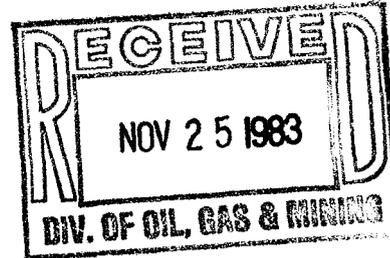


ARCO Exploration Company
Exploration Operations - Western U.S.
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 575 7000



November 21, 1983



Norm Stout
State Oil & Gas Commission
4241 State Office Building
Salt Lake City, Utah 84114

Dear Mr. Stout:

This letter is in reference to our conversation on Friday, October 18, concerning the location of ARCO's proposed well in the area of Sunnyside, Utah. Our proposed location is 2500' FNL, 1500' FEL, Section 28-T15S-R13E. To be in accordance with Utah regulations and your 200' margin, we would have to move the location 160' to the north and 120' to the west for a total of 200'.

ARCO requests that the original location be allowed. The location is on a seismic shotpoint allowing us to directly tie the subsurface borehole data to our seismic data. The proposed location is at shotpoint 1100 on Line 2 (see enclosed map).

The displacement of the location by 200' would probably not significantly affect a proper evaluation of our main objective, therefore ~~none of our primary evidence in developing the prospect has been impacted by your requirements.~~ The feature we will be testing is a Pennsylvanian-age structure which was mapped from 57 miles of seismic. The structure is complexly faulted and stratigraphic relationships are complicated due to the presence of several unconformities in the Paleozoic section. The main objective is in the Mississippian carbonate section, unlike Grassy Trail Field directly to the south. Grassy Trail Field produces oil from the Triassic Moenkopi Formation and is separated from our prospect by a major fault zone. It is our opinion that if production is encountered on our prospect, development will require a different spacing pattern than that established at the shallower Grassy Trail Field.

Proposed Sunnyside Location
Carbon County, Utah
November 21, 1983
Page 2

As stated previously, our requested location allows us to tie directly to our seismic. In an area where dips are flat, faulting is non-existent and stratigraphy is simple and very predictable, a 200 foot displacement would not be considered a problem; but those conditions do not exist at Sunnyside. In addition, it is known from nearby well information that unpredictable lateral velocity gradients occur. Thus, it is essential to tie the borehole information directly to the seismic to properly evaluate the entire prospect. Shooting additional seismic to tie a new location is not an alternative because of expenses and time involved in starting up an operating seismic crew. ARCO has spent about \$570,000 to acquire the seismic coverage at Sunnyside and intends to run a vertical seismic profile at the proposed well at a cost of \$50,000 to \$100,000. ARCO has committed itself both financially and philosophically to doing the best job it knows how, and that requires the allowance for our requested well location.

I realize that the information provided in this letter is not of the type you normally review, but I hope it is adequate to convey our point of view and earnest request for the allowance. If you need additional information, please call me at (303) 293-7165.

Sincerely,



Lance C. Anderson
Geologist

DESIGNATION OF OPERATOR

The undersigned is, on the records of the Bureau of Land Management, holder of lease

DISTRICT LAND OFFICE: UTAH
SERIAL NO.: U.S.A. U- 33976

and hereby designates

NAME: ATLANTIC RICHFIELD COMPANY
ADDRESS: 707-17th Street
Denver, Colorado 80217

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

Township 15 South, Range 13 East

Section 28: NE $\frac{1}{4}$

Carbon County, Utah

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

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

The lessee agrees promptly to notify the supervisor of any change in the designated operator.

JERRY CHAMBERS EXPLORATION CO.
a Colorado General Partnership
By: Axem Resources Incorporated
a Delaware Corporation
Attorney-in-Fact

By: Merle C. Chambers
Merle C. Chambers, Executive Vice-
President
7800 E. Union Avenue, Suite 1100
Denver, CO (Address) 80237

July 30, 1984

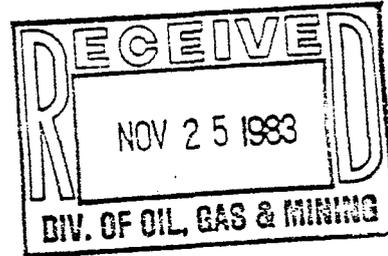
(Date)

ARCO Exploration Company
Exploration Operations - Western U.S.
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 575 7000

Exhibit 6



November 21, 1983



Norm Stout
State Oil & Gas Commission
4241 State Office Building
Salt Lake City, Utah 84114

Dear Mr. Stout:

This letter is in reference to our conversation on Friday, October 18, concerning the location of ARCO's proposed well in the area of Sunnyside, Utah. Our proposed location is 2500' FNL, 1500' FEL, Section 28-T15S-R13E. To be in accordance with Utah regulations and your 200' margin, we would have to move the location 160' to the north and 120' to the west for a total of 200'.

ARCO requests that the original location be allowed. The location is on a seismic shotpoint allowing us to directly tie the subsurface borehole data to our seismic data. The proposed location is at shotpoint 1100 on Line 2 (see enclosed map).

The displacement of the location by 200' would probably not significantly affect a proper evaluation of our main objective, therefore none of our primary evidence in developing the prospect has been included for your examination. The feature we will be testing is a Pennsylvanian-age structure which was mapped from 57 miles of seismic. The structure is complexly faulted and stratigraphic relationships are complicated due to the presence of several unconformities in the Paleozoic section. The main objective is in the Mississippian carbonate section, unlike Grassy Trail Field directly to the south. Grassy Trail Field produces oil from the Triassic Moenkopi Formation and is separated from our prospect by a major fault zone. It is our opinion that if production is encountered on our prospect, development will require a different spacing pattern than that established at the shallower Grassy Trail Field.

Exhibit 6 (cont.)

Proposed Sunnyside Location
Carbon County, Utah
November 21, 1983
Page 2

As stated previously, our requested location allows us to tie directly to our seismic. In an area where dips are flat, faulting is non-existent and stratigraphy is simple and very predictable, a 200 foot displacement would not be considered a problem; but those conditions do not exist at Sunnyside. In addition, it is known from nearby well information that unpredictable lateral velocity gradients occur. Thus, it is essential to tie the borehole information directly to the seismic to properly evaluate the entire prospect. Shooting additional seismic to tie a new location is not an alternative because of expenses and time involved in starting up an operating seismic crew. ARCO has spent about \$570,000 to acquire the seismic coverage at Sunnyside and intends to run a vertical seismic profile at the proposed well at a cost of \$50,000 to \$100,000. ARCO has committed itself both financially and philosophically to doing the best job it knows how, and that requires the allowance for our requested well location.

I realize that the information provided in this letter is not of the type you normally review, but I hope it is adequate to convey our point of view and earnest request for the allowance. If you need additional information, please call me at (303) 293-7165.

Sincerely,

Lance C Anderson

Lance C. Anderson
Geologist

303 - 293 - 4600

DESIGNATION OF OPERATOR

The undersigned is, on the records of the Bureau of Land Management, holder of lease

DISTRICT LAND OFFICE: Salt Lake City, Utah
SERIAL NO.: U-33976

and hereby designates

NAME: Atlantic Richfield Company
ADDRESS: P.O. Box 5540
Denver, CO 80217

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

Township 15 South, Range 13 East, SLM
Sec. 28: NE/4
Carbon County, Utah

See Exhibit "A" attached hereto and made a part hereof.

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

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

The lessee agrees promptly to notify the supervisor of any change in the designated operator.

By: 
Evelyn Chamber (Signature of lessee)
7800 E. Union Ave., Suite 1100
Denver, CO 80237

October 17, 1983
(Date)

(Address) KHL

EXHIBIT "A"

Attached to and made a part of that certain Designation of Operator covering the NE $\frac{1}{4}$ of Sec. 28, T15S, R13E, Carbon County, Utah, USA Lease No. U-33976 between ATLANTIC RICHFIELD COMPANY, Operator, and EVELYN CHAMBERS, dated this 17th day of October, 1983.

This Designation of Operator shall give the authority stated to the Operator, ATLANTIC RICHFIELD COMPANY, to act for and on behalf of EVELYN CHAMBERS, only insofar as said authority is required for all matters preliminary to the actual drilling of a well on the Northeast Quarter of Section 28, Township 15 South, Range 13 East, Carbon County, Utah. This authority specifically excludes the authority of Operator to commence actual drilling operations.

SIGNED FOR IDENTIFICATION

By:

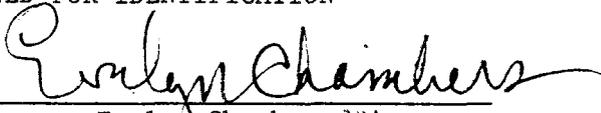

Evelyn Chambers *2114*

Exhibit I (b)
 Topographic layout of Pad
 Sunnyside #1, Carbon Co Utah



POWERS ELEVATION

SUNNYSIDE #1
 ARCO Oil & Gas
 2500'fN 1500'fE
 Sec. 28 T15S R13E
 Carbon Co., Ut.

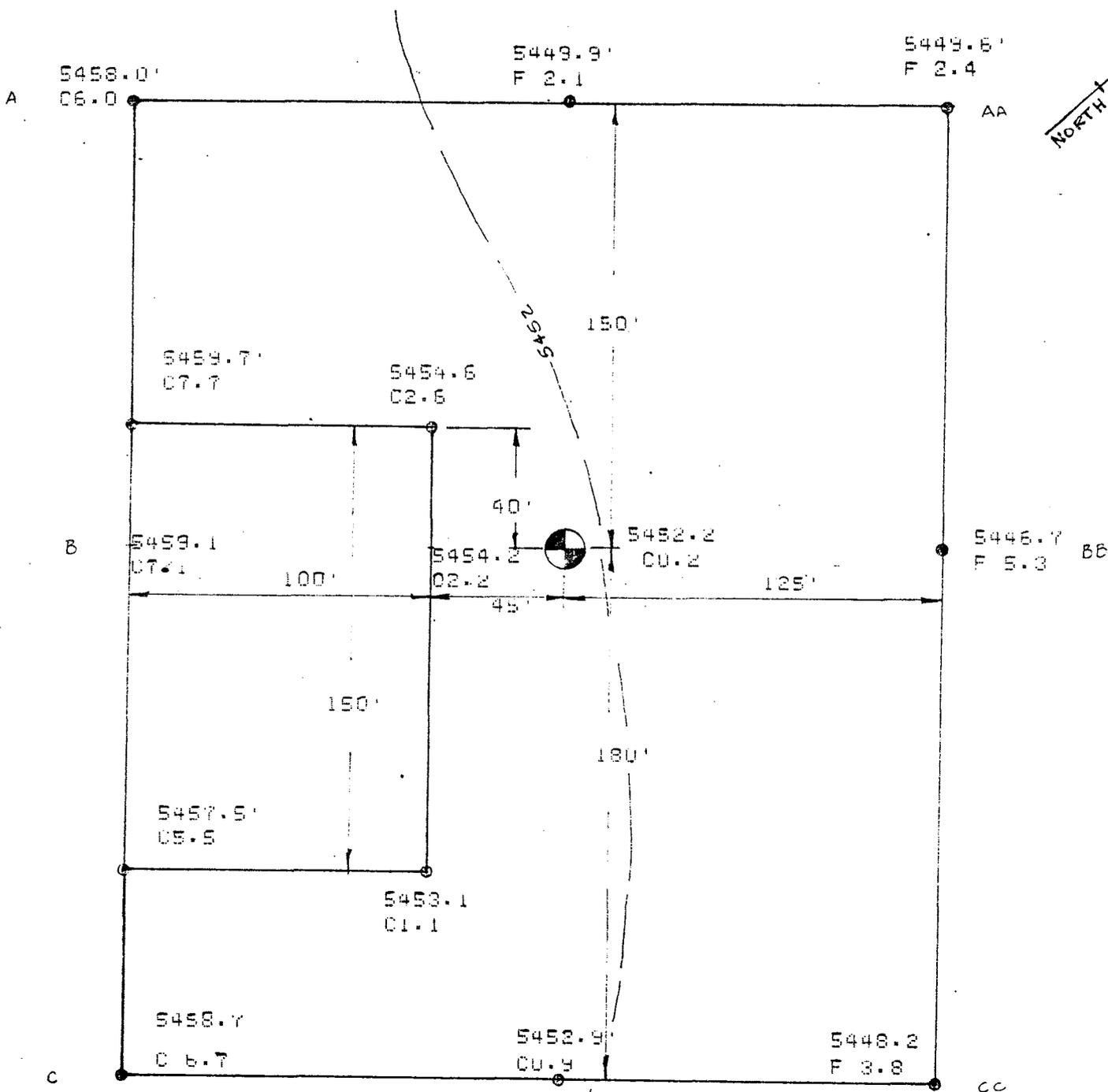
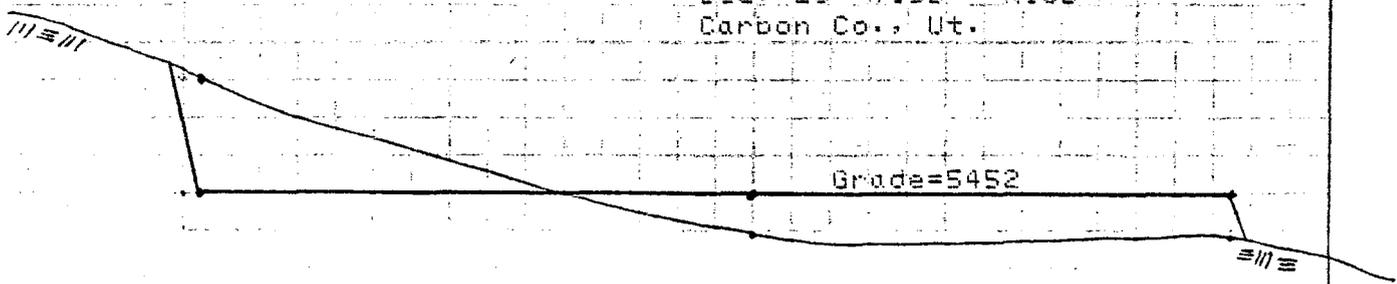
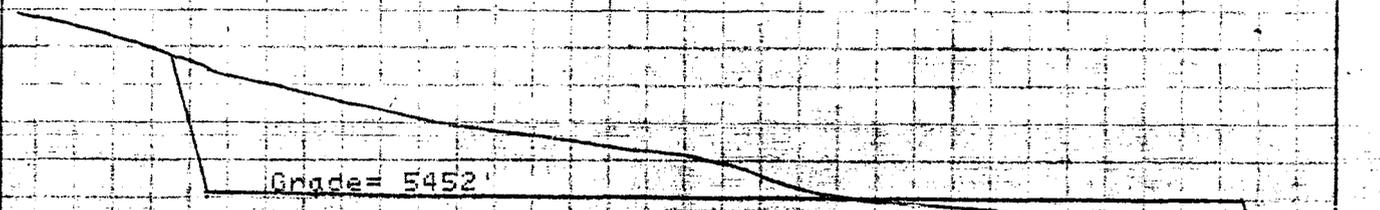
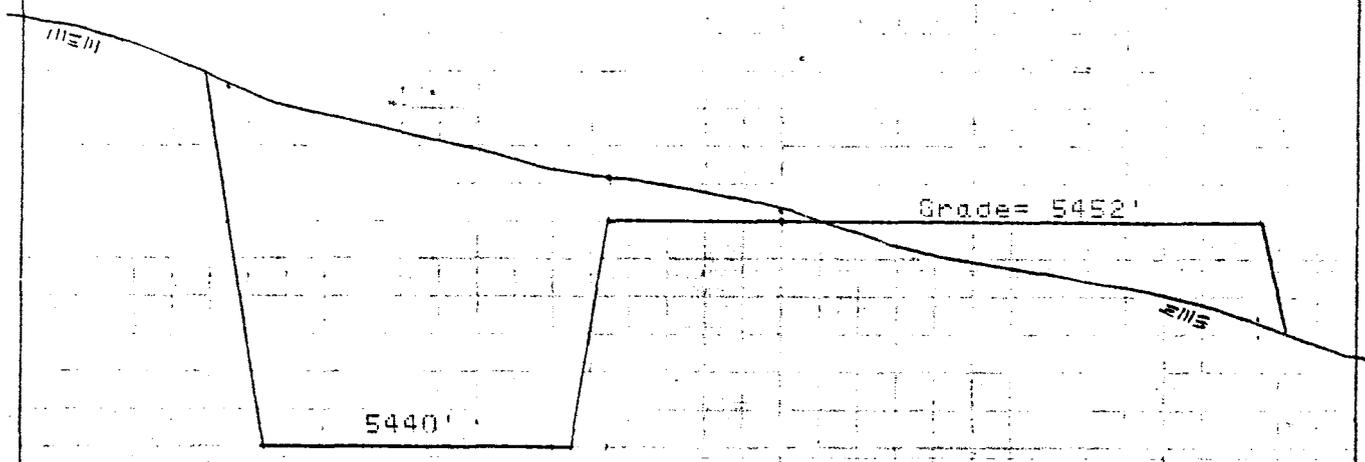


Exhibit 2-(c)
 cut and Fill Diagram
 sunnyside #1, Carbon Co Utah

HKCU 011' W 40S
 2500' 4N 1500' 4E
 Sec. 28 T15S R13E
 Carbon Co., Ut.



Out = 6299.4 cu. yds.
 Fill = 3669.8 cu. yds.
 Pit = 6666.7 cu. yds.
 Topsoil = 1650 cu. yds.



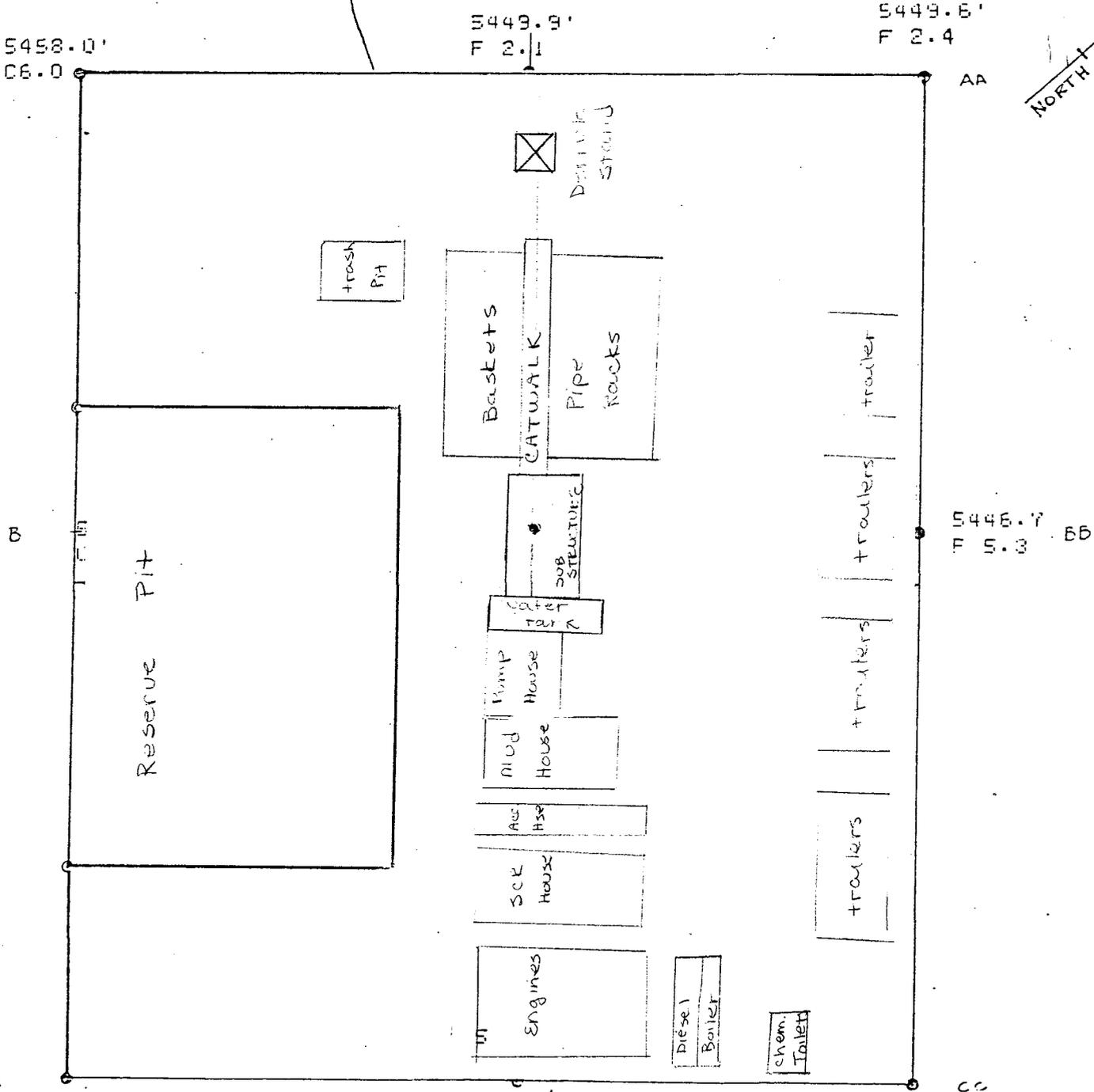
43 SHEETS 50 SQUARE
 43 SHEETS 100 SQUARE
 43 SHEETS 200 SQUARE
 43 SHEETS 300 SQUARE
 NATIONAL



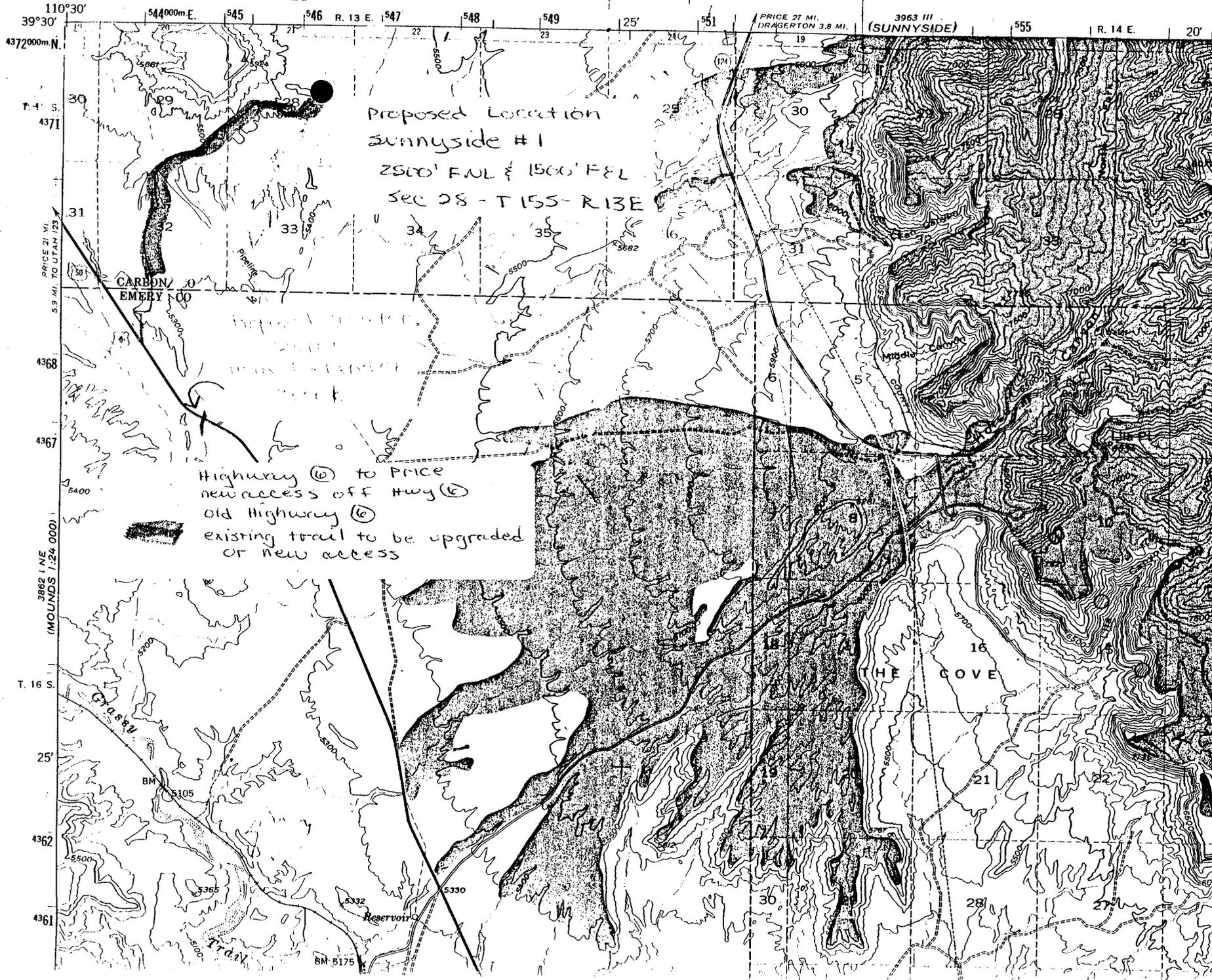
POWERS ELEVATION

SUNNYSIDE #1
ARCO Oil & Gas
2500' FM 1500' FE
Sec. 28 T15S R13E
Carbon Co., Ut.

Exhibit 1(d)
Equipment Layout of Location
Sunnyside #1



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



8

Exhibit Z

Topographic Access Route to
Location & Location of Proposed
Water Source
Sunnyside #1

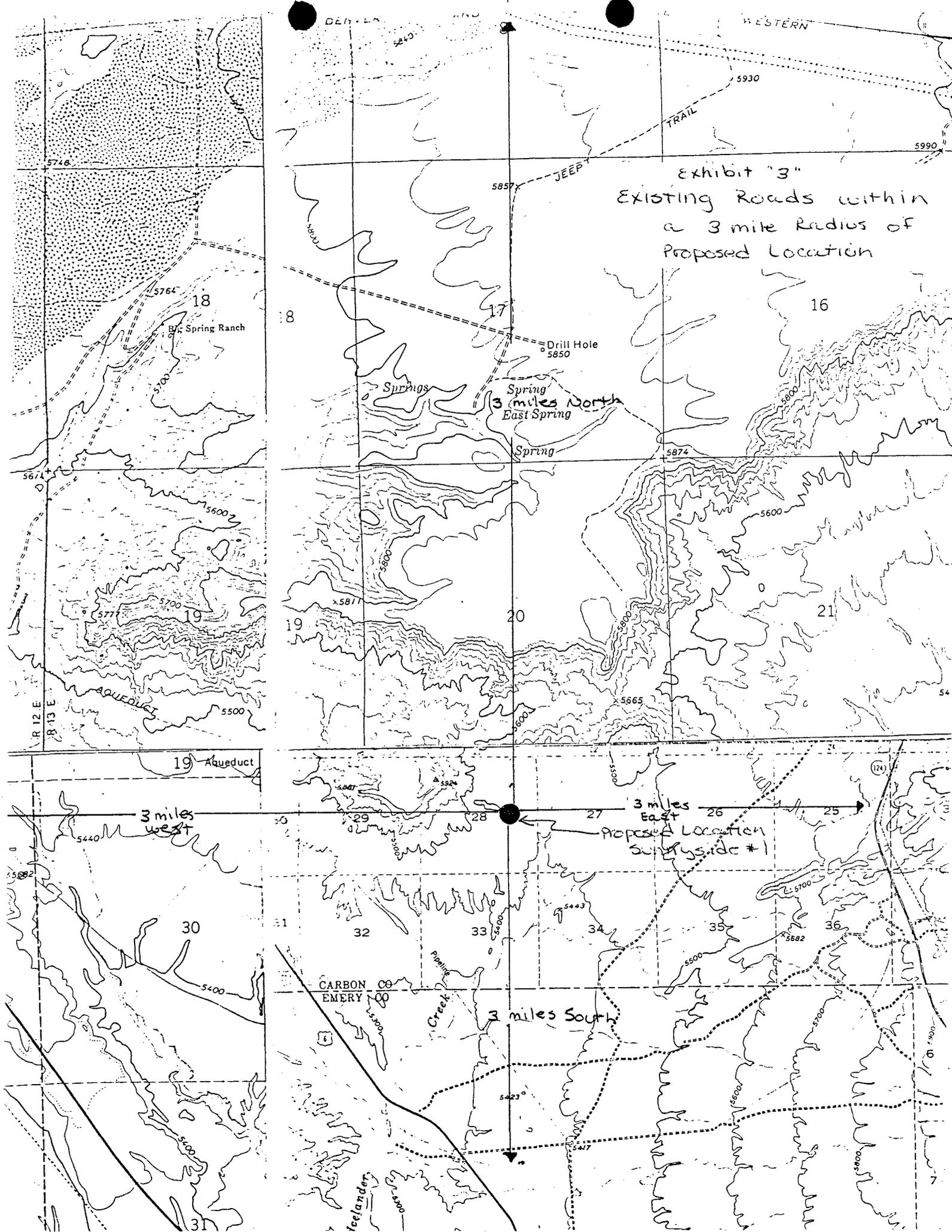


Exhibit "3"
Existing Roads within
a 3 mile Radius of
Proposed Location

3 miles west

3 miles East

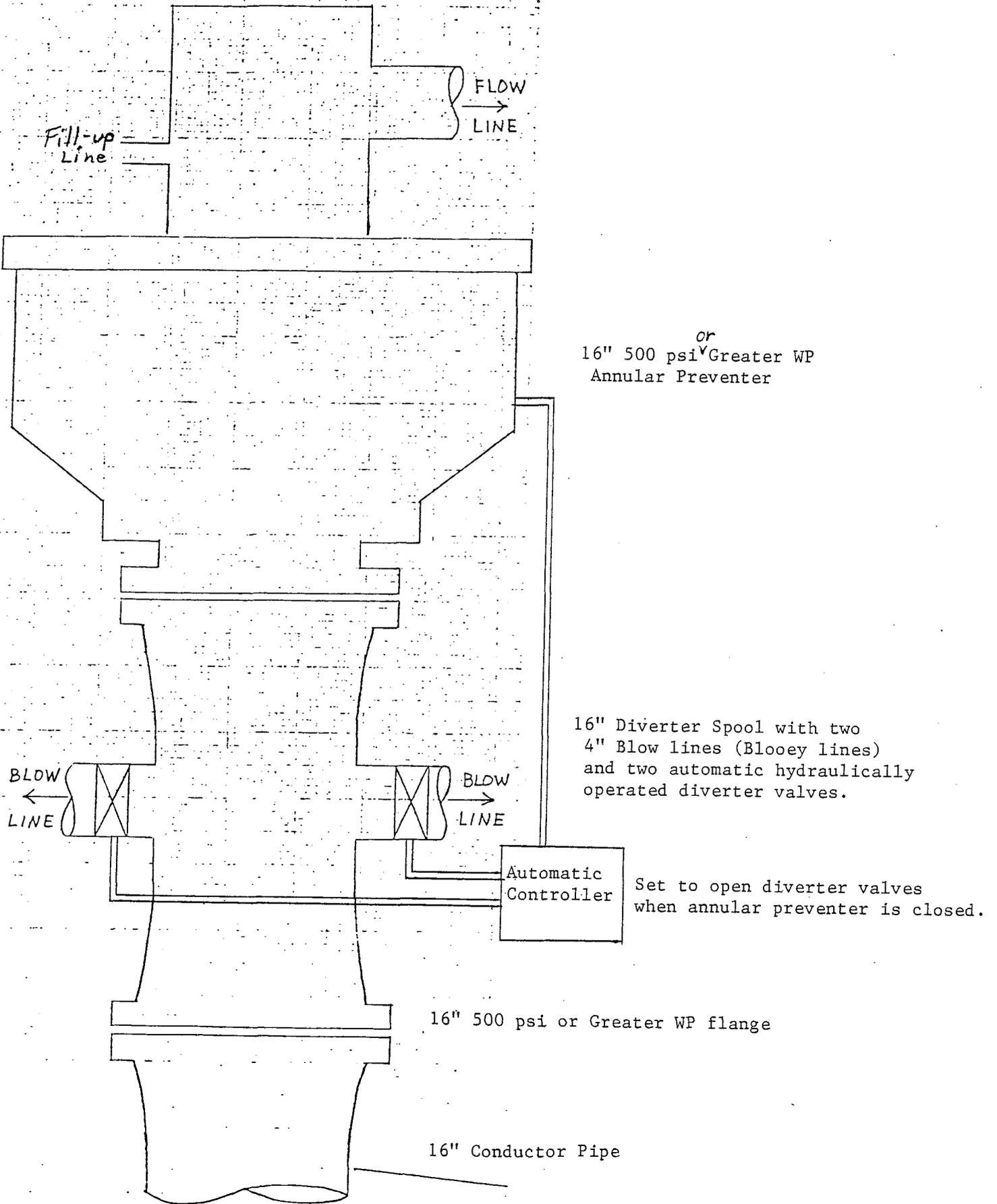
3 miles South

Proposed Location
Summit #1

ARCO Oil & Gas Company
Sunnyside #1
Continuation Sheet

15. Literature Search, Location/Date: ...revealed one previously recorded survey, S#82-84, a seismic line in in Section 28; there were no cultural materials located within the project area.

EXHIBIT 5a
16" Diverter System



Fill-up
Line

FLOW
LINE

16" 500 psi ^{or} Greater WP
Annular Preventer

16" Diverter Spool with two
4" Blow lines (Blooey lines)
and two automatic hydraulically
operated diverter valves.

BLOW
LINE

BLOW
LINE

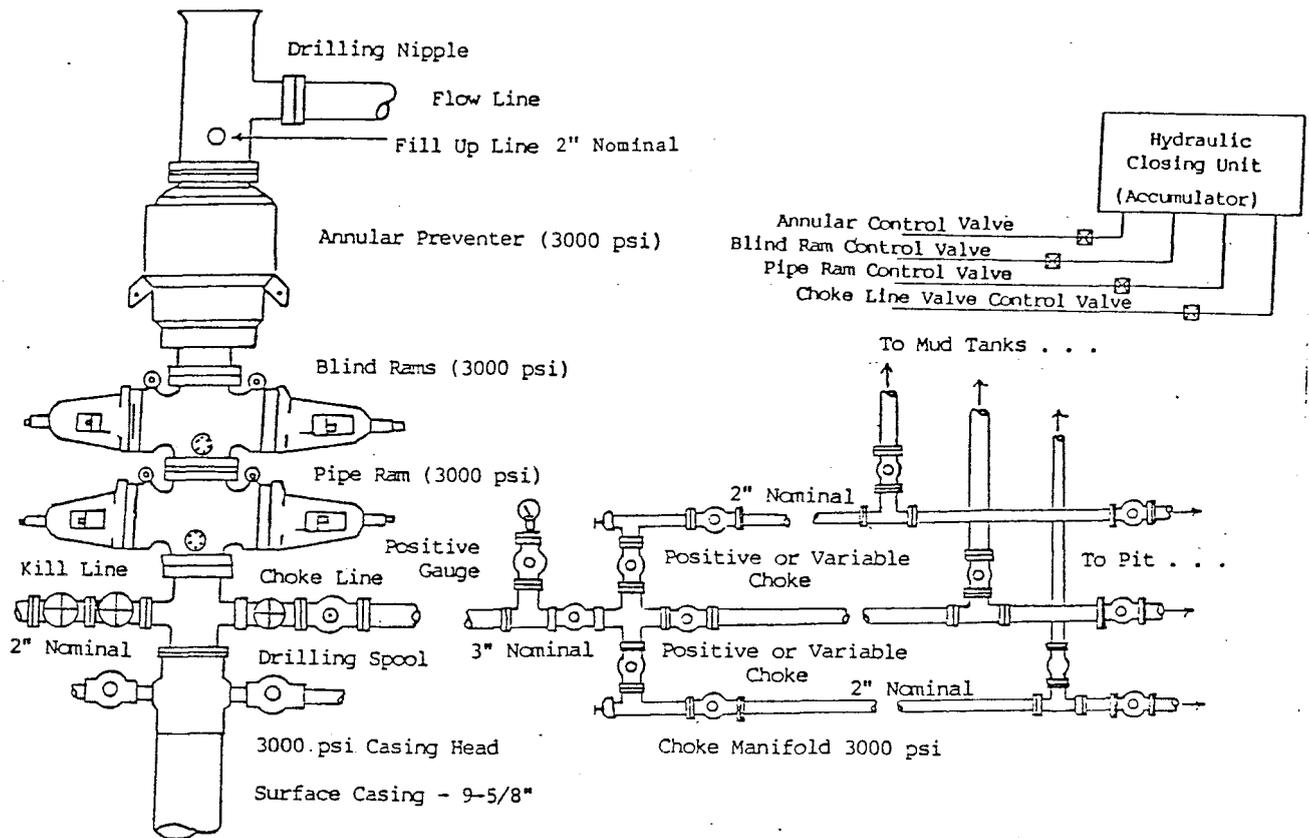
Automatic
Controller

Set to open diverter valves
when annular preventer is closed.

16" 500 psi or Greater WP flange

16" Conductor Pipe

EXHIBIT 5b
 11" BOP Diagram
 S-R-R-A



1. All BOP equipment shall be fluid and/or mechanically operated.
2. BOP's and all fittings will be in good working condition and rated at 3000 psi W.P. minimum.
3. Equipment through which bit must pass shall be at least as large as casing size being drilled.
4. Nipple above BOP shall be at least same size as casing being set.
5. Upper Kelly Cock and lower Kelly Cock shall be 3000 psi W.P. minimum.
6. Floor safety valve (full opening) or drill string BOP with appropriate rated pressure shall be available on rig floor with connections or subs to fit any tool joint in string.
7. Minimum size for choke line shall be 3 inches nominal diameter, minimum size for vent lines downstream of chokes shall be 2 inches nominal, and vent line which by-passes shall be a minimum of 3 inches nominal and shall be as straight as possible.
8. Fluid lines from accumulator to BOP's and all remote control fluid lines shall be steel and rated at or above maximum accumulator pressure. Lines shall be bundled and protected from damage.
9. Rams will be used in following positions: (ARCO Drl. Supv. may reverse ram location)

Upper Ram	<u>Drilling</u>	<u>Running Casing</u>
Lower Ram	Blind	Blind
	Drillpipe	Casing Rams
10. Minimum size for kill line is 2 inches nominal.
11. Extensions and hand wheels shall be installed.

ALL SPECIFICATIONS LISTED ARE PER API-RP53

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

b. TYPE OF WELL
 OIL WELL GAS WELL OTHER SINGLE ZONE MULTIPLE ZONE

2. NAME OF OPERATOR
 ARCO Oil and Gas Company, a 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 2500'FNL & 1500'FEL
 At proposed prod. zone Approximately the same *SW NE*

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 ± 7 miles SW of East Carbon City, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)
 Unit: 5425' Lease: 1500'

16. NO. OF ACRES IN LEASE
 2560

17. NO. OF ACRES ASSIGNED TO THIS WELL
 Not Assigned

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
 None

19. PROPOSED DEPTH
 7875'

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 5452' GL

22. APPROX. DATE WORK WILL START*
 February 10, 1984

5. LEASE DESIGNATION AND SERIAL NO.
 U 33976

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
 —

7. UNIT AGREEMENT NAME
 Sunnyside II

8. FARM OR LEASE NAME
 —

9. WELL NO.
 Sunnyside #1

10. FIELD AND POOL, OR WILDCAT
 Wildcat ✓

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
 28-T15S-R13E

12. COUNTY OR PARISH
 Carbon

13. STATE
 Utah

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
22"	16"	—	100'	Redimix to surface
12-1/4"	9-5/8"	36#	1300'	Cnt to surf, ± 700 sx
8-3/4"	5-1/2"	15.5#	7875'	± 500 sx to cover producible horizons. Possible 2-stage job.

Propose to drill well to sufficient depth to penetrate into Pre-Cambrian formations.

Pursuant to NTL-6, attached are: Certified Location Plat
 10 Point Drilling Plan with Attachments
 13 Point Surface Use Plan with Attachments

RECEIVED
 DEC 10 1983

DIVISION OF
 OIL, GAS & MINING

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, Jr. TITLE Operations Manager DATE DEC 16 1983
 (This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____

CONDITIONS OF APPROVAL, IF ANY: _____

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

TEN POINT DRILLING PLAN

Attach to APD form 9-331-C
ARCO Oil and Gas Company
Well: Sunnyside #1
2500'FNL & 1500'FEL, Sec. 28-T15S-R13E
Carbon County, Utah

1. Surface Geological Formation: Mancos Shale

2. Estimated Tops of Geological Markers:

Mancos	- Surface	Carmel	- 2475'	Cedar Mesa	- 4725'
Frontier	- 660'	Navajo	- 2750'	Elephant Canyon	- 5715'
Dakota	- 1010'	Kayenta	- 3100'	Hermosa	- 5930'
Cedar Mtn	- 1030'	Wingate	- 3200'	Deseret	- 6695'
Buckhorn	- 1265'	Chinle	- 3550'	Madison	- 6875'
Morrison	- 1300'	Shinarump	- 3690'	Devonian	- 7375'
Summerville	- 1800'	Moenkopi	- 3730'	Cambrian	- 7500'
Curtis	- 1975'	Sinbad	- 4275'	Precambrian	- 7850'
Entrada	- 2150'	Kaibab	- 4625'	TD	- 7875'

3. Estimated Tops of Possible Water, Oil, Gas or Minerals:

Mancos	- Surf. (Gas)	Cedar Mesa	- 4725' (Oil)
Frontier	- 660' (Wtr)	Elephant Canyon	- 5715' (Oil)
Navajo	- 2750' (Gas/Oil)	Hermosa	- 5930' (Oil)
Moenkopi	- 3730' (Gas/Oil)	Deseret	- 6695' (Gas/Oil)
Sinbad	- 4275' (Oil)	Madison	- 6875' (Gas/Oil)
Kaibab	- 4625' (Gas/Oil)		

4. Proposed Casing Program:

<u>Casing</u>	<u>Hole Size</u>	<u>Interval</u>	<u>Section Length</u>	<u>Size OD</u>	<u>Weight & Joint</u>	<u>Grade</u>	<u>New Used</u>
Conductor	22"	0 - 100'	100'	16"	3/8" wall, welded		New
Surface	12-1/4"	0 - 1300'	1300'	9-5/8"	36.0#, K-55 ST&C		New
Production	8-3/4"	0 - 7875'	7875'	5-1/2"	15.5#, K-55 LT&C		New

Cement Program

Conductor: Cmt to surface w/redimix.

Surface: Cement to surface with 100% excess, ±700 sx Class "G"

Production: Sufficient cmt to cover all producible zones plus 25% excess.
 Possible 2-stage cmt job required.

Note: All csg strings shall be tested to the maximum possible anticipated surface shut-in pressure, not to exceed 70% rated internal yield pressure of csg or to be less than 1000 psi. (This does not include conductor pipe.)

5. The Operator's Minimum Specifications for Pressure Control:

See Exhibits 5A and 5B

<u>Interval</u>	<u>Pressure Control Equipment</u>
0 - 100'	None
100-1300'	16" hydraulic annular preventer tested to 100 psi with two 4" Blooey lines equipped with automatically controlled hydraulic valves for use as a flow diverter.
1300- TD	11" hydraulic ram-ram-annular with pipe & blind rams, choke manifold, & safety valves tested to 2500 psi (70% csg internal yield pressure rating) and annular tested to 1500 psi.

All pressure tests will be performed at the time of installation and every 30 days thereafter and recorded on the official daily drilling report form. Pipe rams will be operationally tested each 24 hour period, and blind rams and annular preventer will be operationally tested each time pipe is pulled out of the hole.

6. Type and Characteristic of Proposed Drilling Fluids:

<u>Depth</u>	<u>Type</u>	<u>Weight #/gal.</u>	<u>Visc. sec/qt.</u>	<u>Fluid Loss cc</u>
0-1300'	Fresh water Spud mud	8.7-8.9	±40	N/C
1300-TD	*LSND	8.6-8.8	±35	±10

* may use aerated drilling mud, air, mist, or foam drilling fluid in this section.

Note: Mud reserve material will be equal to active system capacity.

7. Auxillary Equipment:

- a) An upper and lower kelly cock will be kept in the string.
- b) A float will not be used at the bit unless drilling with an aerated system.

7. Auxillary Equipment, cont'd:

- c) A mud logging unit with gas detecting device will be monitoring the mud returns.
- d) A stabbing valve will be on the floor for stabbing into the drillpipe when the kelly is not in the string and the well begins to flow.
- e) Monitor/Alarm level indicating equipment will be used in the surface mud tank system. A flow sensing device will also be in use.

8. Testing, Logging and Coring Programs:

Coring: Anticipate four 60' Diamond cores - three within the Moenkopi - Sinbad formations, and one in the Deseret-Madison formations, or as deemed necessary.

Open Hole DST: Anticipate six DSTs - three within the Moenkopi-Sinbad formations, one in the Kaibab formation and two within the Deseret-Madison formations, or as deemed necessary.

Logging Program:

Open Hole

DIL/MSFL/GR	TD - 16" shoe
BHCS/VDL/Cal	TD - 9-5/8" shoe
FDC/CNL/GR/Cal	TD - 9-5/8" shoe
Dipmeter	TD - 9-5/8" shoe
VSP(Velocity Seismic Profile)	TD - Surface
Cyberlook	As directed by wellsite geologist

Cased Hole

CBL/VDL/GR/CCL	TD - TOC (prod csg)
----------------	---------------------

9. Anticipated Abnormal Temperatures, Pressures or Hazards:

No abnormal temperatures or pressures have been noted or reported in wells drilled in the area at the depths anticipated in this well. Maximum possible bottom hole pressure expected is 3660 psi. H₂S may be encountered below 2750' feet. An H₂S detection and alarm system along with personnel life-support systems will be maintained on the rig at all times below 1700'. An H₂S contingency plan is currently being prepared and will be submitted via sundry notice upon completion.

10. Anticipated Starting Date and Duration of Operations:

The anticipated starting date is February 10, 1984. Drilling is to be completed in approximately 70 days and completion operations in another 20 to 25 days thereafter. Operations should be completed by May 15, 1984.

13-POINT PLAN SURFACE USE PLAN

Attached to Form 9-331C
ARCO Oil and Gas Company
Well: Sunnyside #1
2500'FNL & 1500'FEL, Section 28-T15S-R13E
Carbon County, Utah

1. Existing Roads:

- A. The proposed wellsite is staked as shown in the Certified Location Plat, Exhibit 1A. The corners of the drilling pad are staked and south and east directional stakes also placed.
- B. The location is reached as shown in Exhibit 2. From Price, Utah, proceed SE on Hwy 6 approximately 22 miles. The proposed access is located east off Hwy 6 past mile marker 262, approximately 0.7 miles past the Emery/Carbon County line. New access will be required from the Hwy to the fenceline (<0.1 miles). Immediately past the fence proceed on old Hwy 6 which runs parallel to the new Hwy. From the turnoff of this old highway to the location, the access will be constructed on an old seismic trail.
- C. On Exhibit 2, the access road to the proposed location is color coded. The blue indicates the "new" Hwy 6 to Price, pink indicates the new access off Hwy 6, green indicates old Hwy 6, yellow indicates the seismic trail off old Hwy 6, which includes the proposed new access.
- D. This is an exploration well, existing roads within a 3 mile radius are shown on Exhibit 3.

2. Planned Access Roads

Access which will need to be constructed or upgraded to reach the proposed wellsite can be seen in yellow and pink on Exhibit 2.

This access will be constructed as per the following:

1. The maximum width will be 16'.
2. The maximum grade will be 8%.
3. Turnouts will be located every 1000' or within sight distance, whichever is less, unless modified at the pre-construction onsite.
4. The existing drainage is to be disturbed as little as possible. Small culverts (18") will be located at the start of the new access and where the new access crosses the 1/4 1/4 section line of Sec. 28 as seen in Exhibit 2. Additional culverts will be located as deemed necessary at the time of the pre-construction onsite. The road itself is to be constructed with compacted fill to be slightly elevated with a slight incline for drainage.
5. Gravel will be used for surfacing material for the access road and pad location. The gravel will be obtained from an approved BLM source.
6. A cattleguard will be installed at the fenceline on the new access off new Hwy 6.

2. Planned Access Roads cont'd:

7. The proposed access was centerline flagged at the time the location was staked. Due to snow coverage the access has been reflagged at this time.
8. Driving off this access road and padsite will be prohibited.
9. The above planned construction, gravel and upgrading of the access roads may be modified at the time of the preconstruction onsite with the BLM representative.

3. Location of Existing Wells:

Within a two mile radius of this proposed exploratory well the following wells exist:

1. There are no water wells within a 2 mile radius
2. There is one abandoned well within a 2 mile radius (Sec.17-15S-13E). See Exhibit 3.
3. There are no temporarily abandoned wells.
4. There are no disposal wells.
5. There are no wells presently being drilled.
6. There are no producing wells.
7. There are no shut-in wells.
8. There are no injection wells.
9. There are no monitoring or observation wells for other uses.

4. Location of Existing and/or Proposed Facilities:

- A. Within a 1 mile radius of location there are no existing facilities which are owned or controlled by ARCO Oil and Gas Company.
- B. In the event of production, plans for required production facilities will be submitted via sundry notice.
- C. The plan for rehabilitation of areas no longer needed for operations will be completed as soon as practical in accordance with federal regulations.

5. ✓ Location and Type of Water Supply:

It is anticipated to obtain water from the Icelander Creek at the point where it crosses State Hwy 6 approximately 1/2 mile from our access turnoff (see Exhibit 2). ✓ The appropriate State permit is being applied for.

6. Construction Materials:

- A. Gravel will be the only construction materials which will be needed for the drilling site and access roads. The gravel will be obtained from an approved BLM source.
- B. All gravel obtained from Federal Lands will be with the written permission of the BLM.
- C. If the well is productive and additional construction materials are required, new use permits will be obtained.

7. Handling of Waste Materials and Disposal:

- A. Drill cuttings will be buried in the reserve pit.
- B. Drilling fluids will be handled in the reserve pit.
- C. Any fluids produced during drilling tests or while making production tests will be collected in a test tank. If a test tank is not available during drilling, fluids will be handled in the reserve pit. Any spills of oil or gas will be cleaned up and removed. If the well is productive, produced water will be disposed of on-site for 30 days only. After that time application will be made for approval of permanent disposal methods in compliance with NTL-2b.
- D. Chemical toilet facilities will be provided for human waste. In addition, two #1500 gal sewage holding tanks will be installed to receive sewage from the three or four trailers placed on the location site. These holding tanks will be routinely pumped out and the sewage hauled to an approved sewage disposal site, probably in the Price area. Appropriate permits will be obtained.
- E. Garbage and wastes will be handled in the trash pit. Drill fluids, water, drilling mud and tailings will be kept in the reserve pit. The trash pit will be totally enclosed with small mesh wire to prevent wind scattering trash before being burned or hauled away. The reserve pit will be fenced on three sides during drilling and the fourth side fenced upon removal of the rig.
- F. After the rig moves out, all materials will be cleaned up and no adverse materials will be left on location. All dangerous open pits will be fenced during drilling and kept closed until such time as the pit is leveled. Rehabilitation and reseedling of the pits and location pad will be completed by the end of October 1984.

8. Auxillary Facilities:

No air strip, camp or other facilities will be built for the drilling of this well.

9. Well Site Layout:

- A. Exhibits 1B & 1C show the drill pad layout as staked with elevations. Cuts and fills have been drafted to visualize the planned cut across the location site and the deepest part of the pad.
- B. Exhibit 1D shows the proposed layout of equipment on the location.
- C. Drainage will be effectively routed around the pad.
- D. Lining of the reserve pit will be contingent upon BLM inspection of the constructed reserve pit.

10. Plans for Restoration:

- A. If the well is abandoned, the site will be restored to the original condition as nearly as possible. Backfilling, leveling and contouring are planned as soon as all pits have dried. Garbage and waste materials will be hauled away immediately to an approved sanitary land fill after drilling is completed. If production is obtained, the unused area will be restored as soon as possible. All intended restoration and reseeding will be completed by the end of October 1984.
- B. The soil banked material will be spread over the area. Revegetation and rehabilitation including access roads will be completed as per BLM stipulations.
- C. Three sides of the reserve pit will be fenced during drilling operations. Prior to rig release, the reserve pit will be fenced on the fourth side to prevent livestock or wildlife from entering. The fencing will be maintained until leveling and cleanup are accomplished.
- D. If any oil is on the pits and is not immediately removed or burned after operations cease, the pit containing the oil will be flagged overhead or covered with wire mesh.
- E. The access will be reclaimed after operations terminate if deemed necessary by the BLM. The rehabilitation operations will begin immediately after the drilling and/or completion rig is removed. Other cleanup will be performed as needed. Planting and revegetation will be completed as recommended by the BLM.

11. Other Information

- A. The soil is a sandy-clay alkali loam on top of alluvial deposited colluvium in the Mancos Shale lowlands. The area is surrounded by low rolling hills and a small mesa. The area is highly dissected with very sparse vegetation (about 10%). Existing vegetation includes widely scattered juniper bushes, sage brush, snake weed, and Indian Rice Grass. Fauna include cottontail, jack rabbit, and antelope.
- B. There is no primary surface use as there is no grazing in the immediate vicinity of the pad site. The surface for the pad & access is owned by the U.S. Government.

- C. The closest live water is the Grassy Trail or Cottonwood Creek located approximately two miles southeast of the subject location. The nearest occupied dwelling is the Big Spring Ranch located in Section 18 approximately 2-1/2 miles NW of the location.
- D. There was no archeological, historical, or cultural artifacts observed during the staking of this location. An archeological survey was conducted and the report is attached as Exhibit 4.
- E. A spacing exception request has been filed with the State Oil and Gas Commission in Salt Lake City. Exhibit 6 shows a copy of this request and a copy of the State's response.
- F. Drilling is planned for on/or about February 10, 1984. It is anticipated that drilling operations will require ± 70 days and completion operations ± 20 days. All operations should be complete by 5/15/84 except for rehabilitation.

12. Lessee's or Operator's Representative

W.A. Walther, Jr.
ARCO Oil and Gas Company
P.O. Box 5540
Denver, Colorado 80217
Bus. Tele: (303)293-7031
Res. Tele: (303)293-3142

J.M. McCarthy
ARCO Oil and Gas Company
P.O. Box 5540
Denver, Colorado 80217
Bus. Tele: (303)293-7127
Res. Tele: (303)293-1339

13. Certification

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

Dec 16, 1983
Date

W.A. Walther, Jr.
W.A. Walther, Jr.
Operations Manager
ARCO Oil and Gas Company

KUP



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Exhibit 6 (cont.)

Scott M. Matheson, Governor
Temple H. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

4321 State Office Building • Salt Lake City, UT 84142 • 801-533-5774

December 2, 1983

Arco Exploration Company
Attn: Lance C. Anderson
P. O. Box 5540
Denver, Colorado 80217

Dear Mr. Anderson:

Thank you for your letter of November 21, 1983. You may proceed to submit application to drill the location in question under the provisions of Rule C-3 (c). Please attach a copy of this letter and a copy of your November 21, 1983, letter to the application.

Sincerely,

Norman C. Stout
Administrative Assistant

NCS/as

Attachments

ARCO Oil and Gas Company
Rocky Mountain District
717-17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 575 7000



December 29, 1983

Mr. Norm Stout
State Oil & Gas Commission
4241 State Office Building
Salt Lake City, Utah 84114

Re: Sunnyside #1 Exception
Carbon County, Utah

Dear Mr. Stout:

This letter is in reference to the location of ARCO's proposed well, the Sunnyside #1 in Carbon County, Utah. An exception has been requested to allow this well to be located 2500' FNL and 1500' FEL, Section 28-T15S-R13E.

In response to your request of ownership of all oil and gas leases within 660' of the proposed location with regards to this spacing exception, the following will apply:

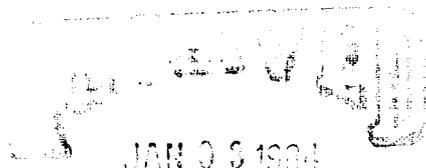
The ownership of all oil and gas leases within 660' of the proposed location is common to the ownership of the proposed location. They are 100% owned by ARCO.

If you have any further questions, please call me at (303) 293-1077.

Sincerely,

Suzanne M. Barnes
Drilling Engineer

SMB/ps



DIVISION OF
OIL, GAS & MINING

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

b. TYPE OF WELL
 OIL WELL GAS WELL OTHER SINGLE ZONE MULTIPLE ZONE

2. NAME OF OPERATOR
 ARCO Oil and Gas Company, a 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 2500'FNL & 1500'FEL

At proposed prod. zone
 Approximately the same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 ± 7 miles SW of East Carbon City, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)
 Unit: 5425'
 Lease: 1500'

16. NO. OF ACRES IN LEASE
 2560

17. NO. OF ACRES ASSIGNED TO THIS WELL
 Not Assigned

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
 None

19. PROPOSED DEPTH
 7875'

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 5452' GL

22. APPROX. DATE WORK WILL START*
 February 10, 1984

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
22"	16"	—	100'	Redimix to surface
12-1/4"	9-5/8"	36#	1300'	Cmt to surf, ± 700 sx
8-3/4"	5-1/2"	15.5#	7875'	± 500 sx to cover producible horizons. Possible 2-stage job.

Propose to drill well to sufficient depth to penetrate into Pre-Cambrian formations.

Pursuant to NTL-6, attached are: Certified Location Plat
 10 Point Drilling Plan with Attachments
 13 Point Surface Use Plan with Attachments

RECEIVED
 HIGH STATE OFFICE
 1983 DEC 19 AM 10:09
 DEPT. OF INTERIOR
 BUREAU OF LAND MANAGEMENT

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, Jr. TITLE Operations Manager DATE DEC 16 1983
 (This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY Kenneth V. Rhea TITLE Acting DISTRICT MANAGER DATE 21 AUG 1984
 CONDITIONS OF APPROVAL, IF ANY:

CONDITIONS OF APPROVAL ATTACHED

SUBJECT TO RIGHT OF WAY
 APPROVAL

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

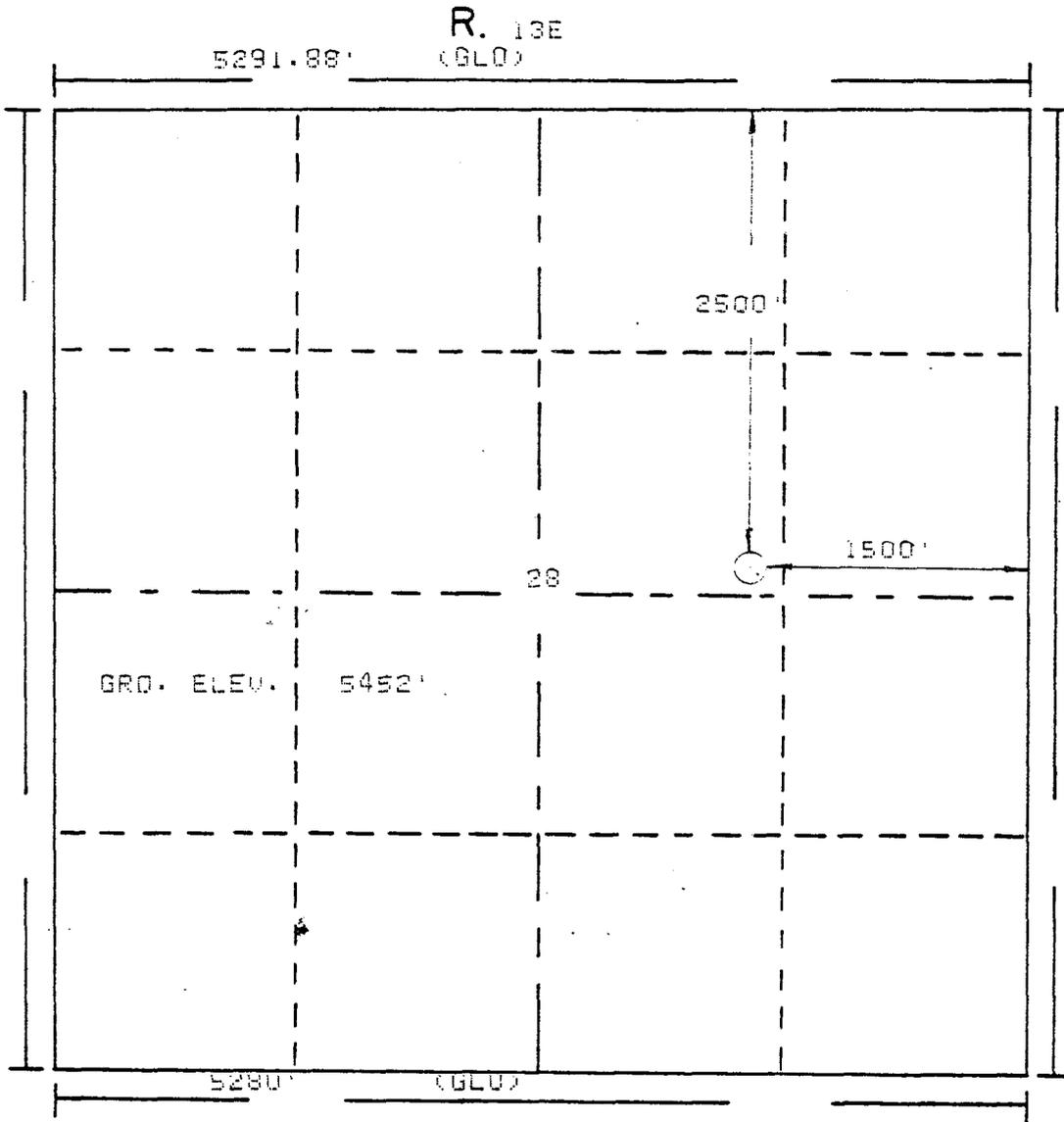
Subj. of NTL 4-A, 1/1/80



FORM F-106

Exhibit "A"

Certified Location Plat
Sunnyside #1, Carbon Co. Ut.



T. 15S

Scale... 1" = 1000'

Powers Elevation of Denver, Colorado
 has in accordance with a request from PETER TIBBETS
 for ARDU Oil & Gas
 determined the location of SUNNYSIDE #1
 to be 2500' FN 1500' FE Section 28 Township 15S
 Range 13E of the Salt Lake Meridian
 Carbon County, Utah

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

Date: 1 NOV. 83

T. Tibbets
 Licensed Land Surveyor No. 2011
 STATE OF UTAH

3100
U-33976
(U-066)

ARCO Oil and Gas Company
Well Sunnyside No. 1
Sec. 28, T. 15 S., R. 13 E., SLB&M
Lease U-33976
Carbon County, Utah

Supplemental Stipulations (Stipulation numbers correspond to the appropriate section of the 13 point surface use plan in the APD.

2. The access route will be built to BLM resource road (classIII) standards. Drainage features needed will be discussed at the preconstruction onsite. The Authorized Officer will examine the road after its completion to determine if further work is needed.

The completed road shall be maintained so that the travel surface is free of excessive ruts, holes, soft spots, slides and washboards. The road drainage and shoulders shall be relatively free of sediments and not excessively eroded. Low water crossings shall be maintained. Fugitive dust will be controlled.

4. Location of Tank Batteries and Production Facilities

All permanent (onsite for six (6) months or longer) structures constructed or installed (including oil well pump jacks) will be painted a flat, nonreflective, earth tone color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six (6) months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded. Colors will be approved by the BLM representative.

If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 1-1/2 times the storage capacity of the battery.

All loading lines and valves will be placed inside the berm surrounding the tank battery.

All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to.

All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the District Manager.

All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed.

Gas meter runs for each well will be located within five hundred (500) feet of the wellhead. The gas flowline will be buried from the wellhead to the meter along with any other sections occurring on the pad. Meter runs will be housed and/or fenced.

The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first three (3) months on new meter installations and at least quarterly thereafter. The Area Manager will be provided with a date and time for the initial meter calibration and all future meter-proving schedules. A copy of the meter calibration reports will be submitted to the Resource Area Office. All meter measurement facilities will conform with the API standards for liquid hydrocarbons and the AGA standard for natural gas measurement.

7. Burning of garbage will not be allowed. Drained equipment oil will be disposed of in pits or at an authorized landfill.

The fence enclosing the reserve pit will be of woven mesh wire with at least one strand of barb wire on top. The fence will be kept in good repair.

Residues and contaminated earth in mud pits may be required to be completely removed if, with reclamation, these substances would be near or exposed at the surface.

9. At least one-half of the reserve pit depth will be from excavation in cut material.

Eight inches of topsoil on the entire pad site shall be removed and stockpiled in a manner to minimize soil loss to wind and water erosion. Stockpiles shall be rounded off and located so that soil is not contaminated or compacted. In the event that the well is a producer, soil stockpiles shall be seeded. A seed mix list will be provided by the BLM.

Equipment will not be stored off the pad area.

10. Erosion control structures for reclamation will be required as determined by the BLM.

11. ARCO will be required to abide by the requirements stated in the letter dated December 16, 1983 concerning egress from U.S. Highway 6.

ARCO shall ensure that all individuals working at or near the location are aware of and comply with all applicable stipulations. The dirt contractor will be provided an approved copy of the surface use plan.

The BLM representative (Dan Cressy, (801) 637-4584) will be notified at least 48 hours prior to any surface disturbing activities associated with new access roads or drill pad location.

A preconstruction onsite shall be arranged by ARCO at which representatives of the BLM and the dirt contractor shall be present.

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

Written notification in the form of a Sundry Notice (form 3160-5) will be submitted to the District Office within twenty-four (24) hours after spudding. If the spudding occurs on a weekend or holiday, the written report will be submitted on the following regular work day.

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

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

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

Should the well be successfully completed for production, the District Manager will be notified when the well is placed in a producing status. Such notification will be sent by telegram or other written communication, not later than five (5) business days following the date on which the well is placed on production.

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

No well abandonment operations will be commenced without the prior approval of the District Manager. In the case of newly-drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the District Petroleum Engineer. A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the District Manager within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Final abandonment will

not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Area Manager or his representative, or the appropriate surface managing agency.

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

Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6.

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

"Fed, Well number, location by $\frac{1}{4}$ section, township and range, Lease number"

There will be no deviation from the proposed drilling and/or workover program without prior approval from the District Manager. Safe drilling and operating practices must be observed. All wells, whether drilling, producing, suspended, or abandoned, will be identified in accordance with 43 CFR 3162.2.

"Sundry Notice and Report on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3164.

The dirt contractor will be provided with an approved copy of the surface use plan.

If any cultural resources are found during construction, all work will stop and the Area Manager will be notified.

This permit will be valid for a period of one (1) year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.

Special Wildlife Stipulations

In the event ARCO's Well Sunnyside No. 1 becomes a producer, mitigation will be required of the company to off-set unavoidable impacts to a ferruginous hawk nesting territory. Mitigation would consist of constructing five nesting structures in accordance with the attached instructions. Such project work would be accomplished in close coordination with BLM's Resource Area wildlife biologist and completed prior to March 1, 1985.

In order to protect antelope fawning, exploration, drilling and other development activity will not be allowed from May 14 through June 21. This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the authorized officer of the BLM.

CONSTRUCTION FOR FERRUGINOUS HAWK NEST STRUCTURE

MATERIALS FOR STRUCTURE

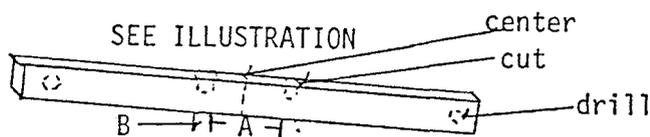
- 1 12' round post 5" diameter pressure treated
- 1 12' 2 x 4 pressure treated
- 4 6-7' Juniper branches 3-4" diameter
- 16 p. nails
- 4 4-6' Juniper branches 2-3" diameter
- Bailing wire

TOOLS

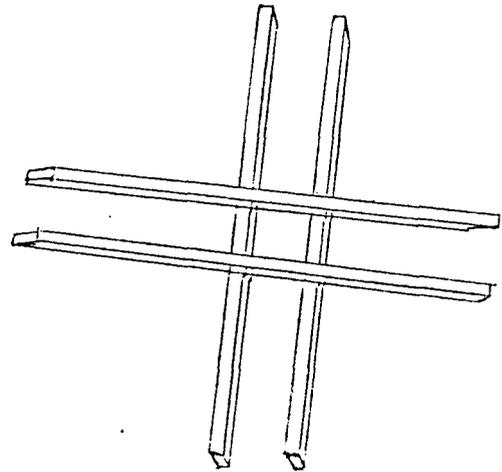
- Hand Saw
- Hammer
- Eight foot Step Ladder
- Breaker bar - Tamping bar
- Drill and bit size 1/2"
- Bow Saw
- Wire Cutters

STEP 1 - Cut 12' 2 x 4 into 4 3' x 2" x 4" lengths.

- STEP 2 - Mark Center of each 3' x 2" x 4"
- Measure diameter of small end of round post
 - Mark and cut each 2" x 4" to dovetail together to fit over small end of round post.



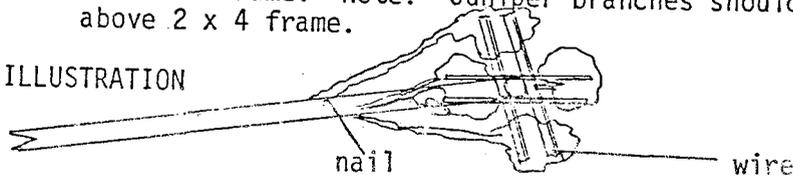
- A = Diameter of small end of round post.
B = Width of 2" x 4"
- Drill 1/2 in. holes in end of each 2 x 4.
 - Nail framed 2 x 4 together.



STEP 3 - Fit 2 x 4 frame over end of post and nail.

STEP 4 - Cut 4 juniper branches approximately 6"-1' long approximately 3-4" base diameter. Nail base of branches to round post and wire branch to 2 x 4 frame. Note: Juniper branches should extend 10" to 15" above 2 x 4 frame.

SEE ILLUSTRATION



STEP 5 - Structure can now be erected. Note that the 2 x 4 frame (upon which the nest will be built) should be approximately 8' above the ground.

Concrete should be used to strengthen post structure which should be set 3' to 4' in ground.

STEP 6 - After structure is erected, concreted and tamped, the nest must be built.

Dead woody branches 1" to 2" diameter and 18" to 30" long should be weaved in the Juniper branches. Smaller woody material should be added to form and fill the nest. Juniper branches are suitable for the larger nest material while sagebrush (if available) is suitable for the smaller nest materials.

Juniper bark should be shredded to line the nest.

STEP 7 - Juniper branches 4 to 6' long and 2 to 3" diameter should now be placed along side and between the branches already in place. This is to fill up the spaces to hide the 2 x 4 frame. All branches should be secured with wire and/or nailed in place.

ONSITE

DATE: November 21, 1983

PARTICIPANTS:

TITLES:

Your contact with the District Office is: Robert (Bob) Graff

Office Phone: 801-259-6111 Ext 216 Home Phone: 801-259-6088

City: Moab State: Utah

Resource Area Manager's address and contacts are: Price River Resource Area

Address: 900 N. 700 E., P.O. Box AB, Price, Utah 84501

Your contact is: Dan Cressy

Office Phone: 801-637-4584

Home Phone: 801-637-9077

Left msg with Cathy
for Lance Anderson
to call re: Geo ft
statement for exception
request.

Yours
12-21-83

Lance said they would
take action Yours
12-22.

1/2/84

Geo's statement rec'd.
from Suzanne Barney ✓



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203

ARCO Oil & Gas Co
PO BOX 2197
FARMINGTON, NM 87401



an equal opportunity employer

OPERATOR ARCO OIL & GAS CO

DATE 12-21-83

WELL NAME SUNNYSIDE #1

SEC SUNKE 28 T 15S R 13E COUNTY CARRON

43-007-30099
API NUMBER

FED
TYPE OF LEASE

POSTING CHECK OFF:

INDEX

MAP

HL

NID

PI

PROCESSING COMMENTS:

NO OIL WELLS WITHIN 1000'
NO GAS WELLS WITHIN 4960'

✓ CHIEF PETROLEUM ENGINEER REVIEW:

1/4/84 Exception Location

APPROVAL LETTER:

SPACING: A-3 _____ UNIT

c-3-a _____ CAUSE NO. & DATE

c-3-b

c-3-c

SPECIAL LANGUAGE:

✓ WATER

RECONCILE WELL NAME AND LOCATION ON APD AGAINST SAME DATA ON PLAT MAP.

AUTHENTICATE LEASE AND OPERATOR INFORMATION

VERIFY ADEQUATE AND PROPER BONDING

AUTHENTICATE IF SITE IS IN A NAMED FIELD, ETC.

APPLY SPACING CONSIDERATION

ORDER ND

UNIT PENDING

c-3-b

c-3-c

CHECK DISTANCE TO NEAREST WELL.

CHECK OUTSTANDING OR OVERDUE REPORTS FOR OPERATOR'S OTHER WELLS.

IF POTASH DESIGNATED AREA, SPECIAL LANGUAGE ON APPROVAL LETTER

IF IN OIL SHALE DESIGNATED AREA, SPECIAL APPROVAL LANGUAGE.

VERIFY LEGAL AND SUFFICIENT DRILLING WATER

January 4, 1984

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

RE: Well No. Sunnyside #1
SWNE Sec, 28, T. 15S, R. 13E
2500' FNL, 1500 FEL
Carbon County, Utah

Gentlemen:

Approval to drill the above referenced oil/gas well is hereby granted in accordance with Rule C-3(c), General Rules and Regulations and Rules of Practice and Procedure, subject to the following stipulations:

1. Receipt by the Division of evidence providing assurance of an adequate and approved supply of water prior to commencement of drilling.

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

1. Spudding notification to the Division within 24 hours after drilling operations commence.
2. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify R. J. Firth, Chief Petroleum Engineer, Telephone (801) 533-5771 (Office), 571-6068 (Home).

The API number assigned to this well is 43-007-30099.

Sincerely,


R. J. Firth
Chief Petroleum Engineer

RJF/as
cc: Branch of Fluid Minerals
Encl.

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

28976

SUNDRY NOTICES AND REPORTS ON WELLS

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

6. IF INDIAN, ADOPTIVE OR TRIBE NAME

7. UNIT AGREEMENT NAME

Sunnyside II

8. PLAC OR LEASE NAME

9. WELL NO.

Sunnyside #1

10. FIELD AND POOL, OR WILDCAT

Wildcat

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

28-15S-13E

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 and in accordance with any State requirements.*
See also space 17 below.)
At surface

2500' FNL & 1500' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, OR, etc.)

5452' GL

12. COUNTY OR PARISH

Carbon

13. STATE

Utah

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

FRACURE TREAT

MULTIPLE COMPLETE

SHOOT OR ACIDIZE

ABANDON*

REPAIR WELL

CHANGE PLANE

(Other)

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

REPAIRING WELL

FRACURE TREATMENT

ALTERING CASING

SHOOTING OR ACIDIZING

ABANDONMENT*

(Other)

DESIGNATION OF OPERATOR

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

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

RECEIVED

AUG 8 1984

DIVISION OF OIL
GAS & MINING

Attached please find a fully executed Designation of Operator for this well. APD package was submitted on December 16, 1983.

Per conversation of Friday, July 27, 1984, between Carol Freudiger, BLM, and Suzanne Barnes, ARCO, it is understood that these forms will complete our APD package.

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

SIGNET

W.A. Walther, Jr.
W.A. Walther, Jr.

TITLE

Operations Manager

DATE

8-3-84

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate
(Other instructions on reverse side)

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

LEASE DESIGNATION AND SERIAL NO.
33976

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>		7. UNIT AGREEMENT NAME ---
2. NAME OF OPERATOR ARCO Oil and Gas Company, Division of Atlantic Richfield Company		8. FARM OR LEASE NAME ---
3. ADDRESS OF OPERATOR P.O. Box 5540, Denver, Colorado 80217		9. WELL NO. ARCO #1 Chambers
4. LOCATION OF WELL - Report location clearly and in accordance with any State requirements.* (See also space 17 below.) At surface 2500' FNL & 1500' FEL		10. FIELD AND POOL, OR WILDCAT Wildcat
14. PERMIT NO.		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA 28-T15S-R13E
15. ELEVATIONS (Show whether OP, RT, OR, etc.) 5452' GL		12. COUNTY OR PARISH 13. STATE Carbon Utah

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

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

PULL OR ALTER CASING
MULTIPLE COMPLETE
ABANDON*
CHANGE PLANS

WATER SHUT-OFF
FRACTURE TREATMENT
SHOOTING OR ACIDIZING
(Other)

REPAIRING WELL
ALTERING CASING
ABANDONMENT*

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

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting 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.)*

Attached please find an H₂S Contingency Plan to be included in the APD submitted on December 16, 1983.

PROPOSED CASING PROGRAM CHANGED TO:

Size of Hole	Size of Casing	Weight per Foot	Setting Depth
17-1/2"	13-3/8"	---	100'

FROM ORIGINALLY PROPOSED:

22"	16"	---	100'
-----	-----	-----	------

Subsequent changes in pressure control equipment to include: 13-5/8", 3000 psi annular to be used as low pressure diverter from originally submitted 16", 500 psi annular.

All other casing, cementing and pressure control equipment will remain as originally submitted December 16, 1983. Please also note the well's name change from Sunnyside #1 to ARCO #1 Chambers.

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

SIGNED W.A. Walther, Jr. TITLE Operations Manager DATE August 7, 1984

(This space for Federal or State office use)

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

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

DATE: 8/13/84
BY: John R. Boye

*See Instructions on Reverse Side

RECEIVED
AUG 13 1984
DIVISION OF OIL
GAS & MINING

August 31, 1984

RECEIVED

SEP 04 1984

Rocky Mtn. Drilling

Div. of Atlantic Richfield Co. ARCO Oil & Gas Co.
P.O. Box #5540
Denver, CO 80217

ARCO/Henry Chambers

Dear Applicant:

RE: TEMPORARY APPLICATION
NUMBER 91-4307 (T60159)

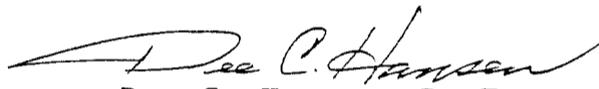
Enclosed is a copy of the above numbered approved Temporary Application. This is your authority to construct your works and to divert the water for the uses described.

While this approved application does give you our permission to divert and use water, it does not grant easements through public or private lands in order to gain access to the source nor to convey the water to the place of use, nor does this approval eliminate the need for such other permits as may be required by this Division or any other agency in implementing your diversion.

This application will expire February 1, 1985, and it is expected that no diversion or use of the water will be done after that date unless another proposal has been made and approved.

Your contact with this office, should you need it is with the Area Engineer, Mark Page. The telephone number is (801)637-1303.

Yours truly,


Dee C. Hansen, P. E.
State Engineer

DCH:slm

Enclosure

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

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

AUG 2 1984
STATE ENGINEER
SALT LAKE CITY, UTAH

Drilling of exploratory oil & gas well

- 1. Irrigation Domestic Stockwatering Municipal Power Mining Other Uses
- 2. The name of the applicant is ARCO Oil and Gas Company, Division of Atlantic Richfield Company
- 3. The Post Office address of the applicant is P.O. Box 5540, Denver, Colorado 80217
- 4. The quantity of water to be appropriated --- second-feet and/or 10.0 acre-feet
- 5. The water is to be used for drilling of an oil & gas well from Aug 1, 1984 to Feb 1, 1985
(Major Purpose) (Month) (Day) (Month) (Day)
- other use period --- from --- to ---
(Minor Purpose) (Month) (Day) (Month) (Day)
- and stored each year (if stored) from --- to ---
(Month) (Day) (Month) (Day)
- 6. The drainage area to which the direct source of supply belongs is ---
(Leave Blank)
- 7. The direct source of supply is* Icelandier Creek
(Name of stream or other source)

which is tributary to Price Creek, tributary to Green River

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

- 8. The point of diversion from the source is in Emery County, situated at a point*
approximately 1000' EEL & 0' EEL Section 5-T16S-R13E
(W. 1000 FT FROM SE COR. SEC. 5, T16S, R13E, SUB. 81)
(2 miles SE of Sunnyside) Woodside Run

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

- 9. The diverting and carrying works will consist of hauling by water trucks
- 10. If water is to be stored, give capacity of reservoir in acre-feet --- height of dam ---
area inundated in acres --- legal subdivision of area inundated ---
- 11. If application is for irrigation purposes, the legal subdivisions of the area irrigated are as follows:
NA
Total --- Acres
- 12. Is the land owned by the applicant? Yes --- No X If "No." explain on page 2.
- 13. Is this water to be used supplementally with other water rights? Yes --- No X
If "yes," identify other water rights on page 2.
- 14. If application is for power purposes, describe type of plant, size and rated capacity.
NA
- 15. If application is for mining, the water will be used in NA Mining District at
the NA mine, where the following ores are mined NA
- 16. If application is for stockwatering purposes, number and kind of stock watered NA
- 17. If application is for domestic purposes, number of persons NA or families NA
- 18. If application is for municipal purposes, name of municipality NA
- 19. If application is for other uses, include general description of proposed uses to be used for the drilling and completion operations of an exploratory oil and gas well.
- 20. Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19, incl. drilling location located 2500' EEL & 1500' EEL of
Section 28-T15S-R13E, Carbon County, Utah. Well Name: Sunnyside #1
(S. 2500 FT & W. 1500 FT FROM NE COR. SEC. 28, T15S, R13E, SUB. 81)
- 21. The use of water as set forth in this application will consume 10.0 ~~XXXXX-XXXXXXX~~ acre-feet of water and 0 second feet and/or acre feet will be returned to the natural stream or source at a point described as follows: ---

POOR COPY

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

Well Name: Sunnyside #1

The drilling of this exploratory oil and gas well is expected to last for a period of 70 days, with an additional + 25 days for completion. Therefore it is requested to allow 6 months time due to the uncertainty of commencement date.

(Use page 4 if additional explanatory is needed.)

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

J. M. McCarthy
J. M. McCarthy
Signature of Applicant*

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

DECLARATION OF CITIZENSHIP

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

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

My commission expires:

(SEAL)

Notary Public

FEEES FOR APPLICATIONS TO APPROPRIATE WATER IN UTAH

Flow rate — c.f.s.	Cost
0.0 to 0.1	\$ 15.00
over 0.1 to 0.5	30.00
over 0.5 to 1.0	45.00
over 1.0 to 15.0	45.00 plus \$7.50 for each cfs above the first cubic
over 15.0	150.00 foot per second.

Storage — acre-feet

0 to 20	22.50
over 20 to 500	45.00
over 500 to 7500	45.00 plus \$7.50 for each 500 a.f. above the first
over 7500	150.00 500 acre feet.

(This section is not to be filled in by applicant)

STATE ENGINEER'S ENDORSEMENTS

1. Aug. 2, 1984 Application received by mail over counter in State Engineer's office by P
2. Priority of Application brought down to, on account of
3. 8-7-84 Application fee, \$15.00, received by J.H. Rec. No. 16784
4. Application microfilmed by Roll No.
5. 8-7-84 Indexed by AM Platted by
6. 3-2-84 Application examined by P
7. Application returned, or corrected by office
8. Corrected Application resubmitted by mail over counter to State Engineer's office.
9. Application approved for advertisement by
10. Notice to water users prepared by
11. Publication began; was completed
Notice published in
12. Proof slips checked by
13. Application protested by
14. Publisher paid by M.E.V. No.
15. Hearing held by
16. Field examination by
17. 8-2-84 Application designated for approval P SG.
rejection
18. 8/31/84 Application copied or photostated by slm proofread by
19. 8/31/84 Application approved
~~xxxxxx~~
20. Conditions:

This Application is approved, subject to prior rights, as follows:

- a. Actual construction work shall be diligently prosecuted to completion.
- b. Proof of Appropriation shall be submitted to the State Engineer's office by NPR
- c. TEMPORARY APPROVAL -- EXPIRES February 1, 1985.

Dee C. Hansen
Dee C. Hansen, P.E., State Engineer

21. Time for making Proof of Appropriation extended to
22. Proof of Appropriation submitted.
23. Certificate of Appropriation, No., issued

TEMPORARY Application No. 16784

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

28978

SUNDRY NOTICES AND REPORTS ON WELLS

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

<p>1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER</p> <p>2. NAME OF OPERATOR ARCO Oil and Gas Company, Division of Atlantic Richfield Company</p> <p>3. ADDRESS OF OPERATOR P.O. Box 5540, Denver, Colorado 80217</p> <p>4. LOCATION OF WELL Report location clearly and in accordance with any State requirements. See also space 17 below: At surface 2500' FNL & 1500' FEL</p> <p>14. PERMIT NO. 43-007-30099</p>	<p>UNIT AGREEMENT NAME ---</p> <p>5. FARM OR LEASE NAME ---</p> <p>6. WELL NO. ARCO #1 Chambers</p> <p>10. FIELD AND POOL, OR WILDCAT Wildcat</p> <p>11. SEC., T., R., M., OR BLM, AND SURVEY OR AREA 28-T15S-R13E</p> <p>12. COUNTY OR PARISH 13. STATE Carbon Utah</p>
<p>15. ELEVATIONS (Show whether OF, TO, OR FTL) 5452' GL</p>	

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

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

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

Attached please find a copy of the approved Water Permit on the above referenced well.

RECEIVED

SEP 25 1984

DIVISION OF OIL GAS & MINING

POOR COPY

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

SIGNED Larry R. Morse TITLE Operations Manager DATE 9-19-84

This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL IF ANY: _____

*See Instructions on Reverse Side

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

WELL REGISTRATION AND PERMIT NO.
33976

SUNDRY NOTICES AND REPORTS ON WELLS

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

OIL WELL GAS WELL OTHER

1. NAME OF OPERATOR
ARCO Oil and Gas Company, Division of Atlantic Richfield Company

CONFIDENTIAL

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

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

2500' FNL & 1500' FEL

14. PERMIT NO.
43-007-30099

15. ELEVATIONS (Show whether of, to, or from)
5452' GL

UNIT AGREEMENT NAME

5. FARM OR LEASE NAME

3. WELL NO.
ARCO Chambers #1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC. T. R. M. OR ALK. AND SURVEY OR AREA

28-T15S-R13E

12. COUNTY OR PARISH 13. STATE
Carbon Utah

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

NOTICE OF INTENTION TO:

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

SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT <input type="checkbox"/>
(Other) <u>SPUD AND SURFACE CASING</u> <input checked="" type="checkbox"/>	

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

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

MI & RU Loffland Rig #1; 14" conductor set @ 99' KB. SPUD 12-1/4" hole @ 0600 hrs 9-23-84. Drilled ahead to 1295'. RU and ran 31 jts 9-5/8" 36#, K-55, STC Casing and set @ 1295'. Cemented as follows: 615 sx Class "H" + 1/4#/sx flocele + 10#/sx gilsonite + 2% CaCl₂ @ 14.7 ppg wt. Displace with 88 bbls water. Ran 180' 1" pipe and cemented with 100 sx Class "H" + 2% CaCl₂. Cement to surface. Install casinghead and test weld to 1500 psi for 15 mins - OK. NU BOP's and test blind, pipes and manifold to 250 and 2500 psi, annulus to 250 and 1500 psi and kelly valve to 250 and 2500 psi - all OK. Drilled cement and drilling ahead 9-30-84.

RECEIVED

OCT 3 1984

DIVISION OF OIL GAS & MINING

I hereby certify that the foregoing is true and correct

SIGNED L.B. Morse TITLE Operations Manager DATE 10-1-84

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

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

Pete Tibbels
1-303-293-4600

TEMPORARY

Application No. 59607

APPLICATION TO APPROPRIATE WATER STATE OF UTAH

91-4301

RECEIVED

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

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

1. Irrigation Domestic Stockwatering Municipal Power Mining Other Uses an ARCO Oil and Gas Company Division of Atlantic Richfield Company Drilling of an exploratory oil and gas well
2. The name of the applicant is Division of Atlantic Richfield Company
3. The Post Office address of the applicant is P.O. Box 5540, Denver, Colorado 80217
4. The quantity of water to be appropriated --- second-feet and/or 36.2 acre-feet /year
5. The water is to be used for drilling of an oil & gas well from Feb 1, 1984 to Aug 1, 1984
(Major Purpose) (Month) (Day) (Month) (Day)
- other use period ----- from ----- to -----
(Minor Purpose) (Month) (Day) (Month) (Day)
- and stored each year (if stored) from ----- to -----
(Month) (Day) (Month) (Day)
6. The drainage area to which the direct source of supply belongs is -----
(Leave Blank)
7. The direct source of supply is* Iceland Creek
(Name of stream or other source)
- which is tributary to Price River, tributary to Green River

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

8. The point of diversion from the source is in Emery County, situated at a point* approximately 1000' FEL & 0' FSL Section 5-T16S-R13E
(W. 1000 FT. FROM SE COR. SEC. 5, T16S, R13E, SUB 4M.)
(7 miles SE of Sunnyside Jct.) Woodside Quad.

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

9. The diverting and carrying works will consist of hauling by water trucks
10. If water is to be stored, give capacity of reservoir in acre-feet --- height of dam ---
area inundated in acres --- legal subdivision of area inundated ---
11. If application is for irrigation purposes, the legal subdivisions of the area irrigated are as follows:
NA

----- Total ----- Acres
12. Is the land owned by the applicant? Yes ----- No X If "No," explain on page 2.
13. Is this water to be used supplementally with other water rights? Yes ----- No X
If "yes," identify other water rights on page 2.
14. If application is for power purposes, describe type of plant, size and rated capacity.
NA
15. If application is for mining, the water will be used in NA Mining District at the NA mine, where the following ores are mined NA
16. If application is for stockwatering purposes, number and kind of stock watered NA
17. If application is for domestic purposes, number of persons NA, or families NA
18. If application is for municipal purposes, name of municipality NA
19. If application is for other uses, include general description of proposed uses. To be used for the drilling and completion operations of an exploratory oil and gas well.
20. Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19, incl. Drilling location located 2500' FNL & 1500' FEL of Section 28-T15S-R13E, Carbon County, Utah Well Name: Sunnyside #1
(S. 2500 FT & W. 1500 FT FROM NW COR. SEC. 28, T15S, R13E, SUB 4M)
21. The use of water as set forth in this application will consume 36.2 second-feet and/or acre-feet of water and 0 second feet and/ or acre feet will be returned to the natural stream or source at a point described as follows: -----

EXPLANATORY

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

Well Name: Sunnyside #1

The drilling of this exploratory oil and gas well is expected to last for a period of 70 days, with an additional + 25 days for completion. Therefore it is requested to allow 6 months time due to the uncertainty of commencement date.

(Use page 4 if additional explanatory is needed.)

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

JM McLeath

Signature of Applicant*

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

DECLARATION OF CITIZENSHIP

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

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

My commission expires:

(SEAL)

Notary Public



FEES FOR APPLICATIONS TO APPROPRIATE WATER IN UTAH

Flow rate — c.f.s.	Cost	
0.0 to 0.1	\$ 15.00	
over 0.1 to 0.5	30.00	
over 0.5 to 1.0	45.00	
over 1.0 to 15.0	45.00	plus \$7.50 for each cfs above the first cubic
over 15.0	150.00	foot per second.

Storage — acre-feet		
0 to 20	22.50	
over 20 to 500	45.00	
over 500 to 7500	45.00	plus \$7.50 for each 500 a.f. above the first
over 7500	150.00	500 acre feet.

(This section is not to be filled in by applicant)

STATE ENGINEER'S ENDORSEMENTS

1. Jan. 5, 1984 Application received by mail ~~over counter~~ in State Engineer's office by SP
2. Priority of Application brought down to, on account of
3. L-16-84 Application fee, \$30.00, received by J.H. Rec. No.
4. Application microfilmed by Roll No.
5. 1-16-84 Indexed by an Platted by
6. 1-5-84 Application examined by SP
7. Application returned, or corrected by office
8. Corrected Application resubmitted by mail ~~over counter~~ to State Engineer's office.
9. Application approved for advertisement by
10. Notice to water users prepared by
11. Publication began; was completed
- Notice published in
12. Proof slips checked by
13. Application protested by
14. Publisher paid by M.E.V. No.
15. Hearing held by
16. Field examination by
17. 1-5-84 Application designated for approval ~~rejection~~
18. 2/17/84 Application copied or photostated by slm proofread by
19. 2/17/84 Application approved ~~rejected~~

20. Conditions:

This Application is approved, subject to prior rights, as follows:

- a. Actual construction work shall be diligently prosecuted to completion.
- b. Proof of Appropriation shall be submitted to the State Engineer's office by NPR
- c. TEMPORARY APPROVAL -- EXPIRES August 1, 1984.

Carl M. Staker

For Dee C. Hansen, P.E., State Engineer

21. Time for making Proof of Appropriation extended to
22. Proof of Appropriation submitted.
23. Certificate of Appropriation, No., issued

TEMPORARY

Application No. 59607
91-4301

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT
OF
OPERATIONS

Lease No. 33976
Communitization Agreement No. _____
Field Name Wildcat
Unit Name _____
Participating Area _____
County Carbon State Utah
Operator Atlantic Richfield Company
 Amended Report ARCO Chambers#1

The following is a correct report of operations and production (including status of all unplugged wells) for the month of September, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	DRG	0	0	0	0	This well spudded on 9/23/84. Please see attached drilling report. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL.

CONFIDENTIAL INFORMATION

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLs)	Gas (MCF)	Water (BBLs)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXXXX

Authorized Signature: B.P. Steele Address P.O. Box 5540, Denver, CO 80217
Title: Supervisor, Operations Info. Group Page 1 of 1

DIVISION OF OIL, GAS AND MINING

SPODDING INFORMATION

API #43-007-30099

NAME OF COMPANY: ARCO OIL & GAS CO

WELL NAME: ARCO #L CHAMBERS

SECTION SW NE 28 TOWNSHIP 15S RANGE 13E COUNTY Carbon

DRILLING CONTRACTOR Loffland

RIG # 1

SPODDED: DATE 9-23-84

TIME 6:00 AM

How Rotary

DRILLING WILL COMMENCE _____

REPORTED BY Steve Robinson

TELEPHONE # 801-888-2337

DATE 9-24-84 SIGNED AS

ARCO Oil and Gas Company
Rocky Mountain District
707 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 293 4600



October 10, 1984

RECEIVED

OCT 17 1984

DIVISION OF OIL
GAS & MINING

State of Utah
Department of Natural Resources
Division of Oil, Gas & Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

Re: Monthly Report of Operations
Well No. ARCO Chambers #1
Sec. 28-15S-13E
Carbon, UT

Gentlemen:

Attached, in duplicate is the Monthly Report of Operations for the month of September, 1984, on the subject well.

This well is being drilled as a "Tight Hole" and we request that this information be held CONFIDENTIAL.

This well was spudded on September 23, 1984.

Very truly yours,

B.R. Still

B. R. Still
Supervisor, Operations Info. Group

BRS:af

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT
OF
OPERATIONS

Lease No. 33976
Communitization Agreement No. _____
Field Name Wildcat
Unit Name _____
Participating Area _____
County Carbon State Utah
Operator Atlantic Richfield Company
 Amended Report ARCO Chambers#1

The following is a correct report of operations and production (including status of all unplugged wells) for the month of September, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	DRG	0	0	0	0	This well spudded on 9/23/84. Please see attached drilling report. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL.

CONFIDENTIAL INFORMATION

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXX

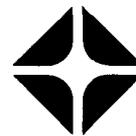
Authorized Signature: B.P. Steel Joke Address P.O. Box 5540, Denver, CO 80217
Title: Supervisor, Operations Info. Group Page 1 of 1

9/18/84		Day -1. Loc complete. Moving rig to loc w/18 loads on pad. Expect to spud 9/20 or 9/21/84.
9/19/84		Day -2. All rig loads on location. Expect to spud 9/21/84.
9/20/84		Day -3. RU. Expect to spud 9/21/84.
9/21/84		Day -4. RU. Expect to spud late 9/21/84.
9/22-24	724	Day-1 (625') - Drlg. (14" @ 99' KB) MW: 8.9# Vis: 36 Pv/Yp: 4/4 Fin RU & inspect DP. SPUD 0600 hrs 9/23/84. Drld 12-1/4" hole to PD. Tite hole @ 426-406'. Lost returns @ 694' & regained w/LCM sweep. Surveys: 1/4° @ 109', 1/2Z @ 231', 1° @ 314', 3/4° @ 412', 1/4° @ 572', 1° @ 694'.
9/25/84	986	Day-2 (262') - Drlg. (14" @ 99' KB) MW: 8.8# Vis: 40 Pv/Yp: 11/7 Drlg 12-1/4" hole to 854'. Lost returns, pmp LCM pill. Drld to 860'. Lost returns, mix LCM in mud. Drld to 867', lost full returns. Bld vol & add LCM. Drld to 899' w/partial returns. TFNB. RIH, wsh & rm 90' to btm - 10' fill. Drlg to PD w/full returns. Surveys: 1° @ 815', 1-1/4° @ 899'.
9/26/84	1295	Day-3 (309') - RU loggers. (14" @ 99' KB) MW: 8.9# Vis: 38 Pv/Yp: 9/4 Drlg 12-1/4" hole to PD. RU Schl. Surveys: 1-1/4° @ 960', 1057' & 1151', 1° @ 1274'.
9/27/84	1295	Day-4 (0') - Prep to cut csg. (14" @ 99' KB) Wtr Ran DIL/SFL/GR - WL TD 1282'. RIH w/bit & tag 5' fill. Circ & cond. POH. LD DCs. Run 31 jts 9-5/8", 36#, K-55, ST&C to 1295'. Cmt w/615 sx "H" + 1/4#/sx Flocele + 10#/sx Gilsonite + 2% CC. Lost returns w/30 bbls displ remaining. CIP 1900 hrs 9/26/84. PU 1" & did top job @ 180' using 100 sx "H" + 2% CC. CIP 0030 9/27/84. WOC. ND diverter & prep to cut 9-5/8" csg.
9/28/84	1295	Day-5 (0') - NU BOPs. (9-5/8" @ 1295') MW: 8.9# Vis: 38 Pv/Yp: 9/4 ND diverter. Cut off csg. Instl 11" 3000# csghd & tst weld to 3000#. NU BOPs.
9/29-10/1	2200	Day-8 (905') - Drlg. (9-5/8" @ 1295') MW: 8.9# Vis: 35 Pv/Yp: 8/2 NU BOPs & tst same. RIH, tag cmt @ 1126'. DO to 1205'. Tst csg to 1000 psi - OK. DO to 1296'. Ran press integrity tst to 13 ppg EMW - OK. Drld 8-3/4" hole to PD. Surveys: 1/2° @ 1460', 3/4° @ 1760', 1/2° @ 2043'.

CONFIDENTIAL INFORMATION

CONFIDENTIAL INFORMATION

ARCO Oil and Gas Company
Rocky Mountain District
707 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 293 4600



October 15, 1984

State Oil & Gas Commission
4241 State Office Building
Salt Lake City, Utah 84114

Attn: Stephanie Barela

Please hold all information regarding ARCO Oil and Gas Company's ARCO #1 Chambers well in Carbon Co., Utah as confidential. If you have any questions regarding this matter, please contact me at (303) 293-1077.

Sincerely,

Suzanne M. Barnes
Drilling Engineer

JEO
T.K.D. for KUP

SMB:aag

RECEIVED

OCT 19 1984

DIVISION OF OIL
GAS & MINING

ARCO Oil and Gas Company
Rocky Mountain District
707 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 293 4600



November 9, 1984

RECEIVED

NOV 13 1984

DIVISION OF OIL
GAS & MINING

State of Utah
Department of Natural Resources
Division of Oil, Gas & Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

Re: Monthly Report of Operations
Well No. ARCO Chambers #1
Sec. 28-15S-13E
Carbon, UT

Gentlemen:

Attached, in duplicate is the Monthly Report of
Operations for the month of October,
1984, on the subject well.

This well is being drilled as a "Tight Hole" and
we request that this information be held CONFIDENTIAL.

This well was spudded on September 23, 1984.

Very truly yours,

B. R. Still

B. R. Still
Supervisor, Operations Info. Group

BRS:af

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Form 3160-6
(November 1983)
(Formerly 9-329)

MONTHLY REPORT
OF
OPERATIONS

Lease No. 33976
Communitization Agreement No. _____
Field Name Wildcat
Unit Name _____
Participating Area _____
County Carbon State Utah
Operator Atlantic Richfield Company
 Amended Report (ARCO Chambers #1)

The following is a correct report of operations and production (including status of all unplugged wells) for the month of October, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulation (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	DRG	0	0	0	0	This well spudded on 9/23/84. Please see attached drilling report. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL***

RECEIVED

NOV 13 1984

DIVISION OF OIL GAS & MINING

CONFIDENTIAL INFORMATION

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLs)	Gas (MCF)	Water (BBLs)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXXXX

Authorized Signature: B. R. Stille Address: P.O. Box 5540, Denver, CO 80217
Title: Supervisor, Operations Info. Group Page 1 of 1

10/24/84 5173

Day-31 (129') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 41 Pv/Yp: 11/6
 POH. Chg BHA. RIH. Wsh & rm 4954-5044'. Drld to 5165', lost returns. Mix LCM, regain returns. Drld 8-3/4" hole to PD w/full returns. Survey: 2-1/4° @ 5044'.

10/25/84 5304

Day-32 (131') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 40 Pv/Yp: 10/5
 Drld to 5238', losing mud. Mix LCM & regain returns. Drld 8-3/4" hole to PD w/TFNB @ 5274'. Survey: 1° @ 5255'. (Removed f/Tight Hole Status 10/25/84 per N. Bassett.)

10/26/84 5442

Day-33 (138') - Drlg. (9-5/8" @ 1295')
 MW: 8.7# Vis: 42 Pv/Yp: 13/7
 Drld to 5310', lost returns. Mix LCM. Regain returns & drld to 5384'. Lost returns. Mix LCM, regain returns. Drld 8-3/4" hole to PD.

10/27-29 5723

Day-36 (281') - Inspect BHA. (9-5/8" @ 1295')
 MW: 8.7# Vis: 42 Pv/Yp: 13/7
 Drld to 5538' & lost returns. Mix LCM, regain returns. Drld to 5689'. Circ smpls & lost returns. Mix LCM & regain returns. Drld 8-3/4" hole to PD w/lost returns @ 5698' & 5705'. Survey: 1° @ 5526'.

10/30/84 5837

Day-37 (114') - Drlg. (9-5/8" @ 1295')
 MW: 8.7# Vis: 41 Pv/Yp: 12/7
 Inspect BHA. Tst BOPs. RIH. Drld 8-3/4" hole to PD.

10/31/84 5906

Day-38 (69') - Pmpg LCM pill. (9-5/8" @ 1295')
 MW: 8.4# Vis: 40 Pv/Yp: NR
 Drld 8-3/4" hole to PD. Lost returns. Pmpd several LCM pills. Have not regained returns.

CONFIDENTIAL

District	Rocky Mountain	County or Parish	Carbon	State	Utah
Field		Lease or Unit	ARCO Chambers		Well no.
10/12/84	4458	Day-19 (8') - Rmg @ 3762'. MW: 8.9# Vis: 33 Pv/Yp: 7/1 Wsh & rmd to btm. Cored f/4450-4458' & CB jammed. POH w/CB #1, rec'd 8' core. TIH w/CB #2, had to rm hole 3369-3439' & 3714-3784'. POH & LD CB. TIH w/bit & rmg/cond'g hole.	(9-5/8" @ 1295')		#1
10/13-15	4501	Day-22 (43') - Wsh to btm w/CB. MW: 8.9# Vis: 42 Pv/Yp: 12/7 Rmd 3763-4458'. Drld to 4459'. POH. RIH w/CB. Wsh & rmd 4395-4459'. Cut Core #2, 4459-4487'. Lost returns. Mix & pmp LCM - no returns. POH, LD core. Cut 28', rec'd 28'. Shows 4466-68', 4475-87'. RIH w/bit, wsh & rmd 4381-4487'. Mix mud & LCM. Regain returns. Drld 8-3/4" hole 4487-89'. POH. RIH w/CB. Attempt to core, would not core. POH. Fnd inner bbl packed w/LCM. RIH w/CB. Attempt to cut Core #3 w/o success. POH. RIH w/bit. Wsh & rmd 4397-4489'. Drld 8-3/4" hole 4489-4501'. POH. PU CB & RIH. Wsh & rmd 4410-4501'.	(9-5/8" @ 1295')		
10/16-17	4559	Day-24 (58') - Cutting Core #4. MW: 9.0# Vis: 39 Pv/Yp: 12/5 Cut Core #3, 4501-4531'. POH. Rec'd 30' core. RIH & cond hole. POH. PU DST tools & RIH. POH & LD tst tools. DST #1 Summary: 4452-4531', Moenkopi, 15-60-120-75 min; IHP 2031 psi & FHP 2018 psi, IFP 105 psi & FFP 157 psi, ISIP 1537 psi & FSIP 1448 psi; DP recovery: 886' of GCM&W w/sli oil cut; Smpl Chmbr recovery: 300 psi, .35 scf gas, 30 cc oil, 1280 cc wtr; Max recorded BHT 126°F. PU CB & RIH. Cut Core #4, 4531-4559'.	(9-5/8" @ 1295')		
10/18/84	4559	Day-25 (0') - Testing. MW: 9.0# Vis: 48 Pv/Yp: 11/6 Cut Core #4, 4531-4559', jammed. POH. Cut 28', rec'd 27-1/2'. RIH w/ 8-3/4" bit. Circ & cond f/DST #2. POH. PU tst tools & RIH. DST #2: 4415-4459', IF opnd w/gd flw incr'd to strong flw in 1 min.	(9-5/8" @ 1295')		
10/19/84	4686	Day-26 (127') - Drlg. MW: 8.8# Vis: 42 Pv/Yp: 13/6 Fin rmg DST #2, POH & LD tst tools. DST #2: 4515-4559', Sinbad fm, 15-60-60-90 min; IHP 2143 & FHP 2143, IFP 45-55, ISIP 310, FFP 55-64, FSIP 368'. DP recovery: 102' GCDM. Smpl Chmbr recovery: 0.5 cf gas, 1300 cc DM. TIH w/B#7, drld to PD.	(9-5/8" @ 1295')		
10/20-22	4986	Day-29 (300') - Drlg. MW: 8.9# Vis: 42 Pv/Yp: 13/6 Drld to 4695'. Lost returns. Mix LCM & regain returns. Drld to 4946'. POH. PU CB, RIH. Wsh & rm 4880-4946'. Cut Core #5, 4946-52'. POH, cut 6', rec'd 5'. RIH w/CB. Cut Core #6, 4952-60'. POH, cut 8', rec'd 6'. RIH. Wsh & rm 4895-4960'. Drld 8-3/4" hole to PD. Surveys: 1-1/4° @ 4802', 1-1/2° @ 4930'.	(9-5/8" @ 1295')		
10/23/84	5044	Day-30 (58') - Drlg. MW: 8.9# Vis: 41 Pv/Yp: 11/5 Drld to 4990'. POH. RIH w/CB. Cut Core #7, 4990-4991'. POH. No core recovery. RIH. Drld 8-3/4" hole to PD.	(9-5/8" @ 1295')		

CONFIDENTIAL INFORMATION

CONFIDENTIAL INFORMATION

9/29-10/1 2200

Day-8 (905') - Drlg. (9-5/8" @ 1295')
 MW: 8.9# Vis: 35 Pv/Yp: 8/2
 NU BOPs & tst same. RIH, tag cmt @ 1126'. DO to 1205'. Tst csg to 1000 psi
 - OK. DO to 1296'. Ran press integrity tst to 13 ppg EMW - OK. Drld 8-3/4"
 hole to PD. Surveys: 1/2° @ 1460', 3/4° @ 1760', 1/2° @ 2043'.

10/2/84 2470

Day-9 (270') - Drlg. (9-5/8" @ 1295')
 MW: 8.9# Vis: 35 Pv/Yp: 9/2
 Drld 8-3/4" hole to PD w/TFNB @ 2441'. Surveys: 3/4° @ 2334', 1-1/4° @
 2437'.

10/3/84 2760

Day-10 (290') - Drlg. (9-5/8" @ 1295')
 MW: 9.0# Vis: 34 Pv/Yp: 5/4
 Drld 8-3/4" hole to PD.

10/4/84 3035

Day-11 (275') - Drlg. (9-5/8" @ 1295')
 MW: 9.1# Vis: 36 Pv/Yp: 8/8
 Drld 8-3/4" hole to PD. Surveys: 1-3/4° @ 2730', 1-1/4° @ 2947'.

10/5/84 3233

Day-12 (198') - Drlg. (9-5/8" @ 1295')
 MW: 9.0# Vis: 35 Pv/Yp: 8/3
 Drld 8-3/4" hole to 3132'. TFNB. Drld to PD. Survey: 1° @ 3117'.

10/6-8 3854

Day-15 (621') - Drlg. (9-5/8" @ 1295')
 MW: 8.7# Vis: 37 Pv/Yp: 6/3
 Drld 8-3/4" hole to PD w/TFNB @ 3392' & 3582'. Lost returns @ 3778'. Mix
 LCM & regain returns. Surveys: 1° @ 3351', 1/2° @ 3570'.

10/9/84 4046

Day-16 (192') - Drlg. (9-5/8" @ 1295')
 MW: 8.7# Vis: 35 Pv/Yp: 7/8
 Drld 8-3/4" hole to PD w/TFNB @ 3893'. Survey: 1/2° @ 3956'.

10/10/84 4370

Day-17 (324') - Drlg. (9-5/8" @ 1295')
 MW: 8.9# Vis: 34 Pv/Yp: 8/2
 Drld 8-3/4" hole to PD.

CONFIDENTIAL INFORMATION

10/11/84 4450

Day-18 (80') - Wsh & rm. (9-5/8" @ 1295')
 MW: 8.6# Vis: 35 Pv/Yp: 8/3
 Drld 8-3/4" hole to 4438'. Circ out smpls. Lost returns. Mix LCM. Regained
 returns (lost 125 BM). Drld to 4450'. Circ out smpls. POH. Inspect BHA. PU
 CB & RIH to 3760'. Wsh & rm tite hole 3760-3830'. RIH. Wsh & rm
 4350-4412'. Survey: 1° @ 4450'.

ARCO Oil and Gas Company
Rocky Mountain District
707 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 293 4600



December 10, 1984

State of Utah
Department of Natural Resources
Division of Oil, Gas & Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

Re: Monthly Report of Operations
Well No. ARCO Chambers #1
Sec. 28-15S-13E
Carbon, UT

Gentlemen:

Attached, in duplicate is the Monthly Report of Operations for the month of November, 1984, on the subject well.

This well is being drilled as a "Tight Hole" and we request that this information be held CONFIDENTIAL.

This well was spudded on September 23, 1984.

Very truly yours,

A handwritten signature in cursive script that reads "B. R. Still". The letters are fluid and connected, with a prominent initial "B".

B. R. Still
Supervisor, Operations Info. Group

BRS:af

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Form 3160-6
(November 1983)
(Formerly 9-329)

MONTHLY REPORT
OF
OPERATIONS

Lease No. 33976
Communitization Agreement No. _____
Field Name Wildcat
Unit Name _____
Participating Area _____
County Carbon State Utah
Operator ARCO

Amended Report (ARCO Chambers #1)

The following is a correct report of operations and production (including status of all unplugged wells) for the month of November, 1984

(See Reverse of Form for Instructions)

CONFIDENTIAL INFORMATION

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulation (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	DRG	0	0	0	0	This well spudded on 9/23/84. Please see attached drilling report. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL***

RECEIVED
DEC 14 1984
Division of
OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXXXX

Authorized Signature: D. P. Hill Address: P.O. Box 5540, Denver, CO 80217
Title: Supervisor, Operations Info. Group Page 1 of 1

District	County or Parish	State
Rocky Mountain	Carbon	Utah
Field	Lease or Unit	Well no.
Wildcat	ARCO Chambers	#1

11/14/84 7095

Day-52 (321') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 44 Pv/Yp: 12/10
 Mix mud, bld vol. RIH to 6355', circ w/full returns. RIH. Wash & rm 34' to btm. Drl'd 8-3/4" hole to PD.

11/15/84 7131

Day-53 (36') - Cln'g mud pmps. (9-5/8" @ 1295')
 MW: 8.7# Vis: 46 Pv/Yp: 14/8
 Drl'd 8-3/4" hole to 7130'. POH. RIH w/CB. Wash & rm 7100-7130'. Cut Core #9, 7130-7131'. POH. Chg core hd. RIH w/CB. Cln LCM out of mud pmps. Survey: 1° @ 7130'.

CONFIDENTIAL INFORMATION

11/16/84 7161

Day-54 (30') - RIH. (9-5/8" @ 1295')
 MW: 8.6# Vis: 44 Pv/Yp: 13/9
 Fin cln'g mud pmps. Wash & rm 7071-7131'. Cut Core #10, 7131-7161'. POH & LD core & CB. Cut 30', rec'd 30'. Repair guard on blks. RIH w/B#18 & inspect BHA.

11/17-19 7658

Day-57 (497') - Drlg. (9-5/8" @ 1295')
 MW: 8.9# Vis: 44 Pv/Yp: 14/10
 Inspect BHA. RIH. Wash & rm 7085-7161', 8' fill. Drl'd 8-3/4" hole to PD w/TFB @ 7601'. Survey: 1° @ 7601'.

11/20/84 7796

Day-58 (138') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 45 Pv/Yp: 16/9
 Drl'd 8-3/4" hole to PD. 2 hrs WO generator.

11/21/84 7857

Day-59 (61') - Logging. (9-5/8" @ 1295')
 MW: 9.0# Vis: 44 Pv/Yp: 15/10
 Drl'd 8-3/4" hole to PD. Circ. Sht trip. Circ. POH. RU Schl. Ran DLL/MSFL/GR. Presently rmg LDT/CNL/GR/Cal. Survey: 1/4° @ 7841'.

11/22-26 7866

Day-64 (9') LD DP, prep to run csg. (9-5/8" @ 1295')
 MW: 8.7# Vis: 56 Pv/Yp: 19/14
 Ran BHC Sonic, Dipmeter, LDT/CNL/GR, VSP. PU CB. TIH. Cut Core #11. TOH & LD Core #11 & CB. Cut 9', rec'd 5-1/2'. TIH w/DP to 5213'. Spt cmt plug w/175 sx Cl "H" w/add. TOH. TIH w/bit. Drl'd soft cmt to 5055'. TOH. TIH w/DP to 5055'. Howco sptd cmt plug w/175 sx Cl "H" w/add. TOH. WOC. TIH w/bit. Drl'd cmt to 4900'. Cmt smpls firm. Circ. TOH & LD DP.

11/27/84 7866

Day-65 TD PBTD: 4900' - NU tb'g hd. (5-1/2" @ 4893')
 Fin LD DP. RU csg crew & ran DFFS, 2 jts 5-1/2" 17# K-55 LTC csg, DFFC, 115 jts 5-1/2" 17# K-55 LTC csg. Csg lnd'd @ 4893' w/DFFC @ 4806'. Circ & cond hole. Cmt w/500 sx Cl "H" cmt w/add. Full returns during job. Plug b'nd & flts held. CIP 1749 hrs 11/26/84. Set csg slips w/65M#. NU tb'g hd.

11/28/84 7866

Day-66 TD PBTD: 4806' (FC) - WO evaluation. (5-1/2" @ 4893')
 Fin NU tb'ghd & tst same to 1000 psi. RR 1600 hrs 11/27/84. WO evaluation.
(Drop f/report until evaluation commences.)

11/1/84 5973

Day-39 (67') - Drlg. (9-5/8" @ 1295')
 MW: 8.6# Vis: 44 Pv/Yp: 13/8
 Pmpd 2 LCM pills & regained returns. Wash & rmd 5596-5906'. Drld 8-3/4" hole to PD.

CONFIDENTIAL INFORMATION

11/2/84 6021

Day-40 (48') - POH f/CB. (9-5/8" @ 1295')
 MW: 8.4# Vis: 43 Pv/Yp: 14/7
 Drld to 6015'. Lost returns. Pmpd LCM & regain returns. Drld to 6018' & lost returns. Regain partial returns. Drld 8-3/4" hole to PD w/partial returns. Pmpd LCM & attempt to regain full returns. POH f/CB.

11/3-5 6095

Day-43 (74') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 45 Pv/Yp: 16/7
 POH. PU CB & RIH. Wash & rm 5951-6021'. Cut Core #8, 6021-6022'. Lost returns. POH w/CB. No recovery. RIH w/bit. Wash & rm 5957-6022'. Drld to 6032'. Circ smpls. Drld to 6054'. POH. RIH w/DST tools. DST #3 summary: 6009-6054', Elephant Canyon, 15-60-60-90 mins; IHP 2786 & FHP 2744, IFP 436 & FFP 436, ISIP 2234 & FSIP 2212; DP recovery - 560' sli GCM w/sli WC & tr CO₂; Smp1 Chmbr recovery - 100 psi, 2150 cc WCM, no gas; Max recorded BHT 160°F. POH, LD DST tools. RIH w/B#14. Drld 8-3/4" hole to PD. Survey: 2-1/2° @ 5990'.

11/6/84 6198

Day-44 (103') - Drlg. (9-5/8" @ 1295')
 MW: 8.6# Vis: 54 Pv/Yp: 18/12
 Drld 8-3/4" hole to PD.

11/7/84 6298

Day-45 (100') - Drlg. (9-5/8" @ 1295')
 MW: 8.8# Vis: 46 Pv/Yp: 15/10
 Drld 8-3/4" hole to PD w/TFB @ 6240'. Survey: 1-3/4° @ 6240'.

11/8/84 6413

Day-46 (115') - Bld mud. (9-5/8" @ 1295')
 MW: 8.6# Vis: 44 Pv/Yp: 16/6
 Drld to 6392'. Circ smpls. Drld to 6411', lost returns. Mix 3 LCM pills & regain partial returns. Drld 8-3/4" hole to PD. Lost compl returns. Mixing mud & bld vol.

11/9/84 6525

Day-47 (112') - Drlg. (9-5/8" @ 1295')
 MW: 8.6# Vis: 45 Pv/Yp: 17/7
 Mix mud & LCM. Regain partial returns. Drld to 6426' w/partial returns. Lost compl returns. Circ mud system (contains 10% LCM). Regain full returns & drld 8-3/4" hole to PD.

CONFIDENTIAL INFORMATION

11/10-13 6774

Day-51 (249') - Bldg mud. (9-5/8" @ 1295')
 MW: 8.5# Vis: 44 Pv/Yp: 17/10
 Drld to 6605'. TFNB. Wash & rmd 6560-6605'. Drld to 6613'. Lost returns. Mix & pmp LCM. Regain partial returns. Drld to 6620' w/partial returns, then lost full returns. Mix & pmp LCM. Drld 8-3/4" hole to PD w/partial returns. POH. PU DST tools. RIH. Ran DST #4, Deseret fm, 6686-6774' @ 15-60-90-120 mins; IHP 3050 & FHP 3050, IFP 211 & FFP 587, ISIP 2457 & FSIP 643; DP recovery: 580' GCM & 820' GCW; Smp1 Chmbr recovery: 180 psi, 1700 cc wtr, 0.7 scf gas; Max recorded BHT 150°F. POH. LD DST tools. RIH w/bit. Brk circ @ 6694'. Lost returns. POH to 5855'. Pmp LCM pill. Regain partial returns. Pmp 2nd LCM pill. Bld mud vol. Survey: 1/2° @ 6605', 1/4° @ 6774'.

TIGHT HOLE
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. 33976	
2. NAME OF OPERATOR ARCO Oil and Gas Company, Division of Atlantic Richfield Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME ---	
3. ADDRESS OF OPERATOR P.O. Box 5540, Denver, Colorado 80217		7. UNIT AGREEMENT NAME ---	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 2500' FNL & 1500' FEL		8. FARM OR LEASE NAME ---	
14. PERMIT NO. 43-007-30099		9. WELL NO. ARCO Chambers #1	
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 5452' GL		10. FIELD AND POOL, OR WILDCAT Wildcat	
		11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA 28-15S-13E	
		12. COUNTY OR PARISH Carbon	13. STATE Utah

CONFIDENTIAL

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>5 1/2" casing</u>	<input checked="" type="checkbox"/>

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

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

Drilled ahead. Core #1 4459-4485. Core #2-unsuccessful. Core #3 4501-4531. DST #1 4452-4531. Core #4 4531-4559. DST #2 4515-4559. Core #5 4946-4952. Core #6 4942-4960. Core #7-unsuccessful. Core #8. DST #3 6009-6054. DST #4 6686-6774. Core #9. Core #10 7131-7161. Drilled to 7857'. Logged. Core #11. Set cement plug - 175 sx Class "H" with 2% CaCl₂ (15.6 ppg) @ 5213'. Set cement - 175 sx Class "H" with 2% CaCl₂ @ 5055. Drilled cement to 4900'PB. RU and ran 117 jts 5 1/2" 17#, K-55, LTC casing and set @ 4893'KB. Cemented as follows: 10 bbl water, 20 bbl mud flush, 500 sx Class "H" cement + 0.6% Halad-9, .75% CFR-2 and 1/4#/sx flocele (15.6 ppg-1.18 cuft/sx). Float held. Good returns.

Released rig 11-27-84.
Waiting on completion.

RECEIVED
DEC 13 1984

DIVISION OF
OIL, GAS & MINING

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

SIGNED L. B. Morse TITLE Operations Manager DATE 12-10-84
L. B. Morse

(This space for Federal or State office use)

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

*See Instructions on Reverse Side

Arco # 1
Chambers

12/19/84
1130 hrs.

BP at 4410' x
cement with 2-3 sk.

Perforate upper Moenkopi
1/2 test.

Sec. 28, 15S, 13E,
Carbon Co., Utah

Suzanne Barnes
Arco

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

3
CONFIDENTIAL

- 9/28/84 1295 Day-5 (0') - NU BOPs. (9-5/8" @ 1295')
MW: 8.9# Vis: 38 Pv/Yp: 9/4
ND diverter. Cut off csg. Instl 11" 3000# csghd & tst weld to 3000#. NU BOPs.
- 9/29-10/1 2200 Day-8 (905') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 35 Pv/Yp: 8/2
NU BOPs & tst same. RIH, tag cmt @ 1126'. DO to 1205'. Tst csg to 1000 psi - OK. DO to 1296'. Ran press integrity tst to 13 ppg EMW - OK. Drld 8-3/4" hole to PD. Surveys: 1/2° @ 1460', 3/4° @ 1760', 1/2° @ 2043'.
- 10/2/84 2470 Day-9 (270') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 35 Pv/Yp: 9/2
Drld 8-3/4" hole to PD w/TFNB @ 2441'. Surveys: 3/4° @ 2334', 1-1/4° @ 2437'.
- 10/3/84 2760 Day-10 (290') - Drlg. (9-5/8" @ 1295')
MW: 9.0# Vis: 34 Pv/Yp: 5/4
Drld 8-3/4" hole to PD.
- 10/4/84 3035 Day-11 (275') - Drlg. (9-5/8" @ 1295')
MW: 9.1# Vis: 36 Pv/Yp: 8/8
Drld 8-3/4" hole to PD. Surveys: 1-3/4° @ 2730', 1-1/4° @ 2947'.
- 10/5/84 3233 Day-12 (198') - Drlg. (9-5/8" @ 1295')
MW: 9.0# Vis: 35 Pv/Yp: 8/3
Drld 8-3/4" hole to 3132'. TFNB. Drld to PD. Survey: 1° @ 3117'.
- 10/6-8 3854 Day-15 (621') - Drlg. (9-5/8" @ 1295')
MW: 8.7# Vis: 37 Pv/Yp: 6/3
Drld 8-3/4" hole to PD w/TFNB @ 3392' & 3582'. Lost returns @ 3778'. Mix LCM & regain returns. Surveys: 1° @ 3351', 1/2° @ 3570'.
- 10/9/84 4046 Day-16 (192') - Drlg. (9-5/8" @ 1295')
MW: 8.7# Vis: 35 Pv/Yp: 7/8
Drld 8-3/4" hole to PD w/TFNB @ 3893'. Survey: 1/2° @ 3956'.
- 10/10/84 4370 Day-17 (324') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 34 Pv/Yp: 8/2
Drld 8-3/4" hole to PD.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

4
CONFIDENTIAL

- 10/11/84 4450 Day-18 (80') - Wsh & rm. (9-5/8" @ 1295')
MW: 8.6# Vis: 35 Pv/Yp: 8/3
Drld 8-3/4" hole to 4438'. Circ out smpls. Lost returns. Mix LCM. Regained returns (lost 125 BM). Drld to 4450'. Circ out smpls. POH. Inspect BHA. PU CB & RIH to 3760'. Wsh & rm tite hole 3760-3830'. RIH. Wsh & rm 4350-4412'. Survey: 1° @ 4450'.
- 10/12/84 4458 Day-19 (8') - Rmg @ 3762'. (9-5/8" @ 1295')
MW: 8.9# Vis: 33 Pv/Yp: 7/1
Wsh & rmd to btm. Cored f/4450-4458' & CB jammed. POH w/CB #1, rec'd 8' core. TIH w/CB #2, had to rm hole 3369-3439' & 3714-3784'. POH & LD CB. TIH w/bit & rmg/cond'g hole.
- 10/13-15 4501 Day-22 (43') - Wsh to btm w/CB. (9-5/8" @ 1295')
MW: 8.9# Vis: 42 Pv/Yp: 12/7
Rmd 3763-4458'. Drld to 4459'. POH. RIH w/CB. Wsh & rmd 4395-4459'. Cut Core #2, 4459-4487'. Lost returns. Mix & pmp LCM - no returns. POH, LD core. Cut 28', rec'd 28'. Shows 4466-68', 4475-87'. RIH w/bit, wsh & rmd 4381-4487'. Mix mud & LCM. Regain returns. Drld 8-3/4" hole 4487-89'. POH. RIH w/CB. Attempt to core, would not core. POH. Fnd inner bbl packed w/LCM. RIH w/CB. Attempt to cut Core #3 w/o success. POH. RIH w/bit. Wsh & rmd 4397-4489'. Drld 8-3/4" hole 4489-4501'. POH. PU CB & RIH. Wsh & rmd 4410-4501'.
- 10/16-17 4559 Day-24 (58') - Cutting Core #4. (9-5/8" @ 1295')
MW: 9.0# Vis: 39 Pv/Yp: 12/5
Cut Core #3, 4501-4531'. POH. Rec'd 30' core. RIH & cond hole. POH. PU DST tools & RIH. POH & LD tst tools. DST #1 Summary: 4452-4531', Moenkopi, 15-60-120-75 min; IHP 2031 psi & FHP 2018 psi, IFP 105 psi & FFP 157 psi, ISIP 1537 psi & FSIP 1448 psi; DP recovery: 886' of GCM&W w/sli oil cut; Smpl Chmbr recovery: 300 psi, .35 scf gas, 30 cc oil, 1280 cc wtr; Max recorded BHT 126°F. PU CB & RIH. Cut Core #4, 4531-4559'.
- 10/18/84 4559 Day-25 (0') - Testing. (9-5/8" @ 1295')
MW: 9.0# Vis: 48 Pv/Yp: 11/6
Cut Core #4, 4531-4559', jammed. POH. Cut 28', rec'd 27-1/2'. RIH w/ 8-3/4" bit. Circ & cond f/DST #2. POH. PU tst tools & RIH. DST #2: 4415-4459', IF opnd w/gd flw incr'd to strong flw in 1 min.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

5
CONFIDENTIAL

- 10/19/84 4686 Day-26 (127') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 42 Pv/Yp: 13/6
Fin ring DST #2, POH & LD tst tools. DST #2: 4515-4559', Sinbad fm,
15-60-60-90 min; IHP 2143 & FHP 2143, IFP 45-55, ISIP 310, FFP 55-64, FSIP
368'. DP recovery: 102' GCDM. Smp1 Chmbr recovery: 0.5 cf gas, 1300 cc
DM. TIH w/B#7, drld to PD.
- 10/20-22 4986 Day-29 (300') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 42 Pv/Yp: 13/6
Drld to 4695'. Lost returns. Mix LCM & regain returns. Drld to 4946'.
POH. PU CB, RIH. Wash & rm 4880-4946'. Cut Core #5, 4946-52'. POH, cut 6',
rec'd 5'. RIH w/CB. Cut Core #6, 4952-60'. POH, cut 8', rec'd 6'. RIH. Wash
& rm 4895-4960'. Drld 8-3/4" hole to PD. Surveys: 1-1/4° @ 4802', 1-1/2° @
4930'.
- 10/23/84 5044 Day-30 (58') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 41 Pv/Yp: 11/5
Drld to 4990'. POH. RIH w/CB. Cut Core #7, 4990-4991'. POH. No core
recovery. RIH. Drld 8-3/4" hole to PD.
- 10/24/84 5173 Day-31 (129') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 41 Pv/Yp: 11/6
POH. Chg BHA. RIH. Wash & rm 4954-5044'. Drld to 5165', lost returns. Mix
LCM, regain returns. Drld 8-3/4" hole to PD w/full returns. Survey: 2-1/4°
@ 5044'.
- 10/25/84 5304 Day-32 (131') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 40 Pv/Yp: 10/5
Drld to 5238', losing mud. Mix LCM & regain returns. Drld 8-3/4" hole to
PD w/TFNB @ 5274'. Survey: 1° @ 5255'.
- 10/26/84 5442 Day-33 (138') - Drlg. (9-5/8" @ 1295')
MW: 8.7# Vis: 42 Pv/Yp: 13/7
Drld to 5310', lost returns. Mix LCM. Regain returns & drld to 5384'. Lost
returns. Mix LCM, regain returns. Drld 8-3/4" hole to PD.
- 10/27-29 5723 Day-36 (281') - Inspect BHA. (9-5/8" @ 1295')
MW: 8.7# Vis: 42 Pv/Yp: 13/7
Drld to 5538' & lost returns. Mix LCM, regain returns. Drld to 5689'. Circ
snpls & lost returns. Mix LCM & regain returns. Drld 8-3/4" hole to PD
w/lost returns @ 5698' & 5705'. Survey: 1° @ 5526'.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

CONFIDENTIAL

10/30/84 5837 Day-37 (114') - Drlg. (9-5/8" @ 1295')
MW: 8.7# Vis: 41 Pv/Yp: 12/7
Inspect BHA. Tst BOPs. RIH. Drld 8-3/4" hole to PD.

10/31/84 5906 Day-38 (69') - Pmpg LCM pill. (9-5/8" @ 1295')
MW: 8.4# Vis: 40 Pv/Yp: NR
Drld 8-3/4" hole to PD. Lost returns. Pmpd several LCM pills. Have not
regained returns.

11/1/84 5973 Day-39 (67') - Drlg. (9-5/8" @ 1295')
MW: 8.6# Vis: 44 Pv/Yp: 13/8
Pmpd 2 LCM pills & regained returns. Wash & rmd 5596-5906'. Drld 8-3/4"
hole to PD.

11/2/84 6021 Day-40 (48') - POH f/CB. (9-5/8" @ 1295')
MW: 8.4# Vis: 43 Pv/Yp: 14/7
Drld to 6015'. Lost returns. Pmpd LCM & regain returns. Drld to 6018' &
lost returns. Regain partial returns. Drld 8-3/4" hole to PD w/partial
returns. Pmpd LCM & attempt to regain full returns. POH f/CB.

11/3-5 6095 Day-43 (74') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 45 Pv/Yp: 16/7
POH. PU CB & RIH. Wash & rm 5951-6021'. Cut Core #8, 6021-6022'. Lost
returns. POH w/CB. No recovery. RIH w/bit. Wash & rm 5957-6022'. Drld to
6032'. Circ smpls. Drld to 6054'. POH. RIH w/DST tools. DST #3 summary:
6009-6054', Elephant Canyon, 15-60-60-90 mins; IHP 2786 & FHP 2744, IFP
436 & FFP 436, ISIP 2234 & FSIP 2212; DP recovery - 560' sli GCM w/sli WC
& tr CO₂; Smp1 Chmbr recovery - 100 psi, 2150 cc WCM, no gas; Max recorded
BHT 160°F. POH, LD DST tools. RIH w/B#14. Drld 8-3/4" hole to PD. Survey:
2-1/2° @ 5990'.

11/6/84 6198 Day-44 (103') - Drlg. (9-5/8" @ 1295')
MW: 8.6# Vis: 54 Pv/Yp: 18/12
Drld 8-3/4" hole to PD.

11/7/84 6298 Day-45 (100') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 46 Pv/Yp: 15/10
Drld 8-3/4" hole to PD w/TFB @ 6240'. Survey: 1-3/4° @ 6240'.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

7
CONFIDENTIAL

- 11/8/84 6413 Day-46 (115') - Bld mud. (9-5/8" @ 1295')
MW: 8.6# Vis: 44 Pv/Yp: 16/6
Drld to 6392'. Circ smpls. Drld to 6411', lost returns. Mix 3 LCM pills & regain partial returns. Drld 8-3/4" hole to PD. Lost compl returns. Mixing mud & bld vol.
- 11/9/84 6525 Day-47 (112') - Drlg. (9-5/8" @ 1295')
MW: 8.6# Vis: 45 Pv/Yp: 17/7
Mix mud & LCM. Regain partial returns. Drld to 6426' w/partial returns. Lost compl returns. Circ mud system (contains 10% LCM). Regain full returns & drld 8-3/4" hole to PD.
- 11/10-13 6774 Day-51 (249') - Bldg mud. (9-5/8" @ 1295')
MW: 8.5# Vis: 44 Pv/Yp: 17/10
Drld to 6605'. TFNB. Wash & mud 6560-6605'. Drld to 6613'. Lost returns. Mix & pmp LCM. Regain partial returns. Drld to 6620' w/partial returns, then lost full returns. Mix & pmp LCM. Drld 8-3/4" hole to PD w/partial returns. POH. PU DST tools. RIH. Ran DST #4, Deseret fm, 6686-6774' @ 15-60-90-120 mins; IHP 3050 & FHP 3050, IFP 211 & FFP 587, ISIP 2457 & FSIP 643; DP recovery: 580' GCM & 820' GCW; Smp1 Chmbr recovery: 180 psi, 1700 cc wtr, 0.7 scf gas; Max recorded BHT 150°F. POH. LD DST tools. RIH w/bit. Brk circ @ 6694'. Lost returns. POH to 5855'. Pmp LCM pill. Regain partial returns. Pmp 2nd LCM pill. Bld mud vol. Survey: 1/2° @ 6605', 1/4° @ 6774'.
- 11/14/84 7095 Day-52 (321') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 44 Pv/Yp: 12/10
Mix mud, bld vol. RIH to 6355', circ w/full returns. RIH. Wash & rm 34' to btm. Drld 8-3/4" hole to PD.
- 11/15/84 7131 Day-53 (36') - Clng mud pmps. (9-5/8" @ 1295')
MW: 8.7# Vis: 46 Pv/Yp: 14/8
Drld 8-3/4" hole to 7130'. POH. RIH w/CB. Wash & rm 7100-7130'. Cut Core #9, 7130-7131'. POH. Chg core hd. RIH w/CB. Cln LCM out of mud pmps. Survey: 1° @ 7130'.
- 11/16/84 7161 Day-54 (30') - RIH. (9-5/8" @ 1295')
MW: 8.6# Vis: 44 Pv/Yp: 13/9
Fin clng mud pmps. Wash & rm 7071-7131'. Cut Core #10, 7131-7161'. POH & LD core & CB. Cut 30', rec'd 30'. Repair guard on blks. RIH w/B#18 & inspect BHA.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

CONFIDENTIAL 8

11/17-19 7658 Day-57 (497') - Drlg. (9-5/8" @ 1295')
MW: 8.9# Vis: 44 Pv/Yp: 14/10
Inspect BHA. RIH. Wsh & rm 7085-7161', 8' fill. Drld 8-3/4" hole to PD
w/TFB @ 7601'. Survey: 1° @ 7601'.

11/20/84 7796 Day-58 (138') - Drlg. (9-5/8" @ 1295')
MW: 8.8# Vis: 45 Pv/Yp: 16/9
Drld 8-3/4" hole to PD. 2 hrs WO generator.

11/21/84 7857 Day-59 (61') - Logging. (9-5/8" @ 1295')
MW: 9.0# Vis: 44 Pv/Yp: 15/10
Drld 8-3/4" hole to PD. Circ. Sht trip. Circ. POH. RU Schl. Ran
DLL/MSFL/GR. Presently rmg LDT/CNL/GR/Cal. Survey: 1/4° @ 7841'.

11/22-26 7866 Day-64 (9') LD DP, prep to run csg. (9-5/8" @ 1295')
MW: 8.7# Vis: 56 Pv/Yp: 19/14
Ran BHC Sonic, Dipmeter, LDT/CNL/GR, VSP. PU CB. TIH. Cut Core #11. TOH &
LD Core #11 & CB. Cut 9', rec'd 5-1/2'. TIH w/DP to 5213'. Spt cmt plug
w/175 sx Cl "H" w/add. TOH. TIH w/bit. Drld soft cmt to 5055'. TOH. TIH
w/DP to 5055'. Howco sptd cmt plug w/175 sx Cl "H" w/add. TOH. WOC. TIH
w/bit. Drld cmt to 4900'. Cmt smpls firm. Circ. TOH & LD DP.

11/27/84 7866 Day-65 TD PBTD: 4900' - NU tbg hd. (5-1/2" @ 4893')
Fin LD DP. RU csg crew & ran DFFS, 2 jts 5-1/2" 17# K-55 LTC csg, DFFC,
115 jts 5-1/2" 17# K-55 LTC csg. Csg lnd'd @ 4893' w/DFFC @ 4806'. Circ &
cond hole. Cmt w/500 sx Cl "H" cmt w/add. Full returns during job. Plug
bmpd & flts held. CIP 1749 hrs 11/26/84. Set csg slips w/65M#. NU tbg hd.

11/28/84 7866 Day-66 TD PBTD: 4806' (FC) - WO evaluation. (5-1/2" @ 4893')
Fin NU tbghd & tst same to 1000 psi. RR 1600 hrs 11/27/84. WO evaluation.
(Drop f/report until evaluation commences.)

12/12/84 7866 Day-1 PBD: 4806' (FC) - Logging Pool WS #233. (5-1/2" @ 4893')
MIRU 12/11/84. PU bit, scrpr, & 2-7/8" 6.5#, J-55, EJE & RIH to PBD. Circ
w/2% KCl wtr. POH. Rig up WL & running CBL @ report time. (Dropped from
report 11/28/84).

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

9
CONFIDENTIAL

12/13/84	7866	Day-2 PBD: 4806' (FC) - RU to frac. (5-1/2" @ 4893') Ran CBL log. Perforated 4489', 86', 84', 81', 71', 59', 41', 39', & 29'. PU pinpoint pkr & RIH. Spot brkdn fluid (2% KCl + add). Broke dn perfs. POH. PU RTTS & RIH. Set pkr @ 4415' w/20,000#. RU frac tanks & eqpt.
12/14/84	7866	Day-3 PBD: 4806' (FC) - Swabbing. (5-1/2" @ 4893') Swb well. Rec'd 44 bbls wtr, of which 17 bbls was formation wtr with trace of oil.
12/15-17	7866	Day-6 PBD: 4806' (FC) - Flwg back after frac. (5-1/2" @ 4893') Swbd back 9-1/4 BW & 1/2 BO. SWIFN. Swab 7-1/4 BW & 1/4 BO. RU Howco. Frac'd w/Versa gel HT 1400 plus 500 SCF/bbl N ₂ . Pmpd. 29,000 gal fluid & 111,500 pds 20/40 sd. Max press - 4200 psi, avg press - 3100 psi. Avg rate 10.5 bpm flowed well back 2 hrs, then well died. Swab 2 hrs & well strtd flwg. Flwd well to tank 3 hrs. Rec'd 751 of 826 BLW (75 BLWTR). 1/2" oil scum on tnk.
12/18/84	7866	Day-7 PBD: 4806' (FC) (5-1/2" @ 4893') Swbd & flwd well 24 hrs. Recd 167 BW (92 BW over frac load). Avg rate 7.5 BWPH over last 10 hrs. Gas flowing rate 75 psi on 34/64 chk for last 8 hrs.
12/19/84	7866	Day-8 PBD: 4806' (FC) (5-1/2" @ 4893') Flwd well 24 hrs, made 150 BW (recovr'd 242 BW over frac load). Gas rate est 125 MCFD.
12/20/84	7866	Day-9 PBD: 4806' (FC) - Prep to set CIBP. (5-1/2" @ 4893') Flwd well 11 hrs. Total wtr recovd 297 BW over frac load. Last est rate 125 MCFD. 3.75 BWPH. Kill well. TOH w/tbg & pkr. RU Schlum.
12/21/84	7866	Day-10 PBD: 4420' (CIBP) - RU to swb. (5-1/2" @ 4893') Schlum set CIBP @ 4420'. Press tst csg to 2000 psi. Perf w/l spf @ 4381, 74, 71, 62, 58, 51, 34, 30, & 4294. TIH w/Howco PPI pkr & brk dn each perf ind w/KCl wtr w/add. TOH. PU RTTS pkr & TIH & set @ 4250. RU to swb well. Well flwd 13.4 BW in 1st hr.
12/22-26	7866	Day-12 PBD: 4200' (rtnr) - Prep to cut & pull 5-1/2" csg. (5-1/2" @ 4893') Flw tst well. Last rate 344 MCFD w/5 BWPH. Kill well. TOH. LD pkr. PU cmt rtnr on tbg & TIH. Set rtnr @ 4200'. Sqz 50 sx Cl "H" cmt w/add thru rtnr. (Est 30 sx into fm). Spt 20 sx cmt on rtnr. ND BOPE.

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

CONFIDENTIAL

12/27/84 7866

Day-13 PBD: Surf - FINAL REPORT - WELL P & A 12/26/84. (5-1/2" @ 4893')
Cut 5-1/2" csg @ 2821' w/WL jet cutter. Retr 66 jts 5-1/2", 17#, K-55, LTC csg. TIH w/tbg & spt Plug #2 2900-2700' w/75 sx Cl "H". POH & spt Plug #3 1400-1200' w/100 sx Cl "H". Fin POH & spt Plug #4 30-surf w/20 sx Cl "H".
RD Howco. Rel'd CU 0100 hrs 12/27/84.

File

ARCO

Arco Chamber #1

Sec 28, T15S, R13E

Carbon, Ut.

- ① Cut x pull csq. @ 2800'
- ② 100' in & 100' out of csq. stub.
- ③ 100' in & 100' out of surface
csq @ 1295'
- ④ 30" to surf.

Suzanne Barnes

@ 1515 hrs. on 12/21/84.

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

Form 3160-6
(November 1983)
(Formerly 9-329)

**MONTHLY REPORT
OF
OPERATIONS**

Lease No. 33976
Communitization Agreement No. _____
Field Name Wildcat
Unit Name _____
Participating Area _____
County Carbon State Utah
Operator ARCO
 Amended Report (ARCO Chambers #1)

The following is a correct report of operations and production (including status of all unplugged wells) for the month of December, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulation (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	P&A	0	0	0	0	This well spudded on 9/23/84. Final Report-P&A on 12/26/84. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL***

RECEIVED
JAN 2 1985
Division of
OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLs)	Gas (MCF)	Water (BBLs)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXXXX

Authorized Signature: B. R. Still Address: P.O. Box 5540, Denver, CO 80217
Title: Supervisor, Operations Info. Group Page 1 of 1

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

ARCO Chambers #1
SW NE Section 28-15S-13E
Carbon County, Utah

CONFIDENTIAL

CORES

#1	4450'-4458'	Jammed and recovered 8'
#2	4459'-4487'	Cut 28' and recovered 28'
#3	4501'-4531'	Cut 30' and recovered 30'
#4	4531'-4559'	Cut 28' and recovered 27½'
#5	4946'-4952'	Cut 6' and recovered 5'
#6	4952'-4960'	Cut 8' and recovered 6'
#7	4990'-4991'	No recovery
#8	6021'-6022'	No recovery
#9	7130'-7131'	No recovery
#10	7131'-7161'	Cut 30' and recovered 30'
#11	7857'-7866'	Cut 9' and recovered 5½'

DRILLSTEM TESTS

#1	4452'-4531'	Recovered 886' GCM&W w/ sli oil cut
#2	4515'-4559'	Recovered 102' GCDM
#3	6009'-6054'	Recovered 560' SGCM w/ sli WC & tr CO ₂
#4	6686'-6774'	Recovered 580' GCM & 820' GCW

PLUGGED AND ABANDONED

PLUG #1 4420' CIBP with 2 sx cement on top
PLUG #2 4200' cement retainer with 50 sx Class "H" + 20 sx cement on top
PLUG #3 2900'-2700' 75 sx Class "H"
PLUG #4 1400'-1200' 100 sx Class "H"
PLUG #5 30'-Surface 20 sx Class "H"

T W I T H O L E
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE*

Form approved.
Budget Bureau No. 1004-0137
Expires August 31, 1985

(See other instructions on reverse side)

LEASE DESIGNATION AND SERIAL NO.
33976
INDIAN, ALLOTTEE OR TRIBE NAME
AGREEMENT NAME

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other JAN 17 1985

b. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. RESVR. Other Oil, Gas & Mining

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 2500' FNL & 1500' FEL
At top prod. interval reported below
At total depth SWNE
API #43-007-30099

FARM OR LEASE NAME
9. WELL NO.
ARCO Chambers #1
10. FIELD AND POOL, OR WILDCAT
Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
28-15S-13E

14. PERMIT NO. BLM 15. DATE ISSUED 8-21-84
12. COUNTY OR PARISH Carbon 13. STATE Utah

15. DATE SPUDDED 9-23-84 16. DATE T.D. REACHED 11-24-84 17. DATE COMPL. (Ready to prod.) P&A 12-26-84 18. ELEVATIONS (OF. RKB, RT. GR, ETC.)* 5452' GL 5471' KB 19. ELEV. CASINGHEAD 5452'

20. TOTAL DEPTH, MD & TVD 7866' 21. PLUG, BACK T.D., MD & TVD Surface P&A 22. IF MULTIPLE COMPL., HOW MANY* P&A 23. INTERVALS DRILLED BY P&A 24. ROTARY TOOLS 0-7866' 25. CABLE TOOLS ---

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
PLUGGED AND ABANDONED
25. WAS DIRECTIONAL SURVEY MADE NO

26. TYPE ELECTRIC AND OTHER LOGS RUN DLL/MSFL/GR LDT/CNL/GR-Cal
27. WAS WELL CORDED YES

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
14"		99' KB	Conductor-		
9-5/8"	36#	1295' KB	12 1/2"	615 sx-top job 100 sx	NONE
5 1/2"	17#	4893' KB	8-3/4"	500 sx	Cut @ 2821'

LINER RECORD

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

TUBING RECORD

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

31. PERFORATION RECORD (Interval, size and number)

4489'-4429'
4381'-4294'

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4489'-4429'	29,000 gal fluid + 115,000# sd
4420'	CIBP with 2 sx cement

33.* PRODUCTION

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

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
TEST WITNESSED BY 850926

35. LIST OF ATTACHMENTS
Daily Well History

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records
SIGNED L.B. Morse TITLE Operations Manager DATE 1-14-85

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

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

38.

GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
SEE ATTACHED				Entrada	2365'	
				Carmel	2755'	
				Navajo	3020'	
				Kayenta	3325'	
				Wingate	3386'	
				Chinle	3718'	
				Shinarump	3958'	
				Moenkopi	4014'	
				Torrey	4370'	
				Sinbad	4514'	
				Black Dragon	4575'	
				Kaibab	4588'	
				Willite Rim	4996'	
				Organ Rock	5552'	
				Hermosa	6035'	
			Leadville	6690'		
			Ophin	7450'		
			Tinnick	7610'		
			Pre Camb	7800'		

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE
Other instructions on reverse side.

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

LEASE DESIGNATION AND SERIAL NO
33976
IF INDIAN, ADOPTED OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		UNIT ASSIGNMENT NAME	
2. NAME OF OPERATOR ARCO Oil and Gas Company, Division of Atlantic Richfield Company		3. FARM OR LEASE NAME	
3. ADDRESS OF OPERATOR P.O. Box 5540, Denver, Colorado 80217		4. WELL NO. ARCO Chambers #1	
4. LOCATION OF WELL Report location clearly and in accordance with any State requirements. See also space 17 below. At surface 2500' FNL & 1500' FEL		10. FIELD AND POOL, OR WILDCAT Wildcat	
14. PERMIT NO. 43-007-30099		12. COUNTY OR PARISH 13. STATE Carbon Utah	
15. ELEVATIONS (Show whether of. rt. cr. etc.) 5452' GL		11. SEC. T. R. M. OR S.E. AND SURVEY OR AREA 28-15S-13E	

CONFIDENTIAL

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

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

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

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

MI & RU Completion Unit 12-12-84. Logged. Perf'd @ 4489, 86, 84, 81, 71, 59, 41, 39 & 29'. Acidized. Swabbed. Frac'd with 29,000 gal fluid and 115,000# 20/40 mesh sand. Swabbed and flowed. Set BP @ 4420' and spotted 2sx cement on top. Permission from Bob Graff, Moab BLM, and Assad Raffoul, State Oil and Gas. Perf'd 4381, 74, 71, 62, 58, 51, 34, 30 and 4294'. Acidized. Swabbed. Flowed. Propose to P & A as follows:

1. Cut off 5 1/2" casing @ + 2800'
2. Plug #1 100' inside and out of 5 1/2" casing stub
3. Plug #2 1400'-1200'
4. Plug #3 30'- 4' below GL

Set DHM
Verbal permission from Bob Graff, Moab BLM, and John Baza, State Oil and Gas Commission.

RECEIVED
JAN 17 1985
DIVISION OF
OIL, GAS & MINING

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

SIGNED L.B. Morse TITLE Operations Manager DATE 1-14-85

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

ACCEPTED
APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 1/25/85
BY: John R. Baza

*See Instructions on Reverse Side

ARCO Oil and Gas Company
Rocky Mountain District
707 17th Street
Mailing address: P.O. Box 5540
Denver, Colorado 80217
Telephone 303 293 4600



January 18, 1985

State of Utah
Department of Natural Resources
Division of Oil, Gas & Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

CONFIDENTIAL
RECEIVED
JAN 23 1985

DIVISION OF
OIL, GAS & MINING

Re: Monthly Report of Operations
Well No. ARCO Chambers #1
Sec. 28-15S-13E
Carbon, UT

Gentlemen:

Attached, in duplicate is the Monthly Report of Operations for the month of December, 1984, on the subject well.

This well is being drilled as a "Tight Hole" and we request that this information be held CONFIDENTIAL.

This well was spudded on September 23, 1984.

Very truly yours,

B. R. Still

B. R. Still
Supervisor, Operations Info. Group

BRS:af

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

Form 3160-6
(November 1983)
(Formerly 9-329)

**MONTHLY REPORT
OF
OPERATIONS**

Lease No. 33976
 Communitization Agreement No. _____
 Field Name Wildcat
 Unit Name _____
 Participating Area _____
 County Carbon State Utah
 Operator ARCO
 Amended Report (ARCO Chambers #1)

The following is a correct report of operations and production (including status of all unplugged wells) for the month of December, 1984

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulation (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & 1/4 of 1/4	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
1	Sec. 28	15S	13E	P&A	0	0	0	0	This well spudded on 9/23/84. Final Report-P&A on 12/26/84. TIGHT HOLE*** PLEASE KEEP CONFIDENTIAL***

RECEIVED
 JAN 23 1985
 DIVISION OF
 OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Produced	0	0	0
*Sold	0	0	XXXXXXXXXXXXXXXXXXXX
*Spilled or Lost	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXXXXX	0	XXXXXXXXXXXXXXXXXXXX
*Used on Lease	0	0	XXXXXXXXXXXXXXXXXXXX
*Injected	0	0	0
*Surface Pits	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	0
*Other (Identify)	0	0	0
*On hand, End of Month	0	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
*API Gravity/BTU Content	0	0	XXXXXXXXXXXXXXXXXXXX

Authorized Signature: B. P. Still Address: P.O. Box 5540, Denver, CO 80217
 Title: Supervisor, Operations Info. Group Page 1 of 1

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

District

To: State of Utah - Natural Resources
Oil Gas & Mining Commission
3 Trade Center, Ste 350
Salt Lake City - UT 84180-1203

From: ARCO Exploration - G.S. Wise
P.O. Box 5540
Denver CO 80217

Enclosed Under separate cover Via

Subject: Completion Data -

Quantity	Map number & description
15	#1 Buck Knoll (1) Dual Laterlog-MSFL; (1) Borehole Compensated Sonic; (1) Litho Density Compensated Neutron; (5) Drill Stem Test Reports; (1) Core Analysis Report; (5) Water Analysis Reports; (1) Mudlogging Summary
8	#1 Chambers (1) Dual Laterlog-MSFL; (1) Borehole Compensated Sonic; (1) Compensated Neutron Formation Density; (4) Drill Stem Test Reports; (1) Core Analysis Report.
11	#1 Deadman Hollow (1) Dual Laterlog-MSFL; (1) Borehole Compensated Sonic; (1) Litho Density-Compensated Neutron; (2) Drill Stem Test Reports; (1) Core Analysis Report; (5) Water Analysis Reports

Note—Please verify and acknowledge receipt, by signing and returning the second copy of this transmittal.

Signed by: C. Hayes for G.S. Wise

RECEIVED Date 3/18/85

Received by

Remarks

MAR 20 1985

Page 1 of 2

DIVISION OF OIL
 GAS & MINING
 Please sign, date +
 return 2nd copy.



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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

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

May 3, 1985

ARCO Oil & Gas Company
PO Box 2197
Farmington, New Mexico 87401

Gentlemen:

Re: Well No. Sunnyside 1 - Sec. 28, T. 15S., R. 13E.,
Carbon County, Utah - API #45-007-30099

This letter is to advise you that the "Well Completion or Recompletion Report and Log" for the above referenced well is due and has not been filed with this office as required by our rules and regulations.

Also, according to the drilling report submitted for December 1984, the above referenced well was plugged and abandoned on December 26, 1984. This office has not received the sundry notices of intent and subsequent abandonment on this well.

Please complete and return the enclosed forms as soon as possible but not later than May 17, 1985.

Thank you for your prompt attention to this matter. reports as soon as possible out no later than May 17, 1985.

Sincerely,

Pam Kenna
Well Records Specialist

Enclosure

cc: Dianne R. Nielson
Ronald J. Firth
John R. Baza
File

0170S/61



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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

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

October 4, 1985

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

Gentlemen:

Re: Well No. Sunnyside #1 - Sec. 28, T. 15S., R. 13E.,
Carbon County, Utah - API #43-007-30099

According to our records a "Well Completion Report" filed with this office January 14, 1985 on the above referenced well indicates the following electric logs were run: DLL-MSFL-GR, LDT-CNL-GR-Cal. This office has not yet received these logs.

Please take care of this matter as soon as possible, but not later than October 18, 1985.

Your cooperation in this matter is appreciated.

Sincerely,

A handwritten signature in black ink that reads "Pam Kenna".

Pam Kenna
Well Records Specialist

Enclosure

cc: Dianne R. Nielson
Ronald J. Firth
John R. Baza
File

0170S/23

Terrotek

Core Services, Inc.®

ARCO Exploration Company

Chambers No. 1 Well
Carbon County, Utah

TTCS File No. 85070

<u>Core No.</u>	<u>Intervals</u>	<u>Formation</u>
1	4450 - 4459	Moenkopi
2	4459 - 4487	Moenkopi
---	4487 - 4501	Drilled Interval
3	4501 - 4531	Moenkopi
4	4531 - 4559	Moenkopi
---	4559 - 4946	Drilled Interval
5	4946 - 4952	Kaibab
6	4952 - 4960	Kaibab
---	4960 - 4990	Drilled Interval
7	4990 - 4991	Kaibab
---	4991 - 6020	Drilled Interval
8	6020 - 6021	Not Reported
9	Tripped in and out - No Core Cut.	
---	6021 - 7130.4	Drilled Interval
10	7130.4 - 7161	Madison
---	7161 - 7863	Drilled Interval
11	7863 - 7867	Pre-Cambrian

RECEIVED

MAR 20 1985

**DIVISION OF OIL
& GAS MINING**

• 380 Wakara Way • Salt Lake City, Utah 84108 • (801) 584-2480
• 920 Central Avenue • Suite #2 • Billings, Montana 59102 • (406) 256-0374
• 1625 Broadway • Suite 2110 • Denver, Colorado 80220 • (303) 595-0263

Terratek Core Services, Inc.®

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

ARCO EXPLORATION COMPANY

Well:	#1 Chambers	State:	Utah	Date:	11 Jan 1987
Field:	Wildcat	County:	Carbon	TICS File #:	85070
Drilling Fluid:	Water Base	Location:	Sec 28-T10S-R13E	Elevation:	5171 RE

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (Feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology
		Horiz (md)	Horiz-90° (md)		Oil (%)	H2O (%)		
MOENKOPI FORMATION								
1	4450.0-51.0	<0.01	*	2.3	0.0	73.1	2.73	Sd,vf,silt,sh,sl/dol VF
2	4451.0-52.0	<0.01		2.1	0.0	76.6	2.73	Sd,vf,silt,sh,sl/dol VF
3	4452.0-53.0	<0.01	*	2.0	0.0	69.8	2.73	Sd,vf,silt,sh,sl/dol VF
4	4453.0-54.0	<0.01	<0.01	2.5	0.0	66.8	2.74	Sd,vf,silt,sh,sl/dol
5	4454.0-55.0	<0.01	<0.01	2.1	0.0	80.0	2.73	Sd,vf,silt,sh,sl/dol
6	4455.0-56.0	34+	7.3+	3.0	23.2	40.3	2.71	Sd,vf,silt,sh,sl/dol
7	4456.0-57.0	0.02	0.01	3.0	17.9	37.9	2.69	Sd,vf,silt,sh,sl/dol
	4457.0-58.0	0.01	0.01	2.7	29.7	27.7	2.70	Sd,vf,silt,sh,sl/dol
8	4458.0-59.0	0.01	<0.01	3.0	26.0	24.1	2.69	Sd,vf,silt,sh,sl/dol
	4459.0 - 4460.0							Sh,sl/dol VF
9	4461.0-62.0	4.5+	0.81+	2.3	14.7	52.8	2.72	Sd,vf,silt,sh,sl/dol VF
10	4462.0-63.0	0.09+	0.04+	2.4	14.5	50.8	2.71	Sd,vf,silt,sh,sl/dol
11	4463.0-64.0	<0.01	<0.01	2.0	19.1	64.9	2.69	Sd,vf,silt,sh,sl/dol
12	4464.0-65.0	0.06+	<0.01	2.2	15.6	52.1	2.71	Sd,vf,silt,sh,sl/dol
	4465.0 - 4474.0							Sh,dol:per
13	4475.0-76.0	0.03+	<0.01	2.0	13.0	67.4	2.72	Sd,vf,silt,sh,sl/dol
14	4476.0-77.0	<0.01	<0.01	1.9	12.7	48.5	2.75	Sd,vf,silt,sh,sl/dol
15	4477.0-78.0	<0.01	<0.01	2.6	21.2	30.4	2.72	Sd,vf,silt,sh,sl/dol,sl:per

* Plug permeability - sample not suitable for full diameter measurement

+ Horizontal dehydration crack

POOR COPY

Terratek Core Services, Inc.®

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

Page 2

ARCO EXPLORATION COMPANY

Date: 11 Jan 1984

WCS File #: 85970

Well:

#1 Chambers

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology
		Horz (md)	Horz-90° (md)		Oil (%)	H2O (%)		
17	4477.0-78.0	0.03	0.03	3.1	25.2	27.3	2.68	Sd,vf,sl,ls,sh,sl/dol,sl/per
18	4478.0-79.0	0.01	0.01	2.7	23.0	29.5	2.73	Sd,vf,sl,ls,sh,sl/dol
19	4479.0-80.0	0.02	0.01	3.4	20.4	28.8	2.73	Sd,vf,sl,ls,sh,sl/dol
20	4480.0-81.0	<0.01	<0.01	2.7	24.3	33.9	2.71	Sd,vf,sl,ls,sh,sl/dol
21	4481.0-82.0	<0.01	<0.01	2.8	23.5	33.6	2.72	Sd,vf,sl,ls,sh,sl/dol
22	4482.0-83.0	0.02	<0.01	3.1	28.8	22.6	2.72	Sd,vf,sl,ls,sh,sl/dol
23	4483.0-84.0	0.01	0.01	3.1	28.0	25.2	2.71	Sd,vf,sl,ls,sh,sl/dol
24	4484.0-85.0	0.02	0.01	3.4	21.6	25.2	2.70	Sd,vf,sl,ls,sh,sl/dol
25	4485.0-86.0	0.01	0.01	3.4	21.4	24.7	2.72	Sd,vf,sl,ls,sh,sl/dol
26	4486.0-87.0	<0.01	<0.01	2.9	25.5	20.1	2.71	Sd,vf,sl,ls,sh,sl/dol,sl/per
4487.0 - 4501.0		Drilled Interval						
27	4501.0-02.0	0.95+	0.47+	2.5	10.3	68.6	2.75	Sd,vf,sl,ls,sh,sl/dol,per
28	4502.0-03.0	2.8+	0.35+	2.2	11.2	71.0	2.77	Sd,vf,sl,ls,sh,sl/dol,per
29	4503.0-04.0	1.4+	0.57+	3.0	12.8	69.4	2.74	Sd,vf,sl,ls,sh,sl/dol,sl/per
30	4504.0-05.0	8.1+	0.94+	2.0	12.7	73.0	2.74	Sd,vf,sl,ls,sh,sl/dol,sl/per
31	4505.0-06.0	0.72+	0.17+	2.5	25.6	40.5	2.72	Sd,vf,sl,ls,sh,sl/dol,per
32	4506.0-07.0	0.03+	0.02+	2.4	21.8	51.6	2.76	Sd,vf,sl,ls,sh,sl/dol,sl/per
33	4507.0-08.0	0.19+	0.02	2.6	32.3	36.9	2.73	Sd,vf,sl,ls,sh,sl/dol
34	4508.0-09.0	7.9+	1.3+	2.5	23.8	49.2	2.75	Sd,vf,sl,ls,sh,sl/dol
35	4509.0-10.0	2.3+	1.9+	2.6	16.2	46.7	2.74	Sd,vf,sl,ls,sh,sl/dol
36	4510.0-11.0	0.04+	<0.01	2.2	16.2	48.6	2.73	Sd,vf,sl,ls,sh,sl/dol
37	4511.0-12.0	0.05+	0.02+	2.0	18.1	47.6	2.74	Sd,vf,sl,ls,sh,sl/dol

+ Horizontal dehydration crack

POOR COPY

Terratek Core Services, Inc.®

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

Page 3

ARCO EXPLORATION COMPANY

Date: 11 Jan 1984

ITDS File #: 85070

Well:

#1 Crowsfoot

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology	
		Horiz (md)	Horiz-90° (md)		Oil (%)	H2O (%)			
38	4512.0-13.0	0.86†	0.39†	2.4	21.3	40.8	2.74	Sd,vf,silt,sh,sl/dol	
39	4513.0-14.0	<0.01	<0.01	2.0	19.2	37.3	2.79	Dol,fxl,ool,lms	
40	4514.0-15.0	0.11	0.09	7.1	11.8	28.6	2.81	Dol,fxl,ool,lms	
41	4515.0-16.0	0.88	0.52	10.0	9.7	31.5	2.80	Dol,fxl,ool,sl/lms	
42	4516.0-17.0	<0.01	<0.01	4.6	24.6	16.9	2.81	Dol,fxl,ool,sl/lms	
43	4517.0-18.0	0.02	0.02	3.5	19.3	15.6	2.71	Ls,fxl,ool,sts	
	4518.0 - 4521.0							Ls,ool,eds	
44	4521.0-22.0	<0.01	*	5.0	17.2	15.0	2.71	Ls,fxl,ool	VF
45	4522.0-23.0	0.05	0.05	3.2	6.6	39.3	2.71	Ls,fxl,ool,stu	
	4523.0 - 4524.0							Sd,ds,v/lms	VF
46	4524.0-25.0	<0.01	*	2.0	0.0	60.1	2.71	Sd,vf,silt,sl/dol	VF
	4525.0 - 4531.0							Ls,ds,eds	VF
47 R	4531.0-32.0	<0.01		0.8	0.0	54.1	2.71	Ls,vfxl,sl,lms	
48 R	4532.0-33.0	<0.01		0.9	0.0	49.1	2.71	Ls,vfxl	
49 R	4533.0-34.0	<0.01		0.7	0.0	51.9	2.71	Ls,vfxl	
50 R	4534.0-35.0	<0.01		0.7	0.0	50.1	2.71	Ls,vfxl	
51 R	4535.0-36.0	<0.01		0.6	0.0	64.4	2.70	Ls,vfxl	
52 R	4536.0-37.0	0.01		1.8	0.0	53.2	2.70	Ls,vfxl,fos	
53 R	4537.0-38.0	<0.01		0.9	0.0	65.1	2.70	Ls,vfxl	
54 R	4538.0-39.0	0.02		2.6	10.4	20.3	2.70	Ls,vfxl,fos	
55 R	4539.0-40.0	<0.01		1.1	9.7	41.0	2.71	Ls,vfxl,sts	
56 R	4540.0-41.0	<0.01		1.7	19.7	39.4	2.72	Ls,vfxl,fos	

* Plus permeability - sample not suitable for full diameter measurement

† Horizontal dehydration crack

POOR COPY

TerraTek Core Services, Inc.®

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

Page 4

ARCO EXPLORATION COMPANY

Date: 11 Jan 1984

TICS File #: 85070

Well:

#1 Chambers

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology	
		Horiz. (md)	Horiz-90° (md)		Oil (%)	H2O (%)			
57 R	4841.0-42.0	<0.01		1.4	0.0	38.6	2.71	Ls,vfsl,fos	
58 R	4842.0-43.0	<0.01		0.7	0.0	65.3	2.71	Ls,vfsl	
59 R	4843.0-44.0	<0.01		0.9	0.0	67.1	2.71	Ls,vfsl	
60 R	4844.0-45.0	<0.01		1.0	0.0	62.4	2.73	Ls,vfsl,shw	
61	4845.0-46.0	<0.01	*	1.9	11.0	39.5	2.72	Ls,fxl,ool	VF
62	4846.0-47.0	1557	0.36	2.5	13.4	36.2	2.71	Ls,fxl,ool	VF
62 R	4847.0-48.0	<0.01		0.8	0.0	48.8	2.72	Ls,vfsl	
64 R	4848.0-49.0	<0.01		0.9	0.0	56.2	2.73	Ls,vfsl,ool,ste	
65 R	4849.0-50.0	<0.01		1.7	0.0	75.8	2.80	Dol,vfsl,lmr,shw	
66 R	4850.0-51.0	<0.01		1.1	0.0	79.1	2.73	Ls,vfsl,dol,sh lam	
67 R	4851.0-52.0	<0.01		1.2	0.0	72.6	2.76	Ls,vfsl,dol,shw	
68 R	4852.0-53.0	<0.01		1.2	0.0	75.0	2.79	Dol,vfsl,lmr,shw	
69 R	4853.0-54.0	<0.01		1.6	0.0	46.8	2.74	Ls,vfsl,fos	
70 R	4854.0-55.0	<0.01		0.7	0.0	56.1	2.73	Ls,vfsl,ool,fos	
71 R	4855.0-56.0	<0.01		0.7	0.0	67.6	2.75	Ls,vfsl,sl/dol	
72 R	4856.0-57.0	0.02		3.3	11.4	53.5	2.79	Ls,vfsl,dol,fos	
73 R	4857.0-58.0	<0.01		1.2	0.0	70.7	2.73	Ls,vfsl,sl/slm,sl/fos	
74 R	4858.0-59.0	0.04		3.6	13.4	43.4	2.82	Dol,fxl,ool,sl/lmr	
	4859.0 - 4846.0							Drilled Interval	
	4846.0 - 4851.0							Surf-wd core, No Analysis per Client	

* Plus permeability - sample not suitable for full diameter measurement

POOR COPY

Terratek Core Services, Inc.®

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

Page 3

ARCO EXPLORATION COMPANY

Date: 11 Jan 1984

(TCS File #: 85070

Well:

#1 Chambers

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology
		Horiz (md)	Horiz-90° (md)		Oil (%)	H2O (%)		

KALIBAB FORMATION

4951.0 - 4952.0								Not Recovered
4952.0 - 4958.0								Sd,fd,calc, No Analysis per Client
4958.0 - 4960.0								Not Recovered
4960.0 - 4990.0								Drilled Interval
4990.0 - 4991.0								Not Recovered
4991.0 - 6020.0								Drilled Interval
6020.0 - 6021.0								Not Recovered
6021.0 - 7130.4								Drilled Interval

MAJISON FORMATION

75 R	7130.4-31.0	<0.01		3.1	0.0	68.9	2.85	Sol,vf,sl
76 R	7131.0-32.0	0.08		4.9	0.0	63.9	2.85	Sol,fxl
77 R	7132.0-33.0	0.57		5.7	0.0	70.6	2.84	Sol,fxl,fls
78 R	7133.0-34.0	0.82		8.3	0.0	63.6	2.84	Sol,fxl,fls
79 R	7134.0-35.0	1.1		3.4	0.0	73.2	2.83	Sol,fxl,fls
80 R	7135.0-36.0	0.47		1.9	0.0	59.7	2.85	Sol,vf,sl,fls
	7136.0 - 7137.0							Anhydrite
81 R	7137.0-38.0	1.6		1.0	0.0	64.9	2.84	Sol,vf,sl,fls
82 R	7138.0-39.0	0.02		1.1	0.0	84.7	2.84	Sol,vf,sl
83 R	7139.0-40.0	0.01		1.4	0.0	71.3	2.84	Sol,vf,sl,fls

POOR COPY

Terratek Core Services, Inc.®

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

Page 6

ARCOS EXPLORATION COMPANY

Date: 11 Jan 1984

TICS File #: 80070

Well:

11 Chambers

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology
		Horiz (md)	Horiz-90° (md)		Oil (%)	H2O (%)		
84 R	7140.0-41.0		12	4.2	0.0	62.9	2.85	Bol,vfxl,fis
85 R	7141.0-42.0		0.19	0.7	0.0	67.0	2.84	Bol,vfxl,fis
86 R	7142.0-43.0		0.32	0.2	0.0	82.2	2.84	Bol,vfxl,fis
87 R	7143.0-44.0		1.4	1.0	0.0	65.0	2.84	Bol,vfxl,fis
88 R	7144.0-45.0		<0.01	1.2	0.0	50.5	2.85	Bol,vfxl,fis
89 R	7145.0-46.0		0.06	1.5	0.0	49.8	2.84	Bol,vfxl,fis
90 R	7146.0-47.0		<0.01	0.8	0.0	88.9	2.84	Bol,vfxl
91 R	7147.0-48.0		0.11	0.5	0.0	74.0	2.84	Bol,vfxl,fis
92 R	7148.0-49.0		<0.01	0.9	0.0	77.6	2.85	Bol,vfxl,fis
93 R	7149.0-50.0		<0.01	0.6	0.0	87.8	2.85	Bol,vfxl,fis
94 R	7150.0-51.0		0.03	2.6	0.0	75.0	2.85	Bol,vfxl,fis
95 R	7151.0-52.0		<0.01	2.8	0.0	82.7	2.84	Bol,vfxl
96 R	7152.0-53.0		1.3	4.9	0.0	67.1	2.86	Bol,fxl,sl/anhv,cht incl,fis
97 R	7153.0-54.0		0.03	5.1	0.0	67.2	2.85	Bol,fxl,cht incl,fis
98 R	7154.0-55.0		<0.01	2.5	0.0	68.1	2.84	Bol,vfxl,sl/vss
99 R	7155.0-56.0		0.01	2.8	0.0	81.9	2.85	Bol,vfxl
100 R	7156.0-57.0		0.26	2.4	0.0	85.9	2.85	Bol,vfxl,fis
101 R	7157.0-58.0		<0.01	1.6	0.0	77.1	2.83	Bol,vfxl,pp vss
102 R	7158.0-59.0		0.01	1.1	0.0	71.1	2.83	Bol,vfxl
	7159.0 - 7160.0							Anhydrite
103 R	7160.0-61.0		<0.01	0.6	0.0	58.3	2.83	Bol,vfxl,sl/anhv
	7161.0 - 7863.0							Grilled Interval

POOR COPY

TerraTek Core Services, Inc.®

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

Page 7

ARCUS EXPLORATION COMPANY

Date: 11 Jan 1984

TTCS File #: 90970

Well:

#1 Chambers

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS

Sample Number	Depth (feet)	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)	Lithology
		Horz (md)	Vert-90° (md)		Oil (%)	H2O (%)		

PRE CAMBRIAN FORMATION

7863.0 - 7867.0

Granite, No Analysis per Client

POOR COPY

Terratek Core Services, Inc.®

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

ARCAD EXPLORATION COMPANY

Well: 11 Chambers
 Field: Mildred
 Drilling Fluid: Water Base

State: Utah
 County: Carbon
 Location: Sec 28-T15S-R13E

Date: 11 Jan 1988
 ITCS File #: 85070
 Elevation: 5473 RR

FULL DIAMETER AND RETORT (BOYLE'S LAW POROSITY) ANALYSIS DATA SUMMARY

Core Number	Depth Interval (feet)	Number of samples	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)
			Horz (md)	Horz-90° (md)		Oil (%)	H2O (%)	
GLENKOPF FORMATION								
1	4450.0-455.0	5	<0.01 [0.00]	<0.01 [0.00]	2.2 [0.2]	0.0 [0.0]	73.2 [5.2]	2.73 [0.0]
2	4455.0-459.0	4	0.01 [0.01]	<0.01 [0.00]	2.9 [0.1]	24.2 [3.0]	32.5 [7.8]	2.70 [0.0]
3	4463.0-469.0	4	1.2+ [2.2]	0.22+ [0.40]	2.2 [0.2]	16.0 [2.1]	55.1 [6.6]	2.71 [0.0]
4	4474.0-487.0	13	0.01 [0.01]	<0.01 [0.01]	2.9 [0.5]	22.2 [4.9]	32.1 [12.7]	2.72 [0.0]
5	4501.0-514.0	13	1.9+ [2.8]	0.47+ [0.88]	2.4 [0.3]	18.6 [6.4]	52.4 [13.4]	2.75 [0.0]
6	4514.0-516.0	2	0.50 [0.54]	0.31 [0.30]	5.6 [2.1]	10.8 [1.3]	30.0 [2.1]	2.81 [0.0]

± 1 s.d. is standard deviation

POOR COPY

TerraTek Core Services, Inc.®

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

Page 2

ARCO EXPLORATION COMPANY

Date: 11 Jan 1985

ITCS File #: 85070

Well:

41 Chambers

DATA SUMMARY

Core Number	Depth Interval (feet)	Number of samples	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)
			Horz (md)	Horz-90° (md)		Oil (%)	H2O (%)	
7	4816.0-818.0	2	0.01 [0.01]	0.01 [0.01]	4.1 [0.8]	22.0 [3.7]	16.2 [0.9]	2.76 [0.1]
8	4821.0-829.0	2	0.03 [0.03]		4.1 [1.3]	11.9 [7.5]	27.2 [17.1]	2.71 [0.0]
9	4831.0-838.0	7	<0.01 [0.00]		0.9 [0.4]	0.0 [0.0]	59.4 [6.6]	2.70 [0.0]
10	4838.0-841.0	3	0.01 [0.01]		1.8 [0.8]	13.3 [3.6]	33.6 [11.5]	2.71 [0.0]
11	4841.0-848.0	4	<0.01 [0.00]		1.0 [0.3]	0.0 [0.0]	38.4 [13.3]	2.72 [0.0]
12	4848.0-847.0	2	779 UF [1101]		2.2 [0.4]	12.2 [1.7]	37.9 [2.3]	2.71 [0.0]
13	4847.0-856.0	9	<0.01 [0.00]		1.1 [0.4]	0.0 [0.0]	54.2 [12.4]	2.75 [0.0]
14	4856.0-859.0	3	0.02 [0.02]		2.7 [1.3]	8.3 [7.3]	38.9 [13.8]	2.78 [0.0]

() Sample standard deviation

POOR COPY

Terratek Core Services, Inc.®

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

Page 3

ARCO EXPLORATION COMPANY

Date: 11 Jan 1985

TICS File #: 85070

Well:

#1 Chambers

DATA SUMMARY

Core Number	Depth Interval (Feet)	Number of samples	Permeability		Porosity (%)	Saturation		Grain Density (gm/cc)
			Horz (md)	Horz-90° (md)		Oil (%)	H2O (%)	

MADISON FORMATION

1	7130.4-135.0	5	0.51 [0.463]		5.1 (2.1)	0.0 [0.0]	68.0 [4.2]	2.84 [0.0]
2	7135.0-161.0	24	0.75 [2.5]		1.8 (1.4)	0.0 [0.0]	71.3 [11.6]	2.84 [0.0]

1. Sample standard deviation

POOR COPY

TerraTek Core Services, Inc.®

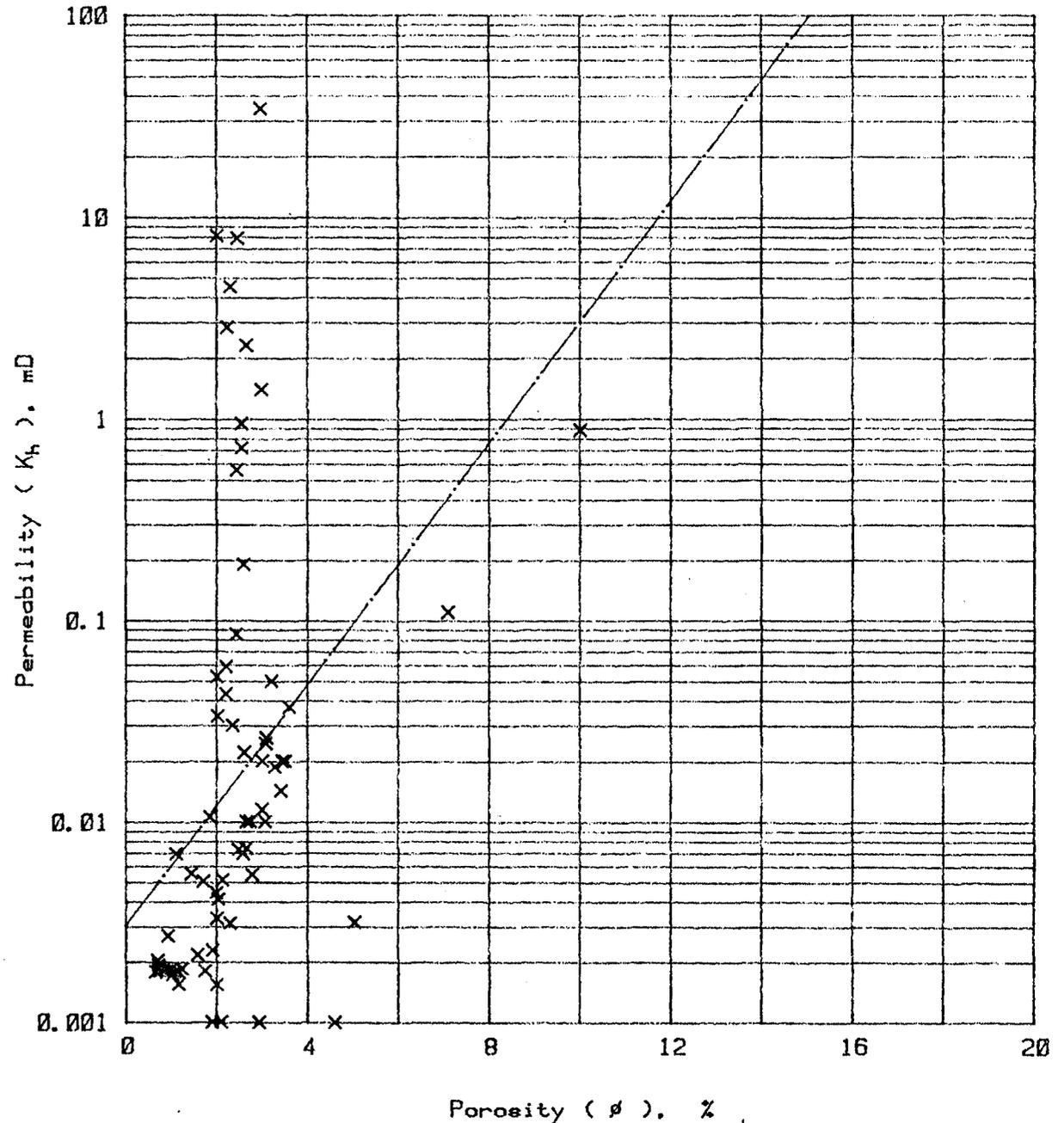
University Research Park - 360 Wakara Way - Salt Lake City, Utah 84108 - (801) 584-2480 - TWX 910-925-5284

HORIZONTAL PERMEABILITY VS POROSITY

ARCO EXPLORATION COMPANY

#1 Chambers
Wildcat Field
Carbon County, Utah
11 Jan 1985
Moenkopi Formation

Depth Interval : 4450 to 4559 feet		
Permeability (K_h), mD		
Min 0.00	Max 34.34	Geo. Ave 0.02
Porosity (ϕ), %		
Min 0.6	Max 10.0	Average 2.3
Equation of the Line		
Log K_h = Slope ϕ + Log of intercept		
Log K_h = .3002 ϕ - 2.5149		
Correlation Coefficient : .389		



TerraTek Core Services, Inc.®

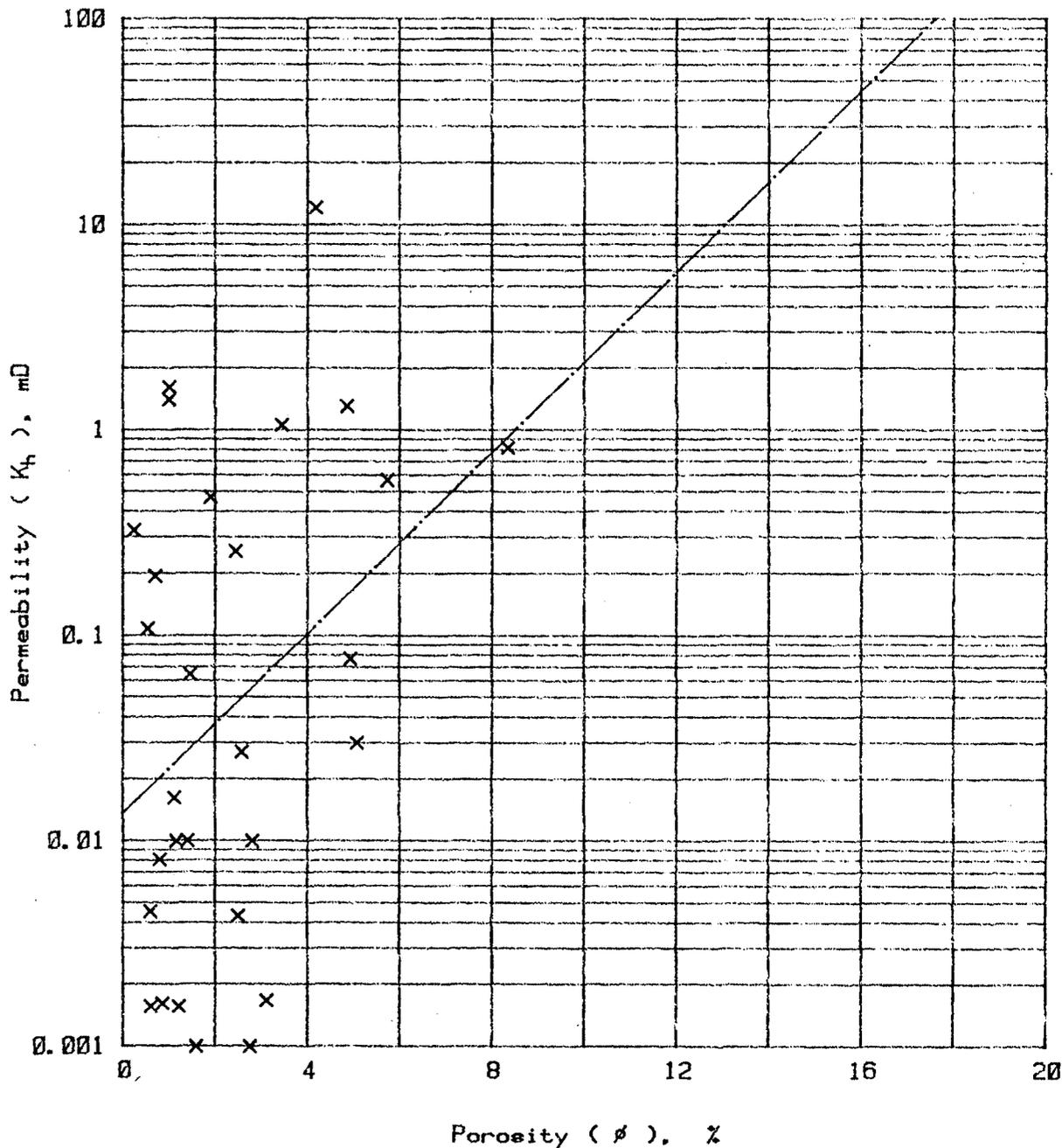
University Research Park - 360 Wakara Way - Salt Lake City, Utah 84108 - (801) 584-2480 - TWX 910-925-5284

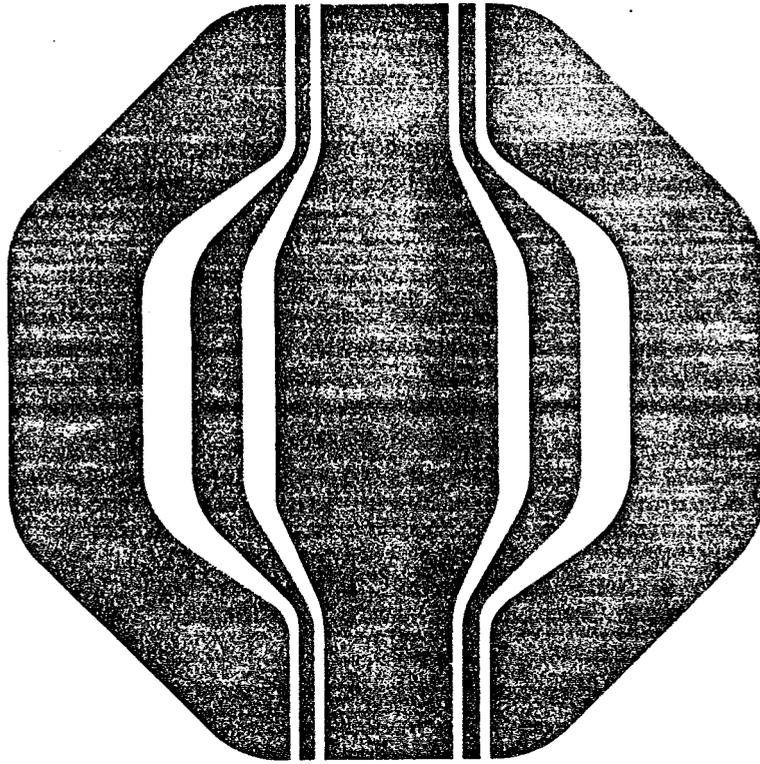
HORIZONTAL PERMEABILITY VS POROSITY

ARCO EXPLORATION COMPANY

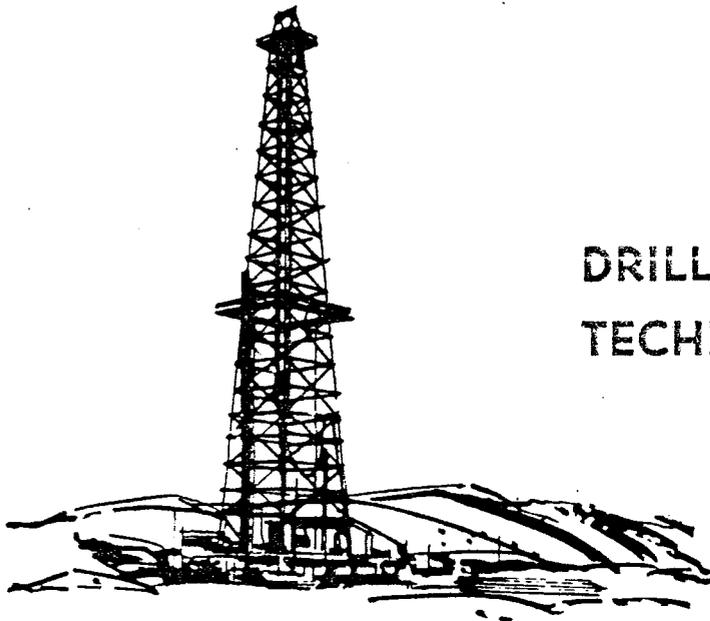
#1 Chambers
Wildcat Field
Carbon County, Utah
11 Jan 1985
Madison Formation

Depth Interval : 7130 to 7161 feet		
Permeability (K_h), mD		
Min 0.00	Max 12.15	Geo. Ave 0.05
Porosity (ϕ), %		
Min 0.2	Max 8.3	Average 2.4
Equation of the Line		
Log K_h = Slope ϕ + Log of intercept		
Log K_h = .2198 ϕ - 1.867		
Correlation Coefficient : .363		





LYNES



**DRILL STEM TEST
TECHNICAL SERVICE REPORT**

RECEIVED

MAR 20 1985

**DIVISION OF OIL
& GAS & MINING**

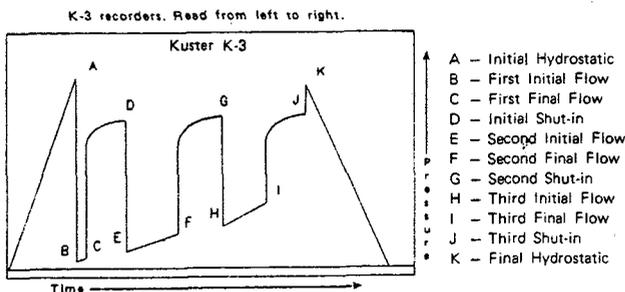
GUIDE TO INTERPRETATION AND IDENTIFICATION OF LYNES DRILL STEM TEST PRESSURE CHARTS

NON ENCLATURE

In making any interpretation, our employees will give Customer the benefit of their best judgment as to the correct interpretation. Nevertheless, since all interpretations are opinions based on inferences from electrical, mechanical or other measurements, we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not be liable or responsible, except in the case of gross or wilful negligence on our part, for any loss, costs, damages or expenses incurred or sustained by Customer resulting from any interpretation made by any of our agents or employees.

Symbol	Definition	DST Unit
k	permeability	millidarcys (md)
h	pay thickness	feet (ft.)
u	viscosity	centipoise
T	reservoir temperature	°Rankin (°R)
Z	gas compressibility factor at average condition	—
q _{sc}	gas production rate	MCF/d
M	Horner slope for liquid analysis	PSI/Cycle
Mg	Horner slope for (P ²) gas analysis	PSI ² /Cycle
P _i	initial static reservoir pressure	PSI
P _{wf}	flowing bottom hole pressure	PSI
φ	porosity	(fraction)
r _w	well bore radius	ft.
S	skin factor	—
AOF	absolute open flow	MCF/d
D. R.	damage ratio	—
r _e	external drainage radius	ft.
ISIP	initial shut-in pressure	PSI
FSIP	final shut-in pressure	PSI
b	approx. radius of investigation	ft.
t	flowing time	hrs.
B	formation volume factor	—
q	liquid production rate	bbls/day
c̄	gas compressibility	1/PSI
c	liquid compressibility	1/PSI

CODE USED ON CHART ENVELOPES



AK-1 recorders. Read from right to left.

A. Liquid Calculations

1. Transmissibility 2. Capacity 3. Permeability

$$K_h = \frac{162.6 q B}{u m} \quad K_h = \frac{K h}{u} \quad K = \frac{K_h}{h}$$

4. Skin Factor

$$S = 1.151 \left[\frac{P_i - P_{wf}}{m} \cdot \log \frac{K t}{\phi \mu c r_w^2} + 3.2275 \right]$$

5. Pressure Drop Due to Skin

$$\Delta P_{skin} = \frac{162.6 B q}{K r} \times 0.869s \quad \text{or} \quad \Delta P_{skin} = 0.869 M S$$

6. Damage Ratio

$$\frac{P_i - P_{wf}}{m} \left[\log \frac{K t}{\phi \mu c r_w^2} - 3.2275 \right]$$

7. Productivity Index

$$P. I. = \frac{q_a}{P_i - P_{wf}}$$

8. Productivity Index Damage Removed

$$\frac{q_a}{P_i - P_{wf}} = P. I. \times X \times D. R.$$

9. Radius of Investigation 10. Depletion Factor %

$$b = 0.029 \sqrt{\frac{K t}{\phi \mu c}} \quad \frac{ISIP - FSIP}{ISIP} \times 100$$

B. Gas Calculations

1. Transmissibility 2. Capacity 3. Permeability

$$\frac{K_h}{u} = \frac{1637 T z \phi q_{sc}}{M g} \quad \frac{K_h}{u} \times u = K h \quad \frac{K_h}{h} = K$$

4. Apparent Skin Factor

$$S = 1.151 \left[\frac{P_i^2 - P_{wf}^2}{M g} \cdot \log \left(\frac{K t}{\phi \mu c r_w^2} \right) + 3.2275 \right]$$

5. Pressure Drop Due to Skin

$$\Delta P_{skin} = P_i - P_{wf} = \sqrt{(P_{wf}^2) + 0.869 M g S}$$

6. Damage Ratio

$$\frac{P_i^2 - P_{wf}^2}{M g} \left[\log \frac{K t}{\phi \mu c r_w^2} - 3.2275 \right]$$

7. Absolute Open Flow

$$\frac{(P_i^2) (K h)}{M g} \left[\log \frac{K t}{\phi \mu c r_w^2} - 3.2275 + .869s \right]$$

8. AOF Damage removed

$$AOF \times DR$$

10. Radius of Investigation

$$b = 0.029 \sqrt{\frac{K t}{\phi \mu c}}$$

9. Estimated Stabilized AOF

$$3263 \text{ uzt} \left[\frac{(P_i^2) (K h)}{\log \left(\frac{.472 r_e}{r_w} \right) + \frac{s}{2.303}} \right]$$

11. Depletion %

$$\frac{ISIP - FSIP}{ISIP} \times 100$$

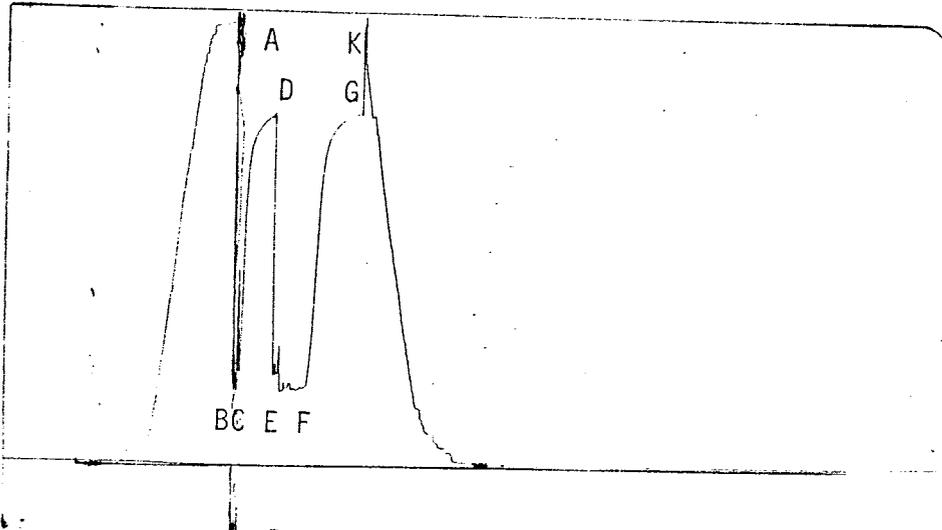
Contractor Loffland Drilling
 Rig No. 1
 Spot --
 Sec. 28
 Twp. 15 S
 Rng. 13 E
 Field Wildcat
 County Carbon
 State Utah
 Elevation --
 Formation Elephant Canyon

Top Choke 1/4"
 Bottom Choke 1"
 Size Hole 8 3/4"
 Size Rat Hole --
 Size & Wt. D. P. 4 1/2" XH
 Size Wt. Pipe --
 I. D. of D. C. 2 1/2"
 Length of D. C. 308.68 Ft.
 Total Depth 6054 Ft.
 Interval Tested 6009-6054 Ft.
 Type of Test Bottom Hole Conventional

Flow No. 1 15 Min.
 Shut-in No. 1 60 Min.
 Flow No. 2 60 Min.
 Shut-in No. 2 90 Min.
 Flow No. 3 -- Min.
 Shut-in No. 3 -- Min.

Bottom Hole Temp. 160°F
 Mud Weight 8.3
 Gravity --
 Viscosity 44

Tool opened @ 8:40 AM



Inside Recorder

PRD Make Kuster-3
 No 14325 Cap. 2900 @ 5990'

	Press	Corrected
Initial Hydrostatic	A	2732
Final Hydrostatic	K	2729
Initial Flow	B	477
Final Initial Flow	C	572
Initial Shut-in	D	2172
Second Initial Flow	E	554
Second Final Flow	F	479
Second Shut-in	G	2184
Third Initial Flow	H	--
Third Final Flow	I	--
Third Shut-in	J	--

Lynes Dist. Rock Springs, Wy.
 Our Tester Steve McKinney
 Witnessed By Steve Robinson

Did Well Flow - Gas NO Oil NO Water NO

RECOVERY IN PIPE:

563 ft. Total Fluid = 5.11 bbls.
 473 ft. CO₂ and slight water cut mud = 4.67 bbls.
 90 ft. Heavy water cut mud = .44 bbls.

Blow Description:

1st Flow: Tool opened with a 3" underwater blow, increasing to 8" in 3 minutes and then decreasing to 5" in 12 minutes and remaining throughout the flow.

2nd Flow: Tool opened with a 1" underwater blow, decreasing to nil in 50 minutes, slowly increasing to a very weak blow at the end of the flow.

Comments: MISRUN: The flow pressures indicate plugging throughout the flow periods.

Operator Arco
 Address P.O. Box 5540
Denver, Co. 80217

Well Name and No. Arco Chambers #1

Ticket No. 04021

Date 11-4-84

No Final Copies 9

DST No. 3

Location: 28-155-13E
 Test Type: BOTTOM HOLE CONVENTIONAL
 Formation: ELEPHANT CANYON

Recorder Number: 14325
 Recorder Depth: 5990 ft.

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	ABSCISSA	PRESSURE SQUARED psi ² /10 ⁶
A	INITIAL HYDROSTATIC	0.00		2732.0		
B	START OF 1st FLOW	0.00		477.0		
C	END OF 1st FLOW	15.00		572.0		
	1st SHUTIN PERIOD	0.00	0.0	572.0	0.0000	
		5.00	327.0	899.0	4.0000	
		10.00	825.0	1397.0	2.5000	
		15.00	1252.0	1824.0	2.0000	
		20.00	1394.0	1966.0	1.7500	
		25.00	1450.0	2022.0	1.6000	
		30.00	1491.0	2063.0	1.5000	
		35.00	1519.0	2091.0	1.4286	
		40.00	1542.0	2114.0	1.3750	
		45.00	1564.0	2136.0	1.3333	
		50.00	1577.0	2149.0	1.3000	
		55.00	1589.0	2161.0	1.2727	
D	END OF 1st SHUTIN	60.00	1600.0	2172.0	1.2500	
E	START OF 2nd FLOW	0.00		554.0		
F	END OF 2nd FLOW	60.00		479.0		
	2nd SHUTIN PERIOD	0.00	0.0	479.0	0.0000	
		5.00	147.0	626.0	16.0000	
		10.00	362.0	841.0	8.5000	
		15.00	676.0	1155.0	6.0000	
		20.00	1002.0	1481.0	4.7500	
		25.00	1298.0	1777.0	4.0000	
		30.00	1642.0	1921.0	3.5000	
		35.00	1926.0	2005.0	3.1429	
		40.00	1973.0	2052.0	2.8750	
		45.00	1904.0	2083.0	2.6667	
		50.00	1626.0	2105.0	2.5000	
		55.00	1645.0	2124.0	2.3636	
		60.00	1659.0	2138.0	2.2500	
		65.00	1671.0	2150.0	2.1538	
		70.00	1682.0	2161.0	2.0714	
		75.00	1689.0	2168.0	2.0000	
		80.00	1695.0	2174.0	1.9375	
		85.00	1701.0	2180.0	1.8824	

ARCO OIL & GAS
DST#: 3
ARCO CHAMBERS #1
6009 - 6054ft.

Location: 28-155-13E
Test Type: BOTTOM HOLE CONVENTIONAL
Formation: ELEPHANT CANYON

Recorder Number: 14325
Recorder Depth: 5990 ft.

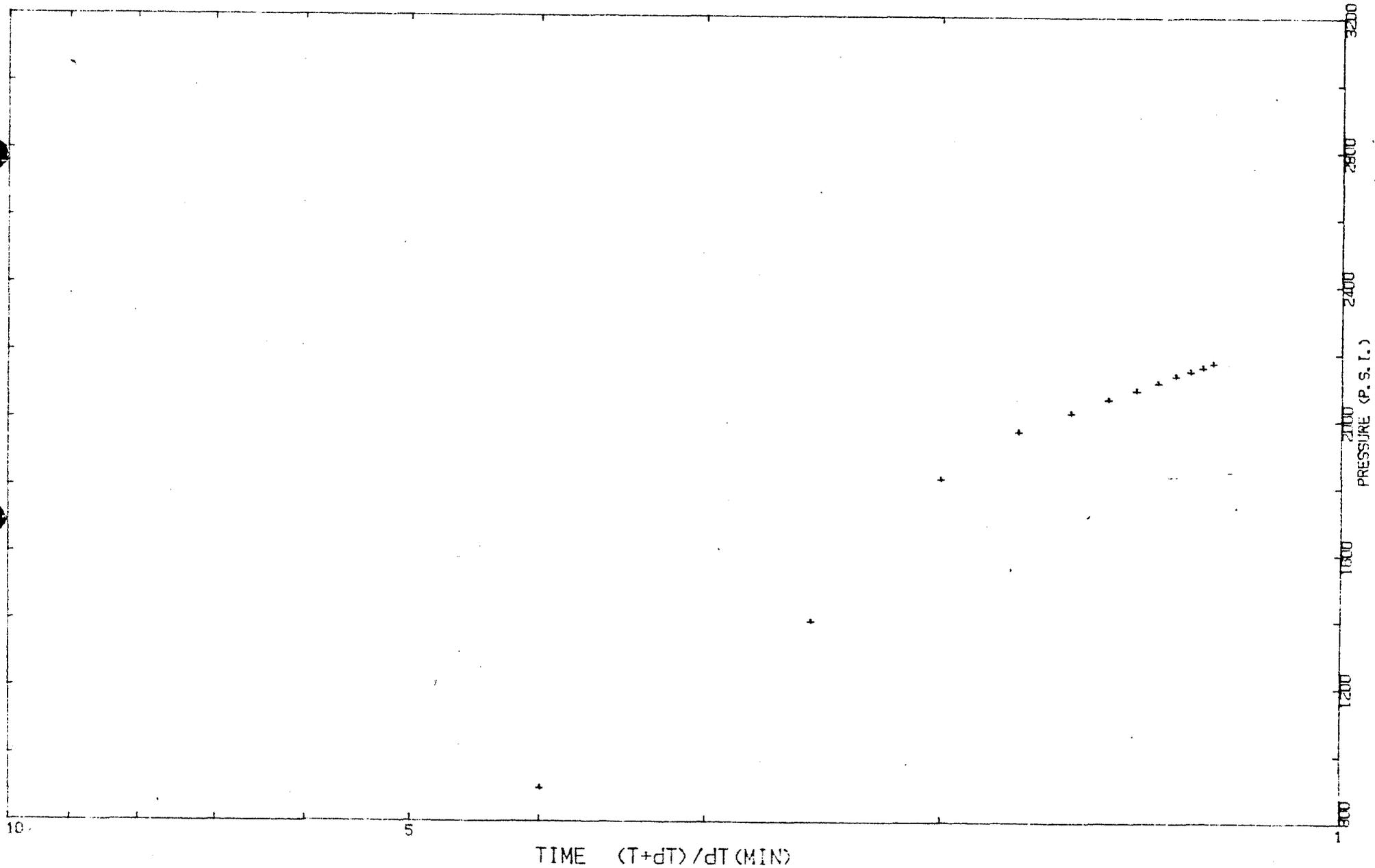
TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE (T+dt)/dt psi	PRESSURE SQUARED ABSCISSA	PRESSURE SQUARED psi ² /10 ⁶
C	END OF 2nd SHUTIN	90.00	1705.0	2184.0	1.8333	
Q	FINAL HYDROSTATIC	0.00		2729.0		

* VALUES USED FOR EXTRAPOLATIONS

OPERATOR: ARCO OIL & GAS
WELL NAME: ARCO CHAMBERS #1
LOCATION: 28-15S-13E
FIRST SHUT-IN
RECORDER: 14325

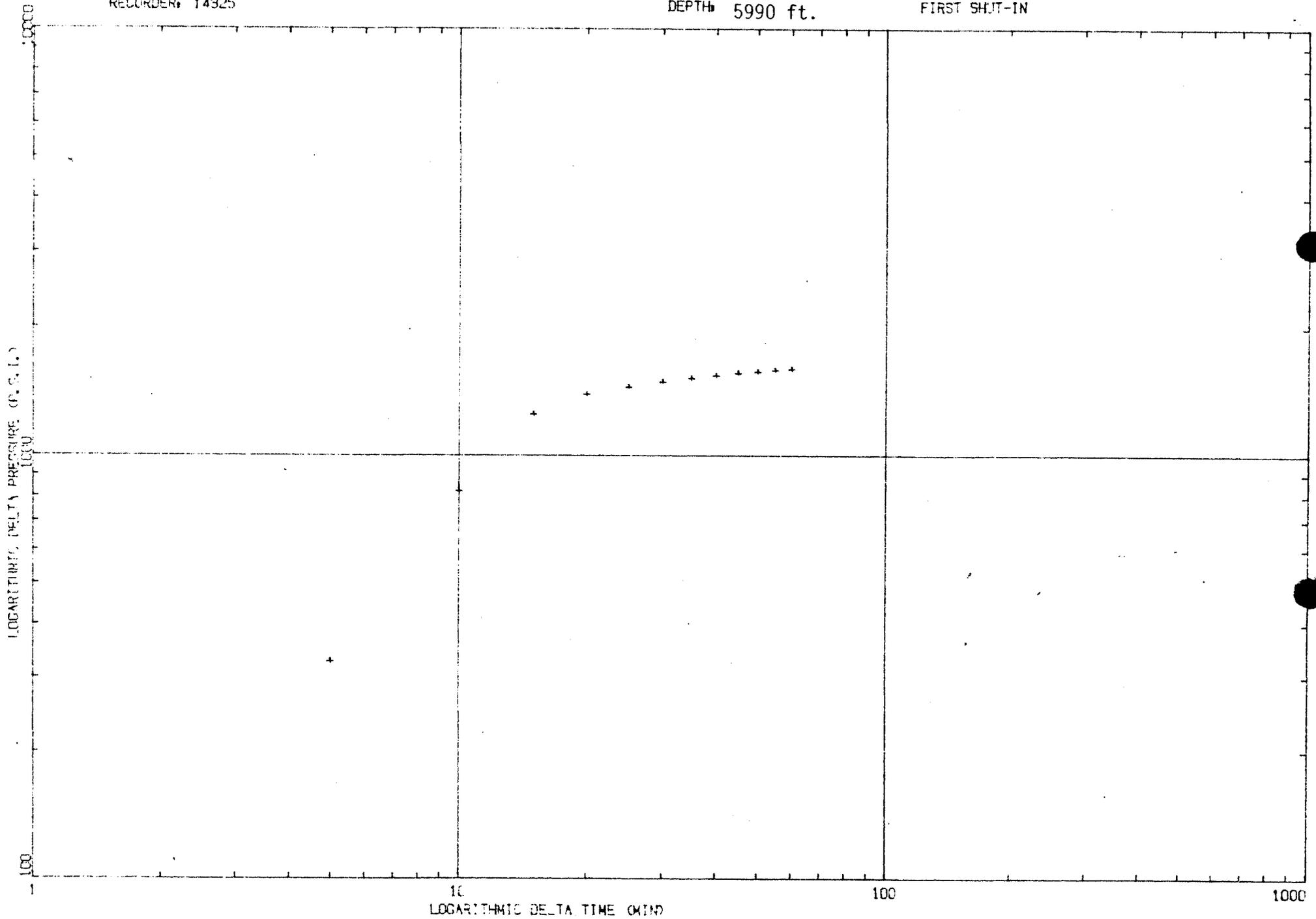
DST #: 3
DEPTH: 5990 ft.



OPERATOR: ARCO OIL & GAS
LOCATION: 28-15S-13E
RECORDER: 14325

WELL NAME: ARCO CHAMBERS #1
DST #: 3
DEPTH: 5990 ft.

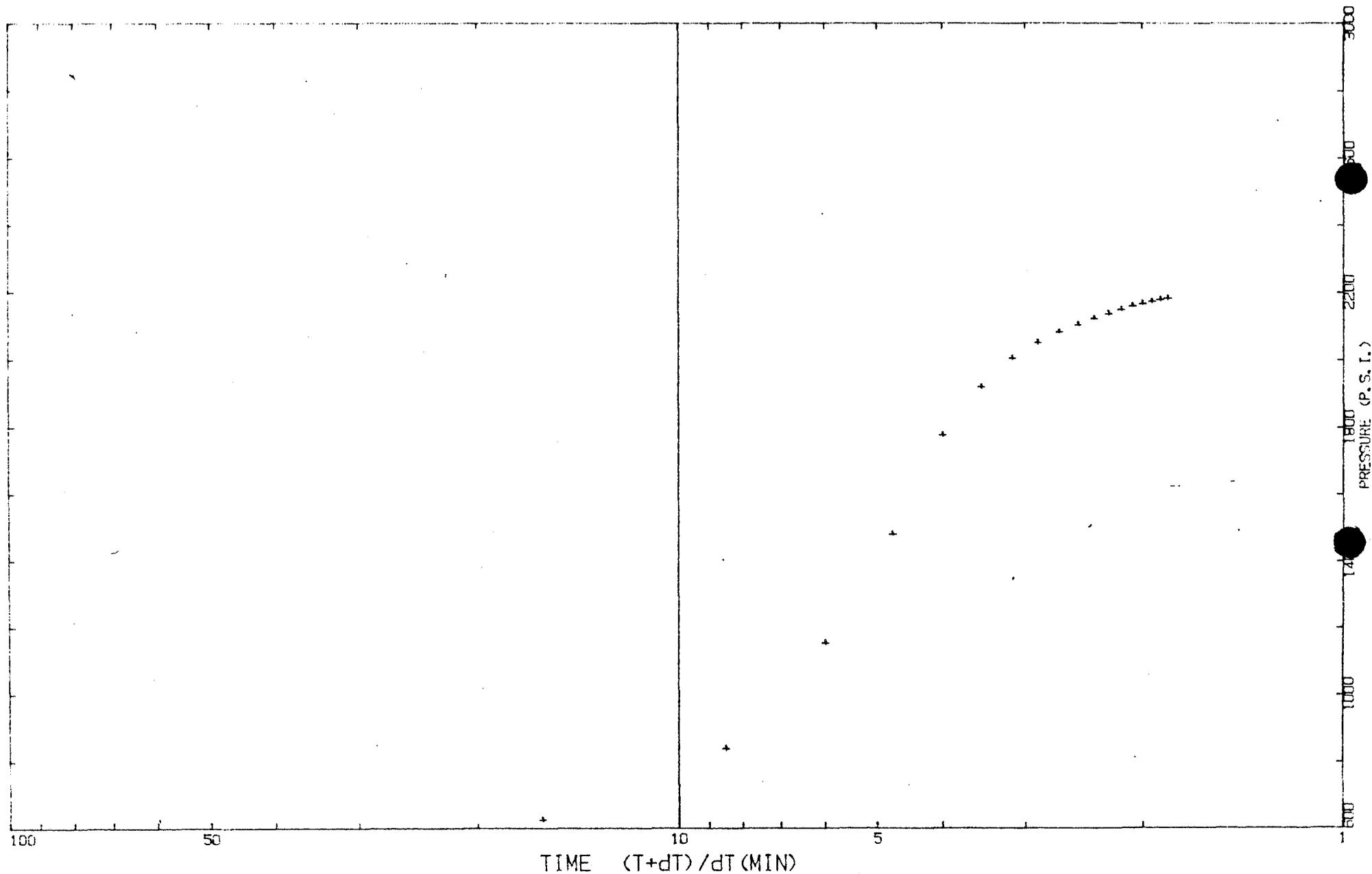
FIRST SHUT-IN



OPERATOR: ARCO OIL & GAS
WELL NAME: ARCO CHAMBERS #1
LOCATION: 28-15S-13E
SECOND SHUT-IN
RECORDER: 14325

DST #: 3

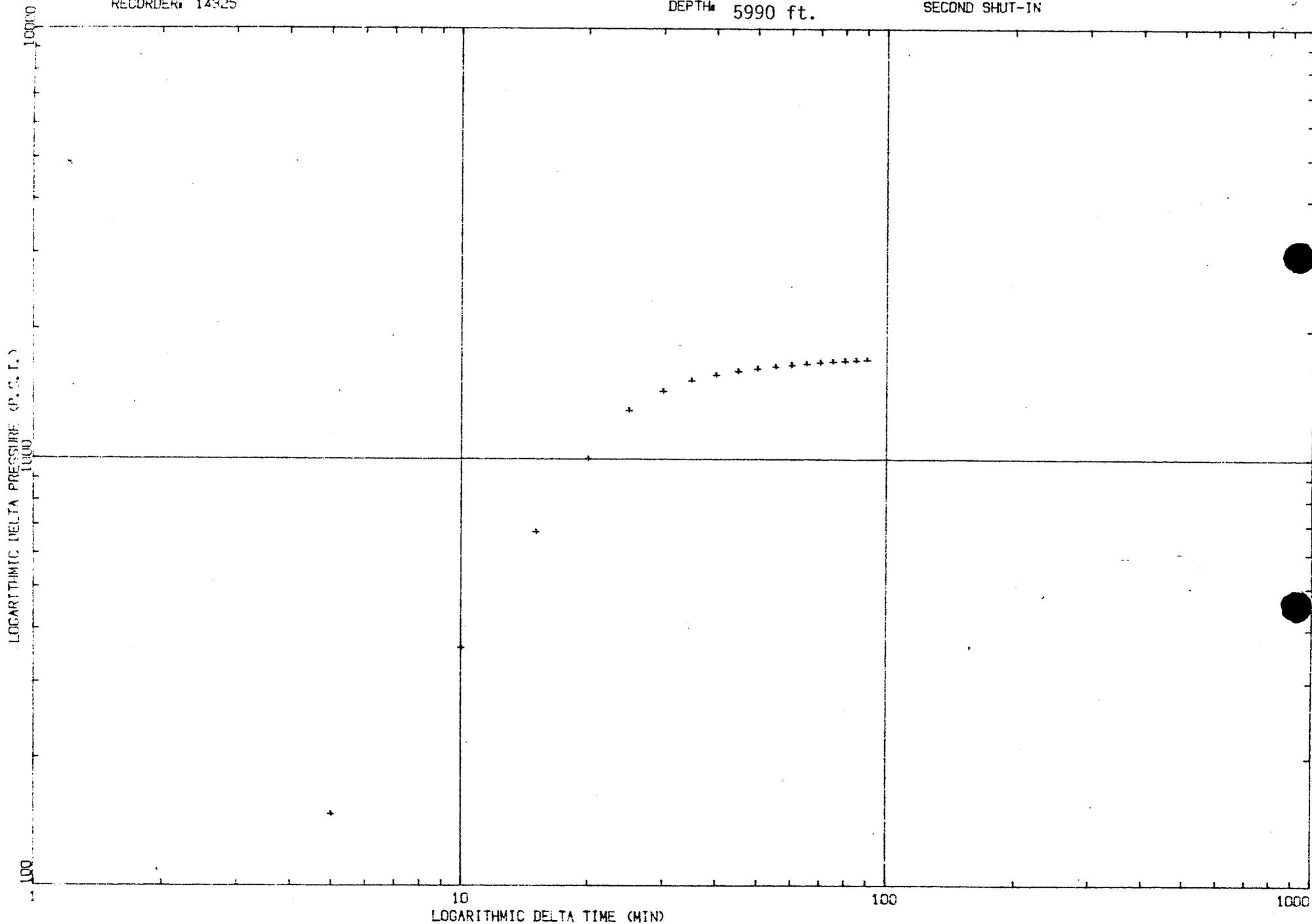
DEPTH: 5990 ft.



OPERATOR: ARCO OIL & GAS
LOCATION: 28-15S-13E
RECORDER: 14325

WELL NAME: ARCO CHAMBERS #1
DST #: 3
DEPTH: 5990 ft.

SECOND SHUT-IN



ARCO OIL & GAS
DST#: 3
ARCO CHAMBERS #1
6009 - 6054ft.

Location: 28-158-13E
Test Type: BOTTOM HOLE CONVENTIONAL
Formation: ELEPHANT CANYON

Recorder Number: 14325
Recorder Depth: 5990 ft.

SAMPLE DATA

SAMPLE CHAMBER:

Capacity of sample chamber	2150	cc
Volume of sample.....	2150	cc
Pressure in sampler.....	100	psig
Where sampler was drained...	on location	

Sampler contained:
fluid 2150 cc heavy water cut mud

RESISTIVITY DATA:

Top.....	3000 PPM NACL
Middle.....	1500 PPM NACL
Bottom.....	1500 PPM NACL
Sampler.....	1500 PPM NACL
Mud pit.....	400 PPM NACL

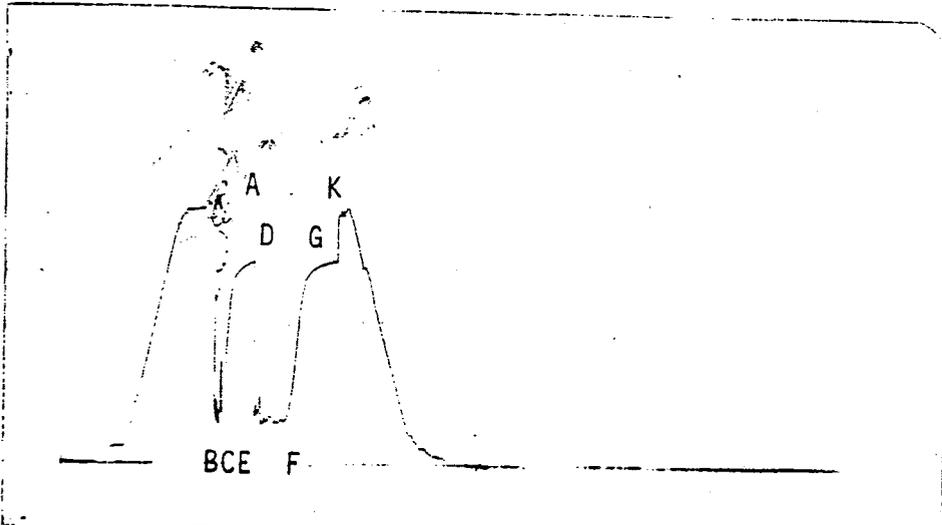
ARCO OIL & GAS
DST#: 3
ARCO CHAMBERS #1
6009 - 6054ft.

PRESSURE RECORDER NUMBER : 18731

DEPTH : 6018.00ft. LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 5125.00psi

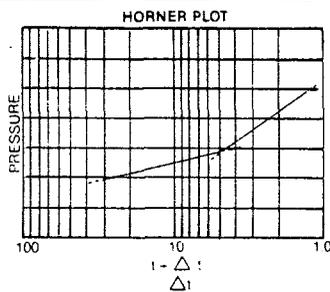
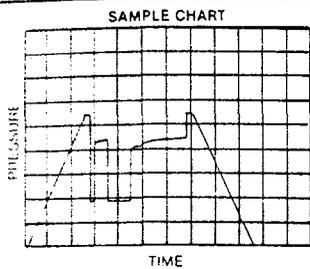
PRESSURE
psi

- A) Initial Hydro : 2767.
- B) 1st Flow Start : 428.
- C) 1st Flow End : 545.
- D) END 1st Shutin : 2209.
- E) 2nd Flow Start : 524.
- F) 2nd Flow End : 469.
- G) END 2nd Shutin : 2213.
- Q) Final Hydro. : 2756.



TEST TIMES(MIN)
1st FLOW : 15
SHUTIN: 60
2nd FLOW : 60
SHUTIN: 90

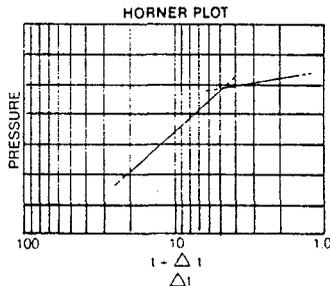
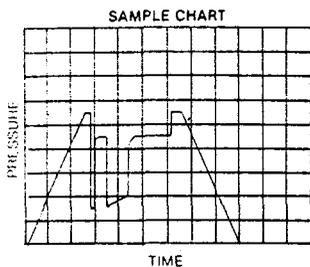
Lynes Guide to Detection of Geological Anomalies



Horner Plot Slope Breaks Upward

Possible Causes

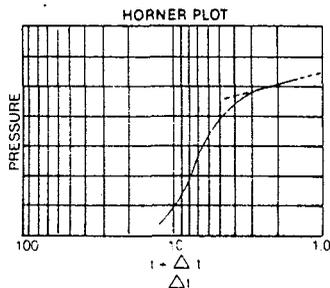
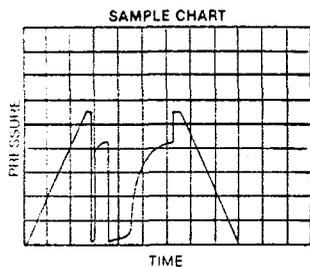
- (1) decrease in pay thickness away from the wellbore
- (2) decrease in permeability away from the wellbore
- (3) increase in viscosity of reservoir fluid (fluid contact)
- (4) barrier within the radius of investigation



Horner Plot Slope Breaks Downward

Possible Causes

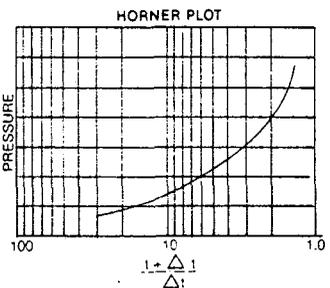
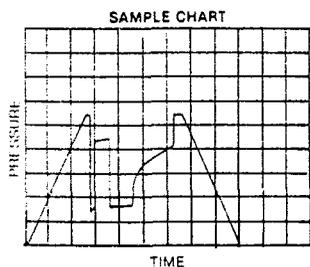
- (1) increase in pay thickness away from the wellbore
- (2) increase in permeability away from the wellbore
- (3) decrease in viscosity away from the wellbore



Early Time Deviation of Horner Plot

Possible Causes

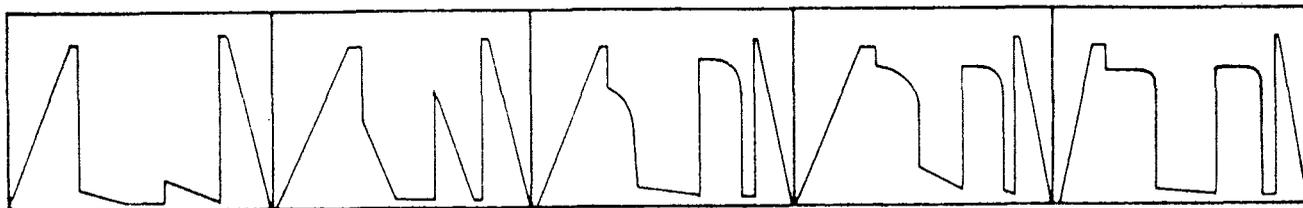
- (1) wellbore damage due to filtrate invasion, drilling solids, etc.
- (2) partial penetration of pay zone
- (3) plugging or choking of perforations (casing test only)
- (4) wellbore storage effects (low permeability gas wells)



Horner Plot Slope Continually Increasing

Possible Causes

- (1) well between two parallel boundaries (channel sand)
- (2) induced hydraulic fractures



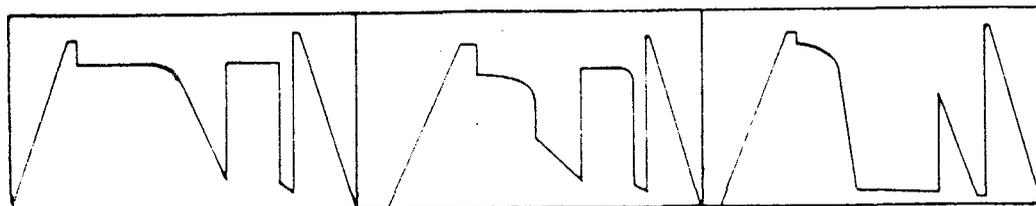
Very low permeability. Usually only mud recovered from interval tested. Virtually no permeability.

Slightly higher permeability. Again usually mud recovered.

Slightly higher permeability. Small recovery, less than 200 ft).

Average permeability. Final and initial shut-ins differ by 50 psi.

Average permeability. Strong damage effect. High shut-in pressure, low flow pressure.



Excellent permeability where final flow final shut-in pressure.

High permeability where ISIP and FSIP are within 10 psi.

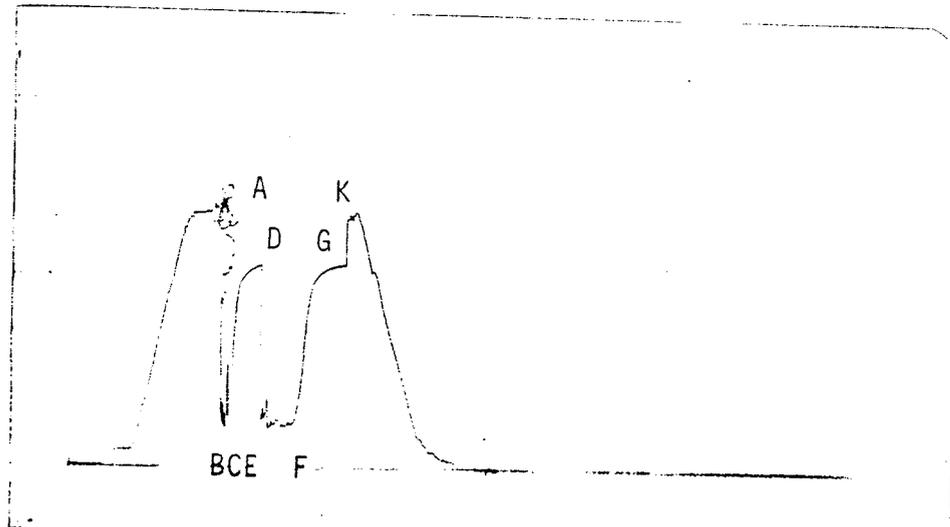
Deep well bore invasion or damage. Final shut-in higher than the initial shut-in.

PRESSURE RECORDER NUMBER : 18731

DEPTH : 6018.00ft. LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 5125.00psi

PRESSURE
psi

A)Initial Hydro : 2767.0
B)1st Flow Start : 428.0
C)1st Flow End : 545.0
D)END 1st Shutin: 2209.0
E)2nd Flow Start: 524.0
F)2nd Flow End : 469.0
G)END 2nd Shutin: 2213.0
Q)Final Hydro. : 2756.0



TEST TIMES(MIN)
1st FLOW : 15
SHUTIN: 60
2nd FLOW : 60
SHUTIN: 90

FLOPETROL JOHNSTON

Schlumberger

WELL PERFORMANCE TEST REPORT

A Production Systems Analysis (NODAL)
Based On
Drillstem Test Data

Test Date
11/12/84

Report No.:
36768 F

COMPANY

ARCO OIL&GAS

WELL

CHAMBERS # 1

TEST IDENTIFICATION

Test Type MFE-OH
Test Number 4
Formation MISSISSIPPI DESERT
Test Interval 6686-6774 FT.
Reference Depth 5471 FT. K.B.

WELL LOCATION

Field WILDCAT
County CARBON
State UTAH
Sec/Twn/Rng SEC. 28-T155N-R13E
Elevation 5471 FT.

HOLE CONDITIONS

Total Depth (MVD/TVD) 6774 FT.
Hole Size / Deviation Angle 8.75 IN.
Csg / Liner ID -
Perf'd Interval -
Shot Density / Phasing -
Gun Type / Perf Cond -

MUD PROPERTIES

Mud Type L.S.N.D./L.C.M.
Mud Weight 8.6-9.0 LB./GAL.
Mud Resistivity 3.1 OHM -M @ 40°F
Filtrate Resistivity 2.3 OHM -M @ 40°F
Filtrate Chlorides 300 PPM CHL
Filtrate Nitrates -

INITIAL TEST CONDITIONS

Gas Cushion Type NONE
Surface Pressure -
Liquid Cushion Type NONE
Height Above DST Valve -

TEST STRING CONFIGURATION

Pipe Length / ID 6271 FT./3.826 IN.
Collar Length / ID 360 FT./2.373 IN.
Packer Depth(s) 6680 & 6686 FT.
BH Choke Size 15/16"

NET PIPE RECOVERY

Volume	Fluid Type	Physical Properties
8.25 BBLs	GAS CUT MUD	3.1 OHM -M @ 40°F 300 PPM CHL
6.54 BBLs	GAS CUT	.09 OHM -M @ 52°F
	WATER	1100 PPM CHL

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Physical Properties
1.16 FT. ³	GAS	CORRECTED TO PWF
1700 CC	WATER	.09 OHM -M @ 52°F 1100 PPM CHL
Pressure: 180 PSIG		GOR: - GLR: 109

INTERPRETATION RESULTS

Reservoir Pressure @Gauge Depth: -
Gauge Depth 6654 PSIA
Hydrostatic Gradient -
Potentiometric Surface -
Effective Permeability to -
Transmissibility -
Skin Factor / Damage Ratio -
Omega / Lambda (2φ System) -
Radius of Investigation -
Measured Wellbore Storage -

ROCK / FLUID / WELLBORE PROPERTIES

Reservoir Temperature 150°F
Analysis Fluid Type -
Formation Volume Factor -
Viscosity -
Z-Factor (gas only) -
Net Pay 88 FT.
Porosity 3-4%
Total System Compressibility -
Wellbore Radius365 FT.
Expected Wellbore Storage -

FLOW RATE DURING DST

95 BLPD AVERAGE RATE

MAXIMUM FLOW RATE POTENTIAL AFTER COMPLETION

DST EVENT SUMMARY

Field Report # 36768 E

DATE (M/D/Y)	TIME (HR:MIN)	EVENT ET. (MIN)	EVENT DESCRIPTION	SURFACE PRESSURE BLOW IN WATER	FLOOR MANIFOLD CHOKE SIZE (64ths INCH)
11/12/84	04:55	—	SET PACKER		
	05:00	—	OPENED TEST TOOL FOR INITIAL FLOW	SURFACE BLOW	1/8"
	05:05			4"	(BUBBLE HOSE)
	05:10			5 1/4"	
	05:15	—	CLOSED TEST TOOL FOR INITIAL SHUT-IN	6 1/2"	1/8"
	05:30			1/4"	
	06:16	—	OPENED TEST TOOL FOR FINAL FLOW	LIGHT BLOW	1/8"
	06:17			1"	
	06:20			2"	
	06:25			2 3/4"	
	06:46			4"	
	07:06			4 3/4"	
	07:26			6"	
	07:46		ATTEMPTED TO CLOSE TOOL	6"	
	09:46	—	FINISHED FINAL FLOW	—	1/8"
	09:50	—	UNSEATED PACKER	—	
		—	REVERSED OUT		
		—	BEGAN TRIP OUT OF HOLE		

TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HOLE PRESSURE PSIA
5: 0: 0	12-ND	0.00	0.00	32
5: 5: 0	12-ND	5.00	5.00	108
5:10: 0	12-ND	10.00	10.00	157
5:15: 0	12-ND	15.00	15.00	193
5:18: 4	12-ND	18.06	18.06	213

TEST PHASE : SHUTIN PERIOD # 1

FINAL FLOW PRESSURE [PSIA] = 213
 PRODUCING TIME [MIN] = 18.06

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
5:18: 4	12-ND	18.06	0.00	213	0	
5:19: 4	12-ND	19.06	1.00	282	69	1.280
5:20: 4	12-ND	20.06	2.00	463	250	1.001
5:21: 4	12-ND	21.06	3.00	809	596	0.846
5:22: 4	12-ND	22.06	4.00	1333	1120	0.742
5:23: 4	12-ND	23.06	5.00	1919	1706	0.664
5:24: 4	12-ND	24.06	6.00	2286	2073	0.603
5:25: 4	12-ND	25.06	7.00	2357	2144	0.554
5:26: 4	12-ND	26.06	8.00	2380	2167	0.513
5:27: 4	12-ND	27.06	9.00	2395	2182	0.478
5:28: 4	12-ND	28.06	10.00	2406	2193	0.448
5:30: 4	12-ND	30.06	12.00	2424	2211	0.399
5:32: 4	12-ND	32.06	14.00	2437	2224	0.360
5:34: 4	12-ND	34.06	16.00	2447	2233	0.328
5:36: 4	12-ND	36.06	18.00	2454	2241	0.302
5:38: 4	12-ND	38.06	20.00	2460	2247	0.279
5:40: 4	12-ND	40.06	22.00	2465	2252	0.260
5:42: 4	12-ND	42.06	24.00	2468	2255	0.244
5:44: 4	12-ND	44.06	26.00	2472	2259	0.229
5:46: 4	12-ND	46.06	28.00	2474	2261	0.216
5:48: 4	12-ND	48.06	30.00	2477	2264	0.205
5:53: 4	12-ND	53.06	35.00	2482	2268	0.181
5:58: 4	12-ND	58.06	40.00	2485	2272	0.162
6: 3: 4	12-ND	63.06	45.00	2489	2276	0.147
6: 8: 4	12-ND	68.06	50.00	2492	2279	0.134
6:13: 4	12-ND	73.06	55.00	2495	2282	0.123
6:17:55	12-ND	77.92	59.86	2496	2283	0.115

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 36768E

COMPANY : ARCO OIL & GAS CORP.

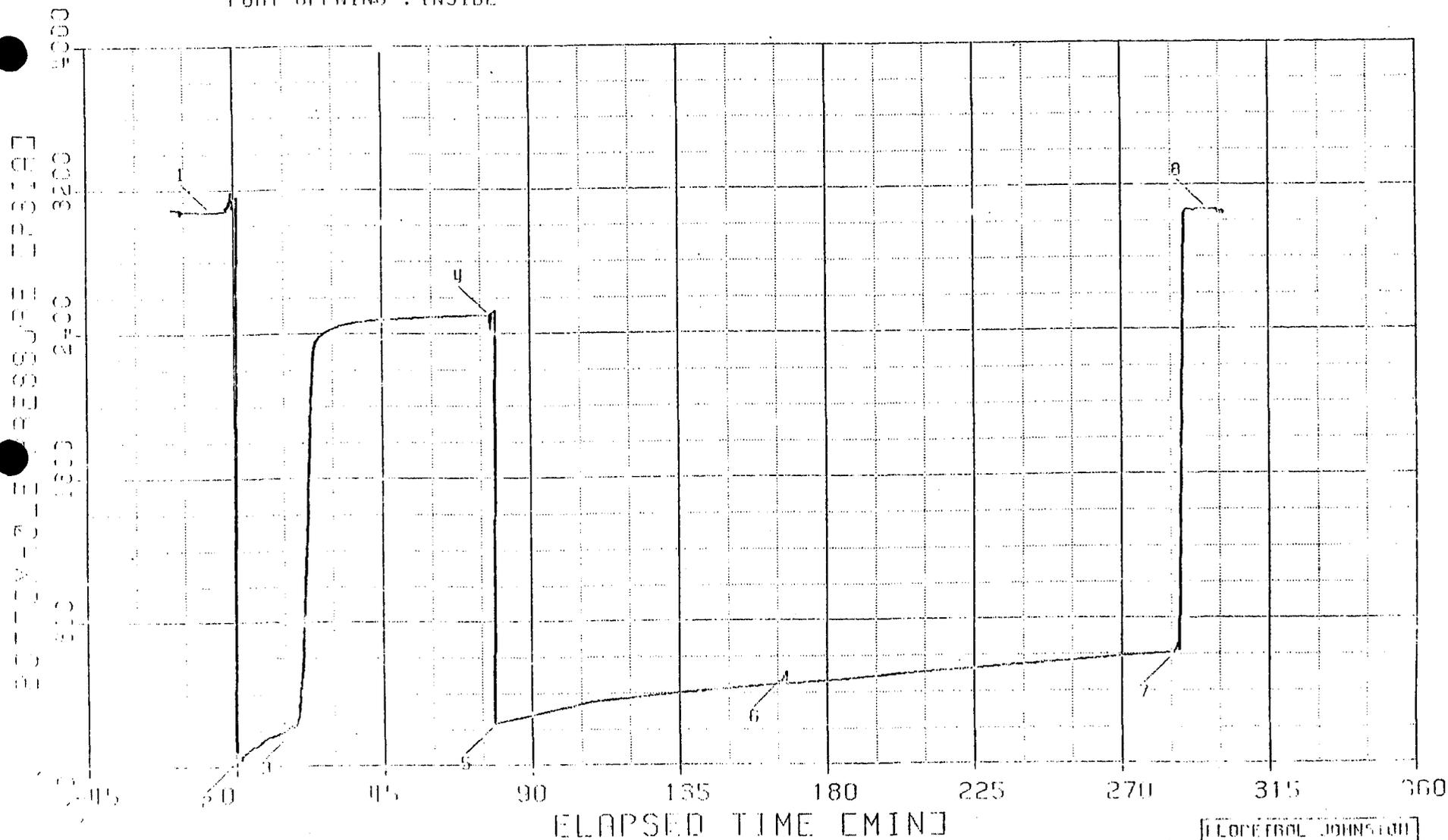
INSTRUMENT NO. J-253

WELL : CHAMBERS #1

DEPTH : 6654 FT

CAPACITY : 4700 PSI

PORT OPENING : INSIDE



FLOPPING JOHNSON
SCHUMBERGER

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED	DELTA	BOT HOLE PRESSURE
HH:MM:SS	DD-MM	TIME,MIN	TIME,MIN	PSIA
*****	*****	*****	*****	*****
6:18:50	12-NO	78.84	0.00	230
6:23:50	12-NO	83.84	5.00	253
6:28:50	12-NO	88.84	10.00	274
6:33:50	12-NO	93.84	15.00	295
6:38:50	12-NO	98.84	20.00	315
6:43:50	12-NO	103.84	25.00	333
6:48:50	12-NO	108.84	30.00	351
6:53:50	12-NO	113.84	35.00	362
6:58:50	12-NO	118.84	40.00	370
7: 3:50	12-NO	123.84	45.00	378
7: 8:50	12-NO	128.84	50.00	388
7:13:50	12-NO	133.84	55.00	396
7:18:50	12-NO	138.84	60.00	404
7:23:50	12-NO	143.84	65.00	412
7:28:50	12-NO	148.84	70.00	419
7:33:50	12-NO	153.84	75.00	427
7:38:50	12-NO	158.84	80.00	435
7:43:50	12-NO	163.84	85.00	441
7:48:50	12-NO	168.84	90.00	446
7:53:50	12-NO	173.84	95.00	453
7:58:50	12-NO	178.84	100.00	460
8: 3:50	12-NO	183.84	105.00	466
8: 8:50	12-NO	188.84	110.00	474
8:13:50	12-NO	193.84	115.00	482
8:18:50	12-NO	198.84	120.00	490
8:23:50	12-NO	203.84	125.00	497
8:28:50	12-NO	208.84	130.00	504
8:33:50	12-NO	213.84	135.00	511
8:38:50	12-NO	218.84	140.00	518
8:43:50	12-NO	223.84	145.00	524
8:48:50	12-NO	228.84	150.00	531
8:53:50	12-NO	233.84	155.00	538
8:58:50	12-NO	238.84	160.00	545
9: 3:50	12-NO	243.84	165.00	551
9: 8:50	12-NO	248.84	170.00	557
9:13:50	12-NO	253.84	175.00	564
9:18:50	12-NO	258.84	180.00	571
9:23:50	12-NO	263.84	185.00	577
9:28:50	12-NO	268.84	190.00	584
9:33:50	12-NO	273.84	195.00	590
9:38:50	12-NO	278.84	200.00	596
9:43:50	12-NO	283.84	205.00	603
9:46: 0	12-NO	286.00	207.16	606

FLOPETROL JOHNSTON MAJOR OFFICES

NORTH AMERICA:

Flop petrol Johnston
105 Industrial Road
Sugar Land, Texas 77478,
U.S.A.
Postal address:
Box 36369
Houston, Texas 77036
U.S.A.
(713) 491-1313

Canada
950 Iveagh House
707 - 7th Avenue S.W.
Calgary, Alberta
Canada T2P 3H6
(403) 266-7511

Central U.S.
P.O. Box 2698
Midland, Texas 79702
U.S.A.
(915) 682-0531

Gulf Coast
P.O. Box 53852
Lafayette, Louisiana 70505
U.S.A.
(318) 237-0790

Gulf Coast Rental
Southwestern Bank Plaza
Suite 330
12603 Southwest Freeway
Stafford, Texas 77477
U.S.A.
(713) 491-4311

Western U.S.
Suite 300, Park Place
1745 Stout
Denver, Colorado 80202
U.S.A.
(303) 292-0760

OVERSEAS:

Flop petrol Johnston
228, rue Einstein
775 Vaux-le-Penil, Melun
Postal address:
B.P. 557 - 77006 Melun Cedex
France

Europe Mediterranean
3rd Floor, Trafalgar House
Hammersmith International Centre
2 Chalkill Road Hammersmith
London W6 8DN
England

Far East
302 Orchard Road
07 - 04 Tong Building
Singapore 0923
Singapore

Latin America
Rua da Assembleia n° 10
Grupo n° 3701 - CEP 20011
Rio de Janeiro
Brazil

Middle East
Dnata Airline Centre
4th Floor
P.O. Box 4959
Deira, Dubai
U.A.E.

West Africa
Immeuble SGBC, rue Joss
6th Floor - B.P. 485
Douala
Cameroon

FLOPETROL JOHNSTON

Schlumberger

FLOPETROL JOHNSTON SERVICES

WELL PERFORMANCE TESTS (WPT)*

- Drillstem
- Production
- Drawdown
- Injectivity
- Buildup
- Falloff
- Reservoir Limits
- Deliverability
- Multi-rate
- Interference
- Pulse
- Pumping Well Buildup

*All WPT's include:

1. Test planning and simulation to design a TEST PROCEDURE which will ACHIEVE YOUR TEST OBJECTIVES.
2. State-of-the-art TEST EQUIPMENT for SAFE, RELIABLE tests.
3. EXPERIENCED test ENGINEERS knowledgeable in well test interpretation practices and YOUR SPECIFIC TEST OBJECTIVES.
4. MODEL VERIFIED INTERPRETATION of the test data.
5. NODAL™ ANALYSIS of the WELL TEST DATA to predict the combined RESERVOIR/COMPLETION system PERFORMANCE.

WELL TEST EQUIPMENT

Pressure Measurement

DPTT™ (Downhole Pressure/Temperature Transmitter). An electronic, surface readout recorder which transmits data to surface via wireline.

J-300 An electronic, battery-powered bottomhole pressure/temperature recorder for use on DST's only.

SSDP™ (Solid State Downhole Processor). An electronic, battery-powered bottomhole pressure/temperature recorder for use on production tests (slickline runnable).

J-200 A mechanical bottomhole pressure recorder for use on DST's only.

Test Monitoring Systems

SPRO™ (Surface Pressure Readout). Real Time display and analysis of bottomhole pressure/temperature data for use on any type of test.

TELEFLOW™ Real Time display and analysis of surface pressure data for use on Closed Chamber DST's and Pumping Well Buildup tests.

DRILLSTEM TEST EQUIPMENT

MFE (Multi-Flow Evaluator) An open or cased hole DST valve operated by up and down pipe movement (sleeve).

PCT (Pressure-Controlled Tester) A cased hole DST valve operated by annulus pressure (sleeve or full bore).

E-Z TREE™ A subsea test tree used on offshore, floating rig DST's (full bore).

RETAINER VALVE A valve run on the drillstring just above the E-Z TREE that prevents dumping of hydrocarbons in the event a subsea disconnect becomes necessary (full bore).

LUBRICATOR VALVE A valve run on the drillstring 60 to 90 feet below the rotary table to eliminate the need for a surface lubricator during wireline operations.

SURFACE PRODUCTION HANDLING EQUIPMENT

PORTABLE SEPARATORS Skid-mounted (offshore) and trailer-mounted (onshore) single stage, 3-phase, 1440 psig working pressure separators capable of handling up to 60MMscf/d gas and 10,000 bbl/d liquid.

PORTABLE HEATERS Skid-mounted (offshore) and trailer-mounted (onshore) indirect fixed units with capacities up to 4.3MM BTU/hr and 15,000 psig working pressure.

PORTABLE BURNERS Pollution-free burning of multi-phase flow streams at rates up to 5000 bbl/d per burner head. Gas flare stacks also available.

SUBSURFACE CONTROL EQUIPMENT

RP Tubing Packoff Assemblies

Boll Weevil Tubing Stops

Flow Couplings

Chemical Injection Valves

Landing Nipples

Equidapter Equalizing Subs

Subsurface Safety Valves (SSSV's)

DRILLING AND FISHING EQUIPMENT

Earthquaker Jars-mechanical drilling jars

Shock Guard-drilling shock absorbers

N₂ Jar Booster-gas-operated jar boosters

DC (Drilling & Coring) Jars-hydraulic jars

TR (Time Regulated) Jars-hydraulic jars

FB (Full Bore) Jars-hydraulic jars

Bumper Subs

GAS LIFT EQUIPMENT

Gas Lift Valves & Mandrels

Retrievable Valve Latches

GLAD™ (Gas Lift Analysis & Design) Computerized Design

Dummy Valves

Reverse Flow Check Valves

Screened Orifice Valves

Adjustable Orifice Control Valves

 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 36768E

COMPANY : ARCO OIL & GAS CORP.
 WELL : CHAMBERS #1

INSTRUMENT # : J-253
 CAPACITY [PSI] : 4700.
 DEPTH [FT] : 6654.0
 PORT OPENING : INSIDE
 TEMPERATURE [DEG F] : 150.0

LABEL POINT INFORMATION

#	TIME OF DAY HH:MM:SS	DATE DD-MM	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA
1	4:53:29	12-NO	HYDROSTATIC MUD	-6.52	3074
2	5:0:0	12-NO	START FLOW	0.00	32
3	5:18:4	12-NO	END FLOW & START SHUT-IN	18.06	213
4	6:17:55	12-NO	END SHUT-IN	77.92	2496
5	6:18:50	12-NO	START FLOW	78.84	230
6	7:47:2	12-NO	ATTEMPTED TO CLOSE TODL	167.04	490
7	9:46:0	12-NO	END FLOW	286.00	606
8	9:56:26	12-NO	HYDROSTATIC MUD	296.44	3060

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA
1	0.00	18.06	18.06	32	213
2	78.84	286.00	207.16	230	606

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLDW PRESSURE PSIA	PRODUCING TIME, MIN
1	18.06	77.92	59.86	213	2496	213	18.06

FLOPETROL JOHNSTON

Schlumberger

WELL PERFORMANCE TEST REPORT

A Production Systems Analysis (NODAL)
Based On
Drillstem Test Data

Test Date
10-18-84

Report No.:
42979 E

COMPANY

ARCO OIL & GAS

WELL

CHAMBERS # 1

TEST IDENTIFICATION

Test Type OPEN HOLE
Test Number 2
Formation SINBAD
Test Interval 4515 - 4559 FT.
Reference Depth KELLY BUSHING

WELL LOCATION

Field WILD CAT
County CARBON
State UTAH
Sec/Twn/Rng S28 T15S R13E
Elevation 5471 FT. (KB)

HOLE CONDITIONS

Total Depth (MVD/TVD) 4559 FT.
Hole Size / Deviation Angle 8 3/4"/STRAIGHT
Csg / Liner ID NA
Perf'd Interval NA
Shot Density / Phasing NA
Gun Type / Perf Cond NA

MUD PROPERTIES

Mud Type LOW SOLIDS NON-DISPERSE
Mud Weight 9.1 LB/GAL
Mud Resistivity 2.2 OHM -M @ 65°F
Filtrate Resistivity 2.0 OHM -M @ 65°F
Filtrate Chlorides 400 PPM
Filtrate Nitrates NOT GIVEN

INITIAL TEST CONDITIONS

Gas Cushion Type NONE
Surface Pressure NA
Liquid Cushion Type NONE
Height Above DST Valve NA

TEST STRING CONFIGURATION

Pipe Length / ID 4195 FT./3.83 IN.
Collar Length / ID 275 FT./2.50 IN.
Packer Depth(s) 4508 & 4515 FT.
BH Choke Size 15/16 IN.

NET PIPE RECOVERY

Volume	Fluid Type	Physical Properties
0.622 BBL	MUD	1.6 OHM -M @ 70°F 425 PPM CL.

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Physical Properties
0.5 SCF	GAS	
1300 CC	MUD	1.5 OHM -M @ 72°F 450 PPM CL.

Pressure: 153 PSIG GOR: — GLR: 61.15

INTERPRETATION RESULTS

Reservoir Pressure @ Gauge Depth: NA
Gauge Depth 4516 FT.
Hydrostatic Gradient NA
Potentiometric Surface NA
Effective Permeability to NA
Transmissibility NA
Skin Factor / Damage Ratio NA
Omega / Lambda (2φ System) NA
Radius of Investigation NA
Measured Wellbore Storage NA

ROCK / FLUID / WELLBORE PROPERTIES

Reservoir Temperature 118°F
Analysis Fluid Type NA
Formation Volume Factor NA
Viscosity NA
Z-Factor (gas only) NA
Net Pay 44 FT.
Porosity 10%
Total System Compressibility NA
Wellbore Radius365 FT.
Expected Wellbore Storage NA

FLOW RATE DURING DST

12.12 BLPD avg. / 4.16 BLPD @ 135 IN. CHOKED

MAXIMUM FLOW RATE POTENTIAL AFTER COMPLETION

NOV 20 1985

DIVISION OF OIL
GAS & MINING

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 42979E

COMPANY : ARCO OIL & GAS

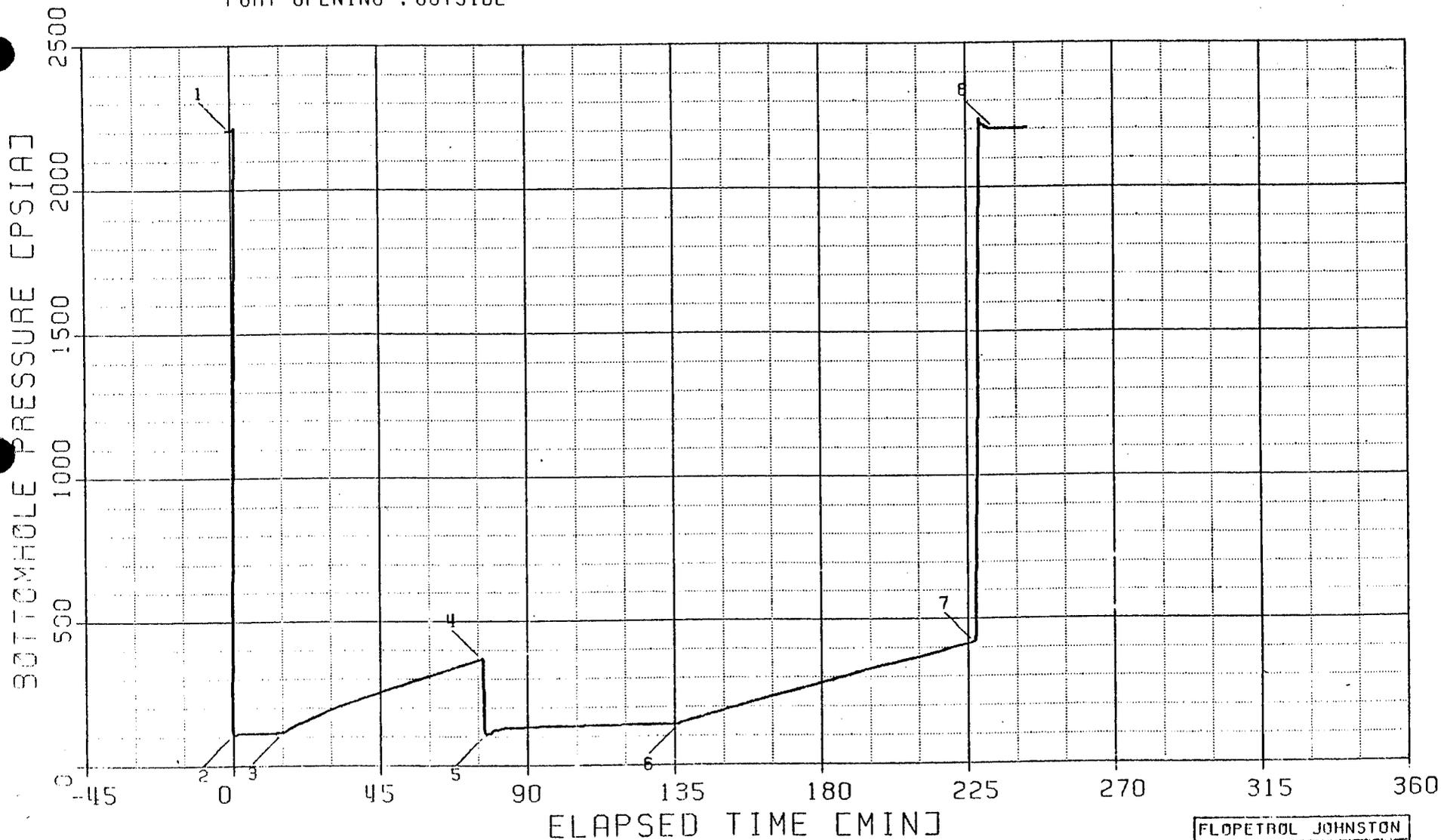
INSTRUMENT NO. J-253

WELL : CHAMBERS #1

DEPTH : 4516 FT

CAPACITY : 4700 PSI

PORT OPENING : OUTSIDE



FLOPETROL JOHNSTON
SCHLUMBERGER

 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 42979E
 COMPANY : ARCO OIL & GAS
 WELL : CHAMBERS #1

INSTRUMENT # : J-253
 CAPACITY [PSI] : 4700.
 DEPTH [FT] : 4516.0
 PORT OPENING : OUTSIDE
 TEMPERATURE [DEG F] : 118.0

LABEL POINT INFORMATION

#	TIME OF DAY		DATE	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA
	HH:MM:SS	DD-MM				
1	4:52:57	18-DC	HYDROSTATIC MUD	-0.05	2201	
2	4:53: 0	18-DC	START FLOW	0.00	105	
3	5: 7:58	18-DC	END FLOW & START SHUT-IN	14.97	112	
4	6: 9:14	18-DC	END SHUT-IN	76.23	367	
5	6:10:22	18-DC	START FLOW	77.37	106	
6	7: 9:18	18-DC	END FLOW & START SHUT-IN	136.30	140	
7	8:40: 0	18-DC	END SHUT-IN	227.00	417	
8	8:46:41	18-DC	HYDROSTATIC MUD	233.68	2201	

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	INITIAL PRESSURE PSIA
1	0.00	14.97	14.97	105	112	105
2	77.37	136.30	58.93	106	140	106

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	14.97	76.23	61.26	112	367	112	14.97
2	136.30	227.00	90.70	140	417	140	73.90

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 140
 PRODUCING TIME [MIN] = 73.90

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
*****	*****	*****	*****	*****	*****	*****
8: 4:18	18-DC	191.30	55.00	314	174	0.370
8: 9:18	18-DC	196.30	60.00	329	189	0.349
8:14:18	18-DC	201.30	65.00	343	203	0.330
8:19:18	18-DC	206.30	70.00	356	216	0.313
8:24:18	18-DC	211.30	75.00	370	230	0.298
8:29:18	18-DC	216.30	80.00	385	245	0.284
8:34:18	18-DC	221.30	85.00	402	261	0.272
8:39:18	18-DC	226.30	90.00	416	276	0.260
8:40: 0	18-DC	227.00	90.70	417	276	0.259

TEST PHASE : FLOW PERIOD # 1
 INITIAL PRESSURE [PSIA] = 105

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI
4:53:0	18-DC	0.00	0.00	105	0
4:58:0	18-DC	5.00	5.00	111	-5
5:3:0	18-DC	10.00	10.00	111	-5
5:7:58	18-DC	14.97	14.97	112	-6

TEST PHASE : SHUTIN PERIOD # 1
 FINAL FLOW PRESSURE [PSIA] = 112
 PRODUCING TIME [MIN] = 14.97

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
5:7:58	18-DC	14.97	0.00	112	0	
5:8:58	18-DC	15.97	1.00	118	6	1.203
5:9:58	18-DC	16.97	2.00	124	13	0.929
5:10:58	18-DC	17.97	3.00	130	18	0.777
5:11:58	18-DC	18.97	4.00	135	24	0.676
5:12:58	18-DC	19.97	5.00	141	29	0.601
5:13:58	18-DC	20.97	6.00	146	34	0.543
5:14:58	18-DC	21.97	7.00	151	39	0.497
5:15:58	18-DC	22.97	8.00	156	44	0.458
5:16:58	18-DC	23.97	9.00	161	49	0.425
5:17:58	18-DC	24.97	10.00	165	54	0.397
5:19:58	18-DC	26.97	12.00	176	64	0.352
5:21:58	18-DC	28.97	14.00	186	75	0.316
5:23:58	18-DC	30.97	16.00	196	84	0.287
5:25:58	18-DC	32.97	18.00	205	94	0.263
5:27:58	18-DC	34.97	20.00	214	102	0.243
5:29:58	18-DC	36.97	22.00	222	110	0.225
5:31:58	18-DC	38.97	24.00	230	118	0.211
5:33:58	18-DC	40.97	26.00	238	126	0.197
5:35:58	18-DC	42.97	28.00	246	135	0.186
5:37:58	18-DC	44.97	30.00	252	141	0.176
5:42:58	18-DC	49.97	35.00	270	159	0.155
5:47:58	18-DC	54.97	40.00	289	177	0.138
5:52:58	18-DC	59.97	45.00	307	195	0.125
5:57:58	18-DC	64.97	50.00	325	213	0.114
6:2:58	18-DC	69.97	55.00	344	232	0.105
6:7:58	18-DC	74.97	60.00	362	251	0.097
6:9:14	18-DC	76.23	61.26	367	255	0.095

TEST PHASE : FLOW PERIOD # 2
 INITIAL PRESSURE [PSIA] = 106

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI
6:10:22	18-DC	77.37	0.00	106	0
6:15:22	18-DC	82.37	5.00	125	-19
6:20:22	18-DC	87.37	10.00	128	-22
6:25:22	18-DC	92.37	15.00	130	-24
6:30:22	18-DC	97.37	20.00	132	-26
6:35:22	18-DC	102.37	25.00	133	-27
6:40:22	18-DC	107.37	30.00	134	-28
6:45:22	18-DC	112.37	35.00	136	-30
6:50:22	18-DC	117.37	40.00	136	-30
6:55:22	18-DC	122.37	45.00	138	-32
7: 0:22	18-DC	127.37	50.00	138	-32
7: 5:22	18-DC	132.37	55.00	139	-32
7: 9:18	18-DC	136.30	58.93	140	-34

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 140
 PRODUCING TIME [MIN] = 73.90

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI	LOG HDRNER TIME
7: 9:18	18-DC	136.30	0.00	140	0	
7:10:18	18-DC	137.30	1.00	144	4	1.874
7:11:18	18-DC	138.30	2.00	147	7	1.579
7:12:18	18-DC	139.30	3.00	151	11	1.409
7:13:18	18-DC	140.30	4.00	154	14	1.289
7:14:18	18-DC	141.30	5.00	157	17	1.198
7:15:18	18-DC	142.30	6.00	160	20	1.124
7:16:18	18-DC	143.30	7.00	163	23	1.063
7:17:18	18-DC	144.30	8.00	167	27	1.010
7:18:18	18-DC	145.30	9.00	170	30	0.964
7:19:18	18-DC	146.30	10.00	173	33	0.924
7:21:18	18-DC	148.30	12.00	180	40	0.855
7:23:18	18-DC	150.30	14.00	187	47	0.798
7:25:18	18-DC	152.30	16.00	193	53	0.750
7:27:18	18-DC	154.30	18.00	200	60	0.708
7:29:18	18-DC	156.30	20.00	206	66	0.672
7:31:18	18-DC	158.30	22.00	213	73	0.639
7:33:18	18-DC	160.30	24.00	219	79	0.611
7:35:18	18-DC	162.30	26.00	225	85	0.585
7:37:18	18-DC	164.30	28.00	232	92	0.561
7:39:18	18-DC	166.30	30.00	238	98	0.539
7:44:18	18-DC	171.30	35.00	253	113	0.493
7:49:18	18-DC	176.30	40.00	268	128	0.454
7:54:18	18-DC	181.30	45.00	283	143	0.422
7:59:18	18-DC	186.30	50.00	298	158	0.394

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 140
 PRODUCING TIME [MIN] = 73.90

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
8: 4:18	18-DC	191.30	55.00	314	174	0.370
8: 9:18	18-DC	196.30	60.00	329	189	0.349
8:14:18	18-DC	201.30	65.00	343	203	0.330
8:19:18	18-DC	206.30	70.00	356	216	0.313
8:24:18	18-DC	211.30	75.00	370	230	0.298
8:29:18	18-DC	216.30	80.00	385	245	0.284
8:34:18	18-DC	221.30	85.00	402	261	0.272
8:39:18	18-DC	226.30	90.00	416	276	0.260
8:40: 0	18-DC	227.00	90.70	417	276	0.259

FLOPETROL JOHNSTON

RECEIVED

MAR 20 1

DIVISION OF OIL
GAS & MINING

REPORT CONTENTS

COVER PAGE	A summary of all important information obtained from the well test.
NODAL PLOTS*	One or more plots showing the effect of various completion design parameters on production rate. *Presented only in conjunction with reservoir analysis.
BOTTOMHOLE PRESSURE LOG	A plot of bottomhole pressure versus time annotated with event numbers described in the Bottomhole Pressure Printout.
BOTTOMHOLE PRESSURE PRINTOUT	A summary of the significant events during the well test, followed by one or more pages of digital bottomhole pressure data.
INTERPRETATION PLOTS	Plots that vary with type of test (test objectives), test event sequence, well behavior during the test and/or specific client requirements.
MISCELLANEOUS DATA	Any specifically requested data not normally included in a report.

FLOPETROL JOHNSTON

Schlumberger

WELL PERFORMANCE TEST REPORT

A Production Systems Analysis (NODAL)
Based On
Drillstem Test Data

Report No.:
36760E

Test Date
16 OCT 84

COMPANY ARCO OIL AND GAS	WELL CHAMBERS # 1
---	------------------------------------

TEST IDENTIFICATION Test Type OH MFE Test Number 1 Formation MOENKOPI Test Interval 4450 FT TO 4531 FT Reference Depth KELLY BUSHING	WELL LOCATION Field WILDCAT County CARBON State UTAH Sec / Twn / Rng 28 155 13 Elevation 5471 FT
--	--

HOLE CONDITIONS Total Depth (MVD/TVD) 4531 FT Hole Size / Deviation Angle 8.75 IN Csg / Liner ID N/A Perf'd Interval N/A Shot Density / Phasing N/A Gun Type / Perf Cond N/A	MUD PROPERTIES Mud Type LSND Mud Weight 9.0 LB/GAL Mud Resistivity 1.4 OHMS @ 44°F Filtrate Resistivity 1.1 OHMS @ 42°F Filtrate Chlorides 1500 PPM Filtrate Nitrates N/A
---	--

INITIAL TEST CONDITIONS Gas Cushion Type NONE Surface Pressure ZERO Liquid Cushion Type NONE Height Above DST Valve N/A	TEST STRING CONFIGURATION Pipe Length / ID 4126 FT / 3.826 IN Collar Length / ID 271 FT / 2.313 IN Packer Depth(s) 4445 FT & 4450 FT BH Choke Size 15/16 IN
--	--

NET PIPE RECOVERY <table border="1" style="width:100%"> <thead> <tr> <th>Volume</th> <th>Fluid Type</th> <th>Physical Properties</th> </tr> </thead> <tbody> <tr> <td>8.31 BBL</td> <td>SLIGHTLY</td> <td>OIL CUT WATER</td> </tr> <tr> <td></td> <td></td> <td>.54 OHMS @ 42°F</td> </tr> <tr> <td></td> <td></td> <td>14500 PPM CL</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Volume	Fluid Type	Physical Properties	8.31 BBL	SLIGHTLY	OIL CUT WATER			.54 OHMS @ 42°F			14500 PPM CL							NET SAMPLE CHAMBER RECOVERY <table border="1" style="width:100%"> <thead> <tr> <th>Volume</th> <th>Fluid Type</th> <th>Physical Properties</th> </tr> </thead> <tbody> <tr> <td>1.15 FT3</td> <td>GAS</td> <td>CORRECTED TO PWF</td> </tr> <tr> <td>30 CC</td> <td>OIL</td> <td></td> </tr> <tr> <td>1280 CC</td> <td>WATER</td> <td>.54 OHMS @ 42°F</td> </tr> <tr> <td></td> <td></td> <td>14500 PPM CL</td> </tr> <tr> <td>Pressure:</td> <td>GOR:</td> <td>GLR:</td> </tr> </tbody> </table>	Volume	Fluid Type	Physical Properties	1.15 FT3	GAS	CORRECTED TO PWF	30 CC	OIL		1280 CC	WATER	.54 OHMS @ 42°F			14500 PPM CL	Pressure:	GOR:	GLR:
Volume	Fluid Type	Physical Properties																																			
8.31 BBL	SLIGHTLY	OIL CUT WATER																																			
		.54 OHMS @ 42°F																																			
		14500 PPM CL																																			
Volume	Fluid Type	Physical Properties																																			
1.15 FT3	GAS	CORRECTED TO PWF																																			
30 CC	OIL																																				
1280 CC	WATER	.54 OHMS @ 42°F																																			
		14500 PPM CL																																			
Pressure:	GOR:	GLR:																																			

INTERPRETATION RESULTS Reservoir Pressure @Gauge Depth: 1718 PSIG Gauge Depth 4455 FT Hydrostatic Gradient386 PSI/FT Potentiometric Surface 4984 FT Effective Permeability to <u>LIQ.</u> : .09 MD Transmissibility 31.36 MD-FT/CP Skin Factor / Damage Ratio 1.15/ 1.27 Omega / Lambda (2φ System) HOMOGENEOUS Radius of Investigation 35 FT Measured Wellbore Storage001 BBL/PSI	ROCK / FLUID / WELLBORE PROPERTIES Reservoir Temperature 126°F Analysis Fluid Type LIQUID Formation Volume Factor 1.19 BBL/BBL Viscosity45 CP Z-Factor (gas only) N/A Net Pay 150 FT Porosity 7 % (AVERAGE) Total System Compressibility 1.1 E-5 1/PSI Wellbore Radius365 FT Expected Wellbore Storage013 BBL/PSI
---	--

FLOW RATE DURING DST

44.9 BLPD - LAST RATE

MAXIMUM FLOW RATE POTENTIAL AFTER COMPLETION

RECEIVED
MAR 20 1985

DIVISION OF OIL
GAS & MINING

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 36760E

COMPANY : ARCO OIL AND GAS COMPANY

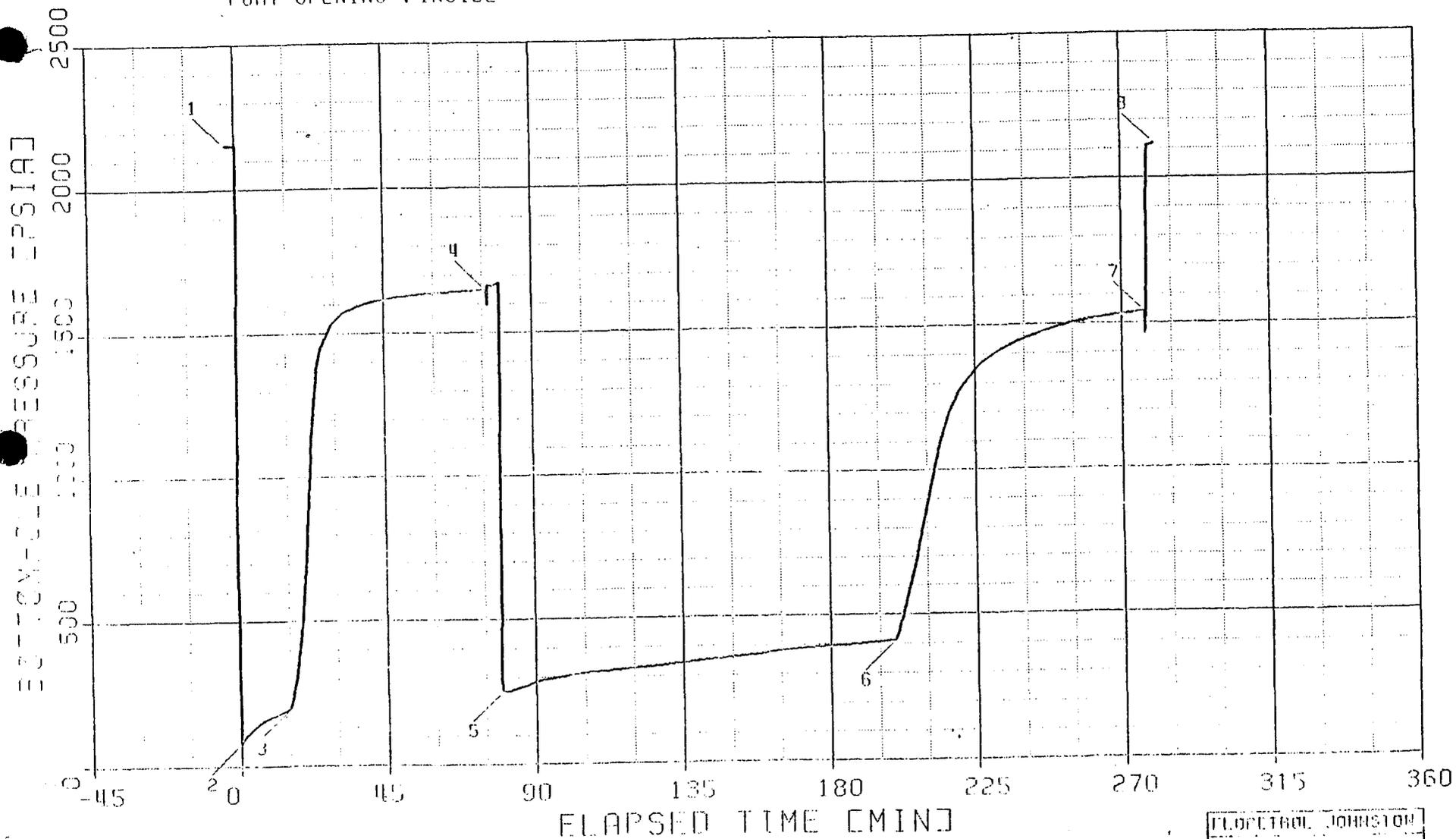
INSTRUMENT NO. J-1928

WELL : CHAMBERS #1

DEPTH : 4455 FT

CAPACITY : 6400 PSI

PORT OPENING : INSIDE



FLOPETROL JOHNSTON
SCHLUMBERGER

DST EVENT SUMMARY

Field Report # 36760 E

DATE (M/D/Y)	TIME (HR:MIN)	EVENT E.T. (MIN)	EVENT DESCRIPTION	SURFACE PRESSURE	FLOOR MANIFOLD CHOKE SIZE
	09:42	—	SET PACKER	0.0	BUBBLE HOSE
	09:46	—	OPENED TEST TOOL FOR INITIAL FLOW	2"	
	09:54			14"	
	10:02			24"	
	10:03	—	CLOSED TEST TOOL FOR INITIAL SHUT-IN	24"	
	10:33		BLOW DIED		
	11:03		FINISHED SHUT-IN		
	11:07	—	OPENED TEST TOOL FOR FINAL FLOW	1"	
	11:08			5"	
	11:10			6"	
	11:32			26"	
	11:42			29"	
	11:52			33"	
	12:37			75"	
	12:45		OPEN TO PIT ON 1/4 IN CHOKE	2.5 PSIG	1/4 IN
	12:46			2.0 PSIG	
	13:02		RESUME FLOW THROUGH BUBBLE HOSE	18"	BUBBLE HOSE
	13:07		GAS TO SURFACE	27"	
	13:08	—	CLOSED TEST TOOL FOR FINAL SHUT-IN		
	14:23	—	FINISHED FINAL SHUT-IN	0.0	
		—	UNSEATED PACKER		
		—	REVERSED OUT		
		—	BEGAN TRIP OUT OF HOLE		

 * WELL TEST DATA PRINTOUT *

FIELD REPORT # : 36760E
 COMPANY : ARCO OIL AND GAS COMPANY
 WELL : CHAMBERS #1

INSTRUMENT # : J-1928
 CAPACITY [PSI] : 6400.
 DEPTH [FT] : 4455.0
 PORT OPENING : INSIDE
 TEMPERATURE [DEG F] : 126.0

LABEL POINT INFORMATION

#	TIME OF DAY	DATE	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA
1	9:43:16	16-DC	HYDROSTATIC MUD	-2.99	2151.0
2	9:46:16	16-DC	START FLOW	0.01	78.2
3	10:1:23	16-DC	END FLOW & START SHUT-IN	15.38	201.6
4	11:2:11	16-DC	END SHUT-IN	76.18	1645.6
5	11:5:56	16-DC	START FLOW	79.94	253.5
6	13:5:54	16-DC	END FLOW & START SHUT-IN	199.90	411.1
7	14:22:59	16-DC	END SHUT-IN	276.99	1538.3
8	14:26:11	16-DC	HYDROSTATIC MUD	280.18	2115.2

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA
1	0.01	15.38	15.37	78.2	201.6
2	79.94	199.90	119.96	253.5	411.1

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	15.38	76.18	60.80	201.6	1645.6	201.6	15.37
2	199.90	276.99	77.09	411.1	1538.3	411.1	266.50

TEST PHASE : FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA
9:46: 1	16-DC	0.01	0.00	78.2
9:51: 1	16-DC	5.01	5.00	138.4
9:56: 1	16-DC	10.01	10.00	170.4
10: 1: 1	16-DC	15.01	15.00	197.7
10: 1:23	16-DC	15.38	15.37	201.6

TEST PHASE : SHUTIN PERIOD # 1

FINAL FLOW PRESSURE [PSIA] = 201.6
 PRODUCING TIME [MIN] = 15.37

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
10: 1:23	16-DC	15.38	0.00	201.6	0.0	
10: 2:23	16-DC	16.38	1.00	253.5	51.9	1.214
10: 3:23	16-DC	17.38	2.00	315.6	114.0	0.939
10: 4:23	16-DC	18.38	3.00	402.5	201.0	0.787
10: 5:23	16-DC	19.38	4.00	511.3	309.7	0.685
10: 6:23	16-DC	20.38	5.00	669.7	468.1	0.610
10: 7:23	16-DC	21.38	6.00	864.1	662.5	0.552
10: 8:23	16-DC	22.38	7.00	1081.6	880.0	0.505
10: 9:23	16-DC	23.38	8.00	1262.4	1060.8	0.466
10:10:23	16-DC	24.38	9.00	1375.1	1173.5	0.433
10:11:23	16-DC	25.38	10.00	1430.6	1229.0	0.404
10:13:23	16-DC	27.38	12.00	1487.4	1285.8	0.358
10:15:23	16-DC	29.38	14.00	1531.4	1329.9	0.322
10:17:23	16-DC	31.38	16.00	1556.7	1355.1	0.292
10:19:23	16-DC	33.38	18.00	1574.5	1372.9	0.268
10:21:23	16-DC	35.38	20.00	1584.5	1383.0	0.248
10:23:23	16-DC	37.38	22.00	1593.4	1391.8	0.230
10:25:23	16-DC	39.38	24.00	1601.0	1399.4	0.215
10:27:23	16-DC	41.38	26.00	1606.5	1404.9	0.202
10:29:23	16-DC	43.38	28.00	1611.2	1409.6	0.190
10:31:23	16-DC	45.38	30.00	1615.6	1414.0	0.180
10:36:23	16-DC	50.38	35.00	1624.9	1423.3	0.158
10:41:23	16-DC	55.38	40.00	1630.5	1428.9	0.141
10:46:23	16-DC	60.38	45.00	1635.5	1434.0	0.128
10:51:23	16-DC	65.38	50.00	1639.2	1437.6	0.116
10:56:23	16-DC	70.38	55.00	1642.3	1440.7	0.107
11: 1:23	16-DC	75.38	60.00	1645.2	1443.7	0.099
11: 2:11	16-DC	76.18	60.80	1645.6	1444.0	0.098

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA
HH:MM:SS	DD-MM	*****	*****	*****
11: 5:56	16-DC	79.94	0.00	253.5
11:10:56	16-DC	84.94	5.00	264.4
11:15:56	16-DC	89.94	10.00	282.8
11:20:56	16-DC	94.94	15.00	293.8
11:25:56	16-DC	99.94	20.00	303.1
11:30:56	16-DC	104.94	25.00	311.6
11:35:56	16-DC	109.94	30.00	315.9
11:40:56	16-DC	114.94	35.00	321.0
11:45:56	16-DC	119.94	40.00	325.7
11:50:56	16-DC	124.94	45.00	330.1
11:55:56	16-DC	129.94	50.00	335.8
12: 0:56	16-DC	134.94	55.00	341.3
12: 5:56	16-DC	139.94	60.00	346.5
12:10:56	16-DC	144.94	65.00	352.4
12:15:56	16-DC	149.94	70.00	358.8
12:20:56	16-DC	154.94	75.00	364.8
12:25:56	16-DC	159.94	80.00	370.9
12:30:56	16-DC	164.94	85.00	377.1
12:35:56	16-DC	169.94	90.00	382.9
12:40:56	16-DC	174.94	95.00	387.8
12:45:56	16-DC	179.94	100.00	392.6
12:50:56	16-DC	184.94	105.00	396.1
12:55:56	16-DC	189.94	110.00	400.1
13: 0:56	16-DC	194.94	115.00	405.0
13: 5:54	16-DC	199.90	119.96	411.1

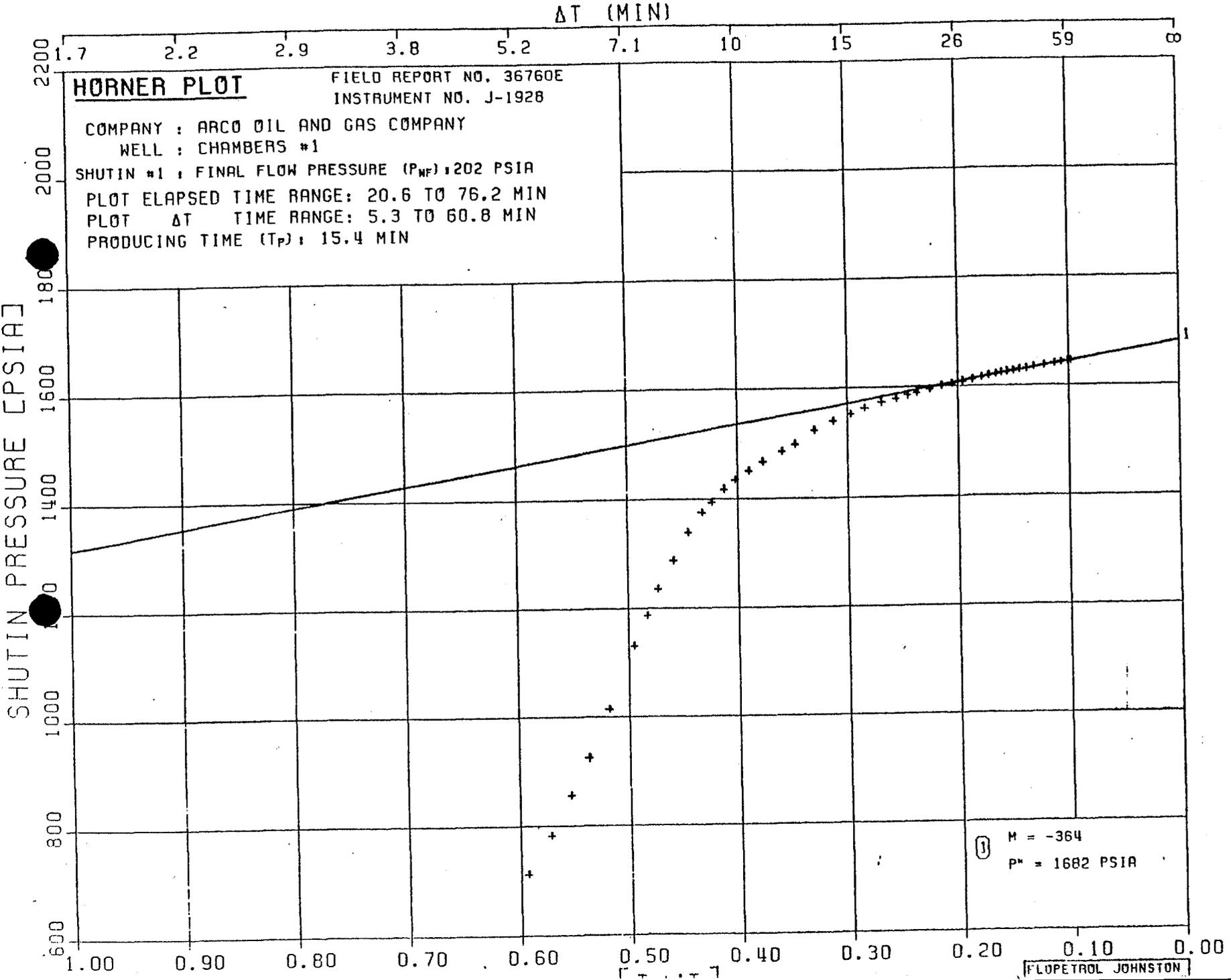
TEST PHASE : SHUTIN PERIOD # 2

FINAL FLOW PRESSURE [PSIA] = 411.1
 PRODUCING TIME [MIN] = 266.50

TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HDLE PRESSURE PSIA	DELTA P PSI	LOG HDRNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
13: 5:54	16-DC	199.90	0.00	411.1	0.0	
13: 6:54	16-DC	200.90	1.00	445.9	34.9	2.427
13: 7:54	16-DC	201.90	2.00	483.3	72.2	2.128
13: 8:54	16-DC	202.90	3.00	521.7	110.6	1.953
13: 9:54	16-DC	203.90	4.00	563.1	152.0	1.830
13:10:54	16-DC	204.90	5.00	609.3	198.2	1.735
13:11:54	16-DC	205.90	6.00	655.9	244.8	1.657
13:12:54	16-DC	206.90	7.00	708.0	296.9	1.592
13:13:54	16-DC	207.90	8.00	761.9	350.8	1.535
13:14:54	16-DC	208.90	9.00	815.5	404.4	1.486
13:15:54	16-DC	209.90	10.00	871.5	460.4	1.442
13:17:54	16-DC	211.90	12.00	979.8	568.7	1.366
13:19:54	16-DC	213.90	14.00	1076.1	665.0	1.302

TEST PHASE : SHUTIN PERIOD # 2
 FINAL FLOW PRESSURE [PSIA] = 411.1
 PRODUCING TIME [MIN] = 266.50

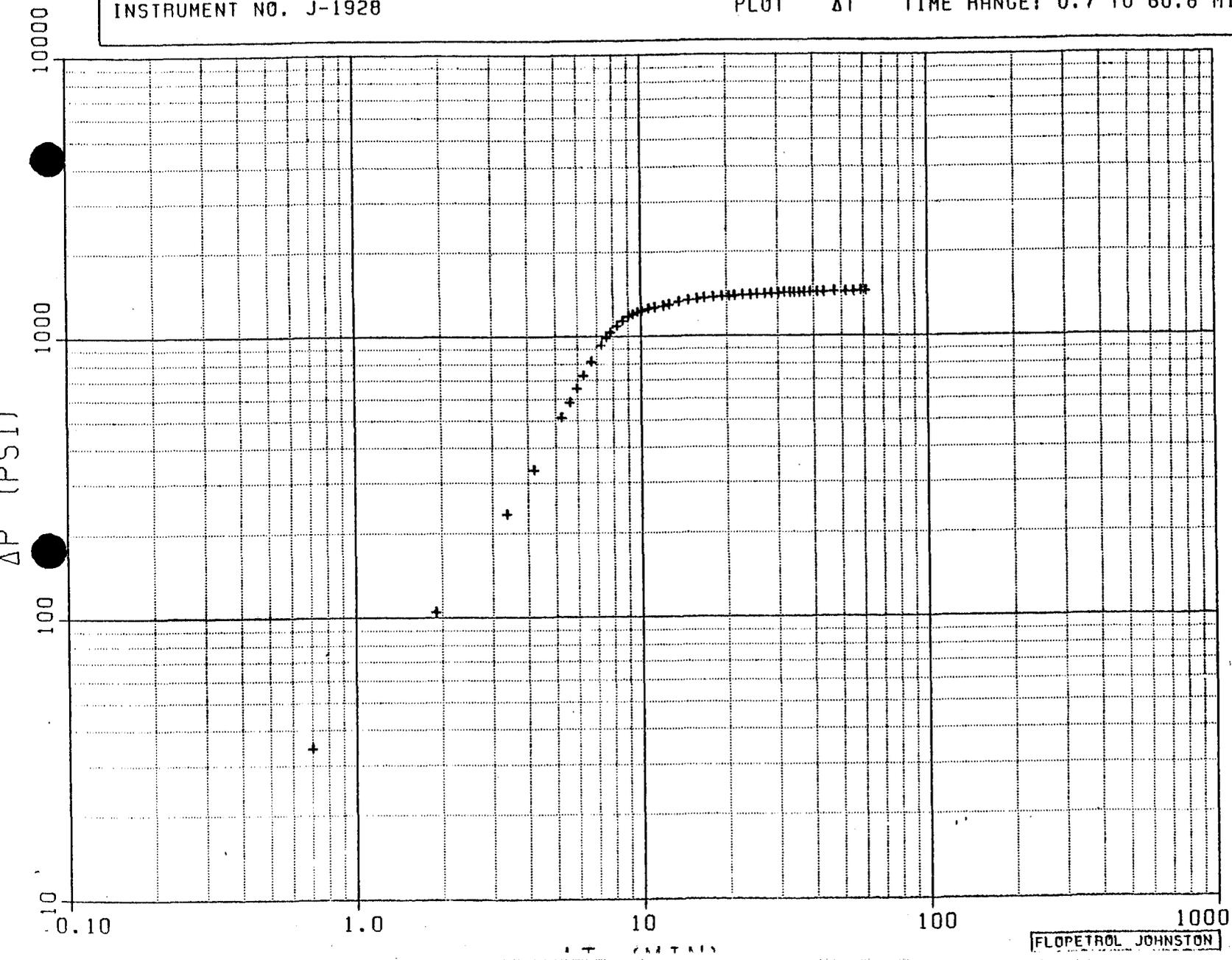
TIME OF DAY	DATE	ELAPSED TIME, MIN	DELTA TIME, MIN	BDT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
HH:MM:SS	DD-MM	*****	*****	*****	*****	*****
13:21:54	16-DC	215.90	16.00	1157.6	746.5	1.247
13:23:54	16-DC	217.90	18.00	1221.1	810.0	1.199
13:25:54	16-DC	219.90	20.00	1269.2	858.1	1.156
13:27:54	16-DC	221.90	22.00	1302.2	891.2	1.118
13:29:54	16-DC	223.90	24.00	1330.0	918.9	1.083
13:31:54	16-DC	225.90	26.00	1354.3	943.2	1.051
13:33:54	16-DC	227.90	28.00	1374.5	963.4	1.022
13:35:54	16-DC	229.90	30.00	1391.1	980.0	0.995
13:40:54	16-DC	234.90	35.00	1424.5	1013.4	0.935
13:45:54	16-DC	239.90	40.00	1449.9	1038.9	0.884
13:50:54	16-DC	244.90	45.00	1470.2	1059.2	0.840
13:55:54	16-DC	249.90	50.00	1488.7	1077.6	0.801
14: 0:54	16-DC	254.90	55.00	1502.5	1091.4	0.767
14: 5:54	16-DC	259.90	60.00	1512.9	1101.8	0.736
14:10:54	16-DC	264.90	65.00	1521.8	1110.7	0.708
14:15:54	16-DC	269.90	70.00	1529.5	1118.4	0.682
14:20:54	16-DC	274.90	75.00	1536.1	1125.0	0.658
14:22:59	16-DC	276.99	77.09	1538.3	1127.2	0.649

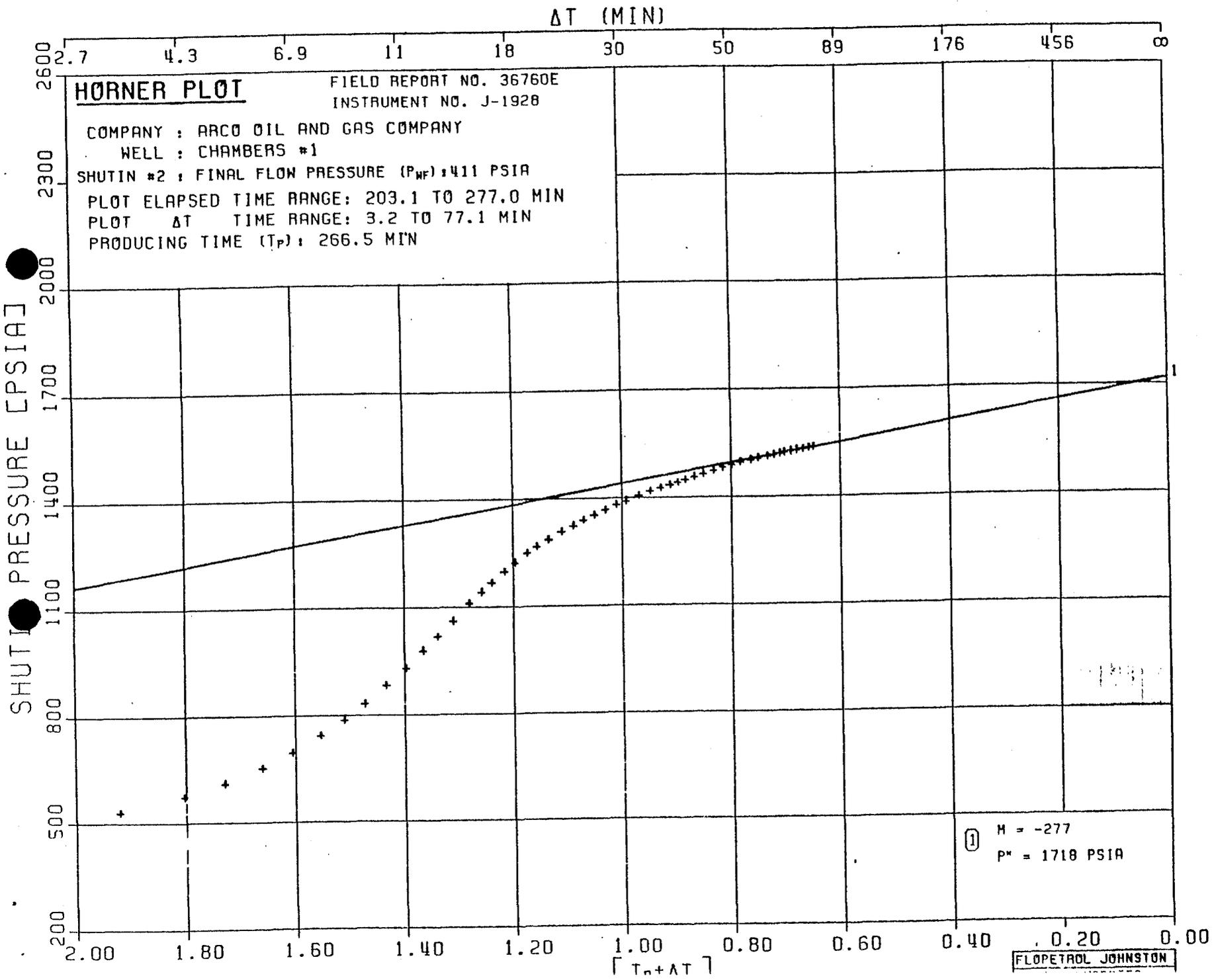


LOG LOG PLOT

COMPANY : ARCO OIL AND GAS COMPANY
WELL : CHAMBERS #1
FIELD REPORT NO. 36760E
INSTRUMENT NO. J-1928

SHUTIN #1 :
FINAL FLOW PRESSURE (P_{WF}): 202 PSIA
PLOT ELAPSED TIME RANGE: 16.1 TO 76.2 MIN
PLOT ΔT TIME RANGE: 0.7 TO 60.8 MIN

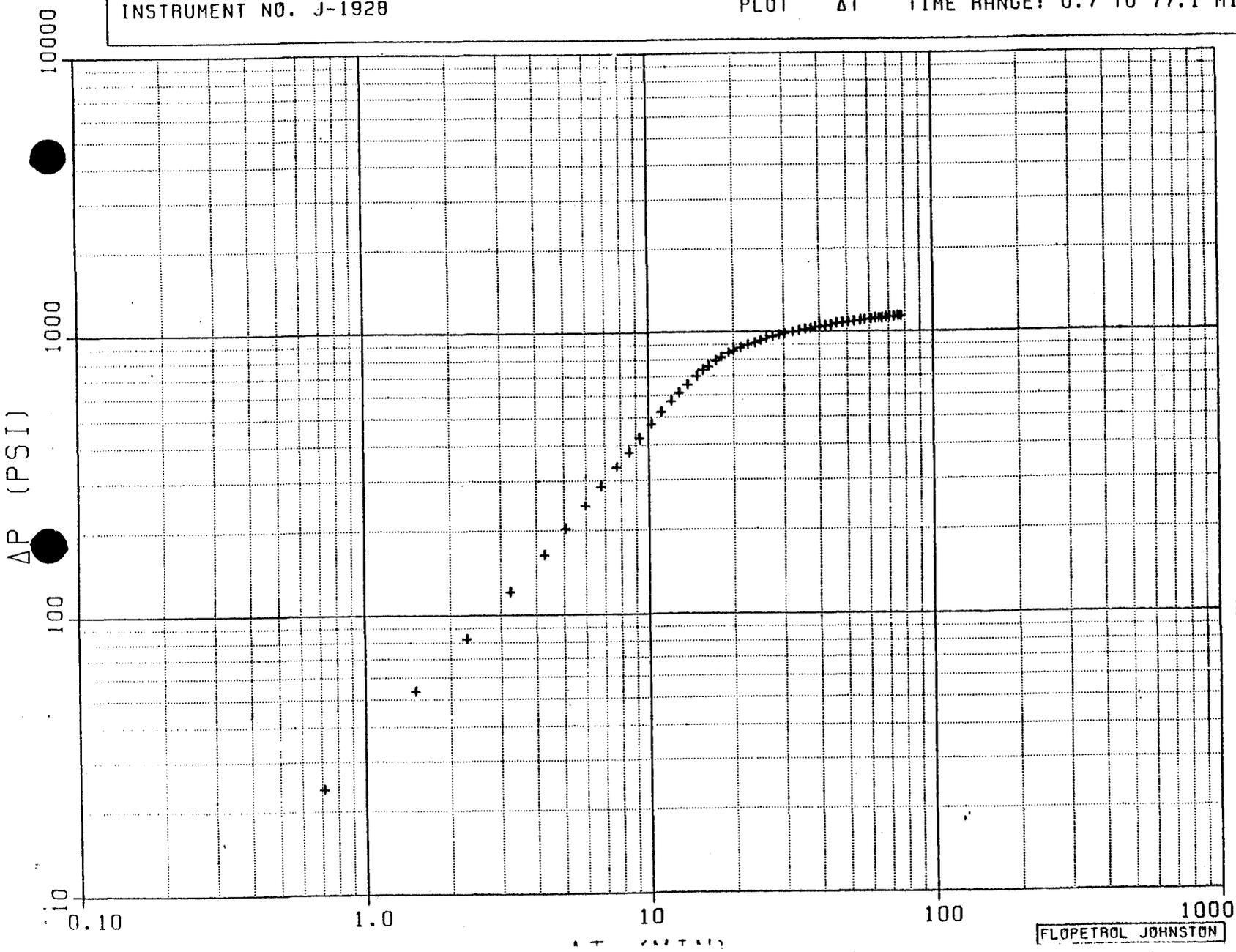




LOG LOG PLOT

COMPANY : ARCO OIL AND GAS COMPANY
WELL : CHAMBERS #1
FIELD REPORT NO. 36760E
INSTRUMENT NO. J-1928

SHUTIN #2 ;
FINAL FLOW PRESSURE (P_{WF}): 411 PSIA
PLOT ELAPSED TIME RANGE: 200.6 TO 277.0 MIN
PLOT ΔT TIME RANGE: 0.7 TO 77.1 MIN



FLOPETROL JOHNSTON

TerraTek

Core Services, Inc.®

January 11, 1985

ARCO Exploration Company
P.O. Box 5540
Denver, CO 80217

Attention: Mr. Gordon Wise

Subject: Core Analysis Data; Chambers No. 1 Well; Carbon County,
Utah; TTCS File No. 85070

Gentleman:

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

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

Residual fluid measurement was accomplished by the Dean-Stark low temperature solvent extraction method on full diameter samples and by the controlled temperature retort extraction technique on plug samples through those intervals specified by you. Porosities were determined on both full diameter and one-inch diameter plug samples by Boyle's law (helium) grain volumes and Archimedes bulk volumes. Horizontal permeabilities to nitrogen were measured on these full diameter and plug samples in a hassler sleeve using an orifice manometer and traveling meniscus to monitor downstream flow.

Data resulting from the above analysis is tabulated on pages one through six followed by a summary reflecting average data by zones based on permeability, porosity and fluid saturation variations. Samples analyzed by the retort method are designated by the letter 'R' immediately following the sample number.

/continued

Page 2

Chambers No: 1 Well, TTCS File No. 85070

As requested, the cores are being slabbed and both slab and butt segments will be shipped to ARCO at 11809 East 51st Street in Denver unless otherwise instructed.

In addition, the slab sections were photographed in color under tungsten light. Three sets of these photographs have been sent to Ms. Carloyn Timm at your Denver office.

We sincerely appreciate this opportunity to be of service.

Very truly yours,

Terra Tek Core Services

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

Jack R. Good
Laboratory Director

JRG/cy

FINAL DISTRIBUTION LIST

ARCO Exploration Company

Chambers No. 1 Well
Carbon County, Utah
TTCS File No. 85070

1 COPY TO:

Jerry Chambers Exploration Co.
(Axem Resources Inc.)
Suite 1100
Denver Technological Center
Denver, CO 80237

1 COPY TO:

ARCO Exploration Company
Engineering Manager
P.O. Box 5540
Denver, CO 80217
Attn: R. J. Aldridge

1 COPY TO:

M. Peyton Bucy
1776 Lincoln Street
#811
Denver, CO 80203

1 COPY TO:

ARCO Exploration Company
Manager Exploration Resources
P.O. Box 2819
Dallas, TX 75221
Attn: L. D. Brockett

1 COPY TO:

Marshall & Winston, Inc.
310 West Tower
#10 Delta Drive
Midland, TX 79705

4 COPIES TO:

ARCO Oil & Gas Company
Operation & Information
P.O. Box 5540
Denver, CO 80217
Attn: Kathy Flinn

3 COPIES TO:

ARCO Exploration Company
Senior Geologist
P.O. Box 5540
Denver, CO 80217
Attn: Carolyn M. Timm



oilind

SAFETY

DIVISION OF TCO RESOURCES CORP.

Great-West Life Tower • Suite 2030 • 1675 Broadway • Denver, Colorado 80202 • (303) 825-1506

RECEIVED

HYDROGEN SULFIDE
CONTINGENCY PLAN

AUG 13 1984

ARCO OIL AND GAS COMPANY
Sunny Side #1
Sec 28 T15S R13E
Carbon County, Utah

DIVISION OF OIL
GAS & MINING

2500' FNL
1500' FEL

T A B L E O F C O N T E N T S

1.	GENERAL	1
	- H ₂ S Table of Toxicity	2
	- H ₂ S First Aid Procedures	4
2.	PURPOSE OF PROGRAM	7
3.	OPERATING PROCEDURES	8
4.	PROCEDURE PROGRAM	11
5.	H ₂ S EMERGENCY PROCEDURES	13
6.	IGNITING THE WELL	14
7.	EQUIPMENT LIST	17
8.	EMERGENCY PHONE NUMBERS	18
	- AREA RESIDENTS AND/OR ANY FREQUENT USERS OF THE TWO MILE RADIUS	
9.	MAPS, ECT.	Attachments

Checklist for Drilling or Workover in H₂S Environment (pending approval of proposed NTL-10)

Items 1-4 to be shown on site layout diagram (part 9 of NTL-6 13-point checklist).

1. Two safety briefing areas at least 200 feet from wellhead and arranged so that at least one area will always be upwind of the well at all times. Site Plan
2. Direction of prevailing winds. Site Plan
3. Wind sock locations. (Minimum of 2) (NTL-10, II-A (4)) Site Plan
4. A second emergency escape route from the location. (Flagged trail minimum) Pg. 12 & Site Plan
5. Number, types, and storage locations of H₂S respirators for personnel, and number of personnel to be expected at any one time. Pg. 8 & Site Plan
6. H₂S detector locations (should at least include cellar or bell nipple and mud tanks at shale shaker). Type and location of audible, visual alarm to be used. (NTL-10, II-A(3)) Pg. 12 & Site Plan
7. H₂S evacuation and emergency training procedures and frequency. (NTL-10, II-A-(1)(b)) Pg. 7, 9 & 10 Site Plan
8. Area residents within a two-mile radius, and agencies to be notified in an emergency (contingency plan). (NTL-10, I-D) Pg. 20
9. Types and quantities of mud additives and scavengers to be available at location for H₂S operations.
10. Design features and operational procedures to be used to protect the drill string, casing strings, wellhead, BOP's, choke lines and manifold and other well-killing equipment in H₂S environments. (A certification by the operator on the APD that all equipment meets standards for H₂S service is acceptable for compliance.)
11. Appropriate warning signs and flags on all access roads to location. (NTL-10, II(4)) Site Plan
12. Provision for blocking or monitoring access to location during critical operations. Pg. 12
13. Ventilation fan under rig floor. Pg. 12
14. In event of uncontrolled blowout, which local official has authority to ignite flow? Pg. 14-15
15. Swabbing or drillstem testing fluids containing H₂S should be through a separator to permit flaring of gas. Flare should have continuous pilot light to ensure ignition of all such gas. Pg. 11

NOTE: This checklist was designed by the USGS and is in the stages of final ratification; some changes may follow.



Suite 2030 1675 Broadway Denver, Colorado 80202 (303) 825-1506

GENERAL

DESCRIPTION OF HYDROGEN SULFIDE GAS:

H₂S is a colorless gas which smells similar to rotten eggs in low concentrations. In large concentrations or over long periods of exposure, the sense of smell may be paralyzed. H₂S is extremely toxic gas that must be treated with extreme care to prevent injury to people. H₂S is heavier than air (specific gravity = 1.19) and on still days tends to accumulate in low places. This accumulation could build up and lead to dangerous concentrations. However, if the H₂S gas is warmer than air, it will tend to rise until cooled off and could affect workers above the escaping source.

TOXICITY

Hydrogen Sulfide is extremely toxic (poisonous). It is almost as toxic as hydrogen cyanide. It produces irritation to the eyes, throat and respiratory tract. The sense of smell can be lost in 2 - 15 minutes in low concentrations due to paralysis of the olfactory nerve. The sense of smell can be lost in 60 seconds or less, at higher concentrations. Susceptibility to H₂S poisoning varies according to the number of exposures. The second exposure being more dangerous than the first.

The result of inhalation of H₂S may be strangulation in a few seconds of exposure to high H₂S concentrations. This produces symptoms such as panting, pallor, cramps,

paralysis of the pupil, and loss of speech. This is generally followed by immediate loss of consciousness. Death may occur quickly from respiratory and cardiac paralysis. One deep sniff of high concentration can cause death. Coughing, eye burning and pain, throat irritation, and sleepiness come from exposure to low concentrations.

The two following charts list some of the toxic characteristics of H₂S.

(SEE FOLLOWING PAGE)

TOXICITY OF HYDROGEN SULFIDE GAS

	<u>Grains/100</u> <u>Std. Cu. Ft.</u>	
10 ppm = 1/1000 of 1%	0.65	Can smell Safe for 8 hours exposure
100 ppm = 1/100 of 1%	6.48	Kills smell in 3 to 15 minutes May sting eyes and throat
200 ppm = 2/100 of 1%	12.96	Kills smell shortly Stings eyes and throat
500 ppm = 5/100 of 1%	32.96	Loses sense of reasoning and balance Respiratory paralysis in 30 to 45 minutes Needs prompt artificial resuscitation Will become unconscious quickly (15 minutes maximum)
700 ppm = 7/100 of 1%	45.36	Breathing will stop and death result if not rescued promptly Immediate artificial resusci- tation
1,000 ppm = 1/10 of 1%	64.80	Unconscious at once PERMANENT BRAIN DAMAGE MAY RESULT UNLESS RESCUED PROMPTLY

TOXICITY OF HYDROGEN SULPHIDE

H ₂ S PER CENT (PPM) **	0-2 MINUTES	2-15 MINUTES	15-20 MINUTES	30 MINUTES; 1 HOUR
0.005 (50) 0.020 (100)				Mild Conjunctivitis; respiratory tract irritation
0.010 (100) 0.015 (150)		Coughing; irritation of eyes; loss of sense of smell	Disturbed respiration; pain in eyes Sleepiness	Throat irritation
0.015 (150) 0.020 (200)		Loss of sense of smell	Throat and eye irritation	Throat and eye irritation
0.025 (250) 0.035 (350)	Irritation of eyes; loss of sense of smell	Irritation of eyes	Painful secretion of tears; weariness	Light shyness; nasal catarrh; pain in eyes; difficult breathing
0.035 (350) 0.045 (450)		Irritation of eyes; loss of sense of smell	Difficult respiration; coughing; irritation of eyes	Increased irritation of eyes and nasal tract; dull pain in head; weariness; light shyness
0.050 (500) 0.060 (600)	Coughing; collapse and unconsciousness	Respiratory disturbances; irritation of eyes; collapse	Serious eye irritation; palpitation of heart; few cases of death*	Severe pain in eyes and head; dizziness; blurring of eyes; great weakness and
0.060 (600) 0.070 (700)	Collapse* unconsciousness;	Collapse* unconsciousness;		
0.080 (800) 0.100 (1000) 0.150 (1500)	death*	death*		

* Data secured from experiments of dogs which have a susceptibility similar to that of man.

H₂S FIRST AID PROCEDURES

TREATMENT

1. Victim should be removed to fresh air immediately by rescuers wearing respiratory protective equipment. Protect yourself while rescuing.
2. If the victim is not breathing, begin immediately to apply artificial respiration. (See page 6 for the chances for life after breathing has stopped.) If a resuscitator is available let another employee get it and prepare for use.
3. Treat for shock, keep victim warm and comfortable.
4. Call a doctor. In all cases, victim of poisoning should be attended by a physician.

ARTIFICIAL RESPIRATION

Recommended by the American National Red Cross

①



If victim is not breathing, begin some form of artificial respiration at once. Wipe out quickly any foreign matter visible in the mouth, using your fingers or a cloth wrapped around your fingers.

Mouth-to-Mouth (Mouth-to-Nose) Method

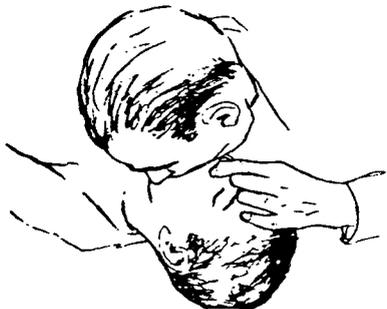
②



Tilt victim's head back (Fig. 1). Pull or push the jaw into a jutting-out position (Fig. 2).

If victim is a small child, place your mouth tightly over his mouth and nose and blow gently into his lungs about 20 times a minute. If victim is an adult (see Fig. 3), cover the mouth with your mouth, pinch his nostrils shut, and blow vigorously about 12 times a minute.

③



If unable to get air into lungs of victim, and if head and jaw positions are correct, suspect foreign matter in throat. To remove it, suspend a small child momentarily by the ankles or place child in position shown in Fig. 4, and slap sharply between shoulder blades.

If the victim is adult, place in position shown in Fig. 5, and use same procedure.



④



⑤

D O Y O U K N O W

THERE IS NO TIME TO WASTE
WHEN BREATHING STOPS!

RESCUE BREATHING MUST
BE STARTED FAST!!

After Breathing is Stopped for: The Chances for Life are:

1 Minute	98 out of	100
2 Minutes	92 out of	100
3 Minutes	72 out of	100
4 Minutes	50 out of	100
5 Minutes	25 out of	100*
6 Minutes	11 out of	100*
7 Minutes	8 out of	100*
8 Minutes	5 out of	100*
9 Minutes	2 out of	100*
10 Minutes	1 out of	100*
11 Minutes	1 out of	1,000*
12 Minutes	1 out of	10,000*

* Irreparable brain damage starts at about the fifth minute.

L E A R N H O W T O U S E
L I F E S A V I N G E Q U I P M E N T

HYDROGEN SULFIDE CONTINGENCY PLAN

ARCO OIL AND GAS COMPANY

Sunny Side #1
Sec. 28, T 15S R 13E
Carbon Co., UT

This plan provides for personnel safety programs, precautionary measures, safety equipment and emergency procedures, and sets forth responsibilities and duties pertaining to drilling in a sour gas area.

To be effective, the plan requires the cooperation and effort of each person participating in the drilling of an H₂S well. Each person must know his responsibilities and duties in regard to normal drilling operations as well as emergency and safety procedures. He should thoroughly understand and be able to use with accuracy all safety equipment while performing his normal duties, if the circumstance should arise. He should therefore familiarize himself with the location of all safety equipment and check to see that it is properly stored, easily accessible at all times, and routinely maintained.

It is the intention of Arco Oil and Gas Company and the drilling contractor to make every effort to provide adequate safeguards against harm to persons on the rig and in the immediate vicinity from the effects of hydrogen sulfide, which may be released into the atmosphere under emergency conditions. However, the initiative rests with the individual in utilizing the safeguards provided. The ideas and suggestions of the individuals involved in the drilling of these wells are highly welcomed and act as a fundamental tool for providing the safest working conditions possible.

The drilling foreman is required to enforce these procedures. They are set up for your safety and the safety of all others.

PURPOSE

It is Arco Oil and Gas Company's intent to provide a safe working place, not only for its employees, but also for those of other firms who are aiding in the drilling of this well.

There is a possibility of encountering toxic hydrogen sulfide gas. Safety procedures must be adhered to in order to protect all personnel connected with the operation, as well as people living within the area.

Arco Oil and Gas Company's drilling foreman must enforce what may seem to be stringent requirements. This job will become easier by a careful study of the following pages and the use of COMMON SENSE.

OPERATING PROCEDURES

GENERAL

Before this H₂S contingency plan becomes operational, the drilling contractor's personnel, necessary service company personnel, and the operator's personnel shall be thoroughly trained in the use of *breathing equipment, emergency procedures, responsibilities and first aid.

Arco Oil and Gas Company shall have a list of all personnel who have been through the special training programs on the drill site. This list shall be supplied by the safety company as personnel are trained.

*THROUGHOUT THIS CONTINGENCY PLAN, BREATHING APPARATUS SHALL BE UNDERSTOOD TO MEAN: 1) SCOTT PRESSURE-DEMAND SELF-CONTAINED AIR BREATHING APPARATUS (Scott Presur-PakII/Back-Pac Style) OR 2) SCOTT SKA-PAC EMERGENCY ESCAPE UNIT (Hip-Pac).

PRIOR TO SPUD

The area within a two mile radius will be checked and phone numbers of residents will be recorded.

A list of emergency stations and phone numbers of in case of an emergency will be posted at the following locations:

1. Arco Oil and Gas Company's Drilling Foreman's trailer on the rig.
2. Drilling Contractor's Toolpusher Office.

All safety equipment and H₂S related hardware must be set up as required by Arco Oil and Gas Company, such as location of briefing areas, breathing equipment and etc. All safety equipment must be inspected periodically with particular attention to resuscitators and breathing air facilities.

All personnel on the drill site will be assigned breathing apparatus and if needed, lead acetate ampules. Operator and drilling contractor personnel required to work in the following areas will be provided with breathing equipment connected to a cascade bottled air supply.

- A. rig floor
- B. mud pit
- C. derrick
- D. shale shaker
- E. mud hopper and bulk hopper
- F. any location that anyone will have to work in H₂S.

All service companies to be needed on the drill site will be notified of the potential hazard and will furnish safety equipment for their personnel. No service company employee will be allowed to work on the drill site without having breathing equipment.

The Oilind Safety advisor will be responsible for rigging up and monitoring all H₂S continuous recording monitoring-type detectors. These units must be tested and, if necessary as required recalibrated by the Oilind advisor during drilling conditions. In the event that H₂S is detected, or when drilling in a zone containing H₂S, the units will be tested at least once every 12 hours.

DRILLS

Drills will be held as often as necessary to acquaint the crews and service company personnel with their responsibilities and the proper procedures to shut-in a well. After Arco Oil and Gas Company's drilling foreman is satisfied with drill procedures, a drill will be conducted periodically with each crew.

An Oilind Safety advisor will be on duty when drilling begins or as otherwise deemed necessary. He will conduct safety talks and drills, maintain the safety equipment, and advise and carry out the instructions of the drilling foreman. All personnel allowed on the drill site during drilling or testing operations will be instructed in the use of breathing equipment until supervisory personnel are satisfied that they are capable of using it.

After familiarization, each rig crew should perform a drill with breathing equipment. The drill should include getting the breathing equipment, putting it on, and a short work period. A record shall be kept of the crew members drilled and the date of the drill.

Rig crews and service company personnel shall be made aware of the location of spare air bottles, the resuscitation equipment, portable fire extinguishers, and H2S detectors. Knowledge of the location of the H2S monitor is vital in determining a sour gas location and the severity of the emergency situation. In addition, key personnel shall be trained in the use of a resuscitator.

H2S detector ampules shall be available for use by all working personnel. After H2S has been initially detected by any device, periodic inspections of areas of poor ventilation shall be made with a portable H2S detector instrument.

PROCEDURE PROGRAM

SAFETY PROGRAM

A. DRILL SITE

1. The drilling rig should be located to allow prevailing winds to blow across the rig toward the reserve pit.
2. Briefing stations will be provided with a safety equipment trailer at one or more stations. Personnel will assemble at the most upwind station under alarm conditions, or when so ordered by Arco Oil and Gas Company's foreman or the Oilind Safety advisor. Wind socks or streamers will be located for easy view from the rig floor and around the location.
3. Warning signs will be posted on the access road to the location. "NO SMOKING" signs will be posted as well.
4. Swabbing or drillstem testing fluids containing H2S be through a separator to permit flaring of gas. There will be a pilot light for any possible flared gas.

5. One multi-channel automatic H2S monitor will be provided by Oilind Safety and the detector heads will be at the shale shaker, bell nipple, mud hopper, and the rig floor. Should the alarm be shut off to silence the siren, the blinker light must continue to warn of H2S presence. The safety representative will continuously monitor the detectors and will reactivate the alarm, if H2S concentrations increase to a dangerous level.
6. An escape road should be provided which is to be used only in an emergency.
7. Explosion proof electric fans (bug blowers) will be positioned to insure adequate circulation at all critical locations if necessary.
8. If available, commercial telephone service will be provided.
9. A rig intercommunication system will be provided.
10. Road barricades will be used if necessary to block access to the location at all entrances at a safe distance from the well site. Under critical drilling and testing operations, gate guards will be used.

B. GENERAL

1. The Arco Oil and Gas Company's drilling foreman, residing at the well site, will have complete charge of the rig operation and will take whatever action is deemed necessary to insure personnel safety to protect the well, and to prevent property damage.
2. An Oilind Safety advisor should be on location at all times when drilling at the depth H2S may be expected.

H₂S EMERGENCY PROCEDURES

The emergency procedures outlined in this section will be implemented under the following operating conditions:

CONDITION EXTREME DANGER TO LIFE

If, at any time, as much as 20 ppm of H₂S is detected, the following steps will be taken:

- A. The driller shall shut down mud pumps and put on his mask.
- B. The following personnel shall immediately put on their breathing equipment:
 - 1. All personnel on the rig floor
 - 2. All personnel at the mud pits.
 - 3. All personnel required to work below and down wind of the rig floor.
- C. Notify the Arco Oil and Gas Company's drilling foreman and toolpusher that you have H₂S on the monitoring system.
- D. The mud engineer shall run a sulfide determination from the mud flowline.
- E. Immediately begin to ascertain the source of the H₂S and take steps to suppress the H₂S. Drilling will not proceed until the source is determined and the well is circulated. Rig floor and mud pit personnel will keep breathing equipment on while monitoring this circulation.

- F. The supervisors shall make sure all non-essential personnel are out of the potential danger areas. All persons who remain in potential danger areas must utilize the "Buddy System".
- G. Have all personnel to check their safety equipment to see that it is working properly and in the proper location.
- H. Check all gas monitoring devices and increase gas monitoring activities with the portable hand operated H2S and gas detector units.

DO NOT PANIC ! ! !

The Arco Oil and Gas Company's drilling foreman will assess the situation and assign duties to each person to bring the situation under control.

EMERGENCY PROCEDURES AT THE DRILLING RIG

When the H2S monitors activate the siren and blinker light, toxic gas is present. DO NOT PANIC ! ! !

- A. Put on Your Gas Mask !
- B. Render Assistance !
- C. Follow Instructions !

IGNITING THE WELL

A. RESPONSIBILITY

- 1. The decision to ignite the well is the responsibility of the Arco drilling foreman.

In his absence or incapacity, the contractor's toolpusher will assume his responsibilities. In their absence or incapacity, the contract driller will be in charge.

2. The decision to ignite the well is to be made as a last resort when it is clear that . . .
 - a. There is a definite threat to human life and property.
 - b. There is no hope of containing the well under prevailing conditions.
 - c. Time and circumstances permitting, an attempt should be made to notify the area office. If human life is threatened, the decision must not be delayed.

B. INSTRUCTIONS FOR IGNITING THE WELL

1. Two people are required for the actual igniting operation. Both men will wear self-contained breathing units and will have 200 foot retrieval ropes tied around their waists. One man is responsible for checking the atmosphere for explosive gases with an explosimeter. The other is assigned special duties within the "Safe Briefing Area". Those in the "Safe Briefing Area" will be alert to the needs of the two men assigned to ignite the well. Should either of these men be overcome by fumes, they will immediately pull him to safety by the retrieval ropes.

2. The primary method for igniting the well is a 25 mm meteortype flare gun. It has a range of approximately 500 feet. If this method fails or well conditions are such that a safer or better method is apparent, then the alternate should be used.

3. If the well is ignited, the burning hydrogen sulfide will be converted to sulfur dioxide which is also poisonous. Therefore, DO NOT ASSUME THAT THE AREA IS SAFE AFTER THE GAS IS IGNITED. CONTINUE TO OBSERVE EMERGENCY PROCEDURES AND FOLLOW THE INSTRUCTIONS OF SUPERVISORS.

CHECK LIST FOR HYDROGEN SULFIDE DRILLING

H₂S warning signs

Resuscitators

Contour map of 2 mile radius area (with wind direction noted)

Map noting location of houses, roads, etc.

List of persons to be evacuated in emergency

Wind socks and poles

Telephone service for rig

List of phone numbers - Sheriff, Ambulance, Hospitals, Doctor

Pressure demand work and rescue packs

Spare 300 cubic foot cylinders and cascade manifold system
for recharging work and rescue packs

Hand operated H₂S detectors

Audio and visual alarm system

Additional location lighting

BOP's dressed for H₂S service

Choke manifold for H₂S service built and annealed in shop

Briefing areas

Sulphur Dioxide detector

First aid kits, additional

Cleaning material for air masks

Flare gun and shells

H₂S inhibitors or scavengers for mud system

Four channel continuous H₂S monitor with sensor probes at
the shale shaker, bell nipple, mud hopper and one channel
for testing.

Explosion proof electric ventilating fans

EQUIPMENT

Hydrogen Sulfide Respiratory Drill Site Unit

- 1 Safety trailer with a cascade system of 15-300 cu.ft. bottles of compressed breathing air complete with high pressure manifolds
- 9 30-minute self contained breathing apparatus (SCOTT)
- 8 Airline breathing apparatus complete with 7 cu.ft. egress cylinders
- 1 Resuscitator or inhalator
- 1 H₂S pump type gas detector
- 12 1/4" breathing air hose with quick connects
- 300' 3/4" breathing air hose low pressure
- 2 Wind Socks
- 1 Flare gun with cartridges
- 1 Stretcher
- 1 First Aid Kit
- 2 H₂S warning signs
- 1 4' x 4' condition code warning sign with warning flags
- 1 Eyewash Station
- 1 Three channel continuous H₂S monitor c/w sensing heads and cables
- 1 Siren - Explosion Proof
- 1 Warning Light - Explosion Proof

NOTE: Also know, equipment will be supplied to satisfy the number of people on location at any one time.

MAXIMUM NUMBER OF PEOPLE 17.

EMERGENCY NUMBERS

ARCO OIL AND GAS COMPANY

707 17th Street
Denver, CO 80202

Office: 303/ 293-4600

Jack M. McCarthy, Dist. Drilling Superintendent

Home: 303/ 770-4190

Office: 303/ 293-7127

Bill Sartain, Dist. Drilling Supervisor

Home: 303/ 770-7849

Office: 303/ 293-7035

Tom Webster, Dist. Drilling Supervisor

Home: 303/ 233-0122

Office: 303/ 293-7037

Kwang Park, Dist. Drilling Engineer

Home: 303/ 741-0526

Office: 303/ 293-7102

Suzanne Barnes, Drilling Engineer

Home: 303/

Office: 303/ 293-1077

Bud Parker, Dir. of Environmental Safety & Trng.

Home: 303/ 694-3040

Office: 303/ 293-1061

Larry Bell, Safety Coordinator

Home: 303/ 980-4101

Office: 303/ 293-7088

EMERGENCY NUMBERS

Continued....

CARBON COUNTY, PRICE, UT AREA CODE 801

Ambulance	801/ 637-5200
Hospital (Castle View Hospital)	637-4800
Fire Dept.	637-5200
Sheriff Dept.	637-1621
Police Dept.	637-1344
Highway Patrol	637-0893

OILIND SAFETY

1675 Broadway, Suite 2010
Denver, CO 80202

DENVER OFFICE

William H. Myers, Jr.

303/ 825-1506 (24 Hr Service)

Rob Clark

EVANSTON OFFICE

Ross Argyle

307/ 789-9791

EMERGENCY NUMBERS

AREA RESIDENTS (If any within two mile radius)

THE TWO MILE RADIUS AROUND THE WELL SITE WILL BE
CHECKED FOR:

- 1) Area Residents
- 2) Livestock Operations
- 3) Any persons that might have a reason to
come into the area.

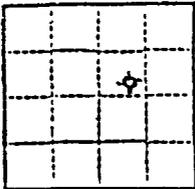
	<u>NAME</u>	<u>PHONE NUMBERS</u>
1)	_____	_____
2)	_____	_____
3)	_____	_____
4)	_____	_____
5)	_____	_____

STOCK OWNERS (If any within a two mile radius)

	<u>NAME</u>	<u>PHONE NUMBERS</u>
1)	_____	_____
2)	_____	_____
3)	_____	_____
4)	_____	_____
5)	_____	_____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSERVATION DIVISION

Sec. 28
T. 15 S.
R. 13 E.
SLB& Mer.



INDIVIDUAL WELL RECORD

PUBLIC LAND:

Date January 21, 1985

Ref. No. _____

Land office Utah State Utah
Serial No. 33976 County Carbon
Lessee Jerry Chambers Exploration Co. Field Wildcat
Operator ARCO Oil and Gas District Moab
Well No. ARCO-Chambers #1 Subdivision SWNE
Location 2500' FNL & 1500' FEL

Drilling approved August 21, 1984 Well elevation 5452' GL feet

Drilling commenced September 23, 1984 Total depth _____ feet

Drilling ceased November 24, 1984 Initial production _____

NOI Abandon Completed for production January 14, 1984 Gravity A. P. I. _____

SRA Abandonment approved AUG 29 1989 Initial R. P. _____

Geologic Formations FAN Approved 12-9-91 Productive Horizons

Surface Lowest tested Name Depths Contents

Mancos Shale _____

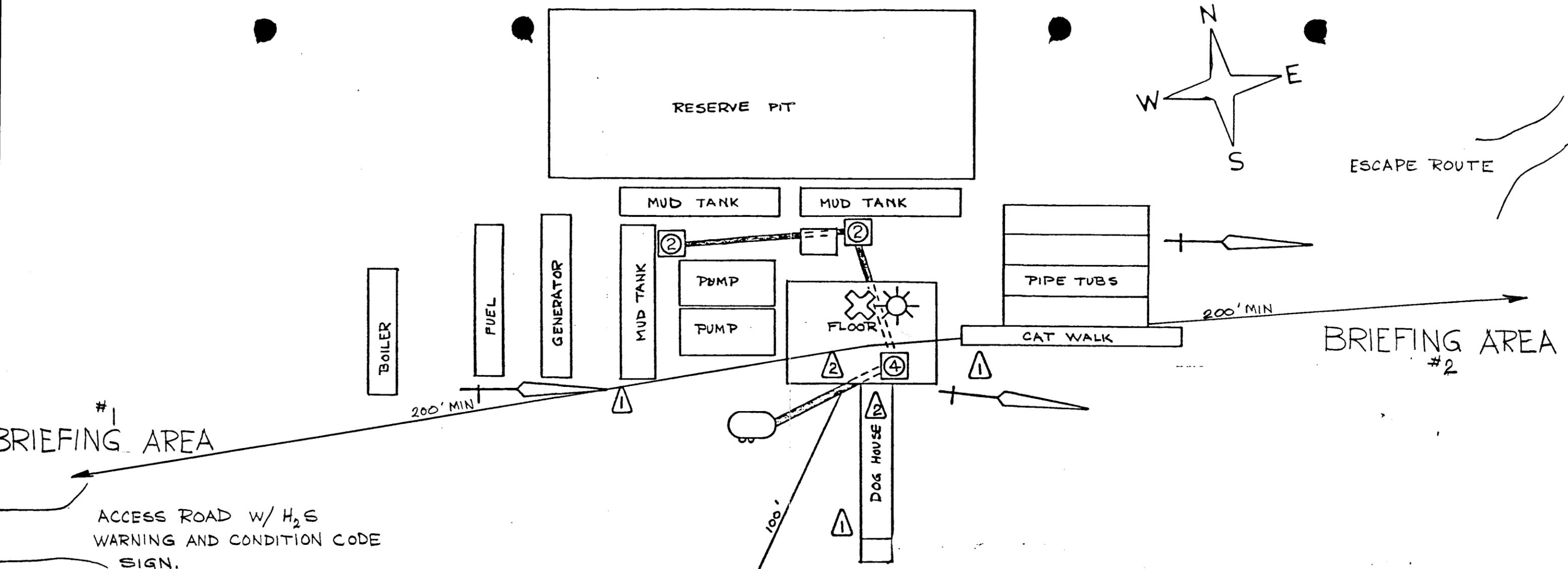
WELL STATUS

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1984									SPUD			P&A
1985	NOI & SRA rec'd 1/14/85											
1989		NOI APPR. 1/21/85						SRA Approved 8/29/89				

FOR U.S. GOVERNMENT USE ONLY

REMARKS For casing record and geologic markers see well file

43-007-30079 (PA'd)



LEGEND

-  30 MIN. BACK PACKS
-  AIRLINE BREATHING APPARATUS W/ MANIFOLD (LOW PRESS.)
-  WIND SOCK
-  LOW PRESSURE MANIFOLD
-  1/2" LOW PRESS. HOSE W/HOOK UP TO CASCADE
-  SAFETY TRAILER W/ CASCADE AIR SYSTEM
-  ALARM SIREN
-  ALARM FLASHING LIGHT
-  AIR MOVERS
-  RESUSCITATOR
-  ALTERNATE OR ADDITIONAL CASCADE AIR SUPPLY

NOTE:

- CONTINUOUS H₂S MONITORING HEADS AT:
- A. RETURN AIR LINE WHILE AIR DRILLING
 - B. SHAKER WHILE MUD DRILLING ...
 - C. FLOOR
 - D. SUB STRUCTURE BELL NIPPLE READOUT INSTRUMENT IN DOGHOUSE

ARCO OIL & GAS	
NAME: SUNNY SIDE #1	SITE PLAN OF SAFETY EQUIPMENT
LOC. SEC. 28 T15S R13E	
STATE: UTAH Co. CARBON	
OILIND. SAFETY	

**WORKSHEET
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 01/05/2009

API NO. ASSIGNED: 43-007-30099

WELL NAME: ARCO - CHAMBERS 1-A (Reentry)
 OPERATOR: ALKER EXPLORATION LLC (N1880)
 CONTACT: STEVEN LUND

PHONE NUMBER: 435-835-4248

PROPOSED LOCATION:

SWNE 28 150S 130E
 SURFACE: 2641 FSL 1578 FEL
 BOTTOM: 2508 FNL 2030 FWL SE NW
 COUNTY: CARBON
 LATITUDE: 39.49144 LONGITUDE: -110.4627
 UTM SURF EASTINGS: 546200 NORTHINGS: 4371243
 FIELD NAME: WILDCAT (1)

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: 1 - Federal
 LEASE NUMBER: UTU-77855
 SURFACE OWNER: 1 - Federal

PROPOSED FORMATION: MNKP
 COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[1] Ind[] Sta[] Fee[]
(No. UTB-0000341)
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit
(No. MUNICIPAL)
- RDCC Review (Y/N)
(Date: _____)
- Fee Surf Agreement (Y/N)
- Intent to Commingle (Y/N)

LOCATION AND SITING:

- R649-2-3. * Horizontal
- Unit: ICELANDER (SHALLOW)
- R649-3-2. General
Siting: 460 From Qtr/Qtr & 920' Between Wells
- R649-3-3. Exception
- Drilling Unit
Board Cause No: _____
Eff Date: _____
Siting: _____
- R649-3-11. Directional Drill

COMMENTS: _____

STIPULATIONS: _____
1- Sediment Approval
2- Spacing Strip

API Number: 4300730099

Well Name: ARCO 1 CHAMBERS

Township 15.0 S Range 13.0 E Section 28

Meridian: SLBM

Operator: ALKER EXPLORATION LLC

Map Prepared:
Map Produced by Diana Mason

Units STATUS	Wells Query Events
ACTIVE	<all other values>
EXPLORATORY	GIS_STAT_TYPE
GAS STORAGE	<Null>
NF PP OIL	APD
NF SECONDARY	DRL
PI OIL	GI
PP GAS	GS
PP GEOTHERML	LA
PP OIL	LA
SECONDARY	NEW
TERMINATED	OPS
Fields STATUS	PA
ACTIVE	PGW
COMBINED	POW
Sections	RET
	SGW
	SOW
	TA
	TW
	WD
	WI
	WS

ICELANDER (Shallow)



20

21

22

29

28

27

32

33

34



1:13,661

From: <Michael_Coulthard@blm.gov>
To: "Diana Mason" <dianawhitney@utah.gov>
Date: 8/25/2009 2:34 PM
Subject: Re: Re-enter APD for Alker Exploration - Icelander (Shallow) Unit

CC: <Marvin_Hendricks@blm.gov>
Diana,

The original APD referenced the bottom hole from the surface location not the section lines.

If you need additional information please advise.

I believe from the BLM standpoint everything is now in order.

Thank you,

Mickey

Michael L. Coulthard
Petroleum Engineer
Bureau of Land Management
Phone (801) 539-4042
Fax (801) 539-4261

"Diana Mason"
<dianawhitney@utah.gov>
08/25/2009 02:23 PM
To
<Michael_Coulthard@blm.gov>
cc
Subject
Re: Re-enter APD for Alker
Exploration - Icelander (Shallow)
Unit

Hi Mick,

Was this ever corrected? I have not received anything for a location change.

Thank you,
Diana

>>> <Michael_Coulthard@blm.gov> 12/18/2008 11:35 AM >>>
Diana,

This is the obligation well for the Icelander (Shallow) Unit.

The Unit approval calls for the well be drilled North 85 degrees West. I calculated their request to be about North 40 degrees West. They will need to request a modification to the approval if they wish to use this well as the obligation.

Also, I show the surface location on the completion report submitted for the well to be different than your email location.

Background information is attached.

Thank you,

Mickey

(See attached file: Icelander POD.pdf)

Michael L. Coulthard
Petroleum Engineer
Bureau of Land Management
Phone (801) 539-4042
Fax (801) 539-4261

"Diana Mason"
<dianawhitney@uta
h.gov> To
<Michael_Coulthard@ut.blm.gov>
12/18/2008 09:47 cc
AM
Subject
Re-enter APD for Alker Exploration
- Icelander (Shallow) Unit

Hi Mick,

(Proposed PZ Moenkopi)

43-007-30099 Arco Chambers 1-A Sec. 28 T. 15S R. 13E 2641 FSL 1578 FEL
BHL 0146 FNL 1671 FWL

Thank you,
Diana

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. LEASE SERIAL No: UTU-77855

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. Type of Work DRILL REENTER

7. IF UNIT or CA AGREEMENT NAME AND NO.:

Fcelandis (Shallow)

1b. OIL GAS OTHER Single Zone Multiple Zone

8. LEASE NAME AND WELL NO.

ARCO CHAMBERS #1-A

2. NAME OF OPERATOR: ALKER EXPLORATION LLC

9. API WELL NO.

43-007-36099

3a. ADDRESS OF OPERATOR 97 North Main Street
Manti Utah 84642

3b. 435.835.4248 Office
PHONE 435.340.0557 Mobil

10. FIELD AND POOL, OR EXPLORATORY

EXPLORATORY / Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements*)
At Surface 546200X 4371243-2641 FSL & 1578 FEL Horizontal 39.491905 -110.468758
39.491439 -110.462741 BHL 2508' FNL, 2030' FWL

11. SEC., T.R.M. or BLK AND SURVEY OR AREA
28-T15S-R13E

At proposed prod. Zone Moenkopi

14. Distance in miles and direction from nearest town or post office*
+/- 7 MILES SW OF EAST CARBON CITY, UTAH

12. County or Parish
CARBON

13. State
Utah

15. DISTANCE FROM PROPOSED*
LOCATION TO NEAREST Lease 1500 ft.
property or lease line, ft.
(Also to nearest drig, unit line, if any)

16. No. of acres in lease
6798

17. Spacing Unit dedicated to this well
Not Assigned

18. Distance from proposed location*
to nearest well, drilling, completed, +/- 7 miles from EDP #1
applied for, on this lease, ft.

19. Proposed Depth
4500 ft

20. BLM/BIA Bond No. on file
UTB-0000341

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
5452 ft, GL

22. Approximate date work will start*
August 15th, 2008

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas No.1, must be attached to this form:

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan.
- 3. A Surface Use Plan (if the location is on National Forest Lands, the SUPO must be filed with the appropriate Forest Service Office).

- 4. Bond to cover the operations unless covered by an existing bond on file (see item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the BLM

25. Signature

Name (Printed/Type)
Steven J. Lund

Date
10/29/08

Title
Petroleum Engineer

Approved by (signature)

Federal Approval of this
Action is Necessary

Name (Printed)
BRADLEY G. HILL
ENVIRONMENTAL MANAGER

Date
08-27-09

Title

Office

RECEIVED
JAN - 5 2009

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

Conditions of approval, if any, are attached.

DIV OF OIL, GAS & MINERAL

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly, and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

CONFIDENTIAL

ENERGY OF THE ROCKIES LLC

97 North Main Street #1
Manti, Utah 84642
Office: (435) 835-4248
Fax: (435) 835-4248
Steve@energyoftherockies.com

October 29, 2008

State of Utah
Division of Oil Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Attention: Mr. Dustin Doucet

Senior Petroleum Engineer

Re: APD for drilling the ARCO Chambers #1-A

Dear Dustin,

Enclosed is 2 complete copies of the Application For Permit To Drill or Re-Enter the ARCO Chambers #1-A. The ARCO Chambers #1 was drilled in 1984 and plugged and abandoned. Subsequently it is our intent to re-enter the ARCO Chambers #1 and drill a lateral in the Moenkopi formation using super critical CO2 as the drilling fluid. It is our intension to commence drilling the week of December 29, 2008. Due to the sensitive nature of the super critical drilling fluids test and drilling the lateral we ask that you keep this APD confidential.

Sincerely



Steven Lund

Enclosures (2)

RECEIVED

NOV 05 2008

DIV. OF OIL, GAS & MINING

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Federal Lease #: UTU-77855
Arco Chambers #1-A (Re-entry)
SWNE, Section 28-Township 15S-Range 13E
Carbon County, Utah

DRILLING PROGNOSIS/Onshore order #1

NOTE: This will be a re-entry of the Arco Chambers #1-A (API #: 43-007-30099) which was plugged and abandoned in 1984. It is anticipated that the original wellbore will be re-entered and washed down to a depth of approximately 4,000'. A cement plug will then be set and the wellbore will be kicked-off at 3573' at a rate of 12"/100 ft. A tentative directional program is attached for you review.

1. ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS (Assumes KB elevation of 5,470')

<u>FORMATION</u>	<u>TOP (TVD)</u>	<u>SUB SURFACE</u>
Entrada	2,365'	+ 3,105'
Carmel	2,755'	+ 2,715'
Navajo	3,020'	+ 2,450'
Kayenta	3,325'	+ 2,145'
Wingate	3,386'	+ 2,084'
Chinle	3,718'	+ 1,752'
Shinarump	3,958'	+ 1,512'
Moenkopi	4,014'	+ 1,456'

2. ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS, OR MINERAL FORMATIONS (Assumes KB elevation of 5,470')

<u>FORMATION</u>	<u>TOP</u>	<u>CONTENTS</u>
Moenkopi	4,136'	Oil/Gas/Water (Possible)

3. PRESSURE CONTROL EQUIPMENT (Schematic Attached - Figure 1)

- A) Type: 11" x 3,000 psi WP double-gate BOP and 11" x 3,000 psi WP annular BOP with hydraulic closing unit. 9-5/8" x 11" x 3,000 psi WP slip-on welded casing head and 11" x 7-1/16" x 3,000 psi WP tubing head.

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Four

4. THE PROPOSED CASING AND CEMENTING PROGRAM

A) Casing Program (Surface casing was run when well was originally drilled):

<u>SIZE</u>	<u>INTERVAL</u>	<u>LENGTH</u>	<u>DESCRIPTION</u>
9-5/8"	0' - 1,295'	1,295'	36#, K-55, STC
7"	0' - 4,323'	4,323'	20#, K-55, LTC

NOTE: Surface casing will be pressure tested to 1,000 psi prior to exiting casing.

B) Cementing Program:

<u>CASING/HOLE SIZE</u>	<u>CEMENT SLURRY</u>	<u>SX</u>	<u>PPG</u>	<u>YIELD</u>
9 5/8" - 12 1/4"	Class 'H' + 10 pps Gilsonite + 2% CaCl ₂ + 1/4 pps Flocele	615	15.8	1.15

NOTE: One-inched from 180' with 100 sacks Class 'H' containing 2% CaCl₂.

<u>CASING/HOLE SIZE</u>	<u>CEMENT SLURRY</u>	<u>SX</u>	<u>PPG</u>	<u>YIELD</u>
7" - 8 3/4"	Class 'G' + fluid loss additive and retarder as required	400	15.8	1.15

5. MUD PROGRAM:

All fresh water used for drilling mud will be treated with bactericide. If bentonite mud is used it will be mixed with fresh water prior to adding KCL. If attapulgate is used it will be mixed after the 2% KCL solution is achieved.

<u>INTERVAL</u>	<u>WEIGHT (PPG)</u>	<u>VISCOSITY (SEC)</u>	<u>WL (CCS)</u>
1,295' to 4,323'	8.5-9.5 ppg	30-60 sec	10-20 ccs

Prior to drilling out surface casing, mud-up with low-solids, non-dispersed mud system utilizing gel (10-12 ppb), caustic soda, and PHPA polymer (1/2 to 1/2 ppb). Treat out cement contamination with soda ash and sodium bicarbonate. Mud weight should be dictated by gas concentration to maintain nearly balanced conditions. Keep trip speeds down to reduce surge-swab pressure. Keep hole full at all times. Monitor pit volume constantly as lost circulation should be expected at all times. Sweep hole as dictated by

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Five

hole conditions. Keep the drill pipe moving at all times. Monitor the system for the presence of bacteria and treat out accordingly.

5. MUD PROGRAM (Continued):

<u>INTERVAL</u> <u>(CCS)</u>	<u>WEIGHT (PPG)</u>	<u>VISCOSITY (SEC)</u>	<u>PH</u>	<u>WL</u>
KOP to TD (Horizontal leg)	8.5 – 8.6 ppg	36 sec	>10	10 ccs

After exiting 7" casing at 4,323', drill out with 2% KCL, gel, polymer, LSND mud system, adding caustic soda for PH control. Add starch to keep water loss at a minimum, adding LCM as needed with intermittent sweeps. LCM will consist of cedar fibers and mica. In the event cedar fibers and mica are not readily available cotton seed hulls and saw dust will be used. The Moenkopi is not expected to be over pressured, however if conditions require an increase in mud weight, barite will be added to the mud system for well control.

6. EVALUATION PROGRAM:

Electric Logging: It is anticipated that a log suite consisting of (DIL/Sonic/Neutron-Density/GR/Cal) will be run from TD to bottom of surface casing.

Drillstem Testing: None anticipated.

Coring: None anticipated.

Stimulation: No stimulation has been formulated for this test at this time. The drill site, as proposed, will be of sufficient size to accommodate all completion activities.

The proposed Evaluation Program may change at the discretion of the well site geologist, with approval from the Authorized Officer, Vernal Field Office, Bureau of Land Management.

Whether the well is completed as a dry hole or as a producer, *Well Completion and Recompletion Report and Log Form #3160-4*) will be submitted to the Vernal Field Office not later than thirty (30) days after the completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164.

Two (2) copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Two

The blowout preventer will be equipped as follows:

- 1) One set of blind rams.
- 2) One set of pipe rams.
- 3) Drilling spool with two side outlets (choke side: 3" minimum and kill side: 2" minimum).
- 4) Kill line: Two-inch minimum.
- 5) Two kill line valves, one of which will be a check valve (two-inch).
- 6) Choke line: Three-inch minimum.
- 7) Two choke line valves: Three-inch minimum.
- 8) One manually operated choke: Three-inch minimum.
- 9) Pressure gauge on choke manifold.
- 10) Upper kelly cock with handle readily available.
- 11) Full opening internal blowout preventer or drill pipe safety valve able to fit all connections.
- 12) Fillup line to be located above uppermost preventer.

B) Pressure Rating: 3,000 psi.

C) Testing Procedure:

At a minimum, the BOP, choke manifold, and all related equipment will be pressure tested to the approved working pressure of the BOP stack (if isolated from the surface casing by means of a test plug) or to 70% of the internal yield strength of the surface casing (if not isolated from the surface casing by means of a test plug). Pressure will be maintained for a period of at least ten minutes or until requirements of the test are met, whichever is longer.

At a minimum, this pressure test will be performed:

- 1) When the BOP is initially installed.
- 2) Whenever any seal subject to test pressure is broken.
- 3) Following related repairs.
- 4) At thirty-day intervals.

In addition to the above, the pipe rams will be activated daily, and the blind rams will be activated each trip (but not more frequently than once each day). All BOP tests and drills will be recorded in the IADC Driller's Log (four sheets).

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Three

D) Choke Manifold Equipment:

All choke lines will be straight lines, unless turns use tee-blocks, or are targeted with running tees. These lines will be anchored to prevent whip and vibration.

E) Accumulator:

The accumulator will have sufficient capacity to close all rams (plus the annular preventer, if applicable) and retain a minimum of 200 psi above the precharge pressure without the use of the closing-unit pumps. The fluid reservoir capacity will be double the accumulator capacity and the fluid level will be maintained at the manufacturer's recommendations. The BOP system will have two independent power sources to close the preventers. Nitrogen bottles (three minimum) will be considered one of these sources and will maintain a charge equal to the manufacturer's specifications.

The accumulator precharge pressure test will be conducted prior to connecting the closing unit to the BOP stack and at least once every six months thereafter. The accumulator pressure will be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limits as specified on *Onshore Oil and Gas Order Number 2*.

F) Miscellaneous Information:

The blowout preventer and related pressure-control equipment will be installed, tested, and maintained in compliance with the specifications in and requirements of *Onshore Oil and Gas Order Number 2*. The choke manifold and BOP extension rods will be located outside the rig sub-structure. The hydraulic BOP closing unit will be located at least twenty-five feet from the wellhead, but will be readily accessible to the driller. Exact locations and configurations of the hydraulic BOP closing unit will depend upon the particular drilling rig contracted to drill this hole.

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Six

during the drilling, workover, and/or completion operations will be filed with Form #3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the District Manager, of the Vernal Field Office.

7. ABNORMAL CONDITIONS

No abnormal temperatures or pressures are anticipated. A maximum bottomhole pressure gradient of 0.43 psi per ft (8.3 ppg) is expected.

8. ANTICIPATED STARTING DATES AND MISCELLANEOUS

A. Anticipated Starting Dates:

Anticipated Commencement date	-	December 1, 2008
Drilling Days	-	Approximately 20 Days
Completion Days	-	Approximately 20 Days

B. Miscellaneous:

There shall be no deviation from the proposed drilling and/or workover program as approved. Safe drilling and operating practices must be observed.

All wells, whether drilling, producing, suspended or abandoned shall be identified in accordance with 43 CFR 3162.6. There shall be a sign or marker with the name of the operator, the lease serial number, the well number and the surveyed description of the well.

Any changes in operation must have prior approval from the Authorized Officer (AO), Vernal Field Office, Bureau of Land Management. Pressure tests are required before drilling out from under all casing strings set and cemented in place. Blowout preventer controls will remain in use until the well is either completed or abandoned. Preventers will be inspected and operated at least daily to insure good mechanical working order, and this inspection will be recorded on the daily drilling report. All BOP tests must be recorded in the daily drilling report.

The spud date will be orally reported to the Vernal Field Office within forty-eight (48) hours after spudding. If spudding occurs on a weekend or holiday, this report will be called in on the next regular workday following spudding of the well.

In accordance with *Onshore Oil & Gas Order Number 1*, this well will be reported on MMS Form #3160-6, *Monthly Report of Operations and Production*, starting with the month in which operations commence and continuing each

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Seven

month until the well is physically plugged and abandoned. This report will be filed directly with the Royalty Management Program, Minerals Management Service, P. O. Box 17110, Denver, Colorado 80217.

All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in NTL-3A will be reported to the Vernal Field Office. Major events will be reported verbally within twenty-four (24) hours and will be followed with a written report within fifteen (15) days. "Other than Major Events" will be reported in writing within fifteen (15) days. "Minor Events" will be reported on the *Monthly Report of Operations and Production* (Form #3160-6).

No well abandonment operations will be commenced without the prior approval of the Authorized Officer. In the case of newly-drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the Vernal Field Office Petroleum Engineer. A *Notice of Intention to Abandon* (Form 3160-5) will be filed with the Authorized Officer within fifteen (15) days following the granting of oral approval to plug and abandon.

Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. The following information will be permanently placed on the marker with a plate, cap, or beaded-on with a welding torch: Company Name, Well Name and Number, Location by Quarter/Quarter, Section, Township, Range, and the Federal Lease Number.

A *Subsequent Report of Abandonment* (Form #3160-5) will be submitted within thirty (30) days following the actual plugging of the well bore. This report will indicate where plugs were placed and the current status of surface restoration operations. If surface restoration has not been completed at that time, a follow-up report on Form #3160-5 will be filed when all surface restoration work has been completed and the location is considered ready for final inspection.

Pursuant to NTL-4A, lessees and operators are authorized to vent/flare gas during initial well evaluation tests, not exceeding a period of thirty (30) days or the production of fifty (50) MMCF of gas, whichever occurs first. An application must be filed with the Authorized Officer, and approval received, for any venting/flaring of gas beyond the initial (30) day or otherwise authorized test period.

Not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than ninety (90) days, the operator shall notify the Authorized Officer by letter or

ALKER EXPLORATION LLC / ENERGY OF THE ROCKIES LLC
Arco Chambers #1-A (Re-entry)
Drilling Prognosis
Page Eight

“*Sundry Notice*”, of the date on which such production has begun or resumed. The notification shall provide as a minimum, the following informational items:

- a. Operator name, address, and telephone number.
- b. Well name and number.
- c. Well location “1/4, 1/4, Section, Township, Range, P.M.”
- d. Date well was placed in a producing status.
- e. The nature of the wells production, i.e.: crude oil casing gas, or natural gas and entrained liquid hydrocarbons.
- f. The OCS, Federal or Indian lease prefix and number on which the well is located. Otherwise, the non-Federal or non-Indian land category, i.e.: state or private.

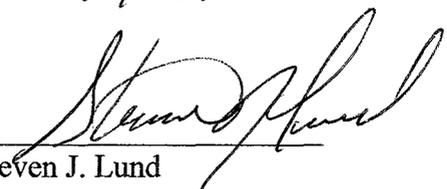
Within sixty (60) days following construction of a new tank battery, a site facility diagram of the battery showing actual conditions and piping must be submitted to the Authorized Officer. Facility diagrams shall be filed within sixty (60) days after existing facilities are modified. For complete information as to what is required on these diagrams, please refer to 43 CFR 3162.7-4 (d).

Pursuant to *Onshore Oil & Gas Order Number 1*, lessees and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in such a manner which conforms with applicable Federal laws and regulations and with State and Local laws and regulations to the extent that such State and local laws are applicable to operations on Federal and Indian lands.

Date:

10/28/08

Prepared by: Dan Hall


Steven J. Lund

Please direct all correspondence regarding this permit to:

Dan Hall
ENERGY OPERATING COMPANY, INC.
7114 W. Jefferson Ave., Suite 206
Lakewood, CO 80235

CONFIDENTIAL



Weatherford®

Weatherford International, Ltd
2000 Oil Field Drive
Casper, Wyoming 82604 USA
+1.307.268-7900 Main
+1.307.235.3958 Fax
www.weatherford.com

Contact Information

District Manager: Pat Rasmussen
+1.307.268-7900 Casper, Wyoming
Email: pat.rasmussen@weatherford.com

Directional Drilling Coordinator: Larren Holdren
+1.307.268-7900 Casper, Wyoming
Email: larren.holdren@weatherford.com

MWD Coordinators:
+1.307.268-7900 Casper, Wyoming
Adam Rinker
Email: adam.rinker@weatherford.com

Matthew Heaton
Email: matthew.heaton@weatherford.com

Directional Drilling Sales Casper: Dean Reed
1.307.268-7900 Casper, Wyoming
Email: dean.reed@weatherford.com

Directional Drilling Sales Denver: Linda Smith
+1.303.825.6558 Denver, Colorado
Email: linda.smith@weatherford.com

Well Planning Casper Office:
+1.307.268-7900 Casper, Wyoming
Tracy Williams
Email: tracy.williams@weatherford.com

Bret Wolford
Email: bret.wolford@weatherford.com

Well Planning Denver Office:
+1.303.825.6558 Denver, Colorado
Robert Scott
Email: robert.scott@weatherford.com

CONFIDENTIAL

REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Building Location- Notify the Price Field Office at least 48-hours prior to commencing construction of location.

Spud- Notify the Price Field Office 24-hours prior to spudding. Submit written notification of spud (Sundry Notice, Form 3160-5) to the Vernal Field Office within 24-hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports that describe the progress and status of the well shall be submitted to the Vernal Field Office on a weekly basis. This report may be in any format customarily used by the operator.

Oil and Gas Operations Reports (OGORS)- Production from this well shall be reported to Minerals Management Service (MMS) on a monthly basis.

Sundry Notices- Any modification to the proposed drilling program shall be submitted to the Vernal Field Office on a Sundry Notice (Form 3160-5). Regulations at 43 CFR 3162.3-2 describe which operations require prior approval, and which require notification.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Vernal Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, immediately notify the Price Field Office, and work that might disturb the cultural resources shall cease.

First Production- A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Price Field Office.

Notify the Vernal Field Office when the well is placed into production. Initial notification may be verbal, but must be confirmed in writing within five business days. Please include the date production started, the producing formation and production volumes.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, a Well Completion or Recompletion Report and Log (Form 3160-4) shall be submitted to the Vernal Field Office within thirty-days after completion of the well. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Vernal Field Office.

CONFIDENTIAL

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval of the Vernal Field Office. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered to be shut-in until the gas can be captured or until approval to continue the venting/flaring pursuant to NTL-4Ais granted. Compensation shall be due for gas that is vented/flared without approval.

Produced Water- An application for approval of a permanent disposal method and location will be submitted to the Vernal Field Office for approval pursuant to Onshore Oil and Gas Order NO.7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Vernal Field Office for off-lease measurement, off-lease storage and/or commingling of production prior to the sales measurement point. The term "commingling" describes both the combining of production from different geologic zones and/or combining production from different leases or agreement areas.

Plugging and Abandonment- If the well is a dry hole, plugging instructions must be obtained from the Price Field Office prior to initiating plugging operations. .

A "Subsequent Report of Abandonment" (Sundry Notice, Form 3160-5) will be filed with the Vernal Field Office within thirty-days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction .of the Price Field Office or the appropriate surface managing agency.

TABLE 1

NOTIFICATIONS

Notify Nathan Sill (435-636-3668) or Walton Willis (435-636-3662) of the BLM Price Field Office for the following:

If the people at the above number cannot be reached, notify the BLM Vernal Field Office at 435-781-44900.

Well abandonment operations require 24-hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained from:

Matt Baker, Petroleum Engineer, Office: 435-781-4490 Home: 435-828-4470

CONFIDENTIAL

SURFACE USE PLAN

Attachment for Permit to Drill **ARCO Chamber #1-A**

Name of Operator: **Alker Exploration LLC/Energy of the Rockies LLC**

Company Address: 5360 Vine Hill Road, 97 North Main #1
Sebastopol, CA 95472 Manti, Utah 84642

Local Representative: Energy of the Rockies
Local Address: 97 North Main Street #1
Manti, Utah 84642

Well Location: Arco Chambers #1-A
Original Survey: 2500 FNL & 1500 FEL
Current Survey: 1578' FEL 2641' FSL

County: Carbon County, Utah

The dirt contractor will be provided with an approved copy of the surface use plan of operations before initiating construction.

The BLM onsite inspection for the referenced well was conducted on Thursday October 2, 2008 at approximately 8:00 am. In attendance at the onsite inspections were the following individuals:

Don Stephens Geologist
Gary McKibben Company Representative

1. EXISTING ROADS:

- a. The proposed well site is located approximately 12 miles south along SR-6 Wellington, Utah, and 2 miles east.
- b. PRIMARY ROUTE TO LOCATION: From Wellington, travel 6 miles southeast along SR-6 to the Sunnyside Junction at mile marker 256, then turn northeast, traveling toward East Carbon, Utah. At the junction of SR 128 and SR 124 turn south traveling toward Columbia, Utah. Travel approximately 1.3 miles and turn right, onto the Icelander Road, traveling in a west-southwest direction down the graveled road for 6 miles to Arco Chamber #1-A location. (see attached maps).

ALTERNATIVE ROUTE TO LOCATION: The original route to the Arco Chambers #1 location route exited SR 6, 0.8 miles past mile marker 262, follows the old highway, 0.6 miles, turn right onto the

CONFIDENTIAL

graveled road, about 3 miles into the location. This route in has been cleared by a cultural resources survey.

- c. The use of roads under State and County Road Department maintenance are necessary to access the project area. An encroachment permit is not anticipated for SR-6 with the UDOT but an encroachment is anticipated and will be applied for with Carbon County for use and upgrade of the road off SR 124.
- d. From SR-6 the existing roads to the wellsite will require blading, resurfacing, ditching and crowning. Upgrades to these segments of road are requested with this application.
- e. All existing roads will be maintained and kept in good repair during all phases of operations.
- f. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.
- g. An off-lease federal right-of-way is necessary for the off-lease portions of the Iclander Road, the access road, trending southwest approximately 5 miles, and then northwest for 0.5 miles. A pipeline corridor is not anticipated.

2. Planned Access Roads:

- a. Existing roads will be utilized with new access proposed for the last 0.5 miles on lease number UTU-77855, into the well location.
- b. From SR-124 the existing native-surface Carbon County maintained Road trending southwest has been upgraded and will be maintained for approximately 1.6 miles. From that point the existing native surfaced road trending southeast to the proposed well site will be upgraded for 5 miles.
- c. The access consists of entirely existing disturbance and crosses one significant drainage, the Iclander wash. This crossing will be a low water crossing.
- d. A road design plan is not anticipated at this time.
- e. The proposed access road will consist of a 24' travel surface within a 30' disturbed area across primarily BLM managed lands, and fee ground, in which rights of way and easements are being currently negotiated.

CONFIDENTIAL

- f. BLM Approval to upgrade the existing access corridor is requested with this application.
- g. A maximum grade of 10% will be maintained throughout the project with no turnouts proposed.
- h. One low water crossing and three 18' culverts at the access road exiting the Icelander Road / BLM road intersection is anticipated. Additional culverts and adequate drainage structures will be incorporated into the remaining existing road.
- i. No surfacing material will come from federal or Indian lands.
- j. Gates or cattle guards are anticipated at the ranchers request.
- k. Surface disturbance and vehicular travel will be limited to the approved location access road.
- l. All access roads and surface disturbing activities will conform to the standards outlined in the Bureau of Land Management and Forest Service publication: Surface Operating Standards for Oil and Gas Exploration and Development, (1989).
- m. The operator will be responsible for all maintenance of the access road including drainage structures.

3. Location of Existing Wells:

- a. The Arco Chamber #1 well. Drilled by ARCO will be re-entered. The existing plugged and abandoned well is reflected on the attached location layout and maps: No other wells are known to exist within a one mile radius of the proposed well.

4. Location of Production Facilities:

- a. All permanent structures will be painted 'a flat, non-reflective Desert Tan to match the standard environmental colors. All facilities will be painted within six months of installation. Facilities complying with the Occupational Safety and Health Act (OSHA) may be excluded.

CONFIDENTIAL

- b. Site security guidelines identified in 43 CFR 3163.7-5 and Onshore Oil and Gas Order No.3 will be adhered to.
- c. All oil and gas measurement equipment will be constructed and located on lease .within 500 feet of the. wellhead. Gas Meter runs will be housed, pumping units and tank batteries, if needed will fenced. All oil and gas production and measurement shall comply with the provisions of all regulating bodies.
- d. A two-tank battery may be constructed on this location. If so, it will be surrounded by a dike of sufficient capacity to contain the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All liquid hydrocarbons production and measurement shall conform to the provisions of 43 CFR 3162.7-3 and Onshore Oil and Gas Order No.4 and Onshore Oil and Gas Order No.5 for natural gas production and measurement.
- e. Any necessary pits will be properly fenced to prevent any wildlife an livestock entry.
- f. All access roads will be maintained as necessary to prevent erosion and accommodate year-round traffic. The road will be maintained in a safe useable condition.
- g. The site will require periodic maintenance to ensure that drainages are kept open and free of debris, ice, and snow, and that surfaces are properly treated to reduce erosion, fugitive dust, and impacts to adjacent areas.
- h. No gas pipeline is associated with this application. If one is needed in the future it will be applied for at that time. A proposed gas pipeline corridor will be surveyed at that time.

5. Location and Type of Water Supply:

- a. The water supply for construction, drilling and operations will be provided by Wellington City, a local source of municipal water. The water is available to Wellington City through an existing valid water right.
- b. Water will be trucked to the wellsite over approved access roads.
- c. No water well is proposed with this application.

- d. Should additional water sources be pursued they will be properly permitted through the State of Utah - Division of Water Rights.

6. Source of Construction Material:

- a. The use of materials will conform to 43 CFR 3610.2-3
- b. No construction materials will be removed from BLM lands
- c. If any gravel is used, it will be obtained from a state approved gravel pit.

7. Methods of Handling Waste Disposal:

- a. All wastes associated with this application will be contained and disposed of utilizing approved facilities.
- b. Drill cuttings will be contained and buried on site.
- c. The reserve pit will be located inboard of the location and along the west side of the pad.
- d. The reserve pit will be constructed so as not to leak, break, or allow any discharge.
- e. The reserve pit will be lined with 12 mil minimum thickness plastic nylon reinforced liner material. The liner will overlay a felt liner pad only if rock is encountered during excavation. The pit liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash, scrap pipe, etc., that could puncture the liner will be disposed of in the pit. Pit walls will be sloped no greater than 2:1. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling and completion operation.
- f. The reserve pit has been located in cut material. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. After the reserve pit has dried, all areas not needed for production will be rehabilitated.
- g. No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completion of the well. Furthermore,

CONFIDENTIAL

no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well.

- h. Trash will be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations. The contents of the trash container will be hauled off periodically to the approved Carbon County Landfill near Price, Utah.
- i. Produced fluids from the well other than water will be produced into a test tank until such time as construction of production facilities is completed. Any spills of oil, gas, salt water or other produced fluids will be cleaned up and removed.
- j. After initial clean-up, a 400 bbl tank will be installed to contain produced waste water. This water will be transported from the tank to an approved disposal well for disposal near Roosevelt, Utah.
- k. Any salts and/or chemicals, which are an integral part of the drilling system, will be disposed of in the same manner as the drilling fluid.
- l. Sanitary facilities will be on site at all times during operations. Sewage will be placed in a portable chemical toilet and the toilet replaced periodically utilizing a licensed contractor to transport by truck the portable chemical toilet so that its contents can be delivered to the Price. River Water Improvement District Wastewater Treatment Facility near Wellington, Utah in accordance with state and county regulations.

8. Ancillary Facilities

- a. Garbage Containers and Portable Toilets are the only ancillary facilities proposed in this application.

9. Well Site Layout: (See Exhibit B)

- a. The well will be properly identified in accordance with 43 CFR 3162.6
- b. Access to the well pad will be from the northwest.
- c. The pad and road designs are consistent with BLM specification.

CONFIDENTIAL

- d. A pre-construction meeting with responsible company representative, contractors and the BLM will be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road will be construction-staked prior to this meeting.
- e. The pad has been staked at its maximum size of 300' X 250'; however it will be constructed smaller if possible, depending upon rig availability. This is smaller than the original pad, but is required due to the nature of the drilling program. This well will be drilled using super-critical CO2 as the drilling medium in the pay zone, which requires additional equipment on location. Should the layout change, this application will be amended and approved utilizing a sundry notice.
- f. All surface disturbing activities, will be supervised by a qualified, responsible company representative who is aware of the terms and conditions of the APD and specifications in the approved plans.
- g. All cut and fill slopes will be such that stability can be maintained for the life of the activity.
- h. Diversion ditches will be constructed as shown around the well site to prevent surface waters from entering the well site area.
- i. The site surface will be graded to drain away from the pit to avoid pit spillage during large storm events.
- j. The stockpiled topsoil (first 6 inches or maximum available) will be stored in a windrow on the uphill side of the location to prevent any possible contamination. All topsoil will be stockpiled for reclamation in such a way as to prevent soil loss and contamination.
- k. Pits will remain fenced until site cleanup.
- l. The blooie line will be located at least 110 feet from the well head
- m. Water injection may be implemented if necessary to minimize the amount of fugitive dust.

CONFIDENTIAL

10. Plans for Restoration of the Surface)Interim Reclamation and Final Reclamation):

- a. Site reclamation for a producing well will be accomplished for portions of the site not required for the continued operation of the well.
- b. Upon well completion, any hydrocarbons in the pit shall be removed in accordance with 43 CFR 3162.7-1. Once the reserve pit is dry, the plastic nylon reinforced liner shall be torn and perforated before backfilling of the reserve pit. The reserve pit and that portion of the location not needed for production facilities/operations will be re-contoured to the approximate natural contours.
- c. Following BLM published Best Management Practices the interim reclamation will be completed within 90 days of completion of the well to reestablish vegetation, reduce dust and erosion and compliment the visual resources of the area.
 - a. All equipment and debris will be removed from the area proposed for interim reclamation and the pit area will be backfilled and re-contoured.
 - b. The area outside of the rig anchors and other disturbed areas not needed for the operation of the well will be re-contoured to blend with the surrounding area and reseeded at 12 lbs/acre with the following native grass seeds:
 1. Crested Wheat Grass (4 lbs / acre)
 2. Needle and Thread Grass (4 lbs / acre)
 3. Rice Grass (4 lbs / acre)
 - c. Reclaimed areas receiving incidental disturbance during the life of the producing well will be re-contoured and reseeded as soon as practical.
- d. The Operator will control noxious weeds along access road use authorizations, pipeline route authorizations, well sites, or other applicable facilities by spraying or mechanical removal. A list of noxious weeds may be obtained from the BLM or the appropriate County Extension Office. On BLM administered land, it is required that a Pesticide Use Proposal be submitted and approved prior to the application of herbicides, pesticides or possibly hazardous chemicals.
- e. Prior to final abandonment of the site, all disturbed areas, including the access road, will be scarified and left with a rough surface. The site will then be seeded and/or planted as prescribed by the BLM. The BLM recommended seed mix will be detailed within their approval documents.

CONFIDENTIAL

11. Surface and Mineral Ownership:

a. Surface Ownership - Federal under the management of the Bureau of Land Management - Price Field Office, 125 South 600 West, Price, Utah 84501; 435-636-3608.

b. Mineral Ownership - Federal under the management of the Bureau of Land Management - Price Field Office, 125 South 600 West, Price, Utah 84501; 435-636-3608.

12. Other Information:

a.

Senco-Phenix Archaeological Consultants will conduct a Class III archeological survey. A copy of the pending report will be submitted under separate cover to the appropriate agencies by Senco-Phenix Archaeological Consultants.

b. The need for a paleontological survey has been reviewed with BLM staff determining that no survey is necessary.

c. Our understanding of the results of the onsite inspection are:

a. No Threatened and Endangered flora and fauna species were found during the onsite inspection.

d. The pipeline crossing Grassy Trails drainage will require a Section 404 permit prior to any construction

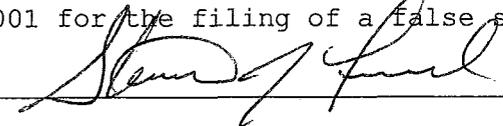
CONFIDENTIAL

13. Operator's Representative and Certification

<u>Title</u>	<u>Name</u>	<u>Office Phone</u>
Company Representative (Manti)	Steve Lund	435.340.0557

Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exists; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Energy of the Rockies LLC and its contractors and subcontractors in conformity with this APD package and the terms and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application, with bond coverage being provided under Energy of the Rockies LLC's BLM bond. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Signature:  Date: 10/28/2008



Weatherford[®]

Drilling Services

Proposal

Energy of the Rockies LLC
ARCO-Chambers #1
Carbon Co., Utah
WELL FILE: PLAN 1
August 8, 2008

Weatherford International Ltd.
2000 Oil Drive
Casper, Wyoming 82604
+1.307.265.1413 Main
+1.307.235.3958 Fax
www.weatherford.com

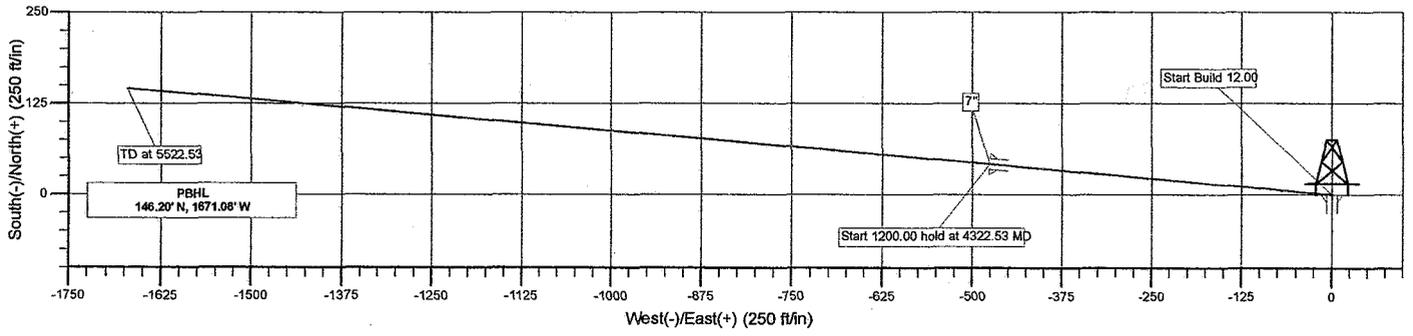
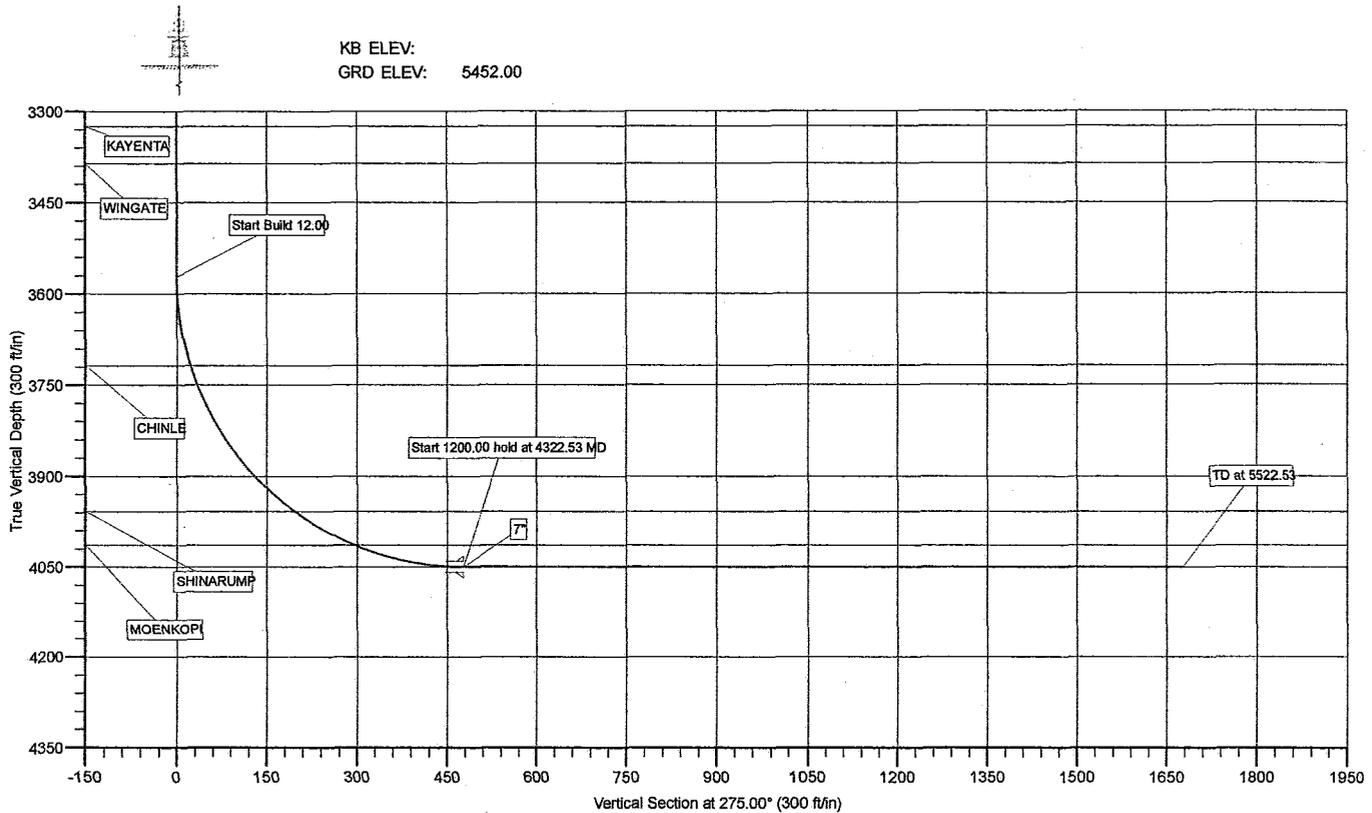
CONFIDENTIAL

Project: CARBON CO., UT
 Site: ARCO-CHAMBERS #1
 Well: ARCO-CHAMBERS #1
 Wellbore: Wellbore #1
 Design: Design #1
 GL: 5452.00



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3572.53	0.00	0.00	3572.53	0.00	0.00	0.00	0.00	0.00	Start Build 12.00
4322.53	90.00	275.00	4050.00	41.61	-475.65	12.00	275.00	477.47	Start 1200.00 hold at 4322.53 MD
5522.53	90.00	275.00	4050.00	146.20	-1671.08	0.00	0.00	1677.47	TD at 5522.53

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
		TORREY
2365.00	2365.00	ENTRADA
2755.00	2755.00	CARMEL
3020.00	3020.00	NAVAJO
3325.00	3325.00	KAYENTA
3386.00	3386.00	WINGATE
3718.00	3720.35	CHINLE
3958.00	4021.16	SHINARUMP
4014.00	4135.95	MOENKOPI



Plan: Design #1 (ARCO-CHAMBERS #1/Wellbore #1)
 Created By: BRET WOLFORD Date: 16:36, August 08 2008

ENERGY OF THE ROCKIES, LLC

**CARBON CO., UT
ARCO-CHAMBERS #1
ARCO-CHAMBERS #1**

Wellbore #1

Plan: Design #1

Standard Planning Report

08 August, 2008

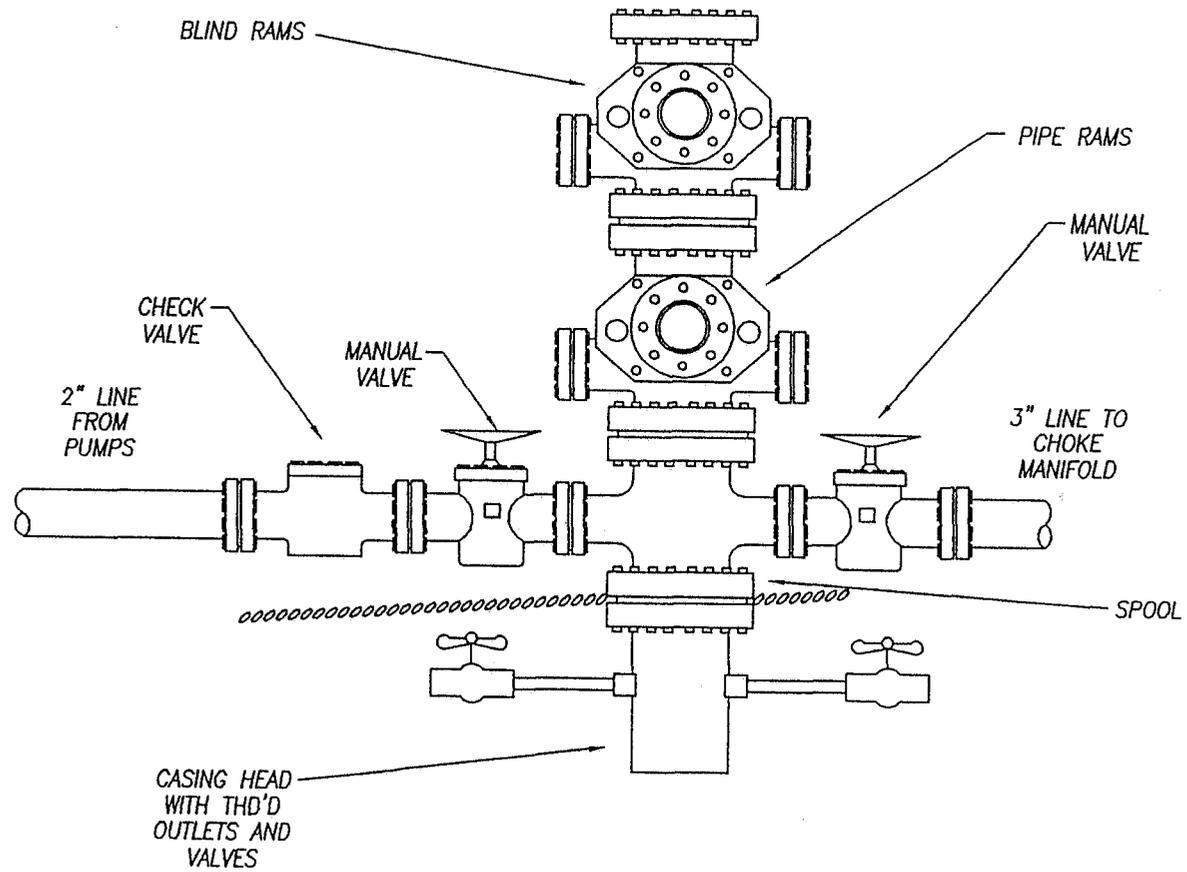


Weatherford®

CONFIDENTIAL

BOP Equipment

2000psi WP



CONFIDENTIAL

Planning Report

Weatherford™

Database: EDM 2003.21 Single User Db
Company: ENERGY OF THE ROCKIES, LLC
Project: CARBON CO., UT
Site: ARCO-CHAMBERS #1
Well: ARCO-CHAMBERS #1
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well ARCO-CHAMBERS #1
TVD Reference: WELL @ 5452.00ft (Original Well Elev)
MD Reference: WELL @ 5452.00ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	CARBON CO., UT		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site	ARCO-CHAMBERS #1		
Site Position:		Northing:	ft
From:	None	Easting:	ft
Position Uncertainty:	0.00 ft	Slot Radius:	"
		Latitude:	
		Longitude:	
		Grid Convergence:	0.00 °

Well	ARCO-CHAMBERS #1		
Well Position	+N/-S	0.00 ft	Northing: 0.00 ft
	+E/-W	0.00 ft	Easting: 0.00 ft
Position Uncertainty	0.00 ft	Wellhead Elevation:	5,452.00 ft
		Latitude:	
		Longitude:	
		Ground Level:	5,452.00 ft

Wellbore	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength	
			(°)	(°)	(nT)	
	User Defined	8/8/2008	0.00	0.00	0	

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	275.00

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,572.53	0.00	0.00	3,572.53	0.00	0.00	0.00	0.00	0.00	0.00	
4,322.53	90.00	275.00	4,050.00	41.61	-475.65	12.00	12.00	0.00	275.00	
5,522.53	90.00	275.00	4,050.00	146.20	-1,671.08	0.00	0.00	0.00	0.00	

Database: EDM 2003.21 Single User Db
 Company: ENERGY OF THE ROCKIES, LLC
 Project: CARBON CO., UT
 Site: ARCO-CHAMBERS #1
 Well: ARCO-CHAMBERS #1
 Wellbore: Wellbore #1
 Design: Design #1

Local Co-ordinate Reference: Well ARCO-CHAMBERS #1
 TVD Reference: WELL @ 5452.00ft (Original Well Elev)
 MD Reference: WELL @ 5452.00ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,295.00	0.00	0.00	1,295.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
ENTRADA									
2,365.00	0.00	0.00	2,365.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
CARMEL									
2,755.00	0.00	0.00	2,755.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
NAVAJO									
3,020.00	0.00	0.00	3,020.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
KAYENTA									
3,325.00	0.00	0.00	3,325.00	0.00	0.00	0.00	0.00	0.00	0.00
WINGATE									
3,386.00	0.00	0.00	3,386.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 12.00									
3,572.53	0.00	0.00	3,572.53	0.00	0.00	0.00	0.00	0.00	0.00
3,575.00	0.30	275.00	3,575.00	0.00	-0.01	0.01	12.00	12.00	0.00
3,600.00	3.30	275.00	3,599.98	0.07	-0.79	0.79	12.00	12.00	0.00
3,625.00	6.30	275.00	3,624.89	0.25	-2.87	2.88	12.00	12.00	0.00

Planning Report

Weatherford

Database: EDM 2003.21 Single User Db
 Company: ENERGY OF THE ROCKIES, LLC
 Project: CARBON CO., UT
 Site: ARCO-CHAMBERS #1
 Well: ARCO-CHAMBERS #1
 Wellbore: Wellbore #1
 Design: Design #1

Local Co-ordinate Reference: Well ARCO-CHAMBERS #1
 TVD Reference: WELL @ 5452.00ft (Original Well Elev)
 MD Reference: WELL @ 5452.00ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,650.00	9.30	275.00	3,649.66	0.55	-6.25	6.27	12.00	12.00	0.00
3,675.00	12.30	275.00	3,674.22	0.95	-10.91	10.95	12.00	12.00	0.00
3,700.00	15.30	275.00	3,698.49	1.47	-16.85	16.91	12.00	12.00	0.00
CHINLE									
3,720.35	17.74	275.00	3,718.00	1.98	-22.61	22.70	12.00	12.00	0.00
3,725.00	18.30	275.00	3,722.42	2.10	-24.05	24.14	12.00	12.00	0.00
3,750.00	21.30	275.00	3,745.94	2.84	-32.48	32.60	12.00	12.00	0.00
3,775.00	24.30	275.00	3,768.99	3.69	-42.13	42.29	12.00	12.00	0.00
3,800.00	27.30	275.00	3,791.49	4.63	-52.97	53.17	12.00	12.00	0.00
3,825.00	30.30	275.00	3,813.40	5.68	-64.96	65.21	12.00	12.00	0.00
3,850.00	33.30	275.00	3,834.64	6.83	-78.08	78.38	12.00	12.00	0.00
3,875.00	36.30	275.00	3,855.17	8.07	-92.29	92.64	12.00	12.00	0.00
3,900.00	39.30	275.00	3,874.92	9.41	-107.55	107.96	12.00	12.00	0.00
3,925.00	42.30	275.00	3,893.85	10.83	-123.82	124.30	12.00	12.00	0.00
3,950.00	45.30	275.00	3,911.89	12.34	-141.06	141.60	12.00	12.00	0.00
3,975.00	48.30	275.00	3,929.00	13.93	-159.21	159.82	12.00	12.00	0.00
4,000.00	51.30	275.00	3,945.14	15.59	-178.23	178.91	12.00	12.00	0.00
SHINARUMP									
4,021.16	53.84	275.00	3,958.00	17.06	-194.97	195.71	12.00	12.00	0.00
4,025.00	54.30	275.00	3,960.25	17.33	-198.06	198.82	12.00	12.00	0.00
4,050.00	57.30	275.00	3,974.31	19.13	-218.66	219.49	12.00	12.00	0.00
4,075.00	60.30	275.00	3,987.26	20.99	-239.96	240.87	12.00	12.00	0.00
4,100.00	63.30	275.00	3,999.07	22.91	-261.90	262.90	12.00	12.00	0.00
4,125.00	66.30	275.00	4,009.72	24.88	-284.43	285.52	12.00	12.00	0.00
MOENKOPI									
4,135.95	67.61	275.00	4,014.00	25.76	-294.47	295.59	12.00	12.00	0.00
4,150.00	69.30	275.00	4,019.16	26.90	-307.49	308.66	12.00	12.00	0.00
4,175.00	72.30	275.00	4,027.38	28.96	-331.01	332.27	12.00	12.00	0.00
4,200.00	75.30	275.00	4,034.36	31.05	-354.92	356.27	12.00	12.00	0.00
4,225.00	78.30	275.00	4,040.07	33.17	-379.16	380.61	12.00	12.00	0.00
4,250.00	81.30	275.00	4,044.50	35.32	-403.67	405.21	12.00	12.00	0.00
4,275.00	84.30	275.00	4,047.63	37.48	-428.38	430.01	12.00	12.00	0.00
4,300.00	87.30	275.00	4,049.46	39.65	-453.21	454.94	12.00	12.00	0.00
Start 1200.00 hold at 4322.53 MD - 7"									
4,322.53	90.00	275.00	4,050.00	41.61	-475.65	477.46	12.00	12.00	0.00
4,400.00	90.00	275.00	4,050.00	48.37	-552.82	554.93	0.00	0.00	0.00
4,500.00	90.00	275.00	4,050.00	57.08	-652.44	654.93	0.00	0.00	0.00
4,600.00	90.00	275.00	4,050.00	65.80	-752.06	754.93	0.00	0.00	0.00
4,700.00	90.00	275.00	4,050.00	74.51	-851.68	854.93	0.00	0.00	0.00
4,800.00	90.00	275.00	4,050.00	83.23	-951.30	954.93	0.00	0.00	0.00
4,900.00	90.00	275.00	4,050.00	91.94	-1,050.92	1,054.93	0.00	0.00	0.00
5,000.00	90.00	275.00	4,050.00	100.66	-1,150.54	1,154.93	0.00	0.00	0.00
5,100.00	90.00	275.00	4,050.00	109.37	-1,250.16	1,254.93	0.00	0.00	0.00
5,200.00	90.00	275.00	4,050.00	118.09	-1,349.78	1,354.93	0.00	0.00	0.00
5,300.00	90.00	275.00	4,050.00	126.81	-1,449.40	1,454.93	0.00	0.00	0.00
5,400.00	90.00	275.00	4,050.00	135.52	-1,549.02	1,554.93	0.00	0.00	0.00
5,500.00	90.00	275.00	4,050.00	144.24	-1,648.64	1,654.93	0.00	0.00	0.00
TD at 5522.53									
5,522.53	90.00	275.00	4,050.00	146.20	-1,671.08	1,677.47	0.00	0.00	0.00

CONFIDENTIAL

Planning Report

Weatherford

Database: EDM 2003.21 Single User Db
Company: ENERGY OF THE ROCKIES, LLC
Project: CARBON CO., UT
Site: ARCO-CHAMBERS #1
Well: ARCO-CHAMBERS #1
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well ARCO-CHAMBERS #1
TVD Reference: WELL @ 5452.00ft (Original Well Elev)
MD Reference: WELL @ 5452.00ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,295.00	1,295.00	9 5/8"	9-5/8	12-1/4
4,322.53	4,050.00	7"	7	8-1/2

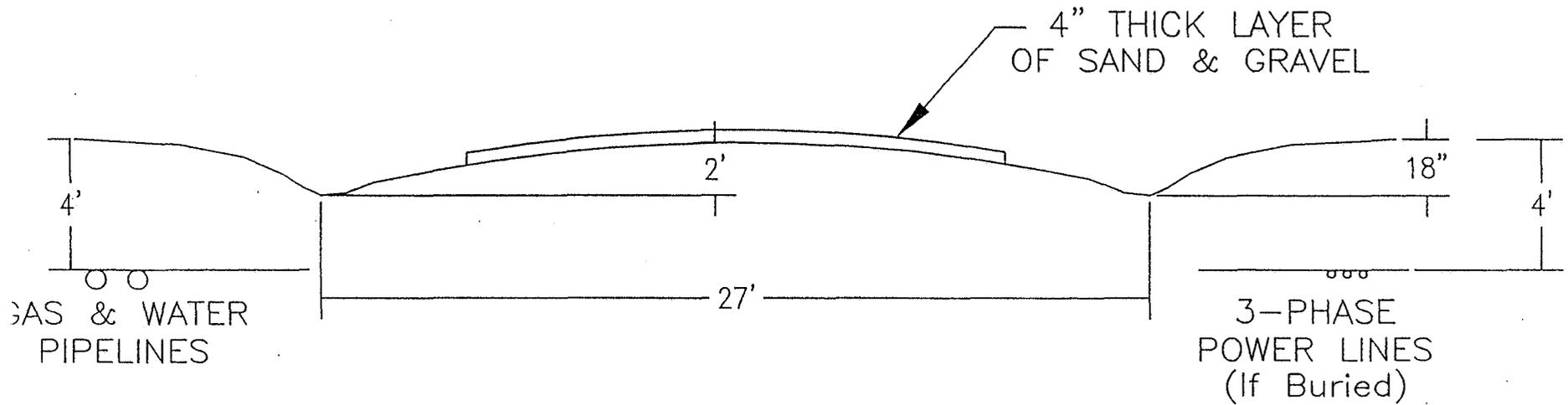
Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,365.00	2,365.00	ENTRADA		0.00	
2,755.00	2,755.00	CARMEL		0.00	
3,020.00	3,020.00	NAVAJO		0.00	
3,325.00	3,325.00	KAYENTA		0.00	
3,386.00	3,386.00	WINGATE		0.00	
3,720.35	3,718.00	CHINLE		0.00	
4,021.16	3,958.00	SHINARUMP		0.00	
4,135.95	4,014.00	MOENKOPI		0.00	
	4,370.00	TORREY		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,572.53	3,572.53	0.00	0.00	Start Build 12.00
4,322.53	4,050.00	41.61	-475.65	Start 1200.00 hold at 4322.53 MD
5,522.53	4,050.00	146.20	-1,671.08	TD at 5522.53

TYPICAL ROAD CROSS-SECTION



CONFIDENTIAL

EVVIDIT "C"

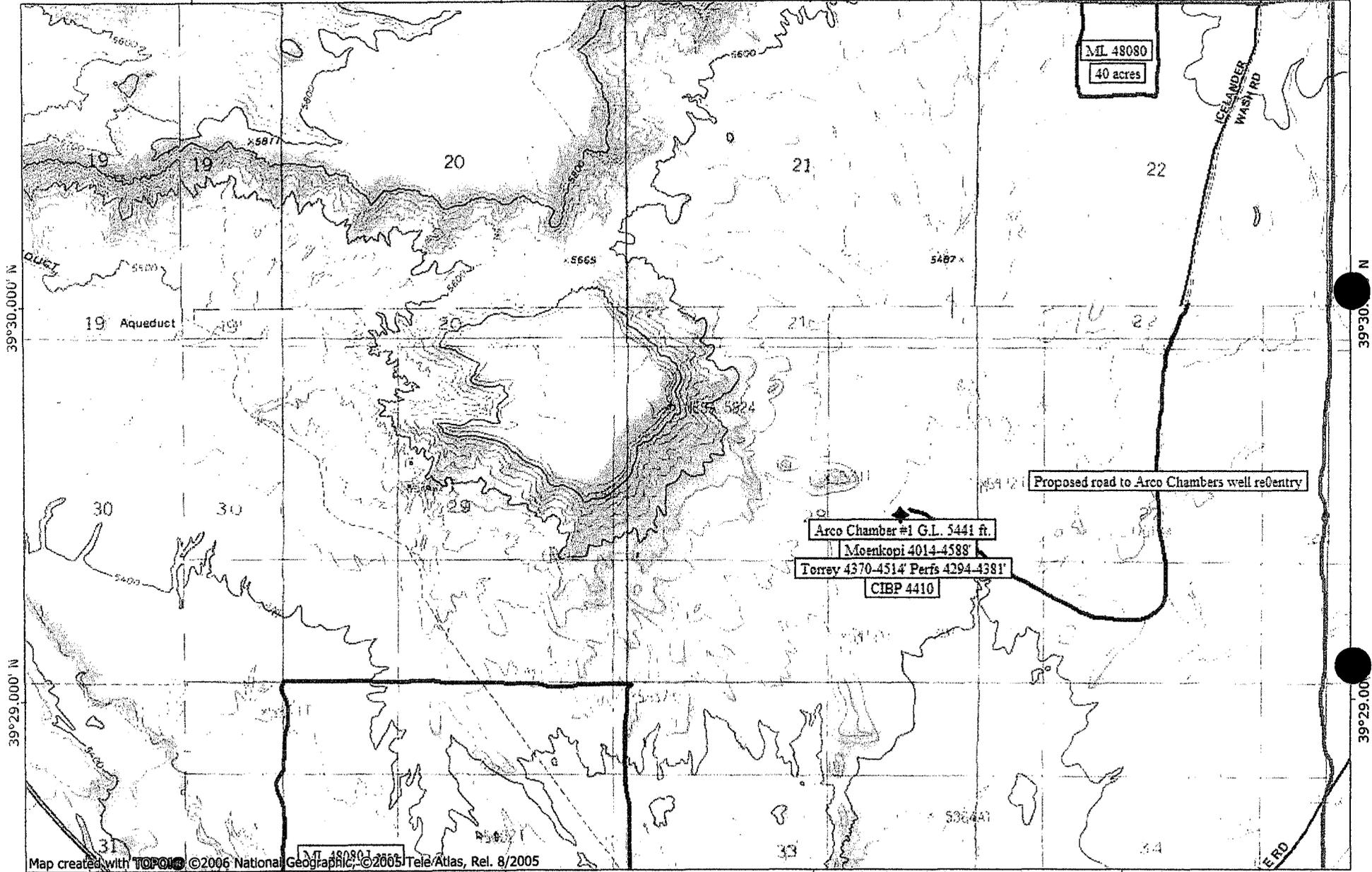
39°29.672' N, 110°28.406' W WGS84TOPO! map printed on 08/19/08 from "ARCO CHAMBER #1 MAP.tpo"

110°30.000' W

110°29.000' W

110°28.000' W

WGS84 110°27.000' W



Map created with TOPO! ©2006 National Geographic, ©2005 Tele Atlas, Rel. 8/2005

110°30.000' W

110°29.000' W

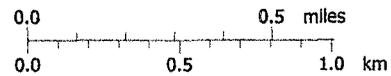
110°28.000' W

WGS84 110°27.000' W

ALKER EXPLORATIN LLC

ARCO Chambers 1-A

Location : 2500' FNL & 1500' FEL SLB&M Sec 28-T155-R13E

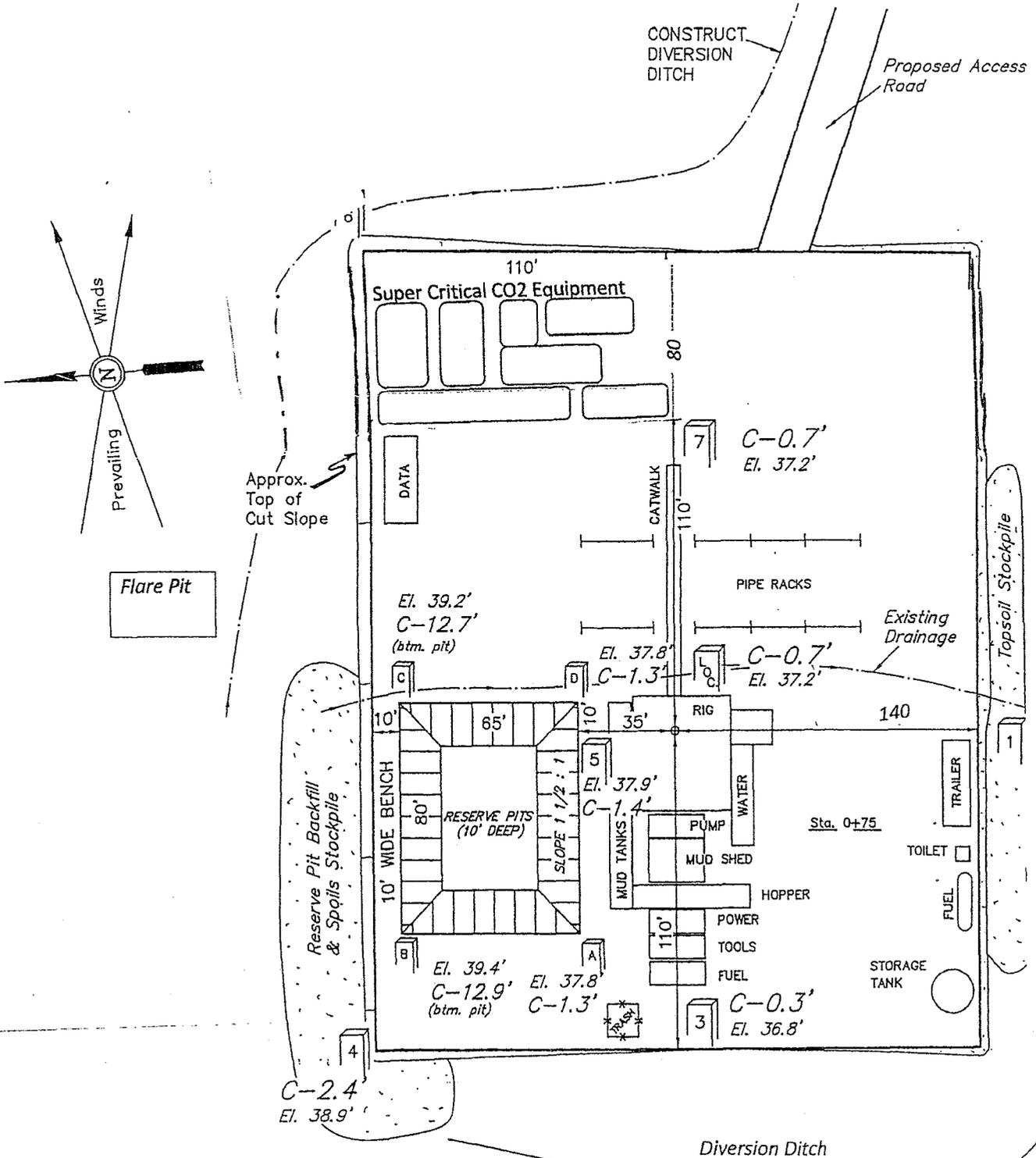


TN+ / MN
12 1/2°
08/19/08

CONFIDENTIAL

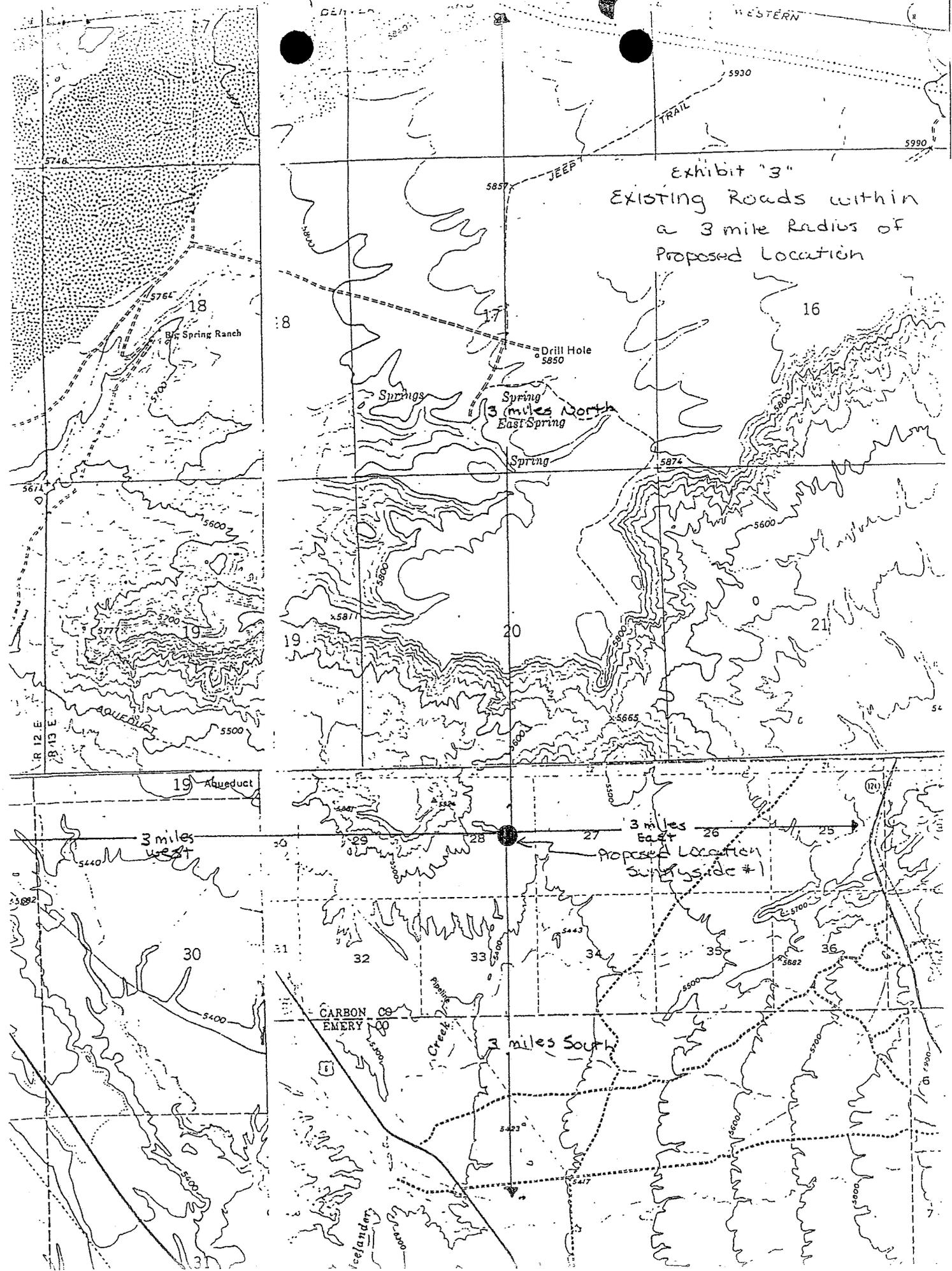
ALKER EXPLORATION LLC

LOCATION LAYOUT FOR
 ARCO CHAMBERS 1-A
 SECTION 28 - T15S-R-13E, SLB&M
 2500 FNL 1500 FEL
 CARBON COUNTY, UTAH



Total Pit Capacity
 W/2' of Freeboard
 = 4,220 Bbls. ±
 Total Pit Volume
 = 1,230 Cu. Yds.

Exhibit "3"
Existing Roads within
a 3 mile Radius of
Proposed Location



ENERGY OF THE ROCKIES (EOR) LLC
ARCO CHAMBERS #1-A
 LOCATED IN CARBON COUNTY, UTAH
 SECTION 28, T15S, R13E, S.L.B.&M.

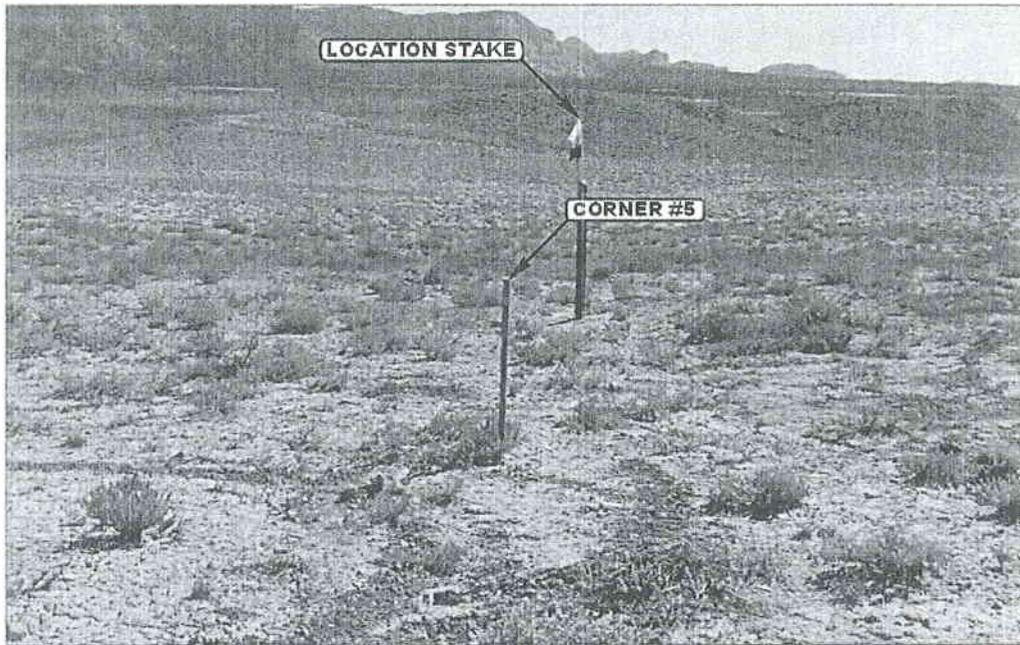


PHOTO: VIEW FROM CORNER #5 TO LOCATION STAKE

CAMERA ANGLE: SOUTHEASTERLY



PHOTO: VIEW FROM BEGINNING OF PROPOSED ACCESS

CAMERA ANGLE: NORTHWESTERLY



Uintah Engineering & Land Surveying
 85 South 200 East Vernal, Utah 84078
 (435) 789-1017 * FAX (435) 789-1813

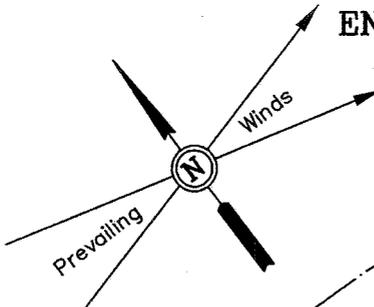
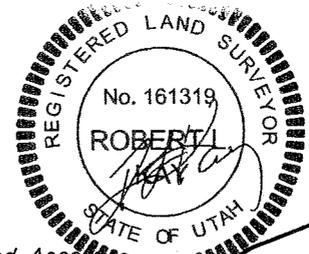
LOCATION PHOTOS			10	22	08	PHOTO
			MONTH	DAY	YEAR	
TAKEN BY: T.A.	DRAWN BY: Z.L.	REVISED: 00-00-00				

CONFIDENTIAL

ENERGY OF THE ROCKIES (EOR) LLC

LOCATION LAYOUT FOR

ARCO CHAMBERS #1-A
SECTION 28, T15S, R13E, S.L.B.&M.
2641' FSL 1578' FEL



SCALE: 1" = 50'
 DATE: 10-22-08
 Drawn By: S.L.

CONSTRUCT
 DIVERSION
 DITCH

Proposed Access
 Road

C-4.8'
 El. 51.5'

F-4.9'
 El. 41.8'
 Sta. 3+00

Approx.
 Top of
 Cut Slope

Approx.
 Toe of
 Fill Slope

Total Pit Capacity
 W/2' of Freeboard
 = 4,220 Bbls. ±
 Total Pit Volume
 = 1,230 Cu. Yds.

Reserve Pit Backfill
 & Spoils Stockpile

El. 51.5'
 C-14.8'
 (btm. pit)

El. 49.2'
 C-2.5'

C-0.8'
 El. 47.5'

El. 51.6'
 C-14.9'
 (btm. pit)

El. 49.3'
 C-2.6'

C-0.6'
 El. 47.3'

C-4.7'
 El. 51.4'

F-5.7'
 El. 41.0'

Sta. 0+00

F-5.9'
 El. 40.8'

CONSTRUCT
 DIVERSION
 DITCH

NOTES:

Elev. Ungraded Ground At Loc. Stake = 5447.5'
 FINISHED GRADE ELEV. AT LOC. STAKE = 5446.7'

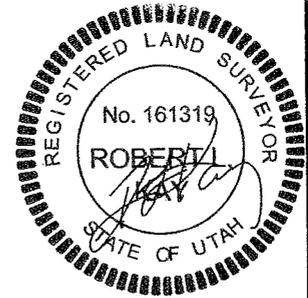
UINTAH ENGINEERING & LAND SURVEYING
 85 So. 200 East * Vernal, Utah 84078 * (435) 789-1017

CONFIDENTIAL

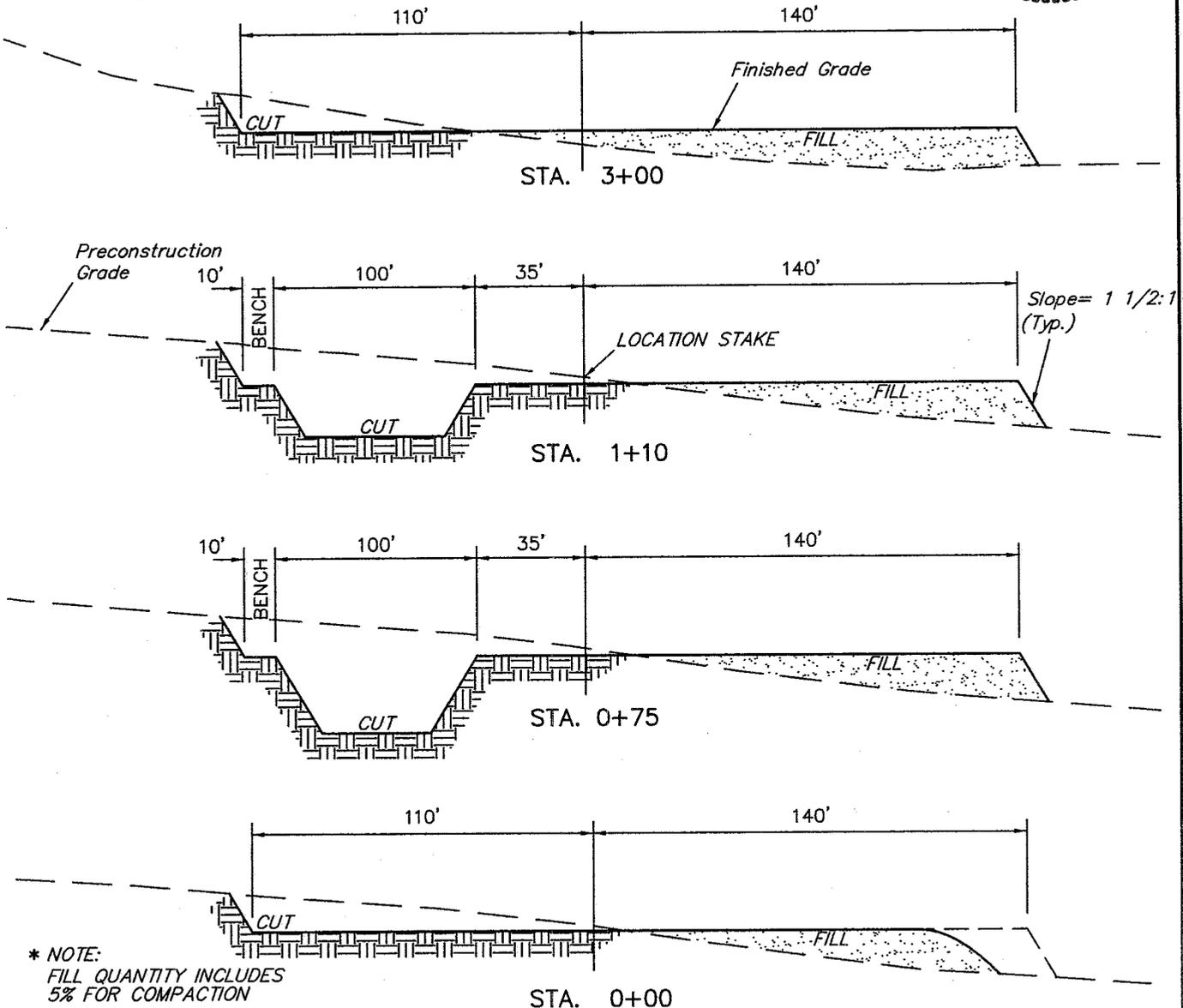
ENERGY OF THE ROCKIES

TYPICAL CROSS SECTIONS FOR

ARCO CHAMBERS #1-A
SECTION 28, T15S, R13E, S.L.B.&M.
2641' FSL 1578' FEL



1" = 20'
X-Section Scale
1" = 50'
DATE: 10-22-08
Drawn By: S.L.



* NOTE:
FILL QUANTITY INCLUDES
5% FOR COMPACTION

NOTE:
Topsoil should not be
Stripped Below Finished
Grade on Substructure Area.

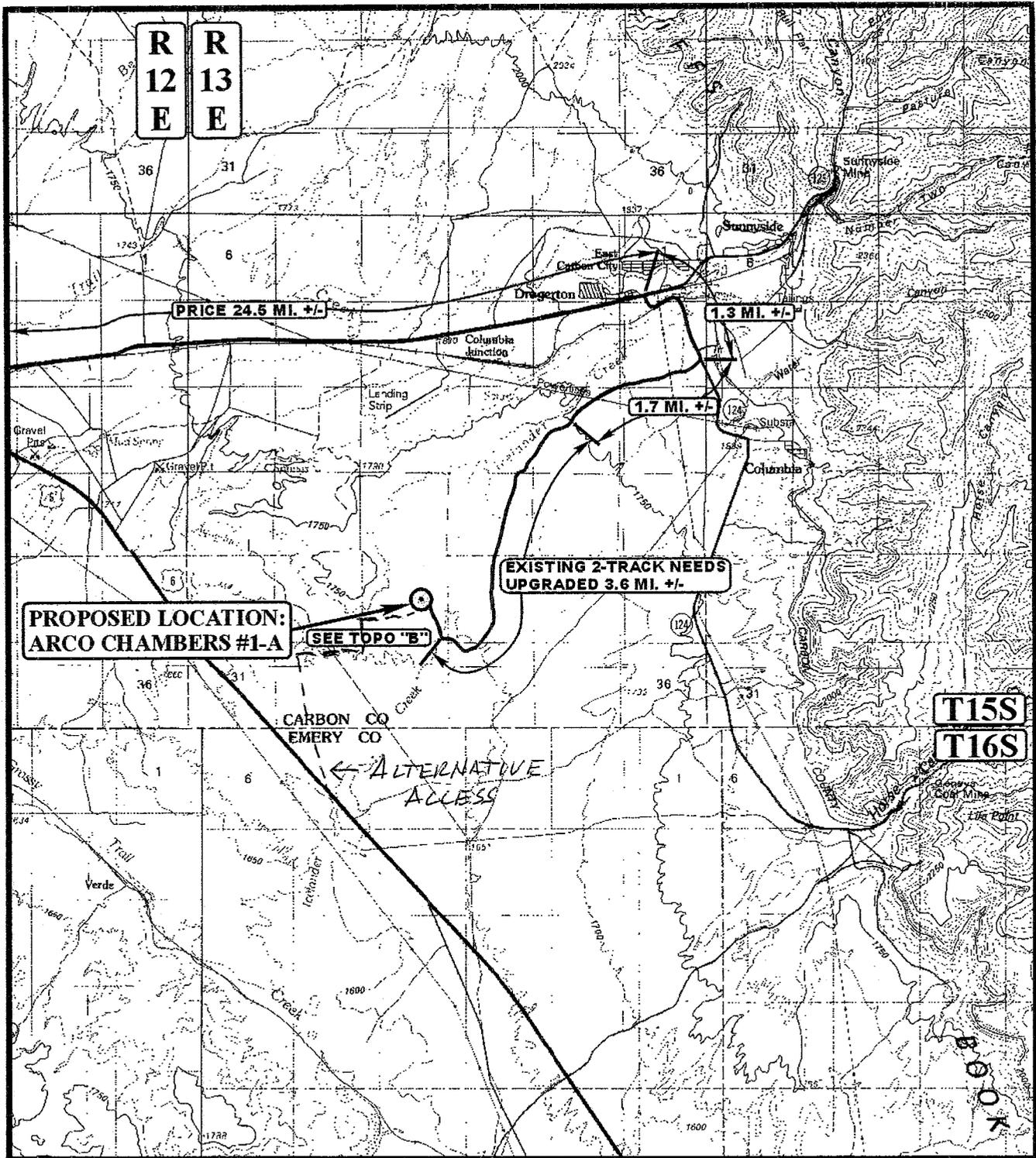
APPROXIMATE ACREAGES
PROPOSED WELL SITE DISTURBANCE = ±1.880 ACRES
PROPOSED ROAD DISTURBANCE = ± 1.905 ACRES
TOTAL = ±3.785 ACRES

APPROXIMATE YARDAGES

CUT	
(6") Topsoil Stripping	= 1,560 Cu. Yds.
Remaining Location	= 5,190 Cu. Yds.
TOTAL CUT	= 6,750 CU.YDS.
FILL	= 4,570 CU.YDS.

EXCESS MATERIAL	= 2,180 Cu. Yds.
Topsoil & Pit Backfill (1/2 Pit Vol.)	= 2,180 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	= 0 Cu. Yds.

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East * Vernal, Utah 84078 * (435) 789-1017



LEGEND:

⊗ PROPOSED LOCATION



ENERGY OF THE ROCKIES (EOR) LLC

**ARCO CHAMBERS #1-A
SECTION 28, T15S, R13E, S.L.B.&M.
2641' FSL 1578' FEL**



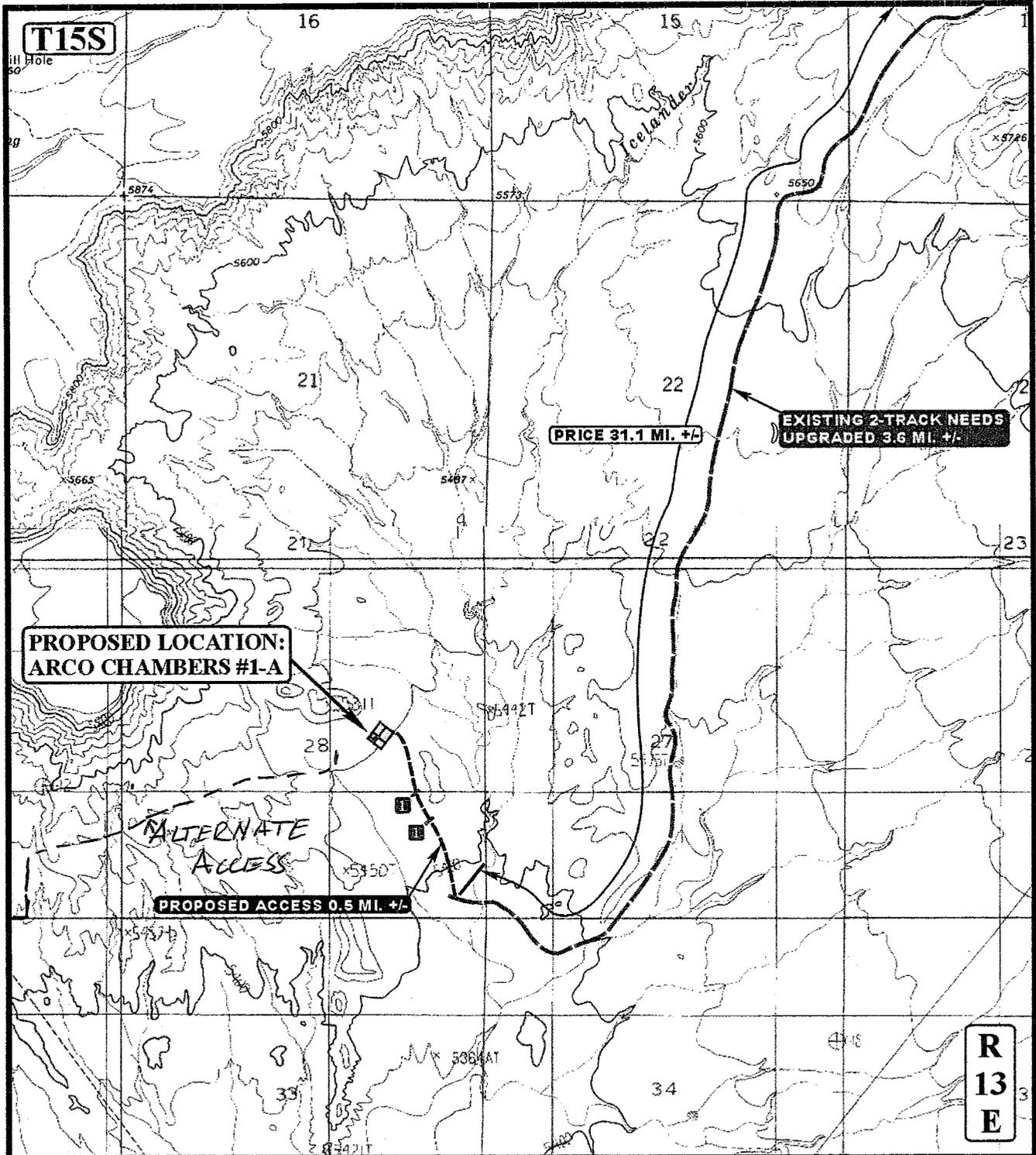
Utah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

**TOPOGRAPHIC
MAP**

10	22	08
MONTH	DAY	YEAR



SCALE: 1:100,000 DRAWN BY: Z.L. REVISED: 00-00-00



LEGEND:

- EXISTING ROAD
- - - PROPOSED ACCESS ROAD
- EXISTING 2-TRACK NEEDS UPGRADED
- 18" CMP REQUIRED

ENERGY OF THE ROCKIES (EOR) LLC

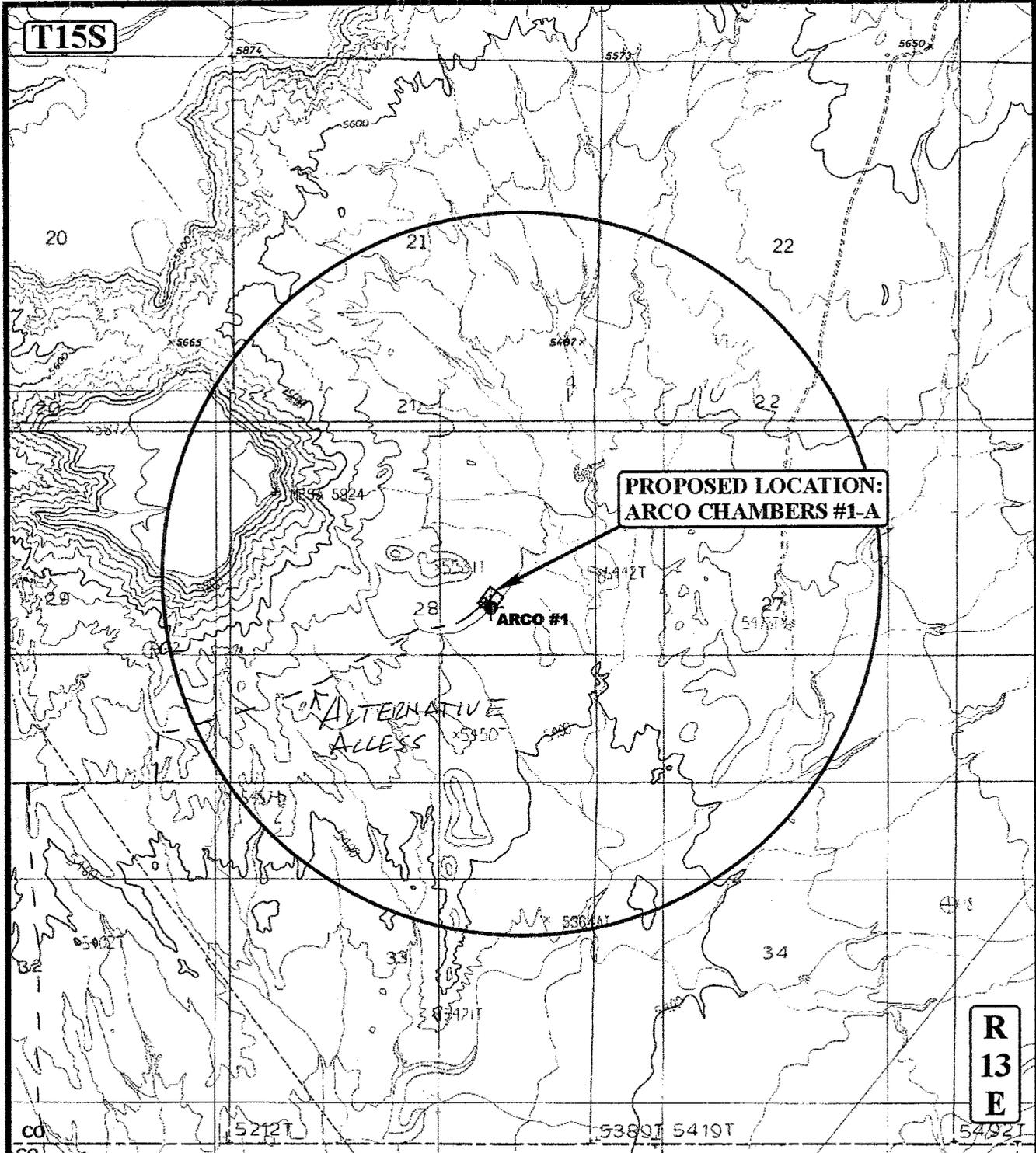
**ARCO CHAMBERS #1-A
SECTION 28, T15S, R13E, S.L.B.&M.
2641' FSL 1578' FEL**

**U
E
S**

Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813



TOPOGRAPHIC **10** **22** **08**
MAP MONTH DAY YEAR
B
SCALE: 1" = 2000' DRAWN BY: Z.L. REVISED: 00-00-00 **TOPO**



**R
13
E**

LEGEND:

- ∅ DISPOSAL WELLS
- PRODUCING WELLS
- SHUT IN WELLS
- ∅ WATER WELLS
- ABANDONED WELLS
- TEMPORARILY ABANDONED



ENERGY OF THE ROCKIES (EOR) LLC

**ARCO CHAMBERS #1-A
SECTION 28, T15S, R13E, S.L.B.&M.
2641' FSL 1578' FEL**



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

**TOPOGRAPHIC
MAP**

10	22	08
MONTH	DAY	YEAR



SCALE: 1" = 2000' DRAWN BY: Z.L. REVISED: 00-00-00

TOPO



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

August 27, 2009

Alker Exploration LLC
97 Main Street
Manti, UT 84642

Re: Arco Chambers #1-A Well, Surface Location 2641' FSL, 1578' FEL, SW NE, Sec. 28, T. 15 South, R. 13 East, Bottom Location 2508' FNL, 2030' FWL, SE NW, Sec. 28, T. 15 South, R. 13 East, Carbon County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-007-30099.

Sincerely,

Gil Hunt
Associate Director

pab
Enclosures

cc: Carbon County Assessor
Bureau of Land Management, Price Office



Operator: Alker Exploration LLC
Well Name & Number Arco Chambers #1-A
API Number: 43-007-30099
Lease: UTU-77855

Surface Location: SW NE Sec. 28 T. 15 South R. 13 East
Bottom Location: SE NW Sec. 28 T. 15 South R. 13 East

Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division within 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284

Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dustin Doucet at (801) 538-5281 (801) 733-0983 home

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.
5. In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.
6. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER **DEC 31 2008**

BLM

1a. Type of Work DRILL REENTER
1b. OIL GAS OTHER Single Zone Multiple Zone

7. IF UNIT or CA AGREEMENT NAME AND NO.:
Icelandic UTU-86616X

8. LEASE NAME AND WELL NO.
ARCO CHAMBERS #1-A

2. NAME OF OPERATOR: **ALKER EXPLORATION LLC**

9. API WELL NO.
43-007-30099 Re-entry

3a. ADDRESS OF OPERATOR **97 North Main Street
Manti Utah 84642**

3b. **435.835.4248 Office
PHONE 435.340.0557 Mobil**

10. FIELD AND POOL, OR EXPLORATORY
EXPLORATORY

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

At Surface **2641 FSL & 1578 FEL Horizontal
BHL 2508' FNL, 2030' FWL**
At proposed prod. Zone **Moenkopi BHL: 146.2' North, 1671.08' West from surface well bore**

11. SEC., T.R.M. or BLK AND SURVEY OR AREA
28-T15S-R13E

14. Distance in miles and direction from nearest town or post office*
+/- 7 MILES SW OF EAST CARBON CITY, UTAH

12. County or Parish
CARBON

13. State
Utah

15. DISTANCE FROM PROPOSED*
LOCATION TO NEAREST **Lease 1500 ft.**
property or lease line, ft.
(Also to nearest drig. unit line, if any)

16. No. of acres in lease
6798

17. Spacing Unit dedicated to this well
Not Assigned

18. Distance from proposed location*
to nearest well, drilling completed, **+/- 7 miles from EDP #1**
applied for, on this lease, ft.

19. Proposed Depth
4500 ft

20. BLM/BIA Bond No. on file
UTB-000341

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
5452 ft, GL

22. Approximate date work will start*
August 15th, 2008

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas No.1, must be attached to this form:

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan.
- 3. A Surface Use Plan (if the location is on National Forest Lands, the SUPO must be filed with the appropriate Forest Service Office).

- 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the BLM

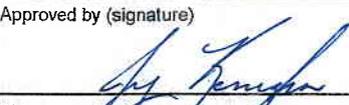
COPY
UDOGM

25. Signature 

Name (Printed/Type)
Steven J. Lund

Date
10/29/08

Title
Petroleum Engineer

Approved by (signature) 

Name (Printed/Typed)
JERRY KEWICKA

Date
10/23/09

Title
ACTING FIELD MANAGER

Office
PRICE FIELD OFFICE

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

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly, and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NOTICE OF APPROVAL

RECEIVED
NOV 02 2009

CONFIDENTIAL

CONDITIONS OF APPROVAL ATTACHED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIGHT-OF-WAY GRANT

Issuing Office
Price Field Office

Serial Number
UTU-83339

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).
2. Nature of Interest:

- a. By this instrument, the holder:

Aker Exploration LLC,
97 North Main Street,
Manti, UT 84642

receives a right to construct, operate, maintain, and terminate an access road for ARCO Chambers #1-A as described in the Plan of Development and Map attached, on public lands described as follows:

T. 16 S., R. 13 E., Salt Lake Meridian, Emery County, Utah
Section 5: Lots 3 and 4, W $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$.

- b. The right-of-way or permit area granted herein is 50 feet wide, 6,900 feet long and contains 7.920 acres, more or less.
- c. This instrument shall terminate upon expiration of lease UTU-77855 or the 31st of December 30 years from the effective date of this grant unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.
- d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.
- e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever

COPY
UDOGM



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PRICE FIELD OFFICE

125 SOUTH 600 WEST PRICE, UT 84501 (435) 636-3600



CONDITIONS OF APPROVAL FOR APPLICATION FOR PERMIT TO DRILL

Company: Alker Exploration LLC Location: NWSE-Sec. 28-T15S-R13E (s)
Well No: Arco Chambers #1-A Lease No: SENW-Sec. 28-T15S-R13E (b)
API No: 43-007-30099 Re-entry Agreement: UTU-77855
Unit: Icelander UTU-86616X

Title	Name	Office Phone Number	Cell Phone Number
Acting Field Manager & Authorized Officer:	Jerry Kenczka	(435) 636-3633	(435) 828-7378
Petroleum Engineer:	Marvin Hendricks	(435) 636-3661	(435) 650-9136
Petroleum Engineering Technician	Randy Knight (Primary)	(435) 636-3615	(435) 650-9143
Petroleum Engineering Technician	Walton Willis (Alt.)	(435) 636-3662	(435) 650-9140
NRS/Enviro Scientist:	Kyle Beagley (Primary)	(435) 636-3668	
NRS/Enviro Scientist:	Don Stephens (Alt.)	(435) 636-3608	

Fax: (435) 636-3657

**A COPY OF THESE CONDITIONS SHALL BE FURNISHED TO YOUR
FIELD REPRESENTATIVE TO INSURE COMPLIANCE**

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (43 CFR Part 3160), and this approved Application for Permit to Drill including Surface and Downhole Conditions of Approval. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling, and completion operations. **This permit is approved for a two (2) year period, or until lease expiration, whichever occurs first. An additional extension, up to two (2) years, may be applied for by sundry notice prior to expiration.**

NOTIFICATION REQUIREMENTS

Location Construction (Notify NRS)	- Forty-Eight (48) hours prior to construction of location and access roads.
Location Completion (Notify NRS)	- Prior to moving on the drilling rig.
Spud Notice (Notify Petroleum Engineer)	- Twenty-Four (24) hours prior to spudding the well.
Casing String & Cementing (Notify Petroleum Tech.)	- Twenty-Four (24) hours prior to running casing and cementing all casing strings.
BOP & Related Equipment Tests (Notify Supv. Petroleum Tech.)	- Twenty-Four (24) hours prior to initiating pressure tests.
First Production Notice (Notify Petroleum Engineer)	- Within Five (5) business days after new well begins or production resumes after well has been off production for more than ninety (90) days.

COPY

UDOGM

***SURFACE USE PROGRAM
CONDITIONS OF APPROVAL (COAs)***

I Site Specific Conditions of Approval

- A pre-construction field meeting may be conducted prior to beginning any dirt work approved under this APD. The operator shall contact Kyle Beagley at the Price BLM office @ 435-636-3668 at least 48-hours prior to beginning operations so that the meeting can be scheduled. The operator is responsible for having all contractors present (dirt contractors, drilling contractor, pipeline contractor, project oversight personnel, etc.) including the overall field operations superintendent, and for providing all contractors copies of the approved APD(s), project map and BLM Conditions of Approval (COAs) pertinent to the work that each will be doing.
- EOR will comply with all Applicant-committed Environmental Protection Measures presented in Attachment 1.
- EOR will measure gas production on the well pad unless permission is granted for measurement at another place.
- As required by the Approved RMP, if cultural resources are uncovered during surface-disturbing activities, EOR will suspend operations at the site and immediately contact the Authorized Officer, who will arrange for a determination of eligibility in consultation with the State Historic Preservation Officer (SHPO), and, if necessary, recommend a recovery or avoidance plan.
- As required under 40 CFR 112.3(e), EOR will maintain a copy of the SPCC plan at each facility, if the facility is normally attended at least 8 hours per day, or at the nearest field office if the facility is not so attended. EOR will also implement and adhere to SPCC plans in a manner such that any spill or accidental discharge of oil will be reported and remediated.
- All equipment and personnel used during drilling and construction activities will be restricted to only approved access roads.
- All permanent above-ground structures (e.g., production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape within 6 months of being located on site. The paint used will be a color which simulates "Standard Environmental Colors." All facilities will be painted the designated color at the time of installation.
- No oil, lubricants, or toxic substances may be drained onto the ground surface.
- EOR will not allow any open burning of garbage or refuse at well sites or other facilities.
- EOR will repair or replace to current BLM standards any fences, cattleguards, gates, drift fences, and natural barriers that are damaged as a result of the Proposed Action. Cattleguards will be used instead of gates for livestock control on most road ROWs.
- To minimize wildlife and vehicle collisions, EOR will advise project personnel regarding appropriate speed limits in the Project Area. Employees and contractors will also be educated about anti-poaching laws.

II Standard Conditions of Approval

General

- EOR will provide geo-referenced spatial data depicting the as-built location of all facilities (well, road, etc.) and any other related facilities to the BLM by November 1st of each year until completion of project construction activities has occurred. Because this is a one-well project EOR will provide GIS data to the BLM within 30 days of well completion or plugging.
- EOR will inform their employees, contractors, and subcontractors about relevant Federal regulations intended to protect archaeological and cultural resources. All personnel will be informed that collecting artifacts, including arrowheads, is a violation of Federal law and that employees engaged in this activity will be subject to disciplinary action.

Construction

- Topsoil will be removed from constructed well locations including areas of cut and fill, and stockpile at the site. Topsoil will also be salvaged for use in reclamation on all other areas of surface disturbance (roads, pipelines, etc.). Clearly segregate topsoil from excess spoil material. Any topsoil stockpiled for one year or longer will be signed and stabilized with annual ryegrass or other suitable cover crop.
- The operator will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional unnecessary surface disturbance and where it does not impede watershed and drainage flows.
- EOR will construct the backslope no steeper than 1½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.
- EOR will maintain a minimum 20-foot undisturbed vegetative border between toe-of-fill of pad and/or pit areas and the edge of adjacent drainages, unless otherwise directed by the BLM Authorized Officer.
- Reserve pits will be adequately fenced during and after drilling operations until the pit is reclaimed so as to effectively keep out wildlife and livestock. Adequate fencing is defined as follows: 1) Construction materials will consist of steel or wood posts. Three or four strand wire (smooth or barbed) fence or hog panel (16-foot length by 50-inch height) or plastic snow fence must be used with connectors such as fence staples, quick-connect clips, hog rings, hose clamps, twisted wire, etc. Electric fences will not be allowed; 2) Construction standards: Posts shall be firmly set in ground. If wire is used, it must be taut and evenly spaced, from ground level to top wire, to effectively keep out animals. Hog panels must be tied securely into posts and one another using fence staples, clamps, etc. Plastic snow fencing must be taut and sturdy. Fencing must be at least 2 feet from the edge of the pit. Three sides of the pit must be fenced before drilling begins. The fourth side of the pit must be fenced immediately upon completion of drilling and prior to rig release. The fence must be left up and maintained in adequate condition until pit is closed.
- The reserve pit will be oriented to prevent collection of surface runoff. After the drilling rig is removed, the operator may need to construct a berm on the uphill side of the reserve pit to divert surface drainage around it. If constructed, the berm will be left intact until the pit is closed.

- The reserve pit will be lined with an impermeable liner if permeable subsurface material is encountered. An impermeable liner is any liner having a permeability less than 10^{-7} cm/sec. The liner will be installed so that it will not leak and will be chemically compatible with all substances that may be put in the pit. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. In gravelly or rocky soils, a suitable bedding material such as sand will be used prior to installing the liner.
- Culverts will be placed on channel bottoms on firm, uniform beds, which have been shaped to accept them, and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.
- The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113 and the Surface Operating Standards and Guidelines for Oil and Gas Development (The Gold Book).
- The operator shall submit a Sundry Notice (Form 3160-5) to BLM for approval prior to construction of any new surface disturbing activities that are not specifically addressed in the approved APD.
- Surface disturbance will be limited to the approved location and access routes.
- No surface-disturbing activities will occur during muddy and wet periods (e.g., when soils are saturated and excessive rutting of more than 4 inches with multiple passes could occur).
- The edges of well pads will be feathered to blend with the surrounding landscape.
- Removal and disturbance of vegetation will be kept to a minimum through construction site management (e.g., using previously disturbed areas and existing easements where feasible, placing pipelines adjacent to roads, limiting well pad size, etc.).
- During the construction phase of the project, EOR will implement a reclamation and weed control program after each segment of project completion. EOR will reseed all portions of the well pad and the ROW not utilized for vehicular traffic with the recommended seed mix (see attachment 2). Post-construction seeding application will continue until determined successful by the BLM (refer to attachment 3 "Green River District Reclamation Guidelines.") Weed control will be conducted through an Approved Pesticide Use and Weed Control Plan from the AO.
- To reduce the spread or introduction of noxious and invasive weed species into the Project Area via project-related vehicles and equipment, EOR and its contractors will power-wash all construction equipment prior to entering the Project Area.
- Areas used for spoil storage will be stripped of topsoil before spoil placement.
- Appropriate erosion control and revegetation measures will be employed. In areas with unstable soils where seeding alone may not adequately control erosion, grading will be used to minimize slopes and water bars will be installed on disturbed slopes. Erosion control efforts will be monitored by EOR and necessary modifications would be made to control erosion.
- Sufficient topsoil or other suitable materials to facilitate revegetation will be segregated from subsoils during all construction operations requiring excavation and will be returned to the surface upon completion of operations. Soils compacted during construction will be ripped and

tilled as necessary prior to reseeding. Cut and fill sections on all roads will be revegetated with the recommended seed mix (see attachment 2).

- During the activities of road maintenance, new road construction or the construction of the well pad, if any standing live or dead trees are damaged, cut down or knocked over by grading or construction equipment, actions would be taken to remove the vegetation from the road or pad edge. These materials would be distributed over the reclaimed areas as directed by the BLM.

Operations/Maintenance

- Rat and mouse holes shall be filled and compacted from the bottom to the top immediately upon release of the drilling rig from the location.
- Hydrocarbons shall be put in test tanks on location during completion work. Produced water will be put in the reserve pit during completion work per Onshore Order #7.
- The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes. These include drilling muds and cuttings, rigwash, and excess cement and certain completion & stimulation fluids defined by EPA as exempt. It does not include drilling rig waste, such as spent hydraulic fluids, used engine oil, used oil filter, empty cement, drilling mud, or other product sacks, empty paint, pipe dope, chemical or other product containers, and excess chemicals or chemical rinsate. Any evidence of non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.
- If this well is drilled during the fire season (June-October), the operator shall institute all necessary precautions to ensure that fire hazard is minimized, including but not limited to mowing vegetation on the access route(s) and well location, and keeping firefighting equipment readily available when drilling, etc.

Dry Hole/Reclamation

- All disturbed lands associated with this project, access roads, well pad, etc. will be expediently reclaimed. Reclamation seeding will occur during the dormant fall season (typically October 1 through the first snowfall event) in accordance with the surface use plan and any pertinent site-specific COAs.
- Before the location has been reshaped and prior to redistributing the topsoil, the operator will rip or scarify the drilling platform and access road on the contour, to a depth of at least 12 inches. The rippers are to be no farther than 24 inches apart.
- Reserve pits will be closed within 90 days, unless the BLM Authorized Officer gives an extension. Squeezing of pit fluids and cuttings is prohibited. Pits must be dry of fluids or they must be removed via vac-truck or other environmentally acceptable method prior to backfilling, re-contouring and replacement of topsoil. Mud and cuttings left in pit must be buried at least 3 feet below re-contoured grade. The operator will be responsible for re-contouring any subsidence areas that develop from closing a pit before it is sufficiently dry.
- EOR will distribute the topsoil evenly over the entire location and other disturbed areas; and prepare the seedbed by disking to a depth of 4 to 6 inches following the contour.

- Disturbed lands will be re-contoured back to conform to existing undisturbed topography within 60 days of the well going into production or being plugged. No depressions will be left that trap water or form ponds.
- The attached seed mixture is recommended for reclamation. If EOR intends to use a different seed mixture, that mixture must be approved by the appropriate Authorized Officer.
- Any mulch utilized for reclamation needs to be certified weed-free.
- Attachment 3, Green River District Reclamation Guidelines, shall be followed and complied with in reclamation efforts for this project.
- The reclamation objectives found in the Green River District Reclamation Guidelines (refer to attachment 3) and subsequent actions in order to reach those objectives shall be followed.
- A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval.
- For performance bond release approval, a Final Abandonment Notice (with a surface owner release letter on split-estate) must be submitted prior to a final abandonment evaluation by the BLM.
- Soil fertility testing and the addition of soil amendments may be required to stabilize some disturbed lands.
- Waterbars are to be constructed at least one (1) foot deep, on the contour with approximately two (2) feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars are to be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines:

Slope (percent)	Spacing Interval (feet)
≤ 2	200
2 – 4	100
4 – 5	75
≥ 5	50

Roads

- New road construction and road reconstruction will comply with the BLM road and safety standards found in the BLM's 9113-Roads Manual except as modified by the BLM.
- To ensure public safety and the protection of Federal resources, roads will be constructed to an appropriate standard, no higher than necessary to accommodate the intended use. Based on the intended use of the road the access road for the ARCO Chambers #1-A well is classified as a BLM resource road which normally has a 12 to 14 foot travel way with intervisible turnouts. Maximum allowable travel way/running surface width is 16 feet.
- No road grades in excess of 10 percent will occur without written permission of the Authorized Officer.

- Topsoil from access roads and pipelines are to be wind rowed along the uphill side of the road or stored in an approved manner. When the road and pipeline is rehabilitated, this soil will then be used as a top coating for the seed bed.
- The operator shall provide an inspector under the direction of a registered professional engineer (PE) at all times during road construction. A PE shall certify (statement with PE stamp) that the road was constructed to the required BLM road standards.
- Erosion-control structures such as water bars, diversion channels, and terraces will be constructed to divert water and reduce soil erosion on the disturbed area. Road ditch turnouts shall be equipped with energy dissipaters as needed to avoid erosion. Where roads interrupt overland sheet-flow and convert this runoff to channel flow, ditch turnouts shall be designed to reconvert channel flow to sheet flow. Rock energy dissipaters and gravel dispersion fans may be used, or any other design which would accomplish the desired reconversion of flow regime. As necessary cut banks, road drainages, and road crossings shall be armored or otherwise engineered to prevent headcutting.

Health and Safety

- In accordance with 29 CFR 1910.1200, a Material Safety Data Sheet (MSDS) for every chemical or hazardous material brought on-site will be kept on file in the Price Field Office.
- EOR will transport and/or dispose of any hazardous wastes, as defined by RCRA, as amended, in accordance with all applicable Federal, State, and local regulations.
- All storage tanks that contain produced water, or other fluids which may constitute a hazard to public health or safety, will be surrounded by a secondary means of containment for the entire contents of the tank, plus freeboard for precipitation, or to contain 110 percent of the capacity of the tank. The appropriate containment and/or diversionary structures or equipment, including walls and floor, will be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not drain, infiltrate, or otherwise escape to groundwater or surface waters before cleanup is completed. A liner shall be used when the ground is permeable and would allow filtration of fluid to the subsurface strata.
- Notice of any spill or leakage, as defined in BLM NTL 3A, will be immediately reported by EOR to the Authorized Officer and to other Federal and State officials as required by law. Oral notice will be given as soon as possible, but within no more than 24 hours, and those oral notices will be confirmed in writing within 72 hours of any such occurrence.

Attachments:

Attachment 1 - Applicant-committed Environmental Protection Measures

Attachment 2 - Seed Mix Recommendation for Reclamation

Attachment 3 - Green River District Reclamation Guidelines

Attachment 1

2.2.13 Applicant-Committed Environmental Protection Measures

In addition to the environmental protection measures that are required by law, the Price RMP (BLM 2008a), EORs lease, or other applicable regulatory authorities, the following Applicant-Committed Environmental Protection Measures (ACEPMs) would also be applied to all activities on Federal lands within the Project Area or off-lease ROW. Implementation of these measures would be incorporated into the DR, which then authorizes the BLM to enforce these measures to help avoid or minimize impacts to the environment.

2.2.13.1 Cultural Resources

- Under Alternative C, a Class III inventory would be conducted for the northern access route in all areas proposed for surface disturbance, both within the Project Area and along the northern off-lease ROW. This survey would be conducted on a site-specific basis prior to the initiation of construction activities. All prehistoric and historic sites documented during the Class III inventory as eligible for listing on the National Register of Historic Places (NRHP), as well as areas identified as having a high probability of significant subsurface materials, would be avoided by development. Specifically, the access road would be altered or rerouted as necessary to avoid impacting NRHP-eligible sites. If avoidance is not feasible or does not provide the required protection, adverse effects would be mitigated (e.g., data recovery through excavation).
- EOR would inform their employees, contractors, and subcontractors about relevant Federal regulations intended to protect archaeological and cultural resources. All personnel would be informed that collecting artifacts, including arrowheads, is a violation of Federal law and that employees engaged in this activity would be subject to disciplinary action.
- If previously undocumented sites of religious or cultural importance are identified within the Project Area or off-lease ROW during the construction phase of the project, EOR would review the potential impacts consistent with the Regulatory Requirements cited in **Section 2.2.13** to verify they are sufficient to minimize any impacts. Therefore, documented and undocumented cultural resources would be protected during construction, operations, and maintenance operations and no unmitigated cultural resources that are eligible for listing on the NRHP would be impacted by the Proposed Action.

2.2.13.2 Vegetation (Including Special Status Plant Species; Invasive and Noxious Species; and Wetlands/Riparian Zones)

- Prior to the initiation of construction activities, a noxious weed inventory would be conducted at the proposed well pad and along the proposed access road. Results of the inventory would be submitted to the BLM and attached to the associated APD.
- Prior to the initiation of construction activities, a Creutzfeld cryptantha (*Cryptantha creutzfeldii*) habitat assessment and plant inventory would be conducted in all areas proposed for surface disturbance. All plants documented during the inventory would be avoided by development. Specifically, the well pad location and access road would be altered or rerouted as necessary to avoid impacting identified plants.

2.2.13.3 Water Resources

- EOR would inform their employees, contractors, and subcontractors of the appropriate actions to take, based on the SPCC, if an accidental spill were to occur, as well as the potential impacts that could result from such a spill.

2.2.13.4 Rangeland Management

- EOR would repair or replace to current BLM standards any fences, cattle guards, gates, drift fences, and natural barriers that are damaged as a result of the Proposed Action along with private property stipulations. Cattle guards would be used instead of gates for livestock control along the road ROWs with the exception of those requests stated by fee land owners.

2.2.13.5 Fish and Wildlife (Including Special Status Species)

- To minimize wildlife mortality due to vehicle collisions, EOR would direct project personnel regarding appropriate speed limits in the Project Area and along the access road. The Utah Division of Wildlife Resources (UDWR) would be contacted regarding the presence of carrion within or along roadways.
- Employees and contractors would be educated about anti-poaching laws. If wildlife law violations are discovered, the offending employee would be subject to disciplinary action by local law enforcement and by EOR.
- Raptor management would be guided by "*Best Management Practices for Raptors and Their Associated Habitats in Utah*" (BLM 2008a, Appendix A). As such, prior to any surface-disturbing activities between January 1 and September 31, a BLM-approved contractor would survey all areas within 1-mile of proposed surface disturbance for the presence of raptor nests. If occupied/active raptor nests are found, construction would not occur during the nesting season for that species within the species-specific buffer described in guidelines above. In addition, as specified in these guidelines, modifications of these spatial and seasonal buffers for BLM-authorized actions would be allowed, so long as protection of nesting raptors was ensured.
- Prior to the initiation of construction activities, a prairie dog colony survey would be conducted in all areas proposed for surface disturbance. All active colonies documented during the inventory would be avoided by development. Specifically, the well pad location and access road would be altered or rerouted as necessary to avoid impacting identified active colonies.

2.2.13.6 Soils

- Areas used for spoil storage would be stripped of topsoil before spoil placement.
- Appropriate erosion control and revegetation measures would be employed. In areas with unstable soils where seeding alone may not adequately control erosion, grading would be used to minimize slopes and water bars would be installed on disturbed slopes. Erosion control efforts would be monitored by EOR and necessary modifications would be made to control erosion.
- Sufficient topsoil or other suitable materials to facilitate revegetation would be segregated from subsoils during all construction operations requiring excavation, and would be returned to the surface upon completion of operations. Soils compacted during construction would be ripped and tilled as necessary prior to reseeded.

Attachment 2

Seed Mix Recommendation for Reclamation

When seeding in this arid environment it is often best to drill seed, however due to equipment limitations and seedbed preparation broadcast seeding can be used. Broadcast seeding is best when there is a firm seed bed and the seeds are either pressed into the soil or slightly covered through surface disturbance such as raking, dragging a chain, or other method to provide for good seed-soil contact.

Because of its broad range of adaptation, with the native seed mixtures we would like to specify "Source Identified" seed from locations within 500 miles of the planting site. Great Plains collections and Intermountain West collections do best within their own ecoregions.

This seed mix recommendation is assuming proper seedbed preparation, dormant fall planting, and broadcast seeding methods. A good seedbed needs to be prepared, contour furrows to help trap any available moisture may be required. This seed mix should be used as a guide; if changes are needed due to availability of seed or other factors please contact Kyle Beagley in the Price BLM office at (435) 636-3668.

	Species	Scientific Name	Code	Target seeds/ft2	Seeding Rate (PLS/ac)
1	Shadscale	Atriplex confertifolia	ATCO	10	2
2	Winterfat	Krascheninnikovia lanata	KRLA2	10	1
3	Galleta	Pleuraphis jamesii	PLJA	20	1.5
4	Needle and Thread	Stipa comada	STCO	50	1
5	Ricegrass, Indian	Achnatherum hymenoides	ACHY	20	4
6	Globemallow	Sphaeralcea grossulariifolia	SPGR2	34	0.5
7	Penstemon, Palmer	Penstemon palmeri	PEPA8	34	0.2
	Total				10.2

Green River District Reclamation Guidelines

The Green River District Office Guidelines applies to all surface disturbing activities upon BLM administered surface lands. These activities include all actions authorized, conducted, or funded by the BLM, and that disturb the soil resources on the public lands. This policy is intended to be compatible with other BLM program objectives.

A reclamation plan shall be developed for all surface disturbing activities. The level of detail for the reclamation plan shall reflect: the complexity of the project, the environmental concerns generated during project review, and the reclamation potential for the site. These plans shall also incorporate any program or regulatory specific requirements for reclamation. The reclamation plan will address short term stabilization to facilitate long term reclamation. The reclamation plan is considered complete when all the reclamation requirements described below have been addressed, the techniques needed to meet the reclamation standards are described in detail, and the BLM concurs with the reclamation plan.

Compliance with the requirements of this document will be a Surface Use Condition of Approval (COA) and approved mitigation actions for all future BLM authorizations within the jurisdiction of the Green River District Office.

A. RECLAMATION GOAL

1. The long term goal for reclamation is to facilitate eventual ecosystem reconstruction by returning the land to a safe, stable, and proper functioning condition.
2. The short-term reclamation goal is to immediately stabilize disturbed areas and to provide the necessary conditions to achieve the long term goal.

B. RECLAMATION OBJECTIVES

1. Establish a desired self-perpetuating diverse plant community. The objective is to attain **75% basal cover** based on similar undisturbed adjacent native vegetative community, and comprised of desired species and/or seeded species within 5 years of initial reclamation action. However if after three (3) growing seasons there is less than **30%** of the basal cover based on similar undisturbed native vegetative community, then the Authorized Officer may require additional seeding efforts.
2. Establish slope stability and desired topographic diversity.
3. Reconstruct and stabilize altered water courses and drainage features.
4. Ensure the biological, chemical, and physical integrity of the topsoil resource during all phases of construction, operation, and reclamation. BMP's designed to minimize and prevent erosion, compaction, and contamination of the topsoil resource should be used to maintain the topsoil resource.
5. Re-establish the visual composition and characteristics to blend with the natural surroundings.
6. Control the occurrences of noxious weeds and undesirable invasive species by utilizing principles of integrated weed management including prevention, mechanical, chemical, and biological control methods.

7. Manage all waste materials.
8. Conduct monitoring that is able to assess the attainment or failure of reclamation actions.

C. RECLAMATION ACTIONS

The following Reclamation Actions are intended to facilitate the achievement of the Reclamation Objectives. These actions shall be adhered to during reclamation activities. Changes/alterations to the Reclamation Actions should be detailed in the submitted reclamation plan as to why the changes/alterations are necessary and approved by the Authorized Officer.

Objective 1. Establish a desired self-perpetuating plant community.

Action 1a. Use of non native plant species is allowed, however, selected non native species should be selected that will not displace or offer long-term competition to the native plants.

Action 1b. Drill Seeding is the preferred method of seed application unless site conditions preclude the use of drill seeding equipment. Drill seeds at the rate of 45 Pure Live Seeds (PLS) per linear foot. Seeds should be drilled to a depth of .25 to .50 inches. Some plant seeds should not be drilled and if incorporated the application method should fit the seed type requirements.

Action 1c. Areas in excess of 40% slope or are excessively rocky will be broadcast seeded at 80-90 PLS and covered to a maximum of 0.25 inches by harrowing, drag bar, or roller.

Action 1d. Seeding efforts must be conducted between August 15 and prior to winter freezing of the soil.

Action 1e. All seed utilized will be tested prior to application to ensure BLM specifications for PLS, purity, noxious weeds, etc. have been met. Seed tags will be provided to the Authorized Officer prior to initiation of seeding activities.

Action 1f. As determined in cooperation with the Authorized Officer, fencing may be required to exclude livestock/big game grazing until seeded species have become established. Fencing would be constructed to BLM standards.

Action 1g. As determined in cooperation with the Authorized Officer mulching may be required. Mulch should be applied within 24 hours following completion of seeding. Mulching should consist of crimping certified weed-free straw or certified weed-free native grass hay into the soil. Hydro-mulching may be used in areas where crimping is impracticable, in areas of interim reclamation that were hydro-seeded, and in areas of temporary seeding regardless of seeding method.

Objective 2. Ensure slope stability and topographic diversity

Action 2a. Reconstruct the landscape to approximate the original contour and topographic diversity.

Action 2b. Identify necessary erosion controls designed to prevent sediment transport from the reclaimed areas.

Objective 3. Reconstruct and stabilize altered water courses and drainage features.

Action 3a. Reconstruct drainage basins to have similar features found in nearby properly functioning basins, including: basin relief ratios, valley gradients, sinuosity, and drainage densities for all reclaimed basins.

Action 3b. Reconstruct drainages to have similar hydraulic characteristics found in properly functioning drainages, including: flow depth, water surface top width, cross-section area of flow, water surface slope, mean channel velocity, desired vegetation, and channel roughness.

Objective 4. Ensure the biological, chemical, and physical integrity of the topsoil resource during all phases of construction, operation, and reclamation. BMP's designed to minimize and prevent erosion, compaction, and contamination of the topsoil resource should be used to maintain the topsoil resource.

Action 4a. Segregate topsoil from subsoil without mixing them, based on site specific conditions.

Action 4b. Where possible, integrate stored topsoil into existing production landscape.

Action 4c. Stabilize all stored topsoil from erosion, and seed topsoil stored beyond one growing season with an approved seed mixture.

Action 4d. Identify topsoil storage with appropriate signage, to prevent improper use of the stored topsoil.

Action 4e. Redistribute the topsoil to pre-disturbance depth.

Action 4f. Reduce soil/subsoil compaction to the anticipated root depth of the desired plant species. Compaction relief typically should be designed for 18-24 inches in depth. Compaction relief should be designed to create a cross hatch pattern, and distance between furrows should not be greater than 2 feet.

Action 4g. If the topsoil to be re spread is greater than 6" in depth, then topsoil should be applied and then compaction relief implemented. If the topsoil to be re spread is less than 6", then compaction relief should be implemented prior to top soil application. Avoid leaving large clumps/clods, if this exists, discing may be necessary.

Objective 5. Re-establish the visual composition and characteristics to blend with the natural surroundings.

Action 5a. Ensure the overall location, landform, scale, shape, color, and orientation of major landscape features blends into the adjacent area and meets the needs of the planned post disturbance land use.

Objective 6. Control the occurrences of noxious weeds and undesirable invasive species by utilizing principles of integrated weed management including prevention, mechanical, chemical, and biological control methods.

Action 6a. Inventory and document noxious and invasive plant infestations before reclamation actions begin.

Action 6b. Control and manage Invasive and Noxious weed infestations using principles of integrated weed management including chemical, mechanical, and biological control methods. An approved Pesticide Use Proposal (PUP) is required for all planned herbicide applications. Herbicides must be applied by a certified applicator with a current Utah Pesticide Applicators License. A Biological Use Proposal is required for new biocontrol agents in the Field Office area.

Objective 7. Manage all waste materials.

Action 7a. Segregate all waste materials from the subsoil and topsoil.

Action 7b. All waste materials transported and disposed of off-site, must be placed in an authorized disposal facility in accordance with all local, State and Federal requirements.

Objective 8. Conduct monitoring that is able to assess the attainment or failure of reclamation actions.

Action 8a. Monitoring methodology should be an approved BLM method designed to monitor basal vegetative cover.

Action 8b. In cooperation with the Authorized Officer, an undisturbed reference site should be selected prior to monitoring. One reference site may be used for multiple reclamation sites as long as the site potentials are similar.

Action 8c. Evaluate monitoring data for compliance with the reclamation plan objectives

Action 8d. Document and report monitoring data and recommend revised reclamation strategies, if necessary. Each applicant will submit an annual reclamation report to the Authorized Officer by March 31st. The report will document compliance with all aspects of the reclamation objectives and standards.

Action 8e. Implement revised reclamation strategies as needed.

Action 8f. Repeat the process of monitoring, evaluating, documenting/reporting, and implementing, until reclamation goals are achieved, as determined by the Authorized Officer.

GLOSSARY

Surface Disturbing Activities – An action that alters the mineral soil resource, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits and reservoirs; installation of pipelines and power lines; and the conduct of several types of vegetation treatments. Surface disturbing activities may be either authorized or prohibited.

Federal Action - Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as federal and federally assisted activities.

National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.]

GLOSSARY, con't.

Invasive Species - A species that is not native (or is alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Executive Order 13112

Reclamation Plan – A written document that addresses the reconstruction of disturbed ecosystems by returning the land to a condition approximate or equal to that which existed prior to disturbance, or to a stable and productive condition compatible with the land use plan.

Waste materials – Any material that can interfere with successful reclamation, safety, and long term stability of a site (contaminated soil or water, drilling muds, solid waste).

Adapted from various sources

Contamination - The presence of man-made chemicals or other alterations in the natural soil or water environment (pesticides, hazardous substances, petroleum, salts).

Adapted from various sources

DRILLING PROGRAM CONDITIONS OF APPROVAL (COAs)

SITE SPECIFIC DRILLING & PRODUCTION COAs

- As this is a re-entry of a plugged well, the operator plans to test the existing surface casing to 1000 psi, and the Price Field Office approves of this test as proposed. The production casing shall be pressure tested to .22 psi/foot or 1500 psi (whichever is greater), but not to exceed 70% of the internal yield pressure.
- While cementing the production string, cement shall be brought up behind pipe at least 200 feet above the surface casing shoe. If no returns are seen at surface during the production cementing job, a cement bond log (CBL) shall be run to determine the top of cement, and a field copy sent to the Price Field Office.
- Upon conclusion of horizontal drilling operations, a copy of the actual drilling survey will be submitted to the petroleum engineer in the Price Field Office within 30 days.
- Should H₂S be encountered in concentrations greater than 100 ppm, the requirements of Onshore Order #6 Hydrogen Sulfide Operations shall be followed.

STANDARD OPERATING REQUIREMENTS

- The Price Field Office petroleum engineer will be notified 24 hours verbally prior to spudding the well.
- Notify the Price Field Office petroleum engineering technician at least 24 hours in advance of casing cementing operations, BOPE tests and casing pressure or mud weight equivalency tests.
- The requirements included in Onshore Order #2 Drilling Operations shall be followed.
- Any deviation from the permitted APD's proposed drilling program shall have prior approval from the petroleum engineer. Changes may be requested verbally (to be followed by a written sundry sent to this office), or submitted by written sundry if time warrants.
- Blowout prevention equipment (BOPE) shall remain in use until the well is completed. The closing unit controls shall remain unobstructed and readily accessible at all times, and choke manifolds shall be located outside of the rig substructure.
- BOP testing shall be conducted within 24 hours of drilling out from under the surface casing, and weekly thereafter as specified in Onshore Order #2.
- All BOPE components shall be inspected daily, and the inspections recorded in the daily drilling report. Components shall be operated and tested, as required by Onshore Order #2 to insure good mechanical working order. All BOPE pressure tests shall be performed by a test pump with a chart recorder, and not by the rig pumps. Test results shall be reported in the driller's log.
- No aggressive/fresh hard-banded drill pipe shall be used in the casing design. The proposed use of non-API standard casing must be approved in advance by the petroleum engineer.

STANDARD OPERATING REQUIREMENTS (cont.)

- During drilling operations, daily drilling reports shall be emailed (or faxed) to the Price Field Office petroleum engineer and petroleum engineering technicians. Within 30 days of: 1) finishing drilling operations, and 2) finishing well completion operations, a chronological daily operations history shall be submitted by sundry to this office.
- A copy of all logs run on this well shall be submitted digitally (in PDF or TIFF format) to the Price Field Office, or alternatively by hard copy.
- The venting or flaring of gas while initially testing the well shall be done in accordance with the requirements specified in Notice to Lessees (NTL) 4A, and shall not exceed a period of 30 days or the production of 50 MMCF of gas, whichever occurs first. Additional time needed to vent or flare gas during production operations requires prior approval from the Price Field Office.
- Proposed production operations that involve: 1) the commingling of production from wells located on-lease or off-lease, 2) off-lease measurement, or 3) off-lease storage shall have prior written approval from the Price Field Office.
- Should this well be successfully completed as a producing well, the Price Field Office must be notified within 5 business days following the date the well has first sales.
- Operators shall meet the requirements listed in Onshore Order #4 Measurement of Oil and Onshore Order #5 Measurement of Gas. New oil and gas meters shall be calibrated prior to initial product sales. The operator (or its contractors) is responsible for providing the date and time of the initial meter calibration (and all future meter proving schedules) to the petroleum engineering technician. Copies of all meter calibration reports that are performed shall be submitted to the Price Field Office.
- In accordance with 43 CFR 3162.4-3, this well's production data shall be reported on the "Monthly Report of Operations" starting with the month in which operations commence and continue each month until the well is plugged and abandoned.
- The operator is responsible for submitting the information required in 43 CFR 3162.4-1 Well Records and Reports, including BLM Form 3160-4, Well Completion and Recompletion Report and Log which must be submitted to the Price Field Office within 30 days of completing the well.
- Onshore Order #7 authorizes the disposal of water produced from this well in the reserve pit for a period of 90 days after the date of initial production. A permanent disposal method must be submitted and approved by this office, and in operation prior to the end of this 90-day period.
- The requirements of Onshore Order #3 Site Security shall be implemented, and include (as applicable): 1) all lines entering and leaving hydrocarbon storage tanks shall be effectively sealed and seal records maintained, 2) no by-passes are allowed to be constructed around gas meters, 3) a site facility diagram shall be submitted to the Price Field Office within 60 days following construction of the facilities.
- Additional construction that is proposed above what is permitted, or the proposed alteration of existing facilities (including roads, gathering lines, batteries, etc.) that will disturb new ground, requires prior approval of the Price Field Office natural resource specialist.

STANDARD OPERATING REQUIREMENTS (cont.)

- This well and its associated facilities shall have identifying signs on location in accordance with 43 CFR 3162.6 requirements.
- All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in NTL 3A will be reported to the Price Field Office natural resource specialist.
- The Price Field Office petroleum engineer shall be notified 24 hours in advance of the plugging of the well (unless the plugging is to take place immediately upon receipt of oral approval), so that a technician may have sufficient time to schedule and witness the plugging operations.
- If operations are to be suspended on a well for more than 30 days, prior approval of the Price Field Office shall be obtained, and notification also given before operations resume.

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB No. 1004-0135 Expires January 31, 2004

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals

5. LEASE DESIGNATION AND SERIAL NUMBER:

UTU-77855

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

Iceland

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. TYPE OF WELL:

OIL

GAS

OTHER

8. WELL NAME and NUMBER:

Arco Chambers #1-A

2. NAME OF OPERATOR:

Alker Exploration LLC

9. API NUMBER

43-007-30099

3a. ADDRESS OF OPERATOR

97 North Main Street #2 (P.O. Box 87)

3b.

(435) 835-424 Office

CITY Manti

STATE UT

ZIP ##

PHONE

435.340.0557 Mobil

10. FIELD AND POOL OR WILDCAT

Wildcat

4. LOCATION OF WELL

SWNE

FOOTAGE AT SURFACE:

2641 FSL & 1578 FEL

11. County or Parish, State

Carbon

QTR/QTR. SECTION. TOWNSHIP. RANGE. MERIDIAN:

28-T15S-13E

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

TYPE OF SUBMISSION

Notice of Intent

Subsequent Report

Final Abandonment Notice

ACIDIZE

ALTER CASING

CASING REPAIR

CHANGE PLANS

Convert to Injection

DEEPEN

FRACTURE TREAT

NEW CONSTRUCTION

PLUG AND ABANDON

PLUG BACK

PRODUCTION (START/RESUME)

RECLAMATION

RECOMPLETE

Temporarily Abandon

WATER DISPOSAL

WATER SHUT-OFF

Well Integrity

OTHER Spudd well

Set New Surface

Casing

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof.

If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones.

Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days

following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once

testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has

determined that the site is ready for final inspection.)

UDOGM

COPY

Perform a mechanical integrity test

See attached COMs.

Location is completed, reserve pit dug, and location is ready for equipment

After uncovering the existing well bore and inspecting the surface casing large pits of corrosion were discovered

the 9 5/8" surface casing was to be pressured up to 1000 psig, it held to 750 psig and began to leak in the

annular space between the conductor and the surface. Leaking increased to an estimated 1/2 bbl per minute.

A new well bore will be spud 50 feet to the north of this well bore and 4 feet to the west of this well bore

the new well bore will have 14 inch conductor set. A 12 1/4" hole drilled to 620 ft, 600 ft of 9 5/8" 36#/ft J-55 casing

cemented to the surface with 245 sxs (150%) of Class G neat cement.

The work is anticipated to start January 30th, 2010. The existing reserve pit will still be usable.

Old well bore will be properly plugged to surface with 27 sxs Class G cement, the original marker will be reset.

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

NAME (Printed/Typed)

Steven J. Lund

Title Engineer

Accepted by the Utah Division of Oil, Gas and Mining For Record Only

SIGNATURE

[Handwritten Signature]

DATE

1/22/10

(THIS SPACE FOR FEDERAL OR STATE OFFICE USE)

Approved by

[Handwritten Signature]

Conditions of approval, if any, are stated here. Approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Petroleum Engineer

Title

Date

JAN 29 2010

Office

PRICE FIELD OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United

State any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

RECEIVED

(Instructions on reverse)

BLM Price Field Office

Conditions of Approval

Alker Exploration LLC

Sundry Notice of Intent Dated 1/22/2010 Plug & Abandonment and Rig Skid Request

Well: Arco Chambers 1-A
Location: SWNE Section 28, T15S, R13E
Lease: UTU-77855
County: Carbon

Alker Exploration's sundry request is approved subject to the following conditions:

- 1) Notify PET Walton Willis 24 hours in advance of plugging the Arco Chambers 1-A well.
- 2) Provide a detailed drilling program by sundry for the new Arco Chambers 1-AX well, including a revised directional drilling plan. Drilling plan shall be submitted by February 5, 2010 to this office.
- 3) Drilling operations may not begin on the Arco Chambers 1-AX well until approval is received by the State of Utah Division of Oil, Gas and Mining.

If you have any questions regarding the conditions supporting this approval, please call Marvin Hendricks in the BLM Price Field Office at 435-636-3661.

28b. Production - Interval C

Date First Produced	Test Date N/A	Hours Tested N/A	Test Production →	Oil BBL N/A	Gas MCF N/A	Water BBL N/A	Oil Gravity Corr. API N/A	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI N/A	Csg. Press. N/A	24 Hr. Rate →	Oil BBL > N/A	Gas MCF N/A	Water BBL N/A	Gas/Oil Ratio N/A	Well Status WELL WAS P&A'D	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL >	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status WELL WAS P&A'D	

29. Disposition of Gas (Solid, Used for fuel, vented, etc.)

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals on all drill-stem tests, including depth interval tested, conclusion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Makers

WELL WAS P&A'D

Formation	Top	Bottom	Description, Contents, etc.	Name	Top Meas. Depth
WELL WAS P&A'D					

32. Additional remarks (include plugging procedure):

After uncovering the existing well bore and inspecting the surface casing large pits of corrosion were discovered the 9 5/8" surface casing was to be pressured up to 1000 psig, it held to 750 psig and began to leak in the annular space between the conductor and the surface. Leaking increased to an estimated 1/2 bbl per minute. Well bore was properly plugged to surface with 27 sxs Class G cement, the original marker will be reset.

WELL FAILED MIT AND WAS PLUGGED AND ABANDONED

33. Indicate which items have been attached by placing a check in the appropriate boxes:

- Electrical/Mechanical Logs (1 full set req'd)
 Geologic Report
 DST Report
 Directional Survey
 Sundry Notice for plugging and cement verification
 Core Analysis
 Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (See attached instructions)*

NAME (PLEASE PRINT) Steven J. Lund TITLE Engineer
 SIGNATURE *Steven J. Lund* DATE 9/28/10

Title 18 U.S.C. Section 1001 and TITLE 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 3)

(Form 3160-4, page 2)