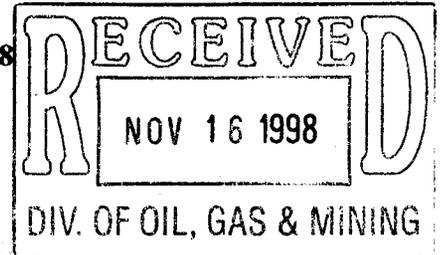




14421 Weld County Rd.10 • Ft. Lupton, Colorado 80621 • (303) 857-9999 • FAX (303) 857-0577 • E-MAIL Permitco 1@aol.com

November 11, 1998



Division of Oil, Gas & Mining  
1594 West North Temple  
Suite 1210  
Salt Lake City, UT 84114-5801

Attn: John Baza

Re: **Ballard Petroleum LLC**  
**Oil Hollow #5-1**  
**2627' FSL and 1015' FWL**  
**NW SW Sec. 5, T11S - R5E**  
**Utah County, Utah**

Dear John,

Enclosed please find three copies of the A.P.D. along with one copy of the Onshore Order No. 1 which has been forwarded to the BLM and U.S. Forest Service.

Please be advised that due to winter weather conditions and road improvements required by the Forest Service, drilling will not commence on this location until early summer, 1999. In addition, Ballard plans to file a water permit for use of water located in Lake Fork Creek, below the proposed drillsite. All appropriate permits will be filed with the Utah Division of Water Rights, prior to utilizing this water source.

Please forward approved copies of the A.P.D. to the address shown above. If you should need additional information, please feel free to contact me.

Sincerely,

PERMITCO INC.

Lisa L. Smith

Consultant for:

Ballard Petroleum LLC

Enc.

cc: **Ballard Petroleum LLC - Billings, MT**  
**Savant Resources LLC - Denver, CO**  
**Duncan Oil Company - Denver, CO**





**CONFIDENTIAL - TIGHT HOLE**

**ONSHORE OIL & GAS ORDER NO. 1**

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

**Oil Hollow Federal #5-1  
2627' FSL and 1015' FWL  
NW SW Sec. 5, T11S - R5E  
Utah County, Utah**

**Prepared For:**

**BALLARD PETROLEUM LLC**

**By:**

**PERMITCO INC.  
14421 Weld County Road 10  
Fort Lupton, CO 80621  
303/857-9999**

**CONFIDENTIAL - TIGHT HOLE**

**Copies Sent To:**

- 3 - Bureau of Land Management - Salt Lake City, UT**
- 1 - U.S. Forest Service - Price, UT**
- 1 - Utah Division of Oil, Gas & Mining - SLC, UT**
- 1 - Duncan Oil Company - Denver, CO**
- 1 - Savant Resources LLC - Denver, CO**
- 3 - Ballard Petroleum LLC - Billings, MT**



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# BALLARD

PETROLEUM LLC

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November 3, 1998

Bureau of Land Management  
Utah State Office  
Attn: Minerals  
P.O. Box 45155  
Salt Lake City, UT 84145

RE: Oil Hollow Federal #5-1  
Hjorth Canyon Federal #16-1  
Utah County, Utah  
Authorization to Act as Agent

Gentlemen:

This letter is to inform you that Permitco Inc. is authorized to act as Agent and to sign documents on behalf of Ballard Petroleum LLC when necessary for filing county, state and federal permits including Onshore Order No. 1, Right of Way applications, etc., for the above mentioned wells.

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

Ballard Petroleum LLC agrees to accept full responsibility for operations conducted in order to drill, complete and produce the above-mentioned wells.

Sincerely,



Dave McCoskery  
Operations Manager

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**Oil Hollow Federal #5-1**

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ONSHORE ORDER NC  
Ballard Petroleum LLC  
Oil Hollow Federal #5-1  
2627' FSL and 1015' FWL  
NW SW Sec. 5, T11S - R5E  
Utah County, Utah

CONFIDENTIAL - TIGHT HOLE

Lease No. UTU-77275

Drilling Program  
Page 1

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

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

1. Formation Tops

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	<u>Depth</u>	<u>Subsea</u>
Green River	Surface	+6,680'
Flagstaff Limestone	350'	+6,330'
Northhorn	800'	+5,880'
Cedar Mountain	1,300'	+5,380'
Summerville/Curtis	1,800'	+4,800'
Entrada	2,350'	+4,330'
Arapien	2,700'	+3,980'
Twin Creek	3,000'	+3,680'
Nugget	3,700'	+2,980'
Ankareh	5,050'	+1,630'
T.D.	5,500'	+1,180'

2. Anticipated Depth of Oil, Gas Water and Other Mineral Bearing Zones

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

<u>Substance</u>	<u>Formation</u>	<u>Depth</u>
Oil/Gas	Twin Creek	3,000'
Oil/Gas	Nugget	3,700'



All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth and adequately protected. All oil and gas shows will be tested to determine commercial potential.

All water shows and water-bearing sands will be reported to the BLM in Moab, Utah. Copies of State of Utah form OGC-8-X are acceptable. If noticeable water flows are detected, samples will be submitted to the BLM along with any water analyses conducted.

3. BOP Equipment/Requirements

Ballard Petroleum LLC's minimum specifications for pressure control equipment are as follows:

Ram Type: 10" Hydraulic double, 2000 psi w.p.

Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 70 percent of internal yield pressure of casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.

Annular type preventers (if used) shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

As a minimum, the above test shall be performed:

- a. when initially installed;
- b. whenever any seal subject to test pressure is broken
- c. following related repairs; and
- d. at 30-day intervals

Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.



When testing the kill line valve(s) the check valve shall be held open or the ball removed.

Annular preventers (if used) shall be functionally operated at least weekly.

Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.

A BOPE pit level drill shall be conducted weekly for each drilling crew.

The BOP and related equipment shall meet the minimum requirements of Onshore Oil and Gas Order No. 2 for equipment and testing requirements, procedures, etc., and individual components shall be operable as designed. Chart recorders shall be used for all pressure tests.

Pressure tests shall apply to all related well control equipment.

All of the above described tests and/or drills shall be recorded in the drilling log. Test charts, with individual test results identified, shall be maintained on location while drilling and shall be made available to a BLM representative upon request. Pressure tests shall apply to all related well control equipment.

BOP systems shall be consistent with API RP53. Pressure tests will be conducted before drilling out from under casing strings which have been set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order, and this inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

The Price River Resource Area Office shall be notified, at least 24 hours prior to initiating the pressure test, in order to have a BLM representative on location during pressure testing.

- a. The size and rating of the BOP stack is shown on the attached diagram. Although a rig has not been chosen to drill this well, most of the equipment for this depth of hole in the area use a 11", 2000 psi working pressure blowout preventor.





- e. **Casing collars shall have a minimum clearance of 0.422 inches of all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.**
- f. **All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.**
- g. **All casing except the conductor casing, shall be new or reconditioned and tested used casing that meets or exceeds API standards for new casing.**
- h. **The surface casing shall be cemented back to surface either during the primary cement job or by remedial cementing.**
- i. **All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.**
- j. **Three centralizers will be run on the bottom three joints of surface casing (minimum of one centralizer per joint starting with the shoe joint.)**
- k. **Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable preflush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.**
- l. **All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.**
- m. **On all exploratory wells, and on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.**



n. The proposed casing program will be as follows:

<u>Purpose</u>	<u>Depth</u>	<u>Hole Size</u>	<u>O.D.</u>	<u>Weight</u>	<u>Grade</u>	<u>Type</u>	<u>New or Used</u>
Surface	0-400'	12-1/4"	9-5/8"	36#	J-55	ST&C	New
Production	0-5,500'*	8-3/4"	5-1/2"	15.5#	J-55	ST&C	New

\* If salt sections are encountered, 20# N-80 will be run through those sections.

o. Casing design subject to revision based on geologic conditions encountered.

p. The cement program will be as follows:

Surface  
 0-400'

Type and Amount  
 230 sx Class "C" with 2% CaCL<sub>2</sub>, 0.25#/sx Cello flakes. Slurry weight = 15.8 ppg. Slurry yield = 1.17 Cu. Ft./sack. (Volumes are with 100% Excess. Cement will be circulated to surface.)

Production

Type and Amount  
 155 sx (28:72) poz Class "C" with 3 lbs/sx BA-90 (Silca fume), 0.25 lbs/sx Cello flakes, 2lbs/sx Kol Seal, 10% Bentonite and 0.5% Sodium Metasilicate. Slurry Weight = 11.0 ppg. Slurry Yield = 3.33 Cu. Ft./sack.

Tailed with 420 sxs Class "G" with 10% A-10 (thixotropic additive) and 10% Sodium Chloride, (Clay inhibitor. Slurry Weight = 14.4 ppg. Slurry Yield = 1.64 Cu. Ft./sk. Top of cement will be at 2000'. Actual cement volumes will be calculated for caliper logs.

q. The Price River Resource Area Office should be notified, with sufficient lead time, in order to have a BLM representative on location while running all casing strings and cementing.

r. After cementing but before commencing any test, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe. WOC time shall be recorded in the driller's log.

s. The following reports shall be filed with the District Manager within 30 days after the work is completed.

1. Progress reports, Form 3160-5 (formerly 9-331) "Sundry Notices and Reports on Wells", must include complete information concerning:



- a. Setting of each string of casing, showing the size, grade, weight of casing set, hole size, setting depth, amounts and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date work was done. Show the spud date on the first reports submitted.
- b. Temperature or bond logs must be submitted for each well where the casing cement was not circulated to the surface.
- t. Auxiliary equipment to be used is as follows:
  - 1. Kelly cock
  - 2. No bit float is deemed necessary.
  - 3. A sub with a full opening valve.

**5. Mud Program**

- a. The proposed circulating mediums to be employed in drilling are as follows:

<u>Interval</u>	<u>Mud Type</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>F/L</u>	<u>PH</u>
0-400'	Native	9.0	35	NC	9
400-5,500'	LSND	9.3	43	8-10	9

There will be sufficient mud on location to control a blowout should one occur.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, static filtration loss, and Ph.

- b. Mud monitoring equipment to be used is as follows:
  - 1. Periodic checks will be made each tour of the mud system. The mud level will be checked visually.



- c. Hazardous substances specifically listed by the EPA as a hazardous waste or demonstrating a characteristic of a hazardous waste will not be used in drilling, testing or completion operations.

6. Evaluation Program - Testing, Logging and Coring

The anticipated type and amount of testing, logging and coring are as follows:

- a. A drill stem test is anticipated in the Nugget formation from 3,700'-3,750'. If a DST is run, the following requirements will be adhered to:

Initial opening of drill stem test tools shall be restricted to daylight hours unless specific approval to start during other hours is obtained from the authorized officer. However, DST's may be allowed to continue at night if the test was initiated during daylight hours and the rate of flow is stabilized and if adequate lighting is available (i.e. lighting which is adequate for visibility and vapor-proof for safe operations). Packers can be released, but tripping shall not begin before daylight, unless prior approval is obtained from the authorized officer. Closed chamber DSTs may be accomplished day or night.

A DST that flows to the surface with evidence of hydrocarbons shall be either reversed out of the testing string under controlled surface conditions or displaced into the formation prior to pulling the test tool. This would involve providing some means for reverse circulation.

Separation equipment required for the anticipated recovery shall be properly installed before a test starts.

All engines within 100 feet of the wellbore that are required to "run" during the test shall have spark arresters or water cooled exhausts.

- b. The logging program will consist of a LDT-CNL-GR, BHC-Sonic-GR, dipmeter-GR, array resistivity-SP-GR and mud log run from surface to T.D.



- c. No cores are anticipated.
- d. 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 not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core 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. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the authorized officer (AO).
- e. The anticipated completion program is as follows:  
  
Perforate the Nugget Formation and possibly the Twin Creek Formation through 5-1/2" cemented casing.

7. Anticipated Pressures and H<sub>2</sub>S

- a. The expected maximum bottom hole pressure is 2350 psi. Abnormal pressures are not anticipated.
- b. No hydrogen sulfide gas is anticipated.

8. Other Information and Notification Requirements

- a. Should the well be successfully completed for production, the AO will be notified when the well is placed in a producing status. Such notification will be sent by telegram or other written communications, not later than 5 days following the date on which the well is placed on production.
- b. Production data shall be reported to the MMS pursuant to 30 CFR 216.5 using form MMS/3160.



- c. The date on which production is commenced or resumed will be construed for oil wells as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or, the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever first occurs; and, for gas wells as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or the date on which gas is first measured through permanent metering facilities, whichever first occurs.
- d. Pursuant to NTL-4A, lessees or operators are authorized to vent/flare gas during initial well evaluation tests, not exceeding a period of 30 days or the production of 50 MMCF of gas, whichever occurs first. An application must be filed with the District Engineer and approval received, for any venting/flaring of gas beyond the initial 30 day or authorized test period.
- e. Gas produced from this well may not be vented or flared beyond an initial authorized test period of 30 days or 50 MMCF following its completion, whichever occurs first, without the prior written approval of the Authorized Officer. Should gas be vented or flared without approval beyond the authorized test period, the operator may be directed to shut-in the well until the gas can be captured or the operator shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.
- f. A schematic facilities diagram as required by 43 CFR 3162.7-2, 3162.7-3 and 3162.7-4 shall be submitted to the appropriate District Office within 30 days of installation or first production, whichever occurs first. All site security regulations as specified in 43 CFR 3162.7 and Onshore Order No. 3 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with 43 CFR 3162.7-4.
- g. Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due



operator shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed."

If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to \$10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3162.4-1(b)(5)(ii).

- h. Operations are planned to commence on July 1, 1999.
- i. It is anticipated that the drilling of this well will take approximately 14 days.
- j. 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 AO. If operations are to be suspended, prior approval of the AO will be obtained and notification given before resumption of operations.
- k. Immediate Report: Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported in accordance with the requirements of NTL-3A or its revision.
- l. 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 AO, and all conditions of this approved plan are applicable during all operations conducted with the replacement rig.
- m. Pursuant to Onshore Order No. 7, with the approval of the District Engineer, produced water may be temporarily disposed of into unlined pits for a period of up to 90 days. During the period so authorized, an application for approval of the permanent disposal method, along with the required water analysis and other information, must be submitted to the District Engineer.



ONSHORE ORDER NO. 1  
Ballard Petroleum LLC  
Oil Hollow Federal #5-1  
2627' FSL and 1015' FWL  
NW SW Sec. 5, T11S - R5E  
Utah County, Utah

CONFIDENTIAL - TIGHT HOLE

Lease No. UTU-77275

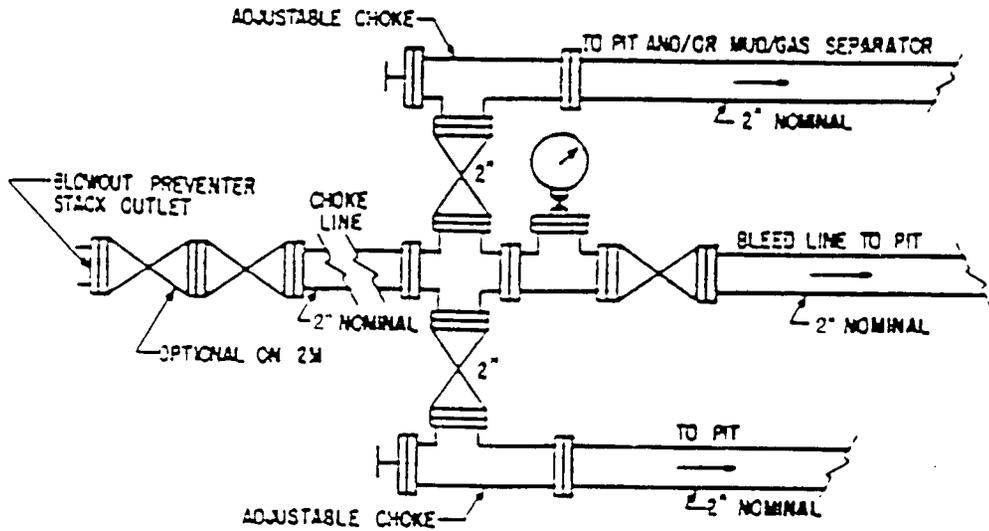
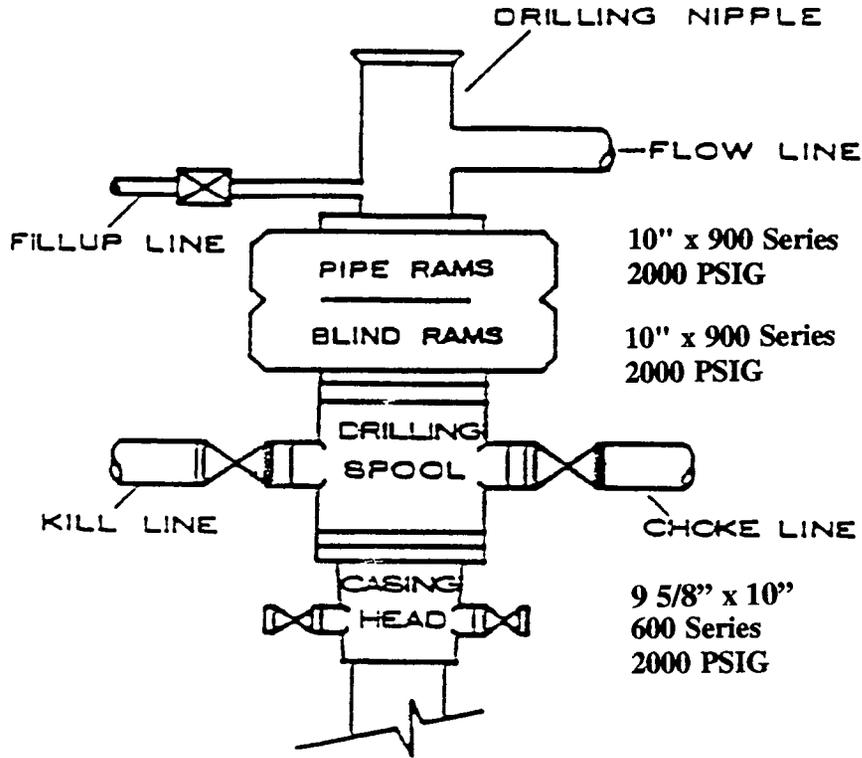
Drilling Program  
Page 12

- n. No well abandonment operations will be commenced without the prior approval of the AO. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the SO. A "Subsequent Report of Abandonment" Form 3160-5, will be filed with the AO within 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 AO or his representative. or the appropriate Surface Managing Agency.



# BOP STACK

2,000 PSI



2,000 PSI CHOKER MANIFOLD

# BALLARD PETROLEUM LLC

Operator: BALLARD PETROLEUM LLC	Well Name: Oil Hollow Fed. #5-1
Project ID:	Location: Utah Co. / Utah

Design Parameters:

Mud weight ( 8.60 ppg) : 0.447 psi/ft  
 Shut in surface pressure : 360 psi  
 Internal gradient (burst) : 0.100 psi/ft  
 Annular gradient (burst) : 0.431 psi/ft  
 Tensile load is determined using air weight  
 Service rating is "Sweet"

Design Factors:

Collapse : 1.125  
 Burst : 1.00  
 8 Round : 1.80 (J)  
 Buttress : 1.60 (J)  
 Body Yield : 1.50 (B)

Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost		
1	400	9-5/8"	36.00	J-55	ST&C	400	8.765		
	Load (psi)	Collapse Strgth (psi)	S.F.	Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Tension Load (kips)	Strgth (kips)	S.F.
1	179	2020	9.999	360	3520	9.78	14.40	394	27.36 J

Prepared by : *McCoskery, Billings, Montana*  
 Date : 11-03-1998  
 Remarks :

Surface Casing Design  
 Design is for a Surface string.  
 Minimum segment length for the 400 foot well is 400 feet.

Additional details regarding deeper string(s):  
 Next string will set at 5,500 ft. with 9.30 ppg mud (pore pressure of 2,657 psi.) The frac gradient of 1.000 at the casing seat results in an injection pressure of 400 psi. Effective BHP (for burst) is 400 psi, the BHP load is 228 psi (using an annular mud of 8.00 ppg) and the differential gradient is -0.330 psi/ft.

NOTE : The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - collapse (with evacuated casing), 1.0 - (uniaxial) burst, 1.8 - API 8rd tension, 1.6 - buttress tension, 1.5 - body yield tension, and 1.6 - EUE 8rd tension. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser.  
 Costs for this design are based on a 1987 pricing model. (Version 1.07)

# BALLARD PETROLEUM LLC

Operator: BALLARD PETROLEUM LLC	Well Name: Oil Hollow Fed. #5-1
Project ID:	Location: Utah Co. / Utah

Design Parameters:

Mud weight (9.30 ppg) : 0.483 psi/ft  
 Shut in surface pressure : 2107 psi  
 Internal gradient (burst) : 0.100 psi/ft  
 Annular gradient (burst) : 0.483 psi/ft  
 Tensile load is determined using air weight  
 Service rating is "Sweet"

Design Factors:

Collapse : 1.125  
 Burst : 1.00  
 8 Round : 1.80 (J)  
 Buttress : 1.60 (J)  
 Body Yield : 1.50 (B)

Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost		
1	5,500	5-1/2"	15.50	J-55	ST&C	5,500	4.825		
			<u>Collapse</u>			<u>Tension</u>			
Load (psi)	Strgth (psi)	S.F.	Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Load (kips)	Strgth (kips)	S.F.	
1	2657	4040	1.521	2107	4810	2.28	85.25	202	2.37 J

Prepared by : *McCaskery, Billings, Montana*  
 Date : 11-03-1998  
 Remarks :

Surface Casing Design  
 Design is for a Production string.  
 Minimum segment length for the 5,500 foot well is 400 feet.  
 An annular mud weight of 9.000 ppg was used for burst purposes. The differential mud gradient below any lost-circulation depth is -0.383 psi/ft and the bottom hole pressure load is 0 psi.

NOTE : The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - collapse (with evacuated casing), 1.0 - (uniaxial) burst, 1.8 - API 8rd tension, 1.6 - buttress tension, 1.5 - body yield tension, and 1.6 - EUE 8rd tension. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser.  
 Costs for this design are based on a 1987 pricing model. (Version 1.07)

**ONSHORE OIL & GAS ORDER NO. 1**

**Thirteen Point Surface Use Plan**

The onsite inspection for the subject well was conducted on Thursday, October 15, 1998 at approximately 10:35 a.m. Weather conditions were cool and clear. In attendance at the onsite inspection were the following individuals:

<b>Robert Kay</b>	<b>Land Surveyor</b>	<b>Uintah Eng. &amp; Land Surveying</b>
<b>Lisa Smith</b>	<b>Permitting Agent</b>	<b>Permitco Inc.</b>
<b>Dave McCoskery</b>	<b>Operations Manager</b>	<b>Ballard Petroleum LLC</b>
<b>Pat Shaw</b>	<b>Manager</b>	<b>Savant Resources LLC</b>
<b>Ned Sterne</b>	<b>Geologist</b>	<b>Savant Resources LLC</b>
<b>Jeff DeFreest</b>	<b>District Geologist</b>	<b>U.S. Forest Service</b>
<b>Brent Barney</b>	<b>Transportation Eng.</b>	<b>U.S. Forest Service</b>
<b>Bob Thompson</b>	<b>Botanist</b>	<b>U.S. Forest Service</b>
<b>Carter Reed</b>	<b>Geologist</b>	<b>U.S. Forest Service</b>
<b>Kevin Draper</b>	<b>Landscape Architect</b>	<b>U.S. Forest Service</b>
<b>Stan Anderson</b>		<b>U.S. Forest Service</b>
<b>Tom Shore</b>	<b>District Ranger</b>	<b>U.S. Forest Service</b>
<b>Al McKee</b>	<b>Petroleum Engineer</b>	<b>Bureau of Land Management</b>
<b>Cheryl Martinez</b>	<b>Geologist</b>	<b>Bureau of Land Management</b>
<b>Michael Johnson</b>	<b>Geologist</b>	<b>Bureau of Land Management</b>

**1. Existing Roads**

- a. The proposed well site is located approximately 9.3 miles northeast of Indianola, Utah.
- b. Directions to the location from Indianola, Utah are as follows:

From Indianola proceed east for 2.2 miles. Turn left and continue northeasterly up the Little Clear Creek road for 7.0 miles. Turn left onto the new access route and proceed west for approximately 0.1 miles to the location.



- c. For location of access roads within a 2-Mile radius, see Maps "A" & "B".
- d. The last 3 miles before reaching the new access has not been graveled. This portion of the road will be covered under a narrative road plan to be prepared by Uintah Engineering and Land Surveying. Rough spots along this portion of the road will be smoothed and spot surfaced. Turnouts along the existing road will be constructed as specified in the road design.
- e. All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.
- f. Existing roads and newly constructed roads on surface under the jurisdiction of any Surface Managing Agency shall be maintained in accordance with the standards of the SMA.
- g. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.

2. Planned Access Roads

- a. The last 0.2 miles of access road is new access. The road will have a subgrade of 14 feet with a running surface of 12 feet. Four inches of gravel will be placed on portions of the access road. The road will be constructed as per the approved road design to be submitted by Uintah Engineering and Land Surveying.
- b. The maximum grade will be shown on the approved road design.
- c. Any turnouts needed along the new access route will be shown on the approved road design.
- d. Temporary culverts will be installed across the bottom of the creek and will be covered with soil and gravel to create an elevated crossing. Culverts and drainage dips will be installed as per the approved road design.
- e. The new access road was centerline flagged at the time of staking.



- f. Surfacing material may be necessary in certain areas and will be shown in the road design.
- g. No cattleguards will be necessary.
- h. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance. Unauthorized off-road vehicular travel is prohibited.
- i. Adequate signs will be posted along Forest Development Roads to warn the public of project related traffic.

3. Location of Existing Wells Within a 1-Mile Radius of the Proposed Location.

- a. Water wells -none
- b. Injection wells -none
- c. Producing wells - none
- d. Drilling wells - none

4. Location of Tank Batteries and Production Facilities.

- a. All permanent structures (onsite for six months or longer) constructed or installed (including oil well pump jacks) will be painted a neutral color to blend with the surrounding environment. The proposed color for this site is Juniper Green unless otherwise stipulated by the Forest Service. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded.
- b. If storage facilities/tank batteries are constructed on this lease, the facility/battery or the wellpad will be surrounded by a containment dike of sufficient capacity to contain at a minimum, the entire content of the largest



tank within the facility/battery, unless more stringent protective requirements are deemed necessary by the authorized officer.

- c. All loading lines will be placed inside the berm surrounding the tank battery.
- d. Gas meter runs for each well will be located within 500 feet of the wellhead. The gas flowline will be buried or anchored down from the wellhead to the meter and 500 feet downstream of the meter run or any production facilities. Meter runs will be housed and/or fenced.
- e. The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first three months on new meter installations and at least quarterly thereafter. The AO 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 BLM in Price, Utah. All meter measurement facilities will conform with Onshore Oil and Gas Order No. 4 for liquid hydrocarbons and Onshore Oil and Gas Order No. 5 for natural gas measurement.
- f. A production facility diagram is attached showing placement of all proposed production facilities. If the facilities should change from that submitted, a revised production diagram will be submitted. Production facilities will be subject to further environmental analyses and approval by the Forest Service.
- g. Installation of any oil or gas flow lines will be done along the proposed access routes.
- h. Any necessary pits will be properly fenced to prevent any wildlife entry.
- i. All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to.
- j. All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the Authorized Officer.



- k. 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.
- l. If the temporary creek crossing is determined to be inadequate, a permanent creek crossing will be designed as agreed to between the Operator and U.S. Forest Service.
- m. 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.
- n. All gasoline, diesel and steam-powered equipment will be equipped with effective spark arresters or mufflers. Spark arresters will meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide. In addition, all electrical equipment must be properly insulated to prevent sparks.

**5. Location and Type of Water Supply**

- a. All water needed for drilling purposes will be obtained from Lake Fork Creek below the location.
- b. A copy of the approved water permit will be submitted under separate cover.
- c. Water needed for operations will be properly and legally obtained according to State water laws. the location of diversion, if on National Forest System lands, is subject to Forest Service approval.

**6. Source of Construction Material**

- a. Surface and subsoil materials in the immediate area will be utilized.
- b. Any gravel used will be obtained from a private or commercial source unless other arrangements are made with the forest service.



- c. **The use of materials under BLM jurisdiction will conform with 43 CFR 3610.2.3. Construction material will not be located on lease.**
- d. **No construction materials will be removed from Federal land.**

**7. Methods of Handling Waste Disposal**

- a. **The reserve pit will be constructed so as not to leak, break, or allow discharge. The reserve pit will be lined with a minimum 10 mil plastic liner.**
- b. **The reserve pit will be constructed of sufficient size and capacity for the necessary fluids for drilling and to contain any runoff from the drill site. Pits will not be constructed within intermittent or perennial stream channels.**
- c. **No trash, scrap pipe, etc., that could puncture the liner will be disposed of in the pit.**
- d. **The reserve pit will be constructed in undisturbed material and below the natural ground level.**
- e. **All drilling fluids will be contained in the reserve pit. All appropriate measures will be taken to assure that leakage through the reserve pit does not occur and that fluids are not allowed to overflow. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling operation and the pit will be fenced during drilling and completion operations.**
- f. **Burning of garbage and debris is prohibited. All trash will be contained in a trash cage and its contents periodically disposed of off the Forest at an approved refuse facility.**
- g. **After first production, produced waste water will be confined to a unlined pit or storage tank for a period not to exceed ninety (90) days. During the 90-day period, in accordance with Onshore Order No. 7, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the AO's approval. Failure to file an application within the time allowed will be considered an incident of noncompliance.**



- h. Drill cuttings are to be contained and buried in the reserve pit.
- i. 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.
- j. Sanitary facilities are required on site at all times during operations. Sewage will be placed in a portable chemical toilet or holding tank and disposed of in accordance with state and county regulations. The installation of facilities, other than self contained chemical toilets, is subject to State and Forest Service approval.
- k. The produced fluids (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.

8. Ancillary Facilities

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

9. Well Site Layout

- a. Section corners, survey markers and claim corners in the project area will be located and flagged by Ballard Petroleum LLC prior to operations. The removal or disturbance of identified markers will be approved by the proper authority.
- b. The pad and road designs will be consistent with Forest Service specifications as outlined in the Region 4 Oil and Gas Rooding Guidelines (Attachment 1) and the Manti-La Sal National Forest Oil and Gas Well Site Guidelines (Attachment 2) and are subject to Forest Service approval. No construction operations may begin prior to approval. any modifications to approved plans are also subject to review and approval.



- c. A pre-construction meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road work must be construction-staked prior to this meeting. Site-specific requirements will be discussed at that time.
- d. The operator shall submit for approval, a maintenance plan for the site, the project road and that portion of nay Forest Development Road to be used for project access. A road use permit must be obtained from the Forest Service authorizing commercial use of Forest Development Roads. Requirements listed in the road-use permit must be followed. In the event of a discovery, an undated maintenance plan will be required.
- e. The operator will acquire appropriate permission to use non-Forest Service Roads.
- f. The project engineer and surveyors are certified by the State in which they reside or maintain their business.
- g. All surface disturbing activities, including reclamation, will be supervised by a qualified, responsible official or representative of Ballard Petroleum LLC who is aware of the terms and conditions of the APD and specifications in the approved plans.
- h. All cut and fill slopes will be such that stability can be maintained for the life of the activity. Cut and fill slopes will be constructed as follows:

<u>Height of Slope</u>	<u>Slope</u>
0-5 feet	3:1
6-10 feet	2:1
over 10 feet	1-1/2:1

- i. All fills will be free from vegetative materials and will be compacted in lifts no greater than 12 inches in thickness to a minimum of 90 percent Proctor dry density sufficient to prevent excessive settlement.



- j. If the well is productive, the working surface of the drill site will be surfaced with crushed gravel to a depth sufficient to support anticipated loads throughout the life of the well. Usually a depth of 12 inches of gravel is anticipated.**
- k. A diversion ditch having the minimum dimensions of 3 feet horizontal to 1 foot vertical (3:1 ditch), will be constructed around the site to divert surface waters from flowing onto the site. The ditch will be located at the base of the cut slope and around the toe of the fill slopes (see Drawing No. 1 - Construction Requirements for Typical Well Sites). A straw dike will be constructed in the ditch outflow to trap any sediment produced from the raw slopes. A culvert will be necessary where the access road enters the site.**
- l. A berm will be constructed around the perimeter of the site to contain all precipitation, spills, and other fluids from leaving the site. The berm will be a minimum of 18 inches high, 12 inches wide at the top, and having 1-1/2:1 side slopes. The site surface will be graded to drain to the reserve pit. The drainage pattern to be constructed will be modified for each site, depending on the site specific conditions.**
- m. The reserve pit will be located on the southwest side of the location.**
- n. The stockpiled topsoil (first 12 inches or maximum available) will be stored along the southeast side of the location as shown on the rig layout. All topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.**
- o. See Location Layout for orientation of rig, cross section of drill pad and cuts and fills.**
- p. The location of mud tanks; reserve pit, trash cage; pipe racks; living facilities and soil stockpiles will be shown on the Location Layout.**
- q. All pits will be fenced to prevent wildlife entry.**
- r. The reserve pit fencing (5 strand barbed wire) will be on three sides during drilling operations and on the fourth side when the rig moves off the location. Pits will be fenced and maintained until cleanup.**



10. Plans for Restoration of Surface

Dry Hole

- a. Rehabilitation of the entire site will be required and will commence immediately after the drilling is complete. The site will be restored as nearly practical to its original condition. Cut and fill slopes will be reduced and graded to conform to the adjacent terrain.
- b. Drainages will be reestablished and temporary measures will be required to prevent erosion to the site until vegetation is established.
- c. Generally speaking, the standpipe for well identifications will be removed on National Forest lands. A final determination will be made on a case-by-case basis.
- d. After final grading and before the replacement of topsoil, the entire surface of the site shall be scarified to eliminate slippage surfaces and to promote root penetration. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.
- e. A temporary fence (let down fence) will be constructed around the site to prevent continued use until the required reclamation standards are successfully achieved. The fence will then be removed.
- f. In general, the disturbed areas will be considered adequately revegetated when at least 90 percent of the original ground cover is re-established over 90 percent of the seeded area, within three years of planting, consisting of seeded and desirable species. Maximum allowable non-noxious weeds is 10 percent of the total ground cover at any time. No noxious weeds will be allowed on the site; they must be treated as they occur. The operator is responsible for maintenance of reclamation facilities such as fences, barricades and temporary drainage structures until the desired reclaimed conditions are achieved. If the desired ground cover is not established at the end of each 3 year period, an analysis of why the areas has not recovered will be performed by the operator and additional treatment and seeding will be required based on the results of the analysis.



- g. Straw, hay, feed, or pellets used on the National Forests of Utah must be certified weed-free by the State of Utah.**
- h. At such time as the well is plugged and abandoned, the operator shall submit a subsequent report of abandonment.**

**Producing Location**

- i. Site reclamation for producing wells will be accomplished for portions of the site not required for the continued operation of the well. All disturbed surface will be treated to prevent erosion and to complement the esthetics of the area. A new site plan will be required encompassing the facilities required for operation and interim reclamation measures.**
- j. Immediately upon well completion, the location and surrounding area will be cleared of all unused tubing, equipment, debris, materials, trash and junk not required for production.**
- k. Immediately upon well completion, any hydrocarbons on the pit shall be removed in accordance with 43 CFR 3162.7-1.**
- l. The plastic nylon reinforced liner shall be torn and perforated before backfilling of the reserve pit.**
- m. At the end of drilling operations, drilling fluids will be hauled to an approved disposal site. All polluting substances or contaminated materials, such as oil, oil-saturated soils, and gravel, will be buried with a minimum of 2 feet of clean soil as cover or be removed from the Forest.**
- n. The reserve pit must be dry before it is backfilled and reclaimed. Once the reserve pit is dry, the reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to the approximate natural contours. Methods for drying the pit, other than natural evaporation, are subject to prior Forest Service approval.**
- o. The cut and fill slopes and all other disturbed areas not needed for the production operation will be topsoiled and revegetated. The berm will be removed and the site graded to drain.**



- p. Stockpiled topsoil will be redistributed evenly over the disturbed area upon reclamation.
- q. The site will be seeded and/or planted as prescribed by the Forest Service. Nutrients and soil amendments will be applied to the redistributed surface soil later as necessary to meet the revegetation requirements. The seed mix is as follows:

<u>Species</u>	<u>#'s PLS/Acre</u>
Slender Wheatgrass	2
Intermediate Wheatgrass	2
Timothy	2
Orchard Grass	2
Perennial Rye	2
Alfalfa (Ladak)	1

11. Surface Ownership

Access Roads - All roads are located within the Manti-La Sal National Forest, or are maintained by the County or State Highway Departments.

Wellpad - The well pad is located on lands managed by the Manti-La Sal National Forest (San Pete District).

12. Other Information

- a. Move-in and move-out of the drill rig will not be allowed during major national holiday weekends and will be restricted during the big game hunting seasons as specified by the Forest Service as conditions for approval of the Surface-Use Plan of Operations.
- b. A Class III archeological survey was conducted by Senco-Phenix. No significant cultural resources were found and clearance has been recommended. A copy of this report is attached.





- f. There will be no deviation from the proposed drilling and/or workover program without prior approval from the AO. 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.h.
- g. "Sundry Notice and Report on Wells" (From 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2.
- h. This permit will be valid for a period of one year from the date of approval. An extension period may be granted, if requested, prior to the expiration of the original approval period.
- i. The operator or his contractor shall contact the U.S. Forest Service at 801/637-2817 48 hours prior to construction activities.
- j. Fire suppression equipment must be available to all personnel on the project site. Equipment will include a minimum of one hand tool per crew member consisting of shovels, pulaskis, and chainsaws and one properly rated fire extinguisher per vehicle and/or internal combustion engine.
- k. Ballard Petroleum LLC will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.
- l. All accidents or mishaps resulting in resource damage and/or serious personal injury must be reported to the Forest Service as soon as possible.
- m. Harassment of wildlife and livestock is prohibited.
- n. All merchantable timber removed or destroyed by construction or other project related activities will be purchased by the operator at fair market value. The Forest Service will conduct a timber cruise and appraisal after the final clearing limits have been staked. Slash burning will be conducted only at locations approved by the Forest Service under authorization or a burning permit.



ONSHORE ORDER NC  
Ballard Petroleum LLC  
Oil Hollow Federal #5-1  
2627' FSL and 1015' FWL  
NW SW Sec. 5, T11S - R5E  
Utah County, Utah

CONFIDENTIAL - TIGHT HOLE

Lease No. UTU-77275

SURFACE USE PLAN

Page 15

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

Permit Matters

PERMITCO INC.  
Lisa L. Smith  
14421 Weld County Road 10  
Ft. Lupton, CO 80621  
303/857-9999

Drilling & Completion Matters

Ballard Petroleum LLC  
845 12th Street West  
Billings, MT 59102  
Dave McCoskery - Operations Manager  
406/259-8790 - (W)  
406/248-3864 - (H)  
406/698-3732 - (C)

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 Ballard Petroleum LLC and its contractors and subcontractors in conformity with the plan and the terms and conditions under which it is approved.

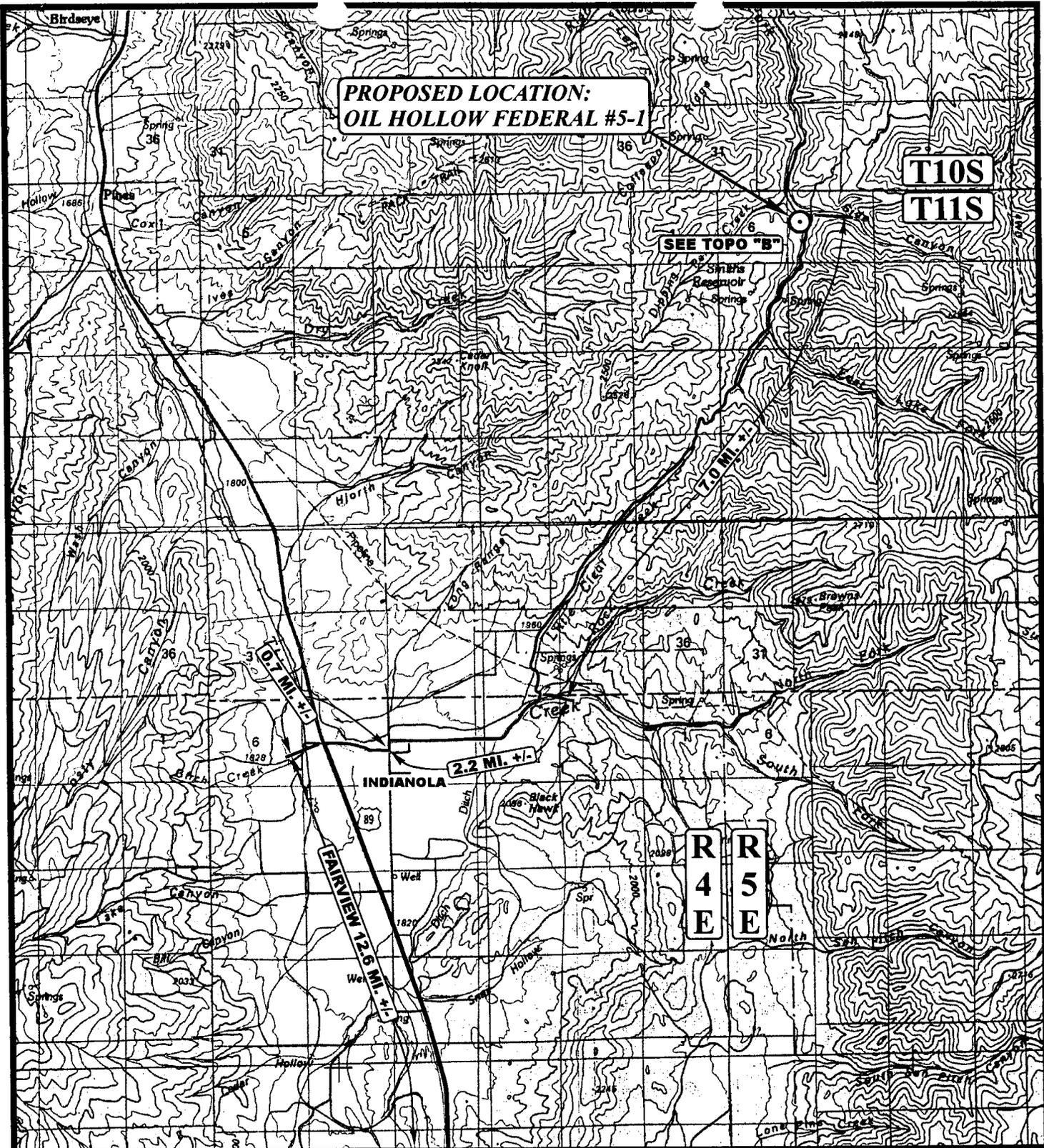
This statement is subject to the provisions of 18.U.S.C. 1001 for the filing of a false statement.

November 10, 1998

Date:

  
Lisa L. Smith - PERMITCO INC.  
Authorized Agent for:  
Ballard Petroleum LLC





**LEGEND:**

⊙ PROPOSED LOCATION



**BALLARD PETROLEUM LLC**

**OIL HOLLOW FEDERAL #5-1  
SECTION 5, T11S, R5E, S.L.B.&M.  
2627' FSL 1015' FWL**



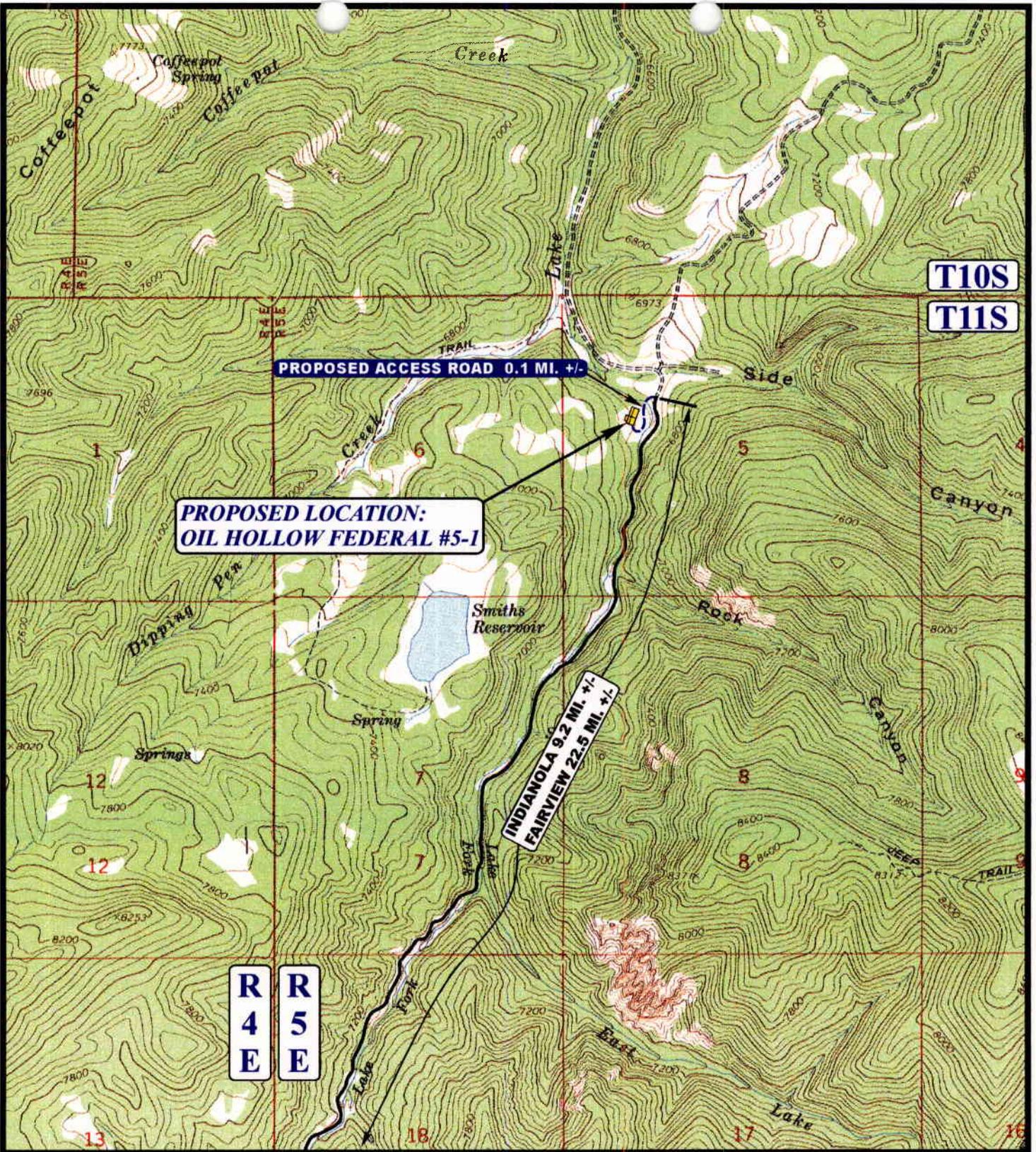
**Utah Engineering & Land Surveying**  
85 South 200 East Vernal, Utah 84078  
(435) 789-1017 \* FAX (435) 789-1813

**TOPOGRAPHIC  
MAP**

**10 21 98**  
MONTH DAY YEAR

SCALE: 1 : 100,000 DRAWN BY: D.COX REV: 11-3-98 D.COX





**LEGEND:**

- PROPOSED ACCESS ROAD
- EXISTING ROAD



**BALLARD PETROLEUM LLC**

**OIL HOLLOW FEDERAL #5-1**  
**SECTION 5, T11S, R5E, S.L.B.&M.**  
**2627' FSL 1015' FWL**



**Uintah Engineering & Land Surveying**  
 85 South 200 East Vernal, Utah 84078  
 (435) 789-1017 \* FAX (435) 789-1813

**TOPOGRAPHIC**  
**MAP**

**10 21 98**  
 MONTH DAY YEAR

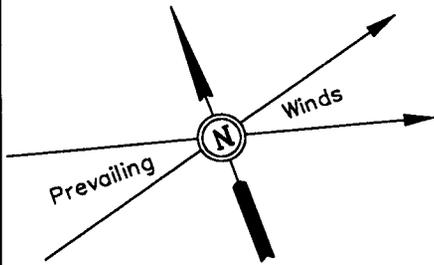
SCALE: 1" = 2000' DRAWN BY: D.COX REVISED: 11-3-98



# BALLARD PETROLEUM LLC

## LOCATION LAYOUT FOR

OIL HOLLOW FEDERAL #5-1  
SECTION 5, T11S, R5E, S.L.B.&M.  
2627' FSL 1015' FWL



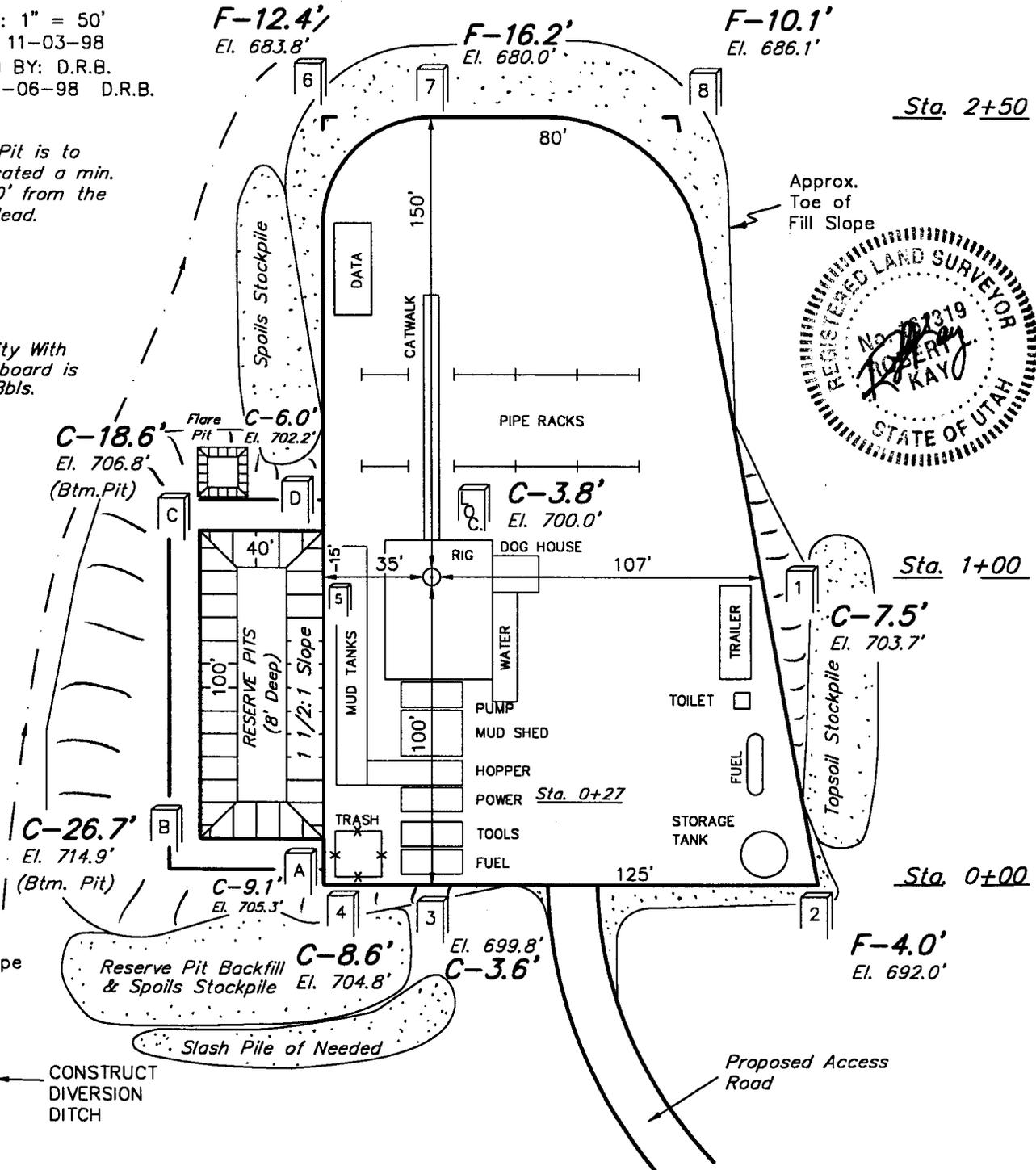
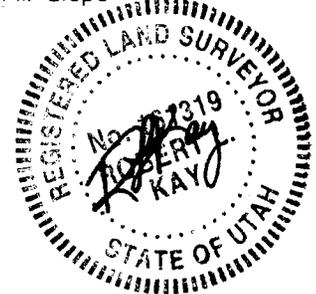
SCALE: 1" = 50'  
DATE: 11-03-98  
DRAWN BY: D.R.B.  
Revised: 11-06-98 D.R.B.

**NOTE:**

Flare Pit is to be located a min. of 100' from the Well Head.

Pit Capacity With 2' of Freeboard is ± 2,300 Bbls.

Approx. Toe of Fill Slope



Approx. Top of Cut Slope

CONSTRUCT DIVERSION DITCH

Proposed Access Road

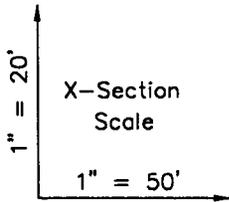
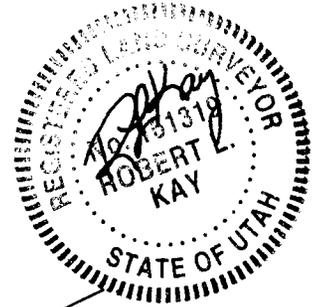
Elev. Ungraded Ground at Location Stake = 6700.0'  
Elev. Graded Ground at Location Stake = 6696.2'

UINTAH ENGINEERING & LAND SURVEYING  
85 So. 200 East • Vernal, Utah 84078 • (435) 789-1017

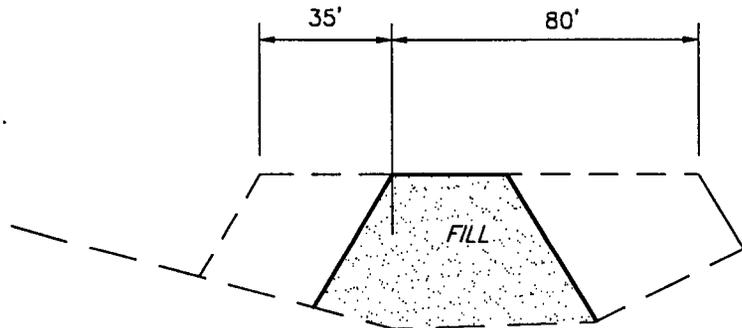
# BALLARD PETROLEUM LLC

## TYPICAL CROSS SECTIONS FOR

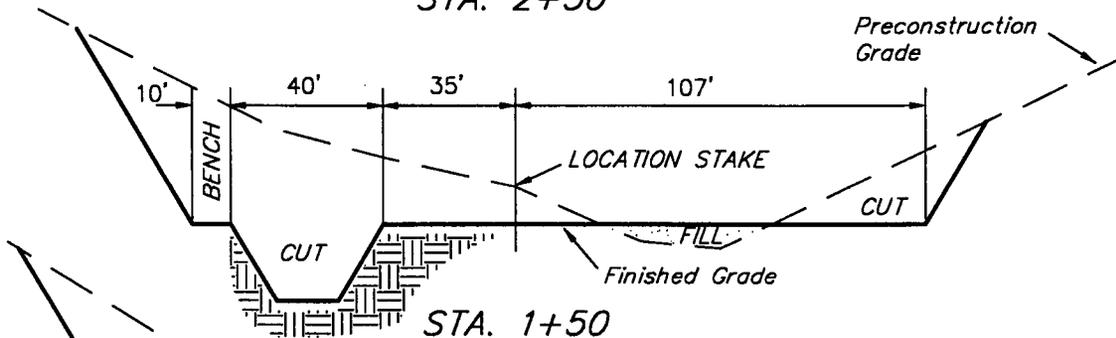
OIL HOLLOW FEDERAL #5-1  
SECTION 5, T11S, R5E, S.L.B.&M.  
2627' FSL 1015' FWL



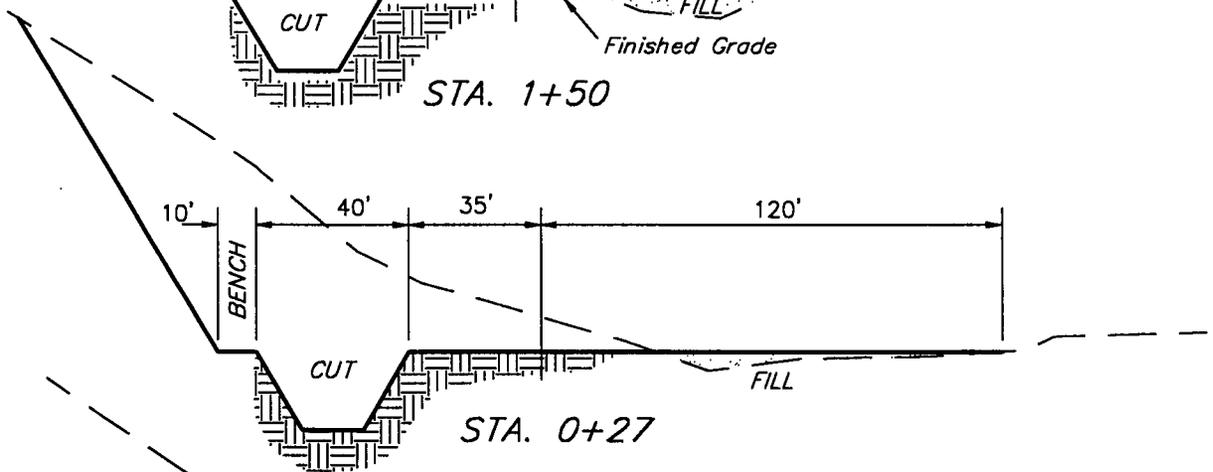
DATE: 11-03-98  
DRAWN BY: D.R.B.  
Revised: 11-06-98 D.R.B.



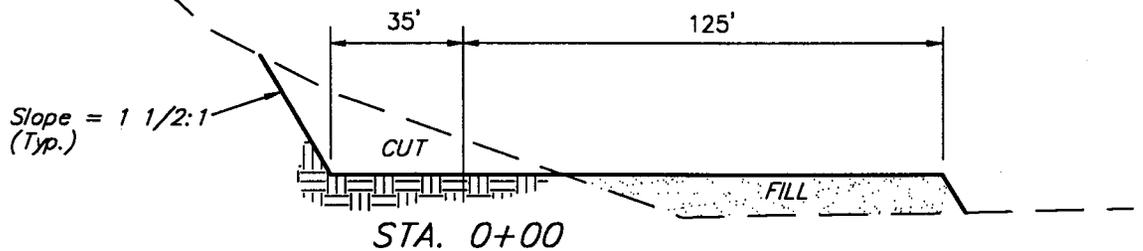
STA. 2+50



STA. 1+50



STA. 0+27



STA. 0+00

### APPROXIMATE YARDAGES

CUT		
(6") Topsoil Stripping	= 710	Cu. Yds.
Remaining Location	= 6,520	Cu. Yds.
<b>TOTAL CUT</b>	<b>= 7,230</b>	<b>CU.YDS.</b>
<b>FILL</b>	<b>= 5,840</b>	<b>CU.YDS.</b>

EXCESS MATERIAL AFTER 5% COMPACTION	= 1,080	Cu. Yds.
Topsoil & Pit Backfill (1/2 Pit Vol.)	= 1,080	Cu. Yds.
EXCESS UNBALANCE (After Rehabilitation)	= 0	Cu. Yds.

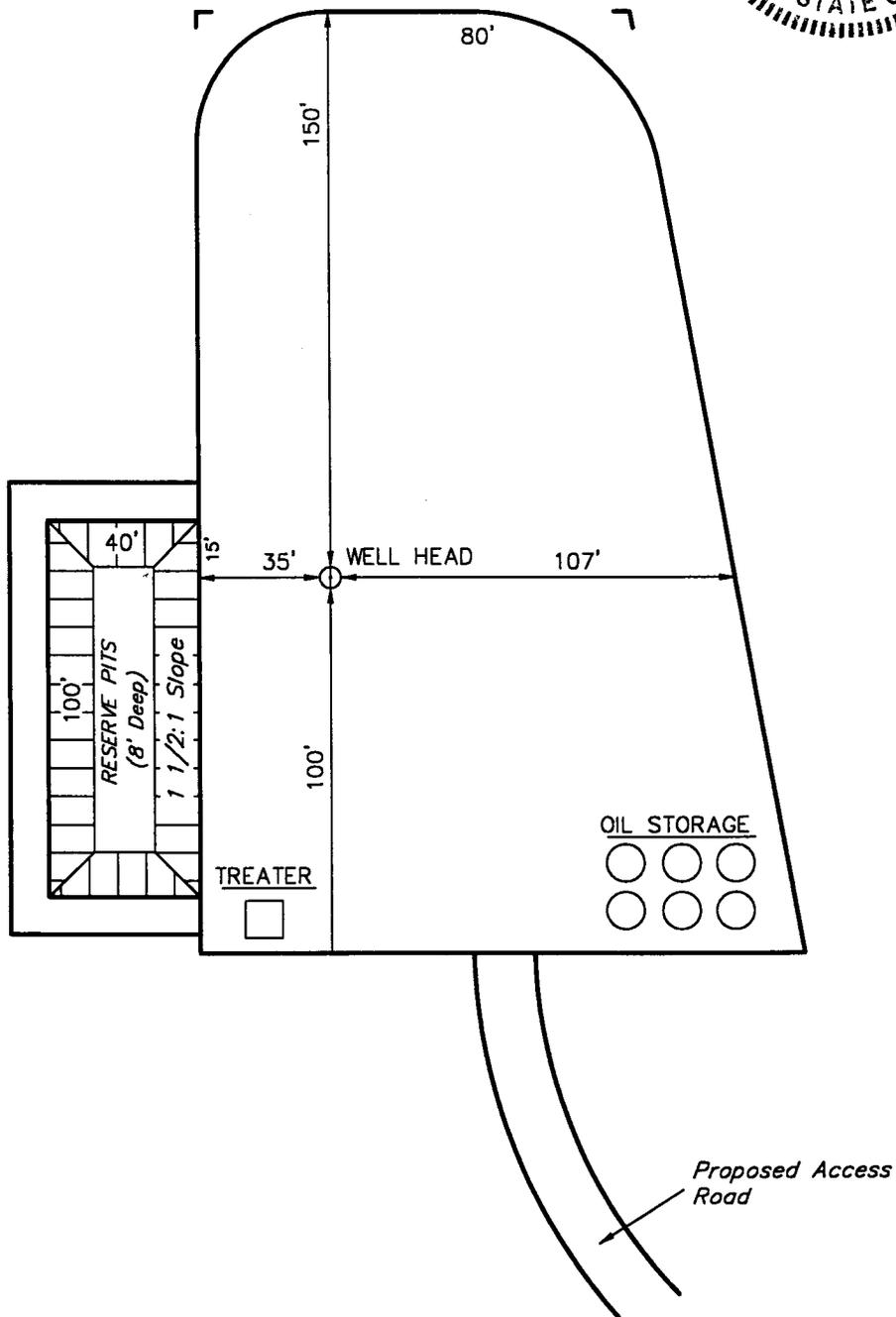
**BALLARD PETROLEUM INC**

**PRODUCTION FACILITY LAYOUT**

OIL HOLLOW FEDERAL #5-1  
SECTION 5, T11S, R5E, S.L.B.&M.  
2627' FSL 1015' FWL



SCALE: 1" = 50'  
DATE: 11-06-98  
DRAWN BY: D.R.B.



**There are no federal stipulations at this time.**



**A Class III Archeological Study was completed by Senco-Phenix. No significant cultural resources were found and clearance has been recommended. A copy of this report will be submitted directly to the appropriate agencies by Senco-Phenix.**



WORKSHEET  
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 11/16/98

API NO. ASSIGNED: 43-049-30018
--------------------------------

WELL NAME: OIL HOLLOW FED 5-1  
 OPERATOR: BALLARD PETROLEUM LLC (N2310)  
 CONTACT: Lisa Smith (303) 857-9999

PROPOSED LOCATION:  
 NWSW 05 - T11S - R05E  
 SURFACE: 2627-FSL-1015-FWL  
 BOTTOM: 2627-FSL-1015-FWL  
 UTAH COUNTY  
 WILDCAT FIELD (001)

INSPECT LOCATION BY: / /		
TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: FED  
 LEASE NUMBER: UTU-77275  
 SURFACE OWNER: Federal

PROPOSED FORMATION: NGSD

RECEIVED AND/OR REVIEWED:

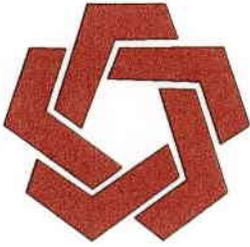
Plat  
 Bond: Federal  State  Fee   
 (No. KT-1005)  
 Potash (Y/N)  
 Oil Shale (Y/N) \*190-5(B)  
 ~~Water Permit~~  
 (No. Municipal/Indiana)  
 RDCC Review (Y/N)  
 (Date: \_\_\_\_\_)  
 Fee Surf Agreement (Y/N)

LOCATION AND SITING:

R649-2-3. Unit \_\_\_\_\_  
 R649-3-2. General  
 R649-3-3. Exception  
 Drilling Unit  
 Board Cause No: \_\_\_\_\_  
 Date: \_\_\_\_\_

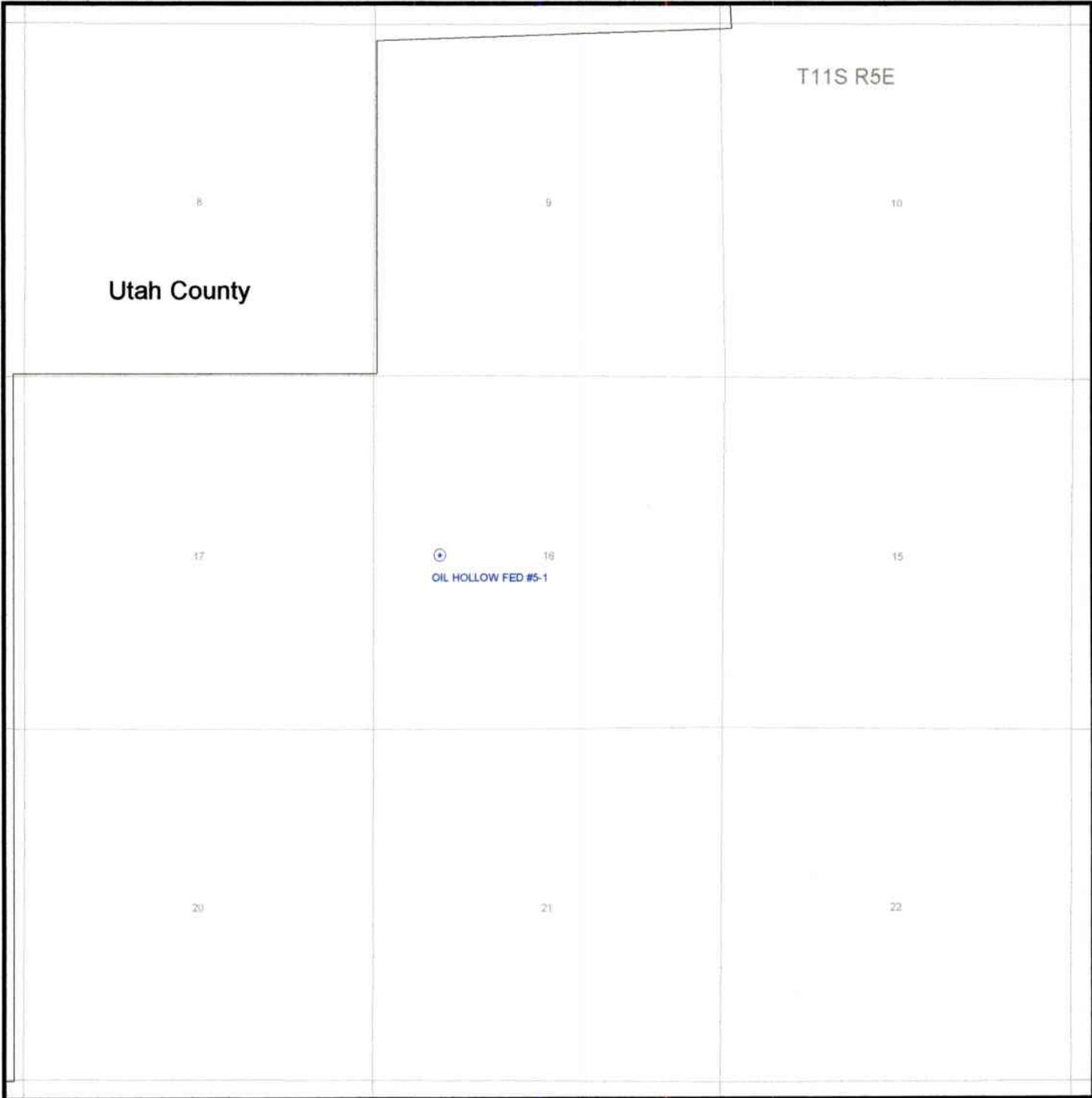
COMMENTS: \* Need add'l info. "Except. Loc." (let'd 1-4-99)

STIPULATIONS: ① FEDERAL APPROVAL

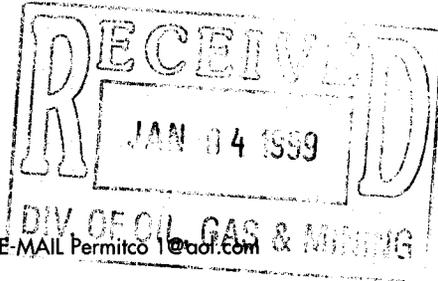


DIVISION OF OIL, GAS & MINING

OPERATOR: BALLARD PETROLEUM LLC (N2310)  
FIELD: WILDCAT (001)  
SEC: 16, TWP 11S, RNG 5E  
COUNTY: UTAH



DATE PREPARED:  
18-NOV-1998



14421 Weld County Rd.10 • Ft. Lupton, Colorado 80621 • (303) 857-9999 • FAX (303) 857-0577 • E-MAIL Permitco1@aol.com

December 30, 1998

Division of Oil, Gas & Mining  
1594 W. North Temple, Suite 1210  
Box 145801  
Salt Lake City, UT 84114-5801

Attn: Lesha Cordova

Re: **Ballard Petroleum LLC**  
**Oil Hollow Federal #5-1**  
**2627' FSL and 1015' FWL**  
**NW SW Sec. 5, T11S - R5E**  
**Utah County, Utah**

Dear Lesha,

This letter is to serve as our request for an exception to spacing on the above mentioned location.

The above location was staked at non-standard footages in accordance with the rules and regulations of the Division of Oil, Gas & Mining based on topography, seismic data and geologic interpretation. Please be advised, however, that Ballard Petroleum LLC is the lease holder of all acreage within a 460 foot radius of the subject location. Therefore, we request administrative approval for this exception location.

Thank you for your cooperation.

Sincerely,

PERMITCO INC.

A handwritten signature in cursive script, appearing to read "Lisa L. Smith".

Lisa L. Smith  
Consultant for:  
Ballard Petroleum LLC

cc: **Ballard Petroleum LLC - Billings, MT**  
**Savant Resources LLC - Denver, CO**



File Code: 2820-2

Date: August 12, 1999

Dear Participant:

Enclosed is a copy of the Decision Notice/Finding of No Significant Impact (DN/FONSI) for Ballard Petroleum LLC's proposed Oil Hollow #5-1 and Hjorth Canyon Federal #16-1 Exploratory oil and gas wells on the Manti-La Sal National Forest. You were sent a copy because you commented during the public review and comment periods or have specific interest in the project.

Based on the project Environmental Assessment (EA), the Forest Supervisor of the Manti-La Sal National Forest has approved the Surface Use Plans of Operations (SUPOs) for the two wells with stipulations designed to minimize adverse environmental effects and allow the proposed drilling consistent with the rights granted by the respective oil and gas leases, the Forest Plan, and Best Management Practices (BMPs). Approval of the SUPOs involved consenting to the Bureau of Land Management (BLM) regarding exceptions to certain lease stipulations as described in the EA and DN/FONSI. In addition, the Forest Service does not object to approval of the associated Applications for Permit to Drill (APD) by BLM subject to mitigations incorporated into the SUPO by the operator and Forest Service stipulations. Copies of the EA are available at the Forest Supervisor's Office in Price, Utah at the address on the letterhead.

Appeal opportunities are described in the DN/FONSI. The project can be implemented immediately following publication of the Forest Service decision in the Sun Advocate of Price, Utah on August 12, 1999.

If you have any questions, contact Will Wilson at the Ferron-Price Ranger District Office, P. O. Box 310, Ferron, Utah 84523 (435-384-2372) or Carter Reed at the Forest Supervisor's Office, 599 West Price River Drive, Price, Utah 84501 (435-637-2817).

Sincerely,

for  
JANETTE S. KAISER  
Forest Supervisor

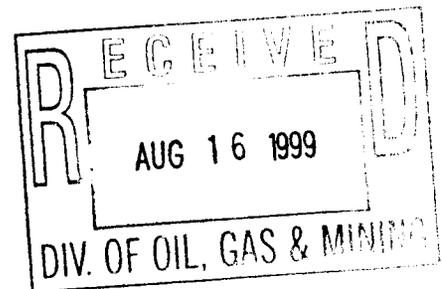
Enclosure

cc:

D-1

D-2/3

Glenn Carpenter, BLM, Salt Lake District (w/o enclosures)



# Decision Notice And Finding Of No Significant Impact

## Environmental Assessment For Ballard Petroleum LLC Oil Hollow #5-1 and Hjorth Canyon Federal #16-1 Applications for Permit to Drill

(T. 11 S., R. 4 and 5 E., Salt Lake Base & Meridian)

USDA Forest Service, Intermountain Region  
Manti-La Sal National Forest  
Sanpete Ranger District  
Utah County, Utah

### I. INTRODUCTION

An Environmental Assessment (EA) entitled, Environmental Assessment for Ballard Petroleum LLC Oil Hollow #5-1 and Hjorth Canyon Federal #16-1 Applications for Permit to Drill, discusses a proposal by Ballard Petroleum LLC to drill two wildcat oil wells on the Manti-La Sal National Forest, was released for public review and comment on June 30, 1999. In November 1998, the Forest Service received two Applications for Permit to Drill (APDs) and Surface Use Plans of Operation (SUPOs) to conduct drilling on National Forest System lands administered by the Manti-La Sal National Forest. The Forest Service (FS) is the surface management agency responsible for administration and approval of surface operations and the Bureau of Land Management (BLM) is responsible for lease administration, and approval/administration of underground operations. The FS and BLM jointly conducted the environmental analysis and prepared the EA.

The FS and BLM evaluated these two APDs and the associated Surface Use Plans of Operations (SUPO) to conduct exploratory oil/gas drilling within the Lake Fork watershed 9.3 miles northeast of Indianola and in Hjorth Canyon 6.6 miles north of Indianola, Utah County, Utah. Both drill holes are located in the Sanpete North Oil and Gas Potential Area as delineated in the Final Environmental Impact Statement for Oil and Gas Leasing and Lands Administered by the Manti-La Sal National Forest, 1992. The proposed drilling would take place in Section 5 of Township 11 South, Range 5 East, and in section 16, Township 11 South, Range 4 East, Salt Lake Baseline and Meridian, respectively. Location maps for the project are contained in Appendix A of the EA. The two proposed wells are identified as Oil Hollow #5-1 (Lease # UTU-77275) and Hjorth Canyon Federal #16-1 (Lease # UTU-77270).

Drilling of the wells would be during the 1999 and 2000 field seasons, commencing in July/August 1999.

### II. DECISION

I have decided to implement **Alternative 3, "Drilling of Oil Hollow #5-1 with Alternate Pad Access and Additional Mitigation"** as described in the Environmental Assessment (EA, pp.13-15, Appendix A, Location Map, and Appendix B, Stipulations) and summarized as follows:

The Forest Service approves the two SUPOs and does not object to the BLM approving the APDs for Oil Hollow #5-1 (Lease # UTU-77275) and Hjorth Canyon Federal #16-1 (Lease # UTU-77270), with about 0.8 miles of temporary road access on National Forest System Land and authorizes the no surface occupancy stipulation attached to Lease #UTU-77275 be excepted as discussed. Access routes to the wells would be constructed, maintained or upgraded as necessary, and properly signed during activity. Hjorth Canyon #16-1 access would require 0.7 miles of new temporary road construction and Oil Hollow #5-1 access would require 0.1 miles of new temporary road construction. Main access for the Oil Hollow site would be from Indianola on Forest Development Road #50070 for approximately 6.5 miles. Approximately 0.7 miles of this road will be improved with a gravel

surface aggregate to offset sediment produced by project activities during dry weather. If project activities extend beyond October 1st, the length of road requiring gravel surface aggregate will be 3.2 miles. Access for the Hjorth drill hole would be from State Highway 89 along Forest Development Road #FDR 51171 for approximately 1.5 miles. This road crosses non-Federal lands then onto National Forest System lands in Hjorth Canyon to the location where the pad access road would be constructed. Forest Service stipulations will be applied from the Forest Plan and EA project design features (Attachment 1). Monitoring will be conducted as required to address issues and anticipated environmental effects.

The decisions also grant exceptions to the lease stipulations which prohibit surface occupancy on unstable lands and within 200 feet of a riparian zone for the Oil Hollow #5-1 well.

The responsible official of the Bureau of Land Management will issue a separate decision document regarding the BLM decisions.

### **III. RATIONALE FOR THE DECISION**

This decision was made after careful consideration of the contents of the Environmental Assessment, public involvement, and the entirety of the supporting record. No one fact or single piece of information led to my decision. Rather, a combination of factors contributed to it. I have summarized some of my key considerations in the following sub-parts.

#### **Relationship to the Purpose and Need:**

The general purpose and need for this project is to accomplish the following goal of the Forest Plan: "Provide appropriate opportunities for and manage activities related to locating, leasing, development, and production of mineral and energy resources." (Forest Plan, p. III-4).

The project-specific purpose and need of the proposed action is to allow Ballard Petroleum their exclusive right to drill for and remove oil/gas reserves consistent with the Federal Leases.

#### **Relationship to Other Alternatives Considered:**

I have reviewed the alternatives analyzed in the Environmental Assessment (EA, pp. 11-17).

The Alternative 1 (no action) would not meet Forest Plan direction to "Provide appropriate opportunities for and manage activities related to locating, leasing, development, and production of mineral and energy resources." (Forest Plan, p. III-4).

Alternative 2 was considered but not selected largely because Alternative 3 would meet the project objectives and adequately protect the resources. Alternative 2 did not provide for the stabilization of the earth flow nor provide measures to minimize effects from the earth flow on the drilling equipment nor minimize effects to Lake Fork Creek.

#### **Relationship to Existing and Potential Resource Conditions:**

I have considered existing resource conditions and potential environmental effects in making this decision (EA, pp. 34-55, project record). The design of Alternative 3 and included stipulations will adequately protect the resources. The exceptions to lease stipulations for the Oil Hollow #5-1 well are consistent with Forest Plan objectives for resource management. I have determined through the environmental analysis that the well, under the selected alternative, would have a low risk of causing renewed movement of the earthflow and would have a low-moderate risk of being damaged by natural landslide movement. If natural movement should occur, appropriate measures have been taken to prevent impacts to water quality in Lake Fork Creek. A near perpendicular crossing of Lake Fork Creek and the associated riparian zone would be accomplished in accordance with Forest Plan direction and the riparian vegetation removed for operations could be replaced after project completion through reclamation. The disturbance to the creek would be minimized by appropriate design of the structures. The pad would lie just within the 200-foot No Surface Occupancy buffer distance for RPN (Riparian) Management Units required by a lease stipulation. The exception to this lease stipulation is consistent with Forest Plan direction because appropriate measures would be taken to prevent construction materials and sediment from entering the creek and associated riparian area and the temporary loss of riparian habitat would be minimal.

#### Relationship to Public Involvement:

Public comments were sought and considered throughout the planning process for this project (refer to Section V of this document for a summary of public involvement). I have reviewed and considered the issues and concerns identified during the scoping and EA review comment periods. My decision considers all public comments received.

#### Relationship to Laws and Regulations:

My decision is consistent with applicable laws, regulations, and policies (refer to Section VII of this document).

### **IV. SUMMARY OF ALTERNATIVES CONSIDERED**

Several alternatives were considered as part of this project. While some alternatives were dropped from consideration (EA, p. 15), three alternatives were considered in detail and analyzed in the Environmental Assessment (EA, pp.11-17). A summary of the alternatives are considered in detail as follows:

#### **Alternative 1 - No Action (EA, p. 11)**

The Forest Service would not approve Ballard Petroleum's two proposed SUPOs. The BLM who is the subsurface regulatory authority, would not approve the APD for these drilling activities where the Forest Service is the surface management agency.

#### **Alternative 2 - Consent/Approval of Project as Proposed (EA, pp. 11-12)**

The two proposed wells are identified as Oil Hollow #5-1 (Lease #UTU-77275) and Hjorth Canyon Federal #16-1 (Lease #UTU-77270). Drilling for both wells would be during the 1999 Field Season, commencing in July/August 1999. The Oil Hollow drill hole would be the first to be drilled. Access routes to the wells would be constructed, maintained or upgraded as necessary, and properly signed during activity.

Primary access for the Hjorth Canyon #16-1 drill site would be from State Highway 89 along Forest Development Road (FDR) #51171 to the east across non-Federal lands to National Forest System lands in Hjorth Canyon for approximately 1.5 miles. Access to the site would require 0.7 miles of new road construction (pad access road) from FDR #51171 to the pad site. The road would traverse the south slope of the ridge between the two forks of Hjorth Canyon in an easterly direction, gaining elevation to the ridge top. It would then turn back to the west along the ridge to the well site (Maps 1 and 2, Appendix A).

Primary access for the Oil Hollow #5-1 site would be from Indianola on Forest Development Road #50070 for approximately 6.5 miles. Access would require less than 0.2 miles of new road construction (pad access road) from the Lake Fork-Indianola Road (FDR #50070) to the pad site. The road would cross Lake Fork Creek just northeast of the pad site, traverse the toe of the earthflow in a southwesterly direction, gaining elevation. It would then turn north to the well site (Maps 1 and 3, Appendix A). Pad sites would require approximately 1 acre each of disturbance. In addition, General Forest Service well pad and project road design features, a SPCC Plan, and water monitoring would be required.

#### **Alternative 3 - Drilling of Oil Hollow #5-1 with Alternate Pad Access and Additional Mitigation (EA, pp. 13-14)**

Alternative #3 describes drilling of the proposed (Oil Hollow #5-1) well at the Lake Fork location with additional mitigation measures to address key issues of land instability, visuals, and fisheries at the site. The remaining proposals are the same as in Alternative #2. Under this alternative the pad would be oriented differently and shifted slightly to the south to better fit the topography, decrease the highwall height, and better screen the pad from view from dispersed recreation sites and the adjacent Lake Fork Road. Under this alternative Ballard has proposed to decrease the pad size by eliminating the reserve pit and using a closed mud system. With a closed system all drilling fluids would be enclosed in tanks. The access road would be located differently than under Alternative #2 to avoid crossing the steep sideslope on the toe of the earthflow, to better screen it from dispersed recreation sites, and locate the Lake Fork Creek crossing to provide for fish passage. The length of the new road would be (0.1 mile) slightly less than under Alternative #2 and enter the pad at the same location as in Alternative #2 (Maps 3 and 4, Appendix A). In addition, this alternative would require construction of the stream crossing

using a culvert system or a bridge which would minimize disturbance of streambed and provide for fish passage.

Proposed drilling actions and activities would be the same as in Alternative #2 for the Hjorth Canyon Drillhole. Additional features particular to the Oil Hollow #5-1 Well for Alternative #3 are as follows:

- Geotechnical report would be developed to address concerns of drilling on this unstable site and would include the following:
  - a) The pad access road route would be changed to avoid crossing the toe of the earthflow and the pad would be reoriented to decrease the height of the highwall.
  - b) The well head would have 4 different layers of casing and cement.
  - c) The well head would have an emergency automatic shut-off valve located down hole above the highest producing hydrocarbon zone.
  - d) Protection of the toe of the landslide from the stream by placement of rip-rap. Design for the exploratory well (short-term) would be for a 25-year/24-hour storm event. Design for a producing well (long-term) would be for a 100-year/24-hour storm event.
  - e) A monitoring program to track movement of the site and implementation of a more comprehensive contingency spill plan for the well site and for the access route in the event that natural earthflow movement occurs.
  - f) Implementation of a water monitoring program for exploration and production phases as necessary, see Appendix D.
  - g) Replacement of ballast (rip-rap) in the cut/fill sections of disturbance for slope support.
  - h) If the pad remains unreclaimed over the winter, construction of a lined waste water collection pit or sump on the pad to prevent saturation of the pad and discharge of contaminated water from the site.
  - i) Provision for preventing spills from tanks and flowlines, and other facilities on the pad in the event that the earthflow moves.
- A barrier or sediment control structure consisting of suitable materials would be required to be constructed below the pad, between the pad/pad access road and Lake Fork Creek, to prevent construction materials and sediment from reaching Lake Fork Creek.
- Approximately 0.7 miles of the 3.2 miles of the Lake Fork-Indianola Road (FDR 50070) which is not already gravel surfaced would be gravelled with a 5-inch column to meet required Best Management Practices by reducing sediment production to 0 over existing conditions. If operations extend beyond October 1, the entire 3.2 miles of this road segment not presently gravelled would be gravelled with an 8-inch column.
- Maintenance of the site and production facilities would be by snowmobile in winter.
- A screen of trees would be planted to minimize visuals if the well produces long-term.
- A pull-out along the road near Side Canyon (dispersed recreation site) would not be used by drillers to allow continued use for dispersed recreation.
- If the well does not produce, salvage any uncontaminated gravel/roadbase installed for drilling operations and place in Side Canyon as designated. Install appropriate barriers as necessary to keep vehicles on the gravelled surface. If the well does produce, provide similar improvements in Side Canyon. Roadbase would then be hauled to harden the site.
- Crossing of Lake Fork stream would be by an approved culvert system or a bridge. The structure(s) must provide for flow from a 25-year/24-hour storm event, with a flow velocity during the mean annual flow of less than 4 feet/second. Within the structure(s) span, at least a 4-foot wide gravel/cobble bottom (similar to natural channel substrate) must be provided to facilitate fish passage.
- The pad access road route would be changed to reduce impacts to visual quality, land stability, and fish passage in Lake Fork Creek. The pad orientation would be changed to reduce the highwall and minimize impacts to land stability and visual quality.

## V. PUBLIC INVOLVEMENT

External scoping consisted of legal notices in the Sun Advocate and The Pyramid (both December 22, 1998), listing in the Forest's *Schedule of Proposed Actions*, and by letter to a 40-person mailing list for 30 days response. Internal review for this project included various Forest Service resource specialists (2/5/99, 2/8/99, 2/10/99, 2/12/99). The Surface Use Plan of Operations (SUPO) for both drilling projects were posted at the Manti-La Sal National Forest Supervisor's Office from February 24, 1999, through March 26, 1999. Those individuals to whom letters were mailed included: Federal, State, and local governmental or land management entities; environmental and interest groups or businesses; adjacent landowners; range permittees; and others known to be potentially interested or affected. Two letters were received in response to external scoping. The comments contained in the received letters helped identify the issues to be addressed, alternatives and alternative features, and the scope of analysis.

When the EA was completed, a 30 day public review and comment period from June 29 through July 29th and was published in the Sun Advocate (Price, Utah) and the Pyramid, as well as, mailed to 12 interested individuals/agencies on the same date. Three comments were received during the comment period. These comments from the Bureau of Land Management, Navajo Nation Historical Preservation Department, and the US Fish and Wildlife Service are noted and reflected in my decision.

The BLM provided editorial comments via e-mail dated 7-27-99, regarding misspellings. Specific comments were to:

Change Glen Carpenter's first name to Glenn. Rewrite that the BLM Salt Lake Field Office Manager not State Director will be making the APD approval decision, page 3. Change "San Rafael Proposed" to "Pony Express," page 3. Change the Price and Moab Offices to "BLM Salt Lake Field Office." Revise the last sentence under the issue of Safety to include "and impacts to subsurface resources." Change Hunt spill to diesel spill, page 53 and reference "... Pony Express Resource Management Plan. Salt Lake Field Office, ...." on page 62.

The Navajo Nation Historic Preservation Department sent a letter dated July 29, 1999 with comments on the EA. Essentially, they replied that "...the Navajo Nation has no reason to voice any concerns or qualms concerning the project. But would like to be notified if any anthropological discoveries/sites (advertent or inadvertent) are made on both project sites." The NNHPD went on to recommend that a "certified anthropologist" be on site to oversee construction and periodically monitor drilling activities to protect any unknown or newly discovered anthropological sites.

The Forest Service contacted the NNHPD on 8-5-99 and explained that a survey had already been conducted by a qualified archaeologist and that nothing was found. In addition, a geologist would inspect the site often during the construction and operations phase of the project. He responded that this should be adequate. It was also explained that the agencies plan to go forward with their respective decisions and forego the 45-day appeal period under 36 CFR 215 because scoping and the EA review did not result in substantive comments which would indicate that the appeal period was necessary. He responded that he had no objection.

The U.S. Fish and Wildlife Service responded in a letter dated 7-29-99. In the letter they concurred with the "no effect" determination of the Biological Assessment regarding Federally listed threatened and endangered species. The letter also reminded the USFS that they, as well as, the BLM are signatories on the Conservation Agreement and Strategy for Bonneville Cutthroat Trout (Agreement) to minimize and eliminate threats to the Bonneville Cutthroat Trout that could affect and eventually warrant listing under the Endangered Species Act. The letter went on to mention that in general, the EA cited drilling on an unstable landform could trigger movement and cause soil and water contamination of Lake Fork Creek. Likewise, fish habitat, water quality and spawning could be affected from increased sedimentation due from road construction/maintenance and culvert installation, especially, when combined with moderate to heavy cattle grazing in the area. The EA also identified Leatherside Chub (Utah Dept. of Wildlife Resources species of concern) present in Lake Fork Creek and affected the same as BCT.

The USFWS letter further provided specific comments that the EA does not address cumulative effects to aquatic resources from past and current activities and recommended the EA evaluate potential cumulative impacts to aquatic resources, as well as, provide scientific names of the seed mix species listed and provide a rationale for the selected species. They further recommended the use of non-natives seed species for reclamation.

The Forest Service contacted the USFWS on 8-09,10-99 and discussed the above items. The mitigation measures within the SUPO, stipulations from the conditions of approval, and design features all contribute to reduce sedimentation and effects to fisheries and water quality. The EA documented that there could be some sediment

produced during construction operations but overall the project would result in no sediment increase over existing conditions. Water quality monitoring would be conducted during all stages of operations by the operator and FS to provide for detection of impacts and remediation should unforeseen impacts occur. The seed mixture was developed by a FS Biologist and Botanist to quickly stabilize soils, be consistent with existing vegetation in the adjacent area, and balance the reclamation needs of the site versus the long-term management needs of the area. The Forest Service feels that the project would not have cumulative detrimental long-term effects to the fish population viability and habitat quality. The stream crossing would be constructed to minimize short-term effects. The Lake Fork Road would be gravelled to decrease existing sediment levels, and measures would be taken to decrease sediment yield from the toe of the existing landslide. The short-term impact to aquatic resources from construction would be localized, while design features provide for no long-term sediment increases. If efforts to stabilize the toe of the earthflow are successful as planned, there could be an overall reduction of sediment in the project area.

## **VI. FINDING OF NO SIGNIFICANT IMPACT**

Based on my review of the EA and supporting record, I have determined that this decision does not constitute a major Federal action significantly affecting the quality of the human environment, as defined in the Code of Federal Regulations title 40 part 1508, section 27 (40 CFR 1508.27) in either context or intensity. Therefore, it is my decision that an Environmental Impact Statement is not necessary, and will not be prepared. My rationale for this determination is summarized below.

Project design features and Forest Service stipulations will minimize the level of effects consistent with Forest Plan standards, guidelines and objectives and BLM Onshore Oil and Gas Orders. Monitoring will be performed by the operator and Forest Service to determine the effectiveness of design features and stipulations. Inspections will be conducted by the Forest Service (surface operations) and BLM (down-hole operations) to assure compliance with the SUPO and APD.

### **Context**

Locality. Implications of this decision are primarily for the Hjorth Canyon and Lake Fork area. The effects on public land use and users would remain consistent with that which is currently occurring. (EA, Project Record)

Affected Interests. Affected interests for this project are primarily recreation enthusiasts, State resource management agencies, and other entities with interests in wildlife and water management. (EA, Project Record)

Affected Region. The decision is a site-specific action with impacts primarily to the local area. The context of this decision is comparable to many projects on the Manti-La Sal National Forest and would not measurably affect the region.

Society. No effects are anticipated to society as a whole.

### **Intensity**

1. Consideration Of Beneficial And Adverse Impacts. Consideration of beneficial and adverse impacts has been made in the EA (pp.34-59). Impacts of this decision will be similar to that of past drilling projects involving road access. Although both beneficial and adverse effects are disclosed, none are severe enough to be considered significant.

2. Consideration Of Public Health And Safety. No public health or safety issues concerning this decision were raised. Although no health and safety were raised, there are several Forest Plan directed project stipulations included in this decision to ensure public health and safety (EA, Appendix B).

3. Consideration Of Unique Characteristics Such As Proximity To Historic Or Cultural Resources, Park Lands, Prime Farmlands, Wetlands, Wild And Scenic Rivers, Or Ecologically Critical Areas. Historic and cultural resources are addressed in the following Item 8. There are no prime farmlands, rangeland, or forest land as defined in the Secretary of Agriculture's Memorandum Number 1827, Supplement 1, identified on the Forest (Forest Plan, p. II-57). Wetlands would not be affected as this decision requires avoidance of the wetlands as described in the EA. There are no parklands or wild and scenic rivers identified in the Forest Plan. The area of my decision has not been identified by any source as an ecologically critical area (Project File - Biological Assessment and Evaluation).

4. Consideration Of The Degree To Which The Effects On The Quality Of The Human Environment Are Likely To Be Highly Controversial. This decision is not unique, as several other minerals related drilling projects are conducted each year. Effects on the quality of the human environment are understood and are not highly controversial. Scoping on the proposed action and solicitation of comments on the Environmental Assessment and pre-decision demonstrated that there is not much public controversy over potential effects. No information or data has been presented to demonstrate that the effects are highly controversial.

5. Consideration Of The Degree To Which The Possible Effects On The Human Environment Are Highly Uncertain Or Involve Unique Or Unknown Risks. This decision is not unique, as there are numerous natural gas well on the Forest which are currently producing. The Forest has experience in implementing and monitoring similar projects, the effects of which have been found to be reasonably predictable. No effects from this decision would be classified as highly uncertain or involving unique or unknown risks.

6. Consideration Of The Degree To Which The Action May Establish A Precedent For Future Actions With Significant Effects Or Represents A Decision In Principle About A Future Consideration. This decision is not precedent setting. The Forest generally considers and analyzes the permitting of several exploration projects each year. Any future proposals would have to be evaluated on their own merits based on the issues and effects related to the location, timing and intensity of each action. This decision is separable from and not dependent upon any other likely foreseeable projects for future consideration.

7. Consideration Of The Action In Relation To Other Actions With Individually Insignificant But Cumulatively Significant Impacts. No reasonably foreseeable future projects have been identified that would in connection with this decision produce cumulative effects beyond those currently occurring. The limited scale of activity creates minimal individual effects, as well as minimal cumulative effects when added to the existing situation and other potential activities.

8. Consideration Of The Degree To Which The Action May Adversely Affect Areas Or Objects Listed In Or Eligible For Listing In The National Register Of Historic Places Or May Cause Loss Or Destruction Of Significant Scientific, Cultural, Or Historical Resources. Record and field reviews support that no cultural or historic sites would be affected by this decision (Project Record). When implementing the decision, any previously unidentified sites inadvertently discovered would be avoided or mitigated so there would be no effect upon them. (EA, Appendix B-Stipulation 11)

9. Consideration Of The Degree To Which The Action May Adversely Affect An Endangered Or Threatened Species Or Its Habitat Has Been Determined Not To Be Critical Under The Endangered Species Act. The US Fish and Wildlife Service has been included in the process. A Biological Assessment has been conducted for this decision (Project Record -Biological Assessment and Evaluation). All known endangered or threatened species were considered. The Biological Evaluation concludes that this decision will have "no effect" to listed or proposed species. (EA, Appendix C).

10. Consideration Of Whether The Action Threatens A Violation Of Law Or Requirement Imposed For The Protection Of The Environment. To the best of my knowledge, this decision does not threaten violation of any laws and regulations imposed for the protection of the environment (refer to Section VII of this document).

## **VII. FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS**

To the best of my knowledge, this decision complies with all applicable laws and regulations. In the following, I have summarized the association of my decision to some pertinent legal requirements.

Federal Land Policy and Management Act of 1976: This Act allows the granting of land use permits on National Forest System lands. The regulations at Code of Federal Regulations Title 36 part 251 (36 CFR 251) guide the issuance of permits under this Act. Land use permits are granted on National Forest System lands when the need for such is consistent with planned uses.

National Forest Management Act of 1976: The Forest Plan was approved November 5, 1986, as required by this Act. This long-range land and resource management plan provides guidance for all resource management activities in the Forest. The National Forest Management Act requires all projects and activities to be consistent with the Forest Plan. The Forest Plan has been reviewed in consideration of this project. This decision will be consistent with the Forest Plan.

Mineral Leasing Act of 1920: The Bureau of Land Management (BLM) is the responsible agency for permitting, under the Mineral Leasing Act of 1920, as amended. The Forest Service, as the surface management agency, must consent to the BLM decisions pertaining to leasing actions or exploration activities. This decision document constitutes my consent on behalf of the agency.

Federal Onshore Oil and Gas Leasing Reform Act of 1987: On National Forest lands, consent must be obtained from the Forest Service, as the surface management agency, prior to approval of activities, including exploration drilling. This decision document constitutes my consent on behalf of the agency.

National Historic Preservation Act: Compliance with this Act and the American Indian Religious Freedom Act are addressed in Section VI of this document.

Endangered Species Act: Compliance with this Act is addressed in Section VI of this document.

National Environmental Policy Act: The entirety of documentation for this project supports that the project complies with this Act.

### **VIII. IMPLEMENTATION DATE AND APPEAL OPPORTUNITY**

Implementation of this decision may occur immediately upon publication of the notice of this decision in the Sun Advocate (Price, Utah).

This decision is not subject to appeal by the public in accordance with the Code of Federal Regulations Title 36 part 215, section 8 (36 CFR 215.8 - Actions for which notice and opportunity to comment have been published and on which no expression of interest has been received during the comment period, and the proposal is not changed) and 215.10(c).

This decision is subject to appeal by the applicant under Code of Federal Regulations Title 36 part 251.

### **IX. CONTACT PERSON**

For additional information concerning this decision, please contact Will Wilson at the Ferron/Price Ranger District (address: 115 West Canyon Road, P.O. Box 310, Ferron, UT 84523; telephone: 435-384-2372).

### **X. SIGNATURE AND DATE**



JANETTE S. KAISER  
Forest Supervisor (Responsible Official)  
Manti-La Sal National Forest

8/12/99  
Date

## ATTACHMENT 1

### CONDITIONS FOR APPROVAL OF SUPO/APD BALLARD PETROLEUM LLC OIL HOLLOW #5-1 AND HJORTH CANYON FEDERAL #16-1 WELLS

#### General Manti-La Sal National Forest Requirements For Oil and Gas Drilling

The following are general requirements to be applied by the operator as conditions for approval to the Surface-Use Plan of Operations as part of the Application for a Permit to Drill (APD). They are further refined by stipulations 34-56 based on the environmental analysis.

- 1) The pad and road designs must be consistent with Forest Service specifications as outlined in the Region 4 Oil and Gas Roading Guidelines and the Manti-La Sal National Forest Oil and Gas Well Site Guidelines and are subject to Forest Service approval. No construction operations may begin prior to approval. Any modifications to approved plans are also subject to review and approval.
- 2) A pre-construction meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road work must be construction-staked prior to this meeting. Site-specific requirements will be discussed at this time.
- 3) The operator shall submit for approval, a maintenance plan for the site, the project road and that portion of any Forest Development Road to be used for project access. A road-use permit must be obtained from the Forest Service authorizing commercial use of Forest Development Roads. Requirements listed in the road-use permit must be followed. In the event of a discovery, an updated maintenance plan will be required.
- 4) The operator must acquire appropriate permission to use non-Forest Service Roads.
- 5) The project engineer and surveyors must be certified by the State in which they reside or maintain their business.
- 6) All surface-disturbing activities, including reclamation, must be supervised by a qualified, responsible official or representative of the designated operator who is aware of the terms and conditions of the APD and specifications in the approved plans.
- 7) Adequate signs must be posted along Forest Development Roads to warn the public of project related traffic.
- 8) Move-in and move-out of the drill rig will not be allowed during holiday weekends and will be restricted during the big game hunting seasons as specified by the Forest Service as conditions for approval of the Surface-Use Plan of Operations.
- 9) In the event of a discovery, a revised surface-use plan must be submitted to the Forest Service showing all needed production facilities. Production facilities will be subject to further environmental analyses and approval by the Forest Service.
- 10) Establishment of campsites on the pad or at other locations on National Forest System lands by the operator or his contractors is subject to Forest Service approval.
- 11) A cultural resources survey and clearance by a qualified archeologist is required under a Forest Service special-use permit prior to approval of the Surface-Use Plan of Operations. If cultural or

paleontological resources are discovered during operations, all operations which may result in disturbance to the resource must cease and the Forest Service must be notified of the discovery as soon as possible.

- 12) The Forest Service will conduct a survey of the project area for Threatened, Endangered and Sensitive plant and animal species. The operator will be notified of the results of the survey with any special requirements for protecting them, if any are present.
- 13) Unauthorized off-road vehicular travel is prohibited.
- 14) Section corners, survey markers and claim corners in the project area must be located and flagged by the operator prior to operations. The removal or disturbance of identified markers must be approved by the proper authority.
- 15) Water needed for operations must be properly and legally obtained according to State water laws. The location of diversion, if on National Forest System lands, is subject to Forest Service approval.
- 16) Fire suppression equipment must be available to all personnel on the project site. Equipment must include a minimum of one hand tool per crew member consisting of shovels, pulaskis, and chainsaws and one properly rated fire extinguisher per vehicle and/or internal combustion engine.
- 17) All gasoline, diesel and steam-powered equipment must be equipped with effective spark arresters or mufflers. Spark arresters must meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide. In additions, all electrical equipment must be properly insulated to prevent sparks.
- 18) The operator will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.
- 19) All accidents or mishaps resulting in resource damage and/or serious personal injury must be reported to the Forest Service as soon as possible.
- 20) Vehicle operators must obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.
- 21) All drilling fluids must be contained in the reserve pit. All appropriate measures must be taken to assure that leakage through the reserve pit does not occur and that fluids are not allowed to overflow. A minimum of 2 feet of freeboard is required.
- 22) Sanitary facilities are required on site at all times during operations. The installation of facilities other than self-contained chemical toilets is subject to State and Forest Service approval.
- 23) Harassment of wildlife and livestock is prohibited.
- 24) All merchantable timber removed or destroyed by construction or other project related activities will be purchased by the operator at fair market value. The Forest Service will conduct a timber cruise and appraisal after the final clearing limits have been staked. Slash burning will be conducted only at locations approved by the Forest Service under authorization or a burning permit. Burning of garbage and debris is prohibited.
- 25) All Topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.
- 26) Following completion of the project, the pad and project area must be replaced to the approximate original contour unless otherwise specified in the Forest Service conditions for approval of the Surface-Use Plan of Operations.

- 27) The reserve pit must be dry before it is backfilled and reclaimed. The pit must be fenced (5 strand barbed wire) at all times until it is reclaimed. Methods for drying the pit, other than natural evaporation, are subject to prior Forest Service approval.
- 28) Unless otherwise specified in the Forest Service conditions for approval the Surface-Use Plan of Operations, contaminated soils and gravel in the project area and the contents of the reserve pit and/or closed mud system will be removed from the National Forest and disposed of at an approved facility. Exceptions may be granted if the operator can demonstrate non-toxicity through testing or isolation through encapsulation.
- 29) Stockpiled topsoil must be redistributed evenly over the disturbed area upon reclamation.
- 30) The seed mix and other planting requirements will be specified in the Forest Service conditions for approval of the Surface-Use Plan of Operations. The pad area must be fenced (let-down fence) and the project road must be adequately closed off to prevent continued use until the required reclamation standards are successfully achieved, refer to Stipulation #38.
- 31) All trash, garbage and other refuse must be properly contained on the site during operations and periodically disposed of off-Forest at an approved refuse facility. Following completion of operations, all unnecessary equipment, materials and refuse must be removed from the Forest as soon as possible.
- 32) In general, the disturbed areas will be considered adequately revegetated when at least 90 percent of the original ground cover is re-established over 90 percent of the seeded area, within three years of planting, consisting of seeded and desirable species. Maximum allowable non-noxious weeds is 10 percent of the total ground cover at any time. No noxious weeds will be allowed on the site; they must be treated as they occur. The operator is responsible for maintenance of reclamation facilities such as fences, barricades and temporary drainage structures until the desired reclaimed conditions are achieved. If the desired ground cover is not established at the end of each 3 year period, an analysis of why the area has not recovered will be performed by the operator and additional treatment and seeding will be required based on the results of the analysis.
- 33) Straw, hay, feed, or pellets used on the National Forest's of Utah must be certified weed-free by the State of Utah.

#### **Additional Stipulations Specific to the Project for Both Drill Sites**

These stipulations further clarify and refine the general stipulations 1-33 provided above based in the project Environmental Assessment.

- 34) All fluids and waste water will be contained in a lined reserve pit and/or tanks. Containment dikes or berms will be built around the drilling pads to contain any run-off and spills.
- 35) If the well is a dry hole, rehabilitation will begin right after drilling is complete with appropriate drainage structures constructed and recontouring of the terrain to approximate original condition.
- 36) If the well(s) produces, rehabilitation will begin immediately after drilling to the extent possible for that portion not needed for production. Production pad designs are subject to FS approval.
- 37) Revegetation will be accomplished after scarification and topsoiling with approved weed free seed mixtures consistent with the Utah Seed Act.

### HJORTH CANYON - REVEGETATION SEED MIX

#### GRASS SPECIES

<u>lbs/acre</u>	
	Great Basin Wildrye (Trailhead) 1.0
	Bluebunch Wheatgrass (Goldar) 1.5
	Indian Ricegrass (Nezpar) 1.5
	Western Wheatgrass (Rosanna) 2.5
	Needle and Threadgrass 1.0
	Sandberg Bluegrass 0.5

#### FORB SPECIES

	Small Burnet 1.5
	Alfalfa 1.5
	Utah Sweetvetch (hedysarum boreale) 1.0
	Palmer Penstemon 0.5
	Western Yarrow 0.5
	Lewis Flax 0.5

#### BROWSE SPECIES

	Winterfat 1.5
	Wyoming Big Sagebrush 0.5
	Bitterbrush 1.0
	Fourwing Saltbush 1.0
	Birchleaf Mahogany 1.0

TOTAL = 18.5 lbs/acre

Remarks: The area will reclaim better if the mix is seeded using a rangeland drill. However there are the following exceptions. The sagebrush, yarrow and winterfat should be broadcast seeded on top of the disturbed surface. If possible, the bitterbrush, fourwing saltbush and mahogany should be seeded using a dribbler.

### OIL HOLLOW - REVEGETATION SEED MIX

#### GRASS SPECIES

<u>lbs/acre</u>	
	Great Basin Wildrye (Trailhead) 2.0
	Thickspike Wheatgrass 2.0
	Mtn. Brome 1.5
	Sherman Big Bluegrass 0.5
	Slender Wheatgrass 2.0

#### FORB SPECIES

	Small Burnet 2.0
	Alfalfa 2.0
	Utah Sweetvetch (hedysarum boreale) 1.0
	Rocky Mtn. Penstemon 0.5
	Western Yarrow 0.5
	Pacific Aster 0.5

#### BROWSE SPECIES

	Mtn. Big Sage 0.5
	Bitterbrush 1.5
	Woods Wild Rose 1.0

TOTAL = 17.5 lbs/acre

Remarks: The area will reclaim better if the mix is seeded using a rangeland drill. However there are the following exceptions. The sagebrush and yarrow should be broadcast seeded on top of the disturbed surface. If possible, the bitterbrush should be seeded using a dribbler.

Grass species from each list will be used as an interim seedmix.

38) A fence will be placed around the reclaimed site to allow for successful revegetation and stabilization.

39) Drillers will be housed off Forest.

- 40) A reserve pit and/or closed mud system will be constructed of sufficient size to handle all necessary drill fluids and prevent overflow or leaking onto the drill site. Pits will be fenced and a minimum 2 feet of free-board will be maintained at all times. After first production, waste water will be confined to a pit for a period not to exceed 90 days.
- 41) Heavy truck traffic and move-in and move-out of the drill rig will not be allowed during holiday weekends, including the prior Friday and actual holiday, or during the opening weekend of the regular big game hunting seasons, including the day before the opening day. If the elk hunt starts earlier than the Friday before the weekend, this restriction will start on the day before the first official day of the hunt and last through the first weekend.
- 42) Operations other than normal maintenance of producing wells is not allowed from May 15th to July 15th to protect elk calving and deer fawning habitat.

**SPECIAL STIPULATIONS SPECIFIC TO THE HJORTH CANYON FEDERAL #16-1**

- 43) Except normal maintenance of producing wells, no operations are allowed between December 1 and April 15 to protect wintering big-game.

**SPECIAL STIPULATIONS IDENTIFIED IN ALTERNATIVE #3 for OIL HOLLOW #5-1**

These stipulations further clarify and refine the general stipulations 1-33 provided above based in the project Environmental Assessment and selection of Alternative 3.

- 44) The pad for Oil Hollow #5-1 will be oriented differently and shifted slightly to the south to better fit the topography.
- 45) All drilling fluids will be contained within a closed mud system.
- 46) Road Location: the length of the new road will be (0.1 mile) will cross Lake Fork Creek further upstream to the south where the channel is narrower/deeper and better defined by the banks than originally proposed. The road will traverse the gentle slope south of the earthflow in a northwestern direction and enter the pad at the same general location as proposed ( EA Maps 3 and 4, Appendix A).
- 47) A Geotechnical report will be developed to address concerns of drilling on this unstable site and will include the following:
  - a) Design for the exploratory well (short-term) will be for a 25-year/24-hour storm event. Design for a producing well (long-term) will be for a 100-year/24-hour storm event.
  - b) The pad access road route will avoid crossing the toe of the earthflow as much as possible and the pad will be reoriented to decrease the height of the highwall.
  - c) The well head will have 4 different layers of casing and cement.
  - d) The well head will have an emergency automatic shut-off valve located down hole above the highest producing hydrocarbon zone.
  - e) Rip-rap will be placed at the toe of the landslide to prevent continued erosion of the toe by the stream, stabilize the earthflow, and decrease sediment production to the stream associated with the earthflow.
  - f) A monitoring program will be implemented to track earthflow movement of the site and if necessary, implementation of a more comprehensive contingency spill plan for the well site and for the access route in the event that natural earthflow movement occurs.
  - g) A water monitoring program will be required for exploration and production phases, see Appendix D of Ballard EA.
  - h) Minimize detrimental changes to landslide equilibrium.
  - i) If the pad remains unreclaimed over the winter, a lined waste water collection pit or sump will be constructed on the pad to prevent saturation of the pad and to prevent discharge of contaminated water.

- j) Provisions will be developed for preventing spills from tanks and flowlines, and other facilities on the pad in the event that the earthflow moves.
- 48) A barrier or sediment control structure consisting of suitable materials will be constructed downslope below the pad between the pad/pad access road and Lake Fork Creek, in order to prevent construction materials and sediment from reaching Lake Fork Creek.
- 49) Approximately 0.7 miles of the 3.2 miles of the Lake Fork-Indianola Road (FDR 50070) which is not already gravel surfaced will be gravelled with a 5-inch column to meet required Best Management Practices by reducing sediment production to 0 over existing conditions. If operations extend beyond October 1, the entire 3.2 miles of this road segment not presently gravelled will be gravelled with an 8-inch column.
- 50) Maintenance of the site and production facilities will be by snowmobile in winter.
- 51) In the event that the well becomes a producer, a screen of trees will be planted by the operator to minimize visibility of the pad and production facilities from adjacent dispersed recreation sites and the Lake Fork-Indianola Road.
- 52) A pull-out along the road near Side Canyon (dispersed recreation site) will not be used by drillers to allow continued use for dispersed recreation.
- 53) If the well does not produce, uncontaminated gravel/roadbase installed for drilling operations will be salvaged and placed in Side Canyon as designated. Appropriate barriers will be installed as necessary to keep vehicles on the gravelled surface. If the well does produce, provide similar improvements in Side Canyon. Roadbase will then be hauled to harden the site.
- 54) Crossing of Lake Fork stream will be by an approved culvert system, bridge, or bottomless arch. The structure(s) must provide for flow from a 25-year/24-hour storm event, with a flow velocity during the mean annual flow of less than 4 feet/second. Within the structure(s) span, at least a 4-foot wide gravel/cobble bottom (similar to natural channel substrate) must be provided for fish passage.
- 55) A gate must be constructed on the project access road for each site to exclude public access. The locking mechanism must be capable of using multiple locks, including a Forest Service lock to be provided by the Forest Service. The location, design, and signing of the gates must meet Forest Service specifications are subject to Forest Service approval.
- 56) Pad site development plans must include an acceptable method of draining the wet area on the earthflow above the pad by diverting it to Lake Fork Creek to the north for the purpose of stabilizing the earthflow. The designs are subject to FS approval.

**BALLARD**  
PETROLEUM LLC

August 26, 1999

US Forest Service  
115 West Canyon Road  
P.O.Box 310  
Ferron, Utah 84523  
Attn: Will Wilson

Utah Division of Oil, Gas, and Mining  
P.O.Box 145801  
Salt Lake City, Utah 84114-5801  
Attn: Lisha Cordova

RE: Oil Hollow Federal #5-1  
NW SW Section 5, Twn. 11S Rge. 5E  
Utah County, Utah

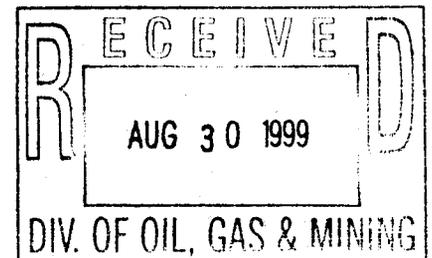
Ballard Petroleum plans to purchase water from the Indianola Irrigation Company in Indianola, Utah. This water will be used for road and site construction, drilling, and completion operations. The water will be trucked from this purchased site to location using 100 BBL capacity water trucks.

If you have any questions or concerns, please feel free to contact me at (406) 259-8790.

Thank You



Dave McCoskery  
Operations Manager





State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

August 30, 1999

Ballard Petroleum, LLC  
P.O. Box 20174  
Billings, Montana 59104

Re: Oil Hollow Federal 5-1 Well, 2627' FSL, 1015' FWL, NW SW, Sec. 5, T. 11 S., R. 5 E.,  
Utah 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.

Appropriate information has been submitted to DOGM by the operator and administrative approval of the requested exception location is hereby 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 43-049-30018.

Sincerely,

A handwritten signature in black ink that reads "John R. Baza".

John R. Baza  
Associate Director

lwp

Enclosures

cc: Utah County Assessor  
Bureau of Land Management, Salt Lake Field Office

**Operator:** Ballard Petroleum, LLC  
**Well Name & Number:** Oil Hollow Federal 5-1  
**API Number:** 43-049-30018  
**Lease:** Federal      **Surface Owner:** Federal  
**Location:** NW SW      **Sec.** 5      **T.** 11 S.      **R.** 5 E.

### Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R649-1 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 Dan Jarvis at (801) 538-5338 or Robert Krueger at (801) 538-5274.

3. Reporting Requirements

All required reports, forms and submittals shall 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.

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

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

5. Lease Designation and Serial No.  
UTU-77275

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

7. If Unit or CA, Agreement Designation  
N/A

8. Well Name and No.  
OIL HOLLOW FEDERAL

9. API Well No.  
5-1 43-049-30018

10. Field and Pool, or Exploratory Area  
WILDCAT

11. County or Parish, State  
UTAH, UTAH

**SUBMIT IN TRIPLICATE**

1. Type of Well  
Oil Gas  
 Well  Well  Other

**CONFIDENTIAL**

2. Name of Operator  
Ballard Petroleum LLC

3. Address and Telephone No.  
845 12th Street West, Billings, MT 59102 406-259-8790

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2627' FSL, 1015' FWL  
NWSW, SEC 5, T11S, R5E

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

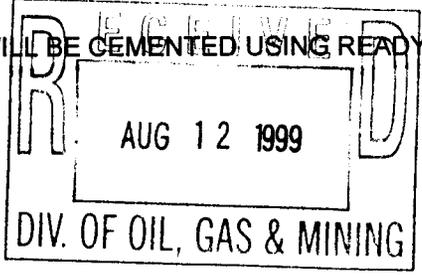
TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent <input type="checkbox"/> Subsequent Report <input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Abandonment <input type="checkbox"/> Recompletion <input type="checkbox"/> Plugging Back <input type="checkbox"/> Casing Repair <input type="checkbox"/> Altering Casing <input type="checkbox"/> Other (Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)
	<input checked="" type="checkbox"/> Change of Plans <input type="checkbox"/> New Construction <input type="checkbox"/> Non-Routine Fracturing <input type="checkbox"/> Water Shut-Off <input type="checkbox"/> Conversion to Injection <input type="checkbox"/> Dispose Water

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

BALLARD PETROLEUM LLC WISHES TO REVISE/MODIFY THE PROPOSED DRILLING PLAN ON THE ABOVE CAPTIONED WELL.

WE WILL SET +/- 80 FEET OF 18" CONNECTOR PIPE. THIS PIPE WILL BE CEMENTED USING READY MIXED CONCRETE FROM 80' TO SURFACE.

COPY SENT TO OPERATOR  
Date: 8-17-99  
Initials: CHP



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

Signed Dave McCosken Title Operations Manager Date 08/09/99

(This space for Federal Approval only)  
Approved by Accepted by the Utah Division of Oil, Gas and Mining Title \_\_\_\_\_ Date \_\_\_\_\_  
Conditions of approval, if any: \_\_\_\_\_  
*Federal Approval of this Action is Necessary*

**FOR RECORD ONLY**

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

Salt Lake Field Office  
2370 South 2300 West  
Salt Lake City, Utah 84119

SEP 8 1999

IN REPLY REFER TO:

UTU-77270  
UTU-77275  
3160  
(UT-020)

**CONFIDENTIAL**

Jim Thompson  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Dear Mr. Thompson:

*43-049-30018*

On September 3, 1999, we approved Ballard Petroleum Company's Applications for Permit to Drill (APDs) for exploratory oil and gas wells, **Oil Hollow Federal #5-1** in T. 11 S., R. 5 E., Section 5 and Hjorth Canyon Federal #16-1 in T. 11 S., R. 4 E., Section 16, SLB&M. The wells are located on lands jointly managed by the Manti-La Sal National Forest, United States Forest Service (surface), and the Salt Lake Field Office, Bureau of Land Management.

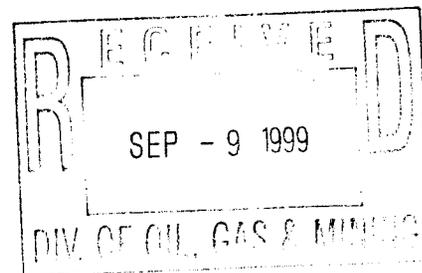
The Surface Use Plan of Operations (SUPO) was approved by the Forest Service on August 12, 1999. We have enclosed a copy of the APDs with site location maps for your records.

If you have any questions, or require additional information, please feel free to contact me at (801) 977-4371, or Carter Reed of the Manti-La Sal National Forest Supervisor's Office at (435) 637-2817.

Sincerely,

Cheryl Martinez  
Geologist

Enclosures



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

**APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK**

1a. TYPE OF WORK      **DRILL**       **DEEPEN**

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

2. NAME OF OPERATOR      **Ballard Petroleum LLC**      **Phone: 406/259-8790**      **P.O. Box 20174**  
     **Fax: 406/259-3884**      **Billings, MT 59104**

3. ADDRESS AND TELEPHONE NO.      **Permitco Inc.**      **Phone: 303/857-9999**      **14421 Weld County Road 10**  
     **Fax: 303/857-0577**      **Ft. Lupton, CO 80621**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements\*)  
     At Surface:      **942' FSL and 1521' FWL**  
     At proposed prod. zone:      **SE SW Sec. 16, T11S - R4E**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
     **Approximately 6.6 Miles North of Indianola, Utah**

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)  
     **1800'**

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

19. PROPOSED DEPTH      **5,500'**

20. ROTARY OR CABLE TOOLS      **Rotary**

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
     **6,618'**

22. APPROX. DATE WORK WILL START\*  
     **July 1, 1999**

5. LEASE DESIGNATION AND SERIAL NO.  
**UTU-77270**

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

7. UNIT AGREEMENT NAME  
**N/A**

8. FARM OR LEASE NAME, WELL NO.  
**Hjorth Canyon Federal**

9. API WELL NO.  
**#16-1**

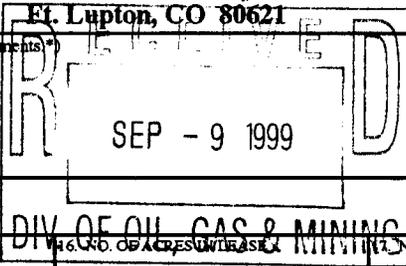
10. FIELD AND POOL, OR WILDCAT  
**Wildcat**

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
**Sec. 16, T11S - R4E**

12. COUNTY OR PARISH  
**Utah**

13. STATE  
**Utah**

16. NO. OF ACRES ASSIGNED TO THIS WELL  
**40**



23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	9-5/8"	36#	400'	230 sx - circulated to surface
8-3/4"	5-1/2"	15.5#	5,500'	575 sx - top of cement @ 2000'

Ballard Petroleum LLC proposes to drill a well to 5,500' to test the Nugget and Twin Creek Formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached. **CONFIDENTIAL - TIGHT HOLE**

Please be advised that Ballard Petroleum LLC is considered to be the Operator of the above mentioned well. Ballard Petroleum LLC agrees to be responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.

Bond coverage for this well is provided by Nationwide Bond No. UT-1005. The principal is Ballard Petroleum LLC via surety consent as provided for in 43 CFR 3104.2.

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 *Lisa Smith*      **Consultant For:**  
     **Ballard Petroleum LLC**      **Date 11/11/98**

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

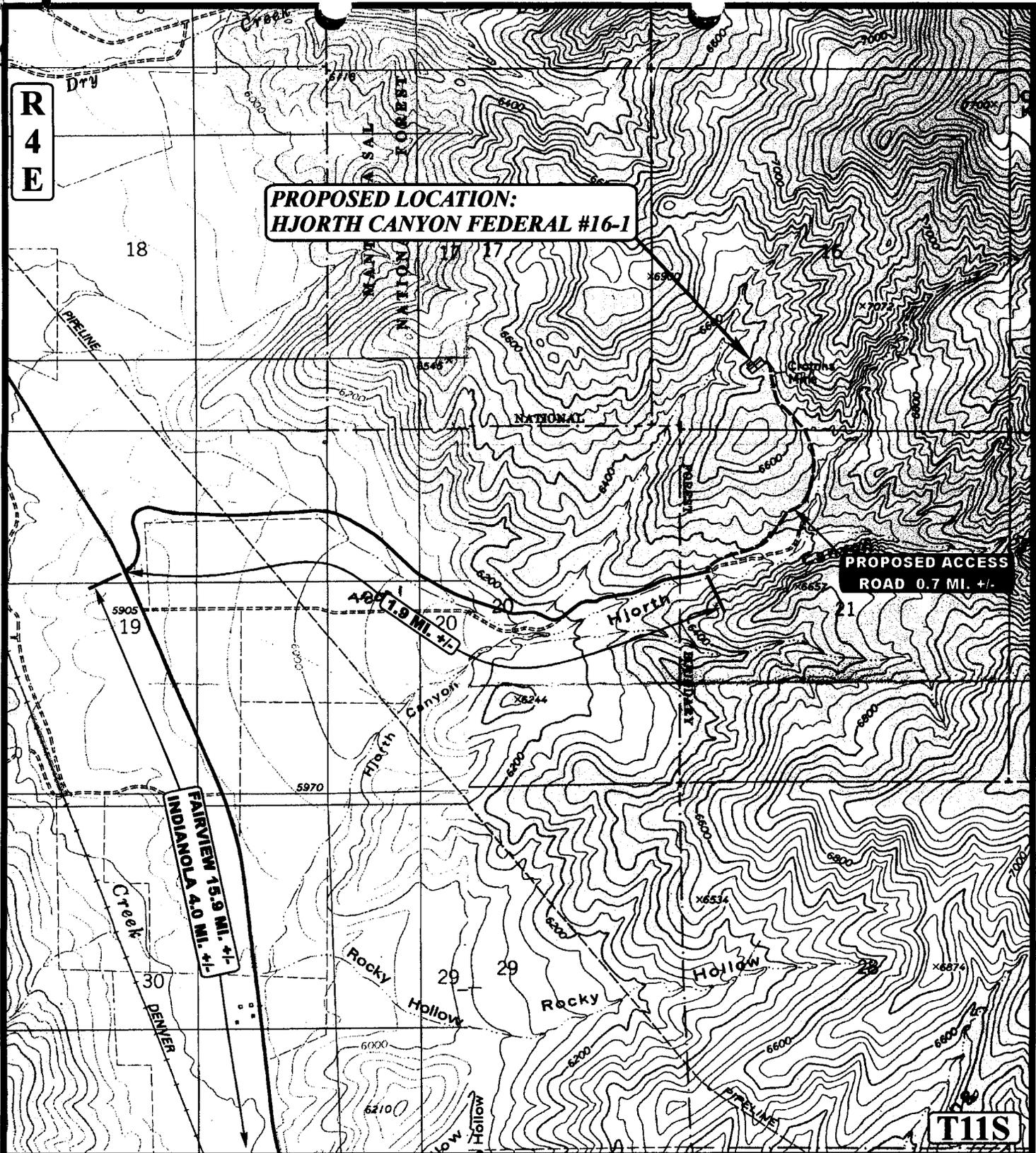
Application approval does not warrant or certify that the applicant holds legal or equitable title to these rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY *Shawn Carpenter*      TITLE *Field Office Mgr.*      DATE *9/3/99*

**\*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.



**LEGEND:**

- PROPOSED ACCESS ROAD
- EXISTING ROAD



**BALLARD PETROLEUM LLC**  
**HJORTH CANYON FEDERAL #16-1**  
**SECTION 16, T11S, R4E, S.L.B.&M.**  
**942' FSL 1521' FWL**



**Uintah Engineering & Land Surveying**  
 85 South 200 East Vernal, Utah 84078  
 (435) 789-1017 \* FAX (435) 789-1813

**TOPOGRAPHIC** **10** **21** **98**  
**MAP** MONTH DAY YEAR  
 SCALE: 1" = 2000' DRAWN BY: D.COX REV: 11-9-98 D.COX



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No 1004-0135  
Expires November 30, 2000

**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 Serial No.  
**UTU - 77275**

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

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

7. If Unit or CA/Agreement, Name and/or No.  
**N/A**

**CONFIDENTIAL**

1. Type of Well  
 Oil Well  Gas Well  Other

8. Well Name and No.  
**OIL HOLLOW 5-1**

2. Name of Operator  
**BALLARD PETROLEUM, LLC**

9. API Well No.  
**43-049-30018**

3a. Address  
**845 12TH STREET WEST, BILLINGS, MT 59102**

3b. Phone No. (include area code)  
**406.259.8790**

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

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

11. County or Parish, State  
**UTAH COUNTY, UTAH**

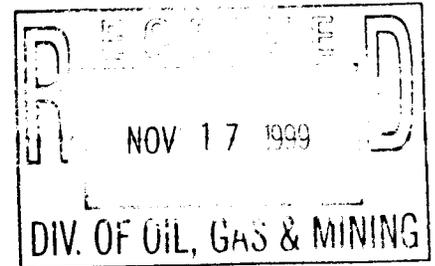
**2627' FSL, 1015' FWL, NW SW, SEC. 5, T11S, R5E**

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <b>NAME OF DRILLING CONTRACTOR</b>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporariy Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

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**DRILLING CONTRACTOR FOR THE OIL HOLLOW 5-1 IS CYCLONE DRILLING, INC. USING RIG # 12.**



14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed) **JAN HARMON** Title **OPERATIONS ASSISTANT**

Signature *Jan Harmon* Date **11/15/99**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

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

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**CUSTOMER:** BALLARD PETROLEUM, LLC  
**WELL:** OIL HOLLOW FEDERAL 5-1  
**FIELD:** WILDCAT  
**LOCATION:** S5 T11S R5E; UTAH

**TEST DATE(S):** DECEMBER 22, 1999  
**INTERVAL(S):** 3888 - 3950 FT(MD)  
**TYPE TEST:** DST  
**TICKET/JOB#:** 353766

RECEI



**CONFIDENTIAL**

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**BALLARD PETROLEUM, LLC**  
OIL HOLLOW FEDERAL 5-1  
WILDCAT

---

**CUSTOMER:** BALLARD PETROLEUM, LLC  
**WELL:** OIL HOLLOW FEDERAL 5-1  
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**TYPE TEST:** DST  
**TICKET/JOB#:** 353766

**RECEIVED**

**JAN 04 2000**

DIVISION OF OIL, GAS & MINING

HES REPORT COPIES HAVE BEEN SENT TO THE FOLLOWING COMPANIES AND/OR INDIVIDUALS:

# COPIES	RECIPIENTS
2	Ballard Petroleum, LLC; 845 12th St. West; Billings, MT 59102
2	Bureau of Land Management; Salt Lake City Field Office; 2370 S. 2300 W.; Salt Lake City, UT 84
1	Manti - La Sal National Forest; Forest Supervisor's Office; 599 W. Price River Dr.; Price, UT 8450
1	State of UT; Div. of Oil, Gas, & Mining; PO Box 145801; Salt Lake City, UT 84114-5801
1	Duncan Oil Partners; 1777 S. Harrison St., Penthouse One; Denver, CO 80210
1	Petral Exploration, LLC; 1700 Lincoln St., Suite 4750; Denver, CO 80203
1	Savant Resources, LLC; 730 17th Street, Suite 410; Denver, CO 80202
1	Title Investors, III; 3033 East First Ave., Suite 708; Denver, CO 80206
1	K & C Production Company, Inc.; Colin McMillan; 118 West First Street; Roswell, NM 88201
1	Finley Company; Tim Finley; PO Box 2086; Austin, TX 78768
1	Halliburton Energy Services; PO Box 369, 1709 Elk Street; Rock Springs, WY 82902 phone: (307) 352-3503

The above report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss of damage whether due to negligence or otherwise arising out of or in connection with such data, calculations, or opinion.

**MICROFICHE**

BALLARD PETROLEUM, LLC OIL HOLLOW FED. 5-1 DECEMBER 22, 1999 3888 - 3950 FT(MD) DST TKT. 353766



BALLARD PETROLEUM LLC  
OIL HOLLOW FEDERAL 5-1  
DST 1 DECEMBER 22, 1999

## OPERATOR JOB LOG

DATE & TIME	CHOKE SIZE (in)	SURF PRESS (oz)	REMARKS
22-DEC-99			
01:00:00			PICK UP TOOLS
02:40:00			TRIP IN HOLE WITH TOOLS FOR DST 1
07:04:00	1/8		TOOL OPENED THROUGH BUBBLE HOSE
07:09:00	1/8	12	
07:14:00	1/8	16	
07:19:00	1/8	19	
07:24:00	1/8	19.25	
07:29:00	1/8	18.5	
07:34:00	1/8	17	CLOSE TOOL
08:34:00	1/8		
08:39:00	1/8	10.5	
08:44:00	1/8	13	
08:49:00	1/8	15.5	
08:54:00	1/8	16	
08:59:00	1/8	16.5	
09:04:00	1/8	15.5	
09:13:00			OPEN THROUGH 8/64" CHOKE
09:14:00	1/8	17	
09:24:00	1/8	7	
09:28:00			OPEN TO BUBBLE HOSE
09:34:00	1/8	9	
09:44:00	1/8	10.25	
09:54:00	1/8	10	
10:04:00	1/8	10	CLOSE TOOL
13:04:00			OPEN BY-PASS R/D SURFACE EQUIPMENT
15:45:00			DRAIN SAMPLER
15:56:00			BREAK AND LOAD TOOLS
17:15:00			DOWNLOAD AND READ GAUGES
19:30:00			THROUGH WITH JOB

TICKET NO. S0 353766 DATE 12/22/99 HALLIBURTON CAMP VERNAL

LEASE OWNER BALLARD PETROLEUM LLC API NUMBER \_\_\_\_\_

LEASE NAME OIL HOLLOW FED WELL NO. 5-1 TEST NO. 1

LEGAL LOCATION 5-11s-5e FORMATION TESTED nugget

FIELD AREA WILD CAT COUNTY UTAH STATE UTAH

TYPE OF D.S.T. ON BOTTOM

TESTER(S) R. RIPPLE

WITNESS RICHARD EBERSPECHER DRILLING CONTRACTOR CYCLONE 12

DEPTHS MEASURED FROM \_\_\_\_\_ KB CASING PERFS (FT.) \_\_\_\_\_

TYPE AND SIZE OF GAS MEASURING DEVICE \_\_\_\_\_

### CUSHION DATA

TYPE NONE AMOUNT \_\_\_\_\_ WEIGHT \_\_\_\_\_

TYPE AMOUNT WEIGHT

RECOVERY (ft. or bbl.) 2744 ft water

### FLUID PROPERTIES

source	resistivity	chlorides (ppm)	source	resistivity	chlorides (ppm)
top of fluid	.45 @ 75 deg	7878			
mid of fluid	.99 @ 69 deg	4364			
sampler	1.8 @ 67 deg	1939			

REMARKS: \_\_\_\_\_

TICKET NO.	<u>SO353766</u>	DATE	<u>12/22/99</u>	ELEVATION (ft.)	<u>6707'</u>
TOP OF TESTED INTERVAL (ft.)	<u>3888</u>	BOTTOM OF TESTED INTERVAL (ft.)	<u>3950</u>		
NET PAY (ft.)	<u>62</u>	TOTAL DEPTH (ft.)	<u>3950</u>		
HOLE OR CASING SIZE (in.)	<u>8.75</u>	MUD WEIGHT (lb./gal.)	<u>      </u>	VIS (sec)	<u>      </u>
SURFACE CHOKE (in.)	<u>1/8</u>	BOTTOM CHOKE (in.)	<u>      </u>	<u>0.75</u>	
OIL GRAVITY	<u>      </u>	@	<u>      </u>	GAS GRAVITY--ESTIMATED	<u>      </u>

**SAMPLER DATA**

**TEMPERTURE (F)**

PRESSURE (P.S.I.)	<u>10</u>	CUBIC FT. OF GAS	<u>0</u>	ESTIMATE	<u>      </u>
C.C.'s OF OIL	<u>0</u>	C.C.'s OF WATER	<u>2240</u>	ACTUAL	<u>116.33</u>
C.C.'s OF MUD	<u>0</u>	TOTAL LIQUID C.C.'s	<u>      </u>	DEPTH (ft.)	<u>3946</u>

**GAS/OIL RATIO (cu. ft. per bbl.)**

FROM SAMPLER        OTHER       

**RECORDER AND PRESSURE DATA**

CHARTS READ BY r.ripple DATA APPROVED BY       

RECORDERS					TIMES	
GAUGE NUMBER	S21	T94	430		(00:00-24:00)	
GAUGE TYPE	BLANK	INSTREAM	INSTREAM		TOOL OPENED	07:04
GAUGE DEPTH (ft.)	3946	3865.06	3848.95		DATE	12/22/99
CLOCK NUMBER	EMR	EMR			BYPASS OPENED	13:04
CLOCK RANGE (HR.)			12 hr		DATE	12/22/99

**PRESSURES**

					PERIOD	MINUTES
INITIAL HYDROSTATIC	1843.55	1805.11				
INITIAL FLOW	248.85	184.22	52.1		XXX	XXX
1st. FINAL FLOW	748.68	750.06	704.4		1st.FLOW	30
CLOSED-IN	1328.64	1294.9			1st. C.I.P.	60
INITIAL FLOW	806.16	770.72	743.5		XXX	XXX
2nd. FINAL FLOW	1254.99	1219.3	1226.5		2nd.FLOW	90
CLOSED-IN	1334.21	1300.34			2nd. C.I.P.	180
INITIAL FLOW					XXX	XXX
3RD. FINAL FLOW					3rd.FLOW	
CLOSED-IN					3rd. C.I.P.	
FINAL HYDROSTATIC	1830.76	1796.98			XXX	XXX

TICKET NO.

SO 353766

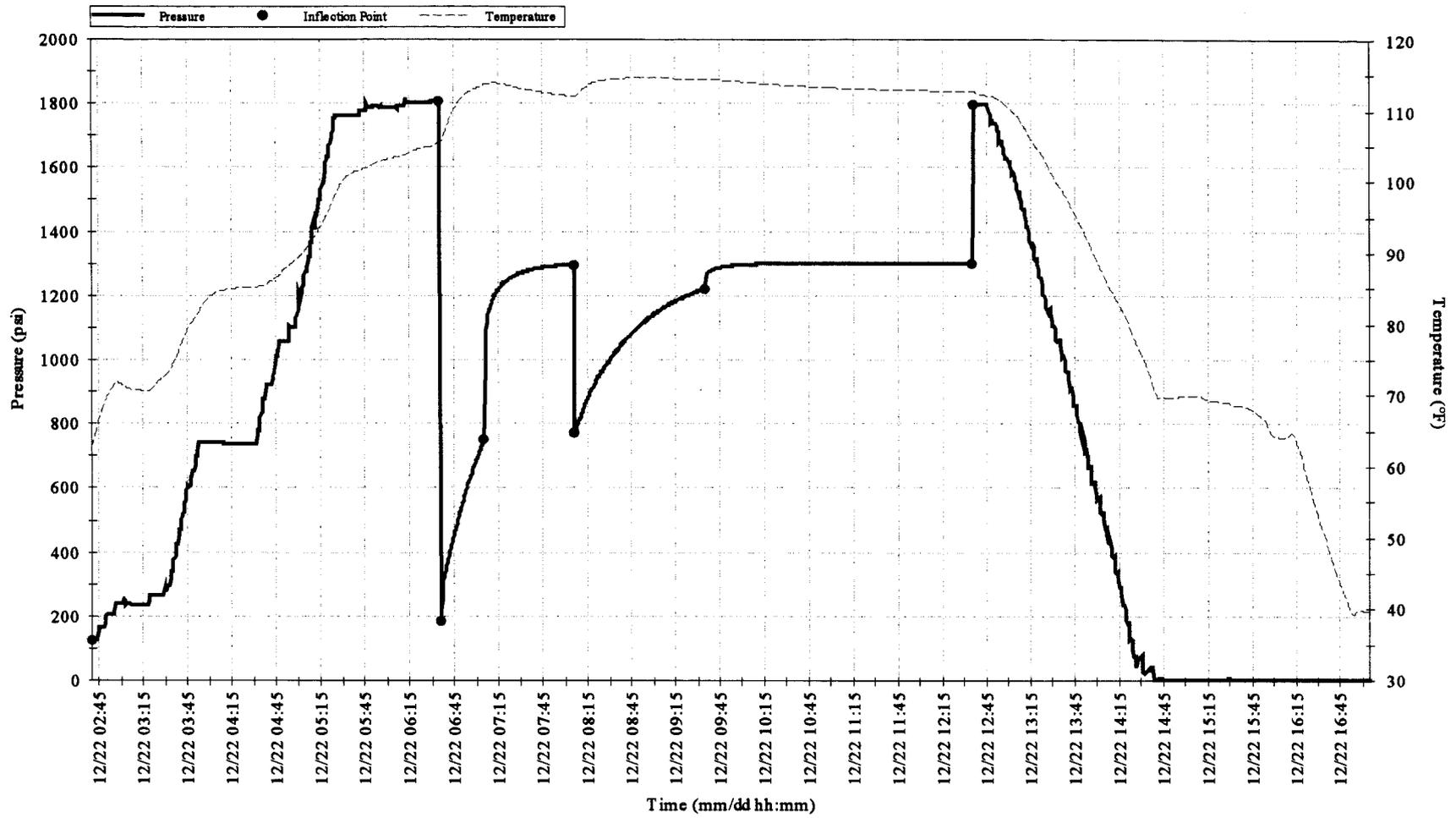
TOOL NAME	TOOL NO.	O.D.(IN.)	I.D. (IN.)	LENGTH (FT.)	DEPTH (FT.)
DRILL PIPE		4.50	3.826	3261.71	
x-over		5.75	2.500	2.65	
DRILL COLLARS		5.75	2.500	492.06	
REV. SUB		6.00	2.250	0.91	3756.96
DRILL COLLARS		5.75	2.500	88.32	
X-OVER		5.69	2.125	0.88	
X-OVER		6.00	2.250	0.74	
RUNNING CASE		5.00	3.060	4.14	3848.95
SAMPLER		5.00	0.870	6.96	
HYDROSPRING		5.00	0.750	5.01	3862.92
RUNNING CASE		5.00	3.060	5.14	3865.06
JARS		5.00	1.750	5.00	
SAFTY JOINT VR		5.00	1.000	2.78	
PACKER IPC		7.75	1.530	5.15	3879.64
PACKER LONG NR		7.75	1.530	7.41	3888.15
ANCHOR		5.00	2.250	19.00	
X-OVER		5.75	2.625	0.69	
X-OVER		5.75	2.375	0.83	
DRILL COLLAR		5.75	2.500	28.31	
X-OVER		5.75	2.625	0.83	
X-OVER		5.75	2.375	0.89	
ANCHOR		5.00	2.250	5.00	
BOTTOM CASE		5.00	2.250	5.05	3946.00

TOOL NUMBERS AS  
ASSIGNED BY TESTER

TOOL NAMES

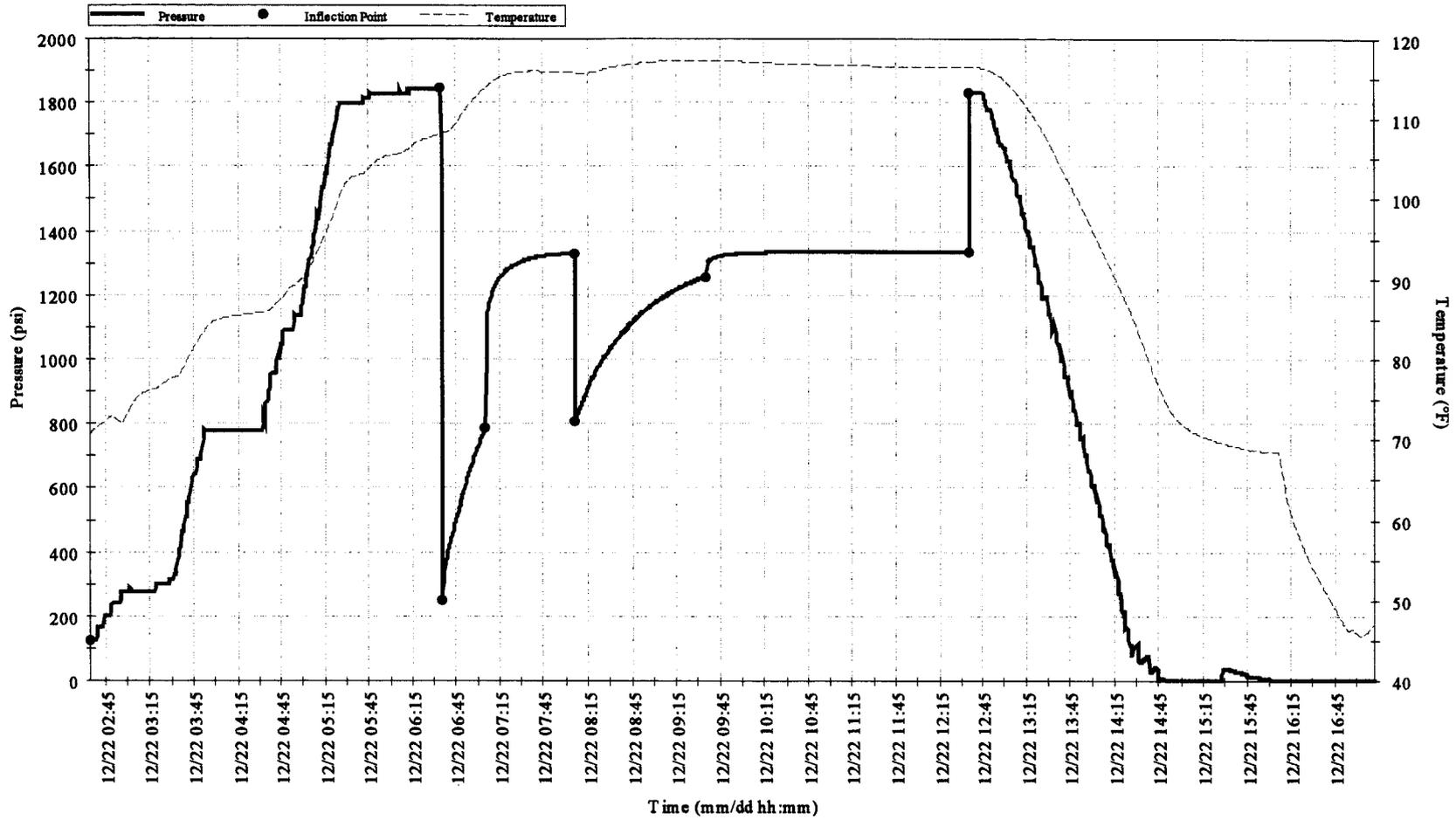
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>





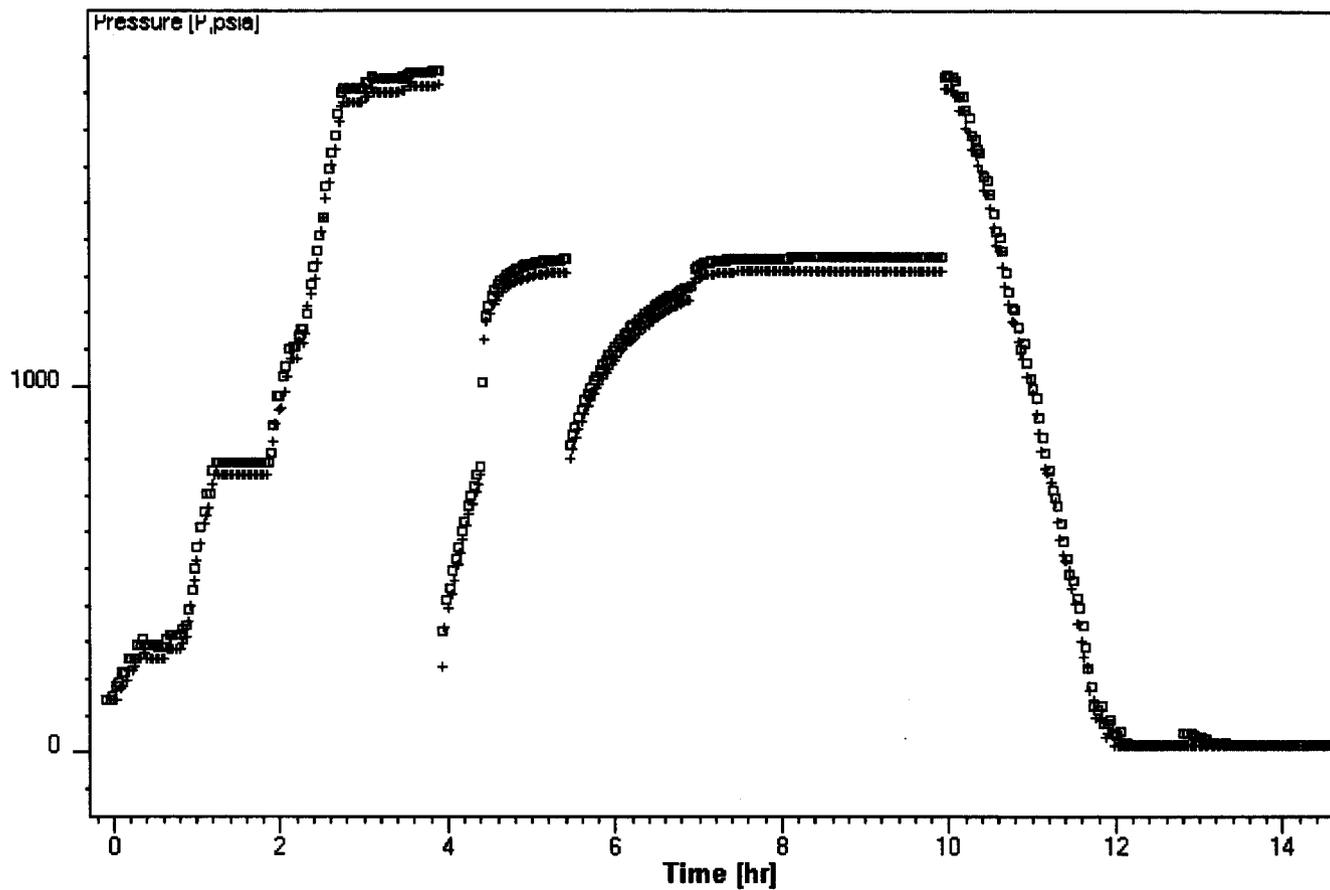
**Temperature & Pressure vs Time: All Data For Gauge T94 at 3865'**

BALLARD PETROLEUM LLC  
 OIL HOLLOW FEDERAL 5-1  
 DST 1 DECEMBER 22, 1999

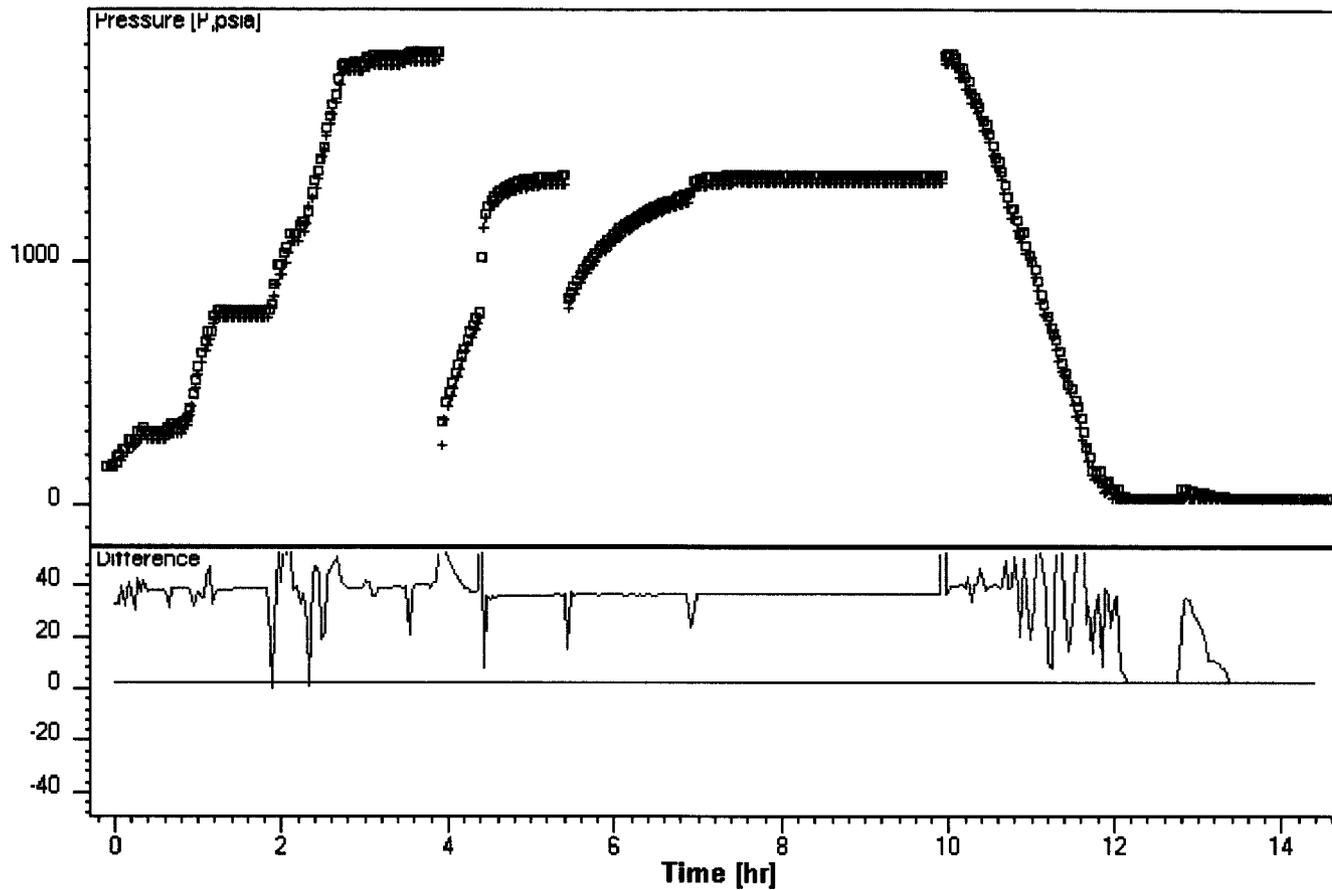


**Temperature & Pressure vs Time: All Data For Gauge S21 at 3946'**

BALLARD PETROLEUM LLC  
 OIL HOLLOW FEDERAL 5-1  
 DST 1 DECEMBER 22, 1999



**Data Comparison** Gauge T94 shown as crosses, gauge S21 shown as circles.



**Difference Graph:** The lower portion of the graph holds gauge T94 constant (0) and shows how gauge S21 varies from that.

Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton personnel will use their best efforts in gathering such information and their best judgement in interpreting it but customer agrees that Halliburton shall not be responsible for any damages arising from the use of such information except where due to Halliburton gross negligence or willful misconduct in the preparation or furnishing of information.

CONFIDENTIAL



HALLIBURTON ENERGY SERVICES

Post Office Box 339 / Vernal, Utah 84078 / Telephone: 435-789-2550 / Fax: 435-789-2892

**Ballard Petroleum L.L.C.**

No. 152-99

December 23, 1999

Water Analysis: Complete  
Lease: Oil Hollow Federal 5-1

Sample Date  
12/23/99

pH	7.2
Chlorides (mg/l)	760
Bicarbonates (mg/l)	824
Carbonates (mg/l)	Nil
Sulfates (mg/l)	450
Iron (mg/l)	Nil
Rw ( $\Omega$ @°F)	0.37 @ 69.4 °F
TDS (g/l)	2.87

Respectfully submitted,

Chip Koerner  
Operations Engineer

This report is the property of Halliburton services and neither it nor any part thereof nor copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Services.

**NOTICE:** This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether due to act or omission, resulting from such report or its use.

RECEIVED  
JAN 04 2000  
DIVISION OF OIL, GAS & MINING

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires November 30, 2000

**SUNDRY NOTICES AND REPORTS ON WELLS**  
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**UTU - 77275**

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

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

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**CONFIDENTIAL**

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**WILDCAT**

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**UTAH COUNTY, UTAH**

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<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<b>SPUD WELL</b>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

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**SPUD WELL 11/29/99.**

**RECEIVED**

**JAN 04 2000**

**DIVISION OF OIL, GAS & MINING**

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)  
**JAN HARMON,**

Title **OPERATION ASSISTANT**

Signature *Jan Harmon*

Date **12-30-99**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

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

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**CONFIDENTIAL**

FORM APPROVED  
OMB No. 1004-0135  
Expires November 30, 2000

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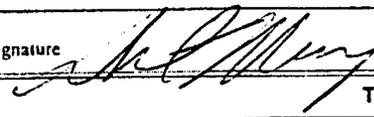
- First plug set at 3900-3800', 54 sks of Class "G" 15.80#.**
- Second plug set at 1800-1700', 52 sks of Class "G" 15.80#**
- Third plug set at 450'-350', 43 sks of Class "G" , 15.80#.**
- Fourth plug set at 50'-0', 30 sks of Class "G", 15.80#.**
- Dry hole marker erected at surface.**

**RECEIVED**  
**JAN 10 2001**

**DIVISION OF OIL, GAS & MINING**

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

Name (Printed/Typed)  
**Dave McCoskery**

Signature 

Title  
**OPERATION Manager**

Date  
**1/7/00**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

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

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CONFIDENTIAL

FORM 3160-4  
(July 1992)

SUBMIT IN DUPLICATE\*  
(See other in-  
structions on  
reverse side)

FORM APPROVED  
OMB NO. 1004-0137  
Expires: February 28, 1995

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

5. LEASE DESIGNATION AND SERIAL NO.  
**UTU-77275**  
6. IF INDIAN, ALLOTTEE OR TRIBE NAME

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

N/A

1a. TYPE OF WORK  
OIL WELL  GAS WELL  DRY

1b. TYPE OF WELL  
NEW WELL  WORK OVER  DEEP-EN  PLUG BACK  DIFF. RESVR.

7. UNIT AGREEMENT NAME  
N/A

8. FARM OR LEASE NAME, WELL NO.  
**Oil Hollow Federal**

CONFIDENTIAL  
PERIOD  
EXPIRED  
ON 1-25-00

2. NAME OF OPERATOR  
**BALLARD PETROLEUM LLC**

3. ADDRESS AND TELEPHONE NO.  
**845 12TH STREET WEST, BILLINGS, MT 591 406-259-8790**

4. LOCATION OF WELL (Report locations clearly and in accordance with any State requirements.)\*  
At Surface  
**2627' FSL & 1015' FWL, NWSW**  
At top prod. Interval reported below

14. PERMIT NO. **43-049-30018** DATE ISSUED **8/30/99**

15. DATE SPUDDED **11/29/99** 16. DATE T.D. REACHED **12/24/99** 17. DATE COMPL. (Ready to prod.) **P&A 12/25/99** 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)\* **6694' GR** 19. ELEV. CASINGHEAD **6707' KB**

20. TOTAL DEPTH, MD & TVD **MD 4200' TVD** 21. PLUG, BACK T.D., MD & TVD **MD TVD** 22. IF MULTIPLE COMPL., HOW MANY\* **MD TVD** 23. INTERVALS DRILLED BY **HP-43A, F-1, HP52X**

24. PRODUCING INTERVAL(S), OF THIS COMPLETION--TOP, BOTTOM, NAME (MD AND TVD)\*  
**None - plugged & abandoned See Sundry form for plugging information.**

26. TYPE ELECTRIC AND OTHER LOGS RUN  
**CN/LD/GR, AI/GR, BHC SONIC/GR, FULLBORE FORMATION MICRO IMAGER, HYDROCARBON WELL LOG, FMI DI NO**

23. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
16" /F-25	5.5	49'	17.5"	Surface 55 sks "G" cement	
9-5/8" /J-55	36#	402'	12.25"	Surface 145 sks "G" w/additives	
				50 sks "G" w/additives	

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORMANCE RECORD (Interval, size and number)

INTERVAL	SIZE	NUMBER
n/a		

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

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33.\* PRODUCTION  
DATE FIRST PRODUCTION PRODUCTION METHOD (Flowing, gas lift, pumping--size and type of pump) WELL STATUS (Producing or shut-in)  
**JAN 21 2000**

DATE OF TEST HOURS TESTED CHOKE SIZE PROD'N FOR TEST PERIOD OIL--BBL. GAS--MCF. WATER--BBL. GAS-OIL RATIO  
FLOW TUBING PRESS. CASING PRESSUR CALCULATED 24-HOUR RATE OIL-BBL. GAS--MCF. WATER--BBL. (GAS-OIL RATIO)

DIVISION OF OIL, GAS AND MINING

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

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records  
SIGNED *[Signature]* TITLE **OPERATIONS MGR** DATE **1/17/00**

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

Title 18 U.S.C. Section 1001, makes it a crime for any persn 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 mater within its jurisdiction.

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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
NUGGET DST #1	3881' 3888	- 3950'	Fresh H2O 30/60/90/180 IFP: 248-749 FFP: 806-1255 IHP: 1843 FGP: 1831 ISP: 1329 FSP: 1334  RECOVERED 2744' W Smpl chmber: 2240 cc @ Rw1.8 @ 67 Chlorides 1939 ppm	North Horn Form. Cedar Mountain Form. Arapien Shale Twin Creek L.S. Nuggett S. S.	579' 920'  1671 2766 3881	

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

**SUBMIT IN TRIPLICATE**

1. Type of Well

Oil Gas  
 Well  Well  Other

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2. Name of Operator

Ballard Petroleum LLC

3. Address and Telephone No.

845 12th Street West, Billings, MT 59102 406-259-8790

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

2627' FSL, 1015' FWL  
NWSW, SEC 5, T11S, R5E

FORM APPROVED

Budget Bureau No. 1004-0135

Expires: March 31, 1993

5. Lease Designation and Serial No.

UTU--77275

6. If Indian, Allottee or Tribe Name

N/A

7. If Unit or CA, Agreement Designation

N/A

8. Well Name and No.

OIL HOLLOW FEDERAL 5-1

9. API Well No.

43-049-30018

10. Field and Pool, or Exploratory Area

WILDCAT

11. County or Parish, State

UTAH, UTAH

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

TYPE OF SUBMISSION

Notice of Intent  
 Subsequent Report  
 Final Abandonment Notice

TYPE OF ACTION

Abandonment  
 Recompletion  
 Plugging Back  
 Casing Repair  
 Altering Casing  
 Other End of Well Report  
 Change of Plans  
 New Construction  
 Non-Routine Fracturing  
 Water Shut-Off  
 Conversion to Injection  
 Dispose Water

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

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

Attached find End of Well Report on the Oil Hollow Federal 5-1

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

Signed Jan Harmon Title Operations Assistant Date 02/07/00

(This space for Federal or State office use)

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

Conditions of approval, if any: \_\_\_\_\_

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING  
ENTITY ACTION FORM - FORM 6

OPERATOR Ballard Petroleum LLC  
ADDRESS 845 12th St. West  
Billings, MT 59102

OPERATOR ACCT. NO. 112310

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION				COUNTY	SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG			
A	99999	12678	43-049-	Oil Hollow Feed. 5-1	NEWS	5	11S	5E	Utah	11-29-99	
WELL 1 COMMENTS: 30018 000112 entity added. KSR										<b>CONFIDENTIAL</b>	
WELL 2 COMMENTS:											
WELL 3 COMMENTS:											
WELL 4 COMMENTS:											
WELL 5 COMMENTS:											

ACTION CODES (See instructions on back of form)

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (explain in comments section)

NOTE: Use COMMENT section to explain why each Action Code was selected.

(3/00)

Jan Harmon  
Signature  
Operations 1-600  
Title / Asst. Date  
Phone No. (406) 259-8790

**sperry-sun**

A Division of Dresser Industries, Inc.

**CONFIDENTIAL**

**END OF WELL REPORT**  
*for*  
**Ballard Petroleum LLC**  
**Wellname: Oil Hollow Fed 5-1**  
**Location : Utah County, Utah**

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**END OF WELL REPORT**

*for*

**Ballard Petroleum LLC**

**Wellname: Oil Hollow Fed 5-1**

**Location : Utah County, Utah**

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## **TABLE OF CONTENTS**

### **Section 1**

Contents: Summary of Results

### **Section 2 - Survey Data**

Contents: Final Well Survey submitted as the official certified survey.

### **Section 3 - BHA Data**

Contents: BHA Report, Motor Perf Reports, BHA Diagram, &.Orientation Data sheets

### **Section 4 - Event Log (Total Well)**

Contents: Daily Morning Reports

### **Section 5**

Contents: Graphics

## **Section 1**

**Contents: Summary of Results**

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1

**Job Objectives:**

Drop angle, then maintain.

**Summary of Results:****Discussion:**

BHA #	Bit #	Motor Run #	Hole Size (in)	MD In (ft)	MD Out (ft)	TVD In (ft)	TVD Out (ft)	Inc In (deg)	Inc Out (deg)	Azi In (deg)	Azi Out (deg)	Drig hrs	Circ hrs
1	1	1	8.750	1019	1957	1018	1956	4.6	0.9	118	280	58	4
2	2	2	8.750	1957	2841	1956	2839	0.9	0.7	280	113	67	4
3	3	2	8.750	2841	2973	2839	2971	0.7	0.4	113	133	14	1
4	3rr1	3	8.750	2973	3849	2971	3847	0.4	2.6	133	112	72	5
5	4	3	8.750	3849	3950	3847	3948	2.6	1.0	112	132	10	15

Table 1 - BHA Summary

Motor Run #	Manufacturer	Type	Lobe	OD (in)	Gauge (in)	Bend (deg)	Adj	DLS (Ori) (°/100')	ROP (Ori) (ft/hr)	ROP (Rot) (ft/hr)
1	SSDS	SperryDrill	8/9	6.750		1.50	Y	0.90	14	17
2	SSDS	SperryDrill	8/9	6.750		1.50	Y	1.01	11	14
2	SSDS	SperryDrill	8/9	6.750		1.50	Y	0.86	0	10
3	SSDS	SperryDrill	8/9	6.750		1.50	Y	2.50	9	13
3	SSDS	SperryDrill	8/9	6.750		1.50	Y	3.00	9	12

Table 2 - Motor Run Summary

Bit #	Manufacturer	Style	OD (in)	Gge Len (in)	Nozzles (/32's)	TFA (In <sup>2</sup> )	Dull Grades I O D L B G O R	Ftge (ft)	Drig hrs	ROP (ft/hr)
1	Reed	HP43A	8.750		3x11	0.278	4-4-WT-A-E-I-NO-PP	938	57.52	16
2	Smith	F1	8.750		3x12	0.331	2-2-WT-AL-E-1-NO-SPR	884	67.40	13
3	Reed	HP43A	8.750		3x12	0.331	1-1-NO-AL-E-1-NO-PL	132	13.77	10
3rr1	Reed	HP43A	8.750		3x12	0.331	5-7-BT-G3-E-1-WT-HRS	876	72.15	12
4	Reed	HP43A	8.750		3x12	0.331	3-3-WT-AL-E-I-GA-DST	101	9.71	10

Table 3 - Bit Run Summary

**Section 2**

Contents: Final Well Survey submitted as the official certified survey.

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**Ballard Petroleum  
Utah County  
Sec5-T11S-R5E  
Oil Hollow Fed #5-1 - MWD Surveys**

**SURVEY REPORT**

**21 December, 1999**

**Surface Coordinates: 0.00 N, 0.00 E  
Kelly Bushing: -20.81ft above Mean Sea Level**



**Survey Ref: svy1426**

# Sperry-Sun Drilling Services

Survey Report for Oil Hollow Fed #5-1 - MWD Surveys



Ballard Petroleum

Utah County  
Sec5-T11S-R5E

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
531.00	0.500	103.500	530.99	0.54 S	2.25 E	2.00	0.094
972.00	5.100	115.700	971.35	9.50 S	21.80 E	22.28	1.046
1003.00	5.100	118.400	1002.23	10.75 S	24.25 E	24.91	0.774
1034.00	4.200	118.000	1033.12	11.94 S	26.46 E	27.33	2.905
1065.00	3.600	118.600	1064.05	12.94 S	28.32 E	29.36	1.940
1097.00	2.900	116.300	1096.00	13.77 S	29.93 E	31.10	2.225
1129.00	2.100	110.700	1127.97	14.34 S	31.20 E	32.41	2.611
1160.00	1.400	97.800	1158.96	14.59 S	32.11 E	33.24	2.577
1192.00	0.800	86.600	1190.95	14.63 S	32.72 E	33.70	1.983
1224.00	0.400	95.200	1222.95	14.63 S	33.05 E	33.94	1.278
1256.00	0.400	285.000	1254.95	14.61 S	33.06 E	33.93	2.491
1288.00	0.600	287.700	1286.95	14.53 S	32.79 E	33.68	0.629
1320.00	0.900	287.200	1318.94	14.41 S	32.39 E	33.31	0.938
1350.00	0.700	268.300	1348.94	14.34 S	31.98 E	32.97	1.095
1380.00	0.600	244.100	1378.94	14.42 S	31.66 E	32.79	0.965
1411.00	0.500	220.400	1409.94	14.59 S	31.42 E	32.74	0.794
1441.00	0.600	222.600	1439.94	14.80 S	31.23 E	32.75	0.341
1473.00	0.800	221.100	1471.93	15.10 S	30.97 E	32.77	0.628
1537.00	0.700	224.400	1535.93	15.71 S	30.41 E	32.79	0.170
1568.00	0.700	224.100	1566.93	15.98 S	30.14 E	32.79	0.012
1600.00	0.700	223.700	1596.92	16.27 S	29.87 E	32.79	0.015
1631.00	0.600	219.400	1629.92	16.53 S	29.64 E	32.80	0.359
1663.00	0.800	221.200	1661.92	16.83 S	29.38 E	32.82	0.629
1694.00	1.000	241.100	1692.92	17.12 S	29.00 E	32.76	1.188
1725.00	1.100	251.500	1723.91	17.34 S	28.48 E	32.54	0.693
1756.00	1.100	255.500	1754.90	17.51 S	27.91 E	32.25	0.248
1786.00	1.100	267.200	1784.90	17.60 S	27.35 E	31.90	0.747
1818.00	0.900	300.700	1816.89	17.49 S	26.82 E	31.44	1.898
1849.00	1.000	299.900	1847.89	17.23 S	26.38 E	30.94	0.325
1881.00	1.200	292.800	1879.88	16.96 S	25.83 E	30.36	0.755
1913.00	1.300	279.400	1911.88	16.77 S	25.16 E	29.75	0.963
1945.00	0.900	276.900	1943.87	16.68 S	24.56 E	29.25	1.259
1976.00	0.800	285.700	1974.87	16.59 S	24.11 E	28.87	0.530
2008.00	1.000	286.700	2006.86	16.45 S	23.62 E	28.42	0.627
2040.00	1.000	307.300	2038.86	16.20 S	23.13 E	27.90	1.117
2072.00	1.500	331.400	2070.85	15.66 S	22.71 E	27.22	2.235
2103.00	1.800	331.200	2101.84	14.88 S	22.28 E	26.37	0.988
2135.00	2.400	314.200	2133.82	13.97 S	21.56 E	25.22	2.683
2167.00	2.300	300.600	2165.79	13.18 S	20.53 E	23.92	1.766

Continued...

# Sperry-Sun Drilling Services

## Survey Report for Oil Hollow Fed #5-1 - MWD Surveys



Utah County  
Sec5-T11S-R5E

Ballard Petroleum

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2198.00	2.500	295.400	2196.76	12.57 S	19.38 E	22.68	0.953
2229.00	2.500	294.000	2227.73	12.01 S	18.15 E	21.40	0.197
2260.00	2.200	293.100	2258.71	11.50 S	16.99 E	20.21	0.975
2293.00	1.600	294.800	2291.69	11.06 S	15.99 E	19.18	1.826
2325.00	1.500	294.500	2323.68	10.70 S	15.20 E	18.36	0.314
2357.00	1.000	302.700	2355.67	10.37 S	14.58 E	17.70	1.656
2388.00	0.800	281.100	2386.67	10.18 S	14.14 E	17.25	1.259
2419.00	0.900	293.200	2417.66	10.05 S	13.71 E	16.84	0.661
2451.00	1.300	299.400	2449.66	9.77 S	13.16 E	16.25	1.302
2481.00	1.500	288.300	2479.65	9.48 S	12.49 E	15.57	1.120
2512.00	1.200	284.100	2510.64	9.27 S	11.79 E	14.92	1.018
2543.00	0.900	263.200	2541.63	9.22 S	11.23 E	14.49	1.554
2573.00	0.500	240.300	2571.63	9.32 S	10.89 E	14.30	1.602
2604.00	1.200	170.900	2602.63	9.70 S	10.82 E	14.52	3.632
2634.00	2.500	151.000	2632.61	10.59 S	11.19 E	15.40	4.770
2666.00	3.000	154.000	2664.58	11.95 S	11.89 E	16.85	1.625
2698.00	3.200	153.000	2696.53	13.50 S	12.67 E	18.49	0.647
2729.00	2.000	156.100	2727.50	14.76 S	13.28 E	19.81	3.896
2761.00	1.800	143.500	2759.48	15.68 S	13.80 E	20.82	1.443
2793.00	1.800	140.500	2791.46	16.47 S	14.42 E	21.81	0.294
2824.00	1.000	120.400	2822.45	16.98 S	14.96 E	22.56	2.990
2855.00	0.400	98.800	2853.45	17.13 S	15.30 E	22.91	2.081
2886.00	0.200	110.200	2884.45	17.17 S	15.46 E	23.05	0.670
2917.00	0.200	115.500	2915.45	17.21 S	15.56 E	23.15	0.060
2947.00	0.200	96.000	2945.45	17.24 S	15.66 E	23.24	0.226
2978.00	0.400	136.300	2976.45	17.32 S	15.79 E	23.39	0.901
3009.00	0.900	119.600	3007.45	17.52 S	16.08 E	23.74	1.708
3040.00	1.000	119.900	3038.44	17.78 S	16.52 E	24.23	0.323
3071.00	1.000	115.900	3069.44	18.03 S	17.00 E	24.75	0.225
3103.00	1.400	124.700	3101.43	18.37 S	17.57 E	25.40	1.373
3134.00	1.100	118.200	3132.42	18.73 S	18.15 E	26.06	1.069
3166.00	0.400	63.800	3164.42	18.83 S	18.52 E	26.40	2.894
3197.00	0.900	36.600	3195.42	18.58 S	18.76 E	26.40	1.852
3228.00	0.800	63.000	3226.42	18.29 S	19.10 E	26.44	1.291
3260.00	0.900	67.500	3258.41	18.09 S	19.53 E	26.62	0.376
3291.00	1.000	72.600	3289.41	17.92 S	20.01 E	26.84	0.422
3322.00	0.400	166.200	3320.41	17.94 S	20.30 E	27.06	3.549
3353.00	0.800	195.000	3351.41	18.26 S	20.27 E	27.26	1.578
3385.00	0.900	192.000	3383.40	18.72 S	20.16 E	27.50	0.342
3416.00	1.100	182.000	3414.40	19.25 S	20.09 E	27.83	0.854

Continued...

# Sperry-Sun Drilling Services

Survey Report for Oil Hollow Fed #5-1 - MWD Surveys



Ballard Petroleum

Utah County  
Sec5-T11S-R5E

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3448.00	1.100	182.500	3446.39	19.87 S	20.07 E	28.24	0.030
3479.00	0.900	175.100	3477.39	20.41 S	20.08 E	28.62	0.767
3510.00	0.900	154.000	3508.38	20.87 S	20.21 E	29.03	1.063
3542.00	1.200	140.100	3540.38	21.35 S	20.53 E	29.60	1.223
3573.00	1.400	127.600	3571.37	21.83 S	21.04 E	30.30	1.116
3605.00	1.100	139.400	3603.36	22.30 S	21.55 E	30.99	1.231
3636.00	1.000	121.200	3634.36	22.67 S	21.97 E	31.55	1.118
3667.00	1.000	127.100	3665.35	22.97 S	22.42 E	32.09	0.332
3698.00	1.000	142.100	3696.35	23.35 S	22.80 E	32.62	0.842
3730.00	0.900	172.300	3728.34	23.82 S	23.01 E	33.10	1.576
3761.00	0.600	151.000	3759.34	24.20 S	23.12 E	33.44	1.305
3791.00	1.400	115.700	3789.34	24.50 S	23.53 E	33.94	3.247
3821.00	2.500	108.400	3819.32	24.86 S	24.48 E	34.88	3.752
3853.00	2.600	112.700	3851.29	25.36 S	25.81 E	36.18	0.674
3882.00	2.100	132.000	3880.26	25.97 S	26.81 E	37.33	3.204
3950.00	1.000	132.000	3948.24	27.20 S	28.18 E	39.17	1.618

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North. Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.

Vertical Section is from Well and calculated along an Azimuth of 133.994° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 3950.00ft., The Bottom Hole Displacement is 39.17ft., in the Direction of 133.994° (True).

## Comments

Measured Depth (ft)	Station Coordinates			Comment
	TVD (ft)	Northings (ft)	Eastings (ft)	
531.00	530.99	0.54 S	2.25 E	First SSDS MWD Survey
3882.00	3880.26	25.97 S	26.81 E	Final SSDS MWD Survey
3950.00	3948.24	27.20 S	28.18 E	Extrapolated to Bit

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DIVISION OF  
OIL, GAS AND MINING

**Section 3**

Contents: BHA Report, Motor Perf Reports, BHA Diagram, &.Orientation Data sheets

# sperry-sun

## DRILLING SERVICES

### BHA Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

BHA# 1

BHA# 1 : Date In :12/9/1999 MD In (ft) : 1019 TVD In (ft) : 1018 Date Out 12/12/1999 MD Out (ft) : 1957 TVD Out (ft) : 1956

BIT DATA							
Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in <sup>2</sup> )	Dull Condition
1	6.750	Reed	HP43A	AK7812	3x11	0.278	4-4-WT-A -E-I-NO-PP

MOTOR DATA								
Run #	OD (in)	MFR	Model	Serial#	Bend	Nzi (/32's)	Avg Dif (psi)	Cum Circ Hrs
1	6.750	SSDS	SperryDrill	675-424A	1.50°		131	61.02

COMPONENT DATA									
Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (ft)	Bit - Center Blade (ft)
1	Tricone	AK7812	8.750			75.64	P 4-1/2" Reg	0.50	
2	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	675-424A	6.750	4.469		68.49	B 4-1/2" Reg	21.38	
3	Float Sub	C-301	6.687	2.313		105.37	B 5" H90	1.92	
4	1x Non-Mag Drill collar	G-117-14	6.630	3.250		89.38	B 5" H90	31.67	
5	Non-Mag Hang-off Sub	00027	6.750	3.250		93.68	B 5" H90	4.94	
6	Cross Over Sub	C-178	6.750	2.313		107.63	B 4" H90	1.83	
7	18x Drill Collar	Cyclone	5.750	2.500		71.77	B 4" H90	521.64	
8	Drilling Jar		6.250	2.250		91.01	B 4" H90	29.58	
9	3x Drill collar	Cyclone	5.750	2.500		71.77	B 4" H90	87.05	
10	Cross Over Sub	Cyclone	6.000	2.250		82.81	B 4-1/2" XH	2.85	
								703.16	

Parameter	Min	Max	Ave	Activity	Hrs	BHA Weight (lb)	Drill String	OD(in)	Len (ft)
WOB (lbs)	20000	35000	22696	Drilling	57.52	in Air (Total) : 51790	DP(E)-(XH)-16.60#	4.500	1254
RPM (rpm)	40	60	53	Reaming	0.50	in Mud (Total) : 44844			
Flow (gpm)	334	334	334	Circ-Other	3.00	in Air (Bel Jars) : 42632			
SPP (psi)	900	1200	1076	Total	61.02	in Mud (Bel Jars) : 36914			

PERFORMANCE			Distance(ft)	ROP (ft/hr)	Build (°/100')	Turn (°/100')	DLS (°/100')
Inclination (deg)	In	Out	Oriented :	116.00	14		0.90
Azimuth (deg)	118.21	280.06	Rotated :	822.00	17	0.30	5.00
			Total :	938.00	16	-0.40	0.00
							0.58

**COMMENTS**

Motor run without pad.  
 Offset - 289°  
 PTB - 52'

**OBJECTIVES:**

Drop angle then maintain, while utilizing motor for optimal ROP.

**RESULTS:**

Assembly was picked up and run to bottom at 1019' measured depth without problems. Once on bottom a 10' oriented set was made, then 5' set per joint until required angle was achieved.

Run ended at a measured depth of 1957' due to pressure and slowing ROP. The assembly was pulled with out problems. When on bank the monel drill collar had washed out 15' below the box and was replaced. The motor and bit were also replaced.

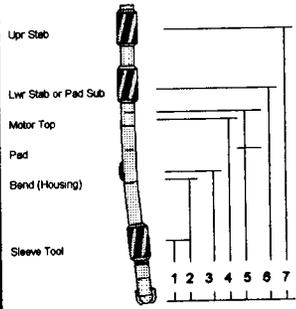
**RECOMMENDATIONS:**

none

Motor Serial # : 675-424A Job # : CA-MJ-90135  
 Directional Driller(s) : Aaron Kessel, Steve Krueger Customer : Ballard Petroleum  
 Location : Utah Rig : Cyclone #12  
 Well : Oil Hollow Fed 5-1 Bit Run # : 1 BHA # : 1 Motor Run # : 1  
 Depth In/Out : 1019 / 1957 ft Date In/Out : 12/9/1999 / 12/12/1999 Hole Size : 8.750 in  
 Application Details : Steerable Drilling

**MOTOR CONFIGURATION**

	From Bit (ft)	Component	Type	Diam In/Out (in)
1		Sleeve Stab/Pad	No	
2	8.83	Bent Housing	Yes	Adjustable: 1.50° bend
3		Housing Tool Used	No	
4	21.88	Stator Elastomer	Nitrile	Stator: Standard
5		Bent Sub / 2nd Bent Hsg	No	
6		Lower String Stab	No	
7		Upper String Stab	No	



Additional Features :  
 Flex Collar : No Short Brg Pack : No Rtr Noz / Size : /32's Pick Up Sub : No No  
 Brg Cfg (Off/On) : 5/1 Lobe Cfg : 8/9 BHA OD/ID : 6.687 / 2.313 in Bit Box Protr : Yes Yes

**MOTOR RUN DATA**

Max Dogleg While Rotating : 2.90 °/100'	RPM : 60	Motor Stalled : Yes	Prev Job/Well Hrs : 0.00			
Max Dogleg Overpulled in : °/100'	Force : lbf	Float Valve : Yes	Drilling Hrs : 57.52			
Max Dogleg Pushed Through : °/100'	Force : lbf	DP Filter : Yes	Circ Hrs : 3.00			
Hole Azimuth Start / End : 118.21° / 280.06°	Inc Start / End : 4.64° / 0.86°		Reaming Hrs : 0.50			
Interval Oriented / Rot. : 116 / 822 ft	Directional Perf Ori / Rot : 0.90 / 0.38 °/100'		Total Hrs This Run : 61.02			
Jarring Occured : No			New Cumulative Hrs : 61.02			
<b>Diff Press (psi)</b>	<b>Str RPM</b>	<b>Rotn Torque (ft-lbs)</b>	<b>Drag Up/Dn (lbf)</b>	<b>WOB (lbs)</b>	<b>ROP Oriented (ft/hr)</b>	<b>ROP Rotated (ft/hr)</b>
Avg : 131	53		2000 / 2000	22696	14	17
Max : 150	60		5000 / 5000	35000	20	20

**PRE-RUN TESTS**

Motor Tested Pre-Run : Yes with : 1 Collar, Bit, MWD  
 Dump Sub Operating : N/A Brg Play : 0.0 mm  
 Flow 1 : 475 gpm Pressure 1 : 850 psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : No  
 Bearing Leakage Observed : No

**POST-RUN TESTS**

Motor Tested Post-Run : No with :  
 Dump Sub Operating : N/A Brg Play : 0.0 mm  
 Flow 1 : gpm Pressure 1 : psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : Yes  
 Bearing Leakage Observed : Yes  
 Driveshaft Rotated to Drain Mud : Yes  
 Fluid Flushed : No Fluid Used :

**MUD DATA**

Base : Water Additives : gel,sodaash,drispac Mud Wt : 8.8 ppg SPP Start/End : 1200 / 900 psi  
 % Oil/Water : / % Solids : 4.00 % Sand : 0.13 PV : 5 cp YP : 4.0 lb/100ft² pH : 7.5  
 DH Temp Avg/Max : 74.4 / 83.3 FlowRate Avg/Max : 334 / 334 gpm Chloride Content : 2500 ppm  
 Principle Formation Name(s) : Northhorn, Cedar Mountain, Summerville Lthology :

**BIT DATA**

Make : Reed Type : HP43A Serial # : AK7812	Dull Grade	1	2	3	4	5	6	7	8
Prev Drilling Hrs : 0.00 Prev Reaming Hrs : 0.00 No of Runs This Bit : 1	In				NE	W			
Jet Sizes (32's) : 3x11 TFA : 0.278 in² Gage Length : in	Out	4	4	WT	A	E	I	NO	PP

**PERFORMANCE COMMENTS**

Problem Perceived : No Problem Date : Service Interrupt : No Service Interrupt Hrs :  
 Performance Motor : No Tandem Motor : No LIH : No PPR Ref # :

Monel drill collar washed out 15' below box.

**BHA Schematic**

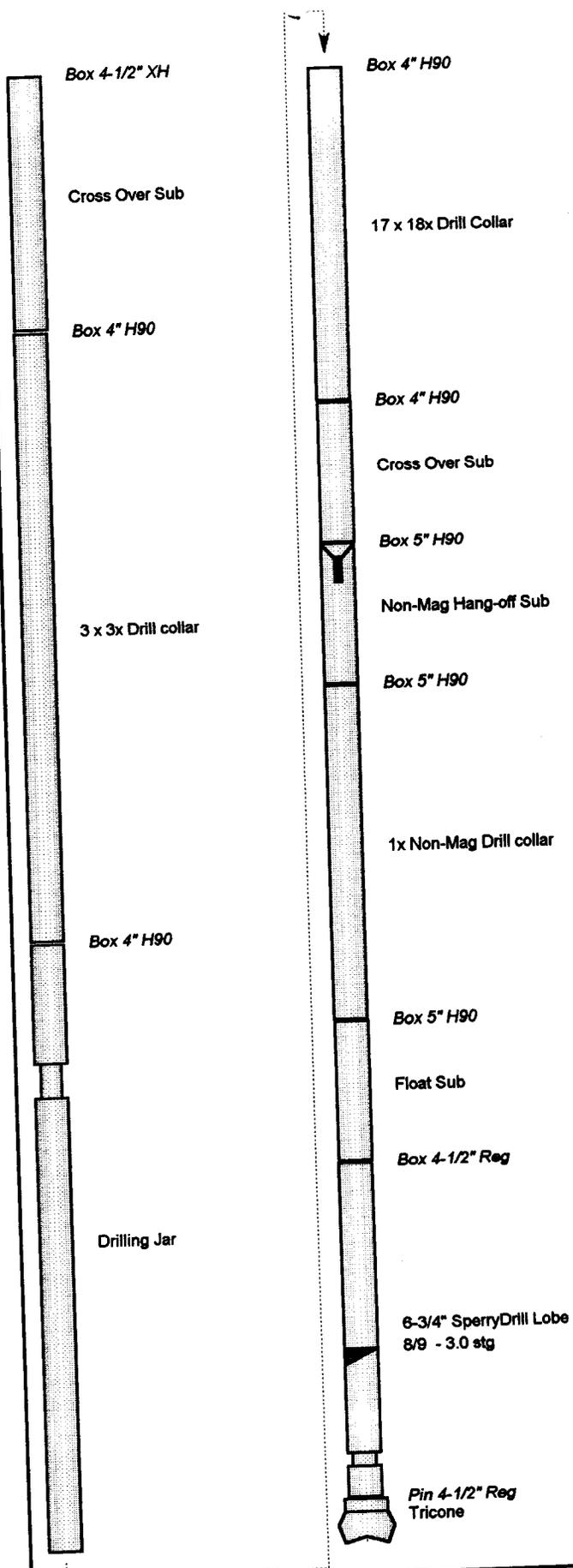
**Ballard Petroleum**  
**Oil Hollow Fed 5-1**  
**BHA ID #: 1**  
**Assembly 1**

**BHA Configuration**

O.D.	Length	Description
8.75"	0.5'	Tricone
6.75"	21.38'	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg
6.687"	1.92'	Float Sub
6.63"	31.67'	1x Non-Mag Drill collar
6.75"	4.94'	Non-Mag Hang-off Sub
6.75"	1.83'	Cross Over Sub
5.75"	521.64'	17 x 18x Drill Collar
6.25"	29.58'	Drilling Jar
5.75"	87.05'	3 x 3x Drill collar
6"	2.65'	Cross Over Sub

**BHA Discussion**

Motor run without pad.  
 Offset - 289'  
 PTB - 52'



# Sperry-Sun Drilling Services

## Drilling Hydraulics Analysis

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 BHA #1

State : Utah  
 County : Utah

<b>Recommendation :</b>	Flow Rate : 330 gal/min	TFA : 0.278 sq in	SPP : 1767 psi
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<u>OPERATING PARAMETERS</u>	<u>BIT HYDRAULICS SUMMARY</u>	<u>SYSTEM PRESSURE LOSSES</u>
Bit Depth : 1957.00 ft	Bit PD : 1016 psi	Surface (Type 4) : 17 psi
Bit Diameter : 8.750 in	% of Total PD : 57 %	Drill String : 333 psi
Mud Density : 8.7 ppg	Bit HHP : 186 HHP	Downhole Motor : 200 psi
Plastic Vis : 10 cp	Bit HHSI : 3.09 HHSI	Other Special : 180 psi
Yield Point : 7.0 lbf/100ft <sup>2</sup>	Impact Force : 509 lbf	Annulus : 21 psi
	Jet Velocity : 360 ft/s	Drill Bit : 1016 psi
		<b>Total : 1767 psi</b>
	Bit Nozzles : 3 x 11 /32's	
		<b>Fluid Model : Bingham</b>

<u>DRILL STRING CONFIGURATION</u>					
Description	O.D. in	I.D. in	Length ft	Volume gal	P-Drop psi
6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	6.750	4.465	22.63	37	200
Drill Collar	6.750	3.250	30.00	13	4
6-3/4" DWD 650 System	6.750		7.00	13	180
Drill Collar	5.750	2.500	521.64	133	199
Jars	6.250	2.250	29.58	6	18
Drill Collar	5.750	2.500	87.05	22	33
DP(E) - NC46(XH) - 16.6#	4.500	3.826	1259.10	742	78

<u>ANNULAR SUMMARY</u>								
Section Description	Hole I.D. in	Pipe O.D. in	Section Length ft	Depth To ft	Annular Volume gal	Critical Velocity ft/min	Annular Velocity ft/min	Pressure Drop psi
Casing	8.921	4.500	402.00	402.00	973	184	136 L	3
Open Hole	8.750	4.500	857.10	1259.10	1969	186	144 L	7
Open Hole	8.750	5.750	87.05	1346.15	154	195	186 L	1
Open Hole	8.750	6.250	29.58	1375.73	45	203	216 T	1
Open Hole	8.750	5.750	521.64	1897.37	926	195	186 L	7
Open Hole	8.750	6.750	7.00	1904.37	9	214	261 T	0
Open Hole	8.750	6.750	30.00	1934.37	38	214	261 T	1
Open Hole	8.750	6.750	22.63	1957.00	29	214	261 T	1

# sperry-sun

## DRILLING SERVICES

### BHA Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

BHA# 2

BHA# 2 : Date In :12/12/199 MD In (ft) : 1957 TVD In (ft) : 1956 Date Out 12/15/199 MD Out (ft) : 2841 TVD Out (ft) : 2839

#### BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in")	Dull Condition
2	8.750	Smith	F1	LE0092	3x12	0.331	2-2-WT-AL-E-1-NO-SPR

#### MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	Nzl (/32's)	Avg Dif (psi)	Cum Circ Hrs
2	6.750	SSDS	SperryDrill	675-427	1.50°		130	71.16

#### COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (ft)	Bit - Center Blade (ft)
1	Smith F1	LE0092	8.750			80.00	P 4-1/2" Reg	0.50	
2	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	675-427	6.750	4.469		68.49	B 4-1/2" Reg	21.45	
3	Float Sub	C-301	6.687	2.313		105.37	B 5" H90	1.92	
4	1x Non-Mag Drill collar	G-117-3	6.750	3.250		94.00	B 5" H90	28.38	
5	Non-Mag Hang-off Sub	00027	6.750	3.250		93.68	B 5" H90	4.94	
6	Cross Over Sub	C-178	6.750	2.313		107.63	B 4" H90	1.83	
7	18x Drill Collar	Cyclone	5.750	2.500		71.77	B 4" H90	521.64	
8	Drilling Jar	Rental	6.250	2.250		91.01	B 4" H90	29.58	
9	3x Drill collar	Cyclone	5.750	2.500		71.77	B 4" H90	87.05	
10	Cross Over Sub	Cyclone	6.000	2.250		82.81	B 4-1/2" XH	2.65	
								699.94	

Parameter	Min	Max	Ave
WOB (lbs) :	20000	35000	26917
RPM (rpm) :	50	60	60
Flow (gpm) :	334	334	334
SPP (psi) :	950	1000	980

Activity	Hrs
Drilling :	67.40
Reaming :	0.25
Circ-Other :	3.51
Total :	71.16

BHA Weight	(lb)
in Air (Total) :	51634
in Mud (Total) :	44787
in Air (Bel Jars) :	42476
in Mud (Bel Jars) :	36843

Drill String	OD(in)	Len (ft)
DP(E)-(XH)-16.60#	4.500	2141

#### PERFORMANCE

	In	Out
Inclination (deg)	0.86	0.66
Azimuth (deg)	280.06	113.38

	Distance(ft)	ROP (ft/hr)	Build (°/100')	Turn (°/100')	DLS (°/100')
Oriented :	363.00	11			1.01
Rotated :	521.00	14	0.97	1.20	
Total :	884.00	13	-0.02	0.00	0.17

#### COMMENTS

MWD Probe to Bit Distance= 48'  
 Toolface Offset=136.5°

**OBJECTIVES:**

Maintain low angle and keep hole direction going west.

**RESULTS:**

Assembly was picked up and run to bottom without problems. Through out this run this assembly encountered some severe formation dip changes requiring 20' to 25' oriented set, per joint, until required angle was achieved.

Run ended at a measured depth of 2793' due to slowing ROP. The assembly was pulled with out problems. At surface, the MWD and bit were changed out. Motor checked OK and reran.

**RECOMMENDATIONS:**

None

Motor Serial # : 675-427      Job # : CA-MJ-90135  
 Directional Driller(s) : Aaron Kessel, Steve Krueger      Customer : Ballard Petroleum  
 Location : Utah      Rig : Cyclone #12  
 Well : Oil Hollow Fed 5-1      Bit Run # : 2      BHA # : 2      Motor Run # : 2  
 Depth In/Out : 1957 / 2841 ft      Date In/Out : 12/12/1999 / 12/15/1999      Hole Size : 8.750 in  
 Application Details : Steerable Drilling

**MOTOR CONFIGURATION**

	From Bit (ft)	Component	Type	Diam In/Out (in)
Upr Stab	1	Sleeve Stab/Pad	No	
	2	Bent Housing	Yes	Adjustable: 1.50" bend
Lwr Stab or Pad Sub	3	Housing Tool Used	No	
Motor Top	4	Stator Elastomer	Nitrile	Stator: Standard
Pad	5	Bent Sub / 2nd Bent Hsg	No	
Bend (Housing)	6	Lower String Stab	No	
Sleeve Tool	7	Upper String Stab	No	

Additional Features :

Flex Collar : No	Short Brg Pack : No	Rtr Noz / Size : /32's	Arr Ret
Brg Cfg (Off/On) : 5/1	Lobe Cfg : 8/9	BHA OD/D : 6.687 / 2.313 in	Pick Up Sub : No No
			Bit Box Protr : Yes Yes

**MOTOR RUN DATA**

Max Dogleg While Rotating : 4.10 °/100'	RPM : 60	Motor Stalled : No	Prev Job/Well Hrs : 0.00
Max Dogleg Overpulled In : 4.10 °/100'	Force : 10000 lbf	Float Valve : Yes	Drilling Hrs : 67.40
Max Dogleg Pushed Through : 4.10 °/100'	Force : 10000 lbf	DP Filter : Yes	Circ Hrs : 3.51
Hole Azimuth Start / End : 280.06° / 113.38°	Inc Start / End : 0.86° / 0.66°		Reaming Hrs : 0.25
Interval Oriented / Rot. : 363 / 521 ft	Directional Perf Ori / Rot : 1.01 / 0.97 °/100'		Total Hrs This Run : 71.16
Jarring Occured : No			New Cumulative Hrs : 71.16

	Diff Press (psi)	Str RPM	Rotn Torque (ft-lbs)	Drag Up/Dn (lbf)	WOB (lbs)	ROP Oriented (ft/hr)	ROP Rotated (ft/hr)
Avg :	130	60		8000 / 8000	26917	11	14
Max :	150	60		12000 / 12000	35000	12	15

**PRE-RUN TESTS**

Motor Tested Pre-Run : Yes	with : 2 Collars, Bit, MWD
Dump Sub Operating : N/A	Brg Play : 0.0 mm
Flow 1 : 334 gpm	Pressure 1 : 550 psi
Flow 2 : gpm	Pressure 2 : psi
Driveshaft Rotation Observed : No	
Bearing Leakage Observed : No	

**POST-RUN TESTS**

Motor Tested Post-Run : No	with : 0 Collars
Dump Sub Operating : N/A	Brg Play : 3.2 mm
Flow 1 : 350 gpm	Pressure 1 : 850 psi
Flow 2 : gpm	Pressure 2 : psi
Driveshaft Rotation Observed : Yes	
Bearing Leakage Observed : Yes	
Driveshaft Rotated to Drain Mud : Yes	
Fluid Flushed : No	Fluid Used : Water

**MUD DATA**

Base : Water	Additives : sodaash, drispac, phalts	Mud Wt : 8.7 ppg	SPP Start/End : 1000 / 1000 psi
% Oil/Water : /	% Solids : 4.00	% Sand : 0.25	PV : 11 cp      YP : 14.0 lb/100R <sup>2</sup> pH : 8.5
DH Temp Avg/Max : 84.9 / 86.9	FlowRate Avg/Max : 334 / 334 gpm	Chloride Content : 5500 ppm	
Principle Formation Name(s) : Summerville, Curtis, Entrada, Normal Fault, Araplen	Lithology :		

**BIT DATA**

Make : Smith	Type : F1	Serial # : LE0092	Dull Grade	1	2	3	4	5	6	7	8
Prev Drilling Hrs : 0.00	Prev Reaming Hrs : 0.00	No of Runs This Bit : 1	In								NEW
Jet Sizes (/32's) : 3x12	TFA : 0.331 in <sup>2</sup>	Gage Length : in	Out	2	2	WT	AL	E	1	NO	SPR

**PERFORMANCE COMMENTS**

Problem Perceived : No	Problem Date :	Service Interrupt : No	Service Interrupt Hrs :
Performance Motor : No	Tandem Motor : No	LIH : No	PPR Ref # : 2

Assembly was pulled due to slower penetration rates.

**BHA Schematic**

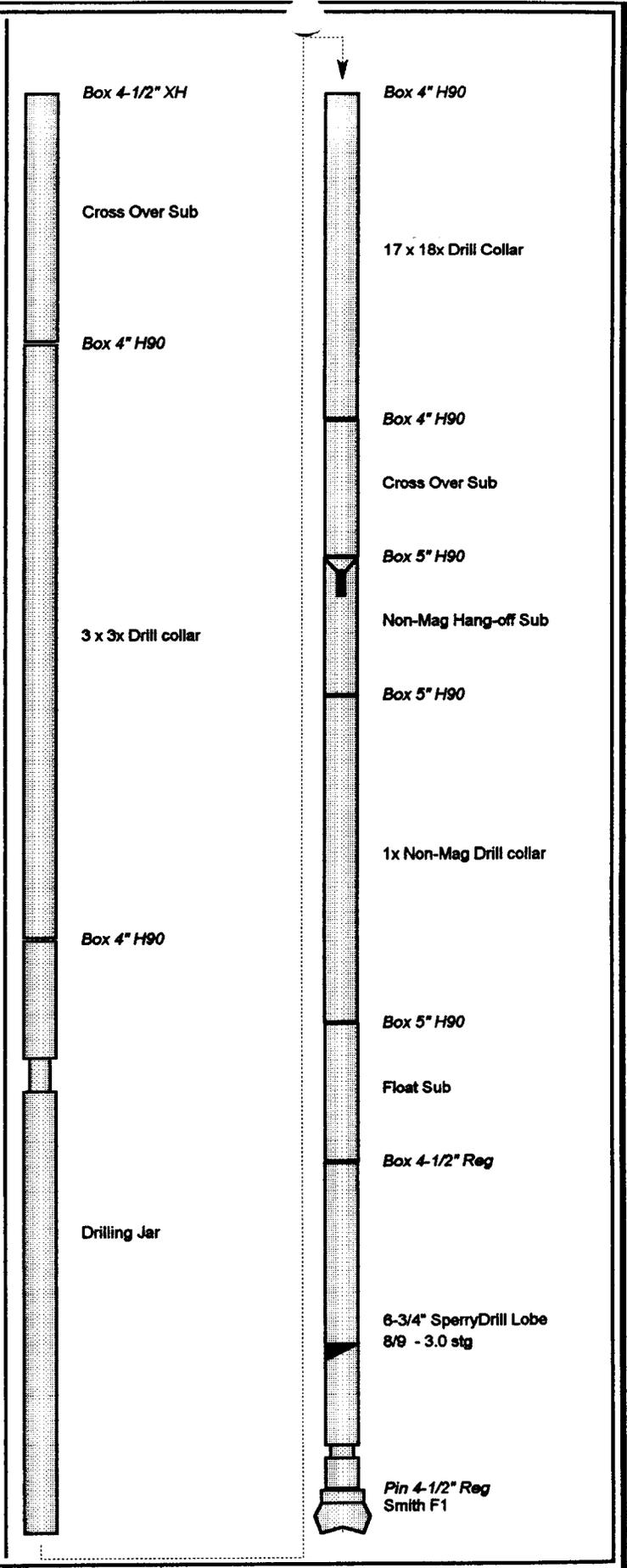
**Ballard Petroleum**  
**Oil Hollow Fed 5-1**  
**BHA ID #: 2**  
**Steerable**

**BHA Configuration**

O.D.	Length	Description
8.75"	0.5'	Smith F1
6.75"	21.45'	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg
6.687"	1.92'	Float Sub
6.75"	28.38'	1x Non-Mag Drill collar
6.75"	4.94'	Non-Mag Hang-off Sub
6.75"	1.83'	Cross Over Sub
5.75"	521.64'	17 x 18x Drill Collar
6.25"	29.58'	Drilling Jar
5.75"	87.05'	3 x 3x Drill collar
6"	2.65'	Cross Over Sub

**BHA Discussion**

MWD Probe to Bit Distance= 48'  
 Toolface Offset=136.5'



# Sperry-Sun

## DRILLING SERVICES

### BHA Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

BHA# 3

BHA# 3 : Date In :12/15/199 MD In (ft) : 2841 TVD In (ft) : 2839 Date Out 12/16/199 MD Out (ft) : 2973 TVD Out (ft) : 2971

#### BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in <sup>2</sup> )	Dull Condition
3	8.750	Reed	HP43A	BA1796	3x12	0.331	1-1-NO-AL-E-I-NO-PL

#### MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	Nzi (/32's)	Avg Dif (psi)	Cum Circ Hrs
2	6.750	SSDS	SperryDrill	675-427	1.50°		150	85.97

#### COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (ft)	Bit - Center Blade (ft)
1	Reed HP43 A	BA1796	8.750			81.89	P 4-1/2" Reg	0.50	
2	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	675-427	6.750	4.469		68.49	B 4-1/2" Reg	21.45	
3	Float Sub	C-301	6.687	2.313		105.37	B 5" H90	1.92	
4	1x Non-Mag Drill collar	G-117-3	6.750	3.250		94.00	B 5" H90	28.38	
5	Non-Mag Hang-off Sub	00027	6.750	3.250		93.68	B 5" H90	4.94	
6	Cross Over Sub	C-178	6.750	2.313		107.63	B 4" H90	1.83	
7	18x Drill Collar	Cyclone	5.750	2.500		71.77	B 4" H90	521.64	
8	Drilling Jar	Rental	6.250	2.250		91.01	B 4" H90	29.58	
9	3x Drill collar	Cyclone	5.750	2.500		71.77	B 4" H90	87.05	
10	Cross Over Sub	Cyclone	6.000	2.250		82.81	B 4-1/2" XH	2.85	
								699.94	

Parameter	Min	Max	Ave
WOB (lbs)	25000	25000	25000
RPM (rpm)	60	60	60
Flow (gpm)	334	334	334
SPP (psi)	1000	1000	1000

Activity	Hrs
Drilling	13.77
Reaming	0.92
Circ-Other	0.12
Total	14.81

BHA Weight (lb)
in Air (Total) : 51635
in Mud (Total) : 44788
in Air (Bel Jars) : 42477
in Mud (Bel Jars) : 38844

Drill String	OD(in)	Len (ft)
DP(E)-(XH)-16.60#	4.500	2273

#### PERFORMANCE

	In	Out
Inclination (deg)	0.66	0.22
Azimuth (deg)	113.38	80.59

	Distance (ft)	ROP (ft/hr)	Build (°/100')	Turn (°/100')	DLS (°/100')
Oriented :	0.00	0			0.86
Rotated :	132.00	10	0.85	0.09	
Total :	132.00	10	-0.34	0.00	0.37

#### COMMENTS

Offset - 118.6°  
 PTB - 48'

**OBJECTIVES:**

Maintain low angle and keep hole direction going west.

**RESULTS:**

Assembly #3 was lowered to bottom without any problems. Drilling continued with only a 12' set needed to maintain desired angle. At a MD 2965' we started encountering 100 to 200 PSI pressure loss. After continuing to drill ahead, all surface equipment was checked for possible cause of pump pressure loss and found nothing except mud seem to be aired up slightly. At a MD of 2973' a flag was pumped and after pumping for one minute we seen pressure increase to normal off bottom pressure. The decision was made to pull out of the hole hoping to find the problem. Assembly was recovered without incident.

Once out of hole we found no hole anywhere. The kelly was picked up and circulated through motor & MWD before it was changed out to check pressure. Before returning to bottom the kelly was again picked up and circulated through MWD & Mud motor to check pressure. The circulating pressures were still not right. Again all surface equipment was checked. At this point we concluded that the cause of pressure loss or erratic pressure changes was due to drilling fluid being aired up. The decision was made to return to bottom and drill ahead.

**RECOMMENDATIONS:**

None

Motor Serial # : 675-427 Job # : CA-MJ-90135  
 Directional Driller(s) : Aaron Kessel, S.Krueger, K. Wehrung Customer : Ballard Petroleum  
 Location : Utah Rig : Cyclone #12  
 Well : Oil Hollow Fed 5-1 Bit Run # : 3 BHA # : 3 Motor Run # : 2  
 Depth In/Out : 2841 / 2973 ft Date In/Out : 12/15/1999 / 12/16/1999 Hole Size : 8.750 in  
 Application Details : Steerable Drilling

**MOTOR CONFIGURATION**

	From Bit (ft)	Component	Type	Diam In/Out (in)
Upr Stab	1	Sleeve Stab/Pad	No	
	2	Bent Housing	Yes	Adjustable: 1.50" bend
Lwr Stab or Pad Sub	3	Housing Tool Used	No	
Motor Top	4	Stator Elastomer	Nitrile	Stator: Standard
Pad	5	Bent Sub / 2nd Bent Hsg	No	
Bend (Housing)	6	Lower String Stab	No	
Sleeve Tool	7	Upper String Stab	No	

Additional Features :  
 Flex Collar : No Short Brg Pack : No Rtr Noz / Size : .32's  
 Brg Cfg (Off/On) : 5/1 Lobe Cfg : 8/9 BHA OD/ID : 6.687 / 2.313 in

Arr	Ret
Pick Up Sub : No	No
Bit Box Protr : Yes	Yes

**MOTOR RUN DATA**

Max Dogleg While Rotating	: 2.00 °/100'	RPM	: 65	Motor Stalled	: Yes	Prev Job/Well Hrs	: 71.16
Max Dogleg Overpulled In	: 2.00 °/100'	Force	: 10000 lbf	Float Valve	: Yes	Drilling Hrs	: 13.77
Max Dogleg Pushed Through	: 2.00 °/100'	Force	: 10000 lbf	DP Filter	: Yes	Circ Hrs	: 0.12
Hole Azimuth Start / End	: 113.38° / 80.59°	Inc Start / End	: 0.66° / 0.22°	Total Hrs This Run	: 14.81	Reaming Hrs	: 0.92
Interval Oriented / Rot.	: 0 / 132 ft	Directional Perf Ori / Rot	: 0.86 / 0.85 °/100'	New Cumulative Hrs	: 85.97		
Jarring Occured	: No						

	Diff Press (psi)	Str RPM	Rotn Torque (ft-lbs)	Drag Up/Dn (lbf)	WOB (lbs)	ROP Oriented (ft/hr)	ROP Rotated (ft/hr)
Avg :	150	60		8000 / 8000	25000	0	10
Max :	150	60		10000 / 10000	25000		15

**PRE-RUN TESTS**

Motor Tested Pre-Run	: Yes	with	: 1 Collar, Bit, MWD
Dump Sub Operating	: N/A	Brg Play	: 3.2 mm
Flow 1	: 340 gpm	Pressure 1	: 690 psi
Flow 2	: gpm	Pressure 2	: psi
Driveshaft Rotation Observed	: No		
Bearing Leakage Observed	: No		

**POST-RUN TESTS**

Motor Tested Post-Run	: No	with	:
Dump Sub Operating	: N/A	Brg Play	: 3.2 mm
Flow 1	: 340 gpm	Pressure 1	: 900 psi
Flow 2	: gpm	Pressure 2	: psi
Driveshaft Rotation Observed	: Yes		
Bearing Leakage Observed	: Yes		
Driveshaft Rotated to Drain Mud	: Yes		
Fluid Flushed	: No	Fluid Used	:

**MUD DATA**

Base	: Water	Additives	: sodaash, drispac, phalts	Mud Wt	: 8.7 ppg	SPP Start/End	: psi
% Oil/Water	: /	% Solids	: 4.00	% Sand	: 0.25	PV	: 14 cp
DH Temp Avg/Max	: /	FlowRate Avg/Max	: 334 / 334 gpm	YP	: 28.0 lbf/100ft²	pH	: 8.5
Principle Formation Name(s)	: Arapien	Chloride Content	: 6200 ppm	Lithology	:		

**BIT DATA**

Make	: Reed	Type	: HP43A	Serial #	: BA1796	Dull Grade	1 2 3 4 5 6 7 8
Prev Drilling Hrs	: 0.00	Prev Reaming Hrs	: 0.00	No of Runs This Bit	: 1	In	NE W
Jet Sizes (/32's)	: 3x12	TFA	: 0.331 in²	Gage Length	: in	Out	1 1 NO AL E I NO PL

**PERFORMANCE COMMENTS**

Problem Perceived	: No	Problem Date	:	Service Interrupt	: No	Service Interrupt Hrs	:
Performance Motor	: No	Tandem Motor	: No	LIH	: No	PPR Ref #	: 3

Assembly was pulled due to 150 to 200 PSI pressure loss. Once out of hole we found nothing. Mud motor was laid down.

**BHA Schematic**

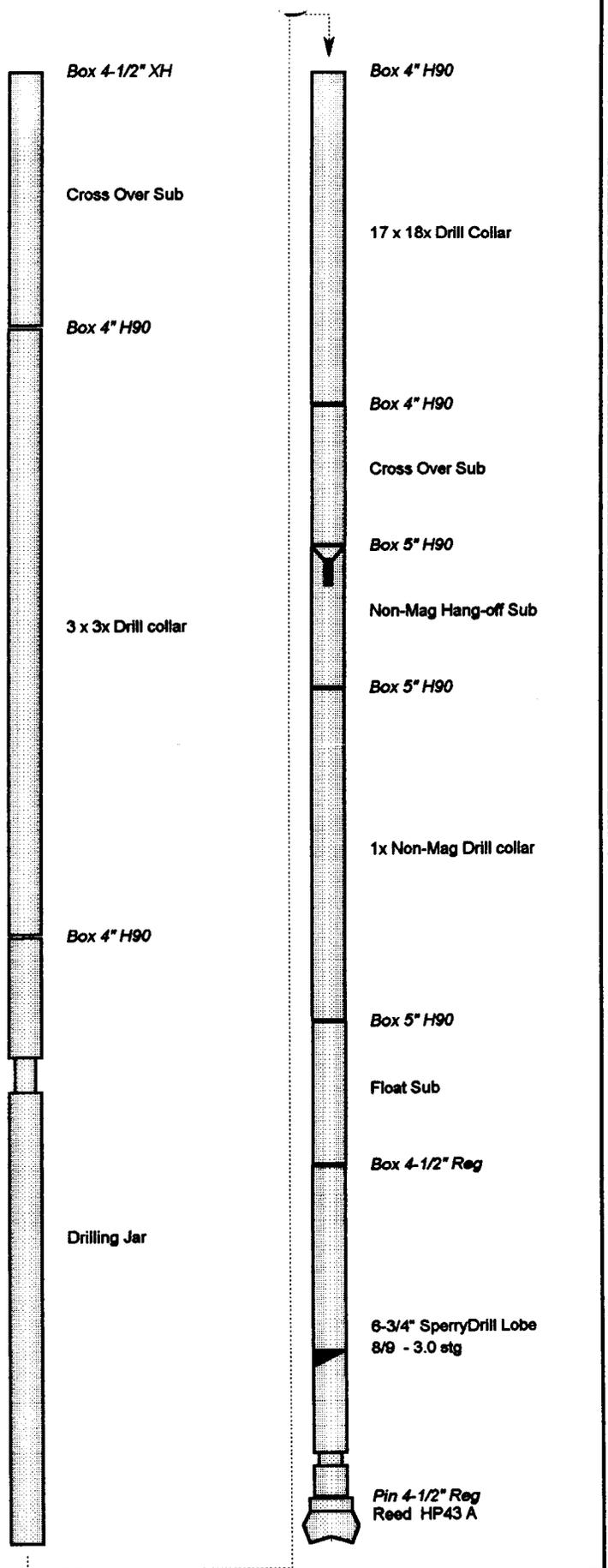
**Ballard Petroleum**  
 Oil Hollow Fed 5-1  
 BHA ID #: 3  
 Steerable

**BHA Configuration**

O.D.	Length	Description
8.75"	0.5'	Reed HP43 A
6.75"	21.45'	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg
6.667"	1.92'	Float Sub
6.75"	28.38'	1x Non-Mag Drill collar
6.75"	4.94'	Non-Mag Hang-off Sub
6.75"	1.83'	Cross Over Sub
5.75"	521.64'	17 x 18x Drill Collar
6.25"	29.58'	Drilling Jar
5.75"	87.05'	3 x 3x Drill collar
6"	2.65'	Cross Over Sub

**BHA Discussion**

Offset - 118.6°  
 PTB - 48'



# Sperry-Sun Drilling Services

## Drilling Hydraulics Analysis

**Customer :** Ballard Petroleum  
**Well :** Oil Hollow Fed 5-1  
 BHA #3

**State :** Utah  
**County :** Utah

<b>Recommendation :</b>	Flow Rate : 330 gal/min	TFA : 0.331 sq in	SPP : 1281 psi
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<u>OPERATING PARAMETERS</u>	<u>BIT HYDRAULICS SUMMARY</u>	<u>SYSTEM PRESSURE LOSSES</u>
Bit Depth : 2973.00 ft	Bit PD : 719 psi	Surface (Type 4) : 12 psi
Bit Diameter : 8.750 in	% of Total PD : 56 %	Drill String : 268 psi
Mud Density : 8.7 ppg	Bit HHP : 131 HHP	Downhole Motor : 100 psi
Plastic Vis : 11 cp	Bit HHSI : 2.19 HHSI	Other Special : 150 psi
Yield Point : 14.0 lbf/100ft <sup>2</sup>	Impact Force : 428 lbf	Annulus : 32 psi
	Jet Velocity : 303 ft/s	Drill Bit : 719 psi
		<b>Total : 1281 psi</b>
		<b>Fluid Model : Power Law</b>

<u>DRILL STRING CONFIGURATION</u>					
Description	O.D. in	I.D. in	Length ft	Volume gal	P-Drop psi
6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	6.750	4.465	22.63	37	100
Drill Collar	6.750	3.250	30.00	13	2
6-3/4" DWD 650 System	6.750		7.00	13	150
Drill Collar	5.750	2.500	521.64	133	134
Jars	6.250	2.250	29.58	6	12
Drill Collar	5.750	2.500	87.05	22	22
DP(E) - NC46(XH) - 16.6#	4.500	3.826	2275.10	1341	98

<u>ANNULAR SUMMARY</u>								
Section Description	Hole I.D. in	Pipe O.D. in	Section Length ft	Depth To ft	Annular Volume gal	Critical Velocity ft/min	Annular Velocity ft/min	Pressure Drop psi
Casing	8.921	4.500	402.00	402.00	973	277	136 L	3
Open Hole	8.750	4.500	1873.10	2275.10	4303	281	144 L	16
Open Hole	8.750	5.750	87.05	2362.15	154	320	186 L	1
Open Hole	8.750	6.250	29.58	2391.73	45	344	216 L	1
Open Hole	8.750	5.750	521.64	2913.37	926	320	186 L	9
Open Hole	8.750	6.750	7.00	2920.37	9	372	261 L	0
Open Hole	8.750	6.750	30.00	2950.37	38	372	261 L	1
Open Hole	8.750	6.750	22.63	2973.00	29	372	261 L	1

### DISCUSSION

1020 PSI while drilling was the maximum encountered thru the run. Suspect pump output being inaccurate.

# sperry-sun

## DRILLING SERVICES

### BHA Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

BHA# 4

BHA# 4 : Date In :12/17/199 MD In (ft) : 2973 TVD In (ft) : 2971 Date Out 12/20/1996 MD Out (ft) : 3849 TVD Out (ft) : 3847

BIT DATA							
Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in <sup>2</sup> )	Dull Condition
3r1	8.750	Reed	HP43A	BA1796	3x12	0.331	5-7-BT-G3-E-1-WT-HRS

MOTOR DATA								
Run #	OD (in)	MFR	Model	Serial#	Bend	Nzl (/32's)	Avg Dif (psi)	Cum Circ Hrs
3	6.750	SSDS	SperryDrill	675-423A	1.50°		150	76.73

COMPONENT DATA									
Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (ft)	Bit - Center Blade (ft)
1	Reed HP43 A	BA1796	8.750			81.89	P 4-1/2" Reg	0.50	
2	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	675-423A	6.750	4.469		68.49	B 4-1/2" Reg	21.45	
3	Float Sub	C-301	6.687	2.313		105.37	B 5" H90	1.92	
4	1x Non-Mag Drill collar	G-117-3	6.750	3.250		94.00	B 5" H90	28.38	
5	Non-Mag Hang-off Sub	00027	6.750	3.250		93.68	B 5" H90	4.94	
6	Cross Over Sub	C-178	6.750	2.313		107.63	B 4" H90	1.83	
7	18x Drill Collar	Cyclone	5.750	2.500		71.77	B 4" H90	521.64	
8	Drilling Jar	Rental	6.250	2.250		91.01	B 4" H90	29.58	
9	3x Drill collar	Cyclone	5.750	2.500		71.77	B 4" H90	87.05	
10	Cross Over Sub	Cyclone	6.000	2.250		82.81	B 4-1/2" XH	2.65	
								699.94	

Parameter	Min	Max	Ave
WOB (lbs)	25000	25000	25000
RPM (rpm)	60	60	60
Flow (gpm)	334	334	334
SPP (psi)	1000	1100	1090

Activity	Hrs
Drilling	72.15
Reaming	0.75
Circ-Other	3.83
<b>Total</b>	<b>76.73</b>

BHA Weight	(lb)
in Air (Total)	51635
in Mud (Total)	44631
in Air (Bel Jars)	42477
in Mud (Bel Jars)	36714

Drill String	OD(in)	Len (ft)
DP(E)-(XH)-16.60#	4.500	3149

PERFORMANCE		
	In	Out
Inclination (deg)	0.36	3.23
Azimuth (deg)	132.98	103.72

	Distance(ft)	ROP (ft/hr)	Build (°/100')	Turn (°/100')	DLS (°/100')
Oriented :	144.00	9			2.50
Rotated :	732.00	13	0.98	-3.00	
<b>Total :</b>	<b>876.00</b>	<b>12</b>	<b>0.33</b>	<b>0.00</b>	<b>0.33</b>

**COMMENTS**  
 Offset - 54.2°  
 PTB - 48'

**sperry-sun**  
**DRILLING SERVICES**

**BHA Report** page 2

**Customer :** Ballard Petroleum  
**Well :** Oil Hollow Fed 5-1  
**State :** Utah  
**County :** Utah  
**Rig :** Cyclone #12  
**Job # :** CA-MJ-90135

**BHA# 4**

**OBJECTIVES:**

Maintain low angle while utilizing motor for optimal ROP.

**RESULTS:**

Assembly #4 was lowered to bottom without any problems. While drilling, this assembly encountered some more formation dip changes. Same as that of the two previous runs, calling for 20' per joint sets, through one section of this run to control angles. Pump pressure on this run varied from normal to 100-200 PSI less with mud airing up from time to time. At a MD of 3849' mud motor began stalling out when sliding to drop angle. Also when picking up off bottom we seen a slight increase in drag then before, but after working string we did see it decrease before pulling out of hole. The decision was made to pull assembly to check out bit and tools. At the time of trip, geologist was anticipating a formation change at any time. Assembly was recovered without incident.

**RECOMMENDATIONS:**

None

Motor Serial # : 675-423A Job # : CA-MJ-90135  
 Directional Driller(s) : Kim Wehrung, Steve Krueger Customer : Ballard Petroleum  
 Location : Utah Rig : Cyclone #12  
 Well : Oil Hollow Fed 5-1 Bit Run # : 3r1 BHA # : 4 Motor Run # : 3  
 Depth In/Out : 2973 / 3849 ft Date In/Out : 12/17/1999 / 12/20/1999 Hole Size : 8.750 in  
 Application Details : Steerable Drilling

**MOTOR CONFIGURATION**

	From Bit (ft)	Component	Type	Diam In/Out (in)
Upr Stab	1	Sleeve Stab/Pad	No	
	2	Bent Housing	Yes	Adjustable: 1.50" bend
Lwr Stab or Pad Sub	3	Housing Tool Used	No	
Motor Top	4	Stator Elastomer	Nitrile	Stator: Standard
Pad	5	Bent Sub / 2nd Bent Hsg	No	
Bend (Housing)	6	Lower String Stab	No	
Sleeve Tool	7	Upper String Stab	No	

Additional Features : Arr Ret  
 Flex Collar : No Short Brg Pack : No Rtr Noz / Size : /32's Pick Up Sub : No No  
 Brg Cfg (Off/On) : 5/1 Lobe Cfg : 8/9 BHA OD/ID : 6.687 / 2.313 in BIT Box Protr : Yes Yes

**MOTOR RUN DATA**

Max Dogleg While Rotating	: 3.60 <sup>"/100'</sup>	RPM	: 70	Motor Stalled	: Yes	Prev Job/Well Hrs	: 0.00
Max Dogleg Overpulled In	: 3.60 <sup>"/100'</sup>	Force	: 10000 lbf	Float Valve	: Yes	Drilling Hrs	: 72.15
Max Dogleg Pushed Through	: 3.60 <sup>"/100'</sup>	Force	: 10000 lbf	DP Filter	: Yes	Circ Hrs	: 3.83
Hole Azimuth Start / End	: 132.98° / 103.72°	Inc Start / End	: 0.36° / 3.23°	Reaming Hrs	: 0.75	Total Hrs This Run	: 76.73
Interval Oriented / Rot.	: 144 / 732 ft	Directional Perf Ori / Rot	: 2.50 / 0.98 <sup>"/100'</sup>	New Cumulative Hrs	: 76.73		
Jarring Occured	: No						
	Diff Press (psi)	Str RPM	Rotn Torque (ft-lbs)	Drag Up/Dn (lbf)	WOB (lbs)	ROP Oriented (ft/hr)	ROP Rotated (ft/hr)
Avg	: 150	: 60		10000 / 10000	25000	9	13
Max	: 150	: 60		20000 / 10000	25000	13	16

**PRE-RUN TESTS**

Motor Tested Pre-Run : Yes with : 1 Collar, Bit, MWD  
 Dump Sub Operating : N/A Brg Play : 0.0 mm  
 Flow 1 : 354 gpm Pressure 1 : 640 psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : No  
 Bearing Leakage Observed : No

**POST-RUN TESTS**

Motor Tested Post-Run : Yes with : 1 Collar, Bit, MWD  
 Dump Sub Operating : N/A Brg Play : 3.3 mm  
 Flow 1 : 354 gpm Pressure 1 : 580 psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : No  
 Bearing Leakage Observed : No  
 Driveshaft Rotated to Drain Mud : Yes  
 Fluid Flushed : No Fluid Used : Water

**MUD DATA**

Base : Water Additives : sodaash, drispac, phalts Mud Wt : 8.9 ppg SPP Start/End : 1100 / 1100 psi  
 % Oil/Water : / % Solids : 5.00 % Sand : 0.25 PV : 8 cp YP : 4.0 lb/100ft<sup>2</sup> pH : 7.5  
 DH Temp Avg/Max : 95.3 / 99.5 FlowRate Avg/Max : 334 / 334 gpm Chloride Content : 6500 ppm  
 Principle Formation Name(s) : Arapien, Twin Creek, Nugget Lithology :

**BIT DATA**

Make : Reed	Type : HP43A	Serial # : BA1796	Dull Grade	1	2	3	4	5	6	7	8
Prev Drilling Hrs : 13.77	Prev Reaming Hrs : 0.92	No of Runs This Bit : 2	In	1	1	NO	AL	E	I	NO	RR
Jet Sizes (/32's) : 3x12	TFA : 0.331 in <sup>2</sup>	Gage Length : in	Out	5	7	BT	G3	E	1	WT	HRS

**PERFORMANCE COMMENTS**

Problem Perceived : No Problem Date : Service Interrupt : No Service Interrupt Hrs :  
 Performance Motor : No Tandem Motor : No LIH : No PPR Ref # : 4

Assembly was pulled because motor was stalling out when drilling. Motor checked out at surface and was rerun. Adjustment nut showed 1/16" wear.

**BHA Schematic**

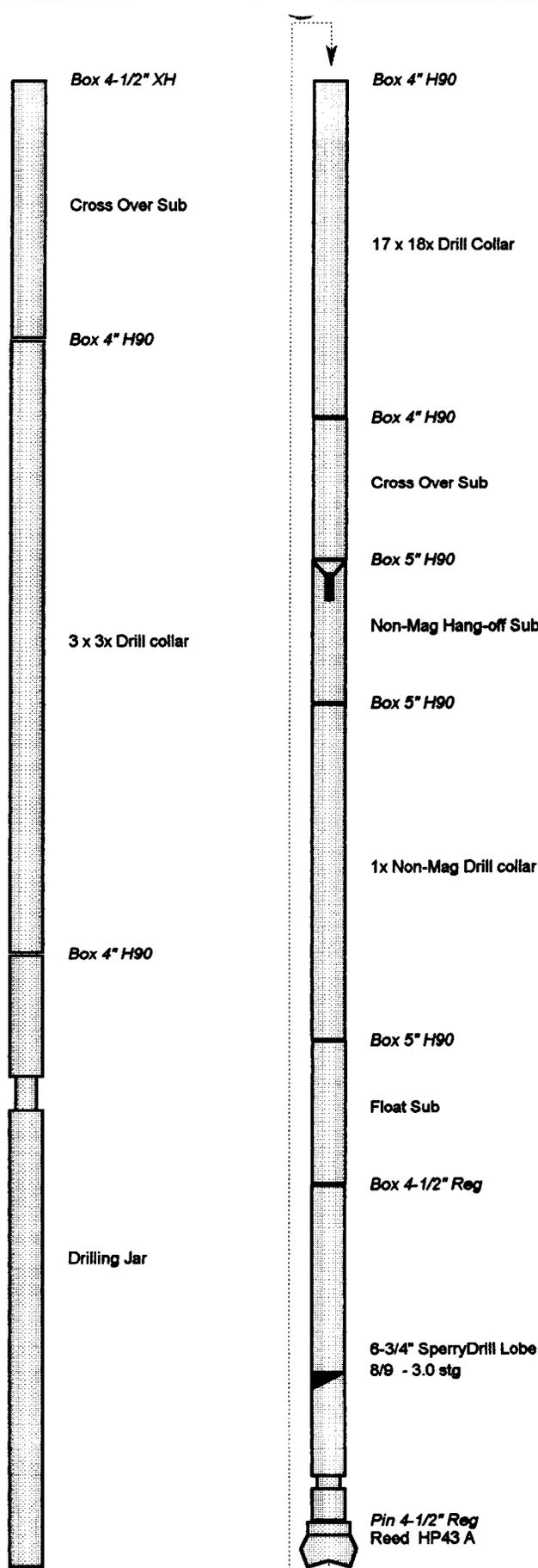
**Ballard Petroleum**  
 Oil Hollow Fed 5-1  
 BHA ID #: 4  
 Steerable

**BHA Configuration**

O.D.	Length	Description
8.75"	0.5'	Reed HP43 A
6.75"	21.45'	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg
6.887"	1.92'	Float Sub
6.75"	28.38'	1x Non-Mag Drill collar
6.75"	4.94'	Non-Mag Hang-off Sub
6.75"	1.83'	Cross Over Sub
5.75"	521.64'	17 x 18x Drill Collar
6.25"	29.58'	Drilling Jar
5.75"	87.05'	3 x 3x Drill collar
6"	2.65'	Cross Over Sub

**BHA Discussion**

Offset - 54.2'  
 PTB - 48'



# Sperry-Sun Drilling Services

## Drilling Hydraulics Analysis

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 BHA #4

State : Utah  
 County : Utah

<b>Recommendation :</b>	Flow Rate : 330 gal/min	TFA : 0.331 sq in	SPP : 1286 psi
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<u>OPERATING PARAMETERS</u>	<u>BIT HYDRAULICS SUMMARY</u>	<u>SYSTEM PRESSURE LOSSES</u>
Bit Depth : 3849.00 ft	Bit PD : 735 psi	Surface (Type 4) : 12 psi
Bit Diameter : 8.750 in	% of Total PD : 57 %	Drill String : 320 psi
Mud Density : 8.9 ppg	Bit HHP : 134 HHP	Downhole Motor : 100 psi
Plastic Vis : 8 cp	Bit HHSI : 2.24 HHSI	Other Special : 100 psi
Yield Point : 4.0 lbf/100ft <sup>2</sup>	Impact Force : 438 lbf	Annulus : 19 psi
	Jet Velocity : 303 ft/s	Drill Bit : 735 psi
		Total : 1286 psi
		Fluid Model : Power Law

<u>DRILL STRING CONFIGURATION</u>					
Description	O.D. in	I.D. in	Length ft	Volume gal	P-Drop psi
6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	6.750	4.465	22.63	37	100
Drill Collar	6.750	3.250	30.00	13	3
6-3/4" DWD 650 System	6.750		7.00	13	100
Drill Collar	5.750	2.500	521.64	133	145
Jars	6.250	2.250	29.58	6	13
Drill Collar	5.750	2.500	87.05	22	24
DP(E) - NC46(XH) - 16.6#	4.500	3.826	3151.10	1857	135

<u>ANNULAR SUMMARY</u>								
Section Description	Hole I.D. in	Pipe O.D. in	Section Length ft	Depth To ft	Annular Volume gal	Critical Velocity ft/min	Annular Velocity ft/min	Pressure Drop psi
Casing	8.921	4.500	402.00	402.00	973	94	136 T	1
Open Hole	8.750	4.500	2749.10	3151.10	6316	94	144 T	10
Open Hole	8.750	5.750	87.05	3238.15	154	117	186 T	1
Open Hole	8.750	6.250	29.58	3267.73	45	133	216 T	0
Open Hole	8.750	5.750	521.64	3789.37	926	117	186 T	5
Open Hole	8.750	6.750	7.00	3796.37	9	152	261 T	0
Open Hole	8.750	6.750	30.00	3826.37	38	152	261 T	1
Open Hole	8.750	6.750	22.63	3849.00	29	152	261 T	1

### DISCUSSION

1050 PSI while drilling was the average encountered thru the run. Suspect pump output being inaccurate due to mud.

# sperry-sun

## DRILLING SERVICES

### BHA Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

BHA# 5

BHA# 5 : Date In :12/20/199 MD In (ft) : 3849 TVD In (ft) : 3847 Date Cur:12/21/199 MD Cur (ft) : 3950 TVD Cur (ft) : 3948

#### BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in*)	Dull Condition
4	8.750	Reed	HP43A	BA1795	3x12	0.331	3-3-WT-AL-E-I-GA-DST

#### MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	NzI (/32's)	Avg Dif (psi)	Cum Circ Hrs
3	6.750	SSDS	SperryDrill	675-423A	1.50°		150	101.55

#### COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (ft)	Bit - Center Blade (ft)
1	Reed HP43 A	BA1795	8.750			81.89	P 4-1/2" Reg	0.50	
2	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	675-423A	6.750	4.469		68.49	B 4-1/2" Reg	21.45	
3	Float Sub	C-301	6.687	2.313		105.37	B 5" H90	1.92	
4	1x Non-Mag Drill collar	G-117-3	6.750	3.250		94.00	B 5" H90	28.38	
5	Non-Mag Hang-off Sub	00027	6.750	3.250		93.68	B 5" H90	4.94	
6	Cross Over Sub	C-178	6.750	2.313		107.63	B 4" H90	1.83	
7	18x Drill Collar	Cyclone	5.750	2.500		71.77	B 4" H90	521.64	
8	Drilling Jar	Rental	6.250	2.250		91.01	B 4" H90	29.58	
9	3x Drill collar	Cyclone	5.750	2.500		71.77	B 4" H90	87.05	
10	Cross Over Sub	Cyclone	6.000	2.250		82.81	B 4-1/2" XH	2.65	
								699.94	

Parameter	Min	Max	Ave
WOB (lbs) :	22000	22000	22000
RPM (rpm) :	65	65	65
Flow (gpm) :	334	334	334
SPP (psi) :	1100	1100	1100

Activity	Hrs
Drilling :	9.71
Reaming :	0.25
Circ-Other :	14.86
<b>Total :</b>	<b>24.82</b>

BHA Weight (lb)	
in Air (Total) :	51635
in Mud (Total) :	44710
in Air (Bel Jars) :	42477
in Mud (Bel Jars) :	36779

Drill String	OD(in)	Len (ft)
DP(E)-(XH)-16.60#	4.500	3250

#### PERFORMANCE

	In	Out
Inclination (deg)	2.59	2.38
Azimuth (deg)	112.18	189.79

	Distance(ft)	ROP (ft/hr)	Build (°/100')	Turn (°/100')	DLS (°/100')
Oriented :	53.00	9			3.00
Rotated :	48.00	12	1.70	3.00	
<b>Total :</b>	<b>101.00</b>	<b>10</b>	<b>-0.20</b>	<b>76.84</b>	<b>3.09</b>

#### COMMENTS

Offset - 54.2°  
 PTB - 48'

**OBJECTIVES:**

Maintain low angle while utilizing motor for optimal ROP.

**RESULTS:**

Assembly #5 was lowered to bottom without any problems. Assembly was washed 30' to bottom. Once drilling ahead angle topped out at 2.6 degrees. Angle was dropped back to around one degree without too much problem. At a MD of 3940' a bottom hole sample was circulated up. After samples were up the decision was made to drill ahead and at a MD of 3950' a bottom hole samples was circulated up again. At this point the decision was made to attempt a drill stem test. After circulating for 11 1/2 hours assembly was pulled out of the hole without any problems. Once tools were laid down we were released.

**RECOMMENDATIONS:**

None

Motor Serial # : 675-423A Job # : CA-MJ-90135  
 Directional Driller(s) : Kim Wehrung, Steve Krueger Customer : Ballard Petroleum  
 Location : Utah Rig : Cyclone #12  
 Well : Oil Hollow Fed 5-1 Bit Run # : 4 BHA # : 5 Motor Run # : 3  
 Depth In/Out : 3849 / 3950 ft Date In/Out : 12/20/1999 / 12/21/1999 Hole Size : 8.750 in  
 Application Details : Steerable Drilling

**MOTOR CONFIGURATION**

	From Bit (ft)	Component	Type	Diam In/Out (in)
Upr Stab	1	Sleeve Stab/Pad	No	
	2	Bent Housing	Yes	Adjustable: 1.50" bend
Lwr Stab or Pad Sub	3	Housing Tool Used	No	
Motor Top	4	Stator Elastomer	Nitrile	Stator: Standard
Pad	5	Bent Sub / 2nd Bent Hsg	No	
Bend (Housing)	6	Lower String Stab	No	
Sleeve Tool	7	Upper String Stab	No	

Additional Features :

Flex Collar : No	Short Brg Pack : No	Rtr Noz / Size : /32's	Arr Ret
Brg Cfg (Off/On) : 5/1	Lobe Cfg : 8/9	BHA OD/ID : 6.687 / 2.313 in	Pick Up Sub : No No
			Bit Box Protr : Yes Yes

**MOTOR RUN DATA**

Max Dogleg While Rotating	: 3.20 <sup>"/100'</sup>	RPM : 65	Motor Stalled : No	Prev Job/Well Hrs : 76.73
Max Dogleg Overpulled In	: 3.20 <sup>"/100'</sup>	Force : 10000 lbf	Float Valve : Yes	Drilling Hrs : 9.71
Max Dogleg Pushed Through	: 3.50 <sup>"/100'</sup>	Force : 10000 lbf	DP Filter : No	Circ Hrs : 14.86
Hole Azimuth Start / End	: 112.18° / 189.79°	Inc Start / End : 2.59° / 2.38°		Reaming Hrs : 0.25
Interval Oriented / Rot.	: 53 / 48 ft	Directional Perf Ori / Rot : 3.00 / 1.70 <sup>"/100'</sup>		Total Hrs This Run : 24.82
Jarring Occured	: No			New Cumulative Hrs : 101.55

	Diff Press (psi)	Str RPM	Rotn Torque (ft-lbs)	Drag Up/Dn (lbf)	WOB (lbs)	ROP Oriented (ft/hr)	ROP Rotated (ft/hr)
Avg :	150	65		8000 / 8000	22000	9	12
Max :	150	65		10000 / 10000	22000	10	14

**PRE-RUN TESTS**

Motor Tested Pre-Run : Yes with : 2 Collars, Bit, MWD  
 Dump Sub Operating : N/A Brg Play : 3.3 mm  
 Flow 1 : 334 gpm Pressure 1 : 650 psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : Yes  
 Bearing Leakage Observed : Yes

**POST-RUN TESTS**

Motor Tested Post-Run : No with :  
 Dump Sub Operating : N/A Brg Play : 3.3 mm  
 Flow 1 : 334 gpm Pressure 1 : 1100 psi  
 Flow 2 : gpm Pressure 2 : psi  
 Driveshaft Rotation Observed : No  
 Bearing Leakage Observed : No  
 Driveshaft Rotated to Drain Mud : Yes  
 Fluid Flushed : No Fluid Used : Water

**MUD DATA**

Base : Water Additives : sodaash,drispac,phalts Mud Wt : 8.8 ppg SPP Start/End : 1100 / 1100 psi  
 % Oil/Water : / % Solids : 4.00 % Sand : 0.22 PV : 10 cp YP : 6.0 lbf/100ft<sup>2</sup> pH : 9.5  
 DH Temp Avg/Max : / FlowRate Avg/Max : 334 / 334 gpm Chloride Content : 6000 ppm  
 Principle Formation Name(s) : Nugget Lithology :

**BIT DATA**

Make : Reed	Type : HP43A	Serial # : BA1795	Dull Grade	1	2	3	4	5	6	7	8
Prev Drilling Hrs : 0.00	Prev Reaming Hrs : 0.00	No of Runs This Bit : 1	In								NEW
Jet Sizes (32's) : 3x12	TFA : 0.331 in <sup>2</sup>	Gage Length : in	Out	3	3	WT	AL	E	I	GA	DST

**PERFORMANCE COMMENTS**

Problem Perceived : No Problem Date : Service Interrupt : No Service Interrupt Hrs :  
 Performance Motor : No Tandem Motor : No LIH : No PPR Ref # : 5

Assembly was pulled because of drill stem test. Tools were laid down and we were released.

**BHA Schematic**

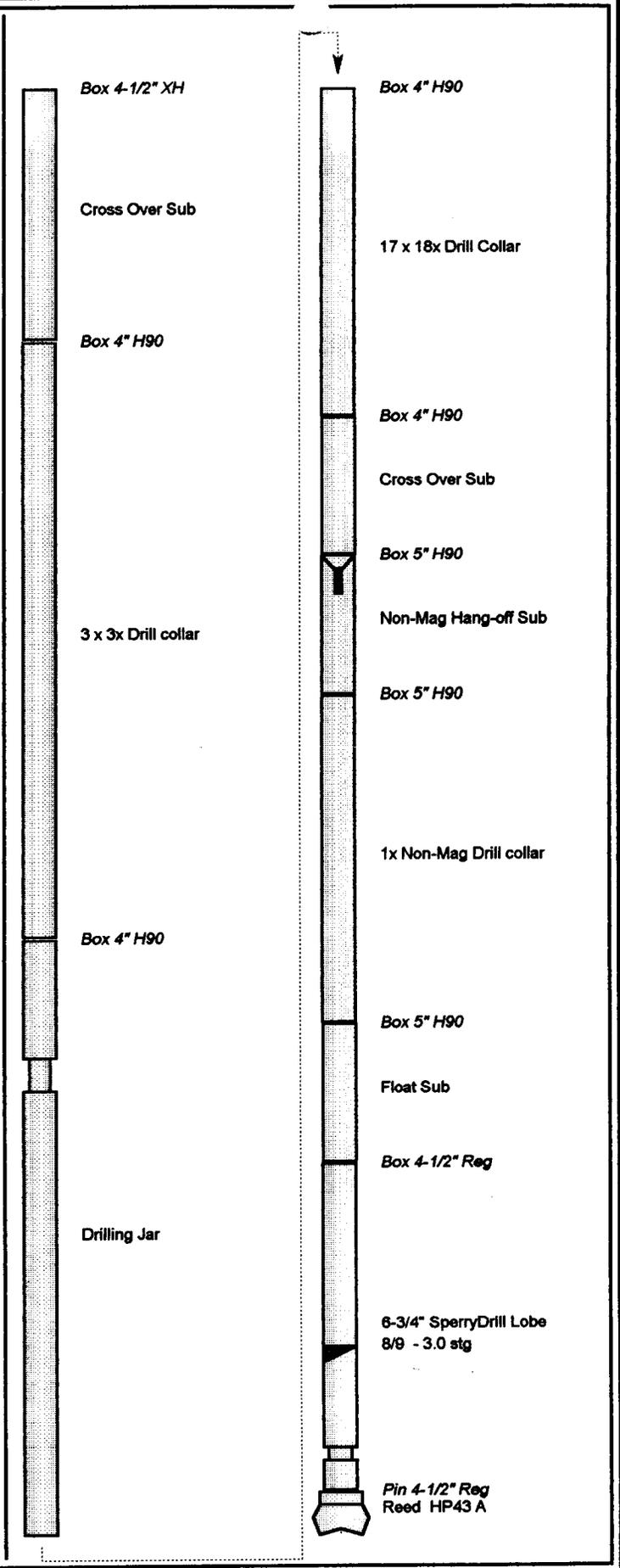
**Ballard Petroleum**  
**Oil Hollow Fed 5-1**  
**BHA ID #: 5**  
**Steerable**

**BHA Configuration**

O.D.	Length	Description
8.75"	0.5'	Reed HP43 A
6.75"	21.45'	6-3/4" SperryDrill Lobe 8/9 - 3.0 stg
6.687"	1.92'	Float Sub
6.75"	28.38'	1x Non-Mag Drill collar
6.75"	4.94'	Non-Mag Hang-off Sub
6.75"	1.83'	Cross Over Sub
5.75"	521.64'	17 x 18x Drill Collar
6.25"	29.58'	Drilling Jar
5.75"	87.05'	3 x 3x Drill collar
6"	2.65'	Cross Over Sub

**BHA Discussion**

Offset - 54.2'  
 PTB - 48'



# Sperry-Sun Drilling Services

## Drilling Hydraulics Analysis

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 BHA #5

State : Utah  
 County : Utah

<b>Recommendation :</b>	Flow Rate : 330 gal/min	TFA : 0.331 sq in	SPP : 1291 psi
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<u>OPERATING PARAMETERS</u>	<u>BIT HYDRAULICS SUMMARY</u>	<u>SYSTEM PRESSURE LOSSES</u>
Bit Depth : 3950.00 ft	Bit PD : 735 psi	Surface (Type 4) : 12 psi
Bit Diameter : 8.750 in	% of Total PD : 57 %	Drill String : 324 psi
Mud Density : 8.9 ppg	Bit HHP : 134 HHP	Downhole Motor : 100 psi
Plastic Vis : 8 cp	Bit HHSI : 2.24 HHSI	Other Special : 100 psi
Yield Point : 4.0 lbf/100ft <sup>2</sup>	Impact Force : 438 lbf	Annulus : 19 psi
	Jet Velocity : 303 ft/s	Drill Bit : 735 psi
		Total : 1291 psi
		Fluid Model : Power Law

<u>DRILL STRING CONFIGURATION</u>						
Description	O.D. in	I.D. in	Length ft	Volume gal	P-Drop psi	
6-3/4" SperryDrill Lobe 8/9 - 3.0 stg	6.750	4.465	22.63	37	100	
Drill Collar	6.750	3.250	30.00	13	3	
6-3/4" DWD 650 System	6.750		7.00	13	100	
Drill Collar	5.750	2.500	521.64	133	145	
Jars	6.250	2.250	29.58	6	13	
Drill Collar	5.750	2.500	87.05	22	24	
DP(E) - NC46(XH) - 16.6#	4.500	3.826	3252.10	1917	139	

<u>ANNULAR SUMMARY</u>								
Section Description	Hole I.D. in	Pipe O.D. in	Section Length ft	Depth To ft	Annular Volume gal	Critical Velocity ft/min	Annular Velocity ft/min	Pressure Drop psi
Casing	8.921	4.500	402.00	402.00	973	94	136 T	1
Open Hole	8.750	4.500	2850.10	3252.10	6548	94	144 T	11
Open Hole	8.750	5.750	87.05	3339.15	154	117	186 T	1
Open Hole	8.750	6.250	29.58	3368.73	45	133	216 T	0
Open Hole	8.750	5.750	521.64	3890.37	926	117	186 T	5
Open Hole	8.750	6.750	7.00	3897.37	9	152	261 T	0
Open Hole	8.750	6.750	30.00	3927.37	38	152	261 T	1
Open Hole	8.750	6.750	22.63	3950.00	29	152	261 T	1

### DISCUSSION

1050 PSI while drilling was the average encountered thru the run. Suspect pump output being inaccurate due to mud.

# Sperry-Sun

## DRILLING SERVICES

### Survey and Drilling Parameters

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 Rig : Cyclone #12

State : Utah  
 County : Utah  
 Job # : CA-MJ-90135

North Ref : True      Declination : 13.40°      VS Dir : 230.00° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS										Comment
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates (ft)		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation (ft)		Tool Face (deg)	ROP (ft/hr)	BHA No. (#)		
0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00										Tieon	
531.00	0.50	103.50	531.0	2.0	-0.5	2.3	0.09	0.09	0.00											
972.00	5.10	115.70	971.3	22.3	-9.5	21.8	1.05	1.04	0.00											
1003.00	5.10	118.40	1002.2	24.9	-10.7	24.3	0.77	0.00	8.71											
1034.00	4.20	118.00	1033.1	27.3	-11.9	26.5	2.91	-2.90	-1.29	20000	40	334	1200	1024	1034	LS	20	1		
1065.00	3.60	118.60	1064.1	29.4	-12.9	28.3	1.94	-1.94	1.94	20000	40	334	1200	1055	1065	LS	20	1		
1097.00	2.90	116.30	1096.0	31.1	-13.8	29.9	2.22	-2.19	-7.19	20000	40	334	1200	1086	1093	300m	20	1		
1129.00	2.10	110.70	1128.0	32.4	-14.3	31.2	2.61	-2.50	-17.50	20000	40	334	1200	1117	1125	300m	20	1		
1160.00	1.40	97.80	1159.0	33.2	-14.6	32.1	2.58	-2.26	-41.61	20000	40	334	1100	1149	1156	300m	20	1		
1192.00	0.80	86.60	1191.0	33.7	-14.6	32.7	1.98	-1.88	0.00	20000	40	334	1100	1181	1186	300m	20	1		
1224.00	0.40	95.20	1222.9	33.9	-14.6	33.1	1.28	-1.25	0.00	20000	40	334	1100	1212	1217	280m	20	1		
1256.00	0.40	285.00	1254.9	33.9	-14.6	33.1	2.49	0.00	0.00	20000	40	334	1100	1244	1253	270m	20	1		
1288.00	0.60	287.70	1286.9	33.7	-14.5	32.8	0.63	0.63	0.00	20000	40	334	1100				20	1		
1320.00	0.90	287.20	1318.9	33.3	-14.4	32.4	0.94	0.94	0.00	20000	40	334	1100				20	1		
1350.00	0.70	268.30	1348.9	33.0	-14.3	32.0	1.10	-0.67	0.00	20000	40	334	1100				20	1		
1380.00	0.60	244.10	1378.9	32.8	-14.4	31.7	0.97	-0.33	0.00	20000	60	334	1100	1372	1379	120m	20	1		
1411.00	0.50	220.40	1409.9	32.7	-14.6	31.4	0.79	-0.32	0.00	20000	60	334	1100				20	1		
1441.00	0.60	222.60	1439.9	32.8	-14.8	31.2	0.34	0.33	0.00	20000	60	334	1100				20	1		
1473.00	0.80	221.10	1471.9	32.8	-15.1	31.0	0.63	0.62	0.00	20000	60	334	1100				20	1		
1537.00	0.70	224.40	1535.9	32.8	-15.7	30.4	0.17	-0.16	0.00	20000	60	334	1100				20	1		
1568.00	0.70	224.10	1566.9	32.8	-16.0	30.1	0.00	0.00	0.00	20000	60	334	1100				20	1		
1600.00	0.70	223.70	1598.9	32.8	-16.3	29.9	0.00	0.00	0.00	20000	60	334	1100				20	1		
1631.00	0.60	219.40	1629.9	32.8	-16.5	29.6	0.36	-0.32	0.00	20000	60	334	1100				20	1		
1663.00	0.80	221.20	1661.9	32.8	-16.8	29.4	0.63	0.62	0.00	20000	60	334	1100				20	1		
1694.00	1.00	241.10	1692.9	32.8	-17.1	29.0	1.19	0.65	0.00	20000	60	334	1100				20	1		
1725.00	1.10	251.50	1723.9	32.5	-17.3	28.5	0.69	0.32	0.00	20000	60	334	1100				20	1		
1756.00	1.10	255.50	1754.9	32.2	-17.5	27.9	0.25	0.00	12.90	30000	60	334	1100	1746	1753	80m	20	1		
1786.00	1.10	267.20	1784.9	31.9	-17.6	27.3	0.75	0.00	39.00	30000	60	334	900	1777	1782	80m	15	1		
1818.00	0.90	300.70	1816.9	31.4	-17.5	26.8	1.90	-0.63	0.00	30000	60	334	900	1808	1816	80m	11	1		



**DRILLING SERVICES**

**Survey and Drilling Parameters**

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 Rig : Cyclone #12

State : Utah  
 County : Utah  
 Job # : CA-MJ-90135

North Ref : True      Declination : 13.40°      VS Dir : 230.00° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS										Comment
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	To (ft)	Tool Face (deg)	ROP (ft/hr)	BHA No. (#)		
1849.00	1.00	299.90	1847.9	30.9	-17.2	26.4	0.33	0.32	0.00	30000	60	334	900	1838	1844	110m	11	1		
1881.00	1.20	292.80	1879.9	30.4	-17.0	25.8	0.76	0.63	0.00	35000	60	334	900	1870	1876	160m	11	1		
1913.00	1.30	279.40	1911.9	29.7	-16.8	25.2	0.96	0.31	-41.87	35000	60	334	900	1901	1909	110m	11	1		
1945.00	0.90	276.90	1943.9	29.3	-16.7	24.6	1.26	-1.25	0.00	35000	60	334	900	1933	1941	110m	6	1		
1976.00	0.80	285.70	1974.9	28.9	-16.6	24.1	0.53	-0.32	0.00	35000	60	334	1000	1961	1969	120m	15	2		
2008.00	1.00	286.70	2006.9	28.4	-16.5	23.6	0.63	0.62	0.00	35000	60	334	1000				15	2		
2040.00	1.00	307.30	2038.9	27.9	-16.2	23.1	1.12	0.00	0.00	35000	60	334	1000				15	2		
2072.00	1.50	331.40	2070.9	27.2	-15.7	22.7	2.23	1.56	0.00	35000	60	334	1000	2056	2066	100m	15	2		
2103.00	1.80	331.20	2101.8	26.4	-14.9	22.3	0.97	0.97	-0.65	35000	60	334	1000				15	2		
2135.00	2.40	314.20	2133.8	25.2	-14.0	21.6	2.68	1.88	-53.13	35000	60	334	1000	2120	2135	180m	15	2		
2167.00	2.30	300.60	2165.8	23.9	-13.2	20.5	1.77	-0.31	-42.50	30000		334	950	2151	2167	160m	12	2		
2198.00	2.50	295.40	2196.8	22.7	-12.6	19.4	0.95	0.65	-16.77	20000	60	334	1000	2167	2171	160m	15	2		
														2183	2198	140m		2		
2229.00	2.50	294.00	2227.7	21.4	-12.0	18.2	0.20	0.00	-4.52	25000		334	950	2215	2229	150m	12	2		
2260.00	2.20	293.10	2258.7	20.2	-11.5	17.0	0.98	-0.97	-2.90	25000		334	950	2229	2235	150m	12	2		
														2246	2260	120m		2		
2293.00	1.60	294.80	2291.7	19.2	-11.1	16.0	1.83	-1.82	5.15	25000		334	950	2260	2266	120m	12	2		
														2277	2293	120m		2		
2325.00	1.50	294.50	2323.7	18.4	-10.7	15.2	0.31	-0.31	-0.94	25000	60	334	1000	2293	2297	120m	15	2		
														2308	2323	120m		2		
2357.00	1.00	302.70	2355.7	17.7	-10.4	14.6	1.66	-1.56	0.00	25000		334	950	2341	2357	120m	12	2		
2388.00	0.80	281.10	2386.7	17.2	-10.2	14.1	1.26	-0.65	0.00	25000	60	334	1000	2357	2361	120m	15	2		
														2373	2383	180m		2		
2419.00	0.90	293.20	2417.7	16.8	-10.0	13.7	0.66	0.32	0.00	25000	60	334	1000				15	2		
2451.00	1.30	299.40	2449.7	16.3	-9.8	13.2	1.30	1.25	0.00	25000	60	334	1000				15	2		
2481.00	1.50	288.30	2479.6	15.6	-9.5	12.5	1.12	0.67	-37.00	25000	60	334	1000	2467	2477	180m	15	2		
2512.00	1.20	284.10	2510.6	14.9	-9.3	11.8	1.02	-0.97	-13.55	25000		334	950	2499	2512	120m	12	2		
2543.00	0.90	263.20	2541.6	14.5	-9.2	11.2	1.55	-0.97	0.00	25000		334	950	2512	2519	120m	12	2		
														2529	2543	120m		2		



**DRILLING SERVICES**

**Survey and Drilling Parameters**

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 Rig : Cyclone #12

State : Utah  
 County : Utah  
 Job # : CA-MJ-90135

North Ref : True      Declination : 13.40°      VS Dir : 230.00° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS									
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (%/100)	Build Rate (%/100)	Turn Rate (%/100)	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation		Tool Face (deg)	ROP (ft/hr)	BHA No. (#)	Comment
					N/S (ft)	E/W (ft)								From (ft)	To (ft)				
2573.00	0.50	240.30	2571.6	14.3	-9.3	10.9	1.60	-1.33	0.00	25000	60	334	1000	2543	2544	120m	15	2	
														2560	2570	120m		2	
2604.00	1.20	170.90	2602.6	14.5	-9.7	10.8	3.63	2.26	0.00	25000	60	334	1000	2591	2596	120m	15	2	
2634.00	2.50	151.00	2632.6	15.4	-10.6	11.2	4.77	4.33	-66.33	25000	50	334	1000	2621	2626	90m	15	2	
2666.00	3.00	154.00	2664.6	16.9	-11.9	11.9	1.63	1.56	9.37	25000		334	950	2652	2666	310m	12	2	
2698.00	3.20	153.00	2696.5	18.5	-13.5	12.7	0.65	0.62	-3.13	25000		334	950	2666	2672	310m	12	2	
														2682	2698	320m		2	
2729.00	2.00	156.10	2727.5	19.8	-14.8	13.3	3.90	-3.87	10.00	25000		334	950	2698	2707	320m	12	2	
														2714	2729	320m		2	
2761.00	1.80	143.50	2759.5	20.8	-15.7	13.8	1.44	-0.63	-39.38	25000		334	950	2729	2739	320m	12	2	
														2746	2761	320m		2	
2793.00	1.80	140.50	2791.5	21.8	-16.5	14.4	0.29	0.00	-9.38	25000	60	334	1000	2761	2766	320m	15	2	
														2777	2792	320m		2	
2824.00	1.00	120.40	2822.5	22.6	-17.0	15.0	2.99	-2.58	0.00	25000		334	950	2809	2824	320m	12	2	
2855.00	0.40	98.80	2853.5	22.9	-17.1	15.3	2.08	-1.94	0.00	25000	60	334	1000	2824	2829	320m	15	3	
2886.00	0.20	110.20	2884.5	23.0	-17.2	15.5	0.67	-0.65	0.00	25000	60	334	1000				15	3	
2917.00	0.20	115.50	2915.5	23.2	-17.2	15.6	0.00	0.00	0.00	25000	60	334	1000				15	3	
2947.00	0.20	96.00	2945.5	23.2	-17.2	15.7	0.23	0.00	0.00	25000	60	334	1000				15	3	
2978.00	0.40	136.30	2976.5	23.4	-17.3	15.8	0.90	0.65	0.00	25000	60	334	1000				15	4	
3009.00	0.90	119.60	3007.4	23.7	-17.5	16.1	1.71	1.61	0.00	25000	60	334	1000				15	4	
3040.00	1.00	119.90	3038.4	24.2	-17.8	16.5	0.32	0.32	0.00	25000	60	334	1000				15	4	
3071.00	1.00	115.90	3069.4	24.8	-18.0	17.0	0.23	0.00	0.00	25000	60	334	1100	3057	3071	300m	12	4	
3103.00	1.40	124.70	3101.4	25.4	-18.4	17.6	1.37	1.25	0.00	25000	60	334	1100				12	4	
3134.00	1.10	118.20	3132.4	26.1	-18.7	18.1	1.07	-0.97	-20.97	25000		334	1100	3119	3134	300m	6	4	
3166.00	0.40	63.80	3164.4	26.4	-18.8	18.5	2.89	-2.19	0.00	25000	60	334	1100	3134	3139	300m	16	4	
														3151	3161	300m		4	
3197.00	0.90	36.60	3195.4	26.4	-18.6	18.8	1.85	1.61	0.00	25000	60	334	1100				16	4	
3228.00	0.80	63.00	3226.4	26.4	-18.3	19.1	1.29	-0.32	0.00	25000	60	334	1100				16	4	
3260.00	0.90	67.50	3258.4	26.6	-18.1	19.5	0.38	0.31	0.00	25000	60	334	1100				16	4	

# Sperry-Sun

## DRILLING SERVICES

### Survey and Drilling Parameters

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 Rig : Cyclone #12

State : Utah  
 County : Utah  
 Job # : CA-MJ-90135

North Ref : True      Declination : 13.40°      VS Dir : 230.00° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								Comment	
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates (ft)		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation (ft)		Tool Face (deg)	ROP (ft/hr)		BHA No. (#)
3291.00	1.00	72.60	3289.4	26.8	-17.9	20.0	0.42	0.32	0.00	25000	60	334	1100				16	4	
3322.00	0.40	166.20	3320.4	27.1	-17.9	20.3	3.55	-1.94	0.00	25000		334	1100	3308	3322	250m	10	4	
3353.00	0.80	195.00	3351.4	27.3	-18.3	20.3	1.58	1.29	0.00	25000	60	334	1100	3322	3324	250m	16	4	
3385.00	0.90	192.00	3383.4	27.5	-18.7	20.2	0.34	0.31	0.00	25000	60	334	1100				16	4	
3416.00	1.10	182.00	3414.4	27.8	-19.3	20.1	0.85	0.65	0.00	25000	60	334	1100				16	4	
3448.00	1.10	182.50	3446.4	28.2	-19.9	20.1	0.00	0.00	1.56	25000	60	334	1100				16	4	
3479.00	0.90	175.10	3477.4	28.6	-20.4	20.1	0.77	-0.65	0.00	25000	60	334	1100	3464	3476	0m	16	4	
3510.00	0.90	154.00	3508.4	29.0	-20.9	20.2	1.06	0.00	0.00	25000	60	334	1100	3496	3501	330m	14	4	
3542.00	1.20	140.10	3540.4	29.6	-21.4	20.5	1.22	0.94	0.00	25000	60	334	1100				14	4	
3573.00	1.40	127.60	3571.4	30.3	-21.8	21.0	1.12	0.65	-40.32	25000	60	334	1100				14	4	
3605.00	1.10	139.40	3603.4	31.0	-22.3	21.5	1.23	-0.94	36.87	25000		334	1100	3590	3605	320m	13	4	
3636.00	1.00	121.20	3634.4	31.6	-22.7	22.0	1.12	-0.32	0.00	25000	60	334	1100	3605	3606	320m	14	4	
														3621	3633	300m		4	
3667.00	1.00	127.10	3665.4	32.1	-23.0	22.4	0.33	0.00	0.00	25000	60	334	1100				14	4	
3698.00	1.00	142.10	3696.3	32.6	-23.3	22.8	0.84	0.00	0.00	25000	65	334	1100	3684	3694	290m	14	4	
3730.00	0.90	172.30	3728.3	33.1	-23.8	23.0	1.58	-0.31	0.00	25000	65	334	1100	3715	3725	280m	14	4	
3761.00	0.60	151.00	3759.3	33.4	-24.2	23.1	1.31	-0.97	0.00	22000	65	334	1100	3746	3755	320m	14	4	
3791.00	1.40	115.70	3789.3	33.9	-24.5	23.5	3.25	2.67	0.00	22000	65	334	1100				14	4	
3821.00	2.50	108.40	3819.3	34.9	-24.9	24.5	3.75	3.67	-24.33	22000	65	334	1100				14	4	
3853.00	2.60	112.70	3851.3	36.2	-25.4	25.8	0.67	0.31	13.44	22000		334	1100	3839	3849	290m	10	5	
														3852	3853	270m		5	
3882.00	2.10	132.00	3880.3	37.3	-26.0	26.8	3.20	-1.72	66.55	22000		334	1100	3853	3862	270m	10	5	Last MVD survey.
														3869	3882	250m		5	
3950.00	1.00	132.00	3948.2	39.2	-27.2	28.2	1.62	-1.62	0.00	22000	65	334	1100	3882	3894	250m	14	5	Projected to bit.
														3901	3919	270m		5	

**Section 4**

Contents: Daily Morning Reports

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OIL, GAS AND MINING



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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 2 12/9/1999

Total Depth (ft) :	1357	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	338	Casing Diameter (in) :	9.625	SSDS Reps :	Aaron Kessel (2), Steve Krueger (2)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
1350.00	0.70	268.30	1348.94	35.05	S65.85E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Cedar Mountain	1328.00	1326.94

#### BHA SUMMARY

BHA 1: 703.16 ft; Bit #1 (13.17 hrs), PDM #1 (14.42 hrs), Sub, 1x DC, Sub, Sub, 16x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.6	50	13	11.0	3.0 / 10.0	8	10.0	3.00	0.10	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	03:10	3.17	1019.00	1	PU BHA
03:10	05:30	2.33	1019.00	1	Trip In to 583' bit depth
05:30	06:15	0.75	1019.00	1	Survey ( slight problems with detection )
06:15	07:30	1.25	1019.00	1	Trip In
07:30	08:00	0.50	1019.00	1	Reaming 55' to bottom (no fill)
08:00	08:30	0.50	1024.00	1	Drilling rotate
08:30	09:00	0.50	1024.00	1	Miscellaneous (rig problems)
09:00	09:30	0.50	1034.00	1	Drilling slide
09:30	10:00	0.50	1055.00	1	Drilling rotate
10:00	10:10	0.17	1055.00	1	Connection/ Survey
10:10	10:35	0.42	1065.00	1	Drilling slide
10:35	11:15	0.67	1086.00	1	Drilling rotate
11:15	11:30	0.25	1086.00	1	Connection/Survey
11:30	11:45	0.25	1093.00	1	Drilling slide
11:45	12:30	0.75	1117.00	1	Drilling rotate
12:30	13:00	0.50	1117.00	1	Service Rig
13:00	13:15	0.25	1125.00	1	Drilling slide
13:15	14:05	0.83	1149.00	1	Drilling slide
14:05	14:20	0.25	1149.00	1	Connection/Survey
14:20	14:35	0.25	1156.00	1	Drilling slide
14:35	15:20	0.75	1181.00	1	Drilling rotate
15:20	15:35	0.25	1181.00	1	Circulate
15:35	15:50	0.25	1186.00	1	Drilling slide

#### COMMENTS

Daily Cost: \$6050.00 Cum. Cost: \$8,450.00

#### Motors on location

675-424A	- 6 3/4 " 0-3° Adj, rbp, 8/9	14.5 hrs
675-423A	- 6 3/4 " 0-3° Adj, rbp, 8/9	00.0 hrs
675-427	- 6 3/4 " 0-3° Adj, rbp, 8/9	00.0 hrs

**CURRENT STATUS Report # 2 12/9/1999**

<b>Total Depth (ft)</b> : 1357	<b>Casing Depth (ft)</b> : 402.00	<b>Operator Reps</b> : Richard Eberspecher
<b>Drilled last 24 hrs (ft)</b> : 338	<b>Casing Diameter (in)</b> : 9.625	<b>SSDS Reps</b> : Aaron Kessel (2), Steve Krueger (2)
<b>Hole Size (in)</b> : 8.750	<b>Casing ID (in)</b> : 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
1350.00	0.70	268.30	1348.94	35.05	S65.85E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Cedar Mountain	1328.00	1326.94

**BHA SUMMARY**

BHA 1: 703.16 ft; Bit #1 (13.17 hrs), PDM #1 (14.42 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.6	50	13	11.0	3.0 / 10.0	8	10.0	3.00	0.10	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
15:50	16:30	0.67	1212.00	1	Drilling rotate
16:30	16:45	0.25	1212.00	1	Deviation Survey
16:45	17:00	0.25	1217.00	1	Drilling slide
17:00	18:00	1.00	1244.00	1	Drilling rotate
18:00	18:15	0.25	1244.00	1	Connection and survey
18:15	18:50	0.58	1253.00	1	Drilling slide
18:50	20:00	1.17	1276.00	1	Drilling
20:00	20:20	0.33	1276.00	1	Connection and survey
20:20	21:40	1.33	1308.00	1	Drilling
21:40	22:00	0.33	1308.00	1	Connection and survey
22:00	23:10	1.17	1340.00	1	Drilling
23:10	23:25	0.25	1340.00	1	Connection and survey
23:25	00:00	0.58	1357.00	1	Drilling

**COMMENTS**

Daily Cost: \$6050.00      Cum.Cost: \$8,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      14.5 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

**CURRENT STATUS** Report # 3 12/10/1999

Total Depth (ft) : 1732	Casing Depth (ft) : 402.00	Operator Reps : Richard Eberspecher
Drilled last 24 hrs (ft) : 375	Casing Diameter (In) : 9.625	SSDS Reps : Aaron Kessel (3), Steve Krueger (3)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
1725.00	1.10	251.50	1723.91	33.35	S58.66E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Cedar Mountain	1328.00	1326.94

**BHA SUMMARY**

BHA 1: 703.16 ft; Bit #1 (32.43 hrs), PDM #1 (34.51 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	53	16	11.0	3.0 / 14.0	8	10.0	4.00	0.10	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:30	0.50	1372.00	1	Drilling
00:30	00:45	0.25	1372.00	1	Connection and survey
00:45	01:10	0.42	1379.00	1	Drilling slide
01:10	02:10	1.00	1402.00	1	Drilling
02:10	02:25	0.25	1402.00	1	Connection and survey
02:25	03:30	1.08	1432.00	1	Drilling
03:30	03:50	0.33	1432.00	1	Connection and survey
03:50	05:00	1.17	1463.00	1	Drilling
05:00	05:15	0.25	1463.00	1	Connection and survey
05:15	06:30	1.25	1493.00	1	Drilling rotate
06:30	06:45	0.25	1493.00	1	Connection/Survey
06:45	08:15	1.50	1525.00	1	Drilling rotate
08:15	08:30	0.25	1525.00	1	Connection/Survey
08:30	08:45	0.25	1525.00	1	Change out saver sub
08:45	09:00	0.25	1525.00	1	Rig Repair (pumps)
09:00	10:30	1.50	1556.00	1	Drilling rotate
10:30	10:45	0.25	1556.00	1	Connection/Survey
10:45	12:00	1.25	1589.00	1	Drilling rotate
12:00	13:00	1.00	1589.00	1	Find cause of pressure loss
13:00	15:00	2.00	1620.00	1	Drilling rotate
15:00	15:30	0.50	1620.00	1	Rig Repair (pumps)
15:30	18:00	2.50	1652.00	1	Drilling
18:00	18:15	0.25	1652.00	1	Connection/Survey

**COMMENTS**

Daily Cost: \$6000.00      Cum. Cost: \$14,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      34.5 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs

<b>CURRENT STATUS</b> Report # 3 12/10/1999									
Total Depth	(ft)	: 1732	Casing Depth	(ft)	: 402.00	Operator Reps	: Richard Eberspecher		
Drilled last 24 hrs	(ft)	: 375	Casing Diameter	(in)	: 9.625	SSDS Reps	: Aaron Kessel (3), Steve Krueger (3)		
Hole Size	(in)	: 8.750	Casing ID	(in)	: 8.921				

<b>LAST SURVEY</b>						<b>LAST FORMATION TOP</b>		
Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction	Formation Name	MD Top (ft)	TVD Top (ft)
1725.00	1.10	251.50	1723.91	33.35	S58.66E	Cedar Mountain	1328.00	1326.94

<b>BHA SUMMARY</b>
BHA 1: 703.16 ft; Bit #1 (32.43 hrs), PDM #1 (34.51 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

<b>MUD DATA</b>										
Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	53	16	11.0	3.0 / 14.0	8	10.0	4.00	0.10	

<b>TIME BREAKDOWN</b>					
From	To	Hours	TMD (ft)	BHA #	Activity
18:15	19:45	1.50	1683.00	1	Drilling
19:45	20:05	0.33	1683.00	1	Connection and survey
20:05	22:30	2.42	1715.00	1	Drilling
22:30	22:50	0.33	1715.00	1	Connection and survey
22:50	00:00	1.17	1732.00	1	Drilling

<b>COMMENTS</b>	
Daily Cost: \$6000.00	Cum. Cost: \$14,450.00
Motors on location	
675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9	34.5 hrs
675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9	00.0 hrs
675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9	00.0 hrs

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 4 12/11/1999

Total Depth (ft) :	1933	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	201	Casing Diameter (in) :	9.625	SSDS Reps :	Aaron Kessel (4), Steve Krueger (4)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
1913.00	1.30	279.40	1911.88	30.24	S56.32E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Summerville	1828.00	1826.89

#### BHA SUMMARY

BHA 1: 703.16 ft; Bit #1 (53.77 hrs), PDM #1 (56.52 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.8	41	10	3.0	2.0 / 6.0	9	9.0	5.00	0.10	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	01:15	1.25	1746.00	1	Drilling rotate
01:15	01:30	0.25	1746.00	1	Connection and survey
01:30	02:10	0.67	1753.00	1	Drilling slide
02:10	04:10	2.00	1777.00	1	Drilling rotate
04:10	04:20	0.17	1777.00	1	Connection and survey
04:20	05:00	0.67	1782.00	1	Drilling slide
05:00	07:20	2.33	1808.00	1	Drilling rotate
07:20	07:35	0.25	1808.00	1	Connection/Survey
07:35	08:30	0.92	1816.00	1	Drilling slide
08:30	10:45	2.25	1838.00	1	Drilling rotate
10:45	11:00	0.25	1838.00	1	Connection/Survey
11:00	12:00	1.00	1844.00	1	Drilling slide
12:00	14:20	2.33	1870.00	1	Drilling rotate
14:20	14:45	0.42	1870.00	1	Service Rig
14:45	16:15	1.50	1876.00	1	Drilling slide
16:15	18:30	2.25	1901.00	1	Drilling
18:30	18:45	0.25	1901.00	1	Connection and survey
18:45	20:30	1.75	1909.00	1	Drilling slide
20:30	22:55	2.42	1933.00	1	Drilling
22:55	23:10	0.25	1933.00	1	Connection and survey
23:10	00:00	0.83	1933.00	1	Work on pumps

#### COMMENTS

Daily Cost: \$6000.00 Cum.Cost: \$20,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3" Adj, rbp, 8/9 56.2 hrs  
 675-423A - 6 3/4 " 0-3" Adj, rbp, 8/9 00.0 hrs  
 675-427 - 6 3/4 " 0-3" Adj, rbp, 8/9 00.0 hrs

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

**CURRENT STATUS** Report # 5 12/12/1999

Total Depth (ft) : 2148	Casing Depth (ft) : 402.00	Operator Reps : Richard Eberspecher
Drilled last 24 hrs (ft) : 215	Casing Diameter (in) : 9.625	SSDS Reps : Aaron Kessel (5), Steve Krueger (5)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2135.00	2.40	314.20	2133.82	25.69	S57.05E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Curtis	2000.00	1998.86

**BHA SUMMARY**

BHA 1: 703.16 ft; Bit #1 (58.02 hrs), PDM #1 (61.02 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub  
 BHA 2: 699.94 ft; Bit #5 (9.16 hrs), PDM #2 (9.66 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.8	37	5	4.0	2.0 / 5.0	10	7.5	4.00	0.13	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	02:05	2.08	1941.00	1	Drilling slide
02:05	04:15	2.17	1957.00	1	Drilling
04:15	04:30	0.25	1957.00	1	Circulate bottoms up for samples
04:30	07:30	3.00	1957.00	1	Trip Out (at Surface)
07:30	08:30	1.00	1957.00	1	Lay down motor and monel collar
08:30	10:00	1.50	1957.00	1	Rig Repair
10:00	11:15	1.25	1957.00	2	PU BHA
11:15	13:15	2.00	1957.00	2	Trip In
13:15	13:30	0.25	1957.00	2	Reaming / Washing to bottom 30'
13:30	13:45	0.25	1961.00	2	Drilling rotate
13:45	14:00	0.25	1961.00	2	Connection/Survey
14:00	14:35	0.58	1969.00	2	Drilling slide
14:35	15:45	1.17	1993.00	2	Drilling rotate
15:45	16:00	0.25	1993.00	2	Connection/Survey
16:00	17:00	1.00	2024.00	2	Drilling
17:00	17:15	0.25	2024.00	2	Connection/Survey
17:15	18:35	1.33	2056.00	2	Drilling
18:35	18:50	0.25	2056.00	2	Deviation Survey
18:50	19:20	0.50	2066.00	2	Drilling slide
19:20	20:25	1.08	2088.00	2	Drilling
20:25	20:45	0.33	2088.00	2	Connection and survey
20:45	22:25	1.67	2120.00	2	Drilling
22:25	22:40	0.25	2120.00	2	Connection and survey

**COMMENTS**

Daily Cost: \$6000.00      Cum.Cost: \$26,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      9.6 hrs (in hole)

**CURRENT STATUS** Report # 5 12/12/1999

<b>Total Depth</b> (ft) :	2148	<b>Casing Depth</b> (ft) :	402.00	<b>Operator Reps</b> :	Richard Eberspecher
<b>Drilled last 24 hrs</b> (ft) :	215	<b>Casing Diameter</b> (in) :	9.625	<b>SSDS Reps</b> :	Aaron Kessel (5), Steve Krueger (5)
<b>Hole Size</b> (in) :	8.750	<b>Casing ID</b> (in) :	8.921		

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2135.00	2.40	314.20	2133.82	25.69	S57.05E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Curtis	2000.00	1998.86

**BHA SUMMARY**

BHA 1: 703.16 ft; Bit #1 (58.02 hrs), PDM #1 (61.02 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub  
 BHA 2: 699.94 ft; Bit #5 (9.16 hrs), PDM #2 (9.66 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.8	37	5	4.0	2.0 / 5.0	10	7.5	4.00	0.13	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
22:40	23:15	0.58	2135.00	2	Drilling slide
23:15	00:00	0.75	2148.00	2	Drilling

**COMMENTS**

Daily Cost: \$6000.00      Cum.Cost: \$26,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      9.6 hrs (in hole)

# sperry-sun

## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

**CURRENT STATUS** Report # 6 12/13/1999

Total Depth (ft) : 2405	Casing Depth (ft) : 402.00	Operator Reps : Richard Eberspecher
Drilled last 24 hrs (ft) : 257	Casing Diameter (in) : 9.625	SSDS Reps : Aaron Kessel (6), Steve Krueger (8)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2388.00	0.80	281.10	2386.67	17.43	S54.24E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Normal Fault	2378.00	2376.67

**BHA SUMMARY**

BHA 2: 699.94 ft; Bit #2 (30.83 hrs), PDM #2 (32.08 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	45	10	7.0	3.0 / 12.0	9	9.5	3.00	0.13	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:25	0.42	2151.00	2	Drilling rotate
00:25	00:40	0.25	2151.00	2	Connection and survey
00:40	02:25	1.75	2171.00	2	Drilling slide
02:25	03:30	1.08	2183.00	2	Drilling rotate
03:30	03:45	0.25	2183.00	2	Connection and survey
03:45	05:10	1.42	2198.00	2	Drilling slide
05:10	06:25	1.25	2215.00	2	Drilling rotate
06:25	06:45	0.33	2215.00	2	Connection and survey
06:45	08:20	1.58	2235.00	2	Drilling slide
08:20	09:00	0.67	2246.00	2	Drilling rotate
09:00	09:15	0.25	2246.00	2	Connection/Survey
09:15	10:30	1.25	2266.00	2	Drilling slide
10:30	11:00	0.50	2277.00	2	Drilling rotate
11:00	11:30	0.50	2277.00	2	Service Rig
11:30	13:00	1.50	2297.00	2	Drilling slide
13:00	13:55	0.92	2308.00	2	Drilling rotate
13:55	14:10	0.25	2308.00	2	Connection/Survey
14:10	15:35	1.42	2323.00	2	Drilling slide
15:35	16:45	1.17	2341.00	2	Drilling rotate
16:45	17:00	0.25	2341.00	2	Connection/Survey
17:00	18:50	1.83	2361.00	2	Drilling slide
18:50	19:50	1.00	2373.00	2	Drilling
19:50	20:05	0.25	2373.00	2	Connection and survey

**COMMENTS**

Daily Cost: \$6000.00      Cum.Cost: \$32,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      32.0 hrs (in hole)

**CURRENT STATUS Report # 6 12/13/1999**

<b>Total Depth (ft) :</b> 2405	<b>Casing Depth (ft) :</b> 402.00	<b>Operator Reps :</b> Richard Eberspecher
<b>Drilled last 24 hrs (ft) :</b> 257	<b>Casing Diameter (in) :</b> 9.625	<b>SSDS Reps :</b> Aaron Kessel (6), Steve Krueger (6)
<b>Hole Size (in) :</b> 8.750	<b>Casing ID (in) :</b> 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2388.00	0.80	281.10	2386.67	17.43	S54.24E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Normal Fault	2378.00	2376.67

**BHA SUMMARY**

BHA 2: 699.94 ft; Bit #2 (30.83 hrs), PDM #2 (32.08 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	45	10	7.0	3.0 / 12.0	9	9.5	3.00	0.13	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
20:05	21:25	1.33	2383.00	2	Drilling slide
21:25	00:00	2.58	2405.00	2	Drilling

**COMMENTS**

Daily Cost: \$6000.00      Cum. Cost: \$32,450.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      32.0 hrs (in hole)

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 7 12/14/1999

Total Depth (ft) :	2666	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	261	Casing Diameter (in) :	9.625	SSDS Reps :	Aaron Kessel (7), Steve Krueger (7)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2666.00	3.00	154.00	2664.58	16.86	S44.87E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Normal Fault	2378.00	2376.67

#### BHA SUMMARY

BHA 2: 699.94 ft; Bit #2 (52.41 hrs), PDM #2 (54.66 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	45	11	11.0	3.0 / 14.0	8	10.0	4.00	0.13	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:20	0.33	2405.00	2	Connection and survey
00:20	02:50	2.50	2436.00	2	Drilling rotate
02:50	03:00	0.17	2436.00	2	Connection and survey
03:00	05:50	2.83	2467.00	2	Drilling rotate
05:50	06:00	0.17	2467.00	2	Connection and survey
06:00	06:55	0.92	2477.00	2	Drilling slide
06:55	08:45	1.83	2499.00	2	Drilling rotate
08:45	09:00	0.25	2499.00	2	Connection/Survey
09:00	10:30	1.50	2519.00	2	Drilling slide
10:30	11:30	1.00	2529.00	2	Drilling rotate
11:30	11:45	0.25	2529.00	2	Connection/Survey
11:45	13:00	1.25	2534.00	2	Drilling slide
13:00	14:00	1.00	2560.00	2	Drilling rotate
14:00	14:30	0.50	2560.00	2	Service Rig
14:30	15:30	1.00	2570.00	2	Drilling slide
15:30	17:15	1.75	2591.00	2	Drilling rotate
17:15	17:30	0.25	2591.00	2	Connection Survey
17:30	18:00	0.50	2596.00	2	Drilling slide
18:00	19:45	1.75	2621.00	2	Drilling
19:45	20:00	0.25	2621.00	2	Connection and survey
20:00	20:40	0.67	2626.00	2	Drilling slide
20:40	22:40	2.00	2652.00	2	Drilling
22:40	22:55	0.25	2652.00	2	Connection and survey

#### COMMENTS

Daily Cost: \$6050.00      Cum.Cost: \$38,500.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      54.6 hrs (in hole)



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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

**CURRENT STATUS** Report # 8 12/15/1999

Total Depth (ft) : 2841	Casing Depth (ft) : 402.00	Operator Reps : Richard Eberspecher
Drilled last 24 hrs (ft) : 175	Casing Diameter (in) : 9.625	SSDS Reps : Aaron Kessel (8), S.Krueger, K. Wehrung (1)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2824.00	1.00	120.40	2822.45	22.63	S41.39E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Araplen	2728.00	2726.50

**BHA SUMMARY**

BHA 2: 699.94 ft; Bit #2 (67.65 hrs), PDM #2 (71.16 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub  
 BHA 3: 699.94 ft; Bit #3 (0.92 hrs), PDM #2 (72.08 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	48	11	14.0	4.0 / 16.0	7	8.5	4.00	0.25	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:40	0.67	2672.00	2	Drilling slide
00:40	01:30	0.83	2682.00	2	Drilling rotate
01:30	01:45	0.25	2682.00	2	Connection and survey
01:45	03:55	2.17	2707.00	2	Drilling slide
03:55	04:25	0.50	2714.00	2	Drilling rotate
04:25	04:45	0.33	2714.00	2	Connection and survey
04:45	07:10	2.42	2739.00	2	Drilling slide
07:10	07:50	0.67	2746.00	2	Drilling rotate
07:50	08:05	0.25	2746.00	2	Connection/Survey
08:05	09:30	1.42	2766.00	2	Drilling slide
09:30	10:15	0.75	2777.00	2	Drilling rotate
10:15	10:45	0.50	2777.00	2	Connection/Survey
10:45	12:15	1.50	2792.00	2	Drilling slide
12:15	13:00	0.75	2809.00	2	Drilling rotated
13:00	13:30	0.50	2809.00	2	Service Rig
13:30	15:47	2.28	2829.00	2	Drilling slide
15:47	17:04	1.28	2841.00	2	Drilling rotate
17:04	18:00	0.93	2841.00	2	Circulate
18:00	20:30	2.50	2841.00	2	Trip Out (at Surface)
20:30	21:50	1.33	2841.00	3	Changed MWD, bit and test
21:50	00:00	2.17	2841.00	3	Trip In

**COMMENTS**

Daily Cost: \$6050.00      Cum. Cost: \$44,550.00  
 Motors on location  
 675-424A - 6 3/4 " 0-3° Adj, rbp, 8/9      61.4 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      00.0 hrs  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      71.1 hrs (in hole)

# Sperry-Sun DRILLING SERVICES

## Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

### CURRENT STATUS Report # 9 12/16/1999

Total Depth (ft) : 2973	Casing Depth (ft) : 402.00	Operator Reqs : Richard Eberspecher
Drilled last 24 hrs (ft) : 132	Casing Diameter (in) : 9.625	SSDS Reqs : Kim Wehrung (1), Steve Krueger (8)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
2947.00	0.20	96.00	2945.45	23.29	S42.25E

### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Arapien	2728.00	2726.50

### BHA SUMMARY

BHA 3: 699.94 ft; Bit #3 (14.69 hrs), PDM #2 (85.97 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	52	14	28.0	6.0 / 19.0	8	8.5	4.00	0.25	

### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:25	0.42	2841.00	3	Trip In
00:25	01:20	0.92	2841.00	3	Reaming / Washing 120' to bottom
01:20	03:25	2.08	2853.00	3	Drilling slide
03:25	05:45	2.33	2872.00	3	Drilling Rotate
05:45	06:16	0.52	2872.00	3	Connection and survey
06:16	08:51	2.58	2903.00	3	Drilling Rotate
08:51	09:11	0.33	2903.00	3	Connection/Survey
09:11	10:44	1.55	2916.00	3	Drilling Rotate
10:44	10:54	0.17	2916.00	3	Work on Pump
10:54	12:09	1.25	2934.00	3	Drilling Rotate
12:09	12:24	0.25	2934.00	3	Connection/Survey
12:24	15:29	3.08	2965.00	3	Drilling Rotate
15:29	15:50	0.35	2965.00	3	Connection/Survey
15:50	15:55	0.08	2966.00	3	Drilling Rotate
15:55	16:12	0.28	2966.00	3	Troubleshoot Pumps f/ pressure losses)
16:12	16:43	0.52	2971.00	3	Drilling Rotate
16:43	17:31	0.80	2971.00	3	Service Rig (Troubleshoot surface equipment f/ pressure losses)
17:31	17:49	0.30	2973.00	3	Drilling Rotate
17:49	17:56	0.12	2973.00	3	Pump flag
17:56	21:30	3.57	2973.00	3	Trip Out (at Surface) Looking hole in drill sting
21:30	23:59	2.48	2973.00	3	No visiable problems found. Retested found 110 psi less then prerun test. #2
23:59	00:00	0.02	2973.00	3	Changed MWD, motor and work on rig/pumps. Prerun 690 psi. Postrun 580 psi. #2

### COMMENTS

Daily Cost: \$6050.00 Cum. Cost: \$50,600.00  
 Motors on location  
 675-423 - 6 3/4" 0-3° Adj, SBP, 8/9 00.0 hrs  
 675-423A - 6 3/4" 0-3° Adj, rbp, 8/9 00.0 hrs  
 675-427 - 6 3/4" 0-3° Adj, rbp, 8/9 86.0 hrs (in hole)  
 HT640293- 6-1/2" Dynadrill 0-3° Adj, rbp, 5/6 00.0 hrs.  
 Received motors #675-423, HT640293 & Flex DC C-515. Sent 675-424A & 6-3/4" Non-Mag DC #G-117-14 to Casper Shop 12/16/99. Tools left location 12:45 12/16/99

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 10 12/17/1999

Total Depth (ft) : 3162	Casing Depth (ft) : 402.00	Operator Reps : Richard Eberspecher
Drilled last 24 hrs (ft) : 189	Casing Diameter (In) : 9.625	SSDS Reps : Kim Wehrung (2), Steve Krueger (9)
Hole Size (in) : 8.750	Casing ID (in) : 8.921	

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3134.00	1.10	118.20	3132.43	26.08	S44.09E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Twin Creek	3028.00	3026.45

#### BHA SUMMARY

BHA 4: 699.94 ft; Bit #3rr1 (32.75 hrs), PDM #3 (18.8 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	43	13	9.0	3.0 / 14.0	9	9.0	4.00	0.25	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	01:00	1.00	2973.00	4	PU clean motor and MWD and test. Prerun 640 psi. #2 pump
01:00	02:30	1.50	2973.00	4	Trip In DC and test 690 psi #2 pump
02:30	03:45	1.25	2973.00	4	Trip In
03:45	04:30	0.75	2973.00	4	Reaming / Washing 40' to bottom
04:30	07:25	2.92	2995.00	4	Drilling Rotate
07:25	07:33	0.13	2995.00	4	Connection/Survey
07:33	10:09	2.60	3026.00	4	Drilling Rotate
10:09	10:29	0.33	3026.00	4	Connection/Survey
10:29	12:25	1.93	3057.00	4	Drilling Rotate
12:25	12:38	0.22	3057.00	4	Connection/Survey
12:38	13:36	0.97	3065.00	4	Drilling Slide
13:36	13:40	0.07	3065.00	4	Switch Pumps
13:40	14:14	0.57	3071.00	4	Drilling Slide
14:14	15:00	0.77	3088.00	4	Drilling Rotate
15:00	15:30	0.50	3088.00	4	Service Rig
15:30	15:37	0.12	3088.00	4	Connection/Survey
15:37	17:47	2.17	3119.00	4	Drilling
17:47	18:02	0.25	3119.00	4	Connection and survey
18:02	20:40	2.63	3139.00	4	Drilling slide
20:40	21:55	1.25	3151.00	4	Drilling
21:55	22:15	0.33	3151.00	4	Connection and survey
22:15	23:35	1.33	3161.00	4	Drilling slide
23:35	23:50	0.25	3161.00	4	Changed shaker screen

#### COMMENTS

Daily Cost: \$8050.00 Cum. Cost: \$56,650.00  
 Motors on location  
 675-423 - 6 3/4" 0-3° Adj, SBP, 8/9 00.0 hrs  
 675-423A - 6 3/4" 0-3° Adj, rbp, 8/9 19.0 hrs ( in hole )  
 675-427 - 6 3/4" 0-3° Adj, rbp, 8/9 86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj, rbp, 5/6 00.0 hrs.

**CURRENT STATUS Report # 10 12/17/1999**

<b>Total Depth (ft) :</b> 3162	<b>Casing Depth (ft) :</b> 402.00	<b>Operator Reps :</b> Richard Eberspecher
<b>Drilled last 24 hrs (ft) :</b> 189	<b>Casing Diameter (in) :</b> 9.625	<b>SSDS Reps :</b> Kim Wehrung (2), Steve Krueger (9)
<b>Hole Size (in) :</b> 8.750	<b>Casing ID (in) :</b> 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3134.00	1.10	118.20	3132.43	26.08	S44.09E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Twin Creek	3028.00	3026.45

**BHA SUMMARY**

BHA 4: 699.94 ft; Bit #3r1 (32.75 hrs), PDM #3 (18.8 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	43	13	9.0	3.0 / 14.0	9	9.0	4.00	0.25	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
23:50	00:00	0.17	3162.00	4	Drilling

**COMMENTS**

Daily Cost: \$6050.00      Cum.Cost: \$56,650.00  
 Motors on location  
 675-423 - 6 3/4" 0-3° Adj, SBP, 8/9      00.0 hrs  
 675-423A - 6 3/4" 0-3° Adj, rbp, 8/9      19.0 hrs ( in hole )  
 675-427 - 6 3/4" 0-3° Adj, rbp, 8/9      86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj,rbp,5/6      00.0 hrs.

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## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 11 12/18/1999

Total Depth (ft) :	3435	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	273	Casing Diameter (in) :	9.625	SSDS Reps :	Kim Wehrung (3), Steve Krueger (10)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3416.00	1.10	182.00	3414.40	27.83	S46.22E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Twin Creek	3028.00	3026.45

#### BHA SUMMARY

BHA 4: 699.94 ft; Bit #3rr1 (54.53 hrs), PDM #3 (42.02 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.6	47	14	13.0	3.0 / 14.0	9	7.5	3.00	0.25	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	01:35	1.58	3182.00	4	Drilling
01:35	02:00	0.42	3182.00	4	Service rig, connection and survey
02:00	04:05	2.08	3214.00	4	Drilling
04:05	04:20	0.25	3214.00	4	Connection and survey
04:20	06:40	2.33	3245.00	4	Drilling
06:40	06:55	0.25	3245.00	4	Connection and survey
06:55	09:02	2.12	3277.00	4	Drilling
09:02	09:13	0.18	3277.00	4	Connection/Survey
09:13	10:27	1.23	3294.00	4	Drilling
10:27	10:34	0.12	3294.00	4	Switch Pumps
10:34	11:07	0.55	3308.00	4	Drilling
11:07	11:23	0.27	3308.00	4	Connection/Survey
11:23	13:14	1.85	3324.00	4	Drilling Slide
13:14	14:17	1.05	3339.00	4	Drilling
14:17	14:26	0.15	3339.00	4	Connection/Survey
14:26	17:00	2.57	3370.00	4	Drilling
17:00	17:10	0.17	3370.00	4	Connection and survey
17:10	20:20	3.17	3401.00	4	Drilling
20:20	20:35	0.25	3401.00	4	Connection and survey
20:35	23:25	2.83	3433.00	4	Drilling
23:25	23:35	0.17	3433.00	4	Connection and survey
23:35	00:00	0.42	3435.00	4	Drilling

#### COMMENTS

Daily Cost: \$6050.00      Cum. Cost: \$62,700.00  
 Motors on location  
 675-423 - 6 3/4" 0-3° Adj, SBP, 8/9      00.0 hrs  
 675-423A - 6 3/4" 0-3° Adj, rbp, 8/9      42.0 hrs ( in hole )  
 675-427 - 6 3/4" 0-3° Adj, rbp, 8/9      86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj, rbp, 5/6      00.0 hrs.

# sperry-sun

## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 12 12/19/1999

Total Depth (ft) :	3692	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	257	Casing Diameter (in) :	9.625	SSDS Reps :	Kim Wehrung (4), Steve Krueger (11)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3667.00	1.00	127.10	3665.35	32.10	S44.30E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Twin Creek	3028.00	3026.45

#### BHA SUMMARY

BHA 4: 699.94 ft; Bit #3rr1 (76.4 hrs), PDM #3 (64.46 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.7	48	15	12.0	5.0 / 16.0	9	9.0	4.00	0.25	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	02:50	2.83	3464.00	4	Drilling
02:50	03:10	0.33	3464.00	4	Connection/Survey
03:10	04:30	1.33	3476.00	4	Drilling slide
04:30	06:10	1.67	3496.00	4	Drilling
06:10	06:25	0.25	3496.00	4	Connection and survey
06:25	06:55	0.50	3501.00	4	Drilling slide
06:55	08:28	1.55	3527.00	4	Drilling
08:28	08:37	0.15	3527.00	4	Connection/Survey
08:37	10:30	1.88	3558.00	4	Drilling
10:30	11:00	0.50	3558.00	4	Service Rig & Connection/Survey
11:00	14:05	3.08	3590.00	4	Drilling
14:05	14:15	0.17	3590.00	4	Connection/Survey
14:15	15:48	1.55	3606.00	4	Drilling Slide
15:48	16:52	1.07	3621.00	4	Drilling
16:52	17:05	0.22	3621.00	4	Connection and survey
17:05	18:10	1.08	3633.00	4	Drilling Slide
18:10	19:55	1.75	3653.00	4	Drilling
19:55	20:10	0.25	3653.00	4	Connection and survey
20:10	22:55	2.75	3684.00	4	Drilling
22:55	23:10	0.25	3684.00	4	Connection and Survey
23:10	00:00	0.83	3692.00	4	Drilling slide

#### COMMENTS

Daily Cost: \$6050.00 Cum. Cost: \$68,750.00

#### Motors on location

675-423 - 6 3/4 " 0-3° Adj, SBP, 8/9 00.0 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9 64.7 hrs ( in hole )  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9 86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj, rbp, 5/6 00.0 hrs.

# Sperry-Sun DRILLING SERVICES

## Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

### CURRENT STATUS Report # 13 12/20/1999

Total Depth (ft) :	3882	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	190	Casing Diameter (in) :	9.625	SSDS Reps :	Kim Wehrung (5), Steve Krueger (12)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3882.00	2.10	132.00	3880.26	37.33	S45.91E

### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Nugget	3728.00	3726.34

### BHA SUMMARY

BHA 4: 699.94 ft; Bit #3r1 (87.59 hrs), PDM #3 (76.73 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub  
 BHA 5: 699.94 ft; Bit #4 (4.67 hrs), PDM #3 (81.9 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.9	38	8	4.0	2.0 / 9.0	9	7.5	5.00	0.25	

### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	00:30	0.50	3694.00	4	Drilling slide
00:30	02:05	1.58	3715.00	4	Drilling
02:05	02:20	0.25	3715.00	4	Connection and survey
02:20	03:05	0.75	3725.00	4	Drilling slide
03:05	04:10	1.08	3746.00	4	Drilling
04:10	04:30	0.33	3746.00	4	Connection and survey
04:30	05:45	1.25	3755.00	4	Drilling slide
05:45	07:23	1.63	3778.00	4	Drilling
07:23	07:41	0.30	3778.00	4	Connection/Survey
07:41	09:12	1.52	3809.00	4	Drilling
09:12	09:23	0.18	3809.00	4	Connection/Survey
09:23	10:59	1.60	3839.00	4	Drilling
10:59	11:10	0.18	3839.00	4	Connection/Survey
11:10	12:27	1.28	3849.00	4	Drilling Slide
12:27	13:12	0.75	3849.00	4	Circulate bottom hole sample
13:12	13:30	0.30	3849.00	4	Service Rig
13:30	16:00	2.50	3849.00	4	Trip Out w/ BHA #4
16:00	17:00	1.00	3849.00	4	Change out bit, check motor & MWD
17:00	18:50	1.83	3849.00	5	Trip in w/ BHA #5
18:50	19:05	0.25	3849.00	5	Reaming / Washing 30' to bottom
19:05	19:35	0.50	3852.00	5	Drilling
19:35	21:00	1.42	3862.00	5	Drilling slide
21:00	21:50	0.83	3869.00	5	Drilling

### COMMENTS

Daily Cost: \$6050.00 Cum.Cost: \$74,800.00

#### Motors on location

675-423 - 6 3/4 " 0-3° Adj, SBP, 8/9 00.0 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9 82.0 hrs ( in hole )  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9 86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj,rbp,5/6 00.0 hrs.

**CURRENT STATUS Report # 13 12/20/1999**

<b>Total Depth (ft) :</b> 3882	<b>Casing Depth (ft) :</b> 402.00	<b>Operator Reps :</b> Richard Eberspecher
<b>Drilled last 24 hrs (ft) :</b> 190	<b>Casing Diameter (in) :</b> 9.625	<b>SSDS Reps :</b> Kim Wehrung (5), Steve Krueger (12)
<b>Hole Size (in) :</b> 8.750	<b>Casing ID (in) :</b> 8.921	

**LAST SURVEY**

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3882.00	2.10	132.00	3880.26	37.33	S45.91E

**LAST FORMATION TOP**

Formation Name	MD Top (ft)	TVD Top (ft)
Nugget	3728.00	3726.34

**BHA SUMMARY**

BHA 4: 699.94 ft; Bit #3r1 (87.59 hrs), PDM #3 (76.73 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub  
 BHA 5: 699.94 ft; Bit #4 (4.67 hrs), PDM #3 (81.9 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

**MUD DATA**

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.9	38	8	4.0	2.0 / 9.0	9	7.5	5.00	0.25	

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	BHA #	Activity
21:50	22:20	0.50	3869.00	5	Connection and survey
22:20	00:00	1.67	3882.00	5	Drilling slide

**COMMENTS**

Daily Cost: \$6050.00      Cum.Cost: \$74,800.00  
 Motors on location  
 675-423 - 6 3/4 " 0-3° Adj, SBP, 8/9      00.0 hrs  
 675-423A - 6 3/4 " 0-3° Adj, rbp, 8/9      82.0 hrs ( in hole )  
 675-427 - 6 3/4 " 0-3° Adj, rbp, 8/9      86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj,rbp,5/6      00.0 hrs.

# sperry-sun

## DRILLING SERVICES

### Daily Drilling Report

Customer : Ballard Petroleum  
 Well : Oil Hollow Fed 5-1  
 State : Utah  
 County : Utah  
 Rig : Cyclone #12  
 Job # : CA-MJ-90135

#### CURRENT STATUS Report # 14 12/21/1999

Total Depth (ft) :	3950	Casing Depth (ft) :	402.00	Operator Reps :	Richard Eberspecher
Drilled last 24 hrs (ft) :	68	Casing Diameter (in) :	9.625	SSDS Reps :	Kim Wehrung (6), Steve Krueger (13)
Hole Size (in) :	8.750	Casing ID (in) :	8.921		

#### LAST SURVEY

Depth (ft)	Inclination	Azimuth	TVD (ft)	Displ (ft)	Direction
3882.00	2.10	132.00	3880.26	37.33	S45.91E

#### LAST FORMATION TOP

Formation Name	MD Top (ft)	TVD Top (ft)
Nugget	3728.00	3726.34

#### BHA SUMMARY

BHA 5: 699.94 ft; Bit #4 (9.96 hrs), PDM #3 (101.55 hrs), Sub, 1x DC, Sub, Sub, 18x DC, Jar, 3x DC, Sub

#### MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lb/100ft <sup>3</sup> )	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
Lo-Sol/NonDisp	8.8	42	10	6.0	2.0 / 12.0	8	9.5	4.00	0.22	

#### TIME BREAKDOWN

From	To	Hours	TMD (ft)	BHA #	Activity
00:00	01:20	1.33	3894.00	5	Drilling slide
01:20	02:05	0.75	3901.00	5	Drilling
02:05	02:25	0.33	3901.00	5	SPR, connection and survey
02:25	04:00	1.58	3919.00	5	Drilling slide
04:00	04:35	0.58	3930.00	5	Drilling
04:35	04:55	0.33	3930.00	5	Connection and survey
04:55	05:30	0.58	3940.00	5	Drilling
05:30	08:00	2.50	3940.00	5	Circulate
08:00	08:28	0.47	3950.00	5	Drilling
08:28	20:00	11.53	3950.00	5	Circulate
20:00	23:00	3.00	3950.00	5	Trip Out (at Surface)
23:00	00:00	1.00	3950.00	5	Lay down tools

#### COMMENTS

Daily Cost: \$6050.00      Cum.Cost: \$80,850.00  
 Motors on location  
 675-423 - 6 3/4" 0-3° Adj, SBP, 8/9      00.0 hrs  
 675-423A - 6 3/4" 0-3° Adj, rbp, 8/9      101.5 hrs ( in hole )  
 675-427 - 6 3/4" 0-3° Adj, rbp, 8/9      86.0 hrs  
 HT640293- 6-1/2" Dynadrill 0-3° Adj,rbp,5/6      00.0 hrs.

**Section 5**

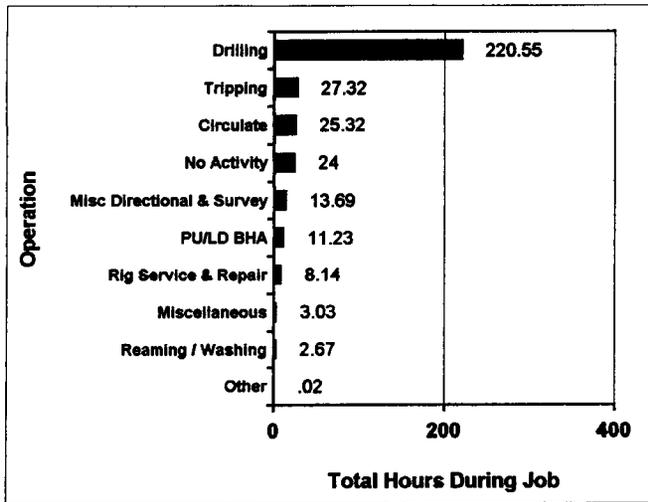
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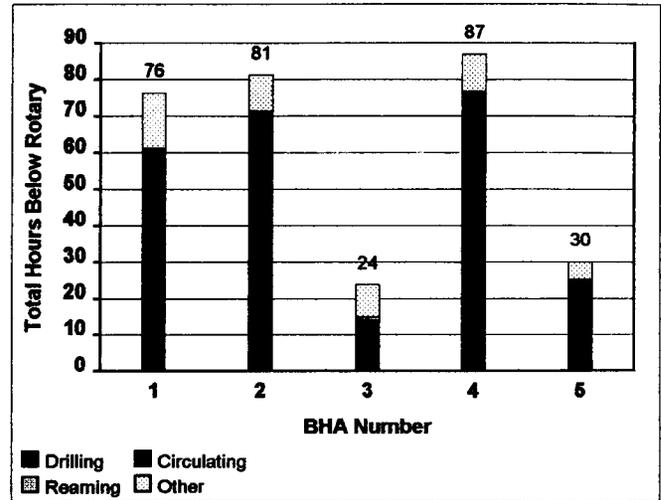
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DIVISION OF  
OIL, GAS AND MINING

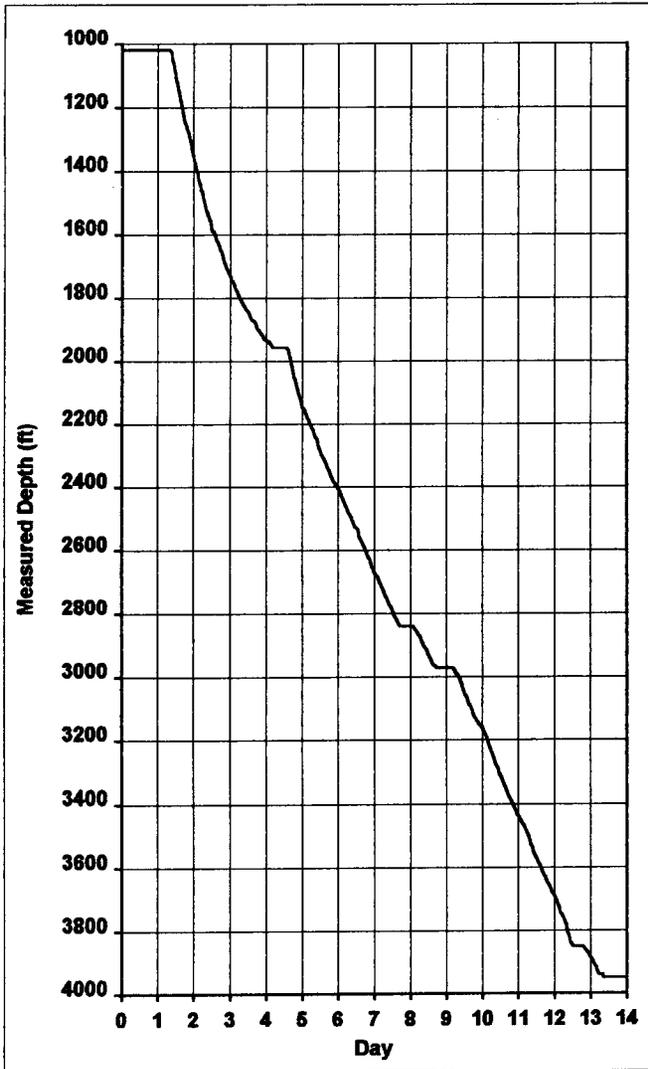
### Hours by Operation Summary



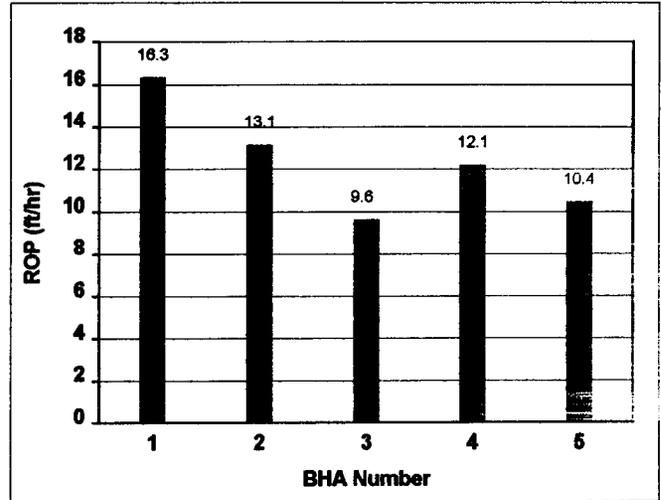
### Hours per BHA Breakdown



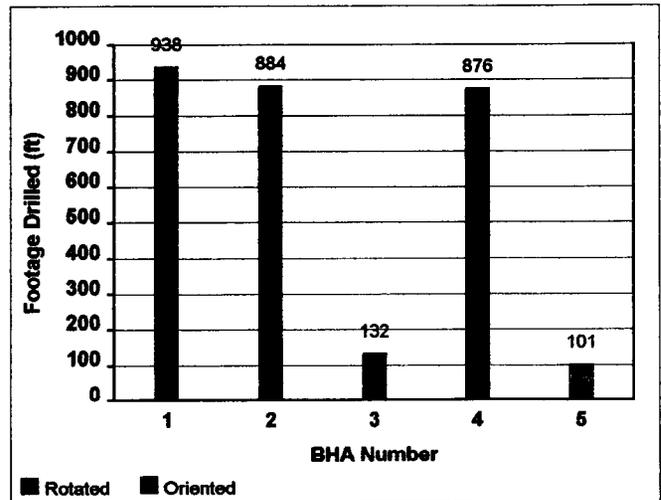
### Days vs. Depth



### Average Rate of Penetration per BHA



### Footage per BHA





**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 11/29/99  
 DAYS SINCE SPUD: 0  
 DEPTH 0  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: SURFACE  
 PRESENT OPERATIO WORKING ON PUMP BELTS & WO. TRUCK

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE 0.50 RIG REPAIR: 6.50 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 17.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_ PU. TOOL TIME IS DRILLING RAT & MOUSE HOLE TIME

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.4 VISC 50 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ ANN. VEL.: DC: \_\_\_\_\_  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

OPEN RAT HOLE TO 12.25 INCHES AND RUN SHUCK IN HOLE . RIG UP AND TRY TO DRILL MOUSE HOLE TO 12.25 INCHES  
 PULL OUT 12.25 BIT AND PICK UP 8.75 BIT. THROW ALL BELTS OFF TAIL DRIVE ON #1 PUMP . TRY TO REPLACE BELTS  
 WITH POWER BAND BUT CANT MOVE PUMP ENOUGH AND WAITING ON TRUCK TO MOVE MUD PUMP

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____

CUM ROTATING HOURS: \_\_\_\_\_ Bit Wt: \_\_\_\_\_ ROTARY RPM: \_\_\_\_\_ MOTOR RPM: \_\_\_\_\_

**BOTTOM HOLE ASSEMBLY:** \_\_\_\_\_

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 11/30/99  
 DAYS SINCE SPUD: 1  
 DEPTH: 49 FT.  
 FOOTAGE LAST 24 HRS: 49  
 FORMATION: SURFACE  
 PRESENT OPERATIO: REAMING OUT 17.50 HOLE

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 2.00 REAMING: 3.00 CORING: \_\_\_\_\_ CIRC: 2.00 TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 6.00 CUT D.L.: \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: 4.00  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 7.00 W.O.O.: \_\_\_\_\_ MISC: \_\_\_\_\_  
 TOTAL HOURS: 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.4 VISC: 40 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_  
 PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ ANN. VEL.: \_\_\_\_\_ DC: \_\_\_\_\_  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

REPLACE PUMP BELTS, DRILL 8.75 MOUSE HOLE, REAM OUT MOUSE HOLE TO 12.25, SERVICE RIG, DRILL 8.75 PILOT HOLE TO 49 FT, OPEN 8.75 CONDUCTOR HOLE TO 12.25, OPEN 12.25 PILOT HOLE TO 17.50, CIRC AND WORK KELLY IN AND OUT OF HOLE, LAY DOWN BHA, ATTEMPT TO RUN 16 INCH CONDUCTOR PIPE STOPPED AT 21 FT. PICK UP BHA AND REAMING OUT 17.50 HOLE

SPUD AT 17:00 HR'S ON 11/29/99

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK7768</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 0.04 Bit Wt: 1-3 ROTARY RPM: 1 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: \_\_\_\_\_

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/1/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 2 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 47 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 0 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 FORMATION: SURFACE LAST CSG SIZE & DEPTH: \_\_\_\_\_  
 PRESENT OPERATIO WAITING ON CEMENT

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: 15.00 CORING: \_\_\_\_\_ CIRC: 5.00 TRIPS: \_\_\_\_\_  
 RIG SERVICE 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG 2.00  
 CEMENT: 1.00 WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 0.50 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.4 VISC 40 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ ANN. VEL.: \_\_\_\_\_ DC: \_\_\_\_\_  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

REAM OUT BOULDERS IN CONDUCTOR HOLE WITH 17.50 BIT , PICK 6 POINT NEAR BIT 17 INCH ROLLER REAMER AND REAM OUT ENTIRE CONDUCTOR HOLE , LAY DOWN ALL 17.50 TOOLS AND RUN 49 FT OF 16 CASING SET AT 47 FT. , CIRC. AND WAIT ON CEMENTERS TO RETURN , CEMENT 16 INCH CASING WITH 11 BBL'S OG CLASS "G" CEMENT WITH 3% CACL AND DISPLACED WITH 9 BBL'S OF FRESH H2O, GOOD RETURNS THROUGH ENTIRE JOB AND LEFT 6 INCHES OF CEMENT IN CELLAR

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK7768	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
									#DIV/0!	
									#DIV/0!	
									#DIV/0!	

CUM ROTATING HOURS: 0.04 Bit Wt: 1-3 ROTARY RPM: 1 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: BIT,6 PT. ROLLER REAMER,XO,XO

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/2/99  
DAYS SINCE SPUD: 3  
DEPTH 115'  
FOOTAGE LAST 24 HRS 68'  
FORMATION: SURFACE  
PRESENT OPERATIO WORKING ON MUD PUMP

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN 11S RGE: 5E  
COUNTY / STATE Utah County, Utah  
DRILLING CONTRACTOR Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 11.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 1.00 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC 6.00 NIPPLE UP/DWN: 5.50 TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: 0.50 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.6+ VISC 42 WTR LOSS: 8.5 F/C 1/32 PH: 9.5 GELS 2/4 PV: 10 YP: 6  
CHLORIDES: 200 SOLIDS: 3% SAND: .25 CALCIUM: 40 OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: 60 LINERS: X GPM: 429 ANN. VEL.: \_\_\_\_\_ DC: \_\_\_\_\_  
PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

WAIT ON CEMENT, NIPPLE UP CONDUCTOR AND WELD THROAT OF POSSUM BELLY TO SHAKER. PICK UP DRILL ASSEMBLY, TAG CEMENT @ 40'. DRILL 7' OF CEMENT, DRILL FROM 47' TO 115'. WORK ON AIR STARTER #1 PUMP A THAWING #2 PUMP.

RICHARD PHONED THIS REPORT IN TO ME AND WE DID NOT GET DAILY COSTS. IT WILL BE UPDATED TOMORROW.

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK7768</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YES711</u>	<u>3x16</u>	_____	<u>681'</u>	<u>11.00</u>	<u>#####</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 0.04 Bit Wt: 1-3 ROTARY RPM: 1 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: \_\_\_\_\_ BIT, BHDC, 2 EA 8" DC

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/3/99  
 DAYS SINCE SPUD: 4  
 DEPTH: 353  
 FOOTAGE LAST 24 HRS: 238  
 FORMATION: GREENRIVER  
 PRESENT OPERATIO: DRILLING @ 353 FT.

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 20.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: 1.00  
 RIG SERVICE: 0.50 RIG REPAIR: 1.00 CUT D.L. \_\_\_\_\_ SURVEY: 1.50 LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 45 WTR LOSS: 7.2 F/C 1/32: \_\_\_\_\_ PH: 9.5 GELS: 2/10 PV: 16 YP: 13  
 CHLORIDES: 350 SOLIDS: 3% SAND: .5 CALCIUM: 40 OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: 0 SPM: 46 LINERS: X GPM: 309 ANN. VEL.: DC: 193  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINERS: X GPM: 4 DP: 145

**REMARKS/CASING/CEMENT**

DRILL FROM 115 FT TO 116 FT, WORK ON MUD PUMPS, DRILL FROM 116 FT TO 129 FT., SURVEY 1/2 DEG. AT 89 FT., RIG SERVICE, DRILL FROM 129 TO 139, REPAIR ROTARY CHAIN, DRILL FROM 139 FT TO 247, SURVEY @ 207 1 DEG., TRIP TO CHECK BIT BIT OK, DRILL FROM 247 FT. TO 338 FT., SURVEY @ 298 FT. 1 DEG., DRILL FROM 338 FT TO 353 FT.

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
89	1/2	_____	_____	_____	_____
207	1	_____	_____	_____	_____
298	1	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK7768	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	_____
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	_____
4	12.25	STC	FDS+	YE8711	3X16	_____	306	31.00	9.9	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____

CUM ROTATING HOURS: 35.00 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: \_\_\_\_\_ BIT, (3) 8" DC, (8) 6" DC, XO = 326.20

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/4/99  
DAYS SINCE SPUD: 5  
DEPTH: 402  
FOOTAGE LAST 24 HRS: 49  
FORMATION: GREEN RIVER  
PRESENT OPERATIO: WOC.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN:     DRLG: 4.50 REAMING:     CORING:     CIRC: 6.00 TRIPS: 3.00  
RIG SERVICE: 0.50 RIG REPAIR:     CUT D.L.:     SURVEY:     LOG:     RUN CSG: 1.50  
CEMENT: 2.00 WOC: 6.50 NIPPLE UP/DWN:     TEST BOP:     DST:     PLUG BACK:      
P.U./L.D. TOOLS:     W.O.O.:     MISC:    

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT:     VISC:     WTR LOSS:     F/C:     PH:     GELS:     PV:     YP:      
CHLORIDES:     SOLIDS:     SAND:     CALCIUM:     OTHER:    

PUMP NO: 1 PRESS: 0 SPM: 46 LINERS: X GPM: 309 ANN. VEL.:     DC: 193  
PUMP NO: 2 PRESS:     SPM: 60 LINERS: X GPM: 4 DP: 145

**REMARKS/CASING/CEMENT**

DRILL FROM 353 FT TO 394 FT, RIG SERVICE, DRILL FROM 394 FT TO 402 FT., CIRC. BTM'S UP, WIPER TRIP TO SURFACE CIRC AND WAIT ON CASER'S, TRIP OUT OF HOLE AND LAY DOWN 8" TOOLS, RUN 9 JOINT'S OF 9 5/8 J-55 36# CASING 404 FT. SET AT 402 FT, RIG DOWN CASER'S, CIRC. AND WAIT ON CEMENTERS, CEMENT 5/8 AS FOLLOWS TEST PUMP'S AND LINES START 30 BBL SPACER WITH YELLOW DYE AHEAD FOLLOWED WITH 145 SK'S OF "G" WITH 2% CACL2 WITH .25# PER SK CELLOFLAKE, DIPLACE WITH 27.80 BBL'S OF FRESH H2O BUMP PLUG AND FLOAT HELD NO CEMENT TO SURFACE TRIP IN WITH 40 FT OF 1 INCH AND TOP OUT WITH 50 SK'S OF "G" WITH 3% CACL SHUT DOWN WITH CEMENT AT SURFACE CIRC 3 BBL'S TO PIT. GOOD RETURN'S THROUGH ENTIRE JOB. WOC AT REPORT TIME.

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
89	1/2				
207	1				
298	1				
386	1				

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK7768	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
									#DIV/0!	
									#DIV/0!	

CUM ROTATING HOURS: 39.50 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: BIT, (3) 8" DC, (8) 6" DC, XO = 326.20

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/5/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 6 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 402 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: GREENRIVER DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO WORKING ON KOOMEY LAST CSG SIZE & DEPTH 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 6.00 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: 18.00 TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: \_\_\_\_\_ VISC: \_\_\_\_\_ WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: 0 SPM: 46 LINERS: X GPM: 309 ANN. VEL.: DC: 193.  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINERS: X GPM: 4 DP: 145

**REMARKS/CASING/CEMENT**

CUT OFF AND WELD ON HEAD , TEST HEAD 1500 PSI FOR 15 MIN. , NIPPLE UP BOP STACK AND ROTATING HEAD WITH WELDER , WORKING ON KOOMEY

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
<u>89</u>	<u>1/2</u>	_____	_____	_____	_____
<u>207</u>	<u>1</u>	_____	_____	_____	_____
<u>298</u>	<u>1</u>	_____	_____	_____	_____
<u>386</u>	<u>1</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK7768</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 39.50 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: BIT , (3) 8" DC , (8) 6" DC , XO = 326.20

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/6/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 7 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 402 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: GREENRIVER DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO ATTEMPTING BOP TEST LAST CSG SIZE & DEPTH 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 16.00 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: 8.00 DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
 TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.4 VISC 36 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_  
 PUMP NO: 1 PRESS: 0 SPM: 46 LINERS: X GPM: 309 ANN. VEL.: \_\_\_\_\_ DC: 193.  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINERS: X GPM: 4 DP: 145

**REMARKS/CASING/CEMENT**

WORKING ON ACCUMULATOR NEED ELECTRICIAN TO REWIRE TRIPLEX PUMP FROM 06:00 TILL 22:00 , FROM 22:00 TILL 06:00 TRY TO TEST BOP'S WHILE WAITING ON RENTAL ACCUMULATOR TO ARRIVE CYCLONE HAS A ONE TIME CLOSING UNIT INSTEAD OF A ACCUMULATOR ACCORDING TO MIKE PILCHER WITH WEATHERFORD HE HAS WORKED ON IT BEFORE AND THE ONLY WAY IT WILL PASS INSPECTION IS IF YOU DON'T HAVE A CLUE AS TO WHAT YOUR LOOKING AT

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
<u>89</u>	<u>1/2</u>	_____	_____	_____	_____
<u>207</u>	<u>1</u>	_____	_____	_____	_____
<u>298</u>	<u>1</u>	_____	_____	_____	_____
<u>386</u>	<u>1</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK7768</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 39.50 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: \_\_\_\_\_ BIT , (3) 8" DC , (8) 6" DC , XO = 326.20

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/6/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 7 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 402 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: GREENRIVER DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO ATTEMPTING BOP TEST LAST CSG SIZE & DEPTH 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 16.00 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: 8.00 DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.4 VISC 36 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: 0 SPM: 46 LINERS: X GPM: 309 ANN. VEL.: DC: 193.  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINERS: X GPM: 4 DP: 145

**REMARKS/CASING/CEMENT**

WORKING ON ACCUMULATOR NEED ELECTRICIAN TO REWIRE TRIPLEX PUMP FROM 06:00 TILL 22:00 , FROM 22:00 TILL 06:00 TRY TO TEST BOP'S WHILE WAITING ON RENTAL ACCUMULATOR TO ARRIVE CYCLONE HAS A ONE TIME CLOSING UNIT INSTEAD OF A ACCUMULATOR ACCORDING TO MIKE PILCHER WITH WEATHERFORD HE HAS WORKED ON IT BEFORE AND THE ONLY WAY IT WILL PASS INSPECTION IS IF YOU DON'T HAVE A CLUE AS TO WHAT YOUR LOOKING AT

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
<u>89</u>	<u>1/2</u>	_____	_____	_____	_____
<u>207</u>	<u>1</u>	_____	_____	_____	_____
<u>298</u>	<u>1</u>	_____	_____	_____	_____
<u>386</u>	<u>1</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK7768</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 39.50 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: BIT , (3) 8" DC , (8) 6" DC , XO = 326.20

Ballard Petroleum LLC

DAILY DRILLING REPORT

CONFIDENTIAL

DATE: 12/7/99
DAYS SINCE SPUD: 8
DEPTH: 652
FOOTAGE LAST 24 HRS: 250
FORMATION: GREENRIVER
PRESENT OPERATIO: SURVEY @ 612 FT.

WELL NAME: Oil Hollow Federal #5-1
LOCATION: SEC: 5 TWN 11S RGE: 5E
COUNTY / STATE: Utah County, Utah
DRILLING CONTRACTOR Cyclone Drilling Rig #12
LAST CSG SIZE & DEPTH 9 5/8,36# j-55 @ 402

24 HOUR BREAKDOWN

RIG UP/DWN: DRLG: 7.50 REAMING: CORING: CIRC: TRIPS: 2.00
RIG SERVICE: RIG REPAIR: 4.00 CUT D.L. SURVEY: 0.50 LOG: RUN CSG:
CEMENT: 4.00 WOC: NIPPLE UP/DWN: TEST BOP: 5.00 DST: PLUG BACK:
P.U./L.D. TOOLS: 1.00 W.O.O. MISC:

TOTAL HOURS 24.00

MUD PROPERTIES

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.5 VISC 47. WTR LOSS: 8.5 F/C 1/32 PH: 10. GELS 2/10 PV: 11. YP: 6.
CHLORIDES: 700. SOLIDS: 3% SAND: .25 CALCIUM: 30. OTHER:

PUMP NO: 1 PRESS: 0 SPM: 60 LINERS: X GPM: 403 ANN. VEL.: DC: 197
PUMP NO: 2 PRESS: SPM: 60 LINERS: X GPM: 368 DP: 176

REMARKS/CASING/CEMENT

HOOK UP RENTAL ACCUMULATOR FROM WEATHERFORD , TEST BOP EQUIPMENT AS FOLLOWS TEST ALL RAM'S AND FLOOR VALVES CHOK VALVES AND CHOKE MANIFOLD AND KILL SIDE TO 2000 PSI ALL OK TEST ANNULAR TO 1000 PSI. PICK UP BHA AND TRIP IN HOLE TAG CEMENT AT 340 FT. DRILL FLOAT EQUIPMENT AND CEMENT , DRILL FORMATION FROM 402 FT. TO 652 FT. , SURVEY AT REPORT TIME 1.50 DEG @ 612 FT.

USING 6707 KB. SAMPLE TOP'S SLIDE DEBRIS: SURFACE + 6694 , GREENRIVER FORMATION 38 +6669
580 FT. TO 640 FT. CLAYSTONE SOFT, GUMMY, SOME SHALE-DARK RED (POSSIBLE FORMATION CHANGE)

SURVEYS

Table with 6 columns: DEPTH, ANGLE, DIRECTION, DEPTH, ANGLE, DIRECTION. Data rows show depth values (89, 207, 298, 386, 612) and angle values (1/2, 1, 1, 1, 1.5).

BITS

Table with 11 columns: NO., SIZE, MAKE, TYPE, SER. NO., JETS, OUT, FTG, HRS, FT/HR, COND. Data rows include bit numbers 1-4 and RR-1 with various specifications.

CUM ROTATING HOURS: 39.50 Bit Wt: 20-50 ROTARY RPM: 50-120 MOTOR RPM: 0

BOTTOM HOLE ASSEMBLY: BIT ,MM,FS,SS,(18)DC'S,JAR'S,(3)DC'S.XO = 666.57

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/8/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 9 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 1019 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 367  
 FORMATION: NORTH HORN DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO CIRC AND WAIT ON SPERRY SUN LAST CSG SIZE & DEPTH 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 21.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: 1.50 LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. 1.00 MISC: \_\_\_\_\_ WAITING ON ORDERS IS WAITING ON SPERRY SUN

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.6 VISC 48 WTR LOSS: 11 F/C 2/32 PH: 9.0 GELS 3/18 PV: 9 YP: 11  
 CHLORIDES: 700 SOLIDS: 4 SAND: TR. CALCIUM: 560 OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: 0 SPM: 60 LINER 6 16 GPM: 403 ANN. VEL.: DC: 197  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINER 5.5 15 GPM: 368 DP: 176

**REMARKS/CASING/CEMENT**

DRILL FROM 652 FT. TO 772 FT. , SERVICE RIG , DRILL FROM 772 FT. TO 833 FT. , SURVEY @ 788 FT 3 DEG. , DRILL FROM 833 FT TO 926 FT. SURVEY @ 886 FT. 3.25 DEG. , DRILL FROM 926 FT. TO 1019 FT. , SURVEY @ 979 FT. 5 DEG. , CIRC AND WAIT ON SPERRY SUN TO ARRIVE.

**SAMPLE TOP NORMAL FAULT ? NORTH HORN FORMATION TOP 594 + 6113**

620 - 1020 INTERBED'S OF SHALE , SILTSTONE , SANDSTONE , DARK RED, MEDIUM GREY , ORANGE RED, CALCITE FRAGMENTS , MASSIVE PYRITE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
<u>886</u>	<u>3 1/4</u>	_____	_____	_____	_____
<u>979</u>	<u>5</u>	_____	_____	_____	_____
<u>298</u>	<u>1</u>	_____	_____	_____	_____
<u>386</u>	<u>1</u>	_____	_____	_____	_____
<u>612</u>	<u>1.5</u>	_____	_____	_____	_____
<u>788</u>	<u>3</u>	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
<u>RR-1</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X14</u>	_____	<u>972</u>	<u>28.50</u>	<u>34.1</u>	_____
										<u>#DIV/0!</u>

CUM ROTATING HOURS: 68.00 Bit Wt: 20 - 30 ROTARY RPM: 40 MOTOR RPM: 107

BOTTOM HOLE ASSEMBLY: BIT ,MM,FS,SS,(18)DC'S,JAR'S,(3)DC'S,XO = 669.22

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/9/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 10 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 1019 COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: CEADER MOUNTAIN DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO SURVEY AND TRIP IN HOLE W/MWD LAST CSG SIZE & DEPTH 9 5/8,36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: 10.00 TRIPS: 5.00  
 RIG SERVICE 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 3.00 W.O.O. 5.50 MISC: \_\_\_\_\_ MBT-25 PPB. \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.6 VISC 50 WTR LOSS: 8.4 F/C 1/32 PH: 10 GELS 3/10 PV: 13 YP: 11  
 CHLORIDES: 700 SOLIDS: 3% SAND: TR CALCIUM: 80 OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: 0 SPM: 60 LINER 6 16 GPM: 403 ANN. VEL.: DC: 197  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: 60 LINER 5.5 15 GPM: 368 DP: 176

**REMARKS/CASING/CEMENT**

06:00 TO 16:30 CIRC. AND WAIT ON SPERRY SUN AND RIG SERVICE , 16:30 TO 18:30 DROP SURVEY AND TRIP OUT TO WAIT ON SPERRY ( SURVEY 5.50 DEG @ 979 FT. ) WAIT ON SPERRY FROM 18:30 TO 24:00 , 24:00 TO 06:00 PICK UP MWD TOOLS AND ORIENT THEM TRIP IN AND SURVEY ON WAY IN

SAMPLE TOP CEADER MOUNTAIN FORMATION ? 934 FT. + 5773 FT.  
 THIS TOP IS BASED ON HIGHER SHALE CONTENT AND DARKER OVERALL COLOR

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
<u>531</u>	<u>1/2</u>	<u>103</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>1</u>	<u>8.75</u>	<u>REED</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X15</u>	<u>0</u>	<u>49</u>	<u>2.00</u>	<u>24.5</u>	<u>36892</u>
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
<u>RR-1</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X14</u>	<u>1019</u>	<u>972</u>	<u>28.50</u>	<u>34.1</u>	_____
<u>5</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK7812</u>	<u>3X11</u>	_____	_____	_____	<u>#DIV/0!</u>	_____

CUM ROTATING HOURS: 68.00 Bit Wt: 20 - 30 ROTARY RPM: 40 MOTOR RPM: 107

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO . 18 DC , JARS , 3 DC , XO = 703.16

**ard Petroleum LLC**  
**DAILY DRILLING REPORT**

**CONFIDENTIAL**

DATE: 12/10/99  
 DAYS SINCE SPUD: 11  
 DEPTH: 1480  
 FOOTAGE LAST 24 HRS 461  
 FORMATION: CEADER MOUNTAIN  
 PRESENT OPERATIO DRILLING @ 1480 FT.

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah

DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN:      DRLG: 20.50 REAMING:      CORING:      CIRC:      TRIPS: 2.50  
 RIG SERVICE 0.50 RIG REPAIR:      CUT D.L.      SURVEY: 0.50 LOG:      RUN CSG:       
 CEMENT:      WOC:      NIPPLE UP/DWN:      TEST BOP:      DST:      PLUG BACK:       
 P.U./L.D. TOOLS:      W.O.O.      MISC:       
 TOTAL HOURS: 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7+ VISC: 53 WTR LOSS: 7.5 F/C 2/32 PH: 10 GELS 3/14 PV: 16 YP: 11  
 CHLORIDES: 700 SOLIDS: 4% SAND: TR CALCIUM: 80 OTHER MBT-22

PUMP NO: 1 PRESS: 0 SPM:      LINERS 6 16 GPM: 403 ANN. VEL.: DC: 197  
 PUMP NO: 2 PRESS: 950 SPM: 58 LINERS 5.5 15 GPM: 368 DP: 176

**REMARKS/CASING/CEMENT**

TRIP IN HOLE AND ORIENT AND SURVEY ON WAY IN HOLE , DRILL 1019 FT. TO 1024 FT. , SURVEY AND ORIENT , DRILL FROM 1024 TO 1117 FT. , RIG SERVICE , DRILL FROM 1117 FT. TO 1480 FT.

**CEADER MOUNTAIN FORMATION**

1020-1460 : INTERBEDS SHALE-DARK REDDISHBROWN, BLOCKY, CALCAROUS, GRITTY TO SANDY  
 SILTSTONE - REDDISH BROWN , SHALEY , SANDY, CALCAROUS , HARD  
 SANDSTONE - LIGHT RED , VERY FINE TO CONGLOMERATE , SHALEY , LIMEY , HARD , TIGHT  
 ANHYDRITE - WHITE , FIBEROUS , SOFT.  
 CALCITE FRAGMENTS- TRACE OF NODULAR LIMESTONE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK776E	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11		461	20.50	22.5	

CUM ROTATING HOURS: 88.50 Bit Wt: 20 - 30 ROTARY RPM: 40-60 MOTOR RPM: 107

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO , 18 DC , JARS , 3 DC , XO = 703.16

**lard Petroleum LLC**  
DAILY DRILLING REPORT

CONFIDENTIAL

DATE: 12/11/99  
 DAYS SINCE SPUD: 12  
 DEPTH 1795 FT.  
 FOOTAGE LAST 24 HRS 315 FT.  
 FORMATION: SUMMERVILLE  
 PRESENT OPERATIO DRILLING @ 1795 FT.

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN:      DRLG: 22.50 REAMING:      CORING:      CIRC:      TRIPS:       
 RIG SERVICE 0.50 RIG REPAIR: 1.00 CUT D.L.      SURVEY:      LOG:      RUN CSG:       
 CEMENT:      WOC:      NIPPLE UP/DWN:      TEST BOP:      DST:      PLUG BACK:       
 P.U./L.D. TOOLS:      W.O.O.      MISC:      REPAIR IS RPLACE POP OFF #1 PUMP

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.8+ VISC 41 WTR LOSS: 9. F/C 2/32 PH: 9. GELS 2/6 PV: 10 YP: 3  
 CHLORIDES: 2500 SOLIDS: 5% SAND: TR CALCIUM: 160 OTHER MBT - 18

PUMP NO: 1 PRESS: 0 SPM:      LINER 6 16 GPM: 403 ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 950 SPM: 58 LINER 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

DRILL FROM 1480 FT. TO 1589 FT. , CHECK PRESSURE LOSS ( REPAIR POP OFF # 1 PUMP) , DRILL FROM 1589 FT. TO 1620 FT.  
 SERVICE RIG , DRILL FROM 1620 FT. TO 1795 FT.

1460 - 1680 RED BED'S .INTERBEDDED SANDSTONE, SILTSTONE AND SHALE. ANHYDRITE DECREASED BELOW 1440 FT.  
 1680 - 1780 : SILTSTONE - LIGHT GREY , HARD CALCAREOUS. SHALE : LIGHT GREENISH ,GREY, FIRM  
 TOP OF JURASSIC SUMERVILLE @ 1680 +- ?

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK776E	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11		776	43.00	18.0	

CUM ROTATING HOURS: 88.50 Bit Wt: 20 - 35 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO , 18 DC , JARS , 3 DC , XO = 703.16

**REPORT OF WATER ENCOUNTERED DURING DRILLING**

1. Well name and number: Oil Hollow Federal 5-1

API number: 43-049-30018

2. Well Location: QQ NWSW Section 5 Township 11S Range 5E County Utah

3. Well operator: Ballard Petroleum LLC

Address: 845 12th Stree West

Billings, MT 59102

Phone: 406-259-8790

4. Drilling contractor: Cyclone Drilling Inc.

Address: PO Box 908

Gillette, WY

Phone 307-682-4161

5. Water encountered (attach additional pages as needed):

DEPTH		VOLUME (FLOW RATE OR HEAD)	QUALITY (FRESH OR SALTY)
FROM	TO		
3888'	3950'	14 gpm	2000-4000 ppm Clorides

**RECEIVED**

JAN 21 2000

DIVISION OF  
OIL, GAS AND MINING

6. Formation tops: North Horn -579' MD Nugget S.S. - 388' MD

Cedar Mountain - 920' MD

Arapien Shale - 1671' MD

Twin Creek L.S. - 2766' MD

If an analysis has been made of the water encountered, please attach a copy of the report to this form.

I hereby certify that this report is true and complete to the best of my knowledge.

Date: 1/12/99

Name & Signature: *Steve D. Am...*

Title: Sr. U.P.

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/26/99  
 DAYS SINCE SPUD: 27  
 DEPTH: 4200  
 FOOTAGE LAST 24 HRS: 0  
 FORMATION: NUGGET  
 PRESENT OPERATIO: RIG DOWN FOR RIG MOVE

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: 8.00 DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: 3.00 TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. 13.00 MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: \_\_\_\_\_ VISC: \_\_\_\_\_ WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 900./1050 SPM: 58. LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 19:00 CLAN MUD TANKS AND DEWATER 260 BBL'S OF MUD  
 19:00 - 22:00 NIPPLE DOWN STACK TO GET TO WELL HEAD  
 22:00 - 06:00 RIG DOWN FOR MOVE

RIG RELEASED AT 20:00 HR'S ON 12/25/99

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	_____
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	_____
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	_____
9	8.75	REED	HP-52X	MR1440	3X12	4200	250	22.50	11.1	_____
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	_____
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	_____

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/27/99  
 DAYS SINCE SPUD: 28  
 DEPTH: TD.  
 FOOTAGE LAST 24 HRS: 0  
 FORMATION: NUGGET  
 PRESENT OPERATIO: RIG DOWN

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: 13.00 DRLG:      REAMING:      CORING:      CIRC:      TRIPS:       
 RIG SERVICE:      RIG REPAIR:      CUT D.L.:      SURVEY:      LOG:      RUN CSG:       
 CEMENT:      WOC:      NIPPLE UP/DWN:      TEST BOP:      DST:      PLUG BACK:       
 P.U./L.D. TOOLS:      W.O.O.:      MISC:     

TOTAL HOURS 13.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT:      VISC:      WTR LOSS:      F/C:      PH:      GELS:      PV:      YP:       
 CHLORIDES:      SOLIDS:      SAND:      CALCIUM:      OTHER:     

PUMP NO: 1 PRESS:      SPM:      LINER 6 16 GPM:      ANN. VEL.: DC: 185  
 PUMP NO: 2 PRESS: 900/1050 SPM: 58 LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 19:00 RIG DOWN AND LOAD OUT FRONT END OF RIG.  
 19:00 - 06:00 WAIT ON DAY LIGHT

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	
9	8.75	REED	HP-52X	MR1440	3X12	4200	250	22.50	11.1	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

**BOTTOM HOLE ASSEMBLY:**

BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/28/99  
 DAYS SINCE SPUD: 29  
 DEPTH 0  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: 0  
 PRESENT OPERATIO loading rig out

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8,36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: 10.00 DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
 TOTAL HOURS 10.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: \_\_\_\_\_ VISC: \_\_\_\_\_ WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_  
 PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 900/1050 SPM: 58 LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

07:00 - 17:00 LOAD OUT PIPE TUBS,DEWATERING TRAILER , SPARE GEN SETS , AND FUL TANK FOR GEN SETS,CAMP

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	
9	8.75	REED	HP-52X	MR1440	3X12	4200	250	22.50	11.1	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/29/99  
 DAYS SINCE SPUD: 30  
 DEPTH 0  
 FOOTAGE LAST 24 HRS 0  
 FORMATION: 0  
 PRESENT OPERATIO loading out rig

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8,36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 0.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: \_\_\_\_\_ VISC: \_\_\_\_\_ WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 900/1050 SPM: 58. LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 17:00 load out rig all that is left of rig on location is derick

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	
9	8.75	REED	HP-52X	MR1440	3X12	4200	250	22.50	11.1	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0115  
Expires November 30, 2000

**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 Serial No.  
**UTU - 77275**

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

7. If Unit or CA/Agreement, Name and/or No.  
**N/A**

8. Well Name and No.  
**OIL HOLOW 5-1**

9. API Well No.  
**43-049-30018**

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

11. County or Parish, State  
**UTAH COUNTY, UTAH**

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well  
 Oil Well  Gas Well  Other

2. Name of Operator  
**BALLARD PETROLEUM, LLC**

3a. Address  
**845 12TH STREET WEST, BILLINGS, MT 59102**

3b. Phone No. (include area code)  
**406.259.8790**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**2627' FSL & 1015' FWL, NWSW, SEC 5, T11<sup>S</sup>, R5E**

**CONFIDENTIAL**

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed 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.)

**ATTACHED FIND DRILLING REPORTS.**

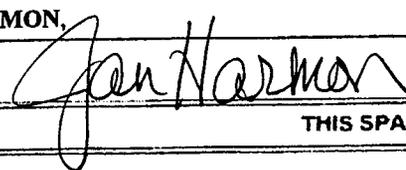
**RECEIVED**

**JAN 04 2000**

**DIVISION OF OIL, GAS & MINING**

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)  
**JAN HARMON,**

Title **OPERATION ASSISTANT**

Signature 

Date **12-30-99**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

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

Conditions of approval, if any, are attached. Approval of this notice 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.

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 States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 11/27/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 0 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 DEPTH: 0 COUNTY / STATE: Utah County, Utah  
 FOOTAGE LAST 24 HRS: 0  
 FORMATION: SURFACE DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 PRESENT OPERATIO: WORKING ON AIR HEATER LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 15.00 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 9.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_ pu tool time is drilling rat hole time  
 TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.3 VISC: 40 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_  
 PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ ANN. VEL.: \_\_\_\_\_ DC: \_\_\_\_\_  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

WORK ON AIR HEATER TILL 14:00 HR'S ON 11/26/99 START DAY WORK THEN . BUILD VIS AND VOLUME TILL 23:00 HR'S  
DRILL RAT HOLE FROM 23:00 HR'S TILL 23:30 HR'S AND THREW PUMP BELTS OFF #1 PUMP RIG TAKEN OFF DAYWORK  
AT 23:30. REPAIR RIG FROM 23:30 TILL 06:00

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____

CUM ROTATING HOURS: \_\_\_\_\_ Bit Wt: \_\_\_\_\_ ROTARY RPM: \_\_\_\_\_ MOTOR RPM: \_\_\_\_\_

BOTTOM HOLE ASSEMBLY: \_\_\_\_\_

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 11/28/99  
 DAYS SINCE SPUD: 0  
 DEPTH: 0  
 FOOTAGE LAST 24 HRS: 0  
 FORMATION: SURFACE  
 PRESENT OPERATIO OPENING RAT HOLE TO 12.25 FROM 9.875

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: \_\_\_\_\_

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 4.50 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 19.50 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.4 VISC 50 WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ ANN. VEL.: DC: \_\_\_\_\_  
 PUMP NO: 2 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINERS: X GPM: \_\_\_\_\_ DP: \_\_\_\_\_

**REMARKS/CASING/CEMENT**

REPLACE PUMP BELTS AND WELD OLD HOLES IN WATER TANK TILL 10:30 HR'S START DAYWORK BACK ON AT 10:30 HR'S  
DRILL RAT HOLE DOWN TO 40 FT. TRY TO RUN SHUCK IN HOLE AND STUCK IT WITH 18 FT BELOW SURFACE. PULLED SHUCK  
OUT AND PICKED UP 12.25 BIT TO OPEN HOLE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	#DIV/0!	_____

CUM ROTATING HOURS: \_\_\_\_\_ Bit Wt: \_\_\_\_\_ ROTARY RPM: \_\_\_\_\_ MOTOR RPM: \_\_\_\_\_

**BOTTOM HOLE ASSEMBLY:** \_\_\_\_\_

**Bard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/12/99  
DAYS SINCE SPUD: 13  
DEPTH: 1957  
FOOTAGE LAST 24 HRS: 162  
FORMATION: SUMMERVILLE / CURTIS  
PRESENT OPERATIO: CHAINING OUT FOR PRESSURE LOSS

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN:      DRLG: 21.00 REAMING:      CORING:      CIRC:      TRIPS: 1.50  
RIG SERVICE: 0.50 RIG REPAIR: 1.00 CUT D.L.:      SURVEY:      LOG:      RUN CSG:       
CEMENT:      WOC:      NIPPLE UP/DWN:      TEST BOP:      DST:      PLUG BACK:       
P.U.L.D. TOOLS:      W.O.O.      MISC:     

TOTAL HOURS: 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.8 VISC: 37 WTR LOSS: 9.5 F/C 1/32:      PH: 7.5 GELS 2/5:      PV: 5 YP: 4  
CHLORIDES: 2500 SOLIDS: 4 SAND: .125 CALCIUM: 520 OTHER MBT: 15

PUMP NO: 1 PRESS: 0 SPM:      LINER 6 16 GPM: 403 ANN. VEL.: DC 185  
PUMP NO: 2 PRESS: 950 SPM: 58 LINER 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

DRILL FROM 1795 FT TO 1870 FT , SERVICE RIG , DRILL FROM 1870 FT. TO 1933 FT. , CHECK SURFACE EQUIPMENT FOR P-LOSS  
DRILL FROM 1933 FT. TO 1957 FT. , CHAIN OUT OF HOLE FOR P-LOSS

SAMPLE TOP : SUMMERVILLE / CURTIS 1684 + (5023)

148 FT. HIGH TO UNION

143 HIGH TO PROGNOSIS

1780 - 1920 : SILTSTONE - LIGHT GREY , SANDY, HARD, CALCAREOUS SHALE - LIGHT GREY , BLOCKY, HARD, LIMEY, SLIGHTLY  
CARBONACEOUS. SANDSTONE - WHITE, LIGHT GREY, VERY FINE GRAINED, ANGULAR TO SUB-ROUND, LIMEY, TIGHT.

TRCES OF LIMESTONE AND ANHYDRITE

1920 TO 1960 -AS ABOVE WITH SILTSTONE - LIGHT REEISH GREY

SHALE - REDDISH BROWN, SANDY, CALCAREOUS, ANHYDRITE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
1	8.75	REED	HP43A	AK776E	3X15	0	49	2.00	24.5	36892
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 109.50 Bit Wt: 20 - 35 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO , 18 DC , JARS , 3 DC , XO = 703.16

**lard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/13/99  
DAYS SINCE SPUD: 14  
DEPTH: 2207 FT.  
FOOTAGE LAST 24 HRS: 250 FT.  
FORMATION: SUMMERVILLE/CURTIS  
PRESENT OPERATIO: DRILLING @ 2207 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 16.50 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: 4.50  
RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 1.50 CUT D.L.: \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: 1.50 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 45 WTR LOSS: 8.6 F/C 2/32: \_\_\_\_\_ PH: 9.5 GELS 3/12: \_\_\_\_\_ PV: 10 YP: 7  
CHLORIDES: 3200 SOLIDS: 3% SAND: .125 CALCIUM: 100 OTHER: MBT - 18  
PUMP NO: 1 PRESS: 0 SPM: \_\_\_\_\_ LINER: 6 16 GPM: 403 ANN. VEL.: \_\_\_\_\_ DC: 185  
PUMP NO: 2 PRESS: 950 SPM: 58 LINER: 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

CHAIN OUT OF HOLE LOOKING FOR PRESSURE LOSS (FOUND HOLE IN MIDDLE OF NON-MAG DC), REPAIR AIR LEAK IN MASTER CLUTCH, PICK UP NEW NON-MAG, BIT AND MUD MTR., TRIP IN HOLE, DRILL FROM 1957 FT. TO 2207 FT.

SUMMERVILLE / CURTIS FORMATION 1960 FT. - 2190 FT.  
SHALE - LIGHT TO MEDIUM GREY, HARD, BRITTLE, CALCAREOUS  
INTERBEDS - OF MUDSTONE & SANDSTONE LIGHT GREY, LIMEY  
SOME LIMESTONE - LIGHT GREY, SHALEY, SAND, CHALKY  
EXPECTING ENTRADA ANY TIME

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	0	250	16.50	15.2	_____
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	_____
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	_____
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	_____
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	_____
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	_____

CUM ROTATING HOURS: 109.50 Bit Wt: 20 - 35 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT, MM 1.50, FS, MONEL, HOS, XO, 18 DC, JARS, 3 DC, XO = 699.94

**Ilard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/14/99  
DAYS SINCE SPUD: 15  
DEPTH: 2470 FT.  
FOOTAGE LAST 24 HRS: 263 FT.  
FORMATION: LOOK'S LIKE TWIN CREEK  
PRESENT OPERATIO: DRILLING @ 2470 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 23.50 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
RIG SERVICE: 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L.: \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 45 WTR LOSS: 7.5 F/C 2/32: \_\_\_\_\_ PH: 10. GELS 3/14: \_\_\_\_\_ PV: 11 YP: 11  
CHLORIDES: 4800 SOLIDS: 4% SAND: .125 CALCIUM: 120 OTHER: MBT - 20

PUMP NO: 1 PRESS: 0 SPM: \_\_\_\_\_ LINER: 6 16 GPM: 403 ANN. VEL.: \_\_\_\_\_ DC: 185.  
PUMP NO: 2 PRESS: 950 SPM: 58 LINER: 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 11:00 DRILL FROM 2207 FT. TO 2277 FT. 70 FT. @ 14 FPH.

11:00-11:30 SERVICE RIG AND FUNCTION PIPE RAM'S

11:30 - 06:00 DRILL FROM 2277 FT. TO 2470 FT. 193 FT. @ 10.43 FPH.

DELETE SAMPLE TOP SUMMERVILLE CURTIS AND REPLACE WITH ARAPIEN SHALE(NORMAL FAULT) 1684 - (+5023)  
2190 - 2350 SHALE LIGHT TO MEDIUM GREY, BLOCKY, HARD, LIMEY SOME SILTSTONE - LIGHT GREY TRACE OF LIMESTONE  
BUFF  
2350 - 2450 LIMESTONE LIGHT GREY TO BUFF, ARGILLACEOUS TO SHALEY, MICRITIC TO FRAGMENTAL, FOSSILS, LOCALLY  
SANDY, SOME SHALE - AS ABOVE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>6</u>	<u>8.75</u>	<u>STC.</u>	<u>F-1</u>	<u>LEO092</u>	<u>3X12</u>	<u>0</u>	<u>513</u>	<u>40.00</u>	<u>12.8</u>	_____
<u>2</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>LT7447</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
<u>RR-1</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X14</u>	<u>1019</u>	<u>972</u>	<u>28.50</u>	<u>34.1</u>	_____
<u>5</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK7812</u>	<u>3X11</u>	<u>1957</u>	<u>938</u>	<u>64.00</u>	<u>14.7</u>	_____

CUM ROTATING HOURS: 109.50 Bit Wt: 20 - 35 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT, MM 1.50, FS, MONEL, HOS, XO, 18 DC, JARS, 3 DC, XO = 699.94

**Hard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/15/99  
DAYS SINCE SPUD: 16  
DEPTH: 2730  
FOOTAGE LAST 24 HRS: 260 FT.  
FORMATION: TWIN CREEK LIMESTONE  
PRESENT OPERATIO: DRILLING @ 2730 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8,36# J-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 23.50 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
RIG SERVICE: 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.7 VISC 48 WTR LOSS: 7.2 F/C 2/32 PH: 8.5 GELS 4/16 PV: 11 YP: 14  
CHLORIDES: 5500 SOLIDS: 4% SAND: .25 CALCIUM: 250 OTHER MBT - 22

PUMP NO: 1 PRESS: 0 SPM: \_\_\_\_\_ LINER 6 16 GPM: 403 ANN. VEL.: DC: 185.  
PUMP NO: 2 PRESS: 950 SPM: 58 LINER 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 14:00 DRILL FROM 2470 FT. TO 2560 FT.  
1400 - 1430 RIG SERVICE  
14:30 - 06:00 DRILL FROM 2560 FT. TO 2730 FT.

SAMPLE TOPS - TWIN CREEK LIMESTONE 2283 (+4424)  
2450 - 2560 LIMESTONE - LIGHT TO MEDIUM GREY, SHALEY TO SILTY, LOCALLY ANHYDRITIC  
2560 - 2570 SHALE DARK BROWNISH RED, SILTY  
2570 - 2590 LIMESTONE AS BEFORE  
2590 - 2610 SHALE - LIGHT REDDISH BROWN, SILTY  
2610 - 2700 LIMESTONE - LIGHT GREY, MICRITIC, HARD SHALEY, SOME ANHYDRITE. TRACE OF SHALE - REDDISH BROWN  
SILTY, LIMEY

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	0	773	63.50	12.2	
2	12.25	STC	FDS+	LT7447	3X20	0	49	1.00	49.0	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 133.00 Bit Wt: 20-30 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT, MM 1.50, FS, MONEL, HOS, XO, 18 DC, JARS, 3 DC, XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/16/99  
DAYS SINCE SPUD: 16  
DEPTH: 2871 FT.  
FOOTAGE LAST 24 HRS: 141 FT.  
FORMATION: TWIN CREEK LIMESTONE  
PRESENT OPERATIO: DRILLING @ 2871 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah

DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 15.50 REAMING: 1.00 CORING: \_\_\_\_\_ CIRC: 0.50 TRIPS: 5.50  
RIG SERVICE: 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L.: \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: 1.00 W.O.O.: \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS: 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 52 WTR LOSS: 8.2 F/C 2/32: \_\_\_\_\_ PH: 8.5 GELS 6/19: \_\_\_\_\_ PV: 14 YP: 28  
CHLORIDES: 6200 SOLIDS: 4% SAND: .25 CALCIUM: 600 OTHER: MBT - 22

PUMP NO: 1 PRESS: 0 SPM: \_\_\_\_\_ LINER 6 16 GPM: 403 ANN. VEL.: DC: 185.  
PUMP NO: 2 PRESS: 950 SPM: 58 LINER 5.5 15 GPM: 355 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 13:00 DRILL FROM 2730 FT. TO 2809 FT.  
13:00 - 13:30 RIG SERVICE  
13:30 - 17:30 DRILL FROM 2809 FT. TO 2841 FT.  
17:30 - 18:00 CIRC. BTM'S UP AND COLLECT SAMPLES  
18:00 - 20:00 TRIP OUT OF HOLE WITH BIT #6 (NO TIGHT SPOTS)  
20:00 - 21:00 PICK UP NEW BIT AND MWD.  
21:00 - 00:30 TRIP IN HOLE AND TEST MWD.  
00:30 - 01:30 WASH AND REAM 60 FT. (NO FILL)  
01:30 - 06:00 DRILL FROM 2841 FT. TO 2871 FT. B13  
IN LOWER PORTION OF TWIN CREEK LIMESTONE  
2700 - 2770 LIMESTONE TRACE OF SHALE BROWNISH RED.  
2770 - 2800 LIMESTONE AND ANHYDRITE  
2800 - 2820 LIMESTONE SOME ANHYDRITE 2820 - 2850 ANHYDRITE AND LIMESTONE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	0	30	4.50	6.7	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 133.00 Bit Wt: 20 -30 ROTARY RPM: 40-60 MOTOR RPM: 103

BOTTOM HOLE ASSEMBLY: BIT, MM 1.50, FS, MONEL, HOS, XO, 18 DC, JARS, 3 DC, XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/17/99  
DAYS SINCE SPUD: 18  
DEPTH: 2982 FT.  
FOOTAGE LAST 24 HRS: \_\_\_\_\_  
FORMATION: TWIN CREEK LIMESTONE  
PRESENT OPERATIO: DRILLING @ 2982 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 13.00 REAMING: 0.50 CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: 6.00  
RIG SERVICE: 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: 4.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 43 WTR LOSS: 8.8 F/C 2/32: \_\_\_\_\_ PH: 9. GELS 3/14: \_\_\_\_\_ PV: 13 YP: 9  
CHLORIDES: 5800 SOLIDS: 4% SAND: TR. CALCIUM: 350 OTHER MBT: 20

PUMP NO: 1 PRESS: 900./1000. SPM: \_\_\_\_\_ LINER: 6 16 GPM: 396. ANN. VEL.: \_\_\_\_\_ DC: 185.  
PUMP NO: 2 PRESS: 0 SPM: \_\_\_\_\_ LINER: 5.5 15 GPM: \_\_\_\_\_ DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 17:00 DRILL FROM 2871 FT. TO 2971 FT.  
17:00 - 17:30 RIG SERVICE.  
17:30 - 18:00 DRILL FROM 2971 FT. TO 2973 FT.  
18:00 - 21:30 PUMP FLAG FOR PRESSURE LOSS AND CHAIN OUT OF HOLE.  
21:30 - 01:30 CHECK MWD AND CHANGE OUT MUD MOTOR AND MWD.  
01:30 - 04:00 TRIP IN HOLE  
04:00 - 04:30 WASH AND REAM 40 FT. TO BTM. ( NO FILL )  
04:30 - 06:00 DRILL FROM 2973 FT. TO 2982 FT.

**TWIN CREEK LIMESTONE**

2850 - 2900 LIMESTONE - LIGHT TO MEDIUM GREY SOME SHALE - RED AND GREEN, SOME ANHYDRITE - WHITE  
2900 - 2950 LIMESTONE - GREY & GREENISH GREY, SHALE RED AND GREEN SOME ANHYDRITE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	0	141	17.50	8.1	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 133.00 Bit Wt: 20-30 ROTARY RPM: 40-60 MOTOR RPM: 99

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO , 18 DC , JARS , 3 DC , XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/18/99  
 DAYS SINCE SPUD: 19  
 DEPTH 3236  
 FOOTAGE LAST 24 HRS 254 FT.  
 FORMATION: TWIN CREEK LIMESTONE  
 PRESENT OPERATIO DRILLING @ 3236 FT.

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 23.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
 RIG SERVICE 1.00 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.6 VISC 47 WTR LOSS: 8.5 F/C 2/32 PH: 7.5 GELS 3/14 PV: 14 YP: 13  
 CHLORIDES: 6800 SOLIDS: 3% SAND: .250 CALCIUM: 800 OTHER MBT - 19

PUMP NO: 1 PRESS: 900/1000 SPM: \_\_\_\_\_ LINER 6 16 GPM: 396 ANN. VEL.: DC: 185  
 PUMP NO: 2 PRESS: 0 SPM: \_\_\_\_\_ LINER 5.5 15 GPM: \_\_\_\_\_ DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 15:30 DRILL FROM 2982 FT. TO 3088 FT.  
 15:30 - 16:00 SERVICE RIG  
 16:00 - 01:30 DRILL FROM 3088 FT. TO 3182 FT.  
 01:30 - 02:00 SERVICE RIG.  
 02:00 - 06:00 DRILL 3182 FT. TO 3236 FT.

**TWIN CREEK LIMESTONE**

2950 FT TO 3070 FT. - LIMESTONE AND SILTSTONE LIGHT TO MEDIUM GREY .  
 SOME SHALE BROWNISH RED.  
 TRACE OF DOLOMITE - TAN S,SANDY

3070 - 3200 - LIMESTONE , LIGHT GREY PARTLY ANHYDRITIC.  
 INTERBEDS OF SHALE DARK REDDISH , BROWN , SILTY

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	_____
7	8.75	REED	HP-43A	BA17976	3X12	0	395	40.50	9.8	_____
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	_____
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	_____
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	_____
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	_____

CUM ROTATING HOURS: 184.50 Bit Wt: 20-30 ROTARY RPM: 40-60 MOTOR RPM: 99

BOTTOM HOLE ASSEMBLY: BIT , MM 1.50 , FS , MONEL , HOS , XO , 18 DC , JARS , 3 DC , XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/19/99  
DAYS SINCE SPUD: 20  
DEPTH: 3492 FT.  
FOOTAGE LAST 24 HRS: 256 FT.  
FORMATION: TWIN CREEK LIMESTONE  
PRESENT OPERATIO: DRILLING @ 3492 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah  
DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 24.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
RIG SERVICE: \_\_\_\_\_ RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.7 VISC 48 WTR LOSS: 6.8 F/C 2/32 PH: 9 GELS 5/16 PV: 15 YP: 12  
CHLORIDES: 6200 SOLIDS: 4% SAND: .25 CALCIUM: 450. OTHER MBT - 21

PUMP NO: 1 PRESS: 900./1100. SPM: \_\_\_\_\_ LINER 6 16 GPM: 396. ANN. VEL.: DC: 185.  
PUMP NO: 2 PRESS: 0 SPM: \_\_\_\_\_ LINER 5.5 15 GPM: \_\_\_\_\_ DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 19:00 DRILL FROM 3236 FT. TO 3492 FT.

**TWIN CREEK LIMESTONE**

3200 - 3350 LIMESTONE - LIGHT TO MEDIUM GREY, ARGILLACEOUS, LOCALLY SILTY, SOME IS ANHYDRITIC, PARTLY MICACEOUS.

3350 - 3450 LIMESTONE - BUFF, TAN, LIGHT GREY, MICRITIC TO FRAGMENTAL, FOSSILS, LOCALLY ANHYDRITIC SLIGHTLY ARGILLACEOUS

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
<u>6</u>	<u>8.75</u>	<u>STC.</u>	<u>F-1</u>	<u>LEO092</u>	<u>3X12</u>	<u>2841</u>	<u>884</u>	<u>74.50</u>	<u>11.9</u>	_____
<u>7</u>	<u>8.75</u>	<u>REED</u>	<u>HP-43A</u>	<u>BA17976</u>	<u>3X12</u>	<u>0</u>	<u>651</u>	<u>64.50</u>	<u>10.1</u>	_____
<u>3</u>	<u>17.50</u>	<u>STC</u>	<u>DT</u>	<u>RR</u>	<u>3X20</u>	<u>0</u>	<u>49</u>	<u>1.00</u>	<u>49.0</u>	_____
<u>4</u>	<u>12.25</u>	<u>STC</u>	<u>FDS+</u>	<u>YE8711</u>	<u>3X16</u>	<u>402</u>	<u>355</u>	<u>35.50</u>	<u>10.0</u>	_____
<u>RR-1</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK776E</u>	<u>3X14</u>	<u>1019</u>	<u>972</u>	<u>28.50</u>	<u>34.1</u>	_____
<u>5</u>	<u>8.75</u>	<u>RTC</u>	<u>HP43A</u>	<u>AK7812</u>	<u>3X11</u>	<u>1957</u>	<u>938</u>	<u>64.00</u>	<u>14.7</u>	_____

CUM ROTATING HOURS: 208.50 Bit Wt: 20 -30 ROTARY RPM: 40-60 MOTOR RPM: 99

BOTTOM HOLE ASSEMBLY: BIT,MM, 1.50 DEG,FS,MONEL,HOS,XO.18 DC,JARS,3 DC,XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/20/99  
DAYS SINCE SPUD: 21  
DEPTH: 3757  
FOOTAGE LAST 24 HRS: 265 FT.  
FORMATION: TWIN CREEK LIMESTONE  
PRESENT OPERATIO: DRILLING @ 3757 FT.

WELL NAME: Oil Hollow Federal #5-1  
LOCATION: SEC: 5 TWN: 11S RGE: 5E  
COUNTY / STATE: Utah County, Utah

DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 23.50 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: \_\_\_\_\_  
RIG SERVICE: 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L.: \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
P.U./L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.9 VISC: 38 WTR LOSS: 8.8 F/C 2/32: \_\_\_\_\_ PH: 7.5 GELS: 2/9 PV: 8 YP: 4  
CHLORIDES: 6500 SOLIDS: 5% SAND: .25 CALCIUM: 800 OTHER: MBT - 18

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER: 6 16 GPM: \_\_\_\_\_ ANN. VEL.: \_\_\_\_\_ DC: 185.  
PUMP NO: 2 PRESS: 1000/1200. SPM: 57. LINER: 5.5 15 GPM: 350 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 10:30 DRILL FROM 3492 FT. TO 3558 FT.  
10:30 - 11:00 RIG SERVICE, FUNCTION PIPE RAM'S, BOP DRILL 70 SECONDS  
11:00 - 06:00 DRILL FROM 3558 FT. TO 3757 FT.

**TWIN CREEK LIMESTONE**

3450 - 90 LIMESTONE - BUFF, TAN SHALE - MEDIUM GREY, LIMEY  
3490 - 3520 LIMESTONE - GREY, TAN, OOLITIC  
3520 - 60 LIMESTONE - GREY, SHALEY.  
3560 - 70 LIMESTONE - TAN, BROWN, DETRITAL, ANHYDRITE  
3570 - 90 ANHYDRITE  
3590 - 3630 SHALE - DARK BROWNISH RED, SANDY, CALCAREOUS  
3630 - 3720 LIMESTONE - GREY, TAN, LOCALLY SANDY.  
3720 - 50 LIMESTONE - LIGHT TO MEDIUM GREY, SHALEY

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	0	916	88.00	10.4	
3	17.50	STC	DT	RR	3X20	0	49	1.00	49.0	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 232.00 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 88

BOTTOM HOLE ASSEMBLY: BIT, MM, 1.50 DEG, FS, MONEL, HOS, XO, 18 DC, JARS, 3 DC, XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/21/99 WELL NAME: Oil Hollow Federal #5-1  
 DAYS SINCE SPUD: 22 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 DEPTH 3940 FT. COUNTY / STATE Utah County, Utah  
 FOOTAGE LAST 24 HRS 183 FT.  
 FORMATION: NUGGET DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 PRESENT OPERATIO CIRC. SAMPLES @ 3940 FT. LAST CSG SIZE & DEPTH: 9 5/8,36# J-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 17.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: 1.00 TRIPS: 4.50  
 RIG SERVICE 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 1.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
 TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.7+ VISC 42 WTR LOSS: 8.2 F/C 2/32 PH: 9.5 GELS 2/12 PV: 10 YP: 6  
 CHLORIDES: 6000 SOLIDS: 4% SAND: .50% CALCIUM: 280 OTHER MBT - 18

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 1000./1200. SPM: 58. LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 12:30 DRILL FROM 3757 FT. TO 3849 FT.  
 12:30 - 13:30 CIRC. BTM'S UP AND SERVICE RIG.  
 13:30 - 16:00 TRIP OUT OF HOLE BIT #7  
 16:00 - 19:00 DRESS BIT AND CHECK MWD AND MTR. TRIP IN WITH BIT #8  
 19:00 - 05:30 DRILL FROM 3757 FT. TO 3940 FT.  
 05:30 - 06:00 CIRC UP SAMPLES @ 3940 FT.  
 SAMPLE TOP NUGGET SANDSTONE 3888 (+2819) 1632 FT. HIGH TO UNION  
 3750 - 3820 LIMESTONE GREY  
 3820 - 3850 LIMESTONE - BUFF,TAN,BROWN,OOLITES.  
 3850 - 3888 SANDY DOLIMITE- HARD,DENSE,SILICEOUS  
 3888 - 3940 NUGGET SANDSTONE

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	0	91	10.50	8.7	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.00 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM, 1.50 DEG,FS,MONEL,HOS,XO,18 DC,JARS,3 DC,XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/22/99  
 DAYS SINCE SPUD: 23  
 DEPTH 3950 FT.  
 FOOTAGE LAST 24 HRS 10  
 FORMATION: NUGGET  
 PRESENT OPERATIO TRIP IN WITH DST #1

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah

DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN:      DRLG: 0.50 REAMING:      CORING:      CIRC: 13.00 TRIPS: 8.50  
 RIG SERVICE 0.50 RIG REPAIR:      CUT D.L.      SURVEY:      LOG:      RUN CSG:       
 CEMENT:      WOC:      NIPPLE UP/DWN:      TEST BOP:      DST:      PLUG BACK:       
 P.U./L.D. TOOLS: 1.50 W.O.O.      MISC:     

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.7 VISC 43 WTR LOSS: 7.8 F/C 2/32 PH: 10 GELS 3/14 PV: 12 YP: 8  
 CHLORIDES: 6000 SOLIDS: 4% SAND: 250% CALCIUM: 60 OTHER MBT - 19

PUMP NO: 1 PRESS:      SPM:      LINER 6 16 GPM:      ANN. VEL.: DC: 185.  
 PUMP NO: 2 PRESS: 1000./1200. SPM: 58. LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 08:00 CIRC. & WAIT ON ORDERS  
 08:00 - 08:30 DRILL FROM 3940 FT. TO 3950 FT.  
 08:30 - 20:00 CIRC AND CONDITION HOLE  
 20:00 - 00:00 TRIP OUT OF HOLE AND LAY DOWN SPERRY  
 00:00 - 01:30 PICK UP TEST TOOL  
 01:30 - 0600 TRIP IN HOLE WITH TEST TOOL

**NUGGET SANDSTONE**

3940 - 50 SANDSTONE - WHITE, FINE GRAINED, FEW MEDIUM GRAINES, CLEAR QUARTZ, ANGULAR, CLAY FILLED,, PO TO GOOD POROSITY ( NO SHOW)

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC	F-1	LEO092	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	
4	12.25	STC	FDS+	YE8711	3X16	402	355	35.50	10.0	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM, 1.50 DEG,FS,MONEL,HOS,XO,18 DC,JARS,3 DC,XO = 699.94

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/23/99  
 DAYS SINCE SPUD: 24  
 DEPTH: 3984 FT.  
 FOOTAGE LAST 24 HRS: 34 FT.  
 FORMATION: NUGGET SANDSTONE  
 PRESENT OPERATIO: DRILLING @ 3984 FT.

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN: 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# J-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 5.00 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: \_\_\_\_\_ TRIPS: 6.00  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: \_\_\_\_\_ RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: 7.00 PLUG BACK: \_\_\_\_\_  
 P.U./L.D. TOOLS: 6.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_  
 TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: 8.7 VISC: 45 WTR LOSS: 7.5 F/C 2/32: \_\_\_\_\_ PH: 9.5 GELS 3/12: \_\_\_\_\_ PV: 11 YP: 11  
 CHLORIDES: 5900 SOLIDS: 4% SAND: .50% CALCIUM: 80 OTHER: mbt - 19  
 PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: \_\_\_\_\_ DC: 185  
 PUMP NO: 2 PRESS: 900./1050 SPM: 58 LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 13:00 SET PACKERS AND RUN DST #1(SEE ATTACHED FILE)  
 13:00 - 16:00 PULL PACKERS LOOSE AND CHAIN OUT OF HOLE  
 16:00 - 18:00 BREAK OUT AND LOAD OUT TEST TOOLS  
 18:00 - 22:00 PICK UP NEW BHA.  
 22:00 - 01:00 TRIP IN HOLE  
 01:00 - 06:00 DRILL FROM 3950 FT. TO 3984 FT.

NUGGET SANDSTONE 3950 - 70 TRIP SAMPLES HARD, TIGHT (NO SHOWS)

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEO092	3X12	2841	884	74.50	11.9	_____
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	_____
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	_____
9	8.75	REED	HP-52X	MR1440	3X12	_____	34	5.00	6.8	_____
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	_____
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	_____

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

BOTTOM HOLE ASSEMBLY: BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/24/99  
 DAYS SINCE SPUD: 25  
 DEPTH 4200 FT.  
 FOOTAGE LAST 24 HRS 216 FT.  
 FORMATION: NUGGET SANDSTONE  
 PRESENT OPERATIO LOG W/ SCHLUMBERGER

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC: 5 TWN 11S RGE: 5E  
 COUNTY / STATE Utah County, Utah  
 DRILLING CONTRACTOR Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: 17.50 REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: 1.00 TRIPS: 3.00  
 RIG SERVICE 0.50 RIG REPAIR: \_\_\_\_\_ CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: 2.00 RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: \_\_\_\_\_  
 P.U.L.D. TOOLS: \_\_\_\_\_ W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT 8.9 VISC 58 WTR LOSS: 7.4 F/C 2/32 PH: 10 GELS 5/18 PV: 16 YP: 12  
 CHLORIDES: 5200 SOLIDS: 5 SAND: 1% CALCIUM: TR OTHER MBT - 23

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185  
 PUMP NO: 2 PRESS: 900./1050 SPM: 58 LINER 5.5 15 GPM: 356 DP: 120

**REMARKS/CASING/CEMENT**

06:00 - 10:30 DRILL FROM 3984 FT. TO 4046 FT.  
 10:30 - 11:00 SEVICE RIG.  
 11:00 - 24:00 DRILL FROM 4046 FT. TO 4200 FT.  
 24:00 - 01:00 CIRC UP SAMPLES  
 01:00 - 04:00 SLM OUT OF HOLE (STRAP 4188.61 FT. TALLY 4200 FT.)  
 04:00 - 06:00 RU SCLUMBERGER AND LOG

**NUGGET SANDSTONE**

3970 - 4180 SANDSTONE - WHITE,BUFF,PINK,SOME RED,VERY FINE TO MEDIUM GRAINED,POOR - FAIR POROSITY  
 No shows  
 4180 - 4200 SANDSTONE - RED , VERY FINE TO COARSE GRAINEDPOOR POROSITY NO SHOWS

**SURVEYS**

DEPTH	ANGLE	DIRECTION	DEPTH	ANGLE	DIRECTION
SEE ATTACHED SURVEY FILE					

**BITS**

NO.	SIZE	MAKE	TYPE	SER. NO.	JETS	OUT	FTG	HRS	FT/HR	COND.
6	8.75	STC.	F-1	LEOO92	3X12	2841	884	74.50	11.9	
7	8.75	REED	HP-43A	BA17976	3X12	3849	1008	94.50	10.7	
8	8.87	REED	HP-43A	BA1795	3X12	3950	101	11.00	9.2	
9	8.75	REED	HP-52X	MR1440	3X12	4200	250	22.50	11.1	
RR-1	8.75	RTC	HP43A	AK776E	3X14	1019	972	28.50	34.1	
5	8.75	RTC	HP43A	AK7812	3X11	1957	938	64.00	14.7	

CUM ROTATING HOURS: 249.50 Bit Wt: 20 - 25 ROTARY RPM: 40 - 68 MOTOR RPM: 89

**BOTTOM HOLE ASSEMBLY:**

BIT,MM,FS,18 DC,JARS,3 DC,XO = 663.01

**Ballard Petroleum LLC**  
DAILY DRILLING REPORT

**CONFIDENTIAL**

DATE: 12/25/99  
 DAYS SINCE SPUD: 26  
 DEPTH: 4200 FT.  
 FOOTAGE LAST 24 HRS: 0  
 FORMATION: NUGGET SANDSTONE  
 PRESENT OPERATIO: SETTING TOP PLUG

WELL NAME: Oil Hollow Federal #5-1  
 LOCATION: SEC 5 TWN 11S RGE: 5E  
 COUNTY / STATE: Utah County, Utah  
 DRILLING CONTRACTOR: Cyclone Drilling Rig #12  
 LAST CSG SIZE & DEPTH: 9 5/8, 36# j-55 @ 402

**24 HOUR BREAKDOWN**

RIG UP/DWN: \_\_\_\_\_ DRLG: \_\_\_\_\_ REAMING: \_\_\_\_\_ CORING: \_\_\_\_\_ CIRC: 1.50 TRIPS: 3.50  
 RIG SERVICE: \_\_\_\_\_ RIG REPAIR: 0.50 CUT D.L. \_\_\_\_\_ SURVEY: \_\_\_\_\_ LOG: 9.50 RUN CSG: \_\_\_\_\_  
 CEMENT: \_\_\_\_\_ WOC: \_\_\_\_\_ NIPPLE UP/DWN: \_\_\_\_\_ TEST BOP: \_\_\_\_\_ DST: \_\_\_\_\_ PLUG BACK: 4.00  
 P.U./L.D. TOOLS: 5.00 W.O.O. \_\_\_\_\_ MISC: \_\_\_\_\_ CIRC TIME IS PUMPING MUD TO FORMATION \_\_\_\_\_

TOTAL HOURS 24.00

**MUD PROPERTIES**

MUD COMPANY: Anchor Drilling Fluids

MUD WT: \_\_\_\_\_ VISC: \_\_\_\_\_ WTR LOSS: \_\_\_\_\_ F/C: \_\_\_\_\_ PH: \_\_\_\_\_ GELS: \_\_\_\_\_ PV: \_\_\_\_\_ YP: \_\_\_\_\_  
 CHLORIDES: \_\_\_\_\_ SOLIDS: \_\_\_\_\_ SAND: \_\_\_\_\_ CALCIUM: \_\_\_\_\_ OTHER: \_\_\_\_\_

PUMP NO: 1 PRESS: \_\_\_\_\_ SPM: \_\_\_\_\_ LINER 6 16 GPM: \_\_\_\_\_ ANN. VEL.: DC: 185.  
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**REMARKS/CASING/CEMENT**

06:00 - 15:30 LOG W / SCHLUMBERGER RUN PLATFORM EXPRESS AND FMI  
 15:30 - 16:30 TRIP IN HOLE WITH BHA.  
 16:30 - 19:30 LAY DOWN BHA  
 19:30 - 22:00 TRIP IN HOLE TO 3900 FT. WITH DRILL PIPE.  
 22:00 - 23:30 INJECT 375 BBL'S OF MUD INTO FORMATION AT 300 PSI, 10.27 EQ MUD WT.  
 23:30 02:00 SET FIRST PLUG 3900 - 3800 ,,,54 SK'S OF CLASS "G" 15.80# , YLD.1.15 GOOD RETURNS  
 02:00 - 02:30 REPAIR THROTTLE ON RIG  
 02:30 - 03:00 LAY DOWN DRILL PIPE  
 03:00 - 03:30 SET SECOND PLUG 1800 - 1700 ,,,52 SK'S OF CLASS "G" 15.80 , 1.15 YLD. GOOD RETURNS  
 03:30 - 04:30 LAY DOWN DRILL PIPE  
 04:30 - 05:00 SET THIRD PLUG 450 - 350 ,,, 43 SK'S OF CLASS "G" 15.80 , 1.15 YLD. GOOD RETURNS  
 05:00 - 05:30 LAY DOWN DRILL PIPE  
 05:30 - 06:00 SET FOURTH PLUG 50 - 0 ,,, 30 SK'S OF CLASS "G" 15.80 , 1.15 YLD GOOD RETURN'S

**SURVEYS**

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