERRY STREET
DENVER, COLORADO 80222
PHONE NO. 303/321-2217

May 5, 1980

Department of Natural Resources
Division of Oil, Gas and Mining
1588 West, North Temple
Salt Lake City, Utah 84116

RE: Filing State A.P.D.
ARCO Oil & Gas Company
#1 Black Canyon
NE SW Sec. 23 T32S R2W
Garfield County, Utah

Dear Sirs:

Enclosed, in duplicate, is a copy of the A.P.D. Form 9-331C and a location and elevation plat for the above-mentioned well location.

If further information is needed, please call.

Sincerely,

POWERS ELEVATION

Darryl Cooper

Darryl Cooper

DC:vg
Enclosures

cc: Mr. Mark Smith, ARCO Oil & Gas Company, Denver, Colorado

Form 9-331 C
(May 1963)

SUBMIT IN T...ICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DUPLICATE

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL XX DEEPEN ☐ PLUG BACK ☐

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

2. NAME OF OPERATOR: ARCO Oil & Gas Company

3. ADDRESS OF OPERATOR: P.O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: ~~1757'~~ 1820' FSL & 1975' FEL (~~NE SW~~) NWSE
At proposed prod. zone: same
Location Change

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 12.8 miles South of Antimony, Utah

5. LEASE DESIGNATION AND SERIAL NO.: U-17625
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT AGREEMENT NAME: N/A
8. FARM OR LEASE NAME: Black Canyon
9. WELL NO.: #1
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 23 T32S R2W
12. COUNTY OR PARISH: Garfield 13. STATE: Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1757'
16. NO. OF ACRES IN LEASE: 1920
17. NO. OF ACRES ASSIGNED TO THIS WELL: 40
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 2640'+
19. PROPOSED DEPTH: 15,500'
20. ROTARY OR CABLE TOOLS: Rotary
21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7158 Ground - 7154' Graded Ground
22. APPROX. DATE WORK WILL START*: June 1, 1980

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" new	94# K-55 ST&C	500'	to surface, 1000 sacks
18-1/2"	13-3/8" new	72&68#K-55BT&C	4300'	to surface, 1000 sacks
12-1/4"	9-5/8" new	40# N-80 LT&C	10,300'	approximately 500 sacks
8-1/2"	7" New	29# S0095 BT&C	15,500'	approximately 800 sacks

1. Set 50' of 30" O.D. galvanized corrugated iron pipe and cement.
2. Drill 26" hole and set 20" surface casing to 500' with good returns.
3. Drill 18-1/2" hole and set 13-3/8" intermediate casing to 4300' and cement.
4. Log BOP checks in daily drill reports and drill 12-1/4" hole to 15,500'.
5. Run tests if warranted and run 9-5/8" casing if productive. Also if productive, drill 8-1/2" hole and run 7" liner to total depth.

EXHIBITS ATTACHED:

"A" Location & Elevation Plat
"B" The Ten-Point Compliance Program
"C" The Blowout Preventer Diagram
"D" The Multi-Point Requirements for A.P.D.
"E" Access Road Map to Location
"F" Radius Map of Field
"G" Drill Pad Layout, Production Facilities & Cut-Fill Cross Section
"H" Drill Rig Layout

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 W.A. Walther TITLE Operations Mgr DATE 4/11/80
W.A. Walther
(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____
APPROVED BY W P Martin TITLE FOR E. W. GUYNN DISTRICT ENGINEER DATE JUN 18 1980
CONDITIONS OF APPROVAL, IF ANY:

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

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

NOTICE OF APPROVAL

Production Facilities and Flowline NOT Approved

Utah D. & G

George

ARCO Oil + Gas
23-32S-24W
#1

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. _____

1. The location appears potentially valuable for:

   [ ] strip mining*

   [ ] underground mining**

   [✓] has no known potential.

2. The proposed area is

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

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

   [ ] 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. Simmons

IN REPLY REFER TO

3000(403)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Cedar City District
Escalante Resource Area
P.O. Box 225
Escalante, Utah 84726

May 7, 1980

Mr. Ed Gwynn
United States Geological Survey
2000 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

Dear Mr. Gwynn:

I am enclosing a list of surface management stipulations which we recommend be attached to any approval by your office of Arco Oil and Gas, Company's application to drill wildcat well Black Canyon No. 1, south of Antimony, Utah. Clearances for archaeology and threatened and endangered species of plants and wildlife are also enclosed.

Sincerely,

George H. Peternel

George H. Peternel
Area Manager

Mark Smith
303 - 575-7102

** FILE NOTATIONS **

DATE: May 9, 1980
OPERATOR: ARCO Oil & Gas Company
WELL NO: Black Canyon #1
Location: Sec. 23 T. 32S R. 24W County: Garfield

File Prepared: ✓ Entered on N.I.D: ✓
Card Indexed: ✓ Completion Sheet: ✓

API Number 43-017-30083

CHECKED BY:

Petroleum Engineer: M. J. Minder 5-15-80 Providing BOP equipment is increased to 5000 psi.

Director:

Administrative Aide: OK on Rule C-3

APPROVAL LETTER:

Bond Required: ☐ Survey Plat Required: ☐
Order No. ____ O.K. Rule C-3 ✓
Rule C-3(c), Topographic Exception - company owns or controls acreage within a 660' radius of proposed site

#1 plus statement on BOP equip

Lease Designation Fed Plotted on Map ✓

Approval Letter Written ✓

Hot Line ☐ P.I. ✓

POWERS ELEVATION

OIL WELL ELEVATIONS AND LOCATIONS
CHERRY CREEK PLAZA, SUITE 1201
600 SOUTH CHERRY STREET
DENVER, COLORADO 80222
PHONE NO. 303/321-2217

May 12, 1980

Department of Natural Resources
Division of Oil, Gas and Mining
1588 West, North Temple
Salt Lake City, Utah 84116

RE: Filing State A.P.D.
ARCO Oil & Gas Company
#1 Black Canyon
NE SW Sec. 23 T32S R2W
Garfield County, Utah

Dear Sirs:

Enclosed, in duplicate, is a revised copy of the A.P.D. Form 9-331C and a location and elevation plat for the above-mentioned well location. This will supersede the one which was submitted to your office on May 5, 1980.

If further information is needed, please call.

Sincerely,

POWERS ELEVATION

Darryl Cooper

Darryl Cooper

DC:vg
Enclosures

cc: Mr. Mark Smith, ARCO Oil & Gas Company, Denver, Colorado

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

5. LEASE DESIGNATION AND SERIAL NO.: U-17625

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

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

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

7. UNIT AGREEMENT NAME: N/A

8. FARM OR LEASE NAME: Black Canyon

2. NAME OF OPERATOR: ARCO Oil & Gas Company

9. WELL NO.: #1

3. ADDRESS OF OPERATOR: P.O. Box 5540, Denver, Colorado 80217

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: ~~1757~~ 1820' FSL & ~~1975~~ 1975' FEL (~~NE SW~~) NW SE

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

At proposed prod. zone: same

Sec. 23 T32S R2W

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 12.8 miles South of Antimony, Utah

12. COUNTY OR PARISH: Garfield

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
1757'	1920	40
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**
2640'+	15,500'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7158 Ground - 7154' Graded Ground

22. APPROX. DATE WORK WILL START*: June 1, 1980

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SIZE OF HOLE	SIZE OF CASING		WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"	new	94# K-55 ST&C	500'	to surface, 1000 sacks
18-1/2"	13-3/8"	new	72&68#K-55BT&C	4300'	to surface, 1000 sacks
12-1/4"	9-5/8"	new	40# N-80 LT&C	10,300'	approximately 500 sacks
8-1/2"	7"	New	29# S0095 BT&C	15,500'	approximately 800 sacks

1. Set 50' of 30" O.D. galvanized corrugated iron pipe and cement.
2. Drill 26" hole and set 20" surface casing to 500' with good returns.
3. Drill 18-1/2" hole and set 13-3/8" intermediate casing to 4300' and cement.
4. Log BOP checks in daily drill reports and drill 12-1/4" hole to 15,500'.
5. Run tests if warranted and run 9-5/8" casing if productive. Also if productive, drill 8-1/2" hole and run 7" liner to total depth.

EXHIBITS ATTACHED:

"A"	Location & Elevation Plat	"G"	Drill Pad Layout, Production Facilities & Cut-Fill Cross Section
"B"	The Ten-Point Compliance Program		
"C"	The Blowout Preventer Diagram		
"D"	The Multi-Point Requirements for A.P.D.	"H"	Drill Rig Layout
"E"	Access Road Map to Location		
"F"	Radius Map of Field		

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 W. A. Walther TITLE Operations Mgr DATE 4/11/80

(This space for Federal or State office use)

PERMIT NO. 43-017-30083 APPROVAL DATE 5/15/80

RECEIVED
MAY 14 1980

APPROVED BY M. J. Minder TITLE DATE

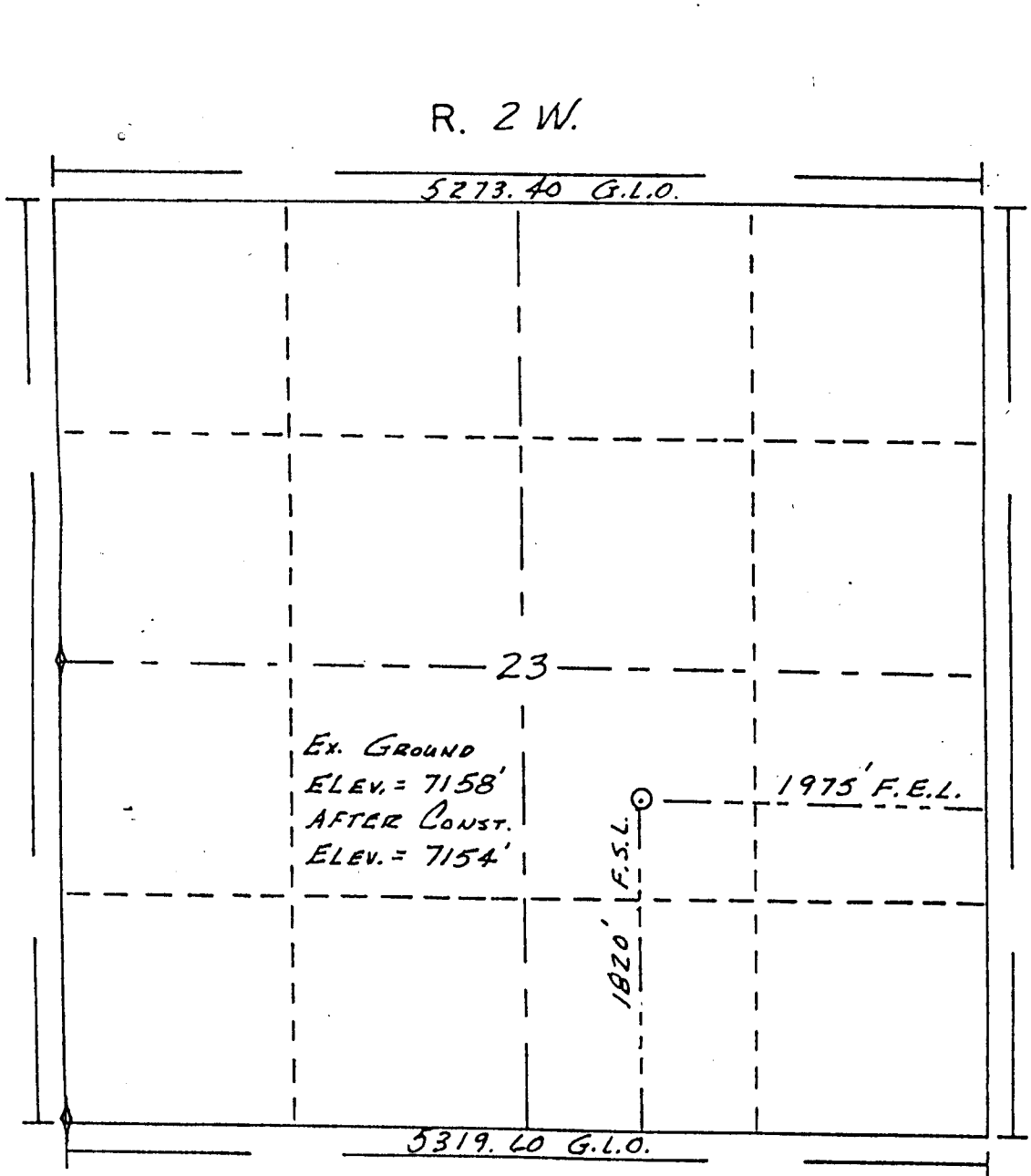
CONDITIONS OF APPROVAL, IF ANY: Providing BOP equipment will be increased to a minimum of 5000 #

APPROVED BY THE DIVISION OF OIL, GAS, AND MINING
DATE: 5-15-80
BY: M. J. M.

See Instructions On Reverse Side

DIVISION OF
OIL, GAS & MINING

FORM F-106



Scale··· 1" = 1000'

Powers Elevation of Denver, Colorado
has in accordance with a request from *Mark Smith*
for *Arco Oil & Gas Company*
determined the location of *Black Canyon # 1*
to be *1820' F.S.L., & 1975' F.E.L.* of Section *23* Township *32 S.*
Range *2 W* of the *Salt Lake* Meridian
Garfield County, *Utah*

I hereby certify that this plat is an accurate representation of a correct survey showing the location of *Black Canyon # 1*

Date: *5-1-80*

Larry D. Becker
Licensed Land Surveyor No. *4189*
State of *Utah*

Oil and Gas Drilling EA #368-80

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

Usual Environmental Analysis

Date May 29 1980

Operator Arco Oil & Gas Company Project or Well Name and No. 1

Location 1820' FSL & 1975' FEL Sec.: 23 T.: 32S R.: 2W

County Garfield State Utah Field/Unit: Wildcat

Lease No.: U-17652 Permit No.: N/A

Joint Field Inspection Date April 30, 1980

Prepared By: Craig Hansen and George Diwachak

Field Inspection Participants, Titles and Organizations.

Craig Hansen	USGS Vernal
Quay Simons	BLM Escalante
Mark Smith	Arco
Gordon Haward	Powers Elevation Co.
Leonard Heeney	Contractor

Related Environmental Analyses and References:

Admin Compl?
Pad 350 x 450
Pit 100 x 150
7/10 mi x 24' new access
5 7/10 ac
Cond of Appr Pg 7
1 - 8

rk/6/2/80

EA #368-80

DISCRIPTION OF PROPOSED ACTION

Proposed Action

1. Location State Utah

County Garfield

1820' FSL, 1975' FEL, ~~NE~~ NW 1/4 ~~SW~~ SE 1/4

Section 23, T 32S R 2W, S.L. M

2. Surface Ownership Location: Public

Access Road Public

Status of
Reclamation Agreements: Not Applicable

Portions of the existing road cross private surface however, this is a county maintained road and major thoroughfare of the area.

3. Dates APD Filed: April 14, 1980.

APD Technically Complete: April 18, 1980.

APD Administratively Complete: June 18, 1980 .

4. Project Time Frame

Starting Date: upon approval.

Duration of Drilling activities: 6 months.

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 350' wide x 450' long and a reserve pit 100' x 150' would be constructed. Approximately 0.7 miles of new access road, averaging 18' driving surface, would be constructed from a county maintained road. 5.2 acres of disturbed surface would be associated with the project. Maximum disturbed width of access road would be limited to 24'.

2. Drilling

3. Waste disposal-A trash cage would be used and all garbage removed to a sanitary landfill.

4. Traffic

5. Water requirements-A water permit or private water use agreement must be obtained prior to drilling.

6. Completion

7. Production-All production facilities would be confined to the disturbed portion of the pad as outlined in Exhibit G of APD. Flowlines were not applied for in APD.

8. Transportation of hydrocarbons-If oil is discovered, transportation would be by truck. A seperate application for any flowlines off the well pad would be necessary.

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

The location was moved 63' north to accomodate state spacing requirements, reduce cuts and fills and reduce impacts to the Sevier River.

Environmental Considerations of the Proposed Action:

Regional Setting/Topography: The location is situated on a north-south trending hill on the west slope of the Aquarius Plateau. The Sevier River meanders 0.25 miles to the south and east of the location, flowing north to Otter Creek Reservoir.

PARAMETER

A. Geology

   1. Other Local Mineral Resources to be Protected: None

   Information Source: Mineral Evaluation Report, Mining Report.

2. Hazards

a. Land Stability: No instability expected unless heavy preciptation/ runoff occurred. Avoidance of construction during wet periods would reduce this impact.

Information Source: Field Observation

b. Subsidence: None expected

Information Source: Field Observation, APD

c. Seismicity: Location is within an area of moderate seismic risk. The operating plan does not account for this.

Information Source: Rocky Mountain Associates of Geologists, Apd.

d. High Pressure Zones/Blowout Prevention: No high pressure zones expected. BOP equipment in detailed in APD.

Information Source: APD, Mineral Evaluation Report.

B. Soils:

1. Soil Character: The soil in area is a bentonitic shale which is stable when dry. Topsoil would be stripped and stockpiled requiring redistribution and revegetation upon restoration.

Information Source: Field Observation.

2. Erosion/Sedimentation: Erosion potential is high. Adequate road drainage design and a berm along the east side of the pad would reduce erosion potential.

Information Source: Field Observation, BLM.

C. Air Quality: Area is within a class 2 Attainment Area. Air quality would decrease temporarily during construction and drilling operations from machinery emissions and figitive dust.

Information Source: Field Observation

D. Noise Levels: Ambient noise levels would increase temporarily during construction and drilling operations affecting wildlife in a distributional sense.

Information Source: Field Observation.

E. Water Resources

1. Hydrologic Character

a. Surface Waters: Area drains east to the Sevier River. Siltation to the river is probable. Surface water for drilling must be obtained from private sources, since all water in the Senier River is appropriate.

Information Source: APD, Field Observation.

b. Ground Waters. Fresh water could be found in unconsolidated surface deposits and also within the Wasatch and Brainhead Formations, all in the upper 1000 ft. from the surface. A groundwater well may be drilled for drilling purposes requiring a State permit.

Information Source: WRD Report, APD, Operator.

2. Water Quality

a. Surface Waters: Siltation and fluid spills (oil, water, drilling muds) to the Sevier River are probable due to proximity to wellsite. Lining the reserve pit and constructing a berm along the east edge of the pad would reduce spill potential.

Information Source: Field Observation, BLM.

b. Ground Waters: Commingling of aquifers is possible. All fresh water zones must be cased and protected. The proposed casing program is adequate to provide protection to potential fresh water aquifers.

Information Source: Field Observation.

F. Flora and Fauna

1. Endangered and Threatened Species Determination

Based on the Formal comments received from BLM on May 21, 1980, we determine that there would be no effect on endangered and threatened species and their critical habitat.

2. Flora: Plants in area are of the Salt-desert shrub types with mixed grasses and cacti. Location and road construction would strip vegetation requiring complete revegetation upon abandonment.

Information Source: Field Observation

3. Fauna: Deer, elk, bear, mountain lion, rabbits, other rodents, songbirds, and few raptors inhabit the general area. Wildlife, particularly rodents, would be impacted temporarily in a distributional sense.

Information Source: Field Observation, BLM.

G. Land Uses

1. General: Grazing and recreation are primary land uses in the area and would be impacted slightly by drilling.

Information Source: Field Observation.

2. Affected Floodplains and/or Wetlands: N/A

Information Source: Field Observation

3. Roadless/ Wilderness Area: N/A

Information Source: BLM

H. Aesthetics: The operation would not blend with the surrounding topography. Visual impacts would be temporary until complete revegetation occurs. Painting any permanent equipment a color to blend in with the surroundings would reduce visual impacts.

Information Source: Field Observation.

I. Socioeconomics: The effects of one well on local and regional population and economy would be regligible. If a major discovery is found an increase in economic activity would be expected. Population projections would be impossible to pinpoint.

Information Source: Field Observation.

J. Cultural Resources Determination: Based on the Formal comments received from BLM on May 21, 1980, we determine that there would be no effect on cultural resources.

Information Source: BLM

K. Other: None

Information Source:

L. Adequacy of Restoration Plans: The restoration plan meets the minimum requirements of NTL-6. Additional rehabilitation measures have been provided by the BLM.

Information Source: APD, Field Observation, BLM.

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 USGS and Surface Management Agency supervision. Environmental impacts would be significantly mitigated.

Adverse Environmental Effects:

1. If approved as proposed:

   a. About 5.2 acres of vegetation would be removed, increasing and accelerating erosion potential.

   b. Pollution of groundwater 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 Sevier River. The potential for pollution to the Sevier River 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 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:

   All adverse impacts described in section one above would occur, except a. Adequate road drainage design, pit lining, and berm construction along the east end of the pad would reduce erosion/siltation to the Sevior River and reduce the spill potential to the River.

   b. Avoidance of construction during wet periods would insure good land stability and reduce erosion.

   c. Painting any permanent equipment a color to blend with natural surroundings would reduce visual impacts.

   d. Moving the location would reduce cuts and fills and therefore reduce surface disturbances.

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 BLM Stipulations.

3. The location will be moved 63 ft. north. ~~as outlined in the attached Sundry Notice.~~

4. A berm will be constructed along the east edge of the pad.

5. The reserve pit will be lined with an impervious material.

6. A trash cage will be used and all refuse removed to a sanitary landfill.

7. Access to a jeep trail at the north edge of the pad must be maintained.

8. A state water well permit or an agreement with private source must be obtained prior to drilling.

Controversial Issues and Conservation Division Response:

None

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

Signature & Title of Approving Official

JUN 03 1980

Date

Arco #1 Blackcanyon
Looking north.

SELECTED REFERENCES

Anderson, B.A. 1979, Desert Plants of Utah: Cooperative Extension Service, Utah State University, Logan, Utah. 146 p.

Bureau of Land Management, 1978, Proposed Kaiparowits Project, Utah, Arizona, Nevada and California, Final Environmental Statement: U.S. Government Printing Office, Washington, D.C., 3514 p.

Bureau of Land Management, 1979, Final Initial Wilderness Inventory, Utah: U.S. Department of the Interior, BLM, Salt Lake City, Ut., 50 p.

Bureau of Land Management, 1979, Intermin Management Policy and Guidelines for Lands Under Wilderness Review: U.S. Department of the Interior, BLM, Washington, D.C., 32 p.

Keller, E.A., 1976, Environmental Geology: C.E. Merril Publishing Company, Columbus, Ohio. 488 p.

Rocky Mountain Association of Geologists, 1972, Geologic Atlas of the Rocky Mountain Region: Denver, Colorado. 331 p.

U.S. Geological Survey, 1979, Development of Coal Resources in Southern Utah, Final Environmental Statement: Department of the Interior, U.S. Geological Survey, Washing, D.C. 611 p.

Wilson, LeMoyne, et.al, 1975, Soils of Utah: Agricultural experiment Station, Bulletion 492, Utah State University, Logan, Utah. 94 p.

Zarn, Mark, 1977, Ecological Characteristics of Pinyon-Juniper Woodlands on the Colorado Plateau: U.S. Dept. of Interior, Bureau of Land Management, Technical Note 310, Denver, Colorado 183 p.

SURFACE MANAGEMENT STIPULATIONS

Approval of Arco Oil and Gas Company's 10 Point Development Plan for drilling of wildcat well Black Canyon No. 1 located in Section 23, T32S, R2W, SLBM, Garfield County, Utah is subject to the following stipulations:

A. General

1. Arco shall make every effort to prevent, control or suppress any fire in the area. Uncontrolled fires must be reported immediately to the Escalante Area Office.

2. All survey monuments, witness corners, reference monuments and bearing trees should be protected against destruction, obliteration or damage. Any markers so affected must be reestablished at the lessee's expense in accordance with accepted BLM survey practices.

3. The lessee will avoid operations when the ground is muddy and/or wet.

B. Site Construction

1. The access road to the site will be limited to 16 feet in width.

2. Topsoil (the top one foot of soil) will be stockpiled to be used in rehabilitation of the site.

3. The reserve pit will be lined to prevent seepage of contaminants into the drainage area of the East Fork Sevier River. A berm will be built on the east side of the pad to protect the river from contaminants.

C. Rehabilitation

1. All waste drilling materials and cuttings will be stored in the reserve pit, fenced, and left to dry up.

2. All pits, sumps, excavations, and drill holes will be backfilled and contoured to conform to the surrounding terrain.

3. The entire site will be restored as nearly as possible to its original condition. Cut and fill slopes should be reduced and graded to conform the site to the adjacent terrain.

4. All disturbed areas, which includes the access road, will be scarified prior to replacing topsoil. Topsoil will be spread over the area so as to conform to the topography.

5. The following seed mixture will be applied to all disturbed areas after replacing topsoil:

Pounds Per Acre	Species
¼	Sandrop Seed
7	Crested Wheatgrass
½	Indian Ricegrass
¼	Bitterbrush
¼	Fourwing Saltbrush
Total 8 ¼ lbs. per acre	

The seeds should be covered with ¼" to 3/4" of topsoil by light discing or chaining. Seeding will be repeated until satisfactory revegetation is accomplished.

6. All work that is required to rehabilitate the site should be completed within one month after completion of drilling operations.

ROM: : DISTRICT GEOLOGIST, ME, SALT LAKE CITY, UTAH

O : DISTRICT ENGINEER, O&G SALT LAKE CITY, UTAH

UBJECT: APD MINERAL EVALUATION REPORT LEASE NO. U-17625

PERATOR: ARCO Oil & Gas Co. WELL NO. 1

OCATION: SE¼ NW¼ SE¼ sec. 23, T. 32S., R. 2W., SLM

Garfield County, Utah

. Stratigraphy: Operator tops appear reasonable

Work

Cottonwood Canyon	Surface	Kayenta	9250
Wahweap	1050	Chinle	10,000
Straight Cliffs	2950	Moenkopi	10,750
Tropic Shale	4650	Kaibab	11,950
Dakota	5400	White River	12,350
Morrison	5600	Cedar Mesa	12,950
Entrada	6050	Elephant Canyon	13,950
Carmel	6650	Paradox	14,650
Navajo	7250	Redwall	14,970
		TD	15,500

. Fresh Water:

See attached WRD report

. Leasable Minerals:

Thin coal seams will probably be encountered in the lower 900 ft of the Straight Cliffs Fm (3750'-4650')

. Additional Logs Needed: Adequate

Potential Geologic Hazards: None anticipated

References and Remarks:

ignature: Gregory W. Wood Date: 4-25-80

REQUEST FOR INFORMATION FROM WATER RESOURCES DIVISION

Date 4/22/80

Person and Division making request Greg Wood Conservation

AREA: County and State Garfield Utah

Township 32 (S) N Range 2 (W) E Section 23 SE¼ NW¼ SE¼ BL&M

Altitude of surface at site 7158' Formation at surface (if known) Cottonwood Canyon

PURPOSE:

Protection of useful ground water (casing program); check ✓

Other (describe):

For WRD use

Date in: 4-23-80

Person assigned: DON PRICE

Date out: 4-23-80

Evaluation: Fresh water occurs in the unconsolidated surficial deposits and the igneous rocks that crop out in the general area. Fresh water also occurs in the Wasatch and Brian Head formations which underly the area. The Cretaceous rocks that apparently underlie the Wasatch formation in this area may also contain fresh or useable water. All of these geologic units should be protected from contamination

References:

U.S. Geological Survey water-Supply Paper 1836

Kaiparowits EIS, Chapter II (existing environment)

continue over

Signed by evaluator Don Price

Time used ± 1 hr.

Evaluator: Send copy to coordinator - original direct to originator of request

May 23, 1980

ARCO Oil and Gas Company
P.O. Box 5540
Denver, Colorado 80217

Re: Well No. Balck Canyon #1
Sec. 23, T. 32S, R. 2W.,
Garfield County, Utah

Insofar as this office is concerned, approval to drill the above referred to oil/gas well is hereby granted in accordance with Rule C-3, General Rules and Regulations and Rules of Practice and Procedure. However, said approval is contingent upon the BOP equipment being increased to 5000 psi.

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 (acquifers) 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 43-017-30083.

Sincerely,

DIVISION OF OIL, GAS AND MINI[redacted]

Michael T. Minder
Petroleum Engineer

/btm

cc: USGS

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

NAME OF COMPANY: ARCO Oil and Gas Company

WELL NAME: Black Canyon #1

SECTION 23 NW SE TOWNSHIP 32S RANGE 2W COUNTY Garfield

DRILLING CONTRACTOR Brinkerhoff Signal

RIG # 15

SPUDDED: DATE 7/4/80

TIME 4:30 a.m.

HOW rotary

DRILLING WILL COMMENCE presently

REPORTED BY Jack McCarthy

TELEPHONE # 303-575-7103

DATE July 7, 1980 SIGNED W. J. W.

cc: USGS

Form 9-331
Dec. 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 ARCO Oil and Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
P.O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1820' FSL & 1975' FEL (NW SE)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Approx the same

5. LEASE
U-17625

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

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME
Black Canyon

9. WELL NO.
1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
23-T32S-R2W

12. COUNTY OR PARISH
Garfield

13. STATE
Utah

14. API NO.
43-017-30083

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7158' GL

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) N.O. spud & set surface casing			

(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.)*

MI & RU. Spudded 17-1/2" hole @ 4:30 am 7-4-80. Drilled to 538' and ran 13 jts 20", 94#, K-55, Rge 3 csg (513') and set @ 510' with FC @ 467'. Cemented with 600 sxs Class "B" cmt with 50# gilsonite/sx, 2% CaCl, 1/4# flo-seal/sx, & 10% Cal-Seal. Circl'd with full returns. P.D. @ 7:15 pm 7-11-80.

Tested blind and pipe rams to 750# for 15 mins - held OK.

Drilling ahead.

RECEIVED
JUL [illegible]

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

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

SIGNED W A Walther Jr. TITLE Operations Manager DATE 7-14-80
W. A. Walther, Jr.

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Form 9–331
Dec. 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 ARCO Oil and Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
P.O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1820' FSL & 1975' FEL (NWSE)
AT TOP PROD. INTERVAL: Approx the same
AT TOTAL DEPTH:

5. LEASE
U - 17625

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

7. UNIT AGREEMENT NAME
- - - - -

8. FARM OR LEASE NAME
Black Canyon

9. WELL NO.
1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
23-32S-2W

12. COUNTY OR PARISH: Garfield | 13. STATE: Utah

14. API NO.
43-017-30083

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7158' GL

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) NO setting intermediate csg.			

(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.)*

Drld to 4320'. Ran 101 jts 13-3/8" csg, N80 & K-55 (4319') & set @ 4299'. Ran 84 jts 1.90" parasite string f/2484' to surface. Cmtd 1st stage w/500 sx lite w/10% Ca, 2% CaCl, 1/4# flocele/sx foll by 350 sx Cl"H" w/ 1/4# flocele/sx. Displ w/55 BW. PD @ 6:45 p.m. 8/14/80 W/good returns thru out job. Cmtd 2nd stage from 465' to surface w/425 sx Cl"B" w/10% Cal Seal & 1/4# Flocele/sx. Displ w/1 BW. Fin cmtg @ 2:00 p.m. 8/15/80.

Good circ. to surf.

Tst blind & piperams to 3000# - held OK.

Drlg ahead.

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

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

SIGNED W. A. Walther, Jr. TITLE Operations Manager DATE August 20, 1980

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Form 9–331
Dec. 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 ARCO Oil and Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
P. O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1820' FSL & 1975' FEL (NW SE)
AT TOP PROD. INTERVAL: Approx the same
AT TOTAL DEPTH:

5. LEASE
U 17625

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

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
Black Canyon

9. WELL NO.
1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
23-32S-2W

12. COUNTY OR PARISH
Garfield

13. STATE
Utah

14. API NO.
43-017-30083

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7158' GL

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)			

RECEIVED
JAN 26 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.)*

Present status: 30" conductor @ 42'; 20" 94# casing cemented @ 510' RKB with 600 sx cement; 13-3/8", N-80 & K-55 casing cemented @ 4299' RKB w/ 850 sx cement. Drilled 8-3/4" hole to 11,972'. Sidetracked hole @ 10,410' & 11,047'.

Propose to P & A as follows:

9150'-8950' 200' cement; 6800'- 6600' 200' cement' 6200'-6000' 200' cement; 4400'-4150' 200' cement; 10 sx surface plug with regulation marker/

Per conversation between Ed Guynn, U.S.G.S. and Marc Smith, ARCO 1-21-81.

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

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

SIGNED W. A. Walther, Jr. TITLE Operations Manager DATE 1-26-81

(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: 2-3-81
BY: M. J. Munder

*See Instructions on Reverse Side

Form 9-331
Dec. 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 ARCO Oil and Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
P. O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1820' FSL & 1975' FEL (NW SE)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Approx the same

5. LEASE
U 17625

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

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
Black Canyon

9. WELL NO.
1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
23-32S-2W

12. COUNTY OR PARISH
Garfield

13. STATE
Utah

14. API NO.
43-017-30083

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7158'

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.)*

Circulate and condition hole. Plug well as follows: 9200'-9000' 200 sx Class "H" neat cement with 20 BW ahead and 2 BW behind, displaced with 125 BW; 6800'-6600' 250 sx Class "H" neat cement with 20 BW ahead and 2 BW behind, displaced with 90 BM; 6200'-6000' 140 sx Class "B" neat cement with 20 BW ahead and 2 BW behind, displaced with 83 BM; 4400'-4150' 290 sx Class "B" neat cement with 20 BW ahead and 2 BW behind, displaced with 55 BM. Full return. Last PD @ 9:30 pm 1-25-81.

Flushed mud tanks.

Released rig 1-25-81.

Cleaning location.

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

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

SIGNED W A Walther, Jr /ef TITLE Operations Manager DATE 1-27-81
W. A. Walther, Jr.

(This space for Federal or State office use)

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

JAN 29 1981

DIVISION OF
OIL, GAS & MINING

*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.

10

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other

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

2. NAME OF OPERATOR: ARCO Oil and Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR: P. O. Box 5540, Denver, Colorado 80217

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1820' FSL & 1975' FEL (NW SE)
At top prod. interval reported below
At total depth: Approx the same → API # 43-017-30083

5. LEASE DESIGNATION AND SERIAL NO.: U 17625
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---
7. UNIT AGREEMENT NAME: ---
8. FARM OR LEASE NAME: Black Canyon
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: 23-32S-2W

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
W. P. Martens	6-18-80	Garfield	Utah

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7-4-80	1-18-81	P & A 1-26-81	7154'GL; 7174'DF; 7175'KB	---

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
11,972'	P & A	P & A	→	0 -11,972	---

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
P & A

25. WAS DIRECTIONAL SURVEY MADE: YES

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL; BHC-GR; FDC/CNL-GR

27. WAS WELL CORED: YES

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

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
30"	---	43'	CONDUCTOR		
20"	94#	510'	26#	600 sx	NONE
13-3/8"	72#	4299'	17½"	1275 sx (2 stage)	NONE

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
NONE				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
NONE		

31. PERFORATION RECORD (*Interval, size and number*)
P & A

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
P & A	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
DRY	P & A	P & A

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
2 of #26 above and Daily Well History

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

SIGNED W A Walther Jr. W. A. Walther, Jr. TITLE Operations Manager DATE 2-5-81

*(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.
	SEE ATTACHED		

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
COLTON	750'	
CLARON	846'	
JURASSIS	3500'	
ENTRADA	4390'	
NAVAJO	4652'	
KAYENTA	6120'	
WINGATE	6330'	
CHINLE	6600'	
CHINARUMP	7010'	
MOINKAPI	7182'	
KAIBAB	8360'	
TOROWEAP	8747'	
CEDAR MESA	9255'	
ELEPHANT CANYON	10060'	
HERMOSA	10420'	
REDWALL	10970'	
EARDISON	11920'	

U.S. GOVERNMENT PRINTING OFFICE: 1983—O-383636

GPO 680-378

7/4/80	70	Drlg 17½" h[illegible]. SPUDDED hole @ 4:30 am, 7/[illegible]0 with 17½" bit. Elevation 21. f/KB to GL. 60 RPM, all wt. MW 8.6, vis 33, solids 2%, gels 6/9, Pv 6, Yld 11, Ph 11.5, FC 2/32, Cl 200 (B#1).
7/5/80	233	Drlg 17½" hole. 1/2° @ 88'; 1/2° @ 185', 60 RPM, 10M#. MW 8.6, vis 42, solids 2%, gels 15/23, Pv 6, Yld 26, Ph 10.5, FC 2/32, Cl 300, (B#1).
7/6/80	324	Drlg 17-1/2" hole. Drld 233' to 251' & TOH. TIH w/Bit #2 and drld f/233' to 324'. Losing mud while drlg f/253' to 324'. Estimate 6250 bbls mud lost in this interval. At 6:00 am no mud loss occurring & still drlg a volcanic flw type material. 1/2° @ 284'. MW 8.6, vis 33, solids 2%, gels 2/8, Pv 6, Yld 3, Ph 10, FC 1/32, Cl 300, 60 RPM, 10,000#. B#1, 17-1/2", Sm., DGJ, made 208 in 6 hrs. (B#2).
7/7/80	516	Drlg. Lost approx 150 bbls mud @ 501'. 1/2° @ 385'. 60 RPM, 20M#. MW 8.8, vis 35, solids 35, gels 2/7, Pv 9, Yld 3, Ph 9.5, sd .5%, FC 2/32, Cl 300. (B#2).
7/8/80	538	Rmg 17-1/2" - 26" hole. Drld f/516' - 538'. Ran survey. TOH. PU hole opnr 17½" - 26" & opn hole f/43' to 177'. 1/2° @ 538. MW 8.7, vis 36, WL 14 solids 2.8%, gels 2/6, Pv 10, Yld 4, Ph 9, FC 2/32, Cl 350, Ca tr. B#2, 17-1/2", HTC OWBJ, made 287' in 41-1/2 hrs. (B#1-hole opnr).
7/9/80	538	Rmg 17-1/2" hole out to 26". Lost circ @ 260' - 100 bbls. Regained. Rmg f/177' to 287'. 60 RPM, 3-8M#. MW 8.7, vis 38, WL 17, solids 2.8%, gels 2/8 Pv 11, Yld 6, Ph 9, sd 1%, FC 2/32, Cl 300. (B#1).
7/10/80	538	Rmg 17½" hole out to 26". Opened f/287' to 478' to 26". 60 RPM, 10M#. MW: 8.7, vis 39, WL 14.5, solids 3.1%, gels 3/16, Pv 11, Yld 8, Ph 9, sd 2%, FC 2/32, Cl 300. (B#1).
7/11/80	538	Rng 20" csg. Rmd f/478' to 536', opnd up to 26". Circ. Had short trip, no drag & no fill. Circ. TOH. LD btm hole assembly. PU 4-1/2" DP. TIH, circ hole, TOH, stood pipe in dirt f/cmt job on csg. No drag or fill on trip WO csg crew. RU & rng csg. 60 RPM, 10M#. MW 9.0, vis 37, WL 17, sol 2.8%, gels 2/8, Pv 11, Yld 6, Ph 9.0, sd 1%, FC 2/32, Pv/Yld ratio 1.83, Cl 300. B#1, 26", Sm., made 493' in 6-1/2 hrs.
7/12/80	538	WOC. Ran 13 jts 20" 94# K-55 R-3 Butt. (513'), set @ 510' RKB w/FC @ 467'. Also 1.9" Parasite string set @ 465' - strapped to 20" csg & cmtd w/600 sx Cl "B" w/50# gilsonite/sx, 2% CaCl, 1/4# flocele/sx & 10% Cal seale. Circ w/ full returns. PD 7:15 pm 7/11/80.
7/13/80	538	NU BOPs. WOC & cut off 30" conductor - welded landing plate on 20" csg. Cut off 20" csg & welded on 20" flange. Instl'd 20" 3000# Schaffer LWS Poslock double gate BOP & 20" rotating head.
7/14/80	632	Trip f/BHA. Fin NU BOP. Tstd csg & blind rams to 750# f/15 min - OK. RIH w/5 stds 4-1/2" DP. POH. LD DP. Made up bit & slick BHA. RIH to FC. Tstd pipe rams & csg to 750# f/15 min - OK. Tagged FC @ 467'. Drld FC & soft cmt to shoe @ 509'. Drld shoe to 510'. Wshd to btm & tagged btm of 17-1/2" hole @ 538'. Drld 12-1/4" hole f/538-632'. TOH f/BHA. 1/2° @ 632'. 42 RPM, 20-25M#. Mud: 8.6#, vis 39, WL not checked, solids 2%, gels 12/18, Pv 8, Yld 14, Ph 9.5, Sd 3/4%, FC not checked, Pv/Yld 0.571, Cl 400, Ca 80. B#3, 12-1/ Sm., FDGH, made 94' in 5-1/4 hrs. (B#4).
7/15/80	1125	Drlg. RIH w/B#4 & BHA. Rm'd thru FC & shoe in 20" csg. Wsh & rm to btm. Drld to 729' & survey. Drld to 900' & survey. Drld to 1125' present depth. Top Claron fm @ ± 712'. 1/4° @ 729', 1/2° @ 900'. 60 RPM, 20-25M#. Mud: 8.6#, vis 40, WL NC, solids 2, Gels 7/13, Pv 10, Yld 13, Ph 10.5, Sd 1/4%, FC NA, Pv/Yld 0.769, Cl 400, Ca 120 (B#4).
7/16/80	1689	Drlg. Drld to 1338' & surveyed. Drld to 1620' & surveyed. 3/4° @ 1338', 1/2° @ 1620'. 60 RPM, 15-25M#. Mud: 8.8#, vis 38, WL NC, solids 3.4%, Gels 9/15, Pv 12, Yld 10, Ph 9.5, Sd tr, FC NA, Pv/Yld 1.2, Cl 400, Ca 120 (B#4).
7/17/80	2169	Drlg. Drld to 1863' & surveyed. Drld to 2154' & surveyed. 0° @ 1863', 3/4 @ 2154'. 60 RPM, 20-25M#. Mud: 8.8#, vis 36, WL NC, solids 3.4%, Gels 7/17 Pv 12, Yld 9, Ph 9.0, sd tr, FC NA, Pv/Yld 1.34, Cl 350, Ca 80. (B#4).

7/18/80	2494	Drlg. Drld /2169-2389' & surveyed 1-1/ Drld f/2389-2494'. 1-1/2° @ 2389'. 60 RPM, 20M#. Mud: 8.9#, vis 38, WL NC, solids 4.3%, Gels 3/9, Pv 11 Yld 6, Ph 9, Sd tr, FC 2/32, Pv/Yld 1.8, Cl 300, Ca nil.
7/19/80	2623	Drlg. Drld to 2430' & surveyed. Drld to 2549' & made trip f/new bit & BHA. Wshd & rmd 1809-1951' (sli tite hole). Found 20' fill on btm. 1-3/4° @ 2480' 60 RPM, 10-20M#. Mud: 8.9#, vis 39, WL 14.4, solids 4.3, gels 4/24, Pv 9, Yld 8, Ph 9.5, Sd tr, FC 2/32, Pv/Yld 1.125, Cl 250. B#4, 12-1/4", Sm., A-1, made 1917' in 97-3/4 hrs. (B#5).
7/20/80	2886	Drlg. Drld to 2660' & had misrun. Drld to 2667' & surveyed. Drld to 2719' & surveyed. 1-3/4° @ 2657' & 2719'. Mud: 8.8#, vis 45, WL 14.5, solids 2.5, Gels 4/26, Pv 13, Yld 12, Ph 9.5, sd tr, FC 2/32, Pv/Yld 1.083, Cl 250. (B#5)
7/21/80	3122	Drlg siltstone & sh. Drld to 2925' & surveyed. Drlg @ 3122' this am. 1-3/4+° @ 2925'. 60 RPM, 22M#. Mud: 8.7#, vis 40, WL 20.4, solids 2.8, Gels 3/23, Pv 8, Yld 8, Ph 10, Sd tr, FC 2/32, Pv/Yld 1.0, Cl 250. (B#5).
7/22/80	3292	Drlg, sd, siltstone & sh. Drld & surveyed to 3292'. 1° @ 3229'. 60 RPM, 20-25M#. Mud: 8.7#, vis 42, WL NC, solids 2.8, Gels 10/23, Pv 6, Yld 10, Ph 9, Sd tr, FC 3/32, Pv/Yld 0.60, Cl 200, Ca tr. (B#5).
7/23/80	3439	Drlg sd & sh. Drld & survey to 3439'. 1-1/4° @ 3323'. 60 RPM, 30-35M#. Mud: 8.6#, vis 37, solids 2.05%, Gels 19/23, Pv 6, Yld 24, Ph 10.7, sd tr, FC 3/32, Pv/Yld 0.25, Cl 200, Ca 60. (B#5).
7/24/80	3615	Drlg (greenish gray sh). Drld & surveyed to 3615'. Poss tropic sh @ 3520'. 1-3/4° @ 3440', 3/4° @ 3544'. 60 RPM, 30-35M#. Mud: 8.6#, vis 35, WL NC, solids 2, Gels 10/11, Pv 5, Yld 18, Ph 10.5, Sd tr, FC 3/32, Cl 600, Ca 520. (B#5).
7/25/80	3838	Drlg. Drld & survey to 3838'. 1-3/4° @ 3799', 1° @ 3810'. 57 RPM, 40-45M# Mud: 8.6#, vis 35, WL NC, solids 2%, gels 6/11, Pv 5, Yld 30, Ph 10.1, sd tr FC 4/32, Cl 400, Ca 240 (B#5).
7/26/80	3936	Drlg (below Dakota & above Navajo). Drld to 3873', dropped survey & TOH. Chg'd out 6 pt rmrs & TIH w/B#6 to tite hole to 3261'. Rmd tite hole f/3261 3381' & lowered to 3830' w/no problems. As precaution, PU kelly & wshd dn last jt to 3873' & begin drlg. 1-3/4° @ 3859'. 60 RPM, 30M#. Mud: 8.8#, vis 39, WL 62, solids 3.4%, gels 7/17, Pv 7, Yld 25, Ph 10.7, Sd tr, FC 3/32, Cl 450, Ca 280. B#5, 12-1/4", HTC, J-22, made 1324' in 151-1/4 hrs. (B#6).
7/27/80	4278	Drlg - will log this pm. 2° @ 4000'. 60 RPM, 30M#. Mud: 8.7#, vis 35, WL 44, solids 2.7%, gels 12/18, Pv 5, Ph 11, Sd tr, FC 3/32, Cl 450, Ca 240. (B#
7/28/80	4314	Cond mud f/logging. Drld f/4278-4314'. Circ f/logs. TOH to DCs. TIH. Cir hole. TOH f/logs. RU Sch. Ran Dual Lateral log to 3049' - hit bridge. Logged out. TIH w/bit to 3000'. Wsh thru bridge 3000-3090'. Fin trip to 4240'. Wshd & rmd 70' fill to btm. Circ & cond mud. 2° @ 4300'. 60 RPM, 30M#. Mud: 9#, vis 63, WL 28, solids 4.9%, Gels 15/28, Pv 10, Yld 48, Ph 10. FC 2/32, C 500, Ca 240. B#6,12-1/4", Sm., F-2, made 441' in 36-1/2 hrs.
7/29/80	4314	Chg out BHA. Fin mixing mud & cond hole. TOH to log. Ran Dual Ind log, Neutron Dens GR (FDC/CNL-GR). Ran Borehole Sonic GR & 4 Arm Dipmeter. Strtd chg out BHA. No problems logging. Mud: 9#, vis 70, WL 28, solids 4.9, gels 15/28, Pv 10, Yld 48, Ph 10.7, Sd 3/4%, FC 2/32, Cl 500, Ca 240.
7/30/80	4314	Rmg 12-1/4" to 18-5/8". (Hole opnr @ 855'. Rmd 345'.) LD BHA. LD DP. Remov rot head. PU BHA. RU rot head. Rmd 12-1/4" hole f/510-855' (rmd out to 18-5/8"). 130 RPM, 35M#. Mud: 8.7#, vis 34, WL 24, solids 2.7%, Gels 5/18, Pv 5, Yld 14, Ph 11, Sd 1/4%, FC 2/32, Cl 450, Ca 160. B#2 (hole opnr - RR), 18-5/8", Grant, made 345' in 7 hrs. (B#3).
7/31/80	4314	Rmg w/ 18-5/8" hole opener @ 1708'. Rmd 12-1/4" hole out to 18-5/8" f/855-1708'. 130 RPM, 30-35M#. Mud: 9.1#, vis 39, WL 16, solids 5.6%, gels 12/33, Pv 10, Yld 10, Ph 10.7, sd 1/4%, FC 2/32, Cl 400. (B#3).

8/1/80	4314	Rmg. Rmd opn hole 12-1/4" to 18-5/8" f/1708-1575'. 130 RPM, 30M#. Mud: 8.8# vis 38, WL 15.4, solids 5.8, gels 3/32, Pv 10, Yld 9, Ph 9, sd tr, FC 2/32, Cl 400, Ca 40. (B#2 - HO & B#3).
8/2/80	4314	Fishing. Cont'd to opn hole to 18-5/8" f/2595-2587' & twisted off. POH, had stripped or jumped threads on 4-1/2" X hole pin in DP. Top fish @ 612'. Ran 14-3/4" OD OS w/ 6-1/4" grapple & caught fish. POH. Rec'd part of fish. Also had pld 2 threads in pin on 4-1/2" X hole hvy wt DP. Left BHA & 7 jts hvy wt in hole. Top fish @ 1967'. Redressed & reran OS w/6-1/8" grapple & caught fish & POH. Rec'd fish, but had left 1 18-5/8" cutter and pin f/ 18-5/8" Grant hole opnr in hole. LD stabilizers. PU 11-1/2" magnet & made trip in to 2830' (243' below 18-5/8" hole). Hit bridge @ 2830'. Circ & worked magnet. POH. Rec'd 2 roller bearings. Prep to run 17-1/2" hole opnr. 130 RPM, 30M#. Mud: 8.9#, vis 40, WL 14.5, solids 4.3%, gels 3/26, Pv 10, Yld 10, Ph 9, Sd tr, FC 2/32, Pv/Yld 1, Cl 400, Ca tr. HO #2, 18-5/8", Grant, rm'd 12 in 56-1/2 hrs. (B#3 - RR).
8/3/80	4314	TO w/ 17-1/2" rmr. WIH w/ 17-1/2" hole opnr & rmd f/12-14" to 17-1/2" f/ 2587-2893'. Found iron - could not work by. POH w/hole opnr. 3 roller bearings caught in cutters on hole opnr. Prep to run 11-1/2" magnet. 57 RPM, 15-25M#. Mud: 8.8#, vis 35, WL 14.8, solids 3.5%, gels 3/14, Pv 7, Yld 7, Ph 9, sd tr, FC 2/32, Pv/Yld 1, Cl 350, Ca tr. HO #3, 17-1/2", Grant, rm'd 306' in 13-1/4 hrs. (B#3 - RR).
3/4/80	4314	Reaming. LD BHA. PU magnet. TIH. Worked magnet to 2922'. TOH. Rec'd 1-1/4" X 3-1/2" brkn pin (f/reamer cutter) & 2-3/4" ball bearings & 7 roller bearings. PU BHA. TIH & rm 12-1/4" hole to 17-1/2" f/2893-3062'. 60 RPM, 10-15M#. Mud: 8.7+#, vis 36, WL 14.2, solids 3.2, gels 2/13, Pv 8, Yld 5, Ph 8.5, sd tr, FC 2/32, Cl 300, Ca tr. (HO #3 rm'g). (B#3 - RR).
3/5/80	4314	Rmg. Rmd 12-1/4" hole to 17-1/2" hole f/3062-3311'. 60 RPM, 10-30M#. Mud: 8.7#, vis 37, WL 15, solids 2.8%, Gels 2/17, Pv 8, Yld 8, Ph 9, Sd tr, FC 2/32, Cl 300, Ca tr. (HO #3 & B#3 - RR).
3/6/80	4314	Rmg. Rmd 12-1/4" to 17-1/2" f/3311-3346'. TOH & chg'd out cutters on HO, TIH & rmd 12-1/4" to 17-1/2" f/3346-3531'. 60 RPM, 10-30M#. Mud: 8.8#, vis 45, WL 16.2, solids 3.5%, Gels 3/35, Pv 9, Yld 9, Ph 9.5, Sd tr, FC 2/32, Cl 350, Ca 40. HO #3 rmd. (HO #4).
3/7/80	4314	Rmg. Rmd 12-1/4" to 17-1/2" f/3531-3787'. 60 RPM, 10-20M#. Mud: 8.7#, vis 35, WL 18.4, solids 2.8%, gels 5/30, Pv 6, Yld 7, Ph 9.5, sd tr, FC 2/32, Cl 350, Ca 170. (HO #4).
3/8/80	4314	Wshg to btm. Rmd 12-1/4" hole to 17-1/2" f/3787-3903'. TOH. LD 17-1/2" bit. TIH. Strtd wshg & rmg @ 3832' to btm. 60 RPM, 10-20M#. Mud: 8.6#, vis 36, WL 28, solids 2%, gels 8/30, Pv 5, Yld 13, Ph 11, Sd 1/4%, FC 2/32, Cl 400, Ca 200. HO #3, 12-1/4", Sm., rmd 1316' in 105 hrs. HO #4, 17-1/2", Grant, rmd 557' in 53 hrs. (B#7).
3/9/80	4314	Rmg 12-1/4" to 17-1/2" @ 4126' (188'). Rmd 12-1/4" hole to 17-1/2" hole f/ 3903-4126' (22-1/2 hrs). Using 17-1/2" bit. Wshd & rmd for tite conn @ 3937 60 RPM, 10-15M#. Mud: 8.6#, vis 33, WL 20, Gels 4/14, Pv 5, Yld 7, Ph 9.2, Sd tr, Cl 350, Ca nil. (B#7).
3/10/80	4314	Rmg @ 4164' (38'). Rmd 12-1/4" to 17-1/2" f/4126-4153' w/B#7. TOH. TIH w/ B#8 to bridge @ 3373'. Had 10 hrs wshg & rmg bridge @ 3373' & various spts to 4153'. Rmd 12-1/4" to 17-1/2" f/4153-4164'. 60 RPM, 10-15M#. Mud: 8.7#, vis 34, WL 15.8, solids 2.7, gels 4/15, Pv 6, Yld 8, Ph 10.6, Sd tr, FC 2/32, Cl 400, Ca 40. B#7, 17-1/2", Sm., DSG, made 215' in 27-1/2 hrs. (B#8).
3/11/80	4314	Rmg @ 4274'. Rmd 12-1/4" to 17-1/2" f/4164-4274'. Kelly cock brk while on btm. Respaired same (1-3/4 hrs). 60 RPM, 10-30M#. Mud: 8.7#, vis 44, WL 12 solids 2.7%, gels 4/24, Pv 10, Yld 11, Ph 10.4, Sd tr, FC 2/32, Cl 400. (B#8)

8/12/80	4320	Circ'g to r⌣ 13-3/8" csg. Rmd f/4274-4314'⌣ lost 1 pmp. While circ'g & repairing pmp lost 200# pmp press. TOH. Found hole in DP body @ 2792'. The hole was approx 1-1/2' below the tool jt & was about 1-1/2" long (vertical) & 1/8" to 1/4" wide. LD shock sub & ran back in hole. Drld f/4314-4320' w/o any indication of the 18-5/8" HO cutter fish lost in hole on 8/1/80. 60 RPM, 10-20M#. Mud: 8.9#, vis 48, WL 11.2, solids 4.2%, gels 8/45, Pv 13, Yld 18, Ph 10.6, sd tr, FC 2/32, Cl 500. B#8, 17-1/2", Hughes, OWV, made 167 in 38-1/4 hrs.
8/13/80	4571	TIH w/ 13-3/8" csg & 1.9" parasite string. Circ & cond mud in hole. TOH w/no drag - short trip not done. RU csg crew. Ran 56 jts 13-3/8" csg & 17 jts 1.9" parasite string. (Several jts of DP & hvy wt DP corkscrewed because of being dropped). Mud: 8.9#, vis 48, WL nil, solids 4.2%, gels 8/45, Pv 13 Yld 18, Ph 10.6, Sd tr, FC 2/32, Pv/Yld 0.72, Cl 500, Ca nil.
8/14/80	4320	Prep to run DP f/cmtg 1st stage 13-3/8 csg. Cont to run 13-3/8" csg to 4289' RU to circl & wsh csg down. Wsh to 4299'. Csg stopped. Circl hole. RD csg tools (Plug in parasite string came out. Circl out parasite string. Prep to run DP & cmt 1st stage). Ran 101 jts 13-3/8 csg, N-80 & K-55, total of 4319' set @ 4299' RKBM. Ran as foll: Btm to top 1-FS (2') 2 jts 13-3/8" N-80, 72# Rge 3, Buttress thread (82.45'), 1-FC (1.83'), 23 jts 13-3/8" N-80, 72#, Rge 3, Buttress thread (977.13'), 35 jts 13-3/8", K-55, 68#, Rge 3, Buttress thre (1556.14') 30 jts 13-3/8", N-80, 72#, Rge 3, Buttress Thread (1236.58'), 1 FODV (stage clr) (4'), 11 jts 13-3/8", N-80, 72#, Rge 3, Buttress Thread (459.07'), grand total of 4319.20'. Less 20.40' above RKB. Left pipe set @ 4298.80' RKBM. Ran 1.90 OD parasite string f/2484-surface (84 jts). Weight of 13-3/8 csg strings with parasite string, including block weight equals 294.000#'s. Note: The 1.9" parasite string was attached to the 13-3/8" csg using two welded straps per jt. Mud: 8.9#, vis 51, WL 12, solids 4.2%, gels 28/49, Pv 14, Yld 17, Ph 10.6, FC 2/32, Cl 500, Ca 60.
8/15/80	4320	Attempt to opn "FO" cementer @ 439'. Fin RU to run DP. RIH w/DP & cmtg tool Stung into FC @ 4213'. Cmtd 1st stage w/500 sx Hall Lite w/10% ca, 2% CaCl, 1/4# Flocele/sx; foll w/259 sx Cl "H" w/ 1/4# Flocele/sx. Displ'd w/55 BW. PD @ 6:45 pm 8/14/80 w/gd returns thruout. TOH w/DP & stinger. PU pkr & FODV operation tool. TIH. 4 hrs attempting to opn the "FO" cementer @ 439' w/o success. TOH & chk'd tools & have placed a telephone call to Hallib in Duncan to discuss preset opn'g & closing requirements. At 8:30 am, after report time, have opnd the "FO" & preparing to cmt 2nd stage.
8/16/80	4320	ND BOP stack. WIH inside 13-3/8" w/pkr & FO shifting tools. FO sleeve would not work properly. Press tstd pkr - pmpd DP up hole w/225#. Abandoned cmtg thru FO. Left FO closed. Conn HOWCO to parasite string on 20" csg. PI parasite string, brk dn @ 1300#. Circ 20" 13-3/8" annulus f/465' w/415 BW @ 5 BPM. Waited 3/4 hr. Circ another 100 BW & strtd cmtg thru parasite string on 20" to 465'. 2nd state: 425 sx Cl "B" w/10% Calseal & 1/4# Flocele/sx. Displ'd w/1 BW to clear pmp lines. Fin cmtg @ 2 pm 8/15/80. Gd cmt circ to surf. Cleaned up BOP. flwline & substructure cellar. WOC 8 hr. Strtd ND 20" BOP stack. Cut csg. Mixing & pmpg time on cmt = 25 min.
8/17/80	4320	NU BOP. Cut & bell & weld 20" csg to 13-3/8" csg. Cut off 13-3/8" csg. Weld on csg hd OCT 12" 3000# top flange C-22. NU BOP stack, consist of: lock flange f/wear ring, 2 spacer spools, mud cross, dbl gate BOP (13-5/8" - 5000#), Acme annuluar BOP, Grant rotating hd & flw line. Lack kill line, choke line & valves & Sweco super choke.
8/18/80	4320	Tstg BOP w/Yellow Jacket. Hook up super chk, chk manifold. Switch pipe rams f/top to btm, blind rams f/btm to top. NU hydraulic lines, chk valve on kill line failed to hold. HCR on chk failed to hole 3000#. Valve & chk manifold held OK.
8/19/80	4320	TIH w/B#9 (RR #6). Tstd pipe rams. Held to 3000#. Acme annular tstd to 1500 #. 2 valves on kill line failed to hold press. HRC valve & manual valv on chk failed to hold. (Have new valves to replace same coming f/Brinkerhoff in Casper). Magnaflux DCs & all btm hole; tools chg'd out, all weighted DP. LD 27 jts hvy weighted DP & PU 15 jts hvy weighted DP. LD 41 jts 4-1/2" DP,

8/19	(CONT'D)	1 short DC, 5/8" box cracked, 1 stabilize box damaged, 1 - 8" DC box & pin damaged. (B#9 - RR #6).
8/20/80	4320	TIH w/magnet. Fin PU DP & TIH to 4212'. Press tst 13-3/8" csg to 1250#. Strtd drlg cmt & FC f/4212'-4299'. Found junk. Chased junk to 4313'. TOH. Ran magnet in hole. Wrkd magnet. TOH w/magnet. Found rollar bearings - approx 20, ball bearings - 5 flat steel & long steel 2-1/4 x 3/8 round & misc steel. Approx 1 quart of metal. TIH w/magnet. 5-15#, 40 RPM. MW: 8.7#, vis 36, WL 15.8, solids 2.8%, gels 3/11, Pv 6, Yld 5, Ph 11, sd tr, FC 2/32, Cl 300, Ca tr. B#9, 12-1/4", Sm., F-2, made 542' in 41-1/2 hrs.
8/21/80	4320	TIH w/drlg assembly. Made round trip w/magnet. Rec'd 18-5/8" cutter pin & misc iron from hole opnr. TIH w/bit & DP jk sub and milled on junk. TOH. Rec'd misc iron in jk bskt. TIH w/magnet. Worked magnet. TOH w/magnet, recovering entire 18-5/8" cutter from hole opnr left in hole 8/2/80. TIH w/ magnet - worked magnet. TOH w/magnet. Rec'd cutter race f/hole opnr. 43 RPM, 5-15M#. MW: 8.8#, vis 36, WL 15.8, solids 3.5%, gels 3/21, Pv 8, Yld 6, Ph 11.3, Sd tr, FC 2/32, Cl 300, Ca 40. B#10, 12-1/4", H-OWB, milling on junk.
8/22/80	4449	Drlg. TIH w/new bit. Drlg ahead. Drld 12-1/4" hole f/4320-4449'. Formatio Lower Jurassic, possibly Carmel. Gypsum f/4350-4380' (50% thru section) silt sh, lime, gypsum. 58 RPM, 15-20M#. MW: 8.7#, vis 35, WL 15.8, solids 2.8%, gels 2/15, Pv 6, Yld 4, Ph 9, sd tr, FC 2/32, Cl 300, Ca 180. (B#10).
8/23/80	4501	Drlg 12-1/4" hole (drlg 4-3/4'/hr). Drld to 4481' & TOH. TIH rubbering every other jt DP & PU locked up BHA. 1-1/2° @ 4482'. 60 RPM, 30M#. Mud: 8.8#, vis 44, WL 13.6, solids 3.5%, Gels 5/39, Pv 12, Yld 14, Ph 10, Sd tr, FC 3/32, Cl 350, Ca 220. B#10 (RR), 12-1/4", HTC, OWYJ, made 162' in 23-1/2 hrs. (B#11).
8/24/80	4684	Drlg (possible Navajo @ 4634'). Had gradual loss of mud while drlg 4610-4684', losing about 150 bbls 8.8 ppg mud. Adding fine mica to mud while drlg ahead. 57 RPM, 30M-45M#. Mud: 8.8#, vis 38, WL 11.4, solids 3.5%, gels 4/21, Pv 8, Yld 8, Ph 11, sd tr, FC 2/32, Cl 400, Ca 100.
8/25/80	4925	Drlg in Navajo. Drld 12-1/4" f/4684-4925'. No loss circ last 24 hrs. Ran survey @ 4746'. 1/4° @ 4746'. 57 RPM, 25-40M#. Mud: 8.9#, vis 36, WL 9.6, solids 4.2%, gels 6/18, Pv 6, Yld 9, Ph 11, sd tr, FC 2/32, Cl 500, Ca 280. (B#11).
8/26/80	5185	Drlg. Drlg 12-1/4" hole f/4925-5185' w/survey @ 5112'. 1/2° @ 5112'. 57 RPM, 30-45M#. Mud: 8.8#, vis 34, WL 8.8, solids 3.4, gels 3/12, Pv 7, Yld 5, Ph 10.9, sd tr, FC 2/32, Cl 400, Ca 120. (B#11).
8/27/80	5432	Drlg. Drlg 12-1/4" hole f/5185-5432'. Shock sub out. Slowed dn RPM 57-42. Incr'd wt on bit up to 50M#. Penet rate approx same. Present rate drlg @ 5 min/ft. 57-42 RPM, 40-50M#. Mud: 8.9#, vis 42, WL 7.2, solids 4.1%, Gels 4/26, Pv 12, Yld 13, Ph 10.9, Sd 1/4%, FC 2/32, Cl 400, Ca 80. (B#11).
8/28/80	5636	Mixing LCM & gel. Drld 12-1/4" hole f/5432-5636'. Strtd losing mud @ 5634'. At 5636' lost complete returns (70 bbls in 11 min while drlg 2'). Pmpd 1 - 60 bbl pill w/40% LCM. Strtd pmpg @ 1200#. Brk back to 500#. Mixed 110 bbl pill w/40% LCM. Pmpd i @ 0#. Mixing gel to 100 vis & 50-60% LCM @ rpt time, prep to pmp in hole. 42 RPM, 45-50M#. Mud: 8.9#, vis 45, WL 7.2, solid 4.1%, gels 4/26, Pv 12, Yld 13, Ph 10.9, Sd 1/4%, FC 2/32, Cl 40 Ca 80. (B#11).
8/29/80	5991	Drlg. Mixed LCM & gel f/lost circ. Drld f/5636-5688' w/low pmp press & low RPM. From 5688-5991' normal pmp press & RPM. Now drlg w/full returns. Cir samples f/geologist @ 5736'. No Shows. 35-58 RPM, 15-45M#. Mud: 8.6#, vis 100, WL 8, solids 2%, gels 8/48, Pv 20, Yld 23, Ph 8.9, FC 2/32, Cl 400, Ca 80. (B#11).

8/30/80	6089	Rmg to btm. Drld 5991-6089'. Circ & POH. g'd out 6 pt rmr & shock sub. WIH to 5100' found tite hole & pld up to 4700'. Wsh'd & rm'd f/4800-5408'. 2-1/2° @ 6049'. Mud: 8.6#, vis 113, WL 9.6, solids 2%, Gels 8/29, Pv 20, Yld 24, Ph 8.9, sd 1.5%, FC 2/32, Cl 400, Ca 80. B#11, 12-1/4", FP 63, made 1607' in 137-3/4 hrs. (B#12).
8/31/80	6324	Drlg. Wsh'd & rm'd 5408-6089'. Drld 6089-6324'. 43 RPM, 70-45M#. Mud: 8.6#, vis 49, WL 12, solids 2%, Gels 12/22, Pv 12, Yld 16, Ph 9.3, sd 1/2%, FC 2/32, Cl 600, ca 100. (B#12).
9/1/80	6658	Drlg. Drld 12-1/4" 6324-6658'. Top of Wingate fm @ 6350', top of "Chinle" @ ¢¢@)". 3° @ 6412'. 43 RPM, 20-45M#. Mud: 8.3#, vis 56, WL 10.2, solids 2%, gels 5/20, Pv 13, Yld 13, Ph 11, sd tr, FC 2/32, Cl 350, Ca tr. (B#12).
9/2/80	6666	RIH. Drld 12-1/4" hole f/6658-6666'. Dropped survey & POH. Chg out kill line & chk valves on BOP stack. Pull wear ring & install tst plug. Couldn't get tst plug seated. Tstr didn't have extra seal ring f/tst plug. Pull tst plug & install wear ring. Chg out 3 pt rmr on top of 6 pt. TIH w/BHA. Cut 80' drlg line. TIH @ 6 am. Smpl top of Chinle @ ± 6620'. 4° @ 6666'. 43 RPM, 40M#. Mud: 8.3#, vis 41, WL 11.6, solids 2%, gels 4/13, Pv 10, Yld 10, Ph 11, Sd tr, FC 2/32, Cl 350, Ca tr. B#12, 12-1/4", HTC, J-22, made 577' in 39 hrs. (B#13).
9/3/80	6704	Drlg. TIH to 5091'. Wsh & rmd f/5091-6666'. Drld 12-1/4" f/6666'-6704' (Shipped excess 13-3/8" csg to Fmgtn). 43 RPM, 35-45M#. MW: 8.2#, vis 46, WL 7.8, solids 2, gels 4/13, Pv 12, Yld 1, Ph 11, FC 2/32, Cl 350, Ca tr. (B#13).
9/4/80	6854	Drlg - Chinle. MW 8.2, vis 43, WL 7.4.
9/5/80	6999	Drlg. Mud: 8.5, vis 40, WL 7.2. Drld 12-1/4" f/6854-6999'.
9/6/80	7233	Drlg in Shimarump. Mud: 8.6#, vis 42, WL 7. Sample top Shimarump 7020'.
9/7/80	7357	Drlg Moenkopi. Mud: 8.5#, vis 52, WL 6.8. Sample Top Moenkopi 7245'. 4° @ 7261'.
9/8/80	7502	Drlg Moenkopi. Mud: 8.6#, vis 40, WL 8.4. Drld 12-1/4" f/7357-7502'.
9/9/80	7515	Instl'g BOP equip. Mud: 8.6#, vis 41, WL 8.4. Drld 12-1/4" hole f/7502-7517'. Survey & POH. Tite hole f/7215-7100 & 6553-6478'. Dialog ran csg inspection log. Field read out 35% worn f/50-268'; 47% worn f/2000-2200'; 35% worn f/3065-3112'; remainder of pipe 10-20% worn. Pld bowl protection. Set tst plug & w/Rebel tstrs, tstd pipe rams, blind rams & all valves w/ 3000# - held OK. Tstd hydril w/1500# - held OK. Couldn't get screwed into tst plug to retrieve. PU BOP stack. Tst plug fouled in a cocked position in wear bushing lock dn flange. Removed flange & tst plug. Instl'd BOP. Bore of lock dn flange 13-3/8". 3° @ 7517'.
9/10/80	7525	Drlg. Mud: 8.6#, vis 40, WL 7.9. Instl'd BOP stack. Chg out top 3 pt rmr & PU jars. RIH to 6510'. Rm'd bridge f/6510-6525'. Wsh f/6525-7104'. Rm'd f/7104-7355'. Wsh f/7355-7517'. Drld 12-1/4" hole f/7517-7525'.
9/11/80	7652	Drlg. Mud: 8.4#, vis 56, WL 7.6. Drld 12-1/2" hole f/7525-7652'.
9/12/80	7775	Drlg. Mud: 8.7#, vis 37, WL 7. Drld 12-1/4" hole f/7652-7666'. Wiper trip f/7666-6200'. No problems. Drld 12-1/4" hole f/7666-7775'.
9/13/80	7896	Drlg. Mud: 8.6#, vis 40, WL 6.8. Drld 12-1/4" hole f/7775-7794'. Made wiper trip 7794-6850' w/no problems. Drld 12-1/4" hole 7794-7896'.
9/14/80	8025	Drlg. Mud: 8.7#, vis 40, WL 6.5. Drld 12-1/4" hole 7896-7914'. Made wiper trip 7914-6380' w/no problems. Drld 12-1/4" hole 7914-8025'.
9/15/80	8144	Drlg. Mud: 8.6#, vis 40, WL 6.8. Drld 12-1/4" hole 8025-8050'. Wiper trip 8050-6601' w/no problems. Drld 12-1/4" hole 8050-8144'.
9/16/80	8237	Survey @ 8237' f/TOH. Mud: 8.7#, vis 40, WL 7.8. Drld 12-1/4" hole f/8144-8237'. Top of Timpa Weap 8150', est top of Kaibab 8445'.

9/17/80	8250	Drlg. Mud: 8.7#, vis 41, WL 6.8. Dropped survey & POH. Steel line meas - no correction. PU tst plug & tstd chk lines & csg hd flanges w/3000# - ok. PU jk sub, chg'd out 6 pt & btm 3 pt rmr, rubbers on both NRS, shock sub & jars. TIH to 8185'. Rm'd f/8185-8237'. Drld 12-1/4" hole f/8237-8250'. 1° @ 8237'.
9/18/80	8389	Day-77, Ftg-139. Drlg. Mud: 8.6#, vis 45, WL 6.4. Drld 12-1/4" f/8250-8389' & serviced rig.
9/19/80	8447	Day-78, Ftg-58. PU core bbl. Mud: 8.6#, vis 42, WL 8.4. Drld 12-1/4" 8389-8437', lost circ on conn @ 8437'. Mixed 80 bbl pill w/30% LCM, PI w/500#. Regained circ after pmpg away 170 bbls. Slowly incr'd pmp press. Back to normal w/full circ. Drld 12-1/4" 8437-8447'. Circ & cond mud f/Core #1. Survey & POH f/core bbl. PU core bbl. Top of Kaibab 8400'. 1° @ 8447'.
9/20/80	8447	Day-79, Ftg-0. Coring. Mud: 8.6#, vis 42, WL 6.2. Cored 8447-8477' & lost returns. Regained returns after 2 hrs w/a loss of 200 bbls drlg mud. Resumed coring @ rpt time.
9/21/80	8488	Day-80, Ftg-11. Opng 8-3/4" core hole to 12-1/4" hole. Mud: 8.7#, vis 39, WL 6.4. Core 8477-8488' & lost returns. Successfully combated lost circ after 3-1/4 hrs & lowered to cont coring, but bbl jammed. TOH w/Core #1 & rec'd 40' of the 41' cut. TIH w/ 12-1/4" bit & drlg hook up. Opnd 8-3/4" hole f/8447-8473' (26'). Core #1 description, 8447-8488', rec'd 40' of 41'. Dark grey dolo, finely micro crystalline w/dead oil staining; no porosity; Dolomite; cream color, F to M micro crystalline, gd inter-vugular porosity w/vertical fractures.
9/22/80	8621	Day-81, Ftg-133. Drlg. Mud: 8.5, Vis 55, WL 7.6. Rmd core hole 8-3/4" to 12-1/4" 8473-8488'. Drld 12-1/4" hole 8488-8621'. Lost returns @ 8514' & 8590' 140 bbls @ 8514', 130 bbls @ 8590'.
9/23/80	8700	Day-82, Ftg-79. Trip in w/core bbl f/Core #2. Mud: 8.6#, vis 47, WL 7.6. Drld 12-1/4" hole 8621-8700'. Circ up samples. Drop survey. TOH. PU core bbl & orient same. TIH f/Core #2. 1° @ 8685'.
9/24/80	8733	Day-83, Ftg-33. LD CB. Mud: 8.5#, vis 44, WL 7.6. Fin TOH. Cut oriented core. Core #2, 8700-8733', cut 33', rec'd 33'; Dolo dark grey, vy tite por, NS oil or gas, highly vert fract, strong sulphur odor. TOH, LD core & CB.
9/25/80	8770	Day-84, Ftg-37. Drlg. Mud: 8.6#, vis 51, WL 7.2. Fin LD CB. TIH. Rm'd 8-3/4" hole to 12-1/4" hole 8700-8733'. Drld 12-1/4" hole f/8733-8770'.
9/26/80	8862	Day-85, Ftg-92. Drlg. Mud: 8.5#, vis 45, WL 7.2. Drlg 12-1/4" hole 8770-8862'. Lost 170 bbls mud while drlg.

9/27/80	8907	Day-86, Ft 15. RU Schl. Mud: 8.6#, vis 77 WL 8. Drld 12-1/4" hole to 8907'. Circ & cond f/logging. Drop survey & POH w/B#19. WO Schl. Arrived @ 6 am. Prep to log. 3/4° @ 8907'.
9/28/80	8907	Day-87, Ftg-0. Install flange on csg hd. Mud: 8.6#, vis 71, WL 8. RU Schl. Log f/TD to 4299'. Fin logs @ 3 am. Ran CNL/FDC, BHC-Sonic, DLL Micro f/8906-4297'. LTD 8909'. Remove BOP stack. Install lock set flange f/wear ring.
9/29/80	8916	Day-88, Ftg-9. Drlg. Mud: 8.5#, vis 65, WL 8.5. Fin install lockset flange in stack. Tst BOPs, chk lines & valves to 3000#. Held OK. Install wear rings, magna flux DCs in BHA. PU 1 - 8" DC & 3 - 6-1/2" DCs. Cut drlg line. RIH. Rmd f/8467-8585' (also 15' on btm). Drld f/8907-8916'.
9/30/80	9035	Day-89, Ftg-119. Drlg. Mud: 8.6#, vis 48, WL 7.6. Drld 12-1/4" hole f/8916-9035'.
10/1/80	9134	Day-90, Ftg-99. Circ hole f/DST #1. Mud: 8.7#, vis 43, WL 7.8. Drld 12-1/4" hole 9035-9123'. Showed 7 units of gas on logging unit Circ samples f/ 1/2 hr. Lost returns. Mixed LCM. Regained returns. Drld f/9123-9134'. Losing about 1" stream while drlg. Circ & cond mud f/tst, 16 units gas after circ'g btms up after stop drlg @ 9134'. Drld as though highly fractured. Lost approx 450 BM.
10/2/80	9134	Day-91, Ftg-0. Rng DST #1, 9082-9134'. Mud: 8.8#, vis 44, WL 7.8. Circ & cond mud f/DST #1. TOH & PU tst tools. TIH & set pkrs @ 9082' & 9076'. Tst interval 9082-9134', BHC 15/16", THC 1/2". Tool opn 4:46 am 10/2/80 w/strong blw f/5 min; SI 45 min & re-opnd f/FF w/strong blw that remained steady f/45 min; began dcr'g f/remaining 75 min of FF - FF 120", vy wk @ end of flw; SI f/FSI 2 7:36 am.
10/3/80	9147	Day-92, Ftg-13. Drlg. Mud: 8.9#, vis 50, WL 7.6. Fin DST #1. TOH w/tst. LD & load out tst tools. Dress BHA. TIH w/ B#21. Rm'd 60' to btm. Drld 12-1/4" hole 9134-9147'. DST #1, opn hole 9082-9134', bc 15/16", tc 1/2", no WC. Tool opn 4:46 am 10/2/80. IF 5 min; 103-77#, had strong blw f/5 min. ISI 45 min: 358#. 2nd flw 120 min: 90-90#, strong blw f/45 min, then decr'd steadily f/remainder of tst, NGTS. FST 60 min: 141#. IHP 4441#, FHP 4364#, BHT 146°. Recovery: Had gas odor in DP after 1800' out. Rec'd 94' viscous sulphur wtr cut mud, 750 ppm cl. Sampler: 2200 cc thick paste like sulphur wtr cut mud, black in color, and .08 ft3 gas. Rec'd mud: .44 ohms @ 78°, pit mud .2 ohms @ 78°, pit mud filtrate 1.5 ohms @ 78°. Btm pkr rubber split.
10/4/80	9288	Day-93, Ftg 141. Circ f/DST #2. Mud: 9#, vis 39, WL 7.6. Drld 12-1/4" hole f/9147-9288' w/12 unit methane gas show recorded f/9260-9265'. Frontier geologist wants to DST interval 9220-9288'.
10/5/80	9288	Day-94, Ftg-0. Rng DST #2, 9222-88'. Mud: 9#, vis 46, WL 7.8. Circ & cond mud 11 hrs f/DST timing. TOH. TIH w/DST tools. DST #2, 9222-9288', Cedar Mesa interval. Opnd tools 4:21 am 10/5/80 f/5 min w/wk blw incr'g to strong. Took a 45 min ISI & reopnd f/120 min second flw. When reopnd had fair blw incr'g to strong in 10 min (2 psi) which held steady f/57 min and then by end of the 120 min had declined to 1-1/4 psi. SI @ 7:17 am 10/5 f/90 min SI. No odor to surf. 1° @ 9288'.

10/6/80	9312	Day-95, Ftg [illegible]. Drlg. Mud: 9#, vis 43, WL 6 Fin DST #2. TOH. LD & load out tst tools. Chg out BHA. TIH w/B#22. Drld 12-1/4" hole 9288-9312'. DST #2, Cedar Mesa interval 9222-9288': opnd tool 4:21 am 10/5 f/5 min IF w/wk blw incr'g to strong; SI 45 min & reopnd f/120 min second flw; had fair blw (no odor) incr'g to strong in 10 min, meas'g 2 psi; blw held steady f/57 min and then by end of flw had decr'd to 1-1/4 psi; SI @ 7:17 am f/90 min FSI. Pld loose @ 8:47 10/5/80 w/ 12-1/4" pkrs dragging f/lst two stds. Chained out rec'g 6143' of wtr having sulphur odor. Top 1090' of recovery was sli mud cut w/a resist meas'g 2 ohm meter @ 90°F (500 ppm Cl). Next 2526' of DP recovery was wtr w/a resist of 1.5 ohms @ 82°F (500 ppm Cl) & the btm 2527' of drl string recovery was wtr, sulphur odor w/a resist meas'g 2.5 ohms (450 ppm Cl). DST sampler recovered 2400 cc wtr w/a 2.0 resist @ 85°F (650 ppm Cl). Mud f/pits meas 2.2 ohms @ 68°F. Press f/recorder @ 9230' as foll: IHP 4505#, 5 min IF 520-583#, 45 min ISI 3260#, 210 min FF 458-2737#, FHP 4505#, max BHT 158°F. Drl string recovery 6193' equals 85 BF. Note: Johnson's DST tools malfunctioned & a 90 min FSI wasn't recorded.
10/7/80	9485	Day-96, Ftg 173. Drlg. Mud: 8.6#, vis 42, WL 7.2. Drld 12-1/4" hole f/9312-9485'.
10/8/80	9632	Day-97, Ftg-147. TOH. Mud: 8.6#, vis 44, WL 7.2. Drld 12-1/4" hole f/9485-9632'. Twisted off. Lost 63M#. TOH.
10/9/80	9632	Day-98, Ftg-0.7. TOH w/fish. Mud: 8.7#; Vis: 59; WL: 8 Fin TOH. Twisted off in jars service conn. Left bit, 6 pt rmr, sh dc, 3 pt rmr, short sub, NRS, 8" dc, NRS, 13 8" dc, 4' stub of jars in hole. Top of fish 9156'. Dress OS & TIH. Circl & workover fish. Fish stuck. Circl & word stuck pipe. Mix 70 bbls fuel oil and free pipe & pmp in hole. Sptd 53 BO around fish. Wrk pipe & move oil 1 bbl every 1/2 hr. Fish came free. Circl out oil. Chain out of hole w/fish.
10/10/80	9632	Day-99, Ftg-0. TIH. Fin TOH w/fish. Unable to rel OS. LD OS w/4' stub of jars in it. Repair brk out cat head. Cleared pipe racks. PU new bit & 1 NRS. TIH w/DCs. Pld out & LD 3 - 6-1/2" DCs & 9 - 8" DCs. Unload 6" jars & load out 8" jars & OS. Load pipe racks w/24 jts HWDP & jars. Meas'd & PU same. Cut drlg line. Strt TIH.
10/11/80	9728	Day-100, Ftg-96. Drlg. Mud: 8.6#, vis 38, WL 7.2. Fin'd TI, tag 9532', wsh & rm to 9632'. Drld 12-1/4" to 9728'.
10/12/80	9842	Day-101, Ftg-114. Drlg. Mud: 8.6#, vis 42, WL 7.2. Drld 9728-9821', lost circ, mixed 10% LCM pill. Pmpd 350 bbls before regaining circ. Resumed drlg to 9834', lost circ, mixed 30% LCM pill. Pmpd 62 bbls before regaining circ. Circ to bld vol, resumed drlg.
10/13	10,005	Day-102, Ftg-163. Drlg. Mud: 8.7#, vis 7, WL 7.5. Drld 12-1/4" hole 9842-10,005'.
10/14/	10,118	Day-103, Ftg-113. Drlg. Mud: 8.7#, vis 45, WL 7.6. Drld 12-1/4" 10,005-10,118'. Top of Elephant Canyon 10,100'.
10/15	10,149	Day-104, Ftg-31. Chg out shock sub. Mud: 8.7#, vis 44, WL 7.8. Drld 12-1/4" hole 10,118-10,149'. Survey @ 10,127'. TOH. LD 13 - jts HWDP. PU 2 - 8" DCs & 3 - 6-1/2" DCs. RU Dialog & run csg inspection log. PU new bit & chg out shock sub. 3/4° @ 10,127'.

1/11/81	11,130	Day-192, Ftg-[illegible] ST - GIH w/core bbl. Mud: 8.6[illegible] vis 46, WL 6.3. Fin in hole w/ST #8, 11,065-11,130'. 10 min w/gd blw incr'g f/3" to 22" wtr. SI well 2 hrs - 1 hr FF had strong blw incr'g f/1" to 69" wtr. Took 2 hr FSI. Rel'd pkrs & POH. Found FL @ 6002' above tst tool in DP (including 1380' WC). All fm fld was clear to sli muddy wtr. Chlds 290-660 ppm. Produced 68.25 bbls fm fld in 70 min of flw time = 1400 BOPD. IHP 5214#, IF 1081#, ISI 4057#, FF 2637#, FSI 4056#, FHP 5202#. Sample Chamber contained 2100 cc wtr, no gas or oil show.
1/12/81	11,146	Day-193, Ftg-16. ST - TIH w/core bbl. Mud: 8.6#, vis 42, WL 6.6. Fin TIH. Core 11, 130-11,146'. Last 2' took 130 min. POH. DL Core #6. Rec'd 14' of 16' cut. Lite grey to brown, massive micro-crystallin dolomite, white to grey to black dolomite & limestone, vuggy, coarsely crystalline w/spty yellow-gold fluor, milky, bluish white cut. Chg'd core bit. Cut drlg line. TIH.
1/13/81	11,193	Day-194, Ftg-47. ST - Circ & prep to TOH. Mud: 8.6#, vis 46, WL 6.5. Fin TIH. Circ. Core 11,146-11,193'. Circ before trip out.
1/14/81	11,283	Day-195, Ftg-90. ST - Drlg. Mud: 8.6#, vis 47, WL 16. Circl & POH. LD core. Rec'd 14' of 47' cut. Dolo. & limey dolo., lgt brown to grey to white, micro-crystalline to moderately crystalline, stylolitic & vuggy. LD core bbl. PU BHA. TIH. Wsh & ream 80' to btm. Resumed drlg.
1/15/81	11,480	Day-196, Ftg-197. ST - Circ'g f/samples. Mud: 8.5#, vis 46, WL 6.5. Lost 210 BM (11,323-11,356'). Mixed pit of mud, 10% LCM. Bld vol. Circ'd f/samples @ 11,309', 11,357' & 11,480'.
1/16/81	11,717	Day-197, Ftg-237. ST - Drlg. Mud: 8.7, Vis 45, WL 6.1. Fin circ samples @ 11,480'. Drlg ahead. Circ f/samples @ 11,548'. Cont drlg.
1/17/81	11,887	Day-197, Ftg-170. ST - Drlg. Mud: 8.6#, vis 46, WL 6.6. Circl @ 11,816'.
1/18/81	11,972	Day-198, Ftg-85. ST - Wash & ream @ 11415. Mud: 8.8#, vis 40, WL 7.5. Drld to 11951. Lost returns 96 bbls. PU off btm. Mixed 10% LCM. Full returns after 40 bbls. Lost 136 total. Displ LCM pill. Drld to 11972. Lost returns 120 bbls. POH 20 stds to 10,070'. Mxd LCM & bld volume. Tried to fill hole after 1-1/2 hrs shut down. Lost 180 bbls. Ran to 11155. Hit bridge. Pmpd LCM pill. Full returns after 72 bbls washed to 11415'. Several short bridges.
1/19/81	11,972	Day-199, Ftg-0. ST - Circlg & cond mud. Mud: 8.8#, vis 47, WL 8.4. Wshd & rmd f/11,154-11,970'. Circl & cond mud. Lost complete returns. TOH, 18 stnds. Mxd mud & build volume. Pmpd 274 bbls, regained circl. Bit @ 10,255'. Circl & cond mud. Mix mud & build volume. TIH. Wshd & rmd bridge 10,779 - 10,873'. TIH. Wshd & rmd bridge 11,138-11,342'. Losing partial returns. Pmpd 60 bbls mud, 20% LCM to btm. TIH to 11,910'. Circ & cond mud. Pmpd LCM pill to btm. (Total loss = 310 bbls)
1/20/81	11,972	Day-200, Ftg-0. ST - TOH f/logs. Mud: 8.8#, vis 61, WL: 8. Fin POH on short trip to 4900'. RIH. Rmd 2 spots @ 10,564' @ 10,752'. Cont TIH to 11,900'. Circl'd & cond. mud. Pld 17 stnds short trip. Wait 30 min. Ran back to 11,900', no problems. Circl'd & cond mud. Dropped survey. POH f/logs. No drag or tight spots.
1/21/81	11,972	Day-202, Ftg-0. ST - Rng logs. Mud: 8.7#, vis 59, WL 8.2. Ran DLL-MSFL, CN-FDC, BHCSL, WFVDL, FIDL, Dipmeter & Cyberlok w/ Schlumberger @ 11,936-10,000'. Now rng VSP w/Pac West, Birdwell, Schlumberger and ARCO Geophysics. 2-1/4° @ 10,855.

1/22/81	11,972	Day-203, Ftg-0. ST - RU Schlum to strip over WL. Mud: 8.8#, vis 44, WL 7.0. Cont VSP logging w/Pac-West, Birdwell & Schlum. Pld tool to station @ 10,800'. Left 1 hr w/line slack. Normal station time 15 min. Sidearm type tool set in severe washout @ 10,800-10,820'. Couldn't pull tod free. Stretch table indicates line stuck @ 5000' - Navahoe Sandstone. Called f/fshg tools to strip over WL. Rec'd tools & operator. Cut line. Poor rope sockets. String sheave wheel had crown & RU tools.
1/23/81	11,972	Day-204. TD. ST - TOH. Mud: 8.8#, vis 46, WL 7.4. Fin RU to strip in over wireline. Strip in hole to 6300'. Worked wireline--still stuck. Continued in hole to 8500'. Worked wireline--still stuck. Strip in to fish @ 10,790', keeping tension on wireline. Logging tool centered in hole & freed up. Moved tool dwn hole on wireline & pld into OS. Pld wireline free @ weak pt. Chgd Schlum rigging & retrieved all wirelines. POH w/DP & OS. Plg wet.
1/24/81	11,972	Day-205. ST - Prep to run velocity survey. Mud: 8.8#, vis 48, WL 9. POH, but failed to recover logging tool. WIH. Circ & cond mud @ 4700', 7450' & 9400'. POH.
1/25/81	11,972	Day-206. ST - GIH w/DP. Mud: 8.6#, vis 43, WL 8.8. Ran velocity survey 8700-1000'. RD Schl & Birdwell equip. WIH w/BHA & LD. Strtd in hole w/DP to set abondonment plugs.
1/26/81	4150	Day-207. PB - ND BOPs. Fin TIH w/DP, plug DP rubbers. Circ & cond hole. Sort pipe in pipe bskts. Plug well to abandon as foll: 9200-9000' 200 sx Cl "H" neat cmt w/20 BW ahead & 2 BW behind; Displ'd w/125 BM; 6800-6600' 250 sx Cl "H" neat cmt 20 BW ahead & 2 BW behind; Displ'd w/90 BM; 6200-6000' 140 sx Cl "B" neat cmt w/20 BW ahead & 2 BW behind; Displ'd w/83 BM; 4400-4150' 290 sx Cl "B" neat cmt w/20 BW ahead & 2 BW behind; Displ'd w/55 BM. Full returns thruout PB. Last plug dn 9:30 pm 1/25/81. LD DP. RIH w/remaining DP. Removed rubbers & LD remaining DP. RD LD machine. ND BOPs.
/27/81	4150	Day-208. PB - RD.
'27/81	4150	Day-208. PB - RD. Removed BOPs & flushed mud tks. RR 7 pm 1/26/81. FINAL REPORT - P & A WELL, 1/26/81.
	0	Plugging as follows: 9200-9000', 200 sx Cl "H" neat cmt w/20 BW ahead & 2 BW behind; Displaced w/125 BM; 6800-6600', 250 sx Cl "H" neat cmt w/20 BW ahead & 2 BW behind; Displaced w/90 BM; 6200-6000', 140 sx Cl "B" neat cmt w/20 BW ahead & 2 BW behind; Displaced w/83 BM; 4400-4150', 290 sx Cl "B" neat cmt w/20 BW ahead & 2 BW behind; Displaced w/55 BM. Last plug dn 9:30 pm, 1/25/81. Will set dry hole marker.

10/16	10,196	Day-105, F⌣47. Drlg. Mud: 8.6#, Vis: 51⌣WL 7.4 Chg'd BHA & TIH to 9879'. PU 8 singles & wash to btm (@ 10,149). Drld 12-1/4" hole f/10,149 - 10,196'.
10/17	10,303	Day-106, Ftg-107. Drlg. Mud: 8.6#, vis 43, WL 7.8. Dlrd 12-1/4" hole 10,196-10,303'.
10/18	10,412	Day-107, Ftg-109. Drlg. Mud: 8.6#, vis 43, WL 8.
10/19	10,442	Day-108, Ftg-30. Drlg. Mud: 8.6#, vis 37, WL 8.
10/20	10,561	Day-109, Ftg-119. Drlg. Mud: 8.8#, vis 43, WL 6.4. Drld 12-1/4" 10,442-10,561'. Now drlg 5-8 min/ft.
10/21	10,695	Day-110, Ftg-134. Drlg. Mud: 8.6#, vis 43, WL 8.4. Drld 12-1/4" hole f/10,561-10,695'. Possible top of Honaker Trail @ 10,425'.
10/22	10,813	Day-111, Ftg-118. Drlg. Mud: 8.6#, vis 51, WL 8. Drld 12-1/4" hole f/10,695-10,812'. Top of Paradox 10,633'.
10/23	10,860	Day-112, Ftg-47. Trip w/bit #26. MW 8.6, vis 40, WL 8. Drld f/10,813-10,860' & circ samples. TOh f/core. Lost compact off of bit in hole. PU jk sub & new bit. TIH to clean up hole f/core.
10/24	10,865	Day-113, Ftg-5. TIH w/core barrel for Core #3. MW 8.6, Vis 38, WL 7.2 Trip in w/bit #26 & junk sub. Wsh, rmd & circl f/inserts from bit #25. Drld f/10860 - 10865'. Pump pill to TOH. Recov'd double hand full or inserts out of junk sub. Stand back & lay down BHA. PU CB & monel dc. WO cross over sub (5" H90X 6-5/" reg) for 3 hrs. TIH.
10/25	10,903	Day-114, Ftg-38. Coring w/oriented core bbl. Mud: 8.6#, vis 47, WL 8.0. Fin'd TIH w/CB. Begin cutting Core #3 @ 10,865' (8-3/4" dia core). At 6 am had cored 38' to 10,903'. No BGG.
10/26	10,925	Day-115, Ftg-22. LD CB. Mud: 8.6#, vis 42, WL 8.4. Cont'd cutting Core #3 f/10,903-10,925'. Circ'd to clean up & then TOH. LD core & CB. Core #3, 10,865-10,925', cut 60', rec'd 60': Lime- stone creamy to pale green w/some light marroon sandy/shaley siltstone intermixed; breccia appearance, limestone finely crystalline & vy hard - sli fractured, poor porosity, had sli oil staining on the fracture. 3/4° @ 10,925'.
10/27	10,925	Day-116, Ftg-0. Rmg core hole. Mud: 8.6#, vis 44, WL 7.2. LD CB & PU BHA & TIH w/B#28. Rm'd core hole 8-3/4" to 12-1/4" f/10,865-10,906'.
10/28	11,033	Day-117, Ftg-108. Drlg. Mud: 8.6#, vis 40, WL 7.2. Rm'd 8-3/4" to 12-1/4" f/10,906-10,925'. Drld 12-1/4" f/ 10,925-11,033'. Circ'd samples @ 11,030'; 10' brk. Redwall 10,848' (?).
10/29	11,047	Day-118, Ftg-14. Trip in w/DST #3. MW: 8.8, Vis 50, WL 7.6 Drld 12-1/4" hole 11,033 to 11,047. Circ & Cond for DST #3. Trip out & change BHA and P.U. Johnston test tool & start in hole to test 10,957 - 11,047.

10/30	11,047	Day-119, Ftg-0. Circ & cond hole f/DST #4. Mud: 8.7#, vis 47, WL 8.8. Fin TIH w/tst tool. Set pkr & opnd tst tools @ 8:06 am 10/29/80. Ran DST #3, Johnston opn hole 10,957-11,047', Redwall, 15/16" bc, 1/4" tc, no WC. Tool opnd @ 8:06 am 10/29/80. Recorder @ 10,964'. IF 5 min 85-85#, wk blw thruout; ISI 20 min 3571#, bldg; 2nd flw 60 min 85-134#, vy wk blw remained fairly constant thruout; FSI 60 min 3758#, bldg sli, had strtd to level; IHP 5401#, FHP 5289#, BHT 156°. Recovery: 200' mud w/specks of oil, oil has lite yellow flour. Resist mud .9 @ 47° = 400 ppm Cl. Sampler rec'd 2400 cc mud, no gas; Mud Resist .7 @ 42°; Mud Filtr Resist .7 @ 42° = 700 ppm Cl. Left part of btm pkr rubber in hole. Redwall fm f/10,957-11,047'. TOH brk dn tst tools, load out same. PU B#29 & BHA. Circ & cond f/DST #4. No trip gas.
10/31	11,047	Day-120, Ftg-0. PU DP f/DST #4. Mud: 8.8#, vis 45, WL 7.2. Circ & cond hole f/DST #4. TOH. Std back btm hole assembly. PU 5 - 6-1/2" DCs & tst tools. Brk dn pkr & chg out rubber (rubber wrong size, I.D.). RIH w/pkr. PU 6 jts DP.
11/1	11,047	Day-121, Ftg-0. WO tstr. Mud: 8.8#, vis 49, WL 7.9. Fin PU DP & conn tst lines. Set pkr f/DST #4, 10,861-11,047'. Tool opn 7:56 am & pkr failed. POH w/DST #4 missrun. LD Johnston tools. WIH w/bit. Wshd 20' to btm. Circ. POH f/DST. WO tstr. Had 2 units trip gas. (Pkr rubber had moved dn. Almost all over tailpipe.)
11/2	11,047	Day-122, Ftg-0. WO fishing tools. Mud: 8.8#, vis 49, WL 7.2. WO Howco tstr. PU Howco tst tools & WIH f/DST #5 w/1000' wtr cushion. Set btm pkr @ 10,857', top pkr 10,851'. When tool opnd, tool slid dn & pkr failed. PU string - stuck. Jarred twice & came free. POH. Left fish in hole as foll: Left 4 - 5' sect perf anchor 5-3/4" OD, XO, 5 - 6-1/2" DCs, XO, 3 - 5' sect per anchor, BT case = 185.19'. Top fish @ 10,862'. Parted in jt just below anchor safety jt - at ACME thread in safety jt. DST #5 - missrun. Top fish should be 10,862'.
11/3	11,047	Day-123, Ftg-0. Brkg dn OS. Mud: 8.8#, vis 48, WL 72. WO fshg tools. Dress 11-3/4" OD OS w/ 5-3/4" grapple & cut rite mill control & TIH. Found top fish @ 10,887' SLM. Try to work over fish, no success. TOH w/OS.
11/4	11,047	Day-124, Ftg-0. TIH w/OS dressed w/ 6-1/2" grapple. Mud: 8.6#, vis 49, WL 8. Brk dn & inspect OS. WO fshg tools. Dress OS w/flat btm cut-rite shoe & 5-3/4" grapple. TIH. Mill over fish. Couldn't catch fish in OS. TOH. Brk dn & inspect OS. Mill control had 7" dia wear spt & marks in top of OS. Dressed OS w/ 6-1/2" grapple & PU 2nd OS extension & TIH.
11/5	11,047	Day-125, Ftg-0. TIH w/OS & wsh pipe. Mud: 8.6#, vis 52, WL 7.2. Fin TIH. Worked over fish. Couldn't catch fish. Circ & cond mud. TOH. Dress OS w/ 5-1/2" grapple & TIH. Worked over fish. Pmp press incr 200# & wt incr'd to 15M#. TOH. Did not have fish up inside OS extension, rec'd a 2' piece of core - will have geologist examine it. Brk & LD OS & daily jars. PU 9-3/4" mill shoe, 9" OS w/ 6-1/2" grapple, 1 jt 9" wsh over pipe, bmpr sub, Bowen jars & TIH.
11/6/80	11,047	Day-126, Ftg-0. TIH w/OS & wsh over pipe. Mud: 8.6#, vis 57, WL 6.4. TIH w/OS & wsh over pipe. Circ & wsh 10,824-top of fish @ 10,887'. Wshg over fish 10,887-10,895'. TOH. Brk dn & inspect OS. Marks on OS indicate cutting thru metal. WO fshg tools. Dress OS & TIH.

11/7/80	11,047	Day-127, [illegible]-0. Wshg over fish. Mud: 8.6#, [illegible]is 63, WL 7.2. Fin TIH. Wsh over fish w/OS & wsh over pipe 10,887-10,901'. TOH. Brk & inspect OS. WO tools. LD OS. Made up mill shoe on wsh over pipe & TIH. Wshg over fish 10,887-10,925' at report time.
11/8/80	11,047	Day-128, Ftg-0. LD fish. Mud: 8.6#, vis 53, WL 8. Wsh'd over fish 10,925-10,933'. Top out in top sub. Circ'd & TOH. SLM 9' correction f/10,933' to 10,924'. PU OS w/6-1/2" grapple & TIH. Wshd over top of fish & caught same. Jarred once & fish came free - wt incr'd 15M#. TOH w/wet string. Rec'd foll'g 175' of fish: 2' jt of perf'd anchor, XO, 5 - 6-1/2" DCs, XO, 3 - 5' jts perf'd anchor, BT case. Recovery was all of btm sequence of DST tools run. Missing f/top of DST tool are 1 - 5' jt perf'd anchor & a 5' piece of unknown description DST tool for a total of 10'. Top of perf anchor rec'd had been cut to the centre for 57".
11/9/80	11,047	Day-129, Ftg-0. TIH w/9" wsh over pipe w/finger bskt shoe. Mud: 8.7#, vis 45, WL 8. Fin'd LD the rec'd fish, HOWCO tools & fshg tools. TIH w/12-1/4" bit & jk sub. Meas'd in hole & took wt @ 11,045' (SLM). CO fill & found top of fish @ 11,055' (SLM). Circ & cond mud & TOH. Rec'd sml amount of metal in DP jk sub. PU 11-1/2" finger bskt w/wire rope welded inside and 1 jt of 9" OD wsh over pipe & begin TIH.
11/10/80	11,047	Day-130, Ftg-0. Logging w/Schl. Mud: 8.7#, vis 47, WL 8.8. Fin TIH. Work dn over fish & cut core w/wsh over pipe & shoe. TOH. Didn't recover any fish. Left all fingers f/finger bskt in hole. LD fshg tools. RU Schl & log. Loggers depth 11,059'. Run #1 dual laterlog & micro SFL. Run #2 fm dens & comp neutron.
11/11/80	11,047	Day-131, Ftg-0. Milling on jk. Mud: 8.7#, vis 53, WL 8.0. Fin'd w/Schl logs. Ran wave fm & var dens f/11,050-8700' (WLTD = 11,055'). Ran BHC sonic log 11,052-8700' & dipmeter 11,052-4297'. PU 11-1/2" sli concave jk mill w/jk sub & RIH. Found jk @ 11,058'. Milled 11,058-11,060 in 4-1/2 hrs. First 2-1/2 to 3 hrs had considerable torque & had to PU off btm several times. Last 1-1/2 hrs torque smoothed out & mill was rng smooth - no cutting in mud returns.
11/12/80	11,047	Day-132, Ftg-0. TOH w/12" jk mill. Mud: 8.6#, vis 50, WL 8.8. Milling on jk. TOH w/jk mill. Mill cored out 5-1/2" dia in center. CO jk subm, sml amts of jk. PU new mill & TIH w/BHA. Cut drlg line 90'. Fin TIH. Milling on jk. Loss circ. Mixed 30% LCM pill & pmpd dn. Regained circ after pmpg away 325 BM. Total loss approx 375 BM. Circ & bld volume. Milling on jk while bldg more volume. TOH w/jk mill.
11/13/80	11,047	Day-133, Ftg-0. PU fishg tools. Mud: 8.7#, vis 47, WL 7.2. Fin TOH. PU 12-1/4" bit, junk sub, 6-8" DC, 12-1/4" NRS & TIH. Drld on junk. Unable to work by junk. TOH. WO GS & 5-1/2" grapple for 11-3/4" OS. PU 11-3/4" OS w/5-1/2" grapple, bumper sub & bower jars.
11/14/80	11,047	Day-134, Ftg-0. Circ @ 10,845', prep to PB. Mud:8.7#, vis 53, WL 7.6. RIH w/11-3/4" OS w/5-12" grapple. Circ dn 8' total to ±3' below where bit had stopped. Worked on btm f/2 hrs w/OS. TOH. No recovery in OS. OS skirt & grapple not scarred. LD fshg tools. PU Hallib DP wiper plug catcher on DP. Strap in hole. PU extra DP. Circ @ 10,845'.
11/15/80	11,047	Day-135, Ftg-0. GIH w/bit & clrs. Mud: 8.7#, vis 53, WL 7.6. Howco mixed 325 sx Cl "H" neat, 20% sd, 3/4% CFR-2, 4/10% HR-4 (17.5#/gal) w/10 BW ahead & sptd 10,845-10,500'. PD 9:20 am 11/14/80. POH. Tstd POBs to 3000#. Strt in hole w/drlg assmbly.

11/16/80	10,646	Day-136, Ftg-0. ST - PU Dynadrill. Mud: 8.6#, vis 66, WL 7.2. WIH w/12-1/4" bit. Tagged cmt @ 10,552'. Drlg 8' firm cmt to 10,560'. No cmt to 10,590'. Drld firm 1-1/2 - 3 min/ft 10,504-10,624'. Hard cmt 4-6 min/ft 10,624-10,646'. Circ & MOH.
11/17/80	10,648	Day-137, Ftg-2. ST - Dyna-drlg off cmt plug. Mud: 8.6#, vis 68, WL 8. PU Dyna-drill. Strap bit into dyan-drill w/welder. Let bit cool f/2 hrs. Chg BHA & drlg jars. RIH, strap pipe. Survey (repair WL machine). Strt dyna-drlg. 1-1/4° N45W @ 10,585'.
11/18/80	10,654	Day-138, Ftg-6, ST - Replaced air lines on drawworks. Mud: 8.6#, vis 47, WL 6.4. Dynadrld 10,647-10,648' in 4 hrs. Trouble maintaining proper WOB. Dynadrld 10,648-10,652' in 2 hrs. Dynadrld 10,652-10,654' in 5 hrs. Still having trouble maintaining proper WOB. POH. Chg out dynadrls. Strap into dynadrl. Cut & slip 90' drlg line. Will LD NRS on TIH.
11/19/80	10,682	Day-139, Ftg-28. ST - Dynadrlg off of cmt plug. Mud: 8.6#, vis 46, WL 7.2. LD NRS on TIH. Reset Daily jars to 15 jts up in HWDP. Brk circ & oriented tool. Drld 20'/8 hrs - samples 10% cmt & 90% dolo & lime. Drld 8'/6 hrs - no chg in samples. Will take check survey @ 10,684'.
11/20/80	10,687	Day-140, Ftg-5. Trip f/bit #31. MW 8.6, vis 47, WL 6.4 Drld 5' w/dyna drill, survey @ 10,650'. Hole 3/4° S65E; tool oriented S52E. Schlum dip log dev 2° S40W. POH. Bit worn on outer edge. Bearings failed in dyna drill. PU angle building assembly & SIH. 3/4° S65E @ 10,650.
11/21/80	10,687	Day-141, Ftg-49. Drlg. Mud: 8.6#, vis 46, WL 7.2. Drlg w/angle bldg assembly. 2° S61E @ 10,678', 2-1/2° S70E @ 10,709'.
11/22/80	10,755	Day-142, Ftg-19. Trip Picking up new BHA. MW: 8.6, Vis 45, WL 7.2. Drld to 10,755. Angle dec. 1/4°. POH to PU new BHA. Magnaflux 6-1/2" BHA & 15 jts HWDP. LD 49 jts X-95 & 8" BHA assembly out of derrick. Magnafluxed 8" BHA. All magnuflux OK. 2-1/4° S72°E @ 10,749.
11/23/80	10,811	Day-143, Ftg-56. Drlg. MW: 8.9#, Vis 45, WL 8.0. Fin in hole. Washed & reamed 120' to bottom w/very little torque. Lost 30 bbl mud drlg 10,795 & 10,801'. Drlg ahead. Was not necessary wsh & rm to bottom. 2-1/4° S61°E @ 10,773'.
11/24/80	10,913	Day-144, Ftg-102. Circl f/survey. MW: 8.7#, Vis 48, WL 7.2 Drl to 10,913'. Circl f/survey. Prep to trip f/DST. 2° S56°E @ 10,835'.
11/25/80	10,913	Day-145, Ftg-0. Prep for DST #5. MW: 8.7#, Vis 43, WL 8. Circl & cond hole f/DST. Made short trip. No drag or fill. POH. PU DST tools. TIH f/DST #5. 2-1/2° S68E @ 10,893'.
11/26	10,913	Day-146, Ftg-0. Circl & cond mud f/DST. MW: 8.6+, Vis 55, WL 7.8. Finished TIH w/DST#5. Had 27' fill on bttm. TOH & w/DST tools. Repairs to fill-up line. Finished TOH & LD test tools. PU BHA & TIH to 10,757'. Wshd & rmd f/10757-10913'. Had approx 31' fill on bttm. Circl & cond mud for DST, raise viscosity to 60.
11/27	10,913	Day-147, Ftg-0. GIH w/DST tools. Mud: 8.6#, vis 55, WL 7.2. Circ f/DST - made two 5 std wiper trips w/no drag or fill. Spt 55 bbls of 60 vis & 8.9 ppg mud on btm. WIH w/DST assembly to tst 10,777-10,913' w/2500 WC.

11/28	10,913	Day-148, Ft( ). POH. Mud: 8.7#, vis 65, WL Ran DST #6, unable to go below 10,799' w/btm pkr @ 10,672'. POH. Found top pkr rubber swelled out. WIH w/stiff drlg assembly - wshd & rmd 10,646-10,913'. No fill or tite spts. Cond'd mud & sptd 100 bbls of 10 ppg - 100 vis mud on btm. SOH f/tst tools.
11/29	10,913	Day-149, Ftg-0. GIH w/hole opnr. Mud: 8.6#, vis 55, WL 7.2. WIH w/tst assembly to tst 10,777-10,913' w/2525' WC. Unable to go below 10,800'. Worked pipe 1-3/4 hrs & POH. WIH w/12-1/4" hole opnr.
11/30	10,913	Day-150, Ftg-0. Opng hole to 12-3/4". Mud: 8.6#, vis 84, WL 7.2. WIH to 9623' & began taking wt. Wsh'd & rm'd 9623-9654' & lost full returns. Mixed 100 bbls 10% LCM pill & sptd on btm & regained full returns. (Lost total 150 bbls). Cond mud. Wsh'd & rm'd 9654-10,082'. WIH to 10,520'. Wsh'd & rm'd to 10,646'. Opnd 8-3/4" hole to 12-1/4" f/10,646-10,768'.
12/1/80	10,913	Day-151, Ftg-0. Circ & cond mud. Mud: 8.6#, vis 66, WL 7.2. Rm'd 8-3/4" hole to 10,897' @ 7-22 min/ft & f/10,897-10,902' @ 1 min/ft. Made conn. Wsh'd to 10,964' in old hole. Samples 98% cmt. Circ. Took check survey w/hole opnr @ 10,917' - dev 1-1/4° - (orig dev 2-1/2°). 1-1/4° @ 10,917'.
12/2	11,047	Day-152, Ftg-0. WO Hallib. Mud: 8.6#, vis 46, WL 8.8. Circ & cond mud @ 10,964'. Wsh & rm f/10,064-11,047'. Circ & cond mud @ 11,047'. TOH. LD hole opnr, short DC, 3 pt rmr.
12/3	11,047	Day-153, Ftg-0. Circ'g & cond mud, prep to set cmt plug. Mud: 8.6#, vis 49, WL 9.6. TIH w/plug catcher, PU 29 jts X-95. Set DP OE @ 10,949'. Circ & cond mud & pre-treat f/cmt. Prep to set 400 sx cmt plug 10,950-10,500'.
12/4/80	11,047	Day-145, Ftg-0. Lost circ, attempt to regain same. Mud:8.7#, vis 54, WL 9.6. Circ & cond mud. RU Hallib & set cmt plug w/400 sx Cl "H" cmt pre-mixed w/20% sd, 3/4% CFR-2 & 0.4% HR-4 f/10,950-10,500'. Displ'd w/ 161 bbls drlg mud & bmpd plug. Pld 6 stds & pmpd plug out w/2300#. Cmt in place @ 8:48 am 12/3/80. Avg slurry wt 17#/gal. TOH. PU BHA. TIH to 1500'. Slip & cut drlg line. chg out wt indicator diaphragm. Fin TIH. Tagged cmt w/15M# @ 11,027'. PU Kelley & wshd to btm @ 11,047' w/no wt on bit. Circ & cond mud @ 11047'. Lost circ. Mixed 100 bbls 15% LCM pill & pmpd dn. Did not regain circ. Pill #2, 100 bbls 30% LCM. Regained partial circ f/approx 2 min. Mud std'g @ flwline but will not circ. Lost approx 600 BM.
12/5/80	11,047	Day-155, Ftg-0. TIH, circ & cond mud. Mud: 8.7#, vis 70, WL 18. Bit in csg @ 4278'. Pmpd 214 BM dn annulus to regain circ. Circ & cond mud & bld vol. Run in 36 stds to 7672'. Circ & cond mud & bld vol. Run 60 bbls cmt contaminated mud to pit. Wsh & rm 7720-8210' (Moenkopi sh). TIH 12 stds. Circ & cond mud @ 9327'. TIH to TD.
12/6/80	11,047	Day-156, Ftg-0. Setting cmt plug. Mud: 8.7#, vis 60, WL 10.8. WIH to 10,967'. Wshd & rmd to 11,047'. Circ & cond mud. POH. WIH to 10,950'. Pmpd 20 BM flush & 264 sx Cl "H" cmt w/20% sd, .75% CFR-2, 4% HR-4, foll w/2 BN & 161 BM. Had partial returns while sptg plug.
12/7/80	11,047	Day-157, Ftg-0. POH. Mud: 8.7#, vis 50, WL 12. Fin'd sptg 264 sx plug 10,950-10,690'. POH. WOC. WIH to 10,000', circ & cond mud. WIH & tagged cmt @ 10,690' w/100M# wt - OK. POH.

12/8/80	11,047	Day-158, Ftg-0. WOC & TIH. Mud: 8.7#, vis 50, WL 12. Fin TOH. Dressed Howco plug catcher & TIH to 10,605'. Circ & cond mud. Pmpd 20 bbls mud flush foll w/400 sx Cl "H" cmt w/20% 20/40 mesh sd, 3/4% CFR-2 & .4 HR-4. Displ'd cmt w/2 BW & 150 bbls 8.7 ppg mud - didn't bmp plug. Pld 8 stds. Pmpd plug & opnd circ'g sub. GOH. Had full returns during sptg of cmt plug. Est theoretical top of cmt @ 10,120'.
12/9/80	11,047	Day-159, Ftg-0. TI to set cmt plug. Mud: 8.7#, vis 55, WL 12. TIH. Tagged cmt top @ 10,380'. Cmt vy soft. Able to wsh dn w/5M# WOB. Firm cmt 10,450-10,455'. Taking 15-20M# WOB. Soft cmt 10,455-10,460. WOC 6 hrs. Firm cmt 10,460-10,490'. Circ & cond mud. TOH, PU Hallib plug catcher. TIH.
12/10/80	11,047	Day-160, Ftg-0. WOC. Mud: 8.7#, vis 50, WL 12.8. Fin TIH to 10,490'. Circ while WO Hallib 13 hrs. RU Hallib. Pmpd 20 BM flush. Cmt w/300 sx Cl "H" w/20% sd, 3/4% CFR-2, .2% HR-4. Displ w/2 BW & 148 BM. Bmpd plug 11:45 pm 12/9/80. Had gd returns thruout job. Calc'd cmt top @ 10,120'. POH w/6 stds. Press up to shear circ'g pin. Circ OK. POH. WOC. Note: F/time Hallib called to do cmt plug job (3 pm 12/8/80) until their arrival @ 10 pm 12/9/80 was 31 hrs.
12/11/80	10,204	Day-161, Ftg-0. PB - Circ'g & cond'g mud & WOC. Mud: 8.7#, vis 50, WL 12.8. WOC 15 hrs. TIH w/BHA to 9815'. Bridge took 100M# wt. Circ @ 9363'. Wsh & rm 9815-9872'. TIH 9872-10,145'. Top of cmt plug 10,145'. Cmt would not pmp off. Drld 59' of cmt f/10,145-10,204' @ 4'/min. Will circ & WOC add'l 6 hrs before tstg cmt. Samples circ'd up indicated green cmt.
12/12/80	10,273	Day-162, Ftg-0. PB - PU Dynadril. Mud: 8.7#, vis 40, WL 12. WOC. Circ 6 hrs @ 10,204'. Rmd cmt 10,204-10,241' in 27 min. Circ. Clean pits. Shake LCM out of mud. Cont circ'g. Rmd cmt 10,241-10,273' in 37 min. Circ prior to TOH. TOH to PU Dynadril.
12/13/80	10,273	Day-163, Ftg-0. PB - POH w/new Dynadrill. Mud: 8.7#, vis 47, WL 10.4. WIH w/DP & hit ledge @ 8185'. Rotated off. WIH to 10,273'. Circ & oriented tool. Unable to make any penetration.
12/14/80	10,294	Day-164, Ftg-21. BP - Drlg. Mud: 8.6#, vis 44, WL 10.4. Chg'd out Dynadrill assbly. WIH to 10,273' & began drlg.
12/15/80	10,331	Day-165, Ftg-37. PB - Survey. Mud: 8.6#, vis 45, WL 9.8. Survey #1 indicates no kick-off in 1st 30' of drlg f/10,273-10,303'. Survey #2 indicates tool still in old hole, but torque & penetration rate indicating bit cutting new fm. 1-1/2° N36W @ 10,261', 1-3/4° N49W @ 10,296'.
12/16/80	10,365	Day-166, Ftg-34. PB - TOH w/Dynadril. Mud: 8.6#, vis 44, WL 9.6. Surveyed @ 10,296'. Orient Dynadril 10,331-10,365'. Survey @ 10,330'. TOH w/Dynadril. 3-1/4° N31W @ 10,330'.
12/17/80	10,378	Day-167, Ftg-13. PB - Trip f/ 12-1/4" bit. Mud: 8.6#, vis 50, WL 7.2. LD Dynadril & dia bit. RIH w/ 8-3/4" bit & BHA. Rmd 10,273-10,365'. Drld 10,365-10,378'. Ran survey. Made check shot w/same results. Samples while circ'g showed all cmt. POH to PU 12-1/4" bit. LD 66 jts DP out of derrick. 3/4° N11W @ 10,360'.

12/18/80	10,399	DAY-168, Ftg 1. PB - LD stablilizers. Mud: 6#, vis 57, WL 7.2% Fin TOH. Chg BHA. TIH w/BHA. Service rig. TIH. Hit bridge @ 9807'. Wsh & rm 9807-10,327'. Did not find any cmt 10,272-10,372'. Check depth w/Hallib WL (12' diff). Drld cmt 10,372-10,399. Drlg rate strtd @ 2 min/ft. Last 2; drld @ 5 min/ft. Circ btms up w/Dynadril run. TOH. Steel line meas - no correction. LD stabilizers.
12/19/80	10,410	Day-169, Ftg-11. PB - Drlg w/Dynadril. Mud: 8.6#, vis 54, WL 8%. LD 8-3/4" stabilization. PU Dynadril & bent sub. Slip & cut drlg line. TIH. Orient tools S50E. 3/4° NW @ 10,369'.
12/20/80	10,418	Day-170, Ftg-8 (ST). Trip in w/Dyndadrill. Mud: 8.6#, Vis 57, WL 7.2 Dyna drld 10,410 - 10,418. Circ & survey @ 10,376. Pipe stuck - worked free in 1 hr. LD 1 jt DP & reorient dynadrill. Bit plugged. POH. Dyna drill and 1 equalizing part washed out. Changed out Dynadrill. Strap bit to Dyna drill & trip in hole. Be on Bott = 12-1pm. 1-3/4° N38W @ 10,376.
12/21/80	10,443	Day-171, Ftg-25 (ST) Drlg w/Dynadrill. MW: 8.6#, Vis. 52, WL 6.4. Fin in hole w/ D.D. Wsh & Rmd 69' 10,349-10,418'. Drlg slow but steady - 32-45 min/ft.
12/22/80	10,448	Day-172, Fgt-5 (ST) Rmg Dynadrill hole. MW: 8.7#, Vis. 48, WL 6.4 Dynadrilling f/10,443-10,448'. Circ & survey @ 10,414'. TOH & LD Dynadrill. PU 8-3/4" hole opener, 3 pt rmr + 2 NRS & TIH to 10,399'. Rmg Dynadrill hold f/10,399 - 10,426'. 2°N30E @ 10,414'.
12/23/80	10,495	Day-173, Ftg-47 (ST). Drlg. MW: 8.6#, Vis 45, WL 6.2. Ream dynadrill hole f/10,426 - 10,448;. Circl & survey @ 10,434'. TOH. Change BHA. TIH w/drlg assembly. Drld f/10,448 - 10495'. 2-3/4°N59E @ 10,434'.
12/24/80	10,582	Day-174, Ftg-87 (ST). TIH MW: 8.7#, Vis 48, WL 6.4. Drl f/10,495' - 10,518'. Circl & survey @ 10,503'. Drl f/ 10,518' -10,582'. Circl & survey @ 10,573. TOH. Chg bit & BHA. TIH 3-1/4° N74E @ 10,503 & 10,573'.
12/25/80	10,708	Day 175. Ftg-1286 (ST). Drlg. MW: 8.6#, Vis 45, WL 6.4. WIH & drld 10,582' to 10,708. 3-1/4°N78E @ 10,629, 3-1/4°N79E @ 10,697'
12/26/80	10,754	Day 176, Ftg-46 (ST). TIH w/jnk sub & mill tooth bit. MW:8.5#,Vis48,WL6.2 Drld 10,707-10754'. Circl & survey @ 10,735'. Circl f/core. TOH - PU mill tooth bit @ junk sub. TIH to recover broken compacts. Cut drlg line. PU & serviced core bbl; stood back in derrick. 3°N76E @ 10,735'.
12/27/80	10,759	Day-177, Ftg-5 (ST) GIH w/core bbl. MW: 8.6#, vis 45, WL 7.8. WIH w/bit & junk sub. Washed to btm & drld 5', circulated & worked junk sub. POH & ran 1 magnet & junk sub and recovered three inserts.
12/28/80	10,766	Day-178, Ftg-7 (ST). TIH w/core bbl. MW: 8.6#, Vis 45, WL 6.4. PU core bbl & Eastman tools for oriented core. Cored 7' in 9 hrs. w/last 2' requiring 4 hrs. POH & recovered 7' 8" Limestone w/minor Dolomite & chert modules, miner oil odor and black stain on fractures. Re-ran coring assembly.

12/29/80	10,775	Day-179, Ftg - (ST). Reprg rig after blocks laidover. MW: 8.6#, Vis 45, WL 6. Finished dressing core barrel & Eastman orientation tools, PU BHA and TIH. Washed and rmd 60' to btm (10,766') requiring only 7' of light rmg. Cored 7' in 6-1/2 hrs and then 2' in 4 hrs. Started TOH @ 11 pm and pulled 16 stds DP (1500') and had shut down after latching elevators onto 17th std so as the 16th std could be picked up and aligned on DP set back. The driller had not chained the drum brake down while his crew was using the air hoist to pick up the 16th std and because of this, the blocks laid over with bails leaning into the drillers station and the blocks laying across the rotary table and DP. Also, the drilling line pulled out of the drum. Now waiting on rig-up trucks.
12/30/80	10,775	Day-180, Ftg-0 (ST). LD CB. MW: 8.6#, Vis 46, WL 5.6. WO RU truck to lift travelling blocks. PU blocks. Repair drum in driller's station while circ'g hole. Restrung drlg line on drawworks. Complete rig repair. POH w/CB. Repair air valve & finish TOH. Rec'd 8' 11" core: Micro crystalline, cherty limestone brecciated - poor to fair porosity; green slightly calcarious, silty shale - poor porosity; last interval brecciated 60% cherty lime fill. LD CB. 3° N75E @ 10,700'.
12/31/80	10,818	Day-181, Ftg-43. ST - POH & DST. Mud: 8.6#, vis 47, WL 5.6. LD CB, PU BHA. Strap in hole. Ream 10,705-10,775'. Drl 10,775-10,818'. Circ f/tst. Survey. POH. 3° N70E @ 10,798'.
1/1/81	10,818	Day-181, Ftg-0 ST - Dst'g (#5) Mud: 8.6#, Vis 47, WL 6.4. TOH for DST. PU Johnson test tools but broke pin on reversing sub and had to wait 9 hrs for another sub. PU test tools & changed out clocks. TIH. Filling DP w/2500' wtr cushion. DST 35 interval 10,716 - 10,818'. Opnd tst tools for 10" IF @ 4:37 am 1/1/81 with very, very weak blow w/o increasing. Shut in at 4:47 am for 40 min ISI & reopnd @ 5:30 am for 120 min; second flow period w/very, very weak air blow. Annulus standing full during the tst.
1/2/81	10,838	Day-182, Ftg-20 ST. - Drlg. MW: 8.6#, Vis 46, WL 6.4. DST #5 - ISI 40 min, 2nd flow - 120 min, FSI - 90 min. Very wk blow IF - only few bubbles in bucket. Flw died in 15 sec. Very wk blw 2nd flow - few bubbles, blow died in 10 sec. Rel'd pkr approx 9 am 1/1/81. Pld 16 stds top of wtr cushion @ 1495'. Took est 144 bbls to fill hole. Hole full prior to pkr release. 93 bbls mud U-tubed upon pkr release. Dry pipe displacmnt 29 bbls - hole took 22 bbls mud. 16th std - top of cushion - gas cut & odor globules of thick oil- emulsion. 17th std - tr of oil in emulsion & wtr, some gas. 19th std - wtr, gas, tr of oil. 27th std - wtr, gas, tr of oil. 31st std - drl mud cut wtr, tr of oil, tr of gas. 33rd std - all drl mud. Samples collected on each. Mud loggers chkd samples: 17th std - bright white & lite yellow fluorescence; 54 units hot wire CO_2 = 850 ppm, base 600 ppm, C_1 = 0 ppm, C_2 = 0 ppm, C_3 = .07%, I-C_4 = .03%, N-C_4 = .16%. 31st std - bright yellow & white fluorescence, CO_2 = 650 ppm, 20 units hote wire, C_1 = .25%, C_2 = 0 ppm, C_3 = .03%, I-C_4 = 0%, N-C_4 = tr. Cont TOH w/tst tools. Rec'd sample chamber Mandrel plug in btm of tools. Plug apparently sheared during cycling of MFE tool @ end of 2nd flw period. Sample chamber closed but allowed flw thru mandrel ID upon release of pkr. Press bomb recorded as foll: Depth 10,740', IHP 5047 psi, IF 1164 psi (straight line); ISIP 3011 psi, curve still building, FF 1164 psi (straight line); no FSIP; remained 1164 psi; FHP 4225 psi. Sample chamber rec'd 460 cc Mud w/est 10% oil & oil in emulsion w/240 cc additional mud w/tr of oil still in chamber to be rec'd in shop. BHT 156°F. LD tst tools. Make up bit & BHA. TIH. Drlg ahead 10,818 - 10,838'.

1/3/81 | 10,913 | Day-184, Ftg-75 ST - TIH for DST #6. MW: 8.6, Vis 49, WL 7.2. Drld to 10,913' w/minor shows in interval 10,880-10,889'. Circ hole & took survey. TOH. Picked up Johnson DST tools. Have just begun tripping in hole w/DST tools at 8 am 1/3/81. DST #6 will test Redwall limestone interval 10,785-10,913'. 3°N82E @ 10,893'.

1/4/81 | 10,913 | Day-185, Ftg-0. ST-TIH w/8-3/4" bit-drl to 10,970' & Core. MW: 8.6 #, Vis 44, WL 7.6.
Finished TIH for DST #6 using Johnson Testers. Interval to be DST'd is 10,784-10,913'. Set pkrs and opnd tool @ 12:21 pm 1/3/81 w/very weak blow. Took 16" initial flow w/weak blow thruout (1/2" H_2O), took 50" ISI; reopened for 90" final flow w/weak blow thruout the 50 minutes. Shut in for 90" FSI and pulled loose @ 4:37 pm 1/3/81. Annulus stood full during the test. POH recovering 80' of fluid (.4 bbls) from the drill collar. Caught drill string samples from the top-middle-bottom of the 80' column. Top sample had very slight trace oil & gas w/gas odor, spotty fluor & weak cut. DST #6:

	Inside Pressure check	Outside Pressure check	Outside Pressure check
Depth	10,760'	10,790'	10,796'
IHM	5,108	5,102 psi	
IF		25 - 30 psi	
ISI		80 psi	
FF		28 - 28 psi	
FSI		97 psi	
FHM	5,108	5,102 psi	
BHT		154° F	

Two of the three pressure recorders malfunctioned. Top fluid sample: Very slightly oil & gas cut w/few spots fluor & weak cut; blender gas on hotwire was 19 units; C_1 = 0, C_2 = .02%, C_3 = .02%, IC_4 = 0, NC_4 = trace. Bottom Sample: Highly oil & gas cut mud, appears amber, very bright green-yellow & white fluor. Cut is medium straw color & white. Hot wire was 120 units: C_1 = .15%, C_2 = .10%, C_3 = .17%, IC_4 = .04%, NC_4 = .19%, IC_5 = .05%, NC_5 = .07%. Sampler chamber: Rec'd 1,100 cc mud, 15 psi, w/minor oil & gas & slight gas odor.

1/5/81 | 10,970 | Day-186, Ftg-57 (ST) - TIH f/DST #7. MW: 8.6#, Vis 45, WL 7.2. TIH. Wsh & ream f/10,871-10,913'. Drld to 10,970'. Circl f/DST & survey. TOH. LD rmrs, NRS & jars. PU DST tools. TIH f/DST #7, 10,909-10,970'. 2-3/4°N80E @ 10,950'.

1/7/81 | 10,985 | Day-188, Ftg-15 (ST) - TIH. MW: 8.6#, Vis 45, WL 7.4. Core #5 f/10,970-10,985'. Barrel jammed. Circl 1-1/4 hrs. TOH. Recov'd 12-1/2' core; 11' core intact, 1-1/2' of broken sample. Descrip: limestone, pale green to dark greenish gray, dense microcrystalline to finely crystalline, no obvious porosity except in minor brecciated intervals; occasional oil stain on fractures w/no cut or fluors. TIH to resume coring.

1/8/81 | 10,993 | Day-189, Ftg-8. ST - TIH. Mud: 8.7#, vis 47, WL 6.4. Fin TIH. Core #6 10,985-10,993', cut 8' & bbl jammed. TOH & LD CB & monel DC. Chg BHA. TIH. Core description: Limestone lite brown to brownish grey; dense; microcrystalline to finely crystalline; no obvious porosity.

1/9/81 | 11,130 | Day-190, Ftg-137. ST - Circ f/samples. Mud: 8.7#, vis 43, WL 7.2. Fin TIH. Wsh & rm 60' to btm. Drld 8-3/4" hole to 11,130'. Have drlg brk 11,101-11,130'. Circ f/samples.

1/10/81 | 11,130 | Day-191, Ftg-0. ST - TIH w/DST #8. Mud: 8.5, vis 43, WL 7.2. Circ f/DST. TOH & LD stabilizer & reamers. PU DST tools.

ARCO Oil and Gas Company
Western District
717 - 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 575 7031

W. A. Walther, Jr.
Operations Manager

February 5, 1981

Mr. Edgar Guynn
United States Geological Survey
1745 W. 1700 S
Ste 2000
Salt Lake City, Utah 84104

Re: Black Canyon Well #1
1820' FSL & 1975' FEL (NW SE)
Section 23-32S-2W
Garfield County, Utah

Dear Mr. Guynn:

Final prints of logs for the referenced well have not been received. These will be forwarded to your office as soon as they are received.

Very truly yours,

K L Flinn

K. L. Flinn
Operations Information Assistant

BLACK CANYON
NW SE Section 22-32S-2W
Garfield County, Utah

DST #1	9082'	-	9134'	Rec 94' mud; IH 441; IF 103-77; ISI 358; FF 90-90; FSI 141; FH 4364
DST #2	9222'	-	9288'	Rec 6193' water, 450 ppm CL; IH 4505; IF 520-583; ISI 3260; FF 458-2737; FSI - ; FH 4505
DST #3	10,957'	-	11,047'	Rec 200' mud; IH 5401; IF 85-85; ISI 3571; FF 85-134; FSI 3758; FH 5289
DST #4	10,861'	-	11,047'	Failed, stuck tools, sidetracked fish
DST #5	10,777'	-	10,913'	Could not get tools below 10,800'
DST #6	10,777'	-	10,913'	Could not get tools below 10,800'
DST #7	10,716'	-	10,818'	Recovery contaminated by mud flow after tool closed; IH 5047; IF 1164; ISI 3011; FF 1164; FSI 1164; FH 4225
DST #8	10,784'	-	10,913'	Rec 80' mud slight oil and gas cut; IH 5102; IF 25-30; ISI 80; FF 28-28; FSI 97; FH 5102
DST #9	10,909'	-	10,970'	Rec 15' mud slight oil show; IH 5003; IF 21-25; ISI 33; FF 23-25; FSI 30; FH 5003
DST #10	11,065'	-	11,130'	Rec 6002' water, 660 ppm CL; IH 5214; IF 1081; ISI 4057; FF 2637; FSI 4057; FH 5202

BLACK CANYON #1
NW SE Section 22-32S-2W
Garfield County, Utah

CORE #1	8447'	-	8488'	Dolomite
CORE #2	8700'	-	8733'	Dolomite
CORE #3	10,965'	-	10,925'	Limestone
CORE #4	10,759'	-	10,766'	Limestone
CORE #5	10,766'	-	10,775'	Limestone
CORE #6	10,970'	-	10,985'	Limestone
CORE #7	10,985'	-	10,993'	Limestone
CORE #8	11,130'	-	11,146'	Dolomite
CORE #9	11,146'	-	11,183'	Dolomite

February 23, 1981

Arco Oil and Gas Company
Division of Atlantic Richfield Co.
P.O. Box 5540
Denver, Colorado 80217

RE: Well No. Black Canyon #1
Sec. 23, T. 32S, R. 2W.,
Garfield County, Utah

Gentlemen:

According to our records, a "Well Completion Report" filed with this office February 5, 1981, from above referred to well indicates the following electric logs were run: DIL, BHC-GR, CNL/FDC-GR. 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 electric and radioactivity logs.

Your prompt attention to the above will be greatly appreciated.

Sincerely,

DIVISION OF OIL, GAS AND MINING

BARBARA HILL
WELL RECORDS

/bjh

ARCO Oil and Gas Company
Frontier District
Post Office Box 2819
Dallas, Texas 75221
Telephone 214 651 5151

March 3, 1981

Mr. Jack Feight
Utah Division of Oil, Gas and Mining
1588 West N. Temple St.
Salt Lake City, Utah 84116

Re: Deposition of logs from Arco Oil & Gas Co. No. 1 Black Canyon

Dear Mr. Feight:

We request that all logs and other material concerning our No. 1 Black Canyon well be held confidential until the time limit specified by Utah law.

Thank you for your time and consideration.

Yours truly,

Robert A. Cook

Robert A. Cook
Area Geologist, Frontier District
Arco Oil & Gas Co.

RAC/gb

BLACK CANYON #1
NW SE Section 22-32S-2W
Garfield County, Utah

PLUGGED AS FOLLOWS:

9200' - 9000' 200 sx Class "H" neat cement

6800' - 6600' 250 sx Class "H" neat cement

6200' - 6000' 140 sx Class "B" neat cement

4400' - 4150' 290 sx Class "B" neat cement

5 sx cement plug with dry hole marker set at surface