District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
May 27, 2004

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	OGRID Number
NAVAJO RENING COMPANY	API Number 30 – 015-26575

Property Code	Property Name	Well No.
	WDW	3

Proposed Pool 1	Proposed Pool 2
NAVAJO INJECTION; PERMO-PENN	

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
	1	18S	27E		2250 FWL		750 FSL		EDDY

[8] Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Additional Well Information

[11] Work Type Code	[12] Well Type Code	[13] Cable/Rotary	[14] Lease Type Code	[15] Ground Level Elevation
E	I	R		3609
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
NO	9051'	CANYON		

Depth to Groundwater	Distance from nearest fresh water well	Distance from nearest surface water
UNKNOWN	1.25 MI TO 18.28.7.330	10 MILES

Pit: Liner: Synthetic ☐ ____ mils thick Clay ☐ Pit Volume: ____ bbls

Drilling Method:

Closed-Loop System ☐

Fresh Water ☐ Brine ☒ Diesel/Oil-based ☐ Gas/Air ☐

Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17-1/2"	13 3/8"	54.50#	400'	425 - CIRC	
12-1/4"	9 5/8"	36#	2604'	1025 - CIRC	
8-3/4"	7"	26# and 29#	9450'	1350 - CIRC	

[22] Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

ORIGINAL WELL NAME WAS CHALK BLUFF FEDERAL COM. NO. 1
WELL WILL BE PLUGGED BACK AND COMPLETED AS A CLASS I INJECTION WELL AS FOLLOWS:
DRILL OUT BRIDGE PLUG AT 7010' AND CLEAN OUT TO 7208';
INJECTION-TEST PERFORATIONS AT 7050'-7102', 7262'-7278' TO PLAN SQUEEZE CEMENT JOB;
DRILL OUT BRIDGE PLUGS AT 7208' AND 7294'. CLEAN OUT HOLE THROUGH PERFS AT 7304'-7314';
SQUEEZE-CEMENT PERFORATIONS AT 7050'-7102',7262'-7278', AND 7304'-7314';
DRILL OUT BRIDGE PLUG AT 7600' AND CLEAN OUT TO TOP OF LINER AT 9051';
RUN CBL/VDL AND CALIPER FROM 9051' TO SURFACE;
PERFORATE 8540'-8620' AND 7660'-8450';
RUN INJECTIVITY TEST, AND ACIDIZE IF NECESSARY;
RUN INJECTION/FALLOFF TEST;
RUN DIFFERENTIAL TEMPERATURE SURVEY;
RUN RADIOACTIVE TRACER SURVEY;
INSTALL INJECTION TUBING AND PACKER TO APPROX. 7600'; AND
INSTALL WELL ANNULUS MONITORING EQUIPMENT, AND PREPARE FOR WELL INJECTION.

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Printed name: Darrell Moore
Title: Env. Mgr. for Water & Waste
E-mail Address: darrell.moore@navajo-refining.com
Date: 6/29/06 Phone: 505-746-5281

OIL CONSERVATION DIVISION

Approved by: Wayne Price
Title:
Approval Date: 8/11/06 Expiration Date: 8/11/07
Conditions of Approval Attached ☑ DISTRICT OFFICE MUST APPROVE CASING PROGRAM.

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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised June 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30 - 015 -26575		Navajo Injection; Permo-Penn

[4] Property Code	[5] Property Name	[6] Well Number
	WDW	3

[7] OGRID No.	[8] Operator Name	[9] Elevation
	Navajo Refining Company	3609' GL; 3625' KB

[10] Surface Location

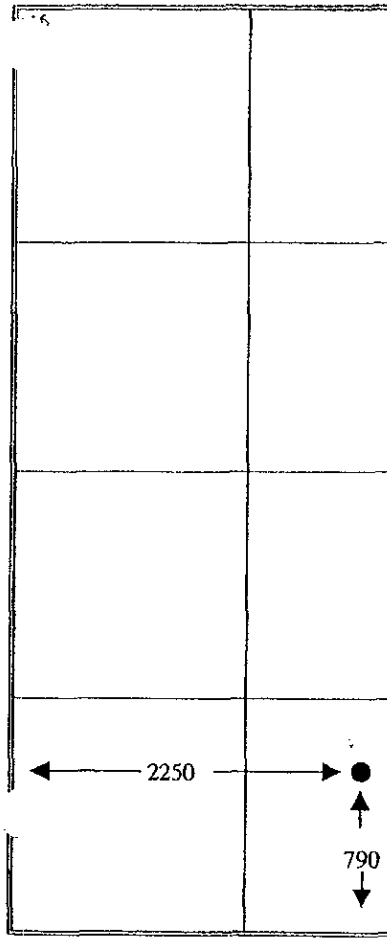
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	1	18S	27E		790	South	2250	West	Eddy

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature: Darrell Moore

Printed Name: Darrell Moore

Title and E-mail Address: Env. Mgr. for Water & Waste darrell@navajo-refining.com

Date: 9/17/03

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number

REENTRY PROCEDURE

NAVAJO REFINING COMPANY'S WDW-3 (PROPOSED)

790'FSL and 2250' FWL, Section 1, T18S, R27E
Eddy County, New Mexico
Chalk Bluff Federal Com. No. 1, API No. 30-015-26575

All depths are in feet below well's original kelly bushing height (RKB) of 16 feet above ground level. The original KB elevation is 3625 feet above mean sea level. The ground level elevation is 3609 feet above mean sea level.

Tops of Geologic Formations (from RKB)

The base of the lowermost USDW is at 420 feet.

San Andres	1976 feet	Lower Wolfcamp	7303 feet
Yeso	4030 feet	Cisco	7650 feet
Abo	5380 feet	Canyon	8390 feet
Wolfcamp	6745 feet	Strawn	8894 feet

Depth of Plugs

7010 feet in 7-inch casing above perforations 7050 feet to 7102 feet
7208 feet in 7-inch casing above perforations 7262 feet to 7278 feet
7294 feet in 7-inch casing above perforations 7304 feet to 7314 feet
7600 feet in 7-inch casing above perforations 7676 feet to 7678 and 7826 feet to 7830 feet
9800 feet in 4-1/2-inch liner above perforations 9861 feet to 9967 feet

Anticipated Formation Pressure

The expected bottom-hole pressure is 3448 pounds per square inch absolute (psia) at 9000 feet, for a gradient of 0.383 pounds per square inch (psi) per foot, or an equivalent

mud weight of 7.36 pounds per gallon (ppg). The bottom-hole pressure was determined from the pressure measured in Navajo's WDW-2, or 2813 psia, at 7570 feet. Navajo's WDW-2 is completed in the same interval proposed for WDW-3 and is located in 12-T18S-R27E, 3200 feet southwest of proposed WDW-3. The average specific gravity of the fluid in the Cisco and Canyon Formations is expected to be 1.025, which is the specific gravity of the fluid swabbed from WDW-2 in June 1999 from the interval between 7826 feet and 8399 feet. The expected bottom-hole pressure at 9000 feet in proposed WDW-3 is calculated below:

$$\begin{aligned} \text{BHP (9000 feet)} &= 2813 \text{ psia} + (9000 \text{ feet} - 7570 \text{ feet}) \times 0.433 \text{ psi/ft} \times 1.025 \\ &= 3448 \text{ psia} \end{aligned}$$

Reentry Procedure

1. Level location to accommodate a workover rig, pump, tanks, and ancillary equipment. Build a small working pit approximately 30 feet square and 3 feet deep with a plastic lining. Move in the rig, tank, shale shaker, and work string.

2. Install a 7-1/16-inch, 3000-psi double hydraulic blowout preventer (BOP) and a 7-1/16-inch, 3000-psi annular BOP (see Exhibit A for schematic). Pressure test the BOP stack and casing to 1500 psi for 30 minutes. Pick up a 6-1/8-inch bit, and sufficient 4-3/4-inch drill collars to drill out the cement plugs, on a 2-7/8-inch work string. Mix a tank of 8.5-ppg sodium chloride brine water for circulating fluid.

3. Run the bit to 7000 feet and circulate the wellbore fluid out of the casing into a frac tank for disposal. Drill out the cast iron bridge plug (CIBP), cement at 7010 feet, and clean out to the CIBP at 7208 feet. Circulate the hole clean and pump into the perforations from 7050 feet to 7102 feet to establish a rate and pressure for a pending squeeze cement job.

4. Drill out the CIBP at 7208 feet and clean out past the perforations from 7262 feet to 7278 feet and drill out the third CIBP at 7294 feet. Clean out below the perforations from 7304 feet to 7314 feet. Run a second injection test for injection rate and pressure comparison.

5. Pull the bit and run a retrievable squeeze packer on the work string. Set the packer at 7150 feet and test for communication between the perforations. Squeeze the perforations from 7262 feet to 7278 feet and 7304 feet to 7314 feet with approximately 100 sacks of neat cement (actual squeeze cement volume to be determined by the injection rate established previously), attempting to reach 1500 psi to 2000 psi squeeze pressure. Release the packer and reverse out any excess cement, then re-test the perforations to the squeeze pressure.

6. Re-set the packer at 6900 feet and squeeze the perforations from 7050 feet to 7102 feet as before.

7. Lay down the squeeze packer and drill out the cement to the CIBP at 7600 feet. Conduct a pressure test to 500 psi for 12 hours to confirm the squeeze cement will contain the annular fluid pressure required during injection operations.

8. Drill out the CIBP at 7600 feet and circulate to the top of the liner at 9051 feet. Circulate the casing clean with 8.5-ppg brine water. Pull the bit and lay down the drill collars.

9. Run a cement bond log with variable density (CBL/VDL) from the liner top to the surface, followed by a baseline multi-finger caliper log from the liner top to the surface.

10. Perforate the intervals 8540 feet to 8620 feet and 7660 feet to 8450 feet with 2 JSPF, using hollow steel carrier perforating guns.

11. Run the work string and retrievable packer to 7600 feet. Swab, or backflow, the perforated interval to recover a representative sample of the formation water for laboratory analysis. Monitor the recovered fluid for hydrogen sulfide.

12. Conduct a short injectivity test with 8.5-ppg brine water to determine the need for stimulation. If required, stimulate the perforations with acid (type and amount to be determined from injectivity results), followed by 500 barrels of 8.5-ppg brine water.

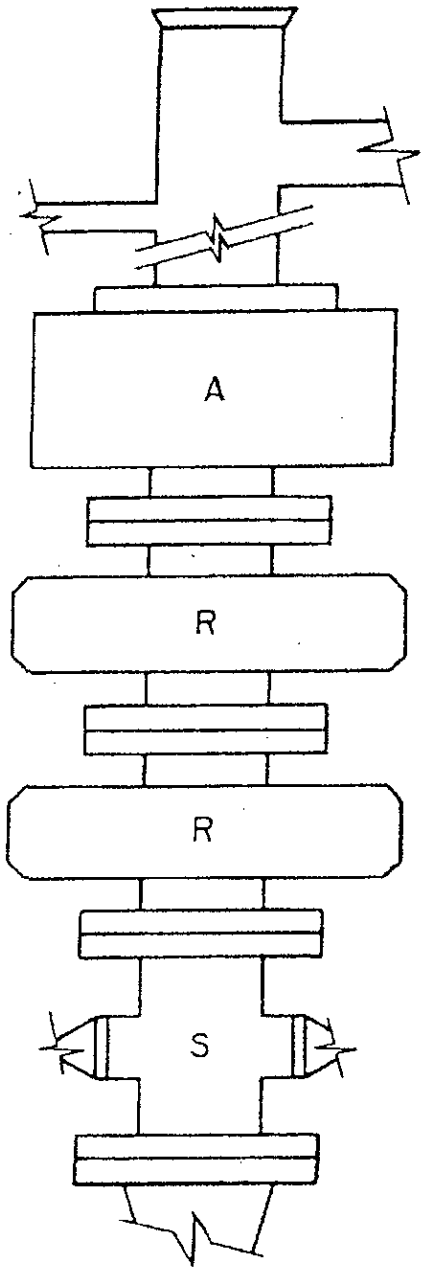
13. Pull the work string and lay it down. Run a surface readout pressure gauge, with memory backup, to 7600 feet. Conduct an injection test down the casing at 420 gallons per minute for 12 hours (7200 barrels). Shut the well in and record the pressure falloff for a minimum of 12 hours.

14. Pull the gauges and run a differential temperature survey from surface to 9100 feet. Run a radioactive tracer survey to demonstrate mechanical integrity.

15. Run a tubing conveyed injection packer on 4-1/2-inch, 11.60 lb/ft, K-55, LT&C, 8rd injection tubing. Set the packer at approximately 7600 feet. Fill the annular space with 8.5-ppg brine water containing oxygen scavenger and corrosion inhibitor. Land the injection tubing in the wellhead and install the upper section.

16. Pressure test the annulus as required by New Mexico regulations.

17. Install well annulus monitoring equipment and prepare the well for injection.



A = ANNULAR BLOWOUT PREVENTER
7-1/16", 3000 psi working pressure

R = RAM TYPE BLOWOUT PREVENTER
7-1/16", 3000 psi working pressure

S = DRILLING SPOOL WITH SIDE OUTLETS
7-1/16", 3000 psi working pressure

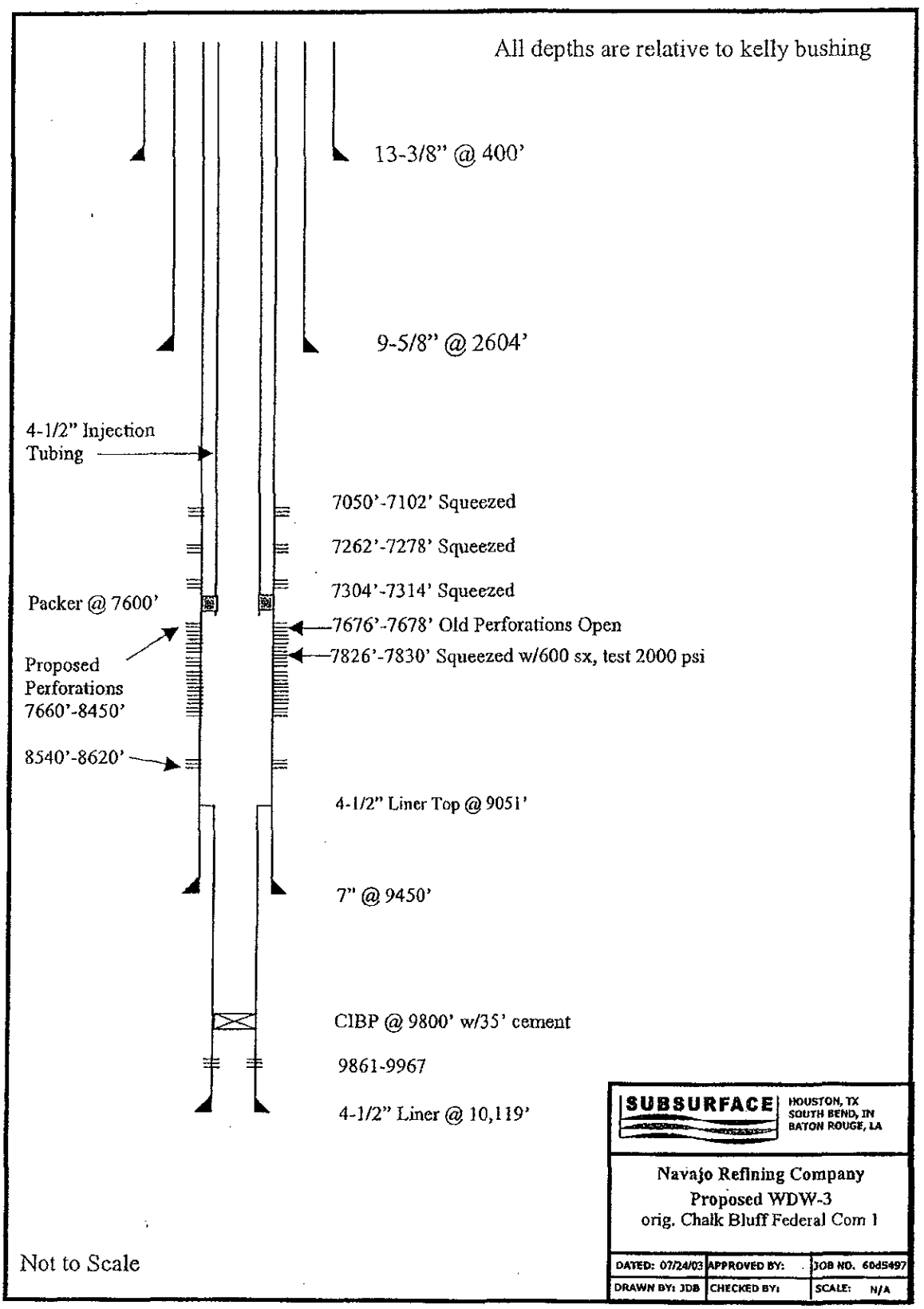
Manual Choke Manifold 2", 3000 psi working pressure

Source: API RP 53, Recommended Practices for Blowout Prevention EquipmentSystems

SUBSURFACE
HOUSTON, TX
SOUTH BEND, IN
BATON ROUGE, LA

Exhibit A
Blowout Preventer Minimum
Requirements

DATED: 07/24/03	APPROVED BY:	JOB NO. 60d5497
DRAWN BY: JDB	CHECKED BY:	SCALE: N/A


All depths are relative to kelly bushing
13-3/8" @ 400'
9-5/8" @ 2604'
4-1/2" Injection Tubing
7050'-7102' Squeezed
7262'-7278' Squeezed
7304'-7314' Squeezed
Packer @ 7600'
7676'-7678' Old Perforations Open
7826'-7830' Squeezed w/600 sx, test 2000 psi
Proposed Perforations 7660'-8450'
8540'-8620'
4-1/2" Liner Top @ 9051'
7" @ 9450'
CIBP @ 9800' w/35' cement
9861-9967
4-1/2" Liner @ 10,119'
Not to Scale
SUBSURFACE
HOUSTON, TX
SOUTH BEND, IN
BATON ROUGE, LA
Navajo Refining Company
Proposed WDW-3
orig. Chalk Bluff Federal Com 1
DATED: 07/24/03
APPROVED BY:
JOB NO. 60d5497
DRAWN BY: JDB
CHECKED BY:
SCALE: N/A

SURFACE USE PLAN

NAVAJO REFINING COMPANY
PROPOSED WDW-3
790' FSL, 2250' FWL, 1-T 18S-R27E
EDDY COUNTY, NEW MEXICO

1. Existing Roads: Existing roads that lead to the proposed drillsite are shown on Exhibit A.

2. Access Roads To Be Constructed: No new access road is proposed.

3. Location of Existing Wells: Existing wells within one mile of proposed WDW-3 are shown on Exhibit B.

4. Location of Proposed Facilities If Well Is Completed: The well will be shut in after completion and testing.

5. Location and Type of Water Supply: Water for reentry, testing, and completion operations will be purchased from a commercial water hauler.

6. Source of Construction Materials: No construction materials will be required.

7. Methods of Handling Waste Disposal:

   A. Drill cuttings will be disposed of in the drilling pits.

   B. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.

   C. Water produced during tests will be disposed of in the drilling pits.

   D. Trash, waste paper, garbage, and junk will be buried in a trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind.

   E. All trash and debris will be buried or removed from the wellsite after finishing drilling and/or completion operations.

8. Ancillary Facilities: None anticipated.

9. Wellsite Layout:

   A. The existing well pad will be leveled to accommodate a workover rig, pump, tanks, and ancillary equipment.

   B. Existing topsoil to a depth of 6 inches will be lifted and stockpiled at the uphill end of the well pad. The stockpiled topsoil will be located uphill to avoid mixing with subsurface materials.

   C. The well pad will be surfaced with material found in place.

   D. A small working pit will be constructed to hold drilling fluids and cuttings. The approximate dimensions of the pit will be 30 feet x 30 feet x 3 feet.

   E. The working pit for drilling fluids and cuttings will be lined with 6-mil plastic.

10. Plans for Restoration of Surface:

   A. After completion of drilling and/or completion operations, all equipment and other material not needed for operations will be removed. Pits will be filled and the location cleaned of all trash and junk.

   B. Any unguarded pits containing fluids will be fenced until they are filled.

   C. After abandonment, all equipment, trash, and junk will be removed and the location cleaned.

   D. The stockpiled topsoil will be spread over the surface of the location.

11. Surface Ownership: U.S. Department of Interior, Bureau of Land Management.

12. Archaeological Survey: Navajo Refining Company is conducting an archeological survey. The report of the survey will be submitted by Navajo under separate cover.

13. Operator's Representatives: Representatives responsible for assuring compliance with the approved Surface Use Plan:

Mr. Darrell Moore
Navajo Refining Company
Post Office Box 159
Artesia, New Mexico 88211
505/748-3311

Mr. Jim Bundy
Subsurface Technology, Inc.
7020 Portwest Drive, Suite 100
Houston, Texas 77024
713/880-4640

Exhibits

A. Topographic Map
B. Oil and Gas Map

14. Certification:

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

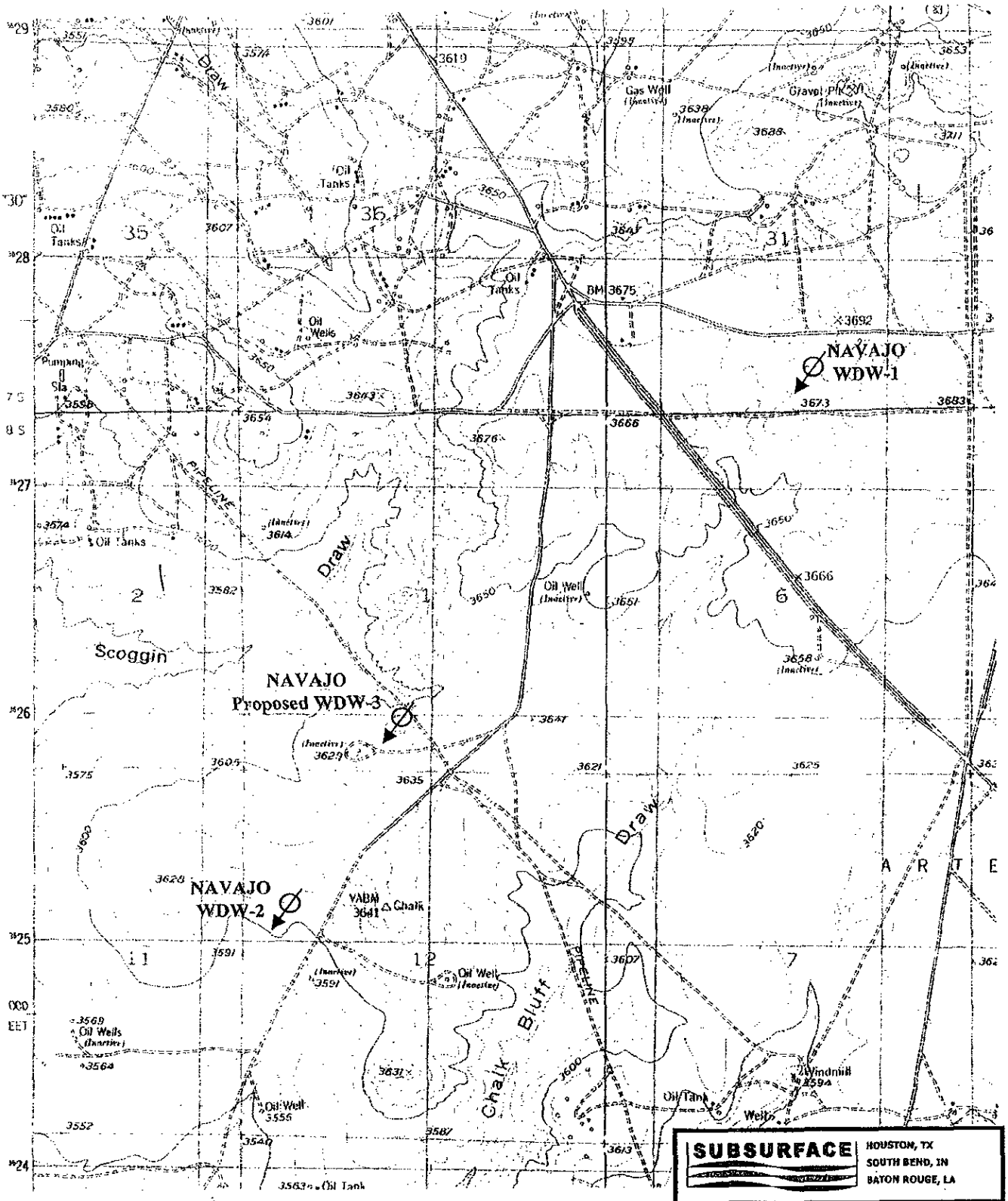
9/17/03
Date

Darrell Moore
Signature

Darrell Moore
Name

Env. Mgr. for Water + Waste
Title

Navajo Refining Company
Company

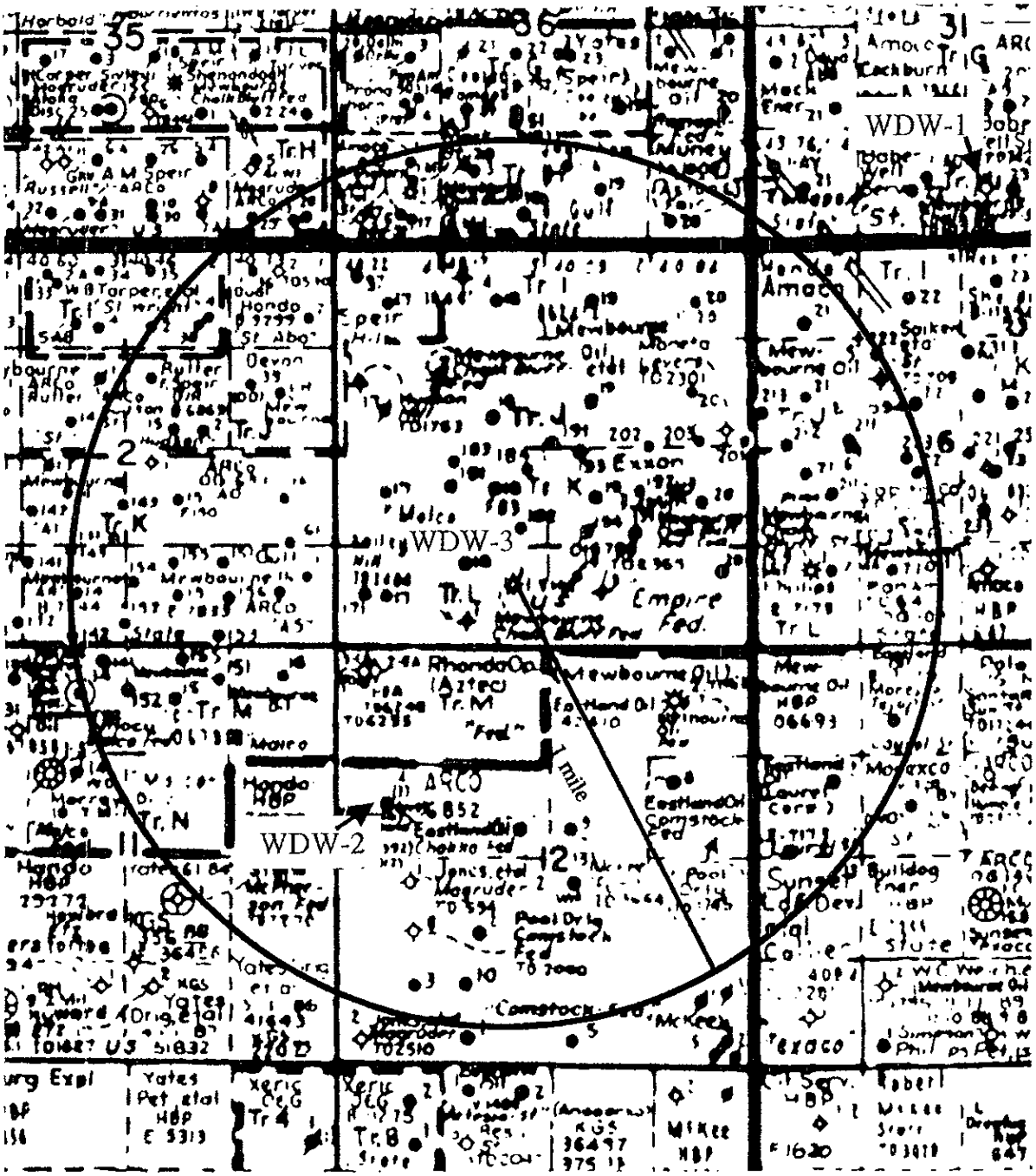


USGS Topographic Map
Red Lake Quadrangle, Eddy County, NM

Section corners marked with +

T17S - R27E

T17S - R28E



T18S - R27E

EDDY COUNTY, NM

Map courtesy of Midland Map Company

SUBSURFACE	HOUSTON, TX SOUTH BEND, IN BATON ROUGE, LA

EXHIBIT B

WELLS WITHIN 1 MILE OF
NAVAJO REFINING COMPANY
PROPOSED WDW-3

DATED: 7/28/03	APPROVED BY: NLN	JOB NO. 60D5497
DRAWN BY:	CHECKED BY:	SCALE: N/A