

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0136  
Expires November 30, 2000

001

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>UTU-076772</b>
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name <b>N/A</b>
2. Name of Operator <b>ST OIL COMPANY</b>		7. If Unit or CA Agreement, Name and No. <b>N/A</b>
3a. Address <b>1801 BROADWAY, SUITE 600 DENVER, CO 80202</b>	3b. Phone No. (include area code) <b>(303) 296-1908</b>	8. Lease Name and Well No. <b>FEDERAL 1-31</b>
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface <b>2147' FSL &amp; 1085' FWL</b> At proposed prod. zone <b>SAME</b> <i>4221459 Y 38.13285 645936 X - 109.33496</i>		9. API Well No. <b>43-037-21830</b>
14. Distance in miles and direction from nearest town or post office* <b>20 AIR MILES NORTH OF MONTICELLO</b>		10. Field and Pool, or Exploratory <b>WILDCAT (MISSISSIPPIAN)</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>493'</b>	16. No. of Acres in lease <b>479.78</b>	11. Sec., T., R., M., or Blk. and Survey or Area <b>31-30s-24e SLM</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>N/A</b>	19. Proposed Depth <b>9,000'</b>	12. County or Parish <b>SAN JUAN</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>5,806' GL</b>	22. Approximate date work will start* <b>UPON APPROVAL</b>	13. State <b>UT</b>
17. Spacing Unit dedicated to this well <b>LOT 3 (=NWSW)</b>		
20. BLM/BIA Bond No. on file <b>BLM UTB000055 (LEASE WIDE)</b>		
23. Estimated duration <b>6 WEEKS</b>		24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- Such other site specific information and/or plans as may be required by the authorized officer.

Comments

**CONFIDENTIAL**

cc:BLM (Moab & Monticello), Ferris, UDOGM

25. Signature 	Name (Printed/Typed) <b>BRIAN WOOD</b>	Date <b>9-14-03</b>
Title <b>CONSULTANT</b>	PHONE: 505 466-8120 FAX: 505 466-9682	
Approved by (Signature) 	Name (Printed/Typed) <b>BRADLEY G. HILL</b>	Date <b>10-06-03</b>
Title <b>ENVIRONMENTAL SCIENTIST III</b>	Office	

**Federal Approval of this Action is Necessary**

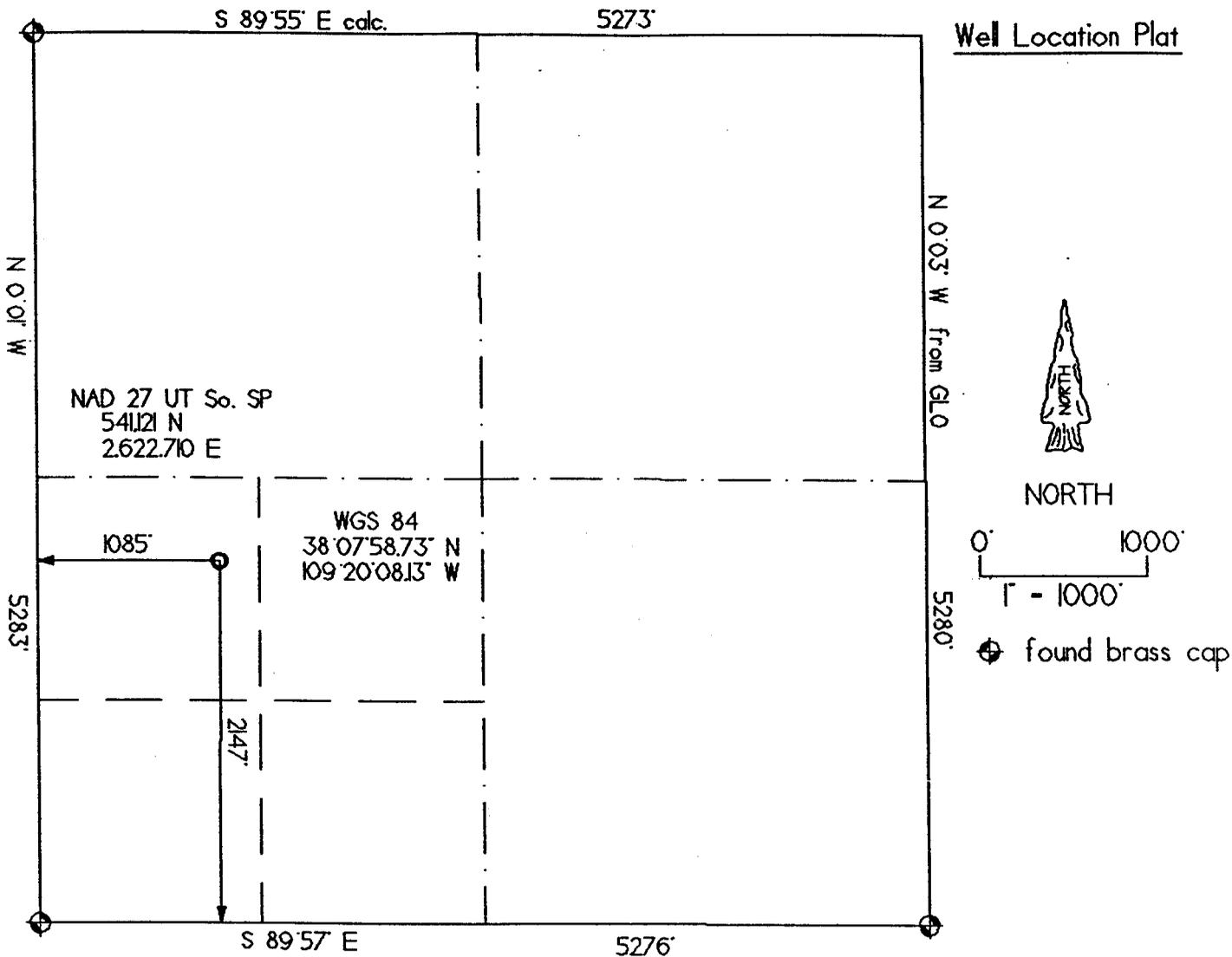
Application approval does not warrant or certify the the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

RECEIVED  
SEP 24 2003

BUREAU OF OIL, GAS & MINING



Well Location Description

ST OIL COMPANY  
 Federal 1 - 31  
 2147' FSL & 1085' FWL  
 Section 31, T.30 S., R.24 E., SLM  
 San Juan County, UT  
 5806' grd. el. ( from GPS)



8/11/03

*Gerald G. Huddleston*  
 Gerald G. Huddleston, LS

The above is true and correct to my knowledge and belief.

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2147' FSL & 1085' FWL  
Sec. 31, T. 30 S., R. 24 E.  
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## Drilling Program

### 1. FORMATION TOPS

The estimated tops of important geologic markers are:

<u>Formation Name</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Entrada/Carmel Sandstone	00'	18'	+5,806'
Navajo Sandstone	307'	325'	+5,499'
Chinle Shale	1,082'	1,100'	+4,724'
Cutler Sandstone	1,582'	1,600'	+4,224'
Honaker Trail	3,178'	3,196'	+2,628'
Upper Ismay	4,644'	4,662'	+1,162'
Lower Ismay	4,814'	4,832'	+992'
Desert Creek	4,964'	4,982'	+842'
Top of Salt	4,987'	5,005'	+819'
Base of Salt	7,817'	7,835'	-2,011'
Molas	7,914'	7,932'	-2,108'
Mississippian	7,954'	7,972'	-2,148'
Ouray	8,407'	8,425'	-2,601'
Elbert	8,524'	8,542'	-2,718'
McCracken	8,682'	8,700'	-2,876'
Total Depth (TD)*	9,000'	9,018'	-3,194'

\* all elevations reflect the proposed graded ground level of 5,806'

### 2. NOTABLE ZONES

Oil and gas are goals in the Mississippian zones. Fresh water may be found in the Entrada to Navajo interval. Oil and gas shows which appear to the well site geologist to be commercial will be tested. All fresh water and prospectively valuable minerals will be recorded by depth and protected with casing and cement.

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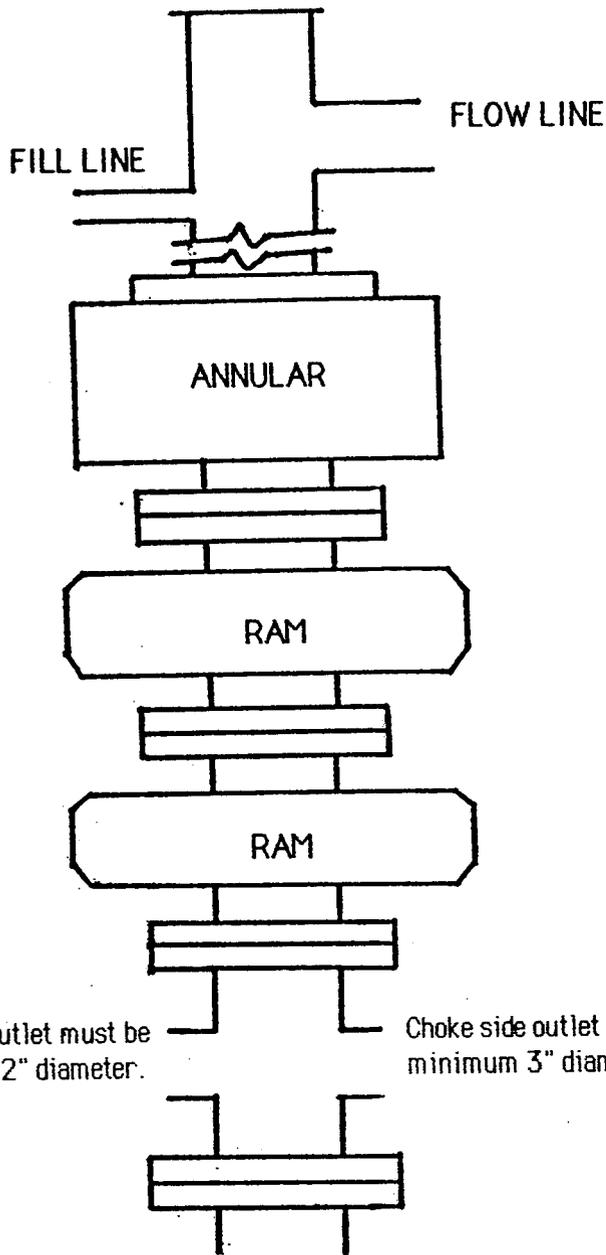
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### 3. PRESSURE CONTROL

A 13-5/8" 3,000 psi double ram and annular preventer with a 3,000 psi choke manifold will be used. A diagram of a typical BOP is on Page 3. Actual model will not be known until bid is let. Procedures are ...

- Nipple up BOP and all equipment
  - Test to 250 #/3,000#
  - Test Hydril to 2,000 psi
  - Log in I. A. D. C. book
- Drill 1/2 of shoe joint
  - Test to 1,500 psi for 30 minutes
  - Log in I. A. D. C. book
- Activate BOPs every 24 hours or on trips and log in I. A. D. C. book
- Install hand wheels and lay straight flare lines before drilling out
- Conduct weekly BOP drills with each crew and log in I. A. D. C. book
- Have floor valve and wrench on floor at all times
  - Floor valve must be in open position
- Before drilling surface casing shoes, blind rams will be closed. BOP and surface casing will be pressure tested to 1,500 psi for a total test time of 30 minutes if not previously tested by Halliburton during cement job.
- Studs on all well head and BOP flanges will be checked for tightness weekly
- Hand wheels for locking screws will be installed and operational
- Entire BOP and well head assembly will be kept clean of mud
- A drill stem safety valve in the open position will be available
- Call BLM at (435) 587-1525 and the Utah Division of Oil, Gas, & Mining at (801 538-5340) before testing BOPs



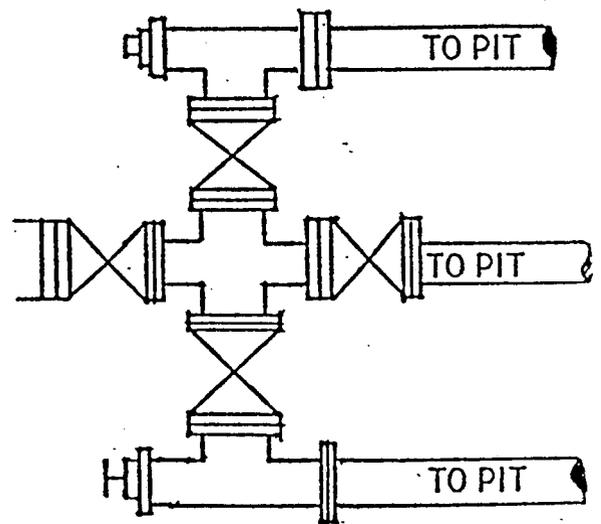
Kill side outlet must be minimum 2" diameter.

Choke side outlet must be minimum 3" diameter.

Kill line will be minimum 2" diameter and have 2 valves, one of which shall be a minimum 2" check valve.

### TYPICAL BOP STACK & CHOKE MANIFOLD

There will be at least 2 chokes and 2 choke line valves (3" minimum). The choke line will be 3" in diameter. There will be a pressure gauge on the choke manifold.



Upper kelly cock will have handle available.  
 Safety valve and subs will fit all drill string connections in use.  
 All BOPE connections subjected to well pressure will be flanged, welded, or clamped.

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#### 4. CASING & CEMENT

<u>Hole Size</u>	<u>O. D.</u>	<u>Burst</u>	<u>Collapse</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>	<u>Barrel/Foot</u>	<u>Depth</u>
20"	13-3/8"				Conductor Pipe			0' - 60'
12-1/4"	9-5/8"	3,520	2,020	36#	J or K-55	S T & C	0.0773	0' - 1,550'
7-7/8"	5-1/2"	5,320	4,910	17#	K-55	L T & C	0.0232	0' - 1,000'
7-7/8"	5-1/2"	4,810	4,040	15.5#	K-55	L T & C	0.0238	1,000' - 6,000'
7-7/8"	5-1/2"	7,250	6,070	17#	K-55	L T & C	0.0232	6,000' - 8,000'
7-7/8"	5-1/2"	5,320	4,910	17#	C-75	L T & C	0.0232	8,000' - 9,000'

Call BLM at (435) 587-1525 and the Utah Division of Oil, Gas, & Mining at (801) 538-5340 before running casing.

Surface casing will be cemented to surface with 750 sacks (>145% excess).

- Use guide shoe and insert float separated by one joint
- Casing fill should be checked at each joint when running
- Place centralizers 5' off the bottom and on the 1st, 2nd, 3rd, & 5th joints
- Baker lock guide shoe on both sides of collar between 1st and 2nd joints
- After casing is run, then circulate at least once until cuttings are clean
- Reciprocate pipe while circulating
- Lead with ≈450 sacks Halliburton light standard cement + 2% CaCl<sub>2</sub> + 1/4 pound per sack Flocele mixed at 12.8 pounds per gallon, 1.86 cubic feet per sack, and 8.81 gallons per sack water
- Tail with ≈300 sacks standard cement + 1% CaCl<sub>2</sub> + 1/4 pound per sack Flocele mixed at 15.6 pounds per gallon, 1.19 cubic feet per sack, and 5.25 gallons per sack water
- If cement drops from surface, do 1" top job after 2 hours
- Release pressure, if float does not hold, then trap pressure equal to final displacement pressure and hold for six hours
- Surface casing can be pressure tested with cementing service pump truck immediately after checking float to 1,500 psi for 30 minutes. This will eliminate testing casing during BOP test.
- W. O. C. time will be six hours before nipping up
- Total time will be 12 hours before running BOP and drilling out

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Production casing will be cemented to  $\approx 600'$ . Procedures are ...

- All joints are to be inspected for damaged threads, rabbited, and properly doped with thread compound.
- Two casing joints that are extra long or short will be put into the string near the pay zone for correlation of open hole logs with cased hole logs
  - Mill scale and varnish from casing where it crosses any potential pay zones
- Pump 10 bbl mud flush, 10 bbl flush, tail, wash line @ cement head, displace
- Lead with  $\approx 530$  sacks Halliburton light with 5 pounds per sack gilsonite + 1/4 pound/sack cellophane + 15% salt mixed at 12.5 pounds per gallon, 2.20 cubic feet per sack, and 11.1 gallons per sack water
- Tail with  $\approx 270$  sacks premium with 5 pounds per sack gilsonite + 0.6 pounds per sack Halad 9 + 0.25 pounds per sack cellophane + 15% salt mixed at 13.5 pounds per gallon, 1.49 cubic feet per sack, and 6.08 gallons water per sack
- Actual volume will be based on caliper log with  $\geq 7\%$  excess.
- Halliburton will provide float, plugs, and shoe equipment. A differential fill float shoe will be on the bottom of the string. A differential float collar will be set two joints above the shoe if sufficient rat hole exists below the lowest productive zone.
- Centralizers will be placed on the shoe joint, top of the #2 and #3 joints, and continue through and above the pay zones at 90' intervals.
- Before pumping cement for the first stage, condition the hole until it is clean of cuttings and for  $\geq 90$  minutes.
- Reciprocate pipe as casing head is installed until the plug is bumped.
- Casing should be reciprocated 10'.
- Pipe should be spaced out and sufficient hole exist that there will be no problem if the pipe stops at the top of the stroke.
- Check drag continuously while cementing, particularly after cement leaves casing and starts up outside.
- Displace top plug with fresh water at 14 barrels per minute.
- Monitor back side for flow for 2 hours before cutting off.
- Nipple down BOP, set casing slips with full casing string weight, cut off casing, set out BOPE, and install "C" section of well head.

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#### 5. MUD PROGRAM

<u>Interval</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>	<u>Type</u>
0-1550'	8.3 - 8.7	27-32	N/C	Fresh H <sub>2</sub> O gel lime spud mud, pH 9
1550'-5000'	8.4 - 10.0	38-40	8 cc	Fresh water gel & PHPA, SAPP, etc
5000' - TD	9.0 - 10.5	40 - 45	10 - 12 cc	Brine, gel, & polymer

Samples will be collected every 10' from ≈1,550' to TD. Samples will be collected by the rig crew until 3,500'. Samples will be collected by a mud logger from ≈3,500' to TD.

#### 6. CORING, TESTING, & LOGGING

No cores and no drill stem tests are planned. Array Induction - GR logs will be run from TD to base of surface casing. Compensated Neutron - Litho Density - GR logs will be run from TD up hole ≈2,500'. Sonic Log - GR will be run from TD to base of surface casing.

#### 7. DOWN HOLE CONDITIONS

Hydrogen sulfide (1% to 4%) is expected. A hydrogen sulfide contingency plan will be filed under separate cover by Standby Safety Services. Will rig up hydrogen sulfide contingency equipment before drilling out of salt. No abnormal temperatures or pressures are expected. Maximum pressure will be ≈3,600 psi. Hole deviation will be ≤1° to 500'. Directional surveys will be taken as needed and at TD.

#### 8. OTHER INFORMATION

Call BLM at (435) 587-1525 and the Utah Division of Oil, Gas, & Mining at

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(801 538-5340) before spudding. The anticipated spud date is October 15, 2003. It will take  $\approx$ 4 weeks to drill and  $\approx$ 2 weeks to complete the well.

Call BLM and the Utah Division of Oil, Gas, & Mining before plugging and abandoning the well.

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## Surface Use Plan

### 1. DIRECTIONS (See PAGES 14 & 15)

From the Monticello, go North ≈20 miles on US 191 to Mile Post ≈91.4  
Then turn right onto paved County Road 2448/113 and go East 2.1 miles  
Then turn right after a cattle guard and before Hatch Wash  
Go South 1/3 mile on a jeep trail  
Continue South ≈450' cross country on an orange flagged route  
Intersect a seismic trail and continue South 1/2 mile to the proposed well

Roads will be maintained to a standard at least equal to their present condition.

*This APD is also serving as a BLM road right-of-way application. Right-of-way crosses E2SW4 30-30s-24e, San Juan County, Utah. Dimensions are 30' x 1,584' = 1.09 acres.*

### 2. ROAD WORK (See PAGE 15)

The junction of the jeep trail and paved county road will be upgraded. An 18" x 50' culvert will be installed in the south borrow ditch of the paved county road. The first ≈50' of jeep trail will be surfaced with 50 cubic yards of 4" crushed pit run.

The road will initially be flat bladed with a 16' wide running surface. Maximum disturbed width will be 20' (except at the culvert) in this phase. Maximum cut or fill will be 2'. Maximum grade will be 1%. No cattle guard or turn out is needed now. If production results, then it will be upgraded to all weather BLM standards.

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3. EXISTING WELLS (See PAGE 15)

There are is one oil or gas well and two water wells within a mile radius. There are no existing injection wells within a mile.

4. PROPOSED PRODUCTION FACILITIES

A well head, pump, separator, and tank battery will be installed. All will be painted a flat Carlsbad tan or juniper green color. Tanks will be surrounded by an impermeable dike with sufficient capacity to hold 150% of the volume of the largest tank within the dike.

5. WATER SUPPLY

ST's water hauler will truck water from Jim Blankenagel's permitted (05-570) water source in SWNW 7-29s-24e.

6. CONSTRUCTION MATERIALS & METHODS (See PAGES 16 & 17)

Dirt contractor will call BLM ((435) 587-1525) at least 48 hours before starting construction. The top 6" of soil and brush will be stripped and stockpiled south and west of the pad. A ditch will be cut along the east side of the pad.

BLM will inspect the reserve pit after it is constructed to determine if a pit liner is needed. If lining is needed, the reserve pit will be lined a minimum 12 mil liner or at least 24 tons of commercial bentonite worked into 3:1 slopes. No liquid hydrocarbons will be discharged to the pit, pad, or road. Should hydrocarbons escape, they will be cleaned up and removed within 48 hours. Pit top will be netted.

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The pit will be fenced 48" high on 3 sides with 32" high woven wire topped with 2 smooth wire stands 4" and 16" above the woven wire. Steel posts will be set  $\approx 16.5'$  apart. Corner posts will be  $\geq 6"$  O. D. wood and anchored with a dead man. The fourth side will be fenced the same when drilling stops. The fence will be kept in good repair while the pit dries.

#### 7. WASTE DISPOSAL

Once dry, contents of the reserve pit will be buried in place.

Human waste will be disposed of in chemical toilets, which will be hauled to a state approved dump station. All trash will be placed in a portable trash cage. It will be hauled to the county landfill. There will be no trash burial or burning.

#### 8. ANCILLARY FACILITIES

There will be no air strips or camps. Camper trailers may be on location for the company man, tool pusher, and mud loggers.

#### 9. WELL SITE LAYOUT

See PAGES 16 and 17 for depictions of the well pad, cross section, cut and fill diagram, reserve pit, trash cage, access onto the location, parking, living facilities, and rig orientation.

#### 10. RECLAMATION & REVEGETATION

Upon completion of drilling, the well site will be cleared of all debris, material,

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and junk not needed for production.

Reclamation will start when the reserve pit is dry. All areas not needed for production will be back filled, contoured to natural contours, and reserved topsoil and brush spread. If the well is a producer, then enough topsoil will be saved to reclaim the rest of the pad. The topsoil pile and all reclaimed areas will be broadcast seeded between October 1 and February 28 with the following mix. Sown areas will be left rough and lightly harrowed (4" deep) after seeding.

4 lb/ac alkali sacaton  
4 lb/ac four wing saltbush  
4 lb/ac scarlet globe mallow

#### 11. SURFACE OWNER

All construction is on BLM.

#### 12. OTHER INFORMATION

The nearest hospital is a half hour drive away in Monticello. It is 3 blocks northwest of the intersection of US 666/491 and US 191. Hospital phone number is (435) 587-2116. Or dial 1-800-332-1911 from anywhere in the county. Give the operator the latitude and longitude (see section plat (which is the second page of the APD)) of the well.

#### 13. REPRESENTATION & CERTIFICATION

Anyone having questions concerning the APD should call:

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Brian Wood, Consultant  
Permits West, Inc.  
37 Verano Loop  
Santa Fe, NM 87508  
(505) 466-8120

FAX: (505) 466-9682

Cellular: (505) 699-2276

The company representative is:

Rich Ferris  
ST Oil Company  
1801 Broadway, Suite 600  
Denver, Co. 80202  
(303) 296-1908

FAX: (303) 296-0329

Cellular: (303) 618-2925

The well site geologist will be Herb Mosca ((218) 264-9770). He will be present from ≈2,800' to TD.

The on site drilling and production representative will be Randy Shelton.

Office: (435) 678-2169      Cellular: (435) 459-1027

ST Oil Company is considered to be the operator of the Federal 1-31 well in the NWSW 31-30s-24e, Lease UTU-76772, San Juan County, Utah, and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands. Bond (lease bond #UTB000055 is on file with BLM in Salt Lake) coverage for this well will be provided via surety consent as provided for in 43 CFR 3104.2. BLM will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 continuing responsibility are met.

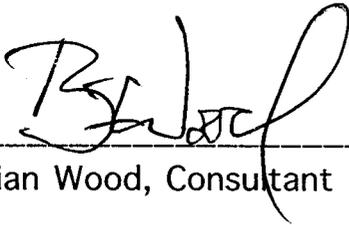
I hereby certify ST Oil Company has the necessary consents from the proper lease and unit interest owners to conduct lease operations in conjunction with this APD. Bond coverage *per* 43 CFR 3104 for lease activities will be provided by ST Oil Company I hereby certify I have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my

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knowledge, true and correct; and that the work associated with operations proposed herein will be performed by ST Oil Company and its contractors and subcontractors in conformity with this 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.



-----  
Brian Wood, Consultant

September 14, 2003

Date: 9/22/03

## H2S CONTIGENCY PLAN

Company Name: ST Oil Company

Address: 1801 BROADWAY, SUITE 600  
DENVER CO 80202

Well Name: Federal 1-31

T.D.: 9000'

Location: 2147' FSL & 1085' FWL

Field Name: Wildcat

Surface Formation: Entrada/Camel Sandstone

H2S Formation and depth: Mississippian 7,954'

(H2S safety equipment and supervision needs to be on location 1000ft. above H2S formation)

### **OPERATIONS SUPERINTEDEDENT:**

Name: Rich Ferris

Office Tele: 303-296-1908

Home Tele:

### **COMPANY MAN:**

Name: Randy Shelton

Office Tele: 435-678-2169

Home Tele: (cell) 435-459-1027

### **GEOLOGIST:**

Name: Herb Mosca

Office Tele: 218-264-9770

Home Tele:

### **RIG CONTRACTOR:**

Name: (Not Available)

Rig Number:

Rig Tele:

### **DRILLING SUPERITENDENT:**

Name: (Not Available)

Office Tele:

Home Tele:

### **TOOL PUSHERS:**

Name: (Not Available)

Home Tele:

Name:

Home Tele:

I. **INTRODUCTION** H2S is a toxic, poisonous gas that could cause death or injury. The objective of this contingency plan is to provide an organized plan of action for alerting and protecting the public from H2S exposure in the event a potentially hazardous volume is accidentally released to the atmosphere. This plan should be activated immediately if any such release occurs. The Drilling Superintendent is responsible for initiating and carrying out the plan.

II. **INDIVIDUAL RESPONSIBILITIES** It is the responsibility of all personnel on the location to familiarize themselves with the procedures outlined in this contingency plan.

A. All Personnel:

1. Responsible for his assigned safety equipment.
2. Responsible for familiarizing himself with the location of all safety equipment.
3. Responsible for reporting any indications of H2S to those in the area and to a supervisor.

B. Drilling Superintendent:

1. Responsible for thoroughly understanding and seeing that all aspects of this contingency plan are enforced.
2. Responsible for implementing all phases of this contingency plan.
3. Responsible for keeping a minimum of personnel on the locating during expected hazardous operations.
4. Responsible for coordinating all well site operations and communications in the event that an emergency condition develops.
5. Responsible for ensuring that all visitors receive an H2S Safety Orientation. A visitors log will be maintained as well as a list of all personnel on the location after drilling has progressed to the suspected H2S formation.

### III. LOCATION LAYOUT

A. The location of a least two pre-determined safe areas to assemble at in the event of an emergency. These locations should be located 180 degrees to one another, and in the direction of the prevailing winds.

B. H2S rig monitor with three (3) heads. One located at the bell nipple, one located at the shale shaker, and a third one on the rig floor. Indicate here any other additional H2S detector locations for this well:

Type:

Location:

Type:

Location:

C. The location and type of all air masks. Self-contained breathing apparatus for use by rig personnel for this well will be kept in the following location(s):

Type: 1 – 30 Min. Rescue Unit	Location: Company Man’s Trailer
Type: 1 – 30 Min. Rescue Unit	Location: Tools Pusher’s Trailer
Type: 2 – 30 Min. Rescue Units	Location: Briefing Area #1
Type: 2 – 30 Min. Rescue Units	Location: Briefing Area #2
Type: 5 – 5 Min. Escape Units	Location: Rig Floor

If a cascade system is utilized, indicate the location(s):

Type:	Location:
Type:	Location:

D. The location of windsocks or streamers. The wind direction indicators for this well will be located at:

Type: Windsock	Location: Briefing Area #1
Type: Windsock	Location: Briefing Area #2
Type: Windsock	Location: Pits
Type: Windsock	Location: Rig Floor

E. The location of any other safety equipment used, such as flare guns or bug blowers:

Type: Hand Held Detector & Tubes	Location: Rig Floor
Type:	Location:

F. The location of all telephones and/or means of communication are as follows:

Type: Unknown at this time	Location:
Type:	Location:

G. Warning Signs:

1. “NO SMOKING” signs should be strategically located around the rig and rig location. The following locations are appropriate:

- a. Doghouse
- b. Rig Floor
- c. Substructure
- d. Lower landing of all stairs leading to rig floor
- e. Mud pits
- f. Shale shaker

2. “POISON GAS” signs should also be strategically located round the rig and rig location. The following locations are appropriate:

- a. All entrances leading to the location
- b. Lower landing of all stairs leading to rig floor
- c. All areas around substructure, including mud pits and shale shaker
- d. Various points along the perimeter of the radius of exposure.

**NOTE:** All warning signs should be black and yellow in color and of readable size at a reasonable distance.

**IV. OPERATING PROCEDURES** The following operating procedures will be utilized for drilling in areas with H<sub>2</sub>S.

- A. Plan of operating for handling gas kicks and other drilling problems. Any gas kick will be controlled by using approved well control techniques. Upon evidence that ambient H<sub>2</sub>S concentrations have reached 10 PPM, all non-essential personnel will be evacuated to pre-determined safe areas. Personnel remaining on the rig floor will continue to control the well until the situation indicates the area is safe to re-enter.
- B. Special Operations
  - 1. Drill Stem Tests. All drill stem tests must be closed chamber and conducted during daylight hours.
  - 2. Coring. After a core has been cut, circulate bottoms up and monitor for h<sub>2</sub>s. If hole conditions (and/or detectors) indicate potentially hazardous conditions, put breathing equipment on 10 stands before core barrel reaches the surface. Breathing equipment will be worn by all personnel while core barrel is pulled, broken out and opened up, and until a safe atmosphere is indicated.

**V. OPERATING CONDITIONS** Operating conditions are defined in three categories. A description of each of these conditions and the required action to take are given below.

**A. CONDITION I - Normal Operating Conditions, Potential Danger, Operations Under Control**

- Characterized by: Normal drilling operations and test operations in zones which contain or may contain H<sub>2</sub>S.
- Warning Flag: Yellow
- Alarm: None
- Probable Occurrence: No detectable gas present at surface.
- General Action:
  - (1) Know location of safety equipment.
  - (2) Check safety equipment for proper function. Keep it available.
  - (3) Be alert for a condition change.
  - (4) Follow instructions of supervisor.

**B. CONDITION II - Potential to Moderate Danger to Life**

Characterized by: H<sub>2</sub>s gas present. Concentration less than 10 PPM.

Warning Flag: Orange

Alarm: Flashing light at 10 PPM H<sub>2</sub>S.  
Intermittent blasts on horn at 10 PPM H<sub>2</sub>S.

Probable Occurrence: (1) As drill gas.  
(2) As trip gas when circulating bottoms up.  
(3) When a core barrel is pulled.  
(4) When a well kick is circulated out.  
(5) Surface pressure, well flow or lost operations.  
(6) Equipment failure during testing operations.

General Action: (1) Follow instructions of supervisor.  
(2) Put on breathing equipment if directed, or if conditions warrant it.  
(3) Stay in "SAFE BRIEFING AREA" if instructed and not working to correct the problem.  
(4) The Drilling Superintendent will initiate action to reduce the H<sub>2</sub>S concentration to zero.

**C. CONDITION III - Moderate to Extreme Danger to Life**

Characterized by: H<sub>2</sub>S present in concentrations at or above 10 PPM. Critical well operations or well control problems. In the extreme, loss of well control.

Warning Flag: Red

Alarm: Flashing light and continuous blast on horn at 10 PPM H<sub>2</sub>S.

Probable occurrence: (1) As drill gas.  
(2) As trip gas when circulating bottoms up.  
(3) When a core barrel is pulled.

- (4) When a well kick is circulated out.
- (5) Surface pressure, well flow or lost returns problems.
- (6) Equipment failure during testing operations.

General Action:

- (1) Put on breathing equipment. Move to "SAFE BRIEFING AREA" and remain there is not working to correct or control problem.
- (2) Follow instructions of Drilling Superintendent or other supervisor.
- (3) The Drilling Superintendent will initiate emergency action as provided in the contingency plan and as appropriate to the actual conditions. If testing operations are in progress the well will be shut in.
- (4) The Drilling Superintendent will conduct any necessary operations with an absolute minimum of personnel. All persons in the immediate area will wear a breathing apparatus. All other personnel will restrict their movements to those directed by the Superintendent.
- (5) If gas containing hydrogen sulfide is ignited, the burning hydrogen sulfide will be converted to sulfur dioxide which is poisonous.

**VI. EMERGENCY PROCEDURES** The procedures listed below apply to drilling and testing operations.

A. If at any time during Condition I, the mud logger, mud engineer, or any other person detects H<sub>2</sub>S, he will notify the Drilling Superintendent. All personnel should keep alert to the Drilling Superintendent's orders. He will:

1. Immediately begin to ascertain the cause or the source of the H<sub>2</sub>S and take steps to reduce the H<sub>2</sub>S concentration to zero. This should include having the mud engineer run a sulfide and pH determination on the flowline mud if water-base mud is in use. If an oil-base mud is in use, the mud engineer should check the lime content of the mud.
2. Order non-essential personnel out of the potential danger area.
3. Order all personnel to check their safety equipment to see that it is working properly and in the proper location. Persons without breathing equipment will not be allowed to work in a hazard area.
4. Notify the Contract Supervisor of condition and action taken.
5. Increase gas monitoring activities with portable H<sub>2</sub>S detectors and continue operations with caution.
6. Display the orange warning flag.

B. If the H2S concentration exceed 10 PPM the following steps will be taken:

1. Put on breathing equipment.
2. Display red flag
3. Driller - prepare to shut the well in.
  - a. Pick up pipe to get kelly out of BOP's.
  - b. Close BOP's if necessary.
4. If testing operations are in progress, the well will be shut-in.
5. Help anyone who may be affected by gas.
6. Evacuate quickly to the "SAFE BRIEFING AREA" if instructed or conditions warrant.

C. In the event a potentially hazardous volume of H2S is released into the atmosphere, the following steps must be taken to alert the public:

1. Remove all rig personnel from the danger area and assemble at a pre-determined safe area, preferable upwind from the well site.
2. Alert the drilling office, public safety personnel, regulatory agencies, and the general public of the existence and location of an H2S release. See List of Emergency Telephone Numbers.
3. Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any unauthorized people within the area should be informed that an emergency exists and be ordered to leave immediately.
4. Request assistance from public safety personnel to control traffic and/or evacuate people from the threatened area.

VII. **TRAINING PROGRAM** All personnel associated with the drilling operations will receive training o insure efficient and correct action in all situation. This training will be in the general areas of: (1) personnel safety, (2) rig operations, and (3) well control procedures.

A. **Personnel Safety Training** - All personnel shall have received H2S training in the following areas:

1. Hazards and characteristics of H2S.
2. Effect on metal components of the system.
3. Safety precautions.
4. Operation of safety equipment and life support systems.
5. Corrective action and shutdown procedures

B. **Rig Operations** - All rig personnel shall have received training in the following areas.

1. Well control procedures.
2. Layout and operations of the well control equipment.

NOTE: Proficiency will be developed through BOP drills which will be documented by the Drilling Superintendent

C. **Service Company Personnel** All service personnel shall have been trained by their employers in the hazards and characteristics of H<sub>2</sub>S and the operation of safety equipment and life support systems.

D. **Visitors** All first time visitors to the location will be required to attend a safety orientation. The Drilling Superintendent shall be responsible for this orientation and he shall see that every visitor is logged in correctly.

E. **Public** The public within the area of exposure shall be given an advance briefing by the Drilling Superintendent. This briefing must include the follow elements:

1. Hazards and characteristics of hydrogen sulfide. It is an extremely dangerous gas. It is normally detectable by its "rotten egg" odor, but odor is not a reliable means of detection because the sense of smell may be dulled or lost due to intake of the gas. It is colorless, transparent, and flammable. It is heavier than air and may accumulate in low places.
2. The necessity of an emergency action plan. Due to the danger of persons exposed to hydrogen sulfide and the need for expeditious action should an emergency occur, this action plan will be put into effect if and when a leak occurs.
3. The location of hydrogen sulfide within the area of exposure. At the drilling location.
4. The manner in which the public will be notified of an emergency. By telephone or personal contract.
5. Steps to be taken in case of an emergency.
  - a. Abandon danger area.
  - b. Notify necessary agencies and request assistance for controlling traffic and evacuating people.

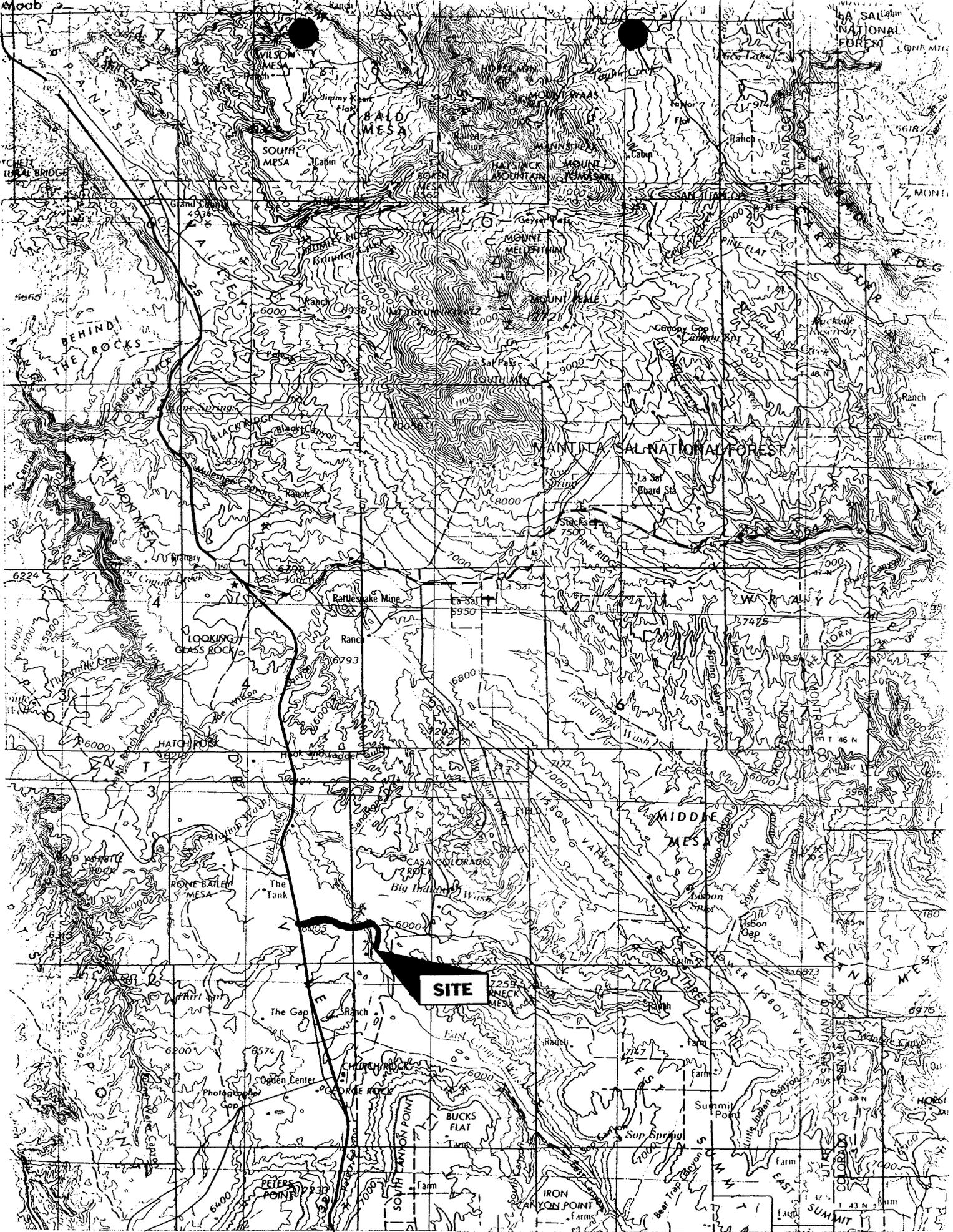


**SERVICE COMPANIES:**

1. Pump Trucks:
2. Dirt Contractor(s):
3. Roustabout Crew(s):
4. H2S Service Company: Standby Safety Services, Inc.  
1-970-565-9549, Cortez CO 81321
5. Others:

Note: All entries should be made in the following manner:

“Name, Tele, Location”



63 30' N 22' E

64 R. 23 E

65 R. 24 E

15'

66 R. 25 E

67 R. 26 E

109° 00' W

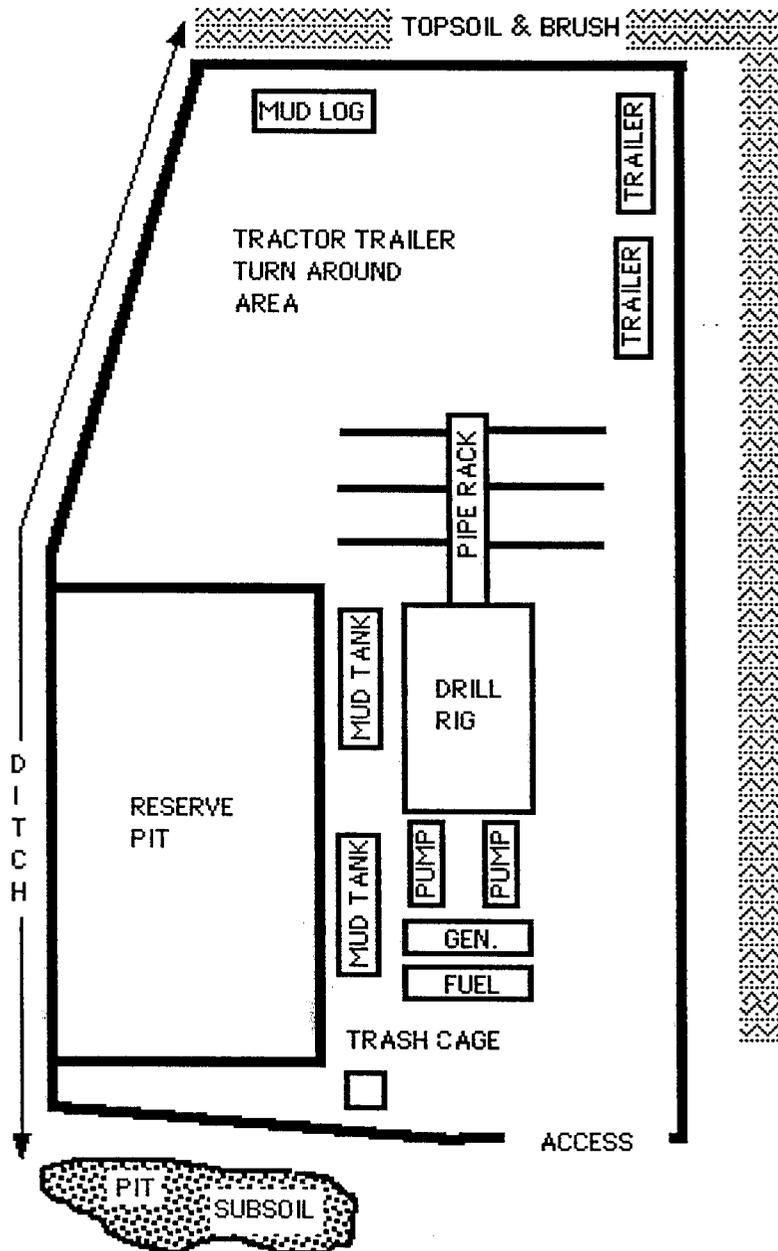
MONTICELLO 9 MI



ST Oil Company  
Federal 1-31  
2147' FSL & 1085' FWL  
Sec. 31, T. 30 S., R. 24 E.  
San Juan County, Utah

CONFIDENTIAL - TIGHT HOLE

1" = 70'



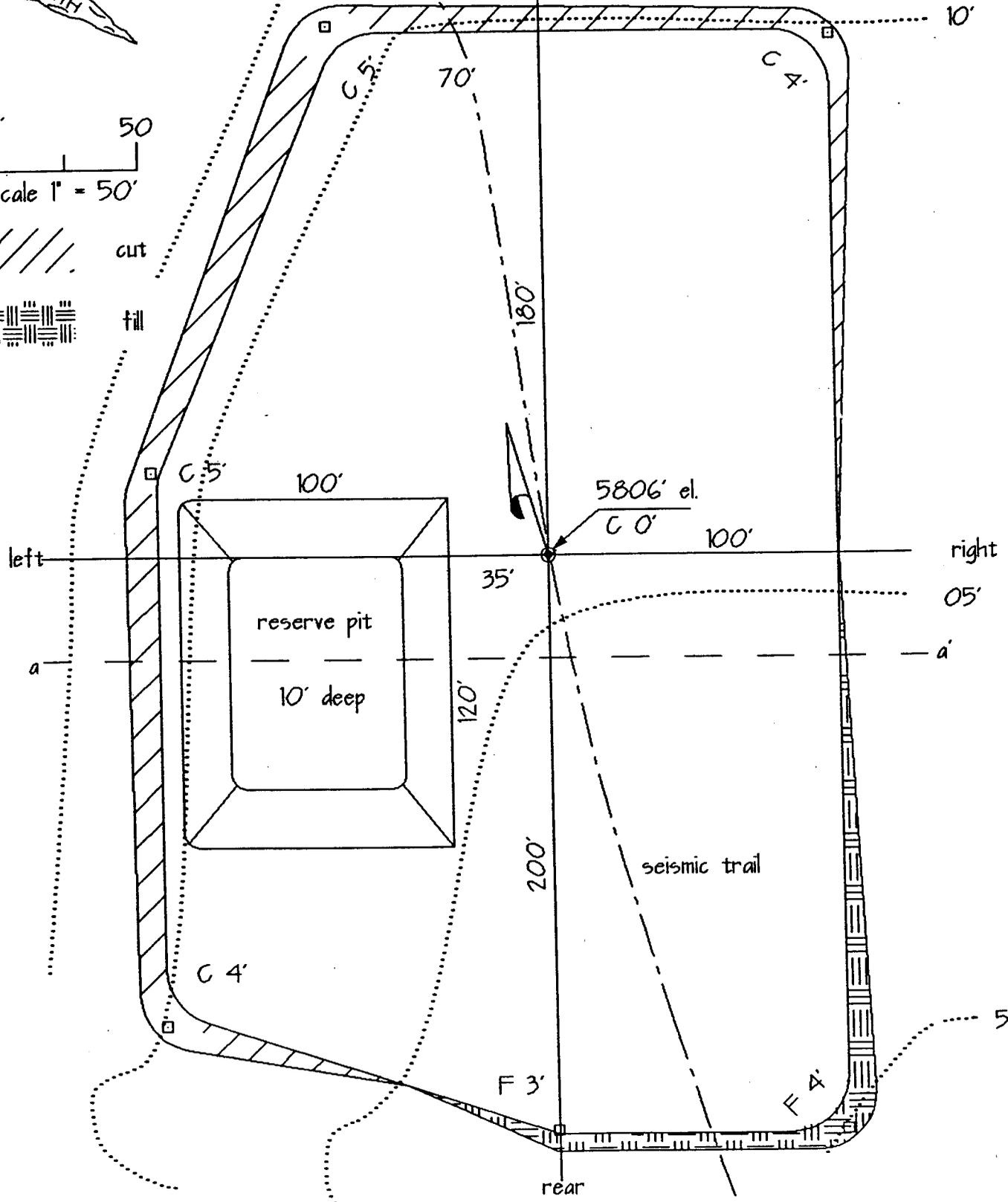
Federal 1-31  
well pad & section  
□ set stake/ pin flag



0' 50'  
Scale 1" = 50'

/// cut  
||||| fill

front  
S 56° W



Section a - a'

WORKSHEET  
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 09/22/2003

API NO. ASSIGNED: 43-037-21830

WELL NAME: FEDERAL 1-31  
OPERATOR: ST OIL COMPANY ( N2190 )  
CONTACT: BRIAN WOOD

PHONE NUMBER: 505-466-8120

PROPOSED LOCATION:

NWSW 31 300S 240E  
SURFACE: 2147 FSL 1085 FWL  
BOTTOM: 2147 FSL 1085 FWL  
SAN JUAN  
WILDCAT ( 1 )

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: 1 - Federal  
LEASE NUMBER: UTU-076772  
SURFACE OWNER: 1 - Federal  
PROPOSED FORMATION: MCRKN

LATITUDE: 38.13285  
LONGITUDE: 109.33490

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[1] Ind[] Sta[] Fee[]  
(No. UTB000055 )
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit  
(No. 05-570 )
- RDCC Review (Y/N)  
(Date: \_\_\_\_\_ )
- Fee Surf Agreement (Y/N)

LOCATION AND SITING:

- \_\_\_ R649-2-3.
- Unit \_\_\_\_\_
- \_\_\_ R649-3-2. General  
Siting: 460 From Qtr/Qtr & 920' Between Wells
- R649-3-3. **Exception**
- \_\_\_ Drilling Unit  
Board Cause No: \_\_\_\_\_  
Eff Date: \_\_\_\_\_  
Siting: \_\_\_\_\_
- \_\_\_ R649-3-11. Directional Drill

COMMENTS: \_\_\_\_\_

STIPULATIONS: \_\_\_\_\_

*1- Federal Approval*  
*2- Spacing Strip*



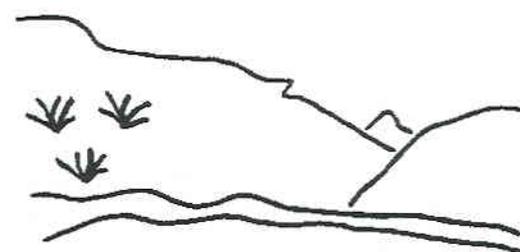
OPERATOR: ST OIL COMPANY (N2190)

SEC. 31 T.30S, R.24E

FIELD: WILDCAT (001)

COUNTY: SAN JUAN

SPACING: R649-3-3 / EXCEPTION LOCATION



## Utah Oil Gas and Mining

### Wells

- GAS INJECTION
- GAS STORAGE
- LOCATION ABANDONED
- NEW LOCATION
- PLUGGED & ABANDONED
- PRODUCING GAS
- PRODUCING OIL
- SHUT-IN GAS
- SHUT-IN OIL
- TEMP. ABANDONED
- TEST WELL
- WATER INJECTION
- WATER SUPPLY
- WATER DISPOSAL

### Unit Status

- EXPLORATORY
- GAS STORAGE
- NF PP OIL
- NF SECONDARY
- PENDING
- PI OIL
- PP GAS
- PP GEOTHERML
- PP OIL
- SECONDARY
- TERMINATED

### Field Status

- ABANDONED
- ACTIVE
- COMBINED
- INACTIVE
- PROPOSED
- STORAGE
- TERMINATED



PREPARED BY: DIANA MASON  
DATE: 25-SEPTEMBER-2003

**PERMITS WEST**, INC.  
PROVIDING PERMITS for LAND USERS  
37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

September 30, 2003

Diana Mason  
Utah Div. of Oil, Gas, & Mining  
P. O. Box 145801  
Salt Lake City, Ut. 84114-5801

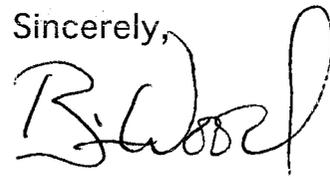
Dear Diana,

On behalf of ST Oil Company, I am applying for approval of an exception location for the Federal 1-31. I am requesting an exception because of geology and topography. The exception is to the quarter-quarter line (225' too far east instead of  $\geq 460'$ ), not to a well or lease. An orthodox location would be closer to the lease line, on undisturbed ground (current location straddles seismic trail), and further (509') from the geologically preferred location (1890' FSL & 1300' FWL).

An orthodox well could be drilled at 2147' FSL & 860' FWL 31-30s-24e, but it would be a marginal well, if productive at all. The original requested location is 335' southeast and on the side of a slick rock peninsula. Thus, the applied for location has already been moved 335'. Request permission to drill at 2147' FSL & 1085' FWL 31-30s-24e. This is the only oil or gas well in the section. There are no producing wells within  $>4,000'$ . Wells could be drilled in all eight offsetting quarter-quarters. ST Oil Company is owner of all drilling units within a minimum 493' radius of the proposed exception.

Please call me if you have any questions.

Sincerely,



Brian Wood

cc: Ferris

RECEIVED

OCT 03 2003

DIV. OF OIL, GAS & MINING



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

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
(801) 538-5340 telephone  
(801) 359-3940 fax  
(801) 538-7223 TTY  
www.nr.utah.gov

Michael O. Leavitt  
Governor

Robert L. Morgan  
Executive Director

Lowell P. Braxton  
Division Director

October 6, 2003

ST Oil Company  
1801 Broadway, Suite 600  
Denver, CO 80202

Re: Federal 1-31 Well, 2147' FSL, 1085' FWL, NW SW, Sec. 31, T. 30 South, R. 24 East, San Juan 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 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 43-037-21830.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Baza".

John R. Baza  
Associate Director

pab  
Enclosures

cc: San Juan County Assessor  
Bureau of Land Management, Moab District Office

Operator: ST Oil Company  
Well Name & Number Federal 1-31  
API Number: 43-037-21830  
Lease: UTU-076772

Location: NW SW                      Sec. 31                      T. 30 South                      R. 24 East

### Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division within 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284.

Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dan Jarvis at (801) 538-5338

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

5. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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.*

005

5. Lease Serial No. **UTU-076772**

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. **FEDERAL 1-31**

9. API Well No. **43-037-2/830**

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

11. County or Parish, State **SAN JUAN COUNTY, UT**

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

**CONFIDENTIAL**

1. Type of Well  
 Oil Well  Gas Well  Other

2. Name of Operator **ST OIL COMPANY**

3a. Address **1801 BROADWAY, SUITE 600  
DENVER, CO. 80202**

3b. Phone No. (include area code) **(303) 296-1908**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**SURFACE: 2147' FSL & 1085' FWL SEC. 31, T. 30 S., R. 24 E.  
BHL: SAME**

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other _____
	<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.)

Hand signals will be used for communication when wearing air pack rescue units.

Mud gas separator and rotating head will be used.

Cascade air system will be used.

Prior to penetrating potential H<sub>2</sub>S zones, mud pH will be increased to 9.5 to ≥10.0 with zinc carbonate as needed.

All equipment will be H<sub>2</sub>S trim.

H<sub>2</sub>S alarm will automatically trigger at 10 ppm.

There will be at least 1 remote choke manifold.

**COPY SENT TO OPERATOR**  
Date: 3-11-04  
Initials: CB

cc: BLM (M & M), Ferris, UDOGM

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

Name (Printed/Typed) **BRIAN WOOD** Title **CONSULTANT** (505) 466-8120

Signature *Brian Wood* Date **2-8-04**

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

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

Accepted by the **Utah Division of Oil, Gas and Mining** Federal Approval Of This Action Is Necessary

Date: **2/27/04** RECEIVED

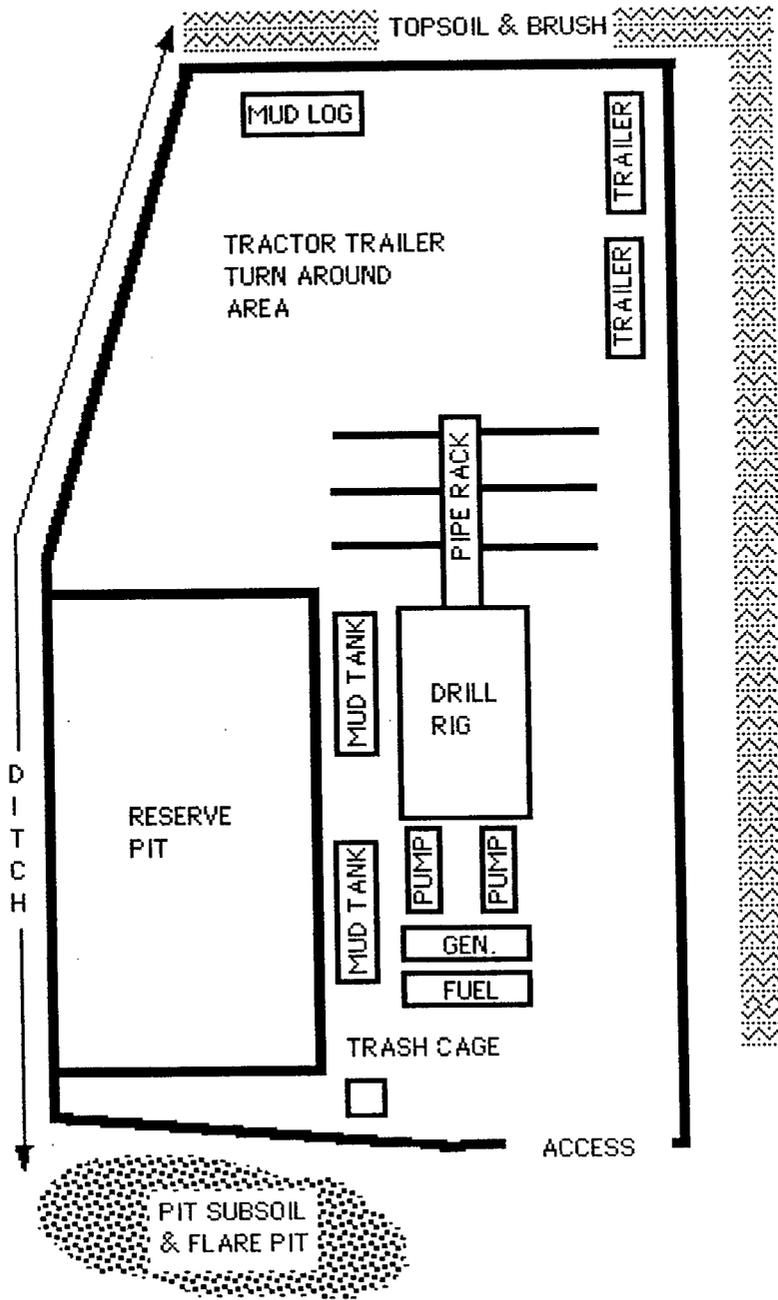
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to the department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\* Written Contingency plan with contact names should be part of it. Sphn  
(R649-3-12-2) FEB 19 2004 DIV. OF OIL, GAS & MINING

1" = 70'



NORTH



PREVAILING



WIND

Siting of Vertical Wells and Statewide Spacing for Horizontal Wells, or the appropriate board order.

**R649-3-11. Directional Drilling.**

1. Except for the tolerances allowed under R649-3-10, no well may be intentionally deviated unless the operator shall first file application and obtain approval from the division. An application for directional drilling may be approved by the division without notice and hearing when the applicant is the owner of all the oil and gas within a radius of 460 feet from all points along the intended well bore, or the applicant has obtained the written consent of the owner to the proposed directional drilling program. An application for directional drilling may be included as part of the initial APD for a proposed well.

2. An application for directional drilling shall include the following information:

2.1. The name and address of the operator.

2.2. The lease name, well number, field name, reservoir name, and county where the proposed well is located.

2.3. A plat or sketch showing the distance from the surface location to section and lease lines, the target location within the intended producing interval, and any point along the intended well bore outside the 460 foot radius for which the consent of the owner has been obtained.

2.4. The reason for the intentional deviation.

2.5. The signature of designated agent or representative of operator.

3. Within 30 days following completion of a directionally drilled well, a complete angular deviation and directional survey of the well obtained by an approved well survey company shall be filed with the division, together with other regularly required reports.

**R649-3-12. Drilling Practices For Hydrogen Sulfide Areas And Formations.**

1. This rule shall apply to drilling, re-drilling, deepening, or plugging back operations in areas where the formations to be penetrated are known to contain or are expected to contain H<sub>2</sub>S in excess of 20 ppm and to areas where the presence or absence thereof is unknown.

2. A written contingency plan, providing details of actions to be taken to alert and protect operating personnel and members of the public in the event of an accidental release of H<sub>2</sub>S gas shall be submitted to the division as part of the initial APD for a well or as a sundry notice.

3. All proposed drill site locations shall be planned to obtain the maximum safety benefits consistent with the rig configuration, terrain, prevailing winds, etc. The drilling rig shall, where possible, be situated so that prevailing winds blow

across the rig in a direction toward the reserve pit and away from escape routes. On-site trailers shall be located to allow reasonably safe distances from both the well and the outlet of the flare line.

4. At least two cleared areas shall be designated as crew briefing or safety areas. Both areas shall be located at least 200 feet from the well, with at least one area located generally upwind from the well.

5. Protective equipment shall be provided by the operator or its drilling contractor for operating personnel and shall include the following:

5.1. An adequate number of positive pressure type self-contained breathing apparatus to allow all personnel normally involved in the drilling operation immediate access to such equipment, with a minimum of one working apparatus available for the immediate use of each rig hand in emergencies.

5.2. Chalk boards or note pads to be used for communication when wearing protective breathing apparatus.

5.3. First aid supplies.

5.4. One resuscitator complete with medical oxygen.

5.5. A litter or stretcher.

5.6. Harnesses and lifelines.

5.7. A telephone, radio, mobile phone, or other communication device that provides emergency two-way communication from a safe area at the well location.

6. Each drill site shall have an H<sub>2</sub>S detection and monitoring system that activates audible and visible alarms when the concentration of H<sub>2</sub>S reaches the threshold limit of 20 ppm in air. This equipment shall have a rapid response time and be capable of sensing a minimum of ten ppm H<sub>2</sub>S in air, with at least three sensing points, located at the shale shaker, on the derrick floor, and in the cellar. Other sensing points shall be located at other critical areas where H<sub>2</sub>S might accumulate. Portable H<sub>2</sub>S detection equipment capable of sensing an H<sub>2</sub>S concentration of 20 ppm shall be available for all working personnel and shall be equipped with an audible warning signal.

7. Equipment to indicate wind direction at all times shall be installed at prominent locations. At least two wind socks or streamers shall be located at separate elevations at the well location and shall be easily visible from all areas of the location. Windsocks or streamers shall be located in illuminated areas for night operations.

8. When H<sub>2</sub>S is encountered during drilling, well marked, highly visible warning signs shall be displayed at the rig and along all access routes to the well location. The signs shall warn of the presence of H<sub>2</sub>S and shall prohibit approach to the well location when red flags are displayed. Red flags shall be

displayed when H<sub>2</sub>S is present in concentrations greater than 20 ppm in air as measured on the equipment required under R649-3-12-6.

9. Unless adequate natural ventilation is present, portable fans or ventilation equipment shall be located in work areas to disperse H<sub>2</sub>S when it is encountered.

10. A flare system shall be utilized to safely gather and burn H<sub>2</sub>S bearing gas. Flare lines shall be located as far from the operating site as feasible and shall be located in a manner to compensate for wind changes. The outlets of all flare lines shall be located at least 150 feet from the well head unless otherwise approved by the division.

11. Sufficient quantities of additives shall be maintained on location to add to the mud system to scavenge or neutralize H<sub>2</sub>S.

#### **R649-3-13. Casing Tests.**

In order to determine the integrity of the casing string set in the well, the operator shall, unless otherwise requested by the division, perform a pressure test of the casing to the pressures specified under R649-3-7-4 before drilling out of any casing string, suspending drilling operations, or completing the well.

#### **R649-3-14. Fire Hazards On The Surface.**

1. All rubbish or debris that might constitute a fire hazard shall be removed to a distance of at least 100 feet from the well location, tanks, separator, or any structure. All waste oil or gas shall be burned or disposed of in a manner to avert creation of a fire hazard.

2. Any gas other than poisonous gas escaping from the well during drilling operations shall be, so far as practicable, conducted to a safe distance from the well site and burned in a suitable flare.

#### **R649-3-15. Pollution And Surface Damage Control.**

The operator shall take all reasonable precautions to avoid polluting lands, streams, reservoirs, natural drainage ways, and underground water. The owner or operator shall carry on all operations and maintain the property at all times in a safe and workmanlike manner having due regard for the preservation and conservation of the property and for the health and safety of employees and people residing in close proximity to those operations. At a minimum, the owner or operator shall:

1.1. Take reasonable steps to prevent and shall remove accumulations of oil or other materials deemed to be fire hazards from the vicinity of well locations, lease tanks and pits.

1.2. Remove from the property or store in an orderly manner, all scrap or other materials not in use.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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MOAB FIELD OFFICE

009

APPLICATION FOR PERMIT TO DRILL OR REENTER

2003 SEP 19 A 11:12

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		7. If Unit or CA Agreement, Name and No. <b>N/A</b>	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		8. Lease Name and Well No. <b>FEDERAL 1-31</b>	
2. Name of Operator <b>ST OIL COMPANY</b>		9. API Well No. <b>43-037-21830</b>	
3a. Address <b>1801 BROADWAY, SUITE 600 DENVER, CO 80202</b>		10. Field and Pool, or Exploratory <b>WILDCAT (MISSISSIPPIAN)</b>	
3b. Phone No. (include area code) <b>(303) 296-1908</b>		11. Sec., T., R., M., or Blk. and Survey or Area <b>31-30s-24e SLM</b>	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface <b>2147' FSL &amp; 1085' FWL</b> At proposed prod. zone <b>SAME</b>		12. County or Parish <b>SAN JUAN</b>	
14. Distance in miles and direction from nearest town or post office* <b>20 AIR MILES NORTH OF MONTICELLO</b>		13. State <b>UT</b>	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>493'</b>	16. No. of Acres in lease <b>479.78</b>	17. Spacing Unit dedicated to this well <b>LOT 3 (=SWNW)</b>	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>N/A</b>	19. Proposed Depth <b>9,000'</b>	20. BLM/BIA Bond No. on file <b>BLM UTB000055 (LEASE WIDE)</b>	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>5,806' GL</b>	22. Approximate date work will start* <b>UPON APPROVAL</b>	23. Estimated duration <b>6 WEEKS</b>	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

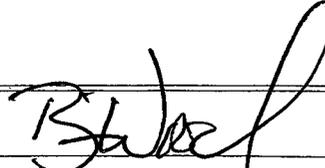
- |   |  |
|---|--|
| 1. Well plat certified by a registered surveyor.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification.   |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

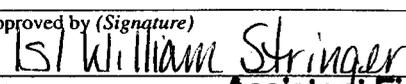
Comments

Request exception to R649-3-2 because of geology and topography. Exception is to quarter-quarter line (225' too far east instead of  $\geq 460'$ ), not to a well or lease. Orthodox location would be closer to lease line, on undisturbed ground (current location straddles seismic trail), and further from geologically preferred location (1890 FSL & 1300 FWL).

Orthodox well could be drilled at 2147' FSL & 860' FWL 31-30s-24e, but it would be 509' from seismic identified goal and on undisturbed ground. Request permission to drill at 2147' FSL & 1085' FWL 31-30s-24e. This is the only well in the section. There are no producing wells within  $>4,000'$ . Wells could be drilled in 8 offsetting units. ST is owner of all drilling units and leases within minimum 493' radius of proposed exception.

cc:BLM (Moab & Monticello), Ferris, UDOGM

25. Signature 	Name (Printed/Typed) <b>BRIAN WOOD</b>	Date <b>9-14-03</b>
Title <b>CONSULTANT</b>	PHONE: <b>505 466-8120</b>	FAX: <b>505 466-9682</b>

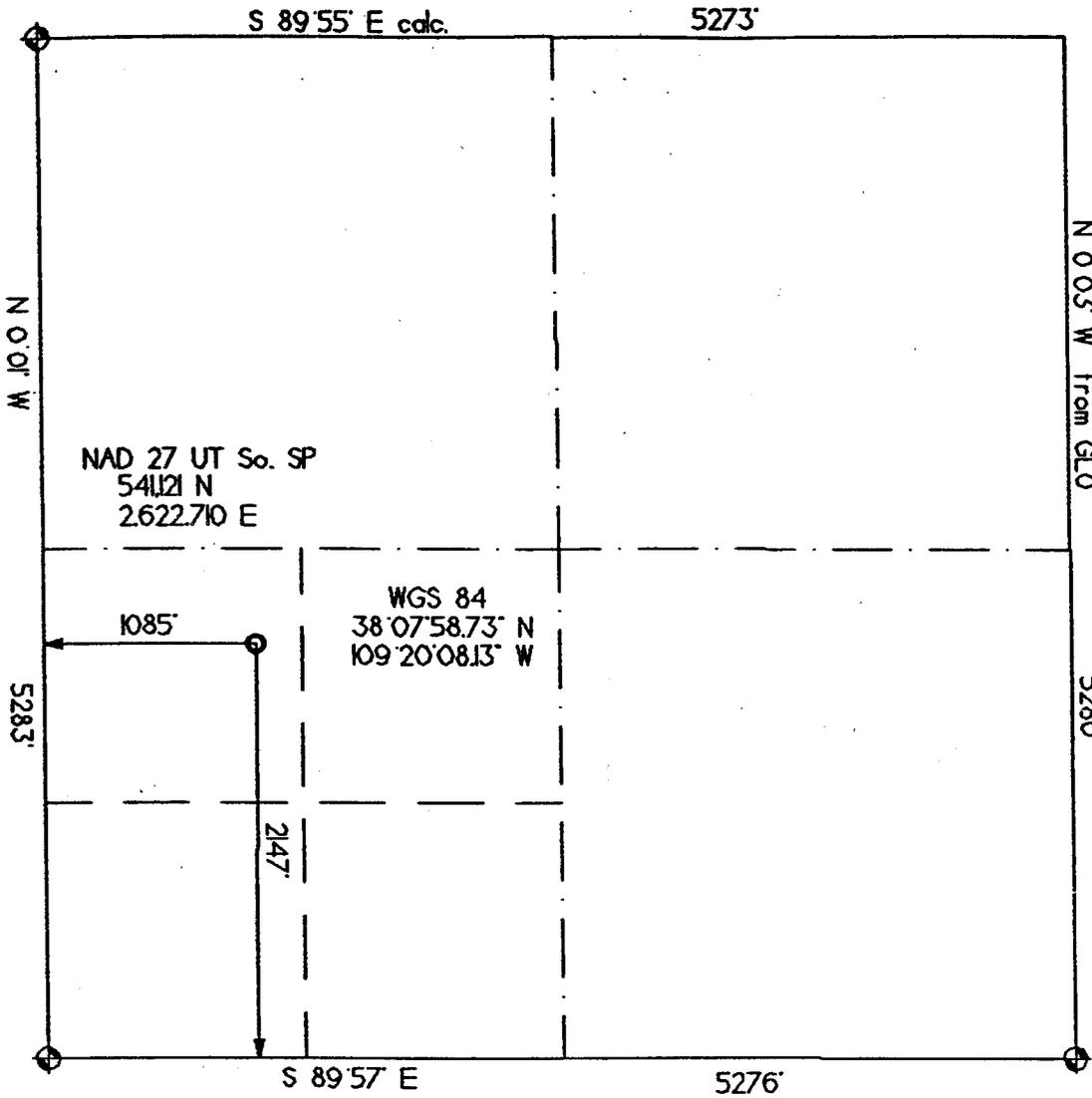
Approved by (Signature) 	Name (Printed/Typed) <b>Assistant Field Manager,</b>	Date <b>MAR - 9 2004</b>
Title <b>Division of Resources</b>	Office <b>Moab Field Office</b>	

Application approval does not warrant or certify the the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
Conditions of approval, if any, are attached.

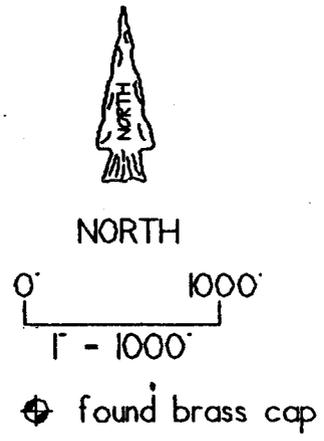
**CONDITIONS OF APPROVAL ATTACHED**

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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MAR 12 2004

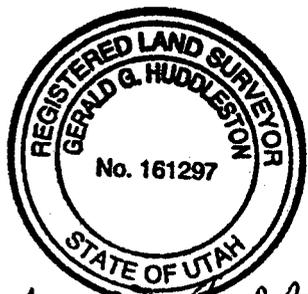


Well Location Plat



Well Location Description

ST OIL COMPANY  
 Federal 1 - 31  
 2147' FSL & 1085' FWL  
 Section 31, T.30 S., R.24 E., SLM  
 San Juan County, UT  
 5806' grd. el. (from GPS)



*Gerald G. Huddleston*  
 Gerald G. Huddleston, LS

8/11/03

The above is true and correct to my knowledge and belief.

ST Oil Company  
Federal 1-31  
Lease U-76772  
SW/NW Section 31, T30S, R24E  
San Juan County, Utah

**A COMPLETE COPY OF THIS PERMIT SHALL BE KEPT ON LOCATION from the beginning of site construction through well completion, and shall be available to contractors to ensure compliance.**

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that ST Oil Company is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UTB000055 (Principal – ST Oil Company) via surety consent as provided for in 43 CFR 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors.

A. DRILLING PROGRAM

1. Concurrent approval from the State of Utah, Division of Oil, Gas & Mining (DOGGM) is required before conducting any surface disturbing activities.
2. The proposed 3M BOPE is adequate for anticipated conditions. Installation, testing and operation of the system shall be in conformance with Onshore Oil and Gas Order No. 2.
3. The H2S Contingency (Drilling Operations) Plan shall be posted in the doghouse with the APD for immediate reference.
4. The flare pit shall be located a minimum of 150 feet from the wellhead.
5. The choke manifold shall have at least one remotely operated choke.
6. All equipment with potential for exposure to H2S shall have metallurgical properties consistent for use in H2S environments.
7. The flare line shall be equipped with an automatic ignition system, and a back-up system, such as a flare gun, shall be maintained on location.
8. A mud-gas separator shall be installed not less than 500 feet above the expected top of the Mississippian.
9. A cement bond log (CBL), or other appropriate tool for determining top-of-cement, shall be run on the production casing string, and shall be submitted to BLM.

B. SURFACE

No additional surface stipulations.

### C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location- Contact the BLM, Natural Resource Protection Specialist at least 48-hours prior to commencing construction of location.

Spud- The spud date will be reported to BLM 24-hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab Field Office within 24-hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab Field Office on a weekly basis.

Monthly Reports of Operations- In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed with the Moab Field Office for approval of all changes of plans and subsequent operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Price Field Office is to be notified.

First Production- Should the well be successfully completed for production, the Moab Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Moab Field Office. The Moab Field Office shall be notified prior to the first sale.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab Field Office not later than thirty-days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab Field Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval of the Moab Field Office. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor (BLM) shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- An application for approval of a permanent disposal method and location will be submitted to the Moab Field Office for approval pursuant to Onshore Oil and Gas Order No.7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab Field Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Moab Field Office within thirty-days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Price Field Office or the appropriate surface managing agency.

TABLE 1

NOTIFICATIONS

Notify Rich McClure (435-259-2127) BLM Moab Field Office, or Jeff Brown (435-587-1525) BLM Monticello Field Office for the following:

2 days prior to commencement of dirt work, construction and reclamation (McClure);

1 day prior to spudding (Brown);

50 feet prior to reaching the surface casing setting depth (Brown);

3 hours prior to testing BOPE (Brown).

If the person at the above number cannot be reached, notify the Moab Field Office at 435-259-2100. If unsuccessful, contact the person listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at 435-259-2100. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer      Office: 435-259-2117  
Home: 435-259-2214

CONFIDENTIAL

## DIVISION OF OIL, GAS AND MINING

**SPUDDING INFORMATION**Name of Company: ST OIL COMPANYWell Name: FEDERAL 1-31Api No: 43-037-21830 Lease Type: FEDERALSection 31 Township 30S Range 24E County SAN JUANDrilling Contractor ROCKY MOUNTAIN RIG # RATHOLE**SPUDDED:**Date 07/9/04Time 4:00 PMHow DRY**Drilling will commence:** \_\_\_\_\_Reported by RANDY SHELTONTelephone # 1-435-459-1027Date 0713/2004 Signed CHD

ENTITY ACTION FORM

Operator: ST OIL COMPANY Operator Account Number: N 2190  
 Address: 1801 BROADWAY, SUITE 600  
city DENVER  
state CO zip 80202 Phone Number: (303) 296-1908

Well 1

API Number	Well Name		QQ	Sec	Twp	Rng	County
037-21830	FEDERAL 1-31		NWSW	31	30S	24E	SAN JUAN
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
A	99999	14242	7/13/2004			7/29/04	
Comments: <i>McCoker</i> <b>CONFIDENTIAL</b>							

K

Well 2

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
Comments:							

Well 3

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
Comments:							

ACTION CODES:

- 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)

Richard A. Ferris  
 Name (Please Print)  
*Richard A. Ferris*  
 Signature  
 Chief Operations Engineer  
 Title

7/21/2004  
 RECEIVED  
 Date

JUL 26 2004

**GEOLOGIST'S WELL SITE REPORT**

**ST OIL COMPANY**  
**Lightning Draw Federal #1-31 (nws Sec 31-T30S-R24E)**  
**SAN JUAN CO., UTAH**

*API# 43-037-21830*

**AUGUST 23<sup>rd</sup>, 2004**

**PREPARED FOR:**      **ST. OIL COMPANY**  
                                 **1801 BROADWAY**  
                                 **SUITE 600**  
                                 **DENVER, COLORADO 80202**

**BY:**                      **GENE M. STEVENSON**  
                                 **P.O. BOX 317**  
                                 **BLUFF, UTAH 84512**  
                                 **(435) 672-2277**

**RECEIVED**

**AUG 25 2004**

**DIV. OF OIL, GAS & MINING**

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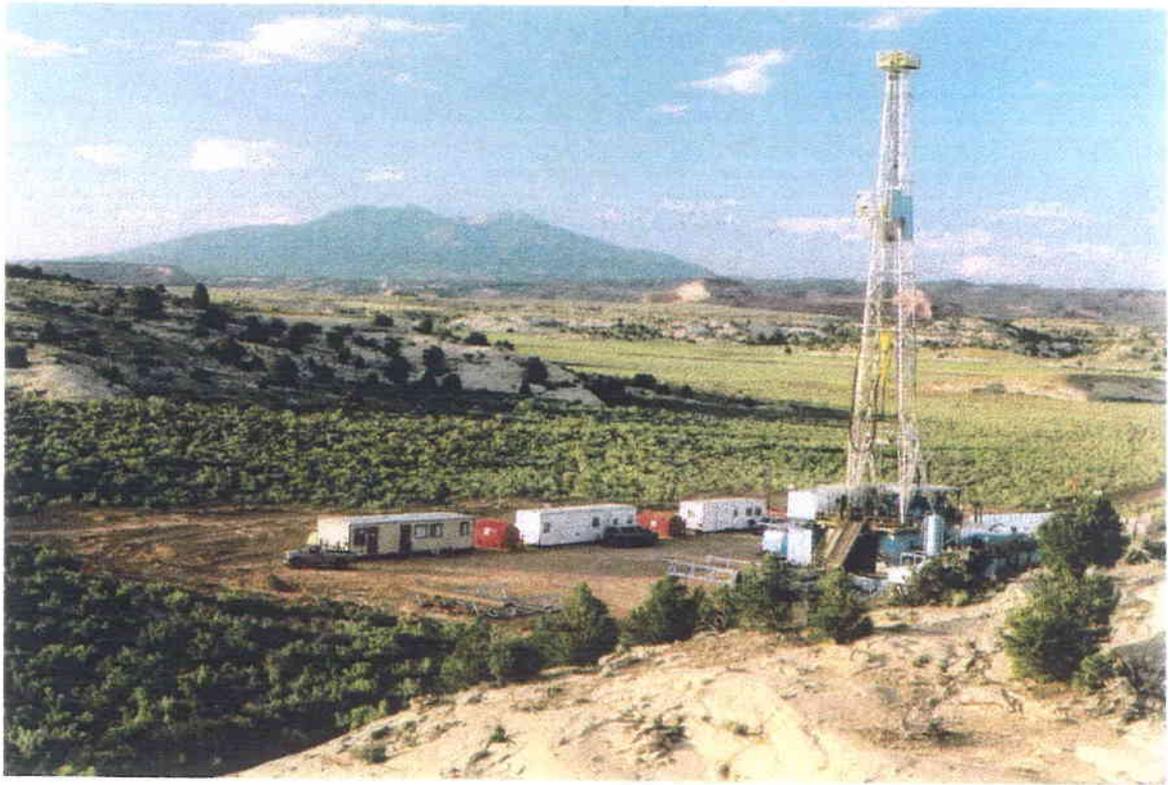
**GEOLOGIST'S WELL SITE REPORT**

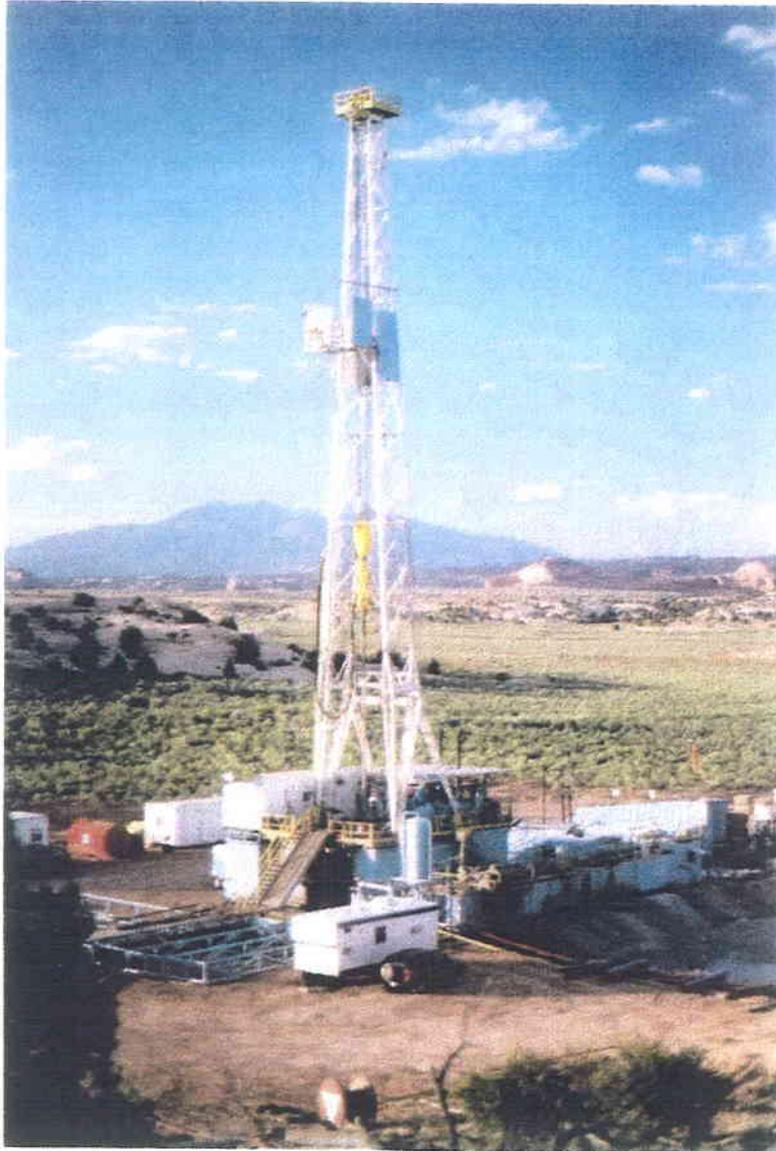
**ST OIL COMPANY**  
**Lightning Draw Federal #1-31 (nws Sec 31-T30S-R24E)**  
**SAN JUAN CO., UTAH** *API # 43-037-21830*

**AUGUST 23<sup>rd</sup>, 2004**

**PREPARED FOR:** **ST. OIL COMPANY**  
**1801 BROADWAY**  
**SUITE 600**  
**DENVER, COLORADO 80202**

**BY:** **GENE M. STEVENSON**  
**P.O. BOX 317**  
**BLUFF, UTAH 84512**  
**(435) 672-2277**





**Before Flash Flood 8/16/04**



**After Flash Flood 8/17/04**

## WELL SUMMARY DATA

**OPERATOR:** ST Oil Company  
**ADDRESS:** 1801 Broadway, Suite 600; Denver, CO 80202  
**MAIN OFFICE NUMBER:** 303-296-1908; FAX: 303-296-0329  
**WELL NAME:** Lightning Draw Federal #1-31  
**LOCATION:** (nsw) 2147' FSL, 1085' FWL, Sec 31-T30S-R24E, San Juan Co., Utah  
**FIELD:** Wildcat  
**API NUMBER:** 43-037-21830  
**ELEVATION:** K.B. 5820 ft; D.F. 5819 ft; G.L. 5806 ft  
**SPUD DATE:** July 09, 2004  
**TD DATE:** August 16, 2004  
**COMPLETION DATE:**  
**TOTAL DEPTH:** Drillers TD: 8822 ft; **Logger's TD: 8798 ft**  
**STATUS:** Gas + Oil (new field discovery)  
**COMPANY GEOLOGIST:** Herb Mosca; 214-686-0091 (cell)  
**COMPANY REPRESENTATIVE:** Randy Shelton; 435-459-1027 (cell)  
**DRILLING COMPANY:** Cyclone Drlg; Gillette, WY Rig #16  
**TOOL PUSHER(s):** Jim Stout; Mark Lipner; Gary Young (quit-took drlr Mike Alcorn)  
**DRILLERS:** Fred Chastain, Jim Chaulk, Jerry Pickett, Dale Barnes, Mike Alcorn  
**MUDLOGGER:** Leo Carrasco, Columbine Mudlogging (435) 790-0810 (cell)  
**WELLSITE GEOLOGIST:** Gene M. Stevenson, Bluff, UT (435) 672-2277 (office)  
**DRILLING MUD COMPANY:** MiSWACO; 410 17<sup>th</sup> St., Ste 1000, Denver, CO 80202  
**MUD ENGINEER(s):** Ed McDaniel; (970) 981-1623 (cell); Jim Hadley (970) 864-2359 (cell)  
**DRILLING FLUID(S):** NaCl Brine/Poly Plus  
**MUD PUMPS:** #1 Ideco 1000 (6x12"; 4.186 gal/strk); #2 Ideco 800 (6x9"; 3.139 gal/strk)  
**H2S SAFETY MGMT:** McGuire Industries, Inc. 2416 W. 42<sup>nd</sup> St., Odessa, TX 79764  
**H2S PERSONNEL:** Billy D. Kidd (432) 557-4383  
**BLM PERSONNEL:** Jeff Brown (435) 587-1525; Brian Wood (505) 466-8120  
**CONDUCTOR:** 13.375" 0-60 ft; Drilled 12.25" to 1462 ft.  
**SURFACE CASING:** 9.625" set to 1,462 ft  
**INTERMEDIATE CASING:** None  
**DRILL PIPE SIZE:** 4.5"  
**DRILL COLLAR SIZE:** 6.25" (566 ft)  
**BOTTOM HOLE DIAMETER:** 7-7/8"  
**CUTTINGS SAMPLE INTERVAL(S):** 30 ft intervals from surf to 3500 ft; 10 ft intervals to TD;  
mudlogger began @ 4,000 ft.  
**CORE INTERVALS:** Sidewall cores @ selected intervals (see Eby report)  
**DST INTERVALS:** None  
**WIRELINE LOGGING COMPANY:** Schlumberger, Farmington, NM (505) 325-5006 (office)  
**ENGINEER:** Andrew Whitten  
**LOGGING SUITE AND INTERVALS WITNESSED:**  
1<sup>st</sup> Run: Platform Express TD to surface casing  
(Laterolog, BHC Sonic, Density-Neutron)

### DEVIATION SURVEYS

Depth:                      Degree deviation:

499'	1.0°
1180'	1/2°
1784'	1/2°
2314'	1-1/4°
2993'	1°
3942'	1°
4556'	2-1/4°
4620'	- 1/4°
4897'	- 1/4°
5392'	2-1/2°
5442'	2-1/2°
5765'	4-1/4°
5850'	4-1/2°
5976'	4°
6419'	5-1/2°
6668'	4-1/4°
6939'	2-1/2°
7135'	2°
7676'	5°
7983'	5-1/2°
8455'	6-1/2°

### BIT RECORD

Bit Number	Size	Type	In	Out	Hours
Run 1	13-3/8"		surf	60'	—
Run 2	12-1/4"	T266C9 PDC	60'	1462'	—
Run 3	7-7/8"	Smith FI-30	1462'	5505'	77.5 hrs
Run 4	7-7/8"	Reed HP 53	5505'	7486'	126 hrs
Run 5	7-7/8"	Smith FI-30	7486'	7939'	67.5 hrs
Run 6	7-7/8"	SecXS-44S	7939'	8520'	86.5 hrs
Run 7	7-7/8"	Reed HP61H	8520'	8822'	66.5 hrs (TD)

## DRILLING SUMMARY

Spud: Friday, July 09, 2004

Sat. 07/10 Conductor set @ 60'

Sun. 07/11 finish rigging up

Mon. 07/12 Drlg 12-1/4" hole from 60' - 1462'

Tues. 07/13 Set 9 - 5/8" surface csg to 1462'

Wed. 07/14 Drill out from surface csg

Thur. 07/15 Drlg Cutler redbeds

Fri. 07/16 Drlg Cutler redbeds

Sat. 07/17 Drlg Cutler redbeds

Sun. 07/18 drlg; survey @ 2314'; got differentially stuck from 1900 - 0500 hrs

Mon. 07/19 2839' @ 06:30 hrs; drlg @ 3341' @ 18:40 hrs; **Begin well site geology @ 12:00 hrs;**  
Mudlogger on Loc @ 12:30 hrs & begin rigging up unit

Tues. 07/20 3815' @ 06:45 hrs; mudlogging begins operation @ 18:30 hrs @ 4000' in lower Honaker  
Trail Fm (Pennsylvanian)

Wed. 07/21 4242' @ 06:15 hrs; drlg Pennsylvanian Honaker Trail ls/ss/sh

Thur. 07/22 4680' @ 06:00 hrs; drlg Paradox Upper Ismay Stage

Fri. 07/23 4947' @ 06:44 hrs; top Paradox salt (Upper Desert Creek) @ 4968'

Sat. 07/24 5331' @ 06:50 hrs; TOO H @ 5505' (check for hole in pipe, bit trip)

Sun. 07/25 5575' @ 08:30 hrs; TOO H w/31 stands, lay down 2 jts; drlg w/Bit #4; PU & circ  
from 2100 - 0700 hrs (no crew).

Mon. 07/26 5614' @ 06:30 hrs; resume drlg @ 07:00 hrs; survey deviation of 4-1/4° @ 5765'  
possibly due to long circ time in salt when crew didn't show (see above). Running light  
WOB to try and straighten hole. WOB 8- 10K.

Tues. 07/27 5884' @ 06:45 hrs; Pdx salt cycle #10. Running light WOB to try and straighten  
hole. WOB 10 - 12K.

Wed. 07/28 6030' @ 06:15 hrs; drlg Pdx salt cycle #12; Running light WOB to try and  
straighten hole. WOB 15K.

- Thur. 07/29 6263.5' @ 05:45 hrs; drilling Paradox salt cycle #14; MW 10.3; vis 43; chlorides 160,000 ppm.  
ROP: WOB incr to 38K yesterday @ 10:38 hrs @ 6033' (salt)  
T/Barker Creek salt cycle #13 @ 6095' (-275')  
Survey @ 6419' = 5-1/2° @ 16:15 hrs, resume drlg.
- Fri. 07/30 6847' @ 06:00 hrs; drlg Paradox "Shafer Zone"; Survey @ 6668' = 4-1/4°
- Sat. 07/31 7351' @ 07:21 hrs; drlg lower Cane Creek and lower Paradox salt cycle #22; drld a "HOT" shale (7041 - 7071') between salt cycles #19 and #20; MW was cut from 10.3 to 7.1; diverted thru gas buster and burning 10 ft flare beginning just after midnight; slow drlg thru anhy (20-25"/ft); Hole straightening out, latest survey @ 7135' = 2°. Reached 7486' TD @ 17:10 hrs on Saturday, July 31, 2004; MW in 11.3; vis 50; MW out 10.6, vis 44; chlorides 170,000; Bldg MW to control hot shale still with 5-10' flare (C<sub>1</sub>-C<sub>4</sub> gas from carbonaceous shale that is overpressured w/low volume flow). Circ and build MW.
- Sun. 08/01 7486'; depth remains the same; Circulating gas from "Hot" shale zone between salt cycles #19 and #20; MW now is 12.2, Standby Day #1 (Bluff)
- Mon. 08/02 7486'; Continue to circ; MW = 12.1, vis 58, chlor 185,000; still have 5 - 10' flare w/bkgrnd gas ranging from 230 - 420 u. H<sub>2</sub>S alarm @ 10:30 hrs; crew assembled at designated meeting place; tool pusher put on SCBA and registered 192 ppm H<sub>2</sub>S; Apparent false alarm, but held on location until given clear sign to leave. Concerns about building MW much higher, as current HP is 47,492 psi on bottom; concerns about breaking thru btm of fm, resulting in lost circ, and GTS; continue to circ. And reduce MW; (Standby Day #2 Bluff - visit wellsite, and return).
- Tues. 08/03 7486'; circ 10.3 MW and flare still burning. Several discussions with H. Mosca and researched other wells in the area re: csg depths, equiv shale zone; found that the high MW may be causing low flow from low permeability coaly shale, and reducing MW may help shut down gas rate; apparently flare sputtered & died. Standby Day #3 (Bluff).
- Wed. 08/04 7486'; Condition hole for TOOH in afternoon for bit #5 + service rig, repair rotating head, etc. Standby Day #4 (Bluff). TIH w/bit #5.
- Thur. 08/05 7660' @ noon; drlg salt; return to full-time wellsite duty.
- Fri. 08/06 7772' @ 07:00 hrs; drlg salt; reached base Paradox salt @ 13:00 hrs.
- Sat. 08/07 7896' @ 07:00 hrs; reached base Paradox salt @ 13:00 hrs (08/06/04); very slow drlg in lwr Pdx/PT section.
- Sun. 08/08 7939' @ 05:58 TOOH for new bit; back on btm w/bit #6 (XS-44S) @ 22:00 hrs.
- Mon. 08/09 7976' @ 07:00 hrs drlg Molas/Ldvl transition; irregular bit chatter @ 7977' - 7980' (PU weight off bit from 38K to 18K - resume drlg; chatter attributed to Miss disconformity and lithology change); top Leadville @ 7978'.

- Tues. 08/10 8085' @ 05:45 hrs, drlg upper Leadville Fm; drlg break from 8071' - 8079' broke from 12"/ft to 2-4"/ft, trace flour (2-5%), no cut; abrupt change in lith from Ls to Dolo mdst, w/tr intxtln porosity. Zone is equiv to Texaco E.C. pfd interval that recovered 1.7 MMCFG.
- Wed. 08/11 8251' @ 06:00 hrs drlg mid-Leadville Fm; drlg brk and gd porosity w/h-t dolo and gas incr @ 8230' - 8270'.
- Thurs. 08/12 8470' @ 06:00 hrs drlg lower Leadville Fm. Gd o-stn xtln dolo, tr/ h-t dolo. TOO H for bit trip @ 8520' @ 15:35 hrs.
- Fri. 08/13 Drlg w/bit #7 @ 8527' @ 06:00 hrs; drlg Ouray/Elbert contact; drld Elbert Fm.
- Sat. 08/14 8598' @ 07:27 hrs drlg Devonian Elbert Fm
- Sun. 08/15 8731' @ 07:00 hrs drlg lwr McCracken Ss; Flash flood thru location @ 22:00 hrs.
- Mon. 08/16 8822' (TD); continued drlg into Aneth Fm; reached TD @ 01:55 hrs; circ btms up and prep to TOO H for logging; called up Crowley Construction to clean up loc; flash flood overflowed mud pits, loc swamped in 6" to 2 ft of run-off water; wireline logging delayed until late in day; logger to btm w/Platform Express tool @ 19:25 hrs; Logger's TD = 8798'.
- Tues., 08/17 8798' (TD); first look at field prints @ approx. 02:00 hrs; Mosca, Eby and me picked 30 sidewall core zones; SW core hand delayed until 17:30 hrs; Ran SW cores.
- Wed. 08/18 8798' (TD); Mosca & Eby recovered and packed sidewall cores @ approximately 03:00 hrs (I was not present); five truckloads of 5-1/2" production csg on location by 10:00 hrs.
- Thurs. 08/19 8798' (TD); I returned to get last of my stuff @ 15:30 hrs; Halliburton cement trucks on loc to cement-in csg string.
- Fri. 08/20 - Sun. 08/22 Write up final geological report.

**TABLE 1**

**Geological Tops for the ST. OIL CO. Lightning Draw Federal #1-31**  
**(nws Sec 31-T30S-R24E) San Juan County, Utah.**  
**Surveyed G.L. = 5806' K.B. = 5820' (all Subsea values based on KB).**

<b>Formation Names</b>	<b>Sample tops</b>	<b>Log Top</b>	<b>Structure Top</b>	<b>Thickness</b>
Entrada Ss	Spud well approximately 60 ft into Jurassic Entrada Ss			384+
Carmel Fm		354'	+5466'	120'
Navajo Ss		474'	+5346'	276'
Kayenta Fm.		750'	+5070'	64'
Wingate Ss		814'	+5006	260'
<b>TRIASSIC</b>				
Chinle Fm.		1074'	+4746'	160'
Shinarump Cgl		1234'	+4586'	42'
Moenkopi Fm.	Set 9-5/8" csg to 1462'	1276'	+4544	217'
<b>PERMIAN</b>				
Cutler Group Undiff.		1493'	+4327	1647'
<b>PENNSYLVANIAN HERMOSA GROUP</b>				
Honaker Trail Fm.	3150'	3140'	+2680'	1508'
La Sal Cycle	4055'	4078'	+1742'	328'
Hatch Cycle	4388'	4406'	+1414	206'
Paradox Shale	4600'	4612'	+1208	36'
Upper Ismay Stage	4614'	4648'	+1192	102'
T/Uls anhydrite	4655'	4702'	+1118'	14'
T/Uls pay zone	4685'	4716'	+1104'	34'
Hovenweep Shale	4744'	4750'	+1070'	34'
Lower Ismay Stage	4785'	4784'	+1036'	98'
T/LIs anhydrite	4810'	4809'	+1011'	44'
T/LIs pay zone	4858'	4853'	+967'	29'
Gothic Shale	4890'	4882'	+938'	60'
Desert Creek Stage	4944'	4942'	+878'	198'
Paradox salt (UDC cycle #4)	4968'	4963'	+857'	39'
Bs/UDC salt cycle #4	5004'	5002'		
LDC salt (Pdx salt cycle #5)	5040'	5034'	+786'	95'
Bs/LDC salt cycle #5	5130'	5129'		
Chimney Rock Shale	5185'	5140'	+680'	28'
Akah Stage	5195'	5168'	+652'	859'
Pdx salt cycle #6	5204'	5202'		298
Bs/salt cycle #6	5502'	5500'		
Pdx salt cycle #7	5506'	5517'		61'
Bs/salt cycle #7	5582'	5578'		
Pdx salt cycle #8	5595'	5588'		80'
Bs/salt cycle #8	5670'	5668'		
Pdx salt cycle #9	5700'	5700'		138'
Bs/salt cycle #9	5825'	5839'		
Pdx salt cycle #10	5858'	5865'		139'
Bs/salt cycle #10	6001'	6004'		
Paradox "D" Shale	6004'	6012'		15'

TABLE 1 CONTINUED

<b>Barker Creek Stage</b>	6018'	6027'	-207	1857'
Pdx salt cycle #11	6007'	6034'		26'
Bs/salt cycle #11	6018'	6060'		
Pdx salt cycle #12	6035'	6081'		17'
Bs/salt cycle #12	6058'	6098'		
Pdx salt cycle #13	6095'	6110'		110'
Bs/salt cycle #13	6220'	6220'		
Pdx salt cycle #14	6251'	6249'		95'
Bs/salt cycle #14	6344'	6344'		
Pdx salt cycle #15	6352'	6356'		24'
Bs/salt cycle #15	6403'	6380'		
Pdx salt cycle #16	6406'	6404'		127'
Bs/salt cycle #16	6532'	6531'		
Pdx salt cycle #17	6543'	6546'		68'
Bs/salt cycle #17	6585'	6614'		
Pdx salt cycle #18	6588'	6624'		216'
Bs/salt cycle #18	6838'	6840'		
T/Shafer Zone	6838'	6842'	-1022	57'
Bs/Shafer Zone	6886'	6899'		
Pdx salt cycle #19	6890'	6902'		138'
Bs/salt cycle #19	7039'	7040'		
T/No-Name Shale	7041'	7041'	-1221	21'
Bs/No-Name Sh	7068'	7062'	-1242	
Pdx salt cycle #20	7071'	7072'		78'
Bs/salt cycle #20	7121'	7150'		
Pdx salt cycle #21	7144'	7170'		134'
Bs/salt cycle #21	7303'	7304'		
<b>Cane Creek Zone</b>	7310'	7308'	-1488	46'
Bs/CC Zone	7347'	7354'		
Pdx salt cycle #22	7369'	7369'		84'
Bs/salt cycle #22	7435'	7453'		
Pdx salt cycle #23	7445'	7462'		106'
Bs/salt cycle #23	7578'	7568'		
Pdx salt cycle #24	7582'	7577'		69'
Bs/salt cycle #24	7654'	7646'		
Pdx salt cycle #25	7671'	7666'		85'
Bs/salt cycle #25	7755'	7751'		
Pdx salt cycle #26	7788'	7784'		64'
Bs/Pdx salt	7855'	7852'	-2032	
<b>Pinkerton Trail Fm</b>	7940'	7884'	-2064	64'
<b>Molas Fm</b>	7960'	7948'	-2128'	25'
<b>MISSISSIPPIAN</b>				
<b>Leadville Fm</b>	7978'	7973'	-2153'	483'
Upr Ldvl poro zone	8070'	8061'	-2241'	
Leadville Fm (lower)	8230'	8239'	-2419'	
Lwr Ldvl poro zone	8230'	8220'	-2400'	

## TABLE 1 CONTINUED

DEVONIAN				
Ouray Ls	8440'	8456'	-2636'	84'
Elbert Fm	8550'	8540'	-2720'	148'
McCracken Ss Mbr	8700'	8688'	-2868'	96'
Aneth Fm (?)	8784'	NL	-2964'	38' +
Driller's TD	8822'		-3002	

-----End of Table 1-----

### LOG ADJUSTED LITHOLOGIC DESCRIPTIONS from 1074' to 8822' (TD)

#### TRIASSIC

**Chinle Fm:** ft; The Chinle Formation was named by Gregory (1917) for exposures along Chinle Valley of northeastern Arizona about 150 miles south of the drill site. The Chinle Fm covers a broad portion of northeastern Arizona and southeastern Utah, and is subdivided into several formal members. Locally, the Chinle is only divided into two parts; the uppermost *undifferentiated* interval and the basal *Shinarump Member*. The Shinarump Member was originally named the Shinarump Conglomerate (Gilbert, 1875) but later mapping by Stewart (1957) assigned this sandstone unit to member status of the Chinle Fm.

The undifferentiated interval consists of intercalated thin beds of brick-red shales and claystones with salmon-pink to brownish red fine-grained sandstones and siltstones. Calcareous argillaceous stringers occur throughout. These limestones are interpreted to have been deposited in a lacustrine environment. Red to purple shales typically overlies the Shinarump sandstone. The Shinarump is a fluvial siliciclastic unit and is moderately-well developed here. In outcrop, its base is disconformable with the underlying Moenkopi Fm, and commonly exhibits scour and erosion features (i.e., basal conglomerates).

**Moenkopi Fm:** ft; The Moenkopi Fm was named by Ward (1901) for a sequence of rocks that lay between the Permian Kaibab Ls and the overlying Shinarump Sandstone. Baker and Reeside (1929) extended the formation into southeastern Utah and beyond. Throughout this area, and extending southward to Monument Valley, Arizona, the Moenkopi disconformably overlies the Permian Cutler Group. The Moenkopi consists of slightly browner redbeds comprised of fine-grained siltstone and sandstone, and micaceous shales.

*Overall, the Triassic and Jurassic sedimentary sections are a succession of arid climate-derived sequences bounded by numerous disconformities that are associated with individual subbasin tectonism within the greater Paradox basin. Therefore, much of the thinning and erosion is due to the re-emergence of the Abajo-Monticello Arch & the Lisbon salt anticline (see old papers I wrote). The Lisbon Valley is the southwestern edge of the "fold-and-fault belt" of old, or the "salt anticline" or even basin-centered part of the Paradox basin. Basically, the Jurassic records the dying-gasps of tectonic effects driven in-part by the diapiric upwelling of salt and the continued collapse of the extensional rift-type basin (see same old papers).*

## PERMIAN

**The Cutler Group** 1493 ft (+4327') to 3140 ft (+2680')

The Cutler section was first defined and named as a formation by Cross and Howe (1905) for exposures in the San Juan Mountains in southwestern Colorado. Later, in the Monument Valley area, Baker and Reeside (1929) identified five members of the Cutler and named them in ascending order as; Halgaito Tongue, Cedar Mesa Sandstone Member, Organ Rock Tongue, De Chelly Sandstone Member, and Hoskinnini Tongue. Stewart (1959) later assigned the Hoskinnini Tongue to the overlying Triassic Moenkopi Fm. Wengerd and Matheny (1958) raised the Cutler to group status and the members to formation status. *However, here in the greater Lisbon-Dry Valley area, the Cutler Group remains as undifferentiated intercalated redbeds of coarse- to medium-grained arkosic sandstones, siltstones and shales. The total interval thickness is 1647 ft.*

## PENNSYLVANIAN

**The Hermosa Group** 3140 ft (+2680') to 7948 ft (-2128')

### SOME BACKGROUND

The name "Hermosa Formation" was first applied by Cross and Spencer (1899) to Pennsylvanian rocks in the San Juan Mountains of southwest Colorado. Later, Baker, et al (1927) correlated the Hermosa to the limestone canyon walls of the San Juan River in the Mexican Hat area. Wengerd and Matheny (1958) raised the status of this interval to group status, and subdivided the group in to three formations, in ascending order: the Pinkerton Trail Fm, the Paradox Fm, and the Honaker Trail Fm. Baars, et al (1967) proposed the usage of the chronostratigraphic term "Four Corners Stage" and subdivided the Paradox Fm in to four biostratigraphic "substages" in descending order; the Ismay substage, the Desert Creek substage, the Akah substage, and the Barker Creek substage. The term "Alkali Gulch" was informally proposed for basal Paradox evaporites and restricted carbonates in southwestern Colorado by Peterson and Ohlen (1963). Hite and Buckner (1981) informally correlated Paradox salt cycles to the Four Corners substages, and Baars and Stevenson (1982) formally dropped the usage of "Four Corners Stage" and upgraded the substages, in descending order as; the Upper Ismay, Lower Ismay, Desert Creek, Akah and Barker Creek stages.

Present-day petroleum workers have modified these formal units somewhat, and added several "informal" names to add to the confusion. As best I can decipher, and try to use, this is the vertical succession, in descending order, with time-equivalent salt cycle noted in parentheses:

- Honaker Trail Fm = disconformable, top of Pennsylvanian marine limestones and shales
- La Sal cycle = lowermost cycle of Honaker Trail Fm
- Hatch cycle = (salt cycle #1 of Pdx); but still included in lwr Honaker Trail Fm.
- Paradox Shale = 1<sup>st</sup> black "shale" separating Hatch from Upper Ismay Stage
- Paradox Formation = top of salt cycles except in small part of northeast Paradox basin
- Upper Ismay Stage = (capping anhydrite = salt cycle #2)
- Hovenweep Shale = 2<sup>nd</sup> black "shale" in Paradox sequence

Lower Ismay Stage = (capping anhydrite = salt cycle #3)  
 Gothic Shale = 3<sup>rd</sup> black "shale" in Paradox sequence  
**Desert Creek Stage Top of Salt in ST Oil Federal #1-31**  
     Upper DC: (capping anhydrite = salt cycle #4: 1<sup>st</sup> salt in #1-31)  
     Lower DC: (capping anhydrite = salt cycle #5: 2<sup>nd</sup> Salt in #1-31)  
 Chimney Rock Shale = 4<sup>th</sup> black "shale" in Paradox sequence  
 Akah Stage = (salt cycles 6 – 10\*)  
 Unnamed, or "D" Shale = 5<sup>th</sup> black "shale" in Paradox sequence  
 Barker Creek Stage = (\*salt cycles 10 or 11(?) thru 26, or more!)  
     "Shafer Zone" (6<sup>th</sup> major "shale" in Paradox sequence)  
     "No-Name Shale" (surprise gassy "shale" between cycles #19 & #20)  
     "Cane Creek Zone" (7<sup>th</sup> major "shale" in Paradox sequence)  
 Pinkerton Trail Fm = defined by first non-evaporite carbonate cycles

**[Obviously, terminology needs some standardization for the Paradox Formation]**

**Honaker Trail Fm: 3140 – 4648 ft (1508' thick);** The Honaker Trail Formation is the uppermost unit of the Hermosa Group and consists of cyclically alternating marine carbonates and siliciclastics that grade upward into more massive arkosic sandstones and siltstones derived from the emergent Ancestral Rockies to the east. This vertical and eastward thickening of arkosic clastics indicates the gradual withdrawal of the Paleozoic sea from the uplifting Paradox shelf. The type section for the formation is located less than two miles west of the Goosenecks overlook at Honaker Trail, and was upgraded to formation status by Wengerd and Matheny (1958; Stevenson, 2000). At Goosenecks overlook, the massive limestone rim rock defines the lithostratigraphic boundary between the overlying Halgaito redbeds (Permian) and the underlying Honaker Trail Formation (Pennsylvanian). Closer examination reveals that several layers of red siliciclastics are interbedded with the underlying carbonates, and that thin, discontinuous limestone beds extend upward into the Halgaito siltstones. This alternating pattern of gray ledge-forming limestone with softer, slope-forming redbeds is beautifully exposed on the west dipping flank of the nearby Raplee anticline, forming a prominent "zigzag" pattern (Stevenson, 2000, p.439, fig.9).

In the ST Oil Federal #1-31 well, the Honaker Trail sequence extends from a disconformity at 3140' and gradually increases downhole in marine carbonates and gray-green shales as red beds diminish. Here, I include the La Sal (4078') and Hatch (4406') "markers" as basal members, or units of the Honaker Trail Fm. Thus, the Upper Ismay is considered by this writer throughout most of the Paradox basin as the TOP of the Paradox Fm, and is adhered to in this report. Also, as restricted marine conditions increase with depth, background gases typically increase downhole. In this well background gas was either not detected or only 1-2 units in the upper Honaker Trail.

**La Sal Cycle: 4078 – 4406 ft;** this is an informally named unit in the lower Honaker Trail Fm. The shale zone from 4054 – 4078 ft is a fairly reliable drilling marker horizon; consisting of moderately dark gray to black, argillaceous, silty lime mudstone. The top of the La Sal cycle consists of a calcarenite to siliciclastic sandstone cemented by calcite. Quartz grains are very fine to fine-grained, and well sorted. This facies is interpreted as shoreface sand where windblown siliciclastics are transported across the shelf during lowstands of sea level and subsequently reworked by shallow marine waters. Note the porous blocky calcarenite zone from 4140 – 4182 ft with up to 12% porosity. No shows or gas increases were noted. The remainder of this cycle consists of light-gray to tan carbonate zones (10' - 15' thick)

interbedded with 3' - 10' thick zones of dark carbonate "shales" and/or silty argillaceous shaly lime siltstones, indicating alternating conditions on the shelf from shallow marine (light-colored carbonates) to deeper water, and poorly oxygenated conditions brought on by sea level rise (dark-colored silty dolomitic mudstones). Background gas was only 2 units across this interval. Formation gas spiked at 26 units at 4395 ft (shale gas from top of Hatch cycle). No visible porosity or hydrocarbon shows.

**Hatch cycle:** 4406 - 4612 ft; this is an informally named unit in the lower Honaker Trail Fm (or uppermost Paradox Fm), and is actually time-equivalent to the uppermost Paradox salt cycle (cycle #1 of Hite and Buckner, 1981) in the very northeasternmost portion of the Paradox basin (northeast of Moab, UT). Here, the Hatch cycle consists of alternating parasequences of normal marine shelf carbonates and poorly oxygenated silty carbonate mudstones similar to those described above in the La Sal cycle. No visible porosity or hydrocarbon shows.

**Paradox Shale:** 4612 - 4648 ft; top of Paradox Fm in the Blanding and North Abajo subbasins of the greater Paradox basin. This interval is a very dark gray to black, organic-rich silty lime mudstone and marks the first significant "cycle-bounding shale" in the upper Paradox stages. This black laminated mudstone (BLM) facies becomes progressively darker and richer in organics downhole as cycle-bounding "shales" (which are mostly organic-rich carbonate mudstones or "sapropelic dolomites" and the primary source of most hydrocarbons in the Paradox Fm). This facies is interpreted as moderate anoxic to anaerobic sediment deposited during rapid transgressions during initial flooding of marine incursions across the shallow Paradox shelf. Formation gas at 4640 ft increased to 19 units and is typical for most of the Paradox "shales."

**Upper Ismay Stage:** 4648 - 4750 ft; Across the southern shelf of the Paradox basin, the Upper Ismay is a cyclically deposited 4th order sequence of low to moderate energy, open marine bioclastic platform carbonates that alternate with black cherry argillaceous organic rich dolomudstones. It is further subdivided into four 5th-order sequences, or substages, in ascending order as follows: Substage I: 4750 - 4736 ft; Substage II: 4736 - 4716 ft; Substage III: 4716 - 4702 ft; and Substage IV: 4702 - 4648 ft.

Substage I is a medium- to dark-gray, limy skeletal mudstone to wackestone, and interpreted to be deposited in a low energy, shallow restricted platform setting.

Substage II is a normal marine carbonate platform facies with gray to brown skeletal (crinoidal to peloidal) mudstone to wackestone textures. Oil shows are common in isolated vugs but porosities in this part of the Paradox basin have been mostly ineffective (biomoldic/ intraparticle) or diagenetically occluded porosity (late stage dolomite, anhydrite, chert). *This interval is equivalent to the algal mound zone in the central Blanding subbasin play (Kiva field for example).* A few grains of brown dololimestone were observed with finely intercrystalline porosity. The interval from 4736 - 4716 ft has 9 ft > 6% porosity, and was marked for sidewall core sampling (see Eby report). Formation gas increased to 40 units in this interval, but no shows were noted.

Substage III is a massive capping anhydrite that can either consist of chickenwire to thinly-laminated varieties. This evaporite interval is equivalent to Paradox salt cycle #2.

Substage IV ranges from a restricted carbonate platform facies (similar to substage I), to a basin-filling peritidal to restricted lagoonal facies with the typical "rabbit-ears" anhydrite capping the sequence.

**Hovenweep Shale:** 4750 – 4784 ft; Black laminated organic-rich calcareous mudstone. This “cycle-bounding shale” is the first recognized source rocks in this portion of the Paradox basin and thickens to the south and east of the well site. Shale gas reached 70 units at 4780 ft. (see Source Rock analysis from the Marie Ogden well)

**Lower Ismay Stage:** 4784 – 4882 ft; Across this portion of the Paradox basin, the Lower Ismay is a cyclically deposited 4th order sequence of *dolomitized* low to moderate energy open marine to restricted bioclastic platform carbonates and *algal mound facies* that alternates with black argillaceous organic rich calcareous mudstones, and restricted lagoonal evaporites and silty dolomitic mudstones. It is subdivided into three 5th-order sequences, or substages, in ascending order as follows: Substage I: 4882 – 4853 ft; Substage II: 4853 – 4809 ft; and Substage III: 4809 – 4784 ft.

Substage I is the *Dolomitized Algal Mound* facies as described in several wells in this part of the basin, and was cored in the ST Oil Co. Marie Ogden #1 State (senw Sec 22-T31S-R23E). This interval broke back from 10”/ft ROP to 1-2”/ft ROP and here exhibits excellent effective intercrystalline porosity in tan to light-gray dolomitic cuttings. 20 ft of porosity > 6% was noted between 4879 – 4854 ft, and this zone was marked for sidewall cores (see Eby report). Formation gas was disappointingly low (only 15 units) and only minor fluorescence. Of course, the high mud weight and viscosity could have masked any shows, particularly if this porous zone has effective permeabilities.

Substage II is a massive capping anhydrite interval in this well and provides an excellent seal to substage I carbonate porosities. This evaporite interval is equivalent to Paradox salt cycle #3.

Substage III is known as the “Horn Point” limestone in outcrop. Here, the interval is limy to dolomitic, argillaceous, and slightly cherty.

**Gothic Shale:** 4882 – 4942 ft; This “cycle-bounding shale” is a major recognized source rock zone in the Paradox basin (see Source Rock analysis from the Marie Ogden well). This interval consists of black laminated dolomite to calcareous, organic-rich mudstone. The Gothic Shale is the primary petroleum source bed for upper Paradox objectives.

**Desert Creek Stage:** 4942 – 5140 ft; Throughout the Paradox basin, the Desert Creek is a cyclically deposited 4th order sequence of low to high energy open marine bioclastic platform carbonates that alternate with black cherty argillaceous organic rich dolomudstones, and restricted lagoonal silty dolomudstones and evaporites. Here in this portion of the Paradox basin, both capping anhydrite zones have changed facies to halite, such that *Paradox cycle 4* represents the first occurrence of Paradox salt. The Desert Creek Stage is further subdivided into five 5th-order sequences, or substages, in ascending order as follows: Substage I: 5140 – 5132 ft; Substage II: 5132 – 5034 ft; Substage III: 5034 – 5006 ft; Substage IV: 5006 – 4958 ft; and, Substage V: 4958 – 4942 ft.

Substage I. It’s hard to imagine, but the 8 ft of dark gray argillaceous dolomitic mudstone represented here is equivalent to more than 150 ft of stacked algal mounds in Aneth field. This mound-equivalent zone has been the “historic” primary target for production in the Blanding subbasin to the south where over 550 MMBO and 500 BCFG have been recovered to date.

Substage II. The lower Desert Creek evaporite is referred to as the *Paradox salt cycle #5* and contains the second from the top salt package in this well (5129 – 5034 ft).

Substage III occurs between the upper and lower evaporite cycles. It consists of thinly alternating beds of anhydritic, silty lime to dolomitic mudstone deposited in a restricted platform environment.

Substage IV. The upper Desert Creek evaporite is referred to as the *Paradox salt cycle #4* and contains the first occurrence of salt in this well (5002 – 4963 ft; i.e., *Top of Paradox salt @ 4963 ft*).

Substage V consists of thinly bedded anhydritic silty lime to dolomitic mudstone interpreted as a restricted basin-filling peritidal to lagoonal facies in the Paradox basin.

**Chimney Rock Shale:** 5140 – 5168 ft; this interval consists of black laminated dolomite to calcareous, organic-rich mudstone, and is a major hydrocarbon source rock in the upper Paradox Formation.

**Akah Stage:** 5168 – 6012 ft; this interval contains evaporite cycles 6 – 10 (as defined by Hite and Buckner, 1981). See Table 1 (this report) for tops and bases of salt cycles 6 through 10. No significant increase in formation gas which remained at only 2-3 units.

**“D Shale”:** 6012 – 6027 ft; this interval consists of black laminated dolomite to calcareous, organic-rich to carbonaceous mudstone. This shale-break separates the underlying Barker Creek Stage from the overlying Akah Stage of the Paradox Formation. Note the caliper “wash-out” that is indicative of overpressured soft black laminated to carbonaceous mudstone facies.

**Barker Creek Stage:** 6027 – 7884 ft; this interval contains evaporite cycles #11 – #26 (as defined by Hite and Buckner, 1981). The base of Paradox salt occurs at 7852 ft in salt cycle #26, for a total gross interval of 2,889 ft of Paradox salt. In this portion of the Paradox basin, and immediately to the north-northwest, an expanded “clastic zone” lying between salt cycles #21 and #22 has been of economic interest in that it is an over-pressured and fractured source rock interval informally named the “Cane Creek Zone.” I have included a summary of this prospective zone below; however, the Cane Creek Zone was very disappointing in this well.

A surprise *“No-Name” shale zone* lying between salt cycles #19 and #20 (7041 – 7062 ft) created some drilling problems since it was first encountered on July 30<sup>th</sup>. When this zone was first drilled into, the background gas kicked up from 2 units to 435 units with C<sub>1</sub> – C<sub>4</sub> gases present. Drilling mud weight going in at 10.3 ppg was returning at 7.1 ppg and the mixing tanks and shale shaker were “boiling.” The well was subsequently shut-in, mud weight was increased to 11.3# and began running drilling mud through gas buster on July 31<sup>st</sup> with a 5 – 10 ft flare that continued throughout the rest of drilling and completion at an estimated rate of 150 MCFGPD. Trip flares would increase to 30 ft or better! Samples from the No-Name shale were described as black, carbonaceous to coaly shale with hairline fractures visible on dry cuts. I compared this zone to other wells in the area, and all show caliper wash-out (as does this well) and mud gas increase on wells we had mudlogs on. *Apparently, this zone is highly pressured and fractured and is an obvious completion target.*

## CANE CREEK ZONE OF THE PARADOX FORMATION

The Cane Creek zone (7308 – 7354 ft) is an expanded or thickened "clastic" interval located near the base of the Paradox salt section, lying between salt cycles 21 and 22 (of Hite's, 1960 terminology), and is quite petroliferous. This interval consists of black to dark gray dolomitic siltstone, black petroliferous shaly carbonates, and anhydrites (Grove et al., 1993). The Cane Creek zone is highly prospective immediately north-northwest of this well where the interval ranges from 0 ft to over 150 ft in thickness in the Big Flat area.

The principal "play arena" has been along smaller pre-salt structural anticlines sub-parallel to the surface expression of the Cane Creek anticline and Shafer Dome. Although oil has been recovered from wells in varying structural orientation, the better production has been in those wells located near the crest of these paleo-structures. Drilling depths range from 7200 to 7800 ft, with horizontal segments of 1000-2000 ft or more. The Cane Creek petroleum play is summarized by Morgan (1992), Morgan and others (1991), and Grove, et al. (1993). Other information reviewed in this discussion is based on personal conversations between this writer and several of the personnel involved in the drilling and exploitation of this play arena.

Measured matrix porosities and permeabilities from available core are typically low to sub-commercial, and production of hydrocarbons is due to large-scale northeast-southwest trending high angle fractures, and to micro "expulsion" fractures created during hydrocarbon generation. Oil produced from this zone was compared to core recovered from the Davis #1 Skyline (sec 5-T26S-R20E) where total organic carbon (TOC) and hydrogen indices (HI) were unusually high and gas chromatographs matched the produced oils (i.e., the oils are generated *in situ* in the Cane Creek zone).

Early conventionally drilled exploratory wells in the region typically encountered overpressured conditions when drilling through the Cane Creek, and commonly reported varying degrees of oil recovery when tested (either by DST or through production casing). Mechanical difficulties in drilling the thick Paradox salt section, collapsed production casing, and rapid production declines thwarted these earlier exploration efforts.

Prior to 1990, the only well that had recovered commercial quantities of oil from this zone was the SoNat #1 Long Canyon well (sec 9-T26S-R20E) in which, to date, over 1,000,000 BO and nearly one BCFG have been produced since its discovery in 1961. With the advent of horizontal drilling technology, the Columbia Gas Development Co. drilled and completed the Kane Springs Federal No. 27-1 (nwse sec 27-T25S-R19E) in 1991 flowing 914 BOPD and 290 MCFGPD, with no water. Since this discovery several other horizontal wells have been drilled, and this technique is proving to be a valuable method of exploration/exploitation of this zone (Grove, et al., 1993).

Through these latest exploratory efforts several "keys" to oil production can be delineated: (1) the presence of pre-salt paleo-structure is necessary for optimum high-angle fracturing to occur, (2) horizontal well bores must properly intersect these "tectonic" open fractures, (3) successful wells must stay within the overpressured limits of the interval, and (4) the bounding nature of the underlying salt cycle 22 is necessary for confining reservoir pressure.

**Pinkerton Trail Fm:** 7884 – 7948 ft; this interval consists of alternating thin beds of dark lime mudstone and black to dark gray silty "shales." Background gas was 150 – 200 units with no visible porosity or hydrocarbon shows.

**Molas Fm:** 7948 – 7973 ft; the Molas Fm consists of poorly stratified red siltstones and sandstones which contain angular lithoclasts of the underlying Leadville Fm. Cross et al. (1905) named the unit for a 114 ft exposure on the northwest side of Molas Lake in the San Juan Mountains in southwestern Colorado. The contact, or base of the Molas is a red paleosol and represents a significant unconformity in that the upper Leadville is Osagean (352 mybp) and the Molas is Atokan (320 mybp) in age. The upper contact with the Paradox Fm is gradational. Merrill and Winar (1958) subdivided the Molas into three members of formal status: the basal dark red paleosol, middle fluvial sandstone, and an upper marine detrital sequence. Some workers have forced the Molas pick, without consulting a lithlog, mudlog or looking at the zone themselves. Furthermore, some workers have forced the age of the Molas to include the Morrow, when in fact, the regolith unit could contain fossil fragments from any period represented by the unconformity.

*Care should be taken to not automatically assume that the shale above the Leadville is Molas, as that many times, the lower Paradox or Pinkerton Trail can unconformably overlie any portion of the pre-Pennsylvanian section (i.e., if it's not red - it's probably not Molas!).*

## MISSISSIPPIAN

**Leadville Fm:** 7973 – 8456 ft; the Leadville Limestone was named by Emmons and Eldridge (1894) for outcrops in the Leadville mining district of Lake County, Colorado. In the greater Four Corners area, the Leadville contains a Madison fauna of Kinderhookian to lower Osagean age. This age corresponds to Armstrong and Mamet's (1976, 1977) Tournasian (zone 9) age designation. The Leadville was informally subdivided into upper and lower members by Knight and Baars (1957), but refuted by Parker and Roberts (1963) *due to very complex patterns of dolomitization, and they suggested that these patterns were not related to specific horizons over broad topographical regions.* [Seems to me that Parker and Roberts (1963) were onto this HTD business a long time ago!]

With that being said, in this well the upper member extends from 7973 – 8239 ft and the lower member from 8239 – 8456 ft. The upper member is primarily a fossiliferous limestone with crinoids, brachiopods and coated grains forming a skeletal fabric ranging from skeletal mudstone to packstone or occasional grainstones. The lower member has been traditionally described as a pervasively dolomitized mudstone with large rhombic dolomite crystals to sucrosic dolomite.

With the new (to me) revelation that hydrothermal dolomite (HTD) may be occurring in the Leadville, I was astounded to see that, in fact, a substantial portion of both members contained this form of dolomite. The keys to recognition, as explained to me by Herb Mosca and Dave Eby are the presence of bitumen coatings and inclusions within the translucent dolomite rhombs and the occurrence of associated sulfides (particularly pyrite). It's my understanding that these hydrothermal fluids are associated with basement faulting and alteration to the overlying host carbonates can be rather spectacular whereby primary porosity is tremendously enhanced and "opened-up" by these chemically-altering fluids. So, Parker and Roberts (1963) assertion that the subdivision of the Leadville was superfluous may come to fruition.

Regardless, there are two major porosity zones that were identified in the Leadville in this well and marked for sidewall cores (see Eby report). The Upper Zone: 8061 – 8122 ft consists of a gross interval of 61 ft with 26 ft @ > 6% porosity and 22 ft with 10%, or greater, porosity. The Lower Zone: 8220 – 8375 ft consists of a gross interval of 155 ft with 94 ft with 6% porosity and 49 ft @ 10%, or greater, porosity.

*Obviously, this was the primary objective in the drilling of this well, and production casing has been run. If these zones prove to be commercial, then the HTD play will be a new play concept to pursue throughout the Paradox basin.*

## Historical Overview

The Leadville Formation underlies the Paradox Formation and was, until recently, considered to be the only primary target for sizeable reserves of oil and gas in this portion of the Paradox basin. The Leadville is/was the primary reservoir at Lisbon, Salt Wash and Big Flat oil fields. The Leadville Formation consists of an upper member that is commonly a crinoidal to oolitic carbonate grainstone to wackestone showing varying degrees of dolomitization and diagenetic porosity enhancement. The lower member is an almost ubiquitous dolostone with excellent porosity development. Most hydrocarbons are trapped in the upper member. Oils are typically lighter than those produced from the Pennsylvanian Paradox Fm, and associated gases range in percentage of inert types (typically CO<sub>2</sub>, He, or N) along with conventional hydrocarbon gases. Source rock studies conducted in 1988 by DGSI/Stevenson dispelled a common misconception that the Paradox black "shales" were the probable source of hydrocarbons trapped in Mississippian and older reservoirs. Oils sampled from Lisbon indicate that they are produced from Mississippian and older reservoirs and significantly different than those produced from Pennsylvanian reservoirs and could not possibly be sourced by the Paradox "shales." Oils from Bartlett Flat and Salt Wash are apparently Pennsylvanian-sourced. Therefore, hydrocarbon source beds and migration routes for Mississippian reservoirs in the Paradox basin is enigmatic, to say the least.

Petroleum exploration along the faulted flanks of the Paradox basin salt diapiric structures has only proven successful in one location, that being the greater Lisbon area (T30S-R24E). Several excellent studies of the Lisbon field have been made over the years, including Parker (1966, 1981), Smith and Prather (1981), Bradley (1975), and Clark (1978). Several key conclusions can be drawn; (1) salt tectonics are complex, (2) although overall mechanism for salt flowage is similar (i.e., asymmetrical loading from the east-northeast of Permo-Pennsylvanian clastics derived from the emergent Uncompahgre uplift), each salt structure has its own specific characteristics, (3) bounding basement fault blocks containing pre-salt sedimentary section can be beveled to completely missing adjacent to salt diapirs and, (4) reservoir development is actually a combination trap of optimal stratigraphy (porous crinoidal banks and oolite bars) and structural position.

The structurally highest wells at Lisbon are dry holes - drilled too high on the salt structure thereby missing the bounding basement fault block. Wells drilled too far down dip were water wet, and also non-productive.

Seismic exploration for Leadville reservoirs has been difficult due to the thick overlying Paradox salt section that has obscured, if not totally obliterated, the seismic trace of the Leadville and older formations. Combined with this significant velocity contrast has been the rather complex structural history due to numerous periods of faulting, and incredibly rugged surface relief. New advances in seismic, including 3-D, have finally been applied in this region with apparent success.

Following the discovery of Lisbon oil field (T30S-R24E) in 1961, numerous wildcats were drilled, more or less "on trend" with Lisbon field. To date, Lisbon is, by far, the most prolific oil producer from any objective **below** the Paradox salt section (cumulative production of nearly 52 MMBO and 500 BCFG from fewer than 40 wells). Although drilling is sparse, no oil or gas has been produced from this interval on the east-northeast flanks of the various salt anticlines in the area, leading most exploration efforts to concentrate on the southwest flanks. Oil shows and the development of crinoidal and oolitic "reservoir" facies have been observed and described in outcrop where they are developed along east-facing flanks of basement structures, suggesting that "industry bias" may be the only reason that there are presently only west-facing fields.

## DEVONIAN

**Ouray Fm:** 8456 – 8540 ft; The Ouray Fm was named by Spencer (1900) for 100-200 ft of massive dark brown limestone and dolomite that outcrops at its type locality near the junction of Canyon Creek with the Uncompahgre River, just south of Ouray, Colorado in the San Juan Mountains. Throughout the Colorado Plateau, the Ouray is recognized to conformably overlie the green, waxy shale and thin-bedded sandy carbonates of the Devonian Elbert Fm. The exact age of the Ouray has been the topic of debate amongst numerous investigators (see Armstrong and Mamet, 1976, 1977; Stevenson and Baars, 1977). What all this boils down to, is that the Ouray – Leadville contact cannot be definitively picked with biostratigraphic accuracy in the outcrop, much less in the subsurface. But, lithologic criteria can be used to distinguish the two units. These criteria are: 1) a change in color of the carbonate (dolomite) from brown or tan in the Ouray to gray in the Leadville, 2) a marked and rapid decrease in argillaceous matrix in the Leadville, 3) a distinctive lithologic break, or “notch” in the massive carbonate succession, plus many other criteria that cannot be discerned in drill cuttings.

In this well the Ouray “notch” is well expressed, plus a noticeable change from wispy laminated stromatolitic (?) limestone in the basal Leadville to clean non-descript gray brown limestone in the Ouray. This interval is extremely tight with no shows.

**Elbert Fm:** 8540 – 8688 ft; the formation was named by Cross (1904) for exposures along Elbert Creek north of Rockwood, Colorado. The Elbert conformably overlies the Aneth Fm in the Four Corners area, but disconformably overlies Late Cambrian strata elsewhere. Knight and Cooper (1955) re-defined the Elbert and divided it into two members: the basal McCracken Sandstone Member, and an upper dolomite and shale member.

The upper member of the Elbert Fm consists of a distinctive “apple-green, waxy shale” and thin-bedded limestone and dolomite that is commonly sandy and silty, with occasional glauconitic sandstones. The characteristic green, waxy shale was described in this well and makes a wonderful marker when drilling below the Leadville-Ouray section. There were no shows in this interval.

**McCracken Sandstone Member:** 8688 – 8784 ft; this unit is typically a sandy to silty dolomite in the upper part and grades downward into friable quartzose sandstone that is fine – to medium-grained, and sub-angular to rounded and well-sorted. The McCracken has been a “secondary” target when drilling for Mississippian Leadville objectives. At Lisbon field the discovery well flowed 586 BOPD from the McCracken (Pure Oil #1 NW Lisbon; new Sec 10-T30S-R24E). Although the bulk of the oil and gas occurs in the Leadville, the McCracken was tested in virtually every well drilled in the field. The McCracken also produces from the SE Lisbon (McIntyre Canyon) field where in the structurally highest well (the Unocal #6-14-18; sene Sec 18-T44N-R19W), the McCracken flowed 3425 MCFGPD, with all other production from the Leadville-Ouray section.

**Aneth Fm (?):** 8784 – TD (8822’); the Aneth was named by Knight and Cooper (1955) as the oldest recognizable Devonian strata of the Colorado Plateau. In the type locality in the subsurface of the Blanding subbasin (Shell Oil #1 Bluff; Sec 32-T39S-R23E), it consists of up to 200 ft of black, resinous limestone and argillaceous dolomite with interbedded “euxinic” black shales and siltstones. The Aneth conformably underlies the McCracken and disconformably overlies the Late Cambrian elsewhere in the Four Corners region.

It is herein strongly conjectured whether the Aneth Fm extends this far north; some workers (including me) believe that it is confined to the immediate vicinity of the Four Corners, and that what is preserved here in the Lightning Draw area is transgressive, or highstand, “tongues” of the Cambrian Ophir Fm. *The highly micaceous nature of the samples surely suggests that the latter interpretation may be valid here, as no micaceous lithologies were described for the “type” Aneth in the Blanding subbasin.*

**-END -OF-DESCRIPTIONS-**

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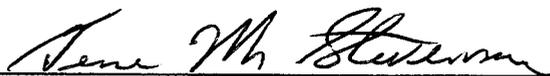
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Thank you for the opportunity to be your well site geologist.  
It has been a pleasure.

Sincerely,



---

Gene M. Stevenson, CPG #06232  
Registered Utah Professional Geologist

ST Oil 21-31 Fed

4600

4612  
Pdx Shale

4648

(+1172)

Upper Ismay

102

4702

4700

4716

TENS

4717

4736

19

STIA  
STIT

4750

(+1070)

NPOR

HCAI  
GR

Havenweep Shale

HDRA

31

DPHZ

4784

(+1036)

Lower Ismay

ST 11  
4750

ST OIL #1 - 31  
(+1070)

NPOR

# Havenweep Shale

HCAI  
GR

HDRA

(34)

DPHZ

4784 (+1036)

# Lower Ismay

4800

4809 (+1011)

(98)

4053 <sup>46'</sup> bs/anh, drite 4854

10 6

(29)

(25)

(1938)  
4882

4879

18' @ 6%

# Gothic Shale

4900

(60)

4942 (+878)

# Desert Creek Stage

ST Oil # 1-31 Fed

18/26/5

(1938)

4879

4882

Gothic Shale

4900

(60)

4942

(+878)

Desert Creek Stage

4963

(+857)

Top Pdx SALT

U DC salt cycle #4

(39)

5002

5000

5034

L DC salt cycle #5

ST O.L #1-3/ P21

salt cycle  
# 19

(138)

7000

No-Name "shale"

7040

7041

bs/salt #19

(-1221)

7062

(-1242)

7072

7100

salt cycle  
# 20

(178)

7150

7200

TEMS

salt cycle #21

(134)

STIA  
STIT

NPOR

HDRA

GR

HCAL

DPHZ

7300

7304

bs/salt #21

(-1488)

7308

Cane Creek zone

(46)

7354

(-1534)

7369

salt cycle #22

7400

Vertical scribbles and lines on the right side of the page.

(-2128) 1948

Molas Fm

ST 0.1 #1-21 Red

(25)

(-2153) 1973

Miss Leadville Fm.

(266) 4/2/61

8000

8061

(-2241)

10

11 4

26 @

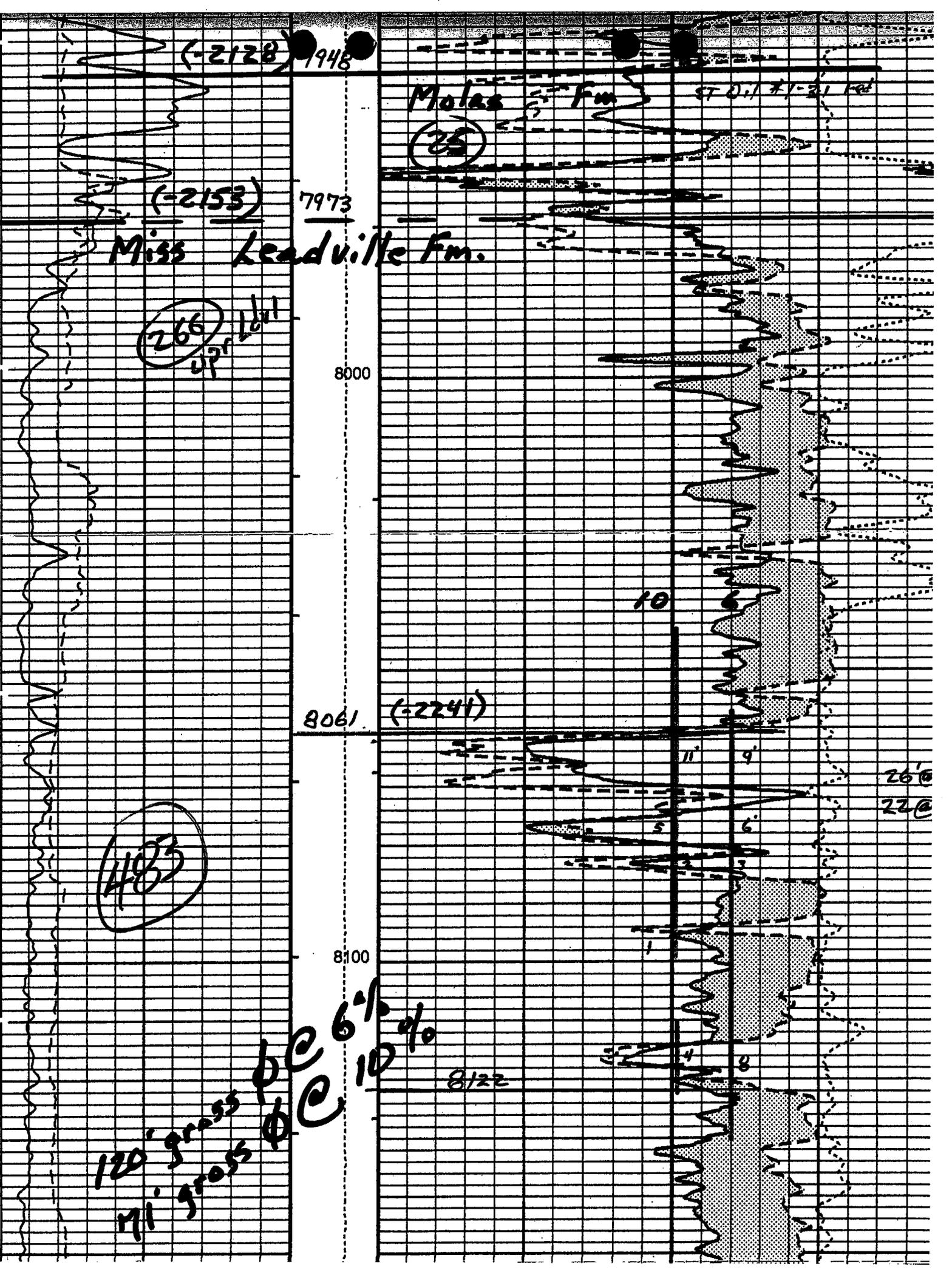
22 @

(483)

8100

8/22

120' gross @ 6 1/2%  
71' gross @ 10%





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

AMENDED REPORT  FORM 8  
(highlight changes)

010

5. LEASE DESIGNATION AND SERIAL NUMBER:  
UTU-076772

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

1a. TYPE OF WELL: OIL WELL  GAS WELL  DRY  OTHER   
 b. TYPE OF WORK: NEW WELL  HORIZ. LATS.  DEEP-EN  RE-ENTRY  DIFF. RESVR.  OTHER

CONFIDENTIAL

7. UNIT or CA AGREEMENT NAME

8. WELL NAME and NUMBER:  
Federal 1-31

2. NAME OF OPERATOR:  
ST Oil Company

9. API NUMBER:  
4303721830

3. ADDRESS OF OPERATOR:  
1801 Broadway, St. 600 CITY Denver STATE CO ZIP 80202 PHONE NUMBER: (303) 296-1908

10. FIELD AND POOL, OR WILDCAT  
Lisbon South

4. LOCATION OF WELL (FOOTAGES)  
AT SURFACE: 2147' fsl x 1085' fwl  
AT TOP PRODUCING INTERVAL REPORTED BELOW: 2286' fsl x 1101' fwl  
AT TOTAL DEPTH: 2264' fsl x 1057' fwl

CONFIDENTIAL  
PERIOD  
EXPIRED  
ON 1-9-06

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:  
NWSW 31 30S 24E

12. COUNTY San Juan 13. STATE UTAH

14. DATE SPURRED: 7/13/2004 15. DATE T.D. REACHED: 8/16/2004 16. DATE COMPLETED: 12/9/2004 ABANDONED  READY TO PRODUCE  17. ELEVATIONS (DF, RKB, RT, GL): 5820' KB; 5806' GL

18. TOTAL DEPTH: MD 8,822 TVD 8,812 19. PLUG BACK T.D.: MD 8,165 TVD 8,155 20. IF MULTIPLE COMPLETIONS, HOW MANY? \* 21. DEPTH BRIDGE MD 8,165 PLUG SET: TVD 8,155

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)  
DLL, FDC/CNL, SONIC, CBL, Mud log, MSCT

23. WAS WELL CORED? NO  YES  (Submit analysis)  
WAS DST RUN? NO  YES  (Submit report)  
DIRECTIONAL SURVEY? NO  YES  (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
12 1/4"	9 5/8 J-55	36#	0	1,462		65/35 490	161	Surface	0
7 7/8"	5 1/2 L-80	17,20,23&	0	8,805		65/35 650	213	7600	0
		26.7				50/50 500	112		

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8	8.055	8.024						

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) Upper Miss	8,062	8,070	8,054	8,062	8,062 8,118	.49	94	Open <input checked="" type="checkbox"/> Squeezed <input type="checkbox"/>
(B) Upper Miss	8,076	8,084	8,068	8,076	8,220 8,353	.49	104	Open <input type="checkbox"/> Squeezed <input checked="" type="checkbox"/>
(C) Upper Miss	8,095	8,095	8,097	8,067	8,298 8,338	.49	184	Open <input type="checkbox"/> Squeezed <input checked="" type="checkbox"/>
(D) Upper Miss	8,114	8,118	8,106	8,108	8,358 8,376	.49	72	Open <input type="checkbox"/> Squeezed <input checked="" type="checkbox"/>

27. PERFORATION RECORD

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
8358' to 8376'	1000 gal 15%hcl & cement ret @8350' & 75 sack cement squeeze
8298' to 8338'	cement retainer @ 8281' & 75 sack cement squeeze
8220' to 8353'	cast iron bridge plug @ 8165' with 2 sacks cement on top (8062 to 8118 1000 gal 15% hcl)

29. ENCLOSED ATTACHMENTS:

- ELECTRICAL/MECHANICAL LOGS  
 SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION  
 LOGIC REPORT  
 CORE ANALYSIS  
 DST REPORT  
 OTHER: CBL  
 DIRECTIONAL SURVEY

30. WELL STATUS:

SI

RECEIVED  
FEB 22 2005

31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26) *A, B, C, + D Tested Together*

DATE FIRST PRODUCED: 12/6/2004		TEST DATE: 12/9/2004		HOURS TESTED: 24		TEST PRODUCTION RATES: →		OIL - BBL: 18	GAS - MCF: 1,543	WATER - BBL: 5	PROD. METHOD: flowing
CHOKE SIZE: 18/64"	TBG. PRESS. 1,100	CSG. PRESS. 0	API GRAVITY 50.00	BTU - GAS 600	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL: 18	GAS - MCF: 1,543	WATER - BBL: 5	INTERVAL STATUS: Shutin	

INTERVAL B (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →		OIL - BBL:	GAS - MCF:	WATER - BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU - GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL:	GAS - MCF:	WATER - BBL:	INTERVAL STATUS:	

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →		OIL - BBL:	GAS - MCF:	WATER - BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU - GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL:	GAS - MCF:	WATER - BBL:	INTERVAL STATUS:	

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →		OIL - BBL:	GAS - MCF:	WATER - BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU - GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL:	GAS - MCF:	WATER - BBL:	INTERVAL STATUS:	

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

33. SUMMARY OF POROUS ZONES (Include Aquifers):

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.

34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
See attached Table 1					

35. ADDITIONAL REMARKS (Include plugging procedure)

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

NAME (PLEASE PRINT) Richard A. Ferris

TITLE Chief Operations Engineer

SIGNATURE *Richard A. Ferris*

DATE 2/18/2005

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

\* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

\*\* ITEM 24: Cement Top - Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340  
Fax: 801-359-3940

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**TABLE 1**  
**Geological Tops for the ST. OIL CO. Lightning Draw Federal #1-31**  
 (nwsW Sec 31-T30S-R24E) San Juan County, Utah.  
 Surveyed G.L. = 5806' K.B. = 5820' (all Subsea values based on KB).

<u>Formation Names</u>	<u>Sample tops</u>	<u>Log Top</u>	<u>Structure Top</u>	<u>Thickness</u>
Entrada Ss	Spud well approximately 60 ft into Jurassic		Entrada Ss	384+
Carmel Fm		354'	+5466'	120'
Navajo Ss		474'	+5346'	276'
Kayenta Fm.		750'	+5070'	64'
Wingate Ss		814'	+5006	260'
<b>TRIASSIC</b>				
Chinle Fm.		1074'	+4746'	160'
Shinarump Cgl		1234'	+4586'	42'
Moenkopi Fm.	Set 9-5/8" csg to 1462'	1276'	+4544	217'
<b>PERMIAN</b>				
Cutler Group Undiff.		1493'	+4327	1647'
<b>PENNSYLVANIAN HERMOSA GROUP</b>				
Honaker Trail Fm.	3150'	3140'	+2680'	1508'
La Sal Cycle	4055'	4078'	+1742'	328'
Hatch Cycle	4388'	4406'	+1414	206'
Paradox Shale	4600'	4612'	+1208	36'
Upper Ismay Stage	4614'	4648'	+1192	102'
T/Uls anhydrite	4655'	4702'	+1118'	14'
T/Uls pay zone	4685'	4716'	+1104'	34'
Hovenweep Shale	4744'	4750'	+1070'	34'
Lower Ismay Stage	4785'	4784'	+1036'	98'
T/Lls anhydrite	4810'	4809'	+1011'	44'
T/Lls pay zone	4858'	4853'	+967'	29'
Gothic Shale	4890'	4882'	+938'	60'
Desert Creek Stage	4944'	4942'	+878'	198'
Paradox salt (UDC cycle #4)	4968'	4963'	+857'	39'
Bs/UDC salt cycle #4	5004'	5002'		
LDC salt (Pdx salt cycle #5)	5040'	5034'	+786'	95'
Bs/LDC salt cycle #5	5130'	5129'		
Chimney Rock Shale	5185'	5140'	+680'	28'
Akah Stage	5195'	5168'	+652'	859'
Pdx salt cycle #6	5204'	5202'		298
Bs/salt cycle #6	5502'	5500'		
Pdx salt cycle #7	5506'	5517'		61'
Bs/salt cycle #7	5582'	5578'		
Pdx salt cycle #8	5595'	5588'		80'
Bs/salt cycle #8	5670'	5668'		
Pdx salt cycle #9	5700'	5700'		138'
Bs/salt cycle #9	5825'	5839'		
Pdx salt cycle #10	5858'	5865'		139'
Bs/salt cycle #10	6001'	6004'		
Paradox "D" Shale	6004'	6012'		15'

TABLE 1 CONTINUED

Barker Creek Stage	6018'	6027'	-207	1857'
Pdx salt cycle #11	6007'	6034'		26'
Bs/salt cycle #11	6018'	6060'		17'
Pdx salt cycle #12	6035'	6081'		110'
Bs/salt cycle #12	6058'	6098'		95'
Pdx salt cycle #13	6095'	6110'		24'
Bs/salt cycle #13	6220'	6220'		127'
Pdx salt cycle #14	6251'	6249'		68'
Bs/salt cycle #14	6344'	6344'		216'
Pdx salt cycle #15	6352'	6356'		57'
Bs/salt cycle #15	6403'	6380'		138'
Pdx salt cycle #16	6406'	6404'		21'
Bs/salt cycle #16	6532'	6531'		78'
Pdx salt cycle #17	6543'	6546'		134'
Bs/salt cycle #17	6585'	6614'		46'
Pdx salt cycle #18	6588'	6624'		84'
Bs/salt cycle #18	6838'	6840'		106'
T/Shafer Zone	6838'	6842'	-1022	69'
Bs/Shafer Zone	6886'	6899'		85'
Pdx salt cycle #19	6890'	6902'		64'
Bs/salt cycle #19	7039'	7040'		64'
T/No-Name Shale	7041'	7041'	-1221	25'
Bs/No-Name Sh	7068'	7062'	-1242	
Pdx salt cycle #20	7071'	7072'		
Bs/salt cycle #20	7121'	7150'		
Pdx salt cycle #21	7144'	7170'		
Bs/salt cycle #21	7303'	7304'		
Cane Creek Zone	7310'	7308'	-1488	
Bs/CC Zone	7347'	7354'		
Pdx salt cycle #22	7369'	7369'		
Bs/salt cycle #22	7435'	7453'		
Pdx salt cycle #23	7445'	7462'		
Bs/salt cycle #23	7578'	7568'		
Pdx salt cycle #24	7582'	7577'		
Bs/salt cycle #24	7654'	7646'		
Pdx salt cycle #25	7671'	7666'		
Bs/salt cycle #25	7755'	7751'		
Pdx salt cycle #26	7788'	7784'		
Bs/Pdx salt	7855'	7852'	-2032	
Pinkerton Trail Fm	7940'	7884'	-2064	
Molas Fm	7960'	7948'	-2128'	
<b>MISSISSIPPIAN</b>				
Leadville Fm	7978'	7973'	-2153'	483'
Upr Ldvl poro zone	8070'	8061'	-2241'	
Leadville Fm (lower)	8230'	8239'	-2419'	
Lwr Ldvl poro zone	8230'	8220'	-2400'	
<b>DEVONIAN</b>				
Ouray Ls	8440'	8456'	-2636'	84'
Elbert Fm	8550'	8540'	-2720'	148'
McCracken Ss Mbr	8700'	8688'	-2868'	96'
Aneth Fm (?)	8784'	NL	-2964'	38' +
Driller's TD	8822'		-3002	

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S.T. Oil  
Lighting Draw Federal 1-31  
San Juan Colorado  
Sec. 31, T30S, R24E



CL File No.: AUR - 24067  
Date: August 30, 2004  
Analyst(s): JC

CONVENTIONAL CORE ANALYSIS

Sample Number	Depth ft	Net Confining Stress psig	Porosity %	Permeability		Grain Density g/cm3	Saturation Pore Volume			Saturation Bulk Volume			Description	Footnote
				Klinkenberg md	Kair		OIL %	GAS %	WATER %	OIL %	GAS %	WATER %		
1	4728.0	400	15.2	0.051	0.091	2.82	13.4	33.3	53.3	2.0	5.1	8.1	Dol, calc, tr pyrt, tr% yel flu	
2	4730.0	400	17.6	0.092	0.153	2.81	20.9	26.6	52.5	3.7	4.7	9.2	Dol, calc, sli shl lam, tr pyrt, 0% flu poor cut	
3	4864.0	400	17.4	17.201	21.685	2.83	9.3	48.7	42.0	1.6	8.5	7.3	Dol, sli calc, tr pp, 70% yel flu	
4	4865.0	400	18.3	19.036	23.809	2.84	9.0	52.1	38.9	1.6	9.6	7.1	Dol, sli calc, tr pp, 60% yel flu	
5	4877.0	400	2.6	0.005	0.013	2.75	7.5	58.1	34.4	0.2	1.5	0.9	Lim, styl, 10% brt yel flu	
6	8064.0	400	22.2	10.669	13.807	2.82	4.5	61.5	34.0	1.0	13.7	7.6	Dol, stly, sli calc, 0% flu tr cut	
7	8065.0	400	21.4	6.097	8.189	2.83	0.0	71.1	28.9	0.0	15.2	6.2	Dol, stly, sli calc, 0% flu tr cut	
8	8077.0	400	12.7	13.857	17.591	2.84	0.0	90.9	9.1	0.0	11.5	1.1	Dol, calc, calcite incl, 0% flu poor cut	
9	8079.0	400	14.1	8.145	10.850	2.84	1.7	87.6	10.7	0.2	12.4	1.5	Dol, calc, 0% flu tr cut	
10	8230.0	400	13.8	0.522	0.787	2.75	6.7	61.5	31.8	0.9	8.5	4.4	Dol, stly, sli calc, 0% flu tr cut	
11	8233.0	400	6.9	not suitable		2.83	3.3	75.3	21.4	0.2	5.2	1.5	Dol, calc, tr% org flu tr cut	
12	8249.0	400	6.4	0.005	0.015	2.83	8.2	71.8	20.1	0.5	4.6	1.3	Dol, calc, styl, set calcite incl, 0% flu tr cut	
13	8251.0	400	9.6	0.174	0.266	2.82	11.5	52.0	36.5	1.1	5.0	3.5	Dol, calc, 0% flu tr cut	
14	8262.0	400	11.5	not suitable		2.83	0.0	74.8	25.2	0.0	8.6	2.9	Dol, sli calc, pp, calcite incl, tr% org flu fair cut	
15	8266.0	400	14.6	0.268	0.392	2.83	0.0	59.6	40.4	0.0	8.7	5.9	Dol, sli calc, pp, calcite incl, 0% flu no cut	
16	8280.0	400	11.7	0.288	0.417	2.82	18.6	41.7	39.7	2.2	4.9	4.6	Dol, sli calc, tr pp, calcite incl, 0% flu tr cut	
17	8291.0	400	13.3	1.794	2.423	2.82	3.1	55.2	41.6	0.4	7.3	5.5	Dol, sli calc, pp, set calcite incl, 0% flu tr cut	
18	8302.0	400	17.1	66.952	78.202	2.83	5.1	52.4	42.5	0.9	9.0	7.3	Dol, sli calc, pp, set calcite incl, 0% flu fair cut	
19	8303.0	400	10.8	0.278	0.425	2.84	0.0	67.1	32.9	0.0	7.2	3.5	Dol, sli calc, set pp, 0% flu tr cut	
20	8314.0	400	14.6	4.118	5.670	2.80	6.0	45.7	48.3	0.9	6.7	7.0	Dol, calc, 0% flu tr cut	
21	8316.0	400	14.4	1.853	2.629	2.80	3.8	45.5	50.7	0.5	6.5	7.3	Dol, sli calc, tr pp, 0% flu tr cut	
22	8320.0	400	12.2	1.895	2.682	2.82	0.0	45.9	54.1	0.0	5.6	6.6	Dol, sli calc, pp, calcite incl, 0% flu no cut	
23	8326.0	400	7.1	0.005	0.013	2.83	2.6	49.8	47.6	0.2	3.5	3.4	Dol, sli calc, pp, 0% flu tr cut	
24	8330.0	400	14.0	0.161	0.249	2.81	3.4	40.4	56.1	0.5	5.7	7.9	Dol, sli calc, tr pp, calcite incl, 0% flu tr cut	
25	8360.0	400	7.6	0.170	0.262	2.85	8.1	50.8	41.1	0.6	3.9	3.1	Dol, sli calc, 0% flu tr cut	
26	8366.0	400	8.6	0.045	0.083	2.86	3.7	55.4	40.9	0.3	4.8	3.5	Dol, sli calc, 0% flu tr cut	
27	8744.0	400	1.9	0.003	0.009	2.79	0.0	68.7	31.3	0.0	1.3	0.6	Dol, tr calc, sli shl lam, 0% flu tr cut	
28	8745.0	400	0.5	0.002	0.006	2.76	0.0	42.8	57.2	0.0	0.2	0.3	Dol, sli calc, 0% flu tr cut	

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### Gyro Survey Certification

RE: S T Oil Company Operator  
Federal #1-31 Well Name & No.  
San Juan County, UT Location  
41K0804360 SDI Job No.

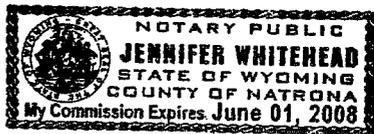
I, Judi Moore, having personal knowledge of all the facts, hereby certify that the attached Gyro survey run from a measured depth of 100 feet to a measured depth of 8650 feet is true and correct as determined from all available records.

Judi Moore Signature      Well Planner Title      Scientific Drilling International Company

State of : Wyoming }  
County of : Natrona }      ss

On this 21<sup>st</sup> day of September, 2004, before me personally appeared Judi Moore to me known as the person described in and who executed the foregoing instrument and acknowledged that (s)he executed the same as his/her free act and deed.

Seal Jennifer Whitehead Notary Public      June 1, 2008 My Commission Expires





**Scientific Drilling**  
Rocky Mountain Operations

**GYRO SURVEY REPORT**

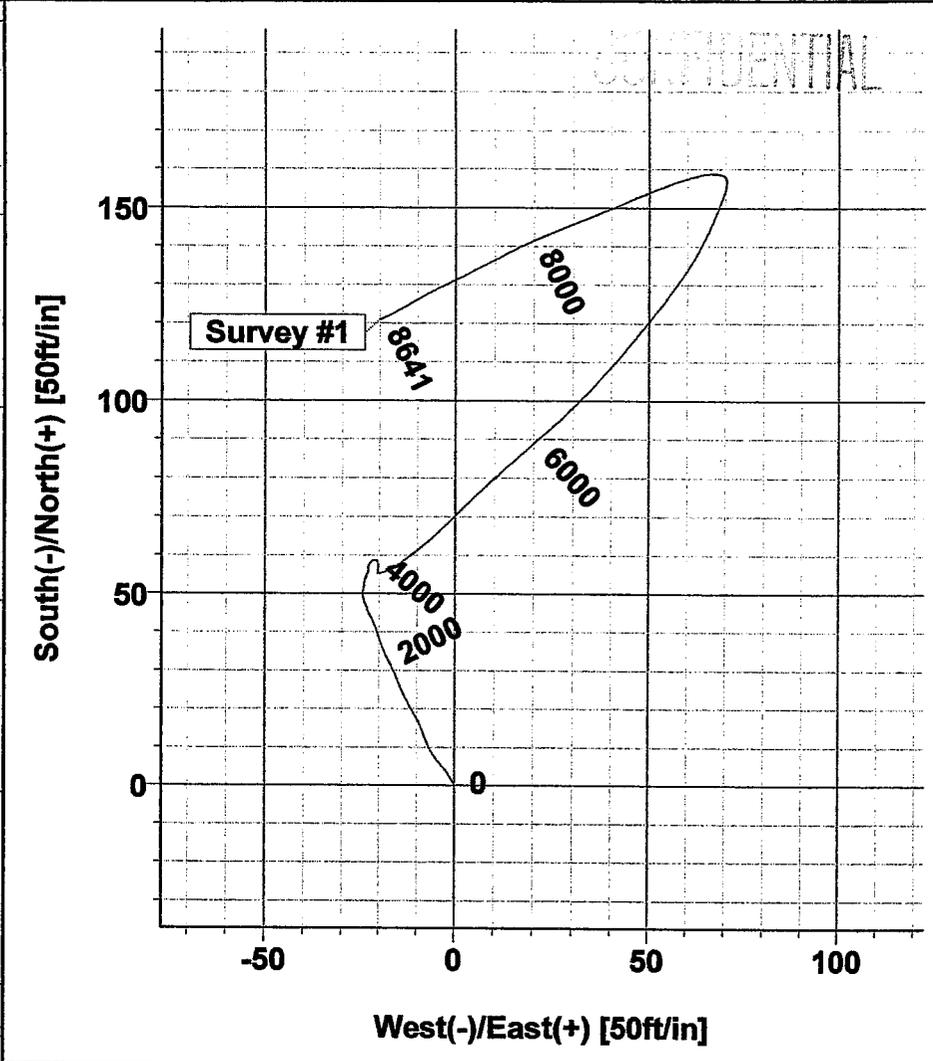
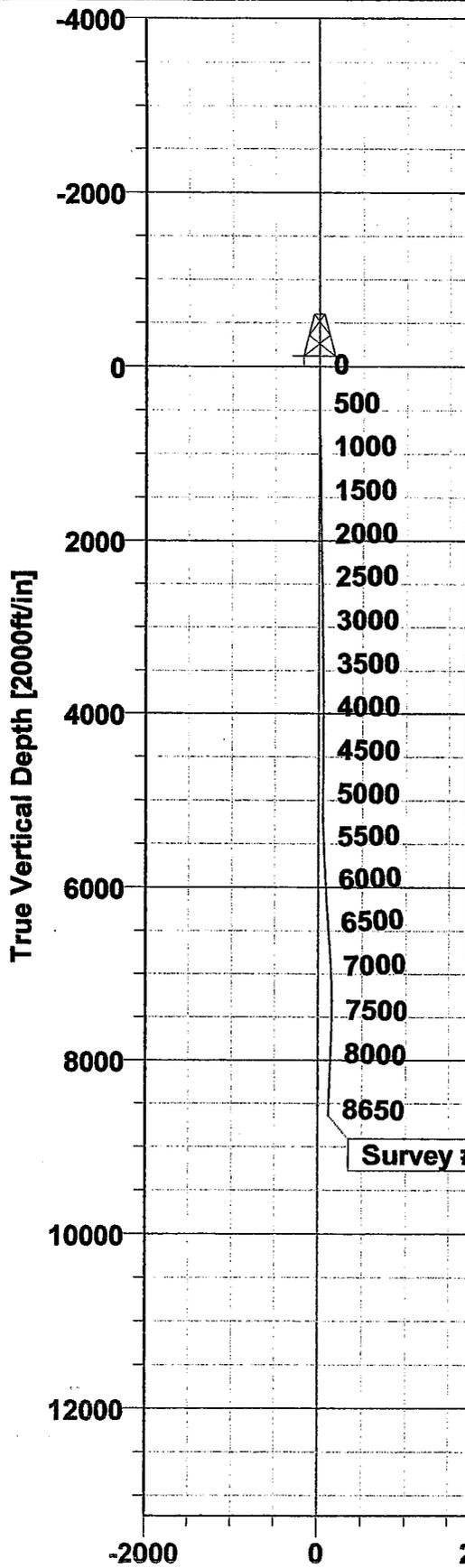
**Prepared For:**

**S T OIL COMPANY**  
**Federal #1-31**  
**SHL SEC.31,T30S,R24E**  
**2147'FSL & 1085'FWL**  
**San Juan County, UT**

***Prepared By:***

***Judi Moore, Well Planner***  
***Scientific Drilling International***  
***Rocky Mountain District***

Scientific Drilling International  
7237 W. Barton Rd., Casper, WY 82604  
P.O. Box 1600, Mills, WY 82644  
(307) 472-6621  
[judim@sdicasper.com](mailto:judim@sdicasper.com)



Survey: Survey #1 (#1-31/OH)  
Created By: Judi Moore Date: 9/20/2004

**BOTTOM HOLE CLOSURE**  
122.54 ft. 350.65° Azimuth

Vertical Section at 0.00° [2000ft/in]

<b>Company:</b> S T Oil Company	<b>Date:</b> 9/20/2004	<b>Time:</b> 15:53:40	<b>Page:</b> 1
<b>Field:</b> San Juan County, UT	<b>Co-ordinate(N/E) Reference:</b>	<b>Site:</b> Federal #1-31, True North	
<b>Site:</b> Federal #1-31	<b>Vertical (TVD) Reference:</b>	<b>SITE:</b> 0.0	
<b>Well:</b> #1-31	<b>Section (VS) Reference:</b>	<b>Well:</b> (0.00N,0.00E,0.00Azi)	
<b>Wellpath:</b> OH	<b>Survey Calculation Method:</b>	<b>Minimum Curvature</b>	<b>Db:</b> Sybase

<b>Survey:</b> Survey #1 Survey Ran In 5 1/2" Casing	<b>Start Date:</b>	9/20/2004
<b>Company:</b> Scientific Drilling	<b>Engineer:</b>	Doney
<b>Tool:</b> Gyro;	<b>Tied-to:</b>	From Surface

**Survey**

Meas Depth ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	CLen ft	ClSD ft	ClSA deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.58	328.00	100.00	0.43	0.43	-0.27	0.58	100.00	0.51	328.00
200.00	1.00	331.19	199.99	1.62	1.62	-0.96	0.42	100.00	1.88	329.48
300.00	1.02	326.88	299.97	3.13	3.13	-1.86	0.08	100.00	3.65	329.25
400.00	0.97	322.11	399.96	4.55	4.55	-2.87	0.10	100.00	5.38	327.74
500.00	0.93	317.37	499.94	5.81	5.81	-3.94	0.09	100.00	7.02	325.87
600.00	1.08	325.32	599.93	7.18	7.18	-5.03	0.20	100.00	8.77	325.03
700.00	1.07	327.37	699.91	8.75	8.75	-6.06	0.04	100.00	10.64	325.26
800.00	1.23	334.77	799.89	10.50	10.50	-7.03	0.22	100.00	12.64	326.22
900.00	1.29	338.06	899.87	12.52	12.52	-7.90	0.09	100.00	14.80	327.73
1000.00	1.30	339.05	999.84	14.62	14.62	-8.73	0.02	100.00	17.03	329.16
1100.00	1.02	333.03	1099.82	16.47	16.47	-9.54	0.30	100.00	19.04	329.93
1200.00	0.94	328.27	1199.81	17.96	17.96	-10.37	0.11	100.00	20.74	329.99
1300.00	0.96	329.22	1299.79	19.38	19.38	-11.23	0.03	100.00	22.40	329.90
1400.00	0.78	331.46	1399.78	20.70	20.70	-11.99	0.18	100.00	23.92	329.92
1500.00	0.89	333.77	1499.77	21.99	21.99	-12.66	0.12	100.00	25.38	330.08
1600.00	0.88	332.82	1599.76	23.37	23.37	-13.35	0.02	100.00	26.92	330.27
1700.00	1.00	336.89	1699.74	24.86	24.86	-14.04	0.14	100.00	28.55	330.54
1800.00	1.04	336.89	1799.73	26.50	26.50	-14.74	0.04	100.00	30.32	330.91
1900.00	1.10	338.83	1899.71	28.23	28.23	-15.45	0.07	100.00	32.18	331.31
2000.00	1.34	332.64	1999.69	30.16	30.16	-16.33	0.27	100.00	34.30	331.57
2100.00	1.21	333.40	2099.66	32.14	32.14	-17.34	0.13	100.00	36.52	331.65
2200.00	1.40	336.27	2199.64	34.21	34.21	-18.30	0.20	100.00	38.79	331.85
2300.00	1.22	338.39	2299.61	36.31	36.31	-19.19	0.19	100.00	41.07	332.15
2400.00	1.39	339.26	2399.59	38.44	38.44	-20.01	0.17	100.00	43.33	332.50
2500.00	1.43	338.99	2499.56	40.74	40.74	-20.89	0.04	100.00	45.78	332.85
2600.00	1.17	332.13	2599.53	42.80	42.80	-21.81	0.30	100.00	48.04	333.00
2700.00	1.09	332.74	2699.51	44.55	44.55	-22.72	0.08	100.00	50.01	332.98
2800.00	0.88	343.75	2799.50	46.13	46.13	-23.37	0.28	100.00	51.72	333.13
2900.00	0.84	335.17	2899.48	47.54	47.54	-23.90	0.13	100.00	53.21	333.31
3000.00	0.63	344.87	2999.48	48.73	48.73	-24.35	0.24	100.00	54.48	333.45
3100.00	0.66	357.60	3099.47	49.84	49.84	-24.52	0.15	100.00	55.54	333.81
3200.00	0.63	13.02	3199.46	50.95	50.95	-24.42	0.18	100.00	56.50	334.40
3300.00	0.59	8.37	3299.46	52.00	52.00	-24.22	0.06	100.00	57.36	335.03
3400.00	0.57	4.46	3399.45	53.00	53.00	-24.10	0.04	100.00	58.22	335.54
3500.00	0.63	20.53	3499.45	54.01	54.01	-23.87	0.18	100.00	59.05	336.15
3600.00	0.68	23.55	3599.44	55.07	55.07	-23.44	0.06	100.00	59.85	336.94
3700.00	0.54	7.54	3699.44	56.08	56.08	-23.14	0.22	100.00	60.67	337.57
3800.00	0.49	8.78	3799.43	56.97	56.97	-23.02	0.05	100.00	61.44	338.00
3900.00	0.45	27.29	3899.43	57.74	57.74	-22.77	0.16	100.00	62.07	338.48
4000.00	0.42	40.18	3999.43	58.37	58.37	-22.35	0.10	100.00	62.51	339.04
4100.00	0.26	76.36	4099.42	58.71	58.71	-21.90	0.26	100.00	62.66	339.54
4200.00	0.23	100.23	4199.42	58.72	58.72	-21.48	0.11	100.00	62.53	339.91
4300.00	0.33	55.08	4299.42	58.85	58.85	-21.05	0.23	100.00	62.50	340.32
4400.00	0.36	152.46	4399.42	58.74	58.74	-20.66	0.52	100.00	62.27	340.62
4500.00	0.38	172.61	4499.42	58.13	58.13	-20.48	0.13	100.00	61.63	340.60
4600.00	0.25	158.31	4599.42	57.60	57.60	-20.35	0.15	100.00	61.09	340.54
4700.00	0.26	191.50	4699.42	57.17	57.17	-20.32	0.15	100.00	60.68	340.44
4800.00	0.39	184.00	4799.41	56.61	56.61	-20.39	0.14	100.00	60.17	340.20

<b>Company:</b> S T Oil Company	<b>Date:</b> 9/20/2004	<b>Time:</b> 15:53:40	<b>Page:</b> 2
<b>Field:</b> San Juan County, UT	<b>Co-ordinate(NE) Reference:</b>	<b>Site:</b> Federal #1-31, True North	
<b>Site:</b> Federal #1-31	<b>Vertical (TVD) Reference:</b>	<b>SITE</b> 0.0	
<b>Well:</b> #1-31	<b>Section (VS) Reference:</b>	<b>Well (0.00N,0.00E,0.00Azi)</b>	
<b>Wellpath:</b> OH	<b>Survey Calculation Method:</b>	<b>Minimum Curvature</b>	
		<b>Db:</b> Sybase	

**Survey**

Meas Depth ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	CLen ft	ClsD ft	ClsA deg
4900.00	0.39	177.73	4899.41	55.93	55.93	-20.40	0.04	100.00	59.54	339.96
5000.00	0.27	199.47	4999.41	55.37	55.37	-20.46	0.17	100.00	59.03	339.72
5100.00	1.07	73.44	5099.41	55.41	55.41	-19.65	1.25	100.00	58.79	340.48
5200.00	2.04	63.45	5199.37	56.48	56.48	-17.16	1.00	100.00	59.03	343.10
5300.00	2.61	54.25	5299.28	58.60	58.60	-13.72	0.68	100.00	60.19	346.82
5400.00	2.84	52.38	5399.17	61.44	61.44	-9.91	0.25	100.00	62.24	350.84
5500.00	2.94	49.80	5499.04	64.61	64.61	-5.99	0.16	100.00	64.89	354.71
5600.00	3.37	44.77	5598.89	68.35	68.35	-1.96	0.51	100.00	68.38	358.36
5700.00	4.03	45.27	5698.68	72.91	72.91	2.61	0.66	100.00	72.96	2.05
5800.00	4.36	46.69	5798.42	77.99	77.99	7.87	0.35	100.00	78.39	5.76
5900.00	4.29	48.05	5898.13	83.10	83.10	13.42	0.12	100.00	84.18	9.17
6000.00	4.36	48.35	5997.85	88.13	88.13	19.04	0.07	100.00	90.16	12.19
6100.00	4.46	47.88	6097.55	93.26	93.26	24.76	0.11	100.00	96.49	14.87
6200.00	4.92	44.85	6197.22	98.91	98.91	30.67	0.52	100.00	103.56	17.23
6300.00	5.14	43.19	6296.83	105.22	105.22	36.76	0.26	100.00	111.45	19.26
6400.00	5.18	41.27	6396.43	111.88	111.88	42.81	0.18	100.00	119.78	20.94
6500.00	5.06	39.33	6496.03	118.68	118.68	48.58	0.21	100.00	128.24	22.26
6600.00	4.85	37.02	6595.65	125.47	125.47	53.92	0.29	100.00	136.56	23.26
6700.00	4.43	35.31	6695.32	131.99	131.99	58.70	0.44	100.00	144.46	23.97
6800.00	3.95	29.46	6795.06	138.14	138.14	62.62	0.64	100.00	151.67	24.39
6900.00	3.46	25.41	6894.85	143.87	143.87	65.61	0.56	100.00	158.12	24.52
7000.00	2.85	21.01	6994.70	148.91	148.91	67.80	0.66	100.00	163.62	24.48
7100.00	2.63	22.19	7094.58	153.36	153.36	69.56	0.23	100.00	168.40	24.40
7200.00	1.46	357.49	7194.52	156.76	156.76	70.37	1.44	100.00	171.83	24.17
7300.00	1.28	290.81	7294.50	158.43	158.43	69.27	1.51	100.00	172.91	23.62
7400.00	2.35	268.38	7394.45	158.77	158.77	66.17	1.26	100.00	172.00	22.63
7500.00	3.75	254.04	7494.30	157.81	157.81	60.98	1.58	100.00	169.18	21.13
7600.00	4.56	249.46	7594.04	155.51	155.51	54.11	0.87	100.00	164.66	19.19
7700.00	5.19	247.69	7693.68	152.40	152.40	46.21	0.65	100.00	159.25	16.87
7800.00	5.45	248.02	7793.25	148.91	148.91	37.62	0.26	100.00	153.59	14.18
7900.00	5.80	247.83	7892.76	145.22	145.22	28.53	0.35	100.00	148.00	11.12
8000.00	4.99	245.27	7992.32	141.50	141.50	19.90	0.84	100.00	142.89	8.01
8100.00	4.76	241.65	8091.96	137.71	137.71	12.30	0.38	100.00	138.26	5.11
8200.00	4.31	242.20	8191.65	133.99	133.99	5.33	0.45	100.00	134.09	2.28
8300.00	4.20	244.29	8291.37	130.64	130.64	-1.30	0.19	100.00	130.65	359.43
8400.00	3.67	242.14	8391.13	127.56	127.56	-7.42	0.55	100.00	127.78	356.67
8500.00	3.19	240.64	8490.95	124.70	124.70	-12.68	0.49	100.00	125.34	354.19
8600.00	3.11	242.83	8590.80	122.10	122.10	-17.52	0.14	100.00	123.35	351.84
8650.00	3.03	244.39	8640.73	120.91	120.91	-19.92	0.23	50.00	122.54	350.65

# Scientific Drilling International

## Survey Report

*Extrapolated to 8800'*

**CONFIDENTIAL**

<b>Company:</b> ST Oil Company	<b>Date:</b> 2/7/2005	<b>Time:</b> 18:10:40	<b>Page:</b> 1
<b>Field:</b> San Juan County, UT	<b>Co-ordinate(NE) Reference:</b> Site: Federal #1-31, True North		
<b>Site:</b> Federal #1-31	<b>Vertical (TVD) Reference:</b> SITE 0.0		
<b>Well:</b> #1-31	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,0.00Azi)		
<b>Wellpath:</b> OH	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

**Field:** San Juan County, UT

**Map System:** US State Plane Coordinate System 1927  
**Geo Datum:** NAD27 (Clarke 1866)  
**Sys Datum:** Mean Sea Level

**Map Zone:** Utah, Southern Zone  
**Coordinate System:** Site Centre  
**Geomagnetic Model:** igrf2000

**Site:** Federal #1-31

**Site Position:** Northing: m Latitude:  
**From:** Local Only Easting: m Longitude:  
**Position Uncertainty:** 0.0 ft North Reference: True  
**Ground Level:** 0.0 ft Grid Convergence: deg

**Well:** #1-31 **Slot Name:**

**Well Position:** +N/-S 0.0 ft Northing: m Latitude:  
 +E/-W 0.0 ft Easting: m Longitude:  
**Position Uncertainty:** 0.0 ft

**Wellpath:** OH

<b>Current Datum:</b> SITE	<b>Height</b>	0.0 ft	<b>Drilled From:</b> Surface
<b>Magnetic Data:</b> 9/20/2004			<b>Tie-on Depth:</b> 0.0 ft
<b>Field Strength:</b> 0 nT			<b>Above System Datum:</b> Mean Sea Level
<b>Vertical Section:</b> Depth From (TVD)	+N/-S		<b>Declination:</b> 0.00 deg
ft	ft		<b>Mag Dip Angle:</b> 0.00 deg
0.0	0.0	0.0	<b>Direction:</b> deg
			0.00

**Survey:** Survey #1 **Start Date:** 9/20/2004  
 Survey Ran In 5 1/2" Casing

**Company:** Scientific Drilling **Engineer:** Doney  
**Tool:** Gyro; **Tied-to:** From Surface

**Survey:** Survey #1

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	Gyro
100.0	0.58	328.00	100.0	0.4	-0.3	0.4	0.58	0.58	0.00	Gyro
200.0	1.00	331.19	200.0	1.6	-1.0	1.6	0.42	0.42	3.19	Gyro
300.0	1.02	326.88	300.0	3.1	-1.9	3.1	0.08	0.02	-4.31	Gyro
400.0	0.97	322.11	400.0	4.5	-2.9	4.5	0.10	-0.05	-4.77	Gyro
500.0	0.93	317.37	499.9	5.8	-3.9	5.8	0.09	-0.04	-4.74	Gyro
600.0	1.08	325.32	599.9	7.2	-5.0	7.2	0.20	0.15	7.95	Gyro
700.0	1.07	327.37	699.9	8.7	-6.1	8.7	0.04	-0.01	2.05	Gyro
800.0	1.23	334.77	799.9	10.5	-7.0	10.5	0.22	0.16	7.40	Gyro
900.0	1.29	338.06	899.9	12.5	-7.9	12.5	0.09	0.06	3.29	Gyro
1000.0	1.30	339.05	999.8	14.6	-8.7	14.6	0.02	0.01	0.99	Gyro
1100.0	1.02	333.03	1099.8	16.5	-9.5	16.5	0.30	-0.28	-6.02	Gyro
1200.0	0.94	328.27	1199.8	18.0	-10.4	18.0	0.11	-0.08	-4.76	Gyro
1300.0	0.96	329.22	1299.8	19.4	-11.2	19.4	0.03	0.02	0.95	Gyro
1400.0	0.78	331.46	1399.8	20.7	-12.0	20.7	0.18	-0.18	2.24	Gyro
1500.0	0.89	333.77	1499.8	22.0	-12.7	22.0	0.12	0.11	2.31	Gyro
1600.0	0.88	332.82	1599.8	23.4	-13.4	23.4	0.02	-0.01	-0.95	Gyro
1700.0	1.00	336.89	1699.7	24.9	-14.0	24.9	0.14	0.12	4.07	Gyro
1800.0	1.04	336.89	1799.7	26.5	-14.7	26.5	0.04	0.04	0.00	Gyro
1900.0	1.10	338.83	1899.7	28.2	-15.4	28.2	0.07	0.06	1.94	Gyro
2000.0	1.34	332.64	1999.7	30.2	-16.3	30.2	0.27	0.24	-6.19	Gyro
2100.0	1.21	333.40	2099.7	32.1	-17.3	32.1	0.13	-0.13	0.76	Gyro
2200.0	1.40	336.27	2199.6	34.2	-18.3	34.2	0.20	0.19	2.87	Gyro
2300.0	1.22	338.39	2299.6	36.3	-19.2	36.3	0.19	-0.18	2.12	Gyro

# Scientific Drilling International

CONFIDENTIAL

## Survey Report

Extrapolated to 8800'

<b>Company:</b> ST Oil Company	<b>Date:</b> 2/7/2005	<b>Time:</b> 18:10:40	<b>Page:</b> 2
<b>Field:</b> San Juan County, UT	<b>Co-ordinate(NE) Reference:</b>	<b>Site:</b> Federal #1-31, True North	
<b>Site:</b> Federal #1-31	<b>Vertical (TVD) Reference:</b>	<b>SITE</b> 0.0	
<b>Well:</b> #1-31	<b>Section (VS) Reference:</b>	<b>Well</b> (0.00N,0.00E,0.00Azi)	
<b>Wellpath:</b> OH	<b>Survey Calculation Method:</b>	Minimum Curvature	<b>Db:</b> Sybase

**Survey:** Survey #1

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2400.0	1.39	339.26	2399.6	38.4	-20.0	38.4	0.17	0.17	0.87	Gyro
2500.0	1.43	338.99	2499.6	40.7	-20.9	40.7	0.04	0.04	-0.27	Gyro
2600.0	1.17	332.13	2599.5	42.8	-21.8	42.8	0.30	-0.26	-6.86	Gyro
2700.0	1.09	332.74	2699.5	44.6	-22.7	44.6	0.08	-0.08	0.61	Gyro
2800.0	0.88	343.75	2799.5	46.1	-23.4	46.1	0.28	-0.21	11.01	Gyro
2900.0	0.84	335.17	2899.5	47.5	-23.9	47.5	0.13	-0.04	-8.58	Gyro
3000.0	0.63	344.87	2999.5	48.7	-24.3	48.7	0.24	-0.21	9.70	Gyro
3100.0	0.66	357.60	3099.5	49.8	-24.5	49.8	0.15	0.03	12.73	Gyro
3200.0	0.63	13.02	3199.5	51.0	-24.4	51.0	0.18	-0.03	15.42	Gyro
3300.0	0.59	8.37	3299.5	52.0	-24.2	52.0	0.06	-0.04	-4.65	Gyro
3400.0	0.57	4.46	3399.5	53.0	-24.1	53.0	0.04	-0.02	-3.91	Gyro
3500.0	0.63	20.53	3499.4	54.0	-23.9	54.0	0.18	0.06	16.07	Gyro
3600.0	0.68	23.55	3599.4	55.1	-23.4	55.1	0.06	0.05	3.02	Gyro
3700.0	0.54	7.54	3699.4	56.1	-23.1	56.1	0.22	-0.14	-16.01	Gyro
3800.0	0.49	8.78	3799.4	57.0	-23.0	57.0	0.05	-0.05	1.24	Gyro
3900.0	0.45	27.29	3899.4	57.7	-22.8	57.7	0.16	-0.04	18.51	Gyro
4000.0	0.42	40.18	3999.4	58.4	-22.4	58.4	0.10	-0.03	12.89	Gyro
4100.0	0.26	76.36	4099.4	58.7	-21.9	58.7	0.26	-0.16	36.18	Gyro
4200.0	0.23	100.23	4199.4	58.7	-21.5	58.7	0.11	-0.03	23.87	Gyro
4300.0	0.33	55.08	4299.4	58.9	-21.0	58.9	0.23	0.10	-45.15	Gyro
4400.0	0.36	152.46	4399.4	58.7	-20.7	58.7	0.52	0.03	97.38	Gyro
4500.0	0.38	172.61	4499.4	58.1	-20.5	58.1	0.13	0.02	20.15	Gyro
4600.0	0.25	158.31	4599.4	57.6	-20.4	57.6	0.15	-0.13	-14.30	Gyro
4700.0	0.26	191.50	4699.4	57.2	-20.3	57.2	0.15	0.01	33.19	Gyro
4800.0	0.39	184.00	4799.4	56.6	-20.4	56.6	0.14	0.13	-7.50	Gyro
4900.0	0.39	177.73	4899.4	55.9	-20.4	55.9	0.04	0.00	-6.27	Gyro
5000.0	0.27	199.47	4999.4	55.4	-20.5	55.4	0.17	-0.12	21.74	Gyro
5100.0	1.07	73.44	5099.4	55.4	-19.6	55.4	1.25	0.80	-126.03	Gyro
5200.0	2.04	63.45	5199.4	56.5	-17.2	56.5	1.00	0.97	-9.99	Gyro
5300.0	2.61	54.25	5299.3	58.6	-13.7	58.6	0.68	0.57	-9.20	Gyro
5400.0	2.84	52.38	5399.2	61.4	-9.9	61.4	0.25	0.23	-1.87	Gyro
5500.0	2.94	49.80	5499.0	64.6	-6.0	64.6	0.16	0.10	-2.58	Gyro
5600.0	3.37	44.77	5598.9	68.4	-2.0	68.4	0.51	0.43	-5.03	Gyro
5700.0	4.03	45.27	5698.7	72.9	2.6	72.9	0.66	0.66	0.50	Gyro
5800.0	4.36	46.69	5798.4	78.0	7.9	78.0	0.35	0.33	1.42	Gyro
5900.0	4.29	48.05	5898.1	83.1	13.4	83.1	0.12	-0.07	1.36	Gyro
6000.0	4.36	48.35	5997.8	88.1	19.0	88.1	0.07	0.07	0.30	Gyro
6100.0	4.46	47.88	6097.6	93.3	24.8	93.3	0.11	0.10	-0.47	Gyro
6200.0	4.92	44.85	6197.2	98.9	30.7	98.9	0.52	0.46	-3.03	Gyro
6300.0	5.14	43.19	6296.8	105.2	36.8	105.2	0.26	0.22	-1.66	Gyro
6400.0	5.18	41.27	6396.4	111.9	42.8	111.9	0.18	0.04	-1.92	Gyro
6500.0	5.06	39.33	6496.0	118.7	48.6	118.7	0.21	-0.12	-1.94	Gyro
6600.0	4.85	37.02	6595.7	125.5	53.9	125.5	0.29	-0.21	-2.31	Gyro
6700.0	4.43	35.31	6695.3	132.0	58.7	132.0	0.44	-0.42	-1.71	Gyro
6800.0	3.95	29.46	6795.1	138.1	62.6	138.1	0.64	-0.48	-5.85	Gyro
6900.0	3.46	25.41	6894.8	143.9	65.6	143.9	0.56	-0.49	-4.05	Gyro
7000.0	2.85	21.01	6994.7	148.9	67.8	148.9	0.66	-0.61	-4.40	Gyro
7100.0	2.63	22.19	7094.6	153.4	69.6	153.4	0.23	-0.22	1.18	Gyro
7200.0	1.46	357.49	7194.5	156.8	70.4	156.8	1.44	-1.17	-24.70	Gyro
7300.0	1.28	290.81	7294.5	158.4	69.3	158.4	1.51	-0.18	-66.68	Gyro
7400.0	2.35	268.38	7394.4	158.8	66.2	158.8	1.26	1.07	-22.43	Gyro
7500.0	3.75	254.04	7494.3	157.8	61.0	157.8	1.58	1.40	-14.34	Gyro
7600.0	4.56	249.46	7594.0	155.5	54.1	155.5	0.87	0.81	-4.58	Gyro

# Scientific Drilling International

## Survey Report

*Extrapolated to 8800'*

<b>Company:</b> ST Oil Company	<b>Date:</b> 2/7/2005	<b>Time:</b> 18:10:40	<b>Page:</b> 3
<b>Field:</b> San Juan County, UT	<b>Co-ordinate(NE) Reference:</b>	<b>Site:</b> Federal #1-31, True North	
<b>Site:</b> Federal #1-31	<b>Vertical (TVD) Reference:</b>	SITE 0.0	
<b>Well:</b> #1-31	<b>Section (VS) Reference:</b>	Well (0.00N,0.00E,0.00Azi)	
<b>Wellpath:</b> OH	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

**Survey: Survey #1**

MD ft	Incl deg	Azim deg	TVD ft	+N-S ft	+E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7700.0	5.19	247.69	7693.7	152.4	46.2	152.4	0.65	0.63	-1.77	Gyro
7800.0	5.45	248.02	7793.2	148.9	37.6	148.9	0.26	0.26	0.33	Gyro
7900.0	5.80	247.83	7892.8	145.2	28.5	145.2	0.35	0.35	-0.19	Gyro
8000.0	4.99	245.27	7992.3	141.5	19.9	141.5	0.84	-0.81	-2.56	Gyro
8100.0	4.76	241.65	8092.0	137.7	12.3	137.7	0.38	-0.23	-3.62	Gyro
8200.0	4.31	242.20	8191.6	134.0	5.3	134.0	0.45	-0.45	0.55	Gyro
8300.0	4.20	244.29	8291.4	130.6	-1.3	130.6	0.19	-0.11	2.09	Gyro
8400.0	3.67	242.14	8391.1	127.6	-7.4	127.6	0.55	-0.53	-2.15	Gyro
8500.0	3.19	240.64	8491.0	124.7	-12.7	124.7	0.49	-0.48	-1.50	Gyro
8600.0	3.11	242.83	8590.8	122.1	-17.5	122.1	0.14	-0.08	2.19	Gyro
8650.0	3.03	244.39	8640.7	120.9	-19.9	120.9	0.23	-0.16	3.12	Gyro
8800.0	3.03	244.39	8790.5	117.5	-27.1	117.5	0.00	0.00	0.00	Gyro

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.*

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

1. Type of Well  
 Oil Well     Gas Well     Other

2. Name of Operator  
 ST Oil Company

3a. Address  
 1660 Lincoln Street, Suite 2100, Denver, CO 80264

3b. Phone No. (include area code)  
 (303) 296-1908

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 2147' fsl x 1085' fwl, Sec 31, T30S, R24E

5. Lease Serial No.  
 UTU-076772

6. If Indian, Allottee, or Tribe Name

7. If Unit or CA. Agreement Designation

8. Well Name and No.  
 Federal 1-31

9. API Well No.  
 43-037-21830

10. Field and Pool, or Exploratory Area  
 Lisbon South

11. County or Parish, State  
 San Juan County, Utah

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production ( Start/ Resume)	<input type="checkbox"/> Water Shut-off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Altering 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 checked="" 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 checked="" 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 or pertinent markers and sands. Attach the Bond under which the work will be performed or provide the Bond No. on file with the 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 Notice 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.)

Recompletion Activity:

1. Set a Cast Iron Bridge Plug at 6850' and spot 5 sacks cement on top.
2. Perforate Ismay Interval 4,860' to 4,870' and swab test. Stimulate with 15% HCL. Swab test.
3. If production rate indicates, a fracture treatment may be done to enhance fluid volume.
4. Set production equipment necessary to produce well.

Accepted by the  
Utah Division of  
Oil, Gas and Mining

Federal Approval Of This  
Action Is Necessary

COPY SENT TO OPERATOR

Date: 5/23/08

Date: 5.27.2008

By: *[Signature]*

Initials: KS

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

Name (Printed/ Typed) Richard A Ferris	Title Chief Operations Engineer
Signature <i>Richard A Ferris</i>	Date April 18 2008

**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 any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

**RECEIVED**

APR 21 2008

DIV. OF OIL, GAS & MINING





Division of Oil, Gas and Mining  
**OPERATOR CHANGE WORKSHEET (for state use only)**

**ROUTING**  
**CDW**

Change of Operator (Well Sold)

**X Operator Name Change/Merger**

The operator of the well(s) listed below has changed, effective:

**7/15/2010**

<b>FROM: (Old Operator):</b> N2190-ST Oil Company 1660 Lincoln Street, Suite 2100 Denver, CO 80064  Phone: 1 (303) 296-1908	<b>TO: ( New Operator):</b> N3600-Genesis ST Operating, LLC 1660 Lincoln Street, Suite 2100 Denver, CO 80064  Phone: 1 (303) 296-1908
--	--

**CA No.**

**Unit:**

WELL NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
FEDERAL 1-31	31	300S	240E	4303721830	14242	Federal	OW	S
GOVT EVELYN CHAMBERS 1	06	310S	240E	4303730572	7100	Federal	GW	P
GOVT EVELYN CHAMBERS 2	05	310S	240E	4303730612	7100	Federal	GW	S

**OPERATOR CHANGES DOCUMENTATION**

Enter date after each listed item is completed

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 1/31/2011
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 1/31/2011
- The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 2/9/2011
- Is the new operator registered in the State of Utah:          Business Number: 7073743-0161
- (R649-9-2) Waste Management Plan has been received on:          Requested 2/9/2011
- Inspections of LA PA state/fee well sites complete on: n/a
- Reports current for Production/Disposition & Sundries on: OK
- Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM 1/7/2011 BIA
- Federal and Indian Units:**  
 The BLM or BIA has approved the successor of unit operator for wells listed on: n/a
- Federal and Indian Communization Agreements ("CA"):**  
 The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
- Underground Injection Control ("UIC")** Division has approved UIC Form 5 Transfer of Authority to **Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: n/a

**DATA ENTRY:**

- Changes entered in the **Oil and Gas Database** on: 2/9/2011
- Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 2/9/2011
- Bond information entered in RBDMS on: n/a
- Fee/State wells attached to bond in RBDMS on: n/a
- Injection Projects to new operator in RBDMS on: n/a
- Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

**BOND VERIFICATION:**

- Federal well(s) covered by Bond Number: UTB000454
- Indian well(s) covered by Bond Number: n/a
- (R649-3-1) The **NEW** operator of any state/fee well(s) listed covered by Bond Number n/a
- The **FORMER** operator has requested a release of liability from their bond on: n/a

**LEASE INTEREST OWNER NOTIFICATION:**

- (R649-2-10) The **NEW** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

**COMMENTS:**

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

FORM 9

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		5. LEASE DESIGNATION AND SERIAL NUMBER: <b>UT-75772</b>
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		7. UNIT or CA AGREEMENT NAME:
2. NAME OF OPERATOR: <b>GENESIS ST OPERATING, LLC</b> <i>N 3600</i>		8. WELL NAME and NUMBER: <b>FEDERAL 1-31</b>
3. ADDRESS OF OPERATOR: <b>1660 LINCOLN, STE. 2100 DENVER CO 80064</b>	PHONE NUMBER: <b>(303) 296-1908</b>	9. API NUMBER: <b>037-21830</b>
4. LOCATION OF WELL FOOTAGES AT SURFACE: <b>2147' FSL X 1085' FWL</b>		10. FIELD AND POOL, OR WILDCAT: <b>LISBON SOUTH</b>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: <b>NESW 31 30S 24E 6</b>		COUNTY: <b>SAN JUAN</b>
		STATE: <b>UTAH</b>

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate)  Approximate date work will start: _____  <input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only)  Date of work completion: _____	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> NEW CONSTRUCTION <input checked="" type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> PLUG BACK <input type="checkbox"/> PRODUCTION (START/RESUME) <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	<input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> WATER SHUT-OFF <input type="checkbox"/> OTHER: _____

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

**OPERATOR HAS BEEN CHANGED FROM ST OIL COMPANY TO GENESIS ST OPERATING LLC.** *Merger*  
**BOND NO. B005753** *N 2190*  
**EFFECTIVE 7/15/10**  
**ADDRESS AND PHONE REMAIN THE SAME**

NAME (PLEASE PRINT) <b>PAMELA K REED</b>	TITLE <b>LANDMAN</b>
SIGNATURE <i>Pamela K Reed</i>	DATE <b>1/28/2011</b>

(This space for State use only)  
**APPROVED** *21912011*  
*Earlene Russell*  
 Division of Oil, Gas and Mining  
 Earlene Russell, Engineering Technician

**RECEIVED**  
**JAN 31 2011**  
 DIV. OF OIL, GAS & MINING

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0137  
Expires: July 31, 2010

**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. **RECEIVED**  
UTU-76772 **FIELD OFFICE**

6. If Indian, Allottee or Tribe Name  
**2011 JAN -7 AM 10:16**

**SUBMIT IN TRIPLICATE - Other instructions on page 2.**

7. If Unit of CA/Agreement, Name and/or No.

1. Type of Well

Oil Well  Gas Well  Other

8. Well Name and No.  
FEDERAL 1-31

2. Name of Operator  
GENESIS ST OPERATING LLC

9. API Well No.  
43-037-21830

3a. Address  
1660 LINCOLN ST., SUITE 2100,  
DENVER, CO 80260

1701 WALNUT STREET  
KANSAS CITY, MO 64108

3b. Phone No. (include area code)  
303-296-1908

10. Field and Pool or Exploratory Area  
LISBON SOUTH

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2147 FSL X 1085 FWL SEC. 31-T30S - R24E

11. Country or Parish, State  
SAN JUAN CO., UT

12. CHECK THE 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 <u>CHANGE OF OPERATOR</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed 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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

OPERATOR HAS BEEN CHANGED FROM ST OIL COMPANY TO GENESIS ST OPERATING LLC. A COPY OF LEASE BOND NO. ~~B005763-16~~ ATTACHED.

Effective 1/1/2011

BLM Bond UTB000454

**RECEIVED**  
JAN 25 2011

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

*Pamela Reed*

Title *Landman*

DIV. OF OIL, GAS & MINING

Signature

*Pamela Reed*

Date *1/3/11*

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

Approved by

**ACCEPTED**

Title *Division of Resources*

Date *1/7/2011*

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 *Moab Field Office*

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

cc: U106M

Conditions Attached

Genesis ST Operating LLC  
Well No. 1-31  
Section 31, T30S, R24E  
Lease UTU76772  
Grand County, Utah

CONDITIONS OF ACCEPTANCE

Acceptance of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that Genesis ST Operating LLC is considered to be the operator of the above well effective January 1, 2011, and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UTB00045~~5~~ (Principal – Genesis ST Oil Operating LLC) via surety consent as provided for in 43 CFR 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43CFR 3106.7-2 continuing responsibility are met.