

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-101
Revised February 10, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

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

Operator Name and Address. PATTERSON PETROLEUM, INC. P.O. DRAWER 1416 SNYDER, TX 79550		OGRID Number 141928
Property Code 24638	Property Name Arrowhead State 15	API Number 30-025-34633
		Well No. 1

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	15	17S	33E		1087	North	1235	East	Lea

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
Wildcat - Atoka Morrow						Leamex - Penn.			

Work Type Code N	Well Type Code O & G	Cable/Rotary R	Lease Type Code S	Ground Level Elevation 4157'
Multiple No	Proposed Depth 13,800'	Formation Morrow	Contractor Patterson Drilling	Spud Date Upon Approval


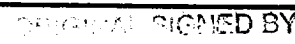
Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17-1/2"	13-3/8"	48#	400'	400 sx	Surface
11"	8-5/8"	32#	4800'	1900 sx	Surface
7-7/8"	5-1/2"	17# & 20#	13,800'	1250 sx	8000'

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.

Drilling fluid synopsis attached
BOP: Series 900 5000# WP - See Figure 2.5 attached
Additional casing & cementing information attached

Permit Expires 1 Year From Approval
Date Unless Drilling Underway

I hereby certify that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Nolan von Roeder		Approved by: 	
Title: Petroleum Engineer		Title: FIELD SUPERVISOR	
Date: 05/21/99		Approval Date: MAY 27 1999	Expiration Date:
Phone: 915/573-1938		Conditions of Approval: Attached <input type="checkbox"/>	

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DISTRICT IV
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State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
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State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-34633	Pool Code	Well Name Wildcat - Atoka Morrow
Property Code 24638	Property Name ARROWHEAD STATE 15	Well Number 1
OGRID No. 141928	Operator Name PATTERSON PETROLEUM, INC	Elevation 4157

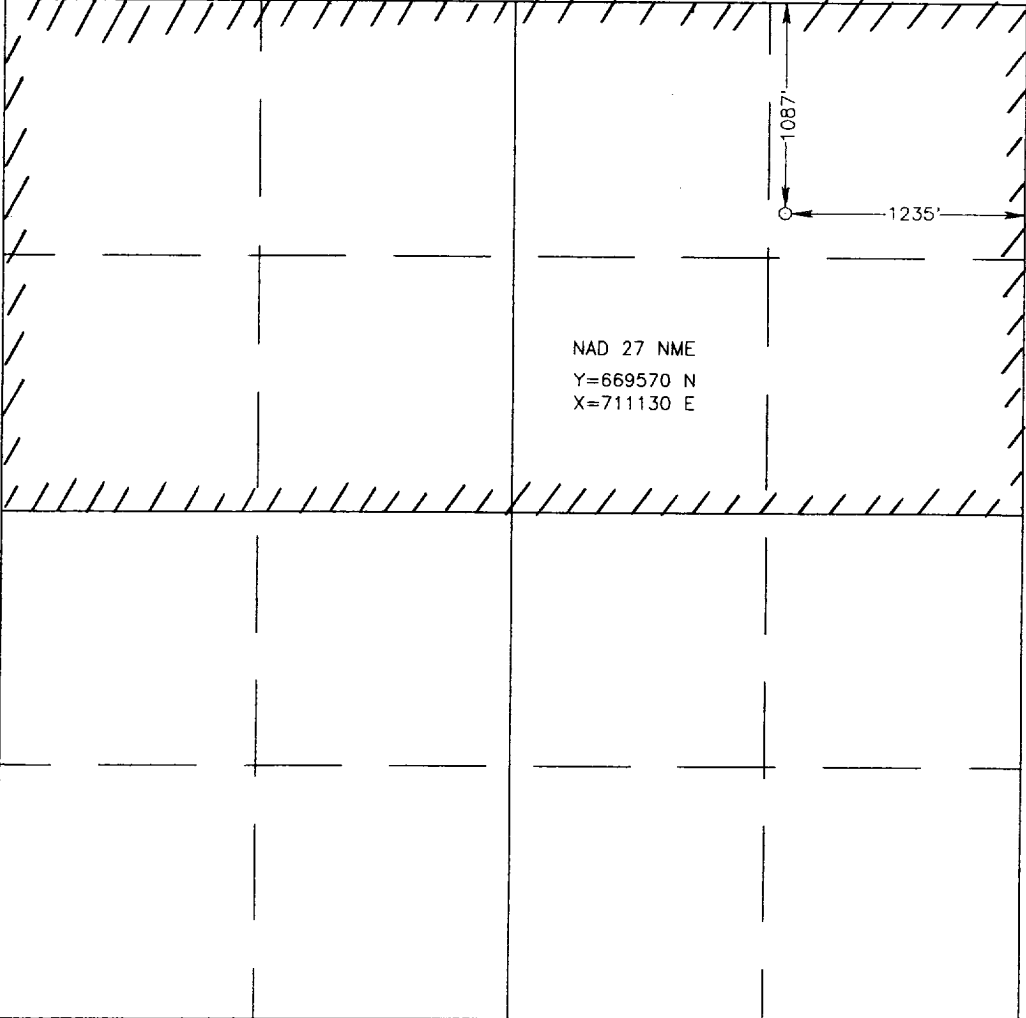
Surface Location

UL or lot No. A	Section 15	Township 17 S	Range 33 E	Lot Idn	Feet from the 1087	North/South line NORTH	Feet from the 1235	East/West line EAST	County LEA
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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		
Dedicated Acres 320					Joint or Infill					Consolidation Code	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

	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>[Signature]</i> Signature Joe Fitzgerald Printed Name Land Manager Title 5-24-99 Date</p>
	<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p>MAY 18, 1999 Date Surveyed DMCC Signature of Surveyor RONALD J. EDSON Professional Surveyor 5-19-99 Date 239 9-11-040 Certificate No. RONALD J. EDSON 3239 GARY ROSEN 12641 ANTHONY W. DONALD 12185</p>

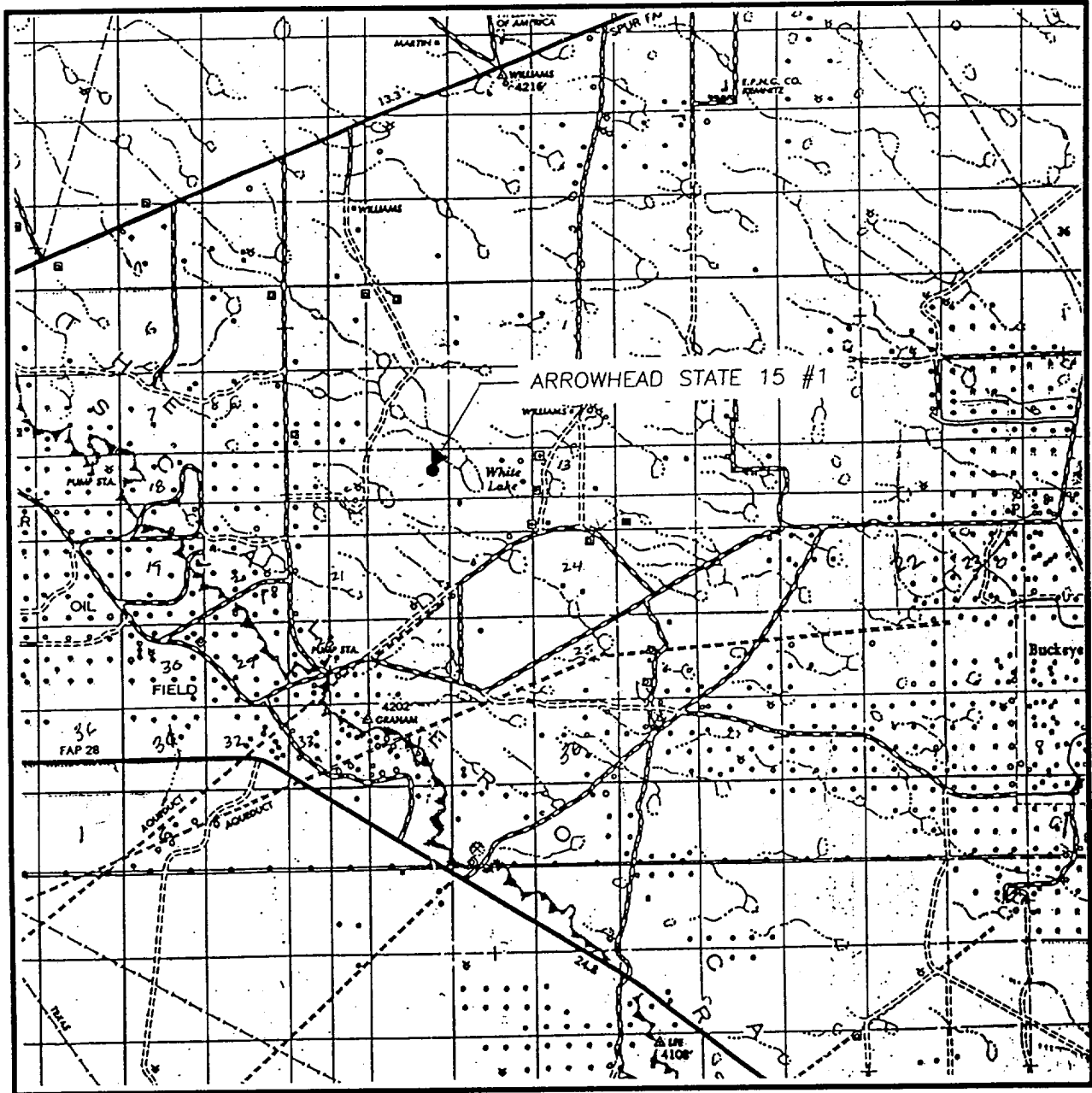


CONTOUR INTERVAL:
DOG LAKE- 10'
WITH 5' SUPP.

DOG LAKE, N.M.

**JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117**

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 15 TWP. 17-S RGE. 33-E

SURVEY N.M.P.M.

COUNTY LEA

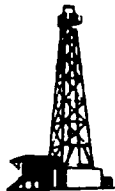
DESCRIPTION 1087' FNL & 1235' FEL

ELEVATION 4157

OPERATOR PATTERSON PETROLEUM, INC.

LEASE ARROWHEAD STATE 15

JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117



Patterson Petroleum, Inc.

P.O. Box 1416
Snyder, Texas 79550

DRILLING FLUID SYNOPSIS

PATTERSON PETROLEUM, INC.
Arrowhead State 15 #1

Section 15
T-17-S
R-33-E
Lea County, New Mexico

	<u>CASING</u>	
13-3/8"	at	400'
8-5/8"	at	4,800'
5-1/2"	at	13,800'

DEPTH	MUD WEIGHT	VISCOSITY	FLUID LOSS	DRILL SOLIDS	COMMENTS
0'-400'	8.6 to 9.5	32 to 45	No control	<5%	Spud mud, Paper
400'-4800'	10.0 to 10.1	28 to 29	No control	<1%	Brine water Paper, caustic
4800'-12,500'	8.4 to 9.2	28 to 29	No control	<1%	Fresh water, Caustic, Paper (Brine if needed)
12,500'-13,800'	9.0 TO 9.5	36 to 42	<10cc	<5%	Xanthan Gum, White starch PAC, Caustic

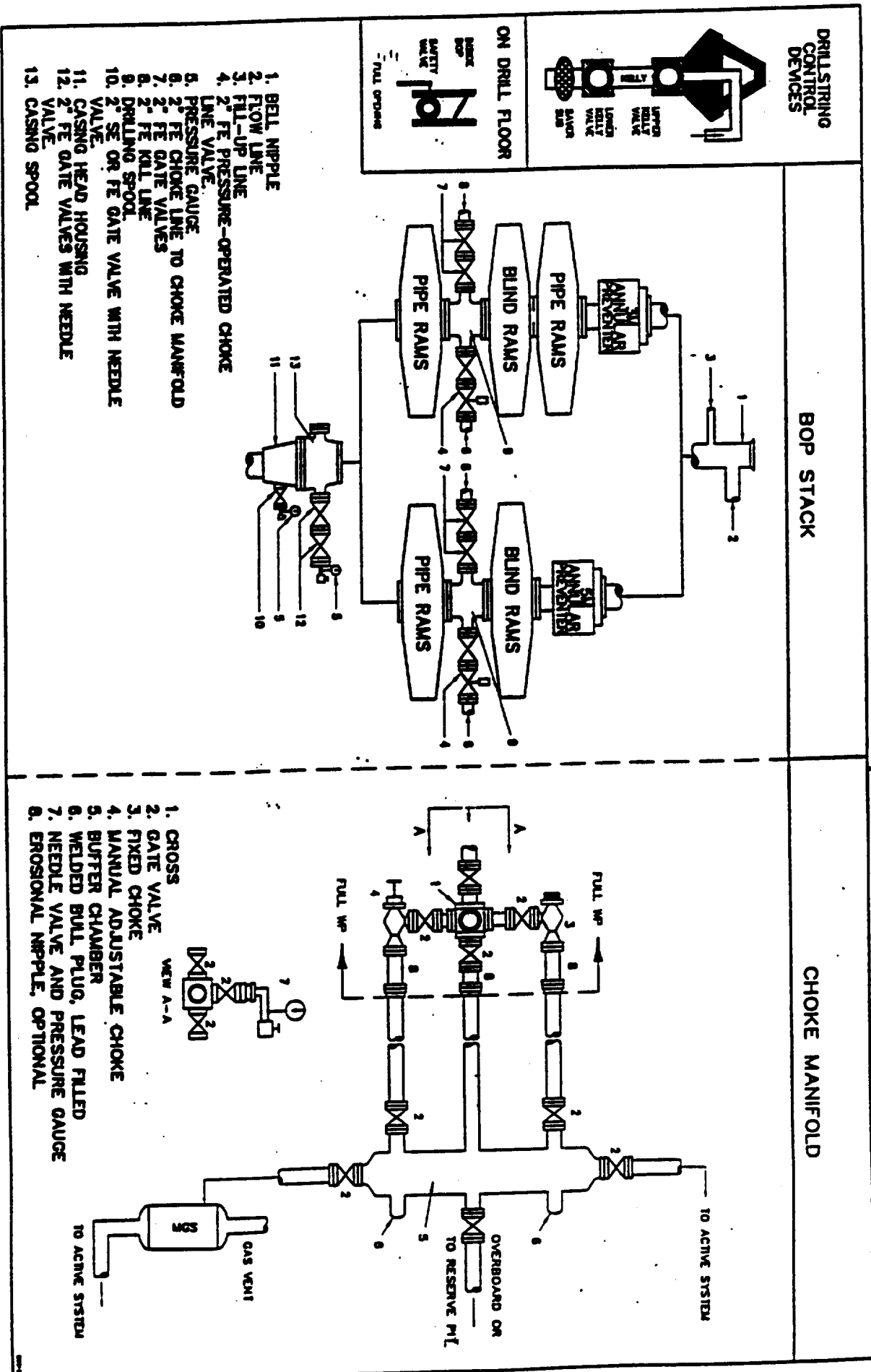


Fig. 2.5. Class 3 BOP and Choke Manifold.

PROPOSED CASING & CEMENTING PROGRAM

ARROWHEAD STATE 15 WELL NO. 1

13 3/8", 48 lb/ft, H-40 Surface Casing Set at 400' - in a 17 1/2" Hole

Circulate to surface with 400 sacks of Class "C" + 2% CaCl₂

Slurry Weight:	14.8 ppg
Slurry Yield:	1.32 cu.ft/sk
Water Requirement:	6.3 gal./sk

8 5/8", 32 lb/ft, J-55 & S-80 Intermediate Casing Set at 4800' - in a 11" Hole

Lead : 1600 sx of 35:65 Poz Class "C" + 5% salt + 6% gel + 1/4 lb/sk celloflake
+ 2/10 % antifoamer

Desired TOC = Surface

Slurry Weight:	12.4 ppg
Slurry Yield:	2.15 cu.ft/sk
Water Requirement:	11.99 gal/sk

Tail : 300 sx of Class "C" Neat

Slurry Weight:	14.8 ppg
Slurry Yield:	1.32 cu.ft/sk
Water Requirement:	6.31 gal/sk

5 1/2" , 17 & 20 lb/ft, N-80 Production Casing Set at 13,800' - in a 7 7/8" Hole

Set stage tool at approximately 10,500'

1 st Stage : Lead - 550 sx of 35:65 Poz Class "H" + 5% salt + 6 % gel + 3/10% ret.
+ 2/10% dispersant + 2/10% antifoamer

Slurry Weight:	13.5 ppg
Slurry Yield:	1.68 cu.ft/sk
Water Requirement:	8.76 gal/sk

1 st Stage : Tail - 250 sx of Class "H" + 5% salt + 2% gel
+ 3/10 % retarder + 2/10% antifoamer

Slurry Weight:	16.4 ppg
Slurry Yield:	1.09 cu.ft/sk
Water Requirement:	5.49 gal/sk

PROPOSED CASING & CEMENTING PROGRAM

ARROWHEAD STATE 15 WELL NO. 1

2 nd Stage : Lead - 300 sx of 35:65 Poz Class "H" + 5% salt + 6% gel
+ 3/10 % retarder + 2/10% antifoamer
Desired TOC = 4750'

Slurry Weight:	12.8 ppg
Slurry Yield:	1.95 cu.ft/sk
Water Requirement:	10.49 gal/sk

2 nd Stage : Tail - 150 sx of 50:50 Poz Class "H" + 5% salt + 2% gel
+ 3/10% retarder + 2/10% dispersant & antifoamer

Slurry Weight:	14.6 ppg
Slurry Yield:	1.27 cu.ft/sk
Water Requirement:	5.67 gal/sk