

**UIC-1 - 8**

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**Application for  
PERMITS,  
RENEWALS, &  
MODS**

**WELL #2**



**REENTRY AND COMPLETION REPORT  
WASTE DISPOSAL WELL NO. 2**

**VOLUME I**

**NAVAJO REFINING COMPANY  
ARTESIA, NEW MEXICO**

**EXHIBIT 2.2-2**

**LETTER TO NOTIFY REGULATORY AGENCIES OF THE SURFACE  
CASING CEMENT BOND/VARIABLE DENSITY LOG AND PRESSURE  
TEST RESULTS, DATED MAY 10, 1999**

**Subsurface Technology, Inc.**

TELEPHONE  
(505) 748-3311

EASYLINK  
62905278



## REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159  
ARTESIA, NEW MEXICO 88211-0159

FAX  
(505) 746-6410 ACCTG  
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(505) 748-9077 ENGR  
(505) 746-4438 P / L

May 10, 1999

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MAY 17 1999

SUBSURFACE TECHNOLOGY, INC.

Mr. Tim Gumm  
State of New Mexico  
Energy, Minerals and Natural  
Resources Department  
Oil Conservation Division  
811 South First Street  
Artesia, New Mexico 88210

RE: Re-Entry for Navajo Refining Company's Waste Disposal Well No. 2

Dear Mr. Gumm:

Navajo Refining Company (Navajo) has contracted Subsurface Technology, Inc. to re-enter, test and complete Waste Disposal Well No. 2 (WDW-2), formerly the Chukka Federal No. 2 operated by The Eastland Oil Company. The United States Department of the Interior, Bureau of Land Management approved the Application for Permit to Drill or Deepen on April 27, 1999. Subsequent approval from the State of New Mexico Oil Conservation Commission (OCD) was granted on Tuesday, May 4, 1999.

Navajo initiated field operations on Wednesday, May 5, 1999. The existing pumping equipment, rods, and tubing were removed from the wellbore. The perforations from 1446 feet to 1462 feet were squeezed using 100 sacks of Class 'H' cement (approximately 50 sacks of cement were displaced into the perforated interval). The cement was allowed to cure and drilled out to a total depth of 1922 feet (KB)(1911 feet below ground level).

On Sunday, May 9, 1999, the 8-5/8 inch surface casing, set from 1955 feet (KB) to surface, was pressure tested for internal mechanical integrity between 1922 feet (KB) and 30 feet (KB) using a packer set at 30 feet. The 8-5/8 inch surface casing was pressure tested to 660 pounds per square inch and monitored at the surface for one hour (Attachment A). The fluid used for testing was a clean fresh water fluid. A pressure loss of 1 psi (0.15%) was observed during the first 30 minutes of the test. A pressure loss of 2 psi (0.30%) was observed during the last 30 minutes of the test. The results from the pressure test confirmed internal mechanical integrity of the 8-5/8 inch surface casing from 1922 feet (KB) to 30 feet (KB).

The 8-5/8 inch surface casing was originally set in an 11 inch open-hole to a depth of 1955 feet (KB) and cemented to surface using 700 sacks of Class 'H' cement with 2% gel and 100 sacks of Class 'H' neat. A total of 200 sacks of cement was recorded circulated to surface. The calculated volume between an 11 inch hole and 8-5/8 inch casing is (0.2407 cubic feet per foot X 1955 feet) 471 cubic feet. The volume of cement pumped is (1.18 cubic feet per sack X 800 sacks) 944 cubic feet for an excess of 473 cubic feet or 400 sacks circulated to surface. The calculated volume of cement and apparent volume of actual cement pumped indicated excess cement was circulated to surface.

On Sunday, May 9, 1999, Halliburton Logging Services completed a cement bond and microseismogram (same as a variable density log) logging survey within the 8-5/8 inch casing from a wireline total depth of 1919 feet (KB) to the surface (Attachment B). The results from the survey indicate a continuous column of cement from 1922 feet to surface with good bonding characteristics. The cement behind the 8-5/8 inch casing will provide an effective hydraulic seal to prevent the movement of groundwater fluids into the underground source of drinking water with a base at 473 feet.

Please review and approve the pressure testing and cement bond log results at your earliest convenience. Navajo will proceed with the mobilization of the drilling rig Wednesday, May 12, 1999 and begin re-entry of the WDW-2 wellbore according to the approved drilling program. Navajo will periodically contact the OCD, Artesia office with a status update of the re-entry operations. The Bureau of Land Management will be notified in sufficient time for a representative to witness the cementing of the 5-1/2 inch protection casing.

Should you have any questions or concerns, please call me at (505) 748-3311.

Sincerely yours,



Darrell Moore  
Environmental Manager for Water and Waste

c: Mr. David Glass  
Bureau of Land Management  
Roswell Field Office  
2909 West Second Street  
Roswell, New Mexico 88201

Mr. Brian Rogers  
Subsurface Technology, Inc.  
7020 Portwest, Suite 100  
Houston, Texas 77024

File: Injection Wells

# ATTACHMENT A

Sunday, May 9, 1999

Pressure testing the 8-5/8 inch Surface Casing from 1922 feet (KB) to 30 feet (KB) using a fresh water fluid. Pressure testing was performed after the perforations between 1446 feet and 1462 feet were squeezed with cement.

## Pressure Test No. 1

Time (hrs.)	Cumulative Time (minutes)	Pressure (psig)	Delta Pressure (psi)
1303	0	660	----
1308	5	660	0
1313	10	660	0
1318	15	660	0
1323	20	660	0
1328	25	659	-1
1333	30	659	0

Total = -1 psi per 30 minutes

## Pressure Test No. 2

Time (hrs.)	Cumulative Time (minutes)	Pressure (psig)	Delta Pressure (psi)
1333	0	659	----
1338	5	659	0
1343	10	659	0
1348	15	658	-1
1353	20	658	0
1358	25	657	-1
1303	30	657	0

Total = -2 psi per 30 minutes

**EXHIBIT 2.5-1**

**LONG-STRING HOLE, CALIPER/GAMMA RAY LOG**

**Subsurface Technology, Inc.**

# NM OIL CONSERVATION DEPT

WELL LOG # 2

REMOVED FROM FILE

Application For Permit Renewal's + Mods. **BOX**

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**EXHIBIT 2.0-1**

**LONG-STRING HOLE, DUAL LATERLOG, DATED AUGUST 27, 1973**

**Subsurface Technology, Inc.**

# **NM OIL CONSERVATION DEPT**

**WELL LOG #** 2

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Application For Permits, Renewals + Mods. **BOX**

**NUMBER** 34

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**EXHIBIT 2.0-2**

**LONG-STRING HOLE, COMPENSATED NEUTRON  
FORMATION DENSITY LOG, DATED AUGUST 27, 1973**

**Subsurface Technology, Inc.**

**NM OIL CONSERVATION DEPT**

**WELL LOG #** 2

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**EXHIBIT 2.2-1**

**SURFACE CASING CEMENT BOND/VARIABLE DENSITY LOG**

**Subsurface Technology, Inc.**

**NM OIL CONSERVATION DEPT**

**WELL LOG #** 2

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