

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-101
Revised March 17, 1999

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

¹ Operator Name and Address Conoco Inc., 10 Desta Drive, Suite 649W, Midland, TX 79705		² OGRID Number 005073
		³ API Number 30 - 025 - 34969
¹ Property Code 13396	⁵ Property Name Hardy "36" State	⁶ Well No. 28

⁷ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	36	20S	37E		990	North	510	West	Lea

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

⁹ Proposed Pool 1 Hardy-Strawn North	¹⁰ Proposed Pool 2
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¹¹ Work Type Code N	¹² Well Type Code O	¹³ Cable/Rotary R	¹⁴ Lease Type Code S	¹⁵ Ground Level Elevation 3505'
¹⁶ Multiple No	¹⁷ Proposed Depth 8300'	¹⁸ Formation Strawn	¹⁹ Contractor	²⁰ Spud Date 3/15/00

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	M-50, 8-5/8"	23#	1500'	723	Surface
7-7/8"	J-55, 5-1/2"	17#	8000'	1206	Surface

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.

- Well Location and Acreage Dedication Plat (C-102)
- Proposed Well Plan Outline
- Cementing Program
- BOP/Choke Diagram

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. Signature <i>Jo Ann Johnson</i>		OIL CONSERVATION DIVISION	
Printed name: Jo Ann Johnson		Approved by:	
Title: Sr. Property Analyst		Title:	
Date: 3/6/00	Phone: 915/686-5515	Approval Date: 3/7/00	Expiration Date:
		Conditions of Approval: Attached <input type="checkbox"/>	

5-1

28
mP

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State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised March 17, 1999

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

2040 South Pacheco
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-34969	Pool Code 96893	Pool Name Hardy - Strawn, North
Property Code 13396	Property Name HARDY "36" STATE	Well Number 28
OGRID No. 005073	Operator Name CONOCO INC.	Elevation 3505'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	36	20 S	37 E		990	NORTH	510	WEST	LEA

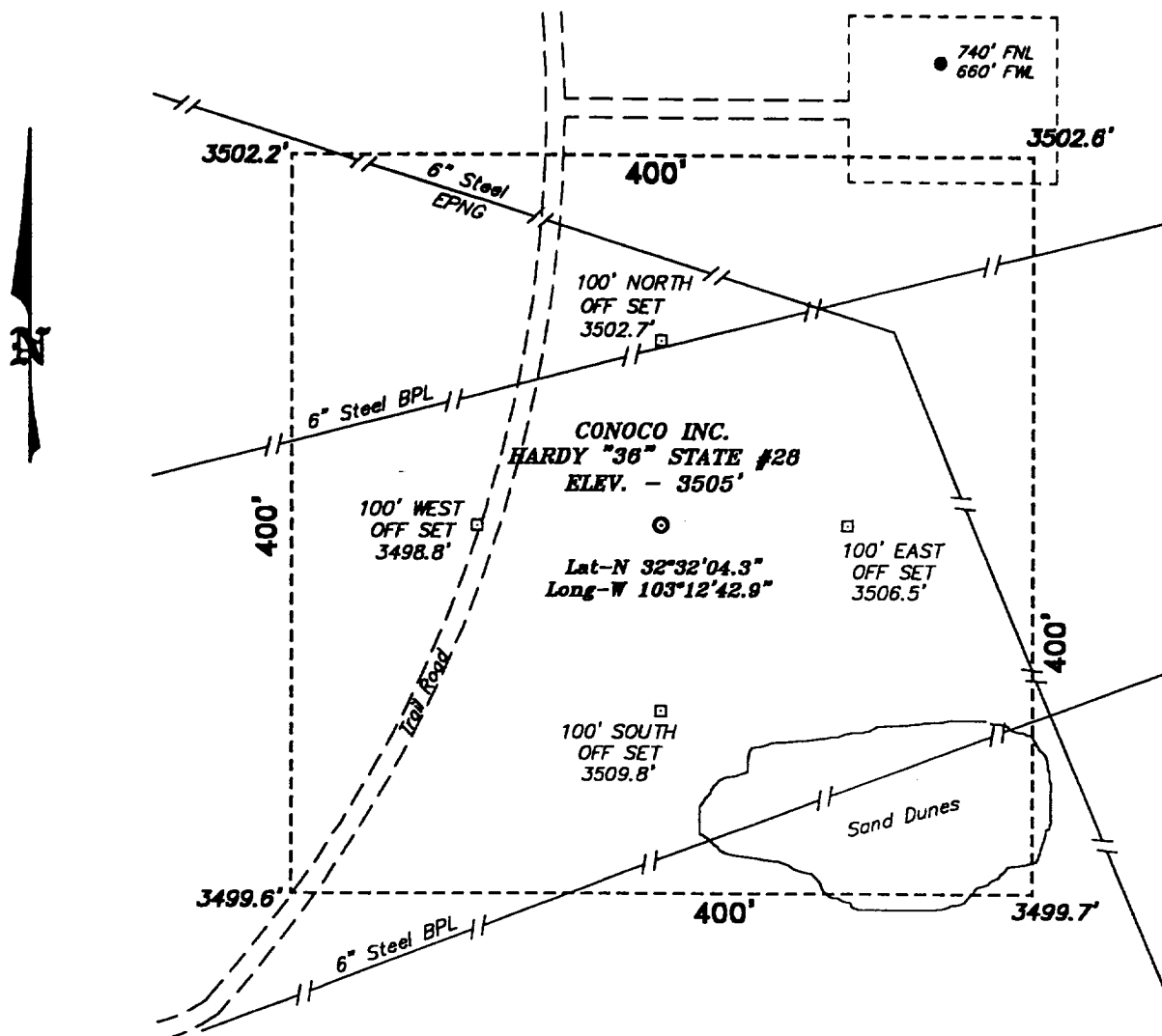
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No. NSL Applied For						

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>Jo Ann Johnson</i> Signature</p> <p>Jo Ann Johnson Printed Name</p> <p>Sr. Property Analyst Title</p> <p>3/6/00 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>January 09, 2000 Date Surveyed</p> <p><i>Ed C. Jones</i> Signature & Seal of Professional Surveyor</p> <p>7977 O.G. No.</p> <p>Certificate No. 7977 Jones</p> <p>BASIN SURVEYS</p>
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**SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY,
NEW MEXICO.**



DIRECTIONS TO WELL LOCATION:

FROM THE JUNCTION OF US HWY 62/180 AND STATE HWY 8, GO SOUTH ON HWY 8 APPROX. 11 MILES TO CO. RD. C-49; THENCE EAST AND SOUTH EAST ON C-49 APPROX. 2 MILES TO A LEASE ROAD; THENCE NORTHEAST ON A LEASE ROAD APPROX. 4500 FEET TO THE PROPOSED WELL LOCATION.



Conoco Inc.

REF: HARDY "36" STATE No. 28 / Well Pad Topo

THE HARDY "36" STATE No. 28 LOCATED 990' FROM THE NORTH LINE AND 510' FROM THE WEST LINE OF SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 0060

Drawn By: K. GOAD

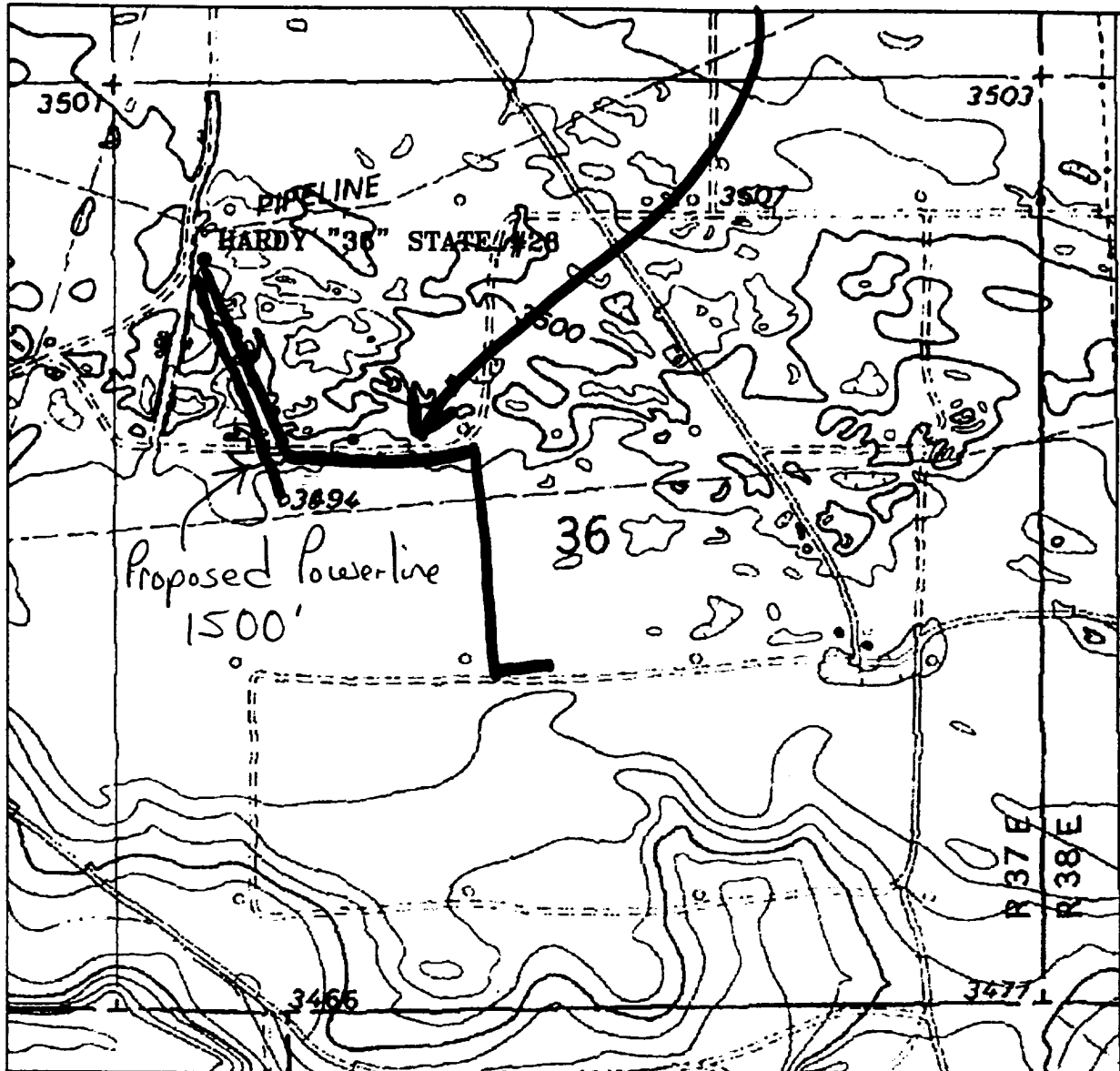
Date: 02-10-2000

Disk: KJG #122 - 0060A.DWG

Survey Date: 02-09-2000

Sheet 1 of 1 Sheets

Proposed Flowline Route 3850'



HARDY "36" STATE #28

Located at 990' FNL and 510' FWL

Section 36, Township 20 South, Range 37 East,
N.M.P.M., Lea County, New Mexico.

basin
surveys

focused on excellence
in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 - Office
(505) 392-3074 - Fax
basinsurveys.com

W.O. Number: 0060AA - KJG #122

Survey Date: 02-09-2000

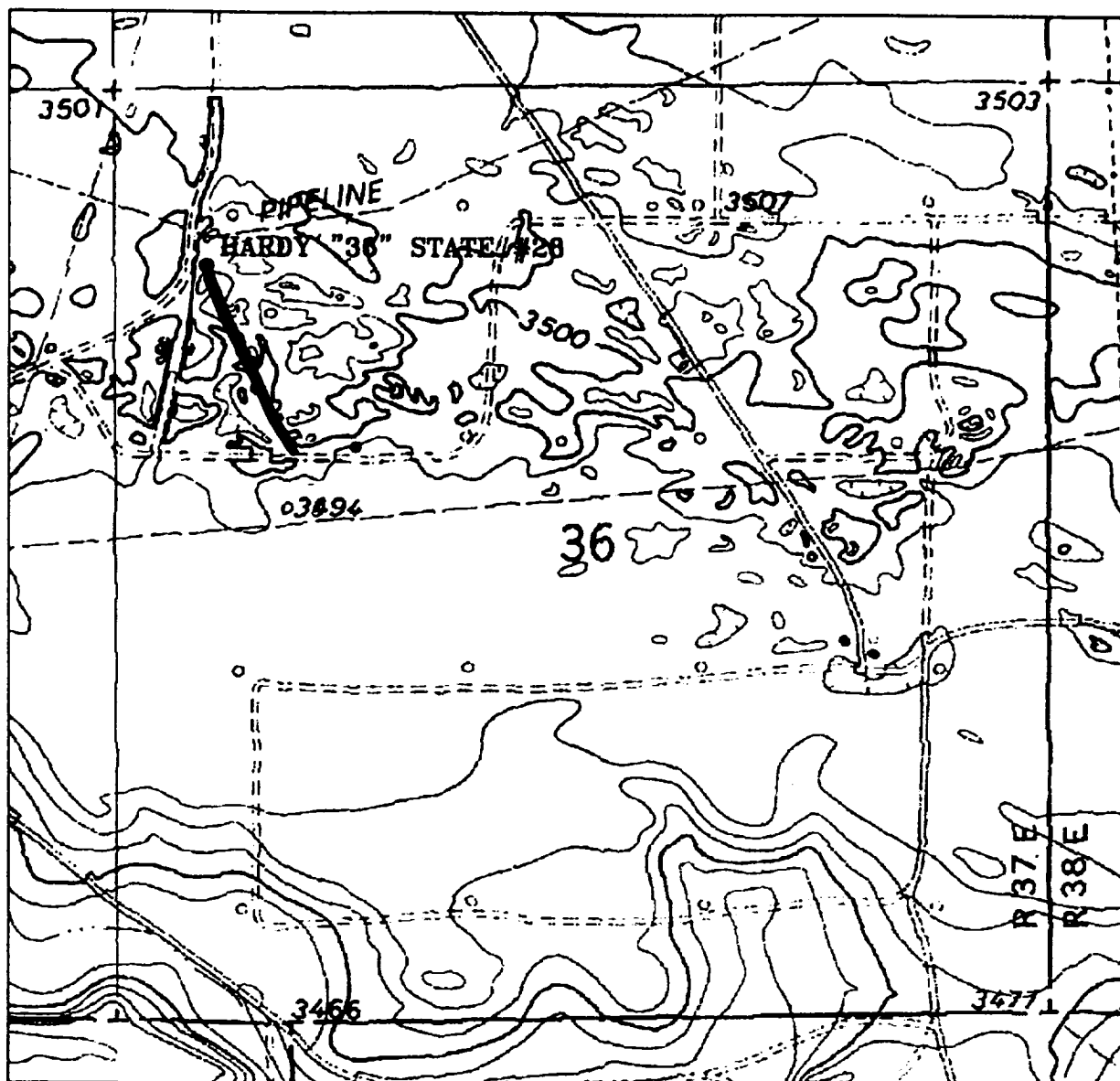
Scale: 1" = 1000'

Date: 02-10-2000

CONOCO INC.

Proposed Access Road

1100'



HARDY "36" STATE #28

Located at 990' FNL and 510' FWL

Section 36, Township 20 South, Range 37 East,
N.M.P.M., Lea County, New Mexico.

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CONOCO INC.

PROPOSED WELL PLAN OUTLINE

WELL NAME
LOCATION

Hardy 36 State #28
990' FNL & 510' FWL Sec 36, T20S, R37E

Ground Level : 7'
Kelly Bushing: 11' AGL

Depth MD	FORMATION TOPS	DRILLING PROBLEMS	TYPE OF FORMATION EVALUATION	HOLE SIZE	CASING PROGRAM	FRAC GRAD	FORM. PRES. GRAD.	Mud Weight & Type	Days
0		Possible Hole Enlargement & Sloughing		12-1/4"			Less than 8.3	8.4 - 9.5 Fresh	
1000									
	Top Salt @ 1,400'				8-5/8", 23#, M-50 ST&C @ 1,500'				3
		Washouts in Salt Section		7-7/8"	Circulate Cement			10 Brine	
2000							Less than 8.4		
	Base Salt @ 2,550'								
	Yates 2,670'		Mud Loggers F/ 2,650' to TD						
	7 Rivers 2,950'		H2S Monitor on at 2,650'						
3000									
		Shallow gas flows in SEMU # 125 & 126 not expected at this location							
	Queen 3,510'								
	Penrose 3,635'								
	Grayburg 3,770'								
4000	San Andres 4,000'	Lost Returns in San Andres							7
5000									
	Glorietta 5,275'	Possible differential sticking thru Glorietta & Paddock							
	Blinberry Mkr 5,890'								
6000									
	Tubb 6,390'								
	Drinkard 6,700'								
	Abo 6,985'		First Log Run: GR-CAL-DLL-MLL-SGR FDC-CNL-PE : TD to 2650' Pull GR-CNL-Cal to Surf SGR interval to be chosen						
7000			Second Log Run: 30 rotary sidewall cores						
	Strawn 7,725'		Possible Third Run: FMI imaging log						
		STOP DRILLING WHEN WOODFORD SHALE IS CUT			5-1/2", 17.0#, J-55 LT&C 1/0'-8,000' Circulate Cement			10 ppg Starch Gel	20
8000	TD @ 8,000'	Severe losses in Devonian							
	Devonian 8,120'								

Note: The Devonian formation is associated with severe lost circulation problems. This well will be TD'd very close to the top of the Devonian. The mud loggers will pick the Woodford shale which is 40' thick and sits on top of the Devonian. Stop drilling once the Woodford is entered.

DATE 07-Feb-00

Joe Huck, Geophysical Advisor

APPROVED
Yong Cho, Drilling Engineer

Joe Miller, Reservoir Engineer



Proposal No: 180253051A

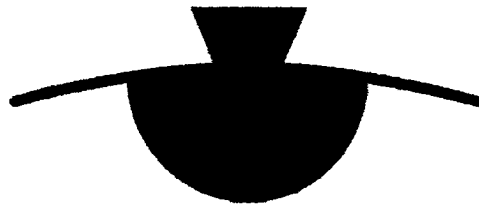
Conoco
Hardy 36 St. #28

Sec. 36-T20S-R37E
Lea County, New Mexico
February 2, 2000

Well Recommendation

Prepared for:
Yong Cho
Drilling Engineer

Prepared by:
Rocky Chambers
Region Engineer
Bus Phone: 915/683-2781
Mobile: 915/557-1239
Pager: 915/498-1605



POWERVISIONSM

Service Point:
Hobbs
Bus Phone: (505) 392-5556
Fax: (505) 392-7307

Service Representatives:
Wayne Davis
Account Manager
Bus Phone: (915) 683-2781

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 8-5/8" Surface
Date: February 2, 2000



Proposal No: 180253051A

JOB AT A GLANCE

Depth (TVD)	1,500 ft
Depth (MD)	1,500 ft
Hole Size	12.25 in
Casing Size/Weight :	8 5/8 in, 24 lbs/ft
Pump Via	Casing 8 5/8" O.D. (8.097" I.D) 24 #
Total Mix Water Required	6,555 gals
Spacer	
Mud Clean I	1,500 gals
Density	8.4 ppg
Lead Slurry	
LEAD SLURRY	528 sacks
Density	12.7 ppg
Yield	1.88 cf/sack
Tail Slurry	
TAIL SLURRY	195 sacks
Density	14.8 ppg
Yield	1.34 cf/sack
Displacement	
FRESH WATER	93 bbls

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 8-5/8" Surface
Date: February 2, 2000



Proposal No: 180253051A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
12.250 HOLE	1,500	1,500

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
8.625	8.097	24	1,500	1,500

Float Collar set @	1,460 ft
Mud Density	9.00 ppg
Est. Static Temp.	86 ° F
Est. Circ. Temp.	85 ° F

VOLUME CALCULATIONS

1,200 ft	x	0.4127 cf/ft	with	100 % excess	=	988.9 cf
300 ft	x	0.4127 cf/ft	with	100 % excess	=	247.6 cf
40 ft	x	0.3576 cf/ft	with	0 % excess	=	14.3 cf (inside pipe)
TOTAL SLURRY VOLUME					=	1250.9 cf
					=	223 bbls

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 8-5/8" Surface
Date: February 2, 2000



Proposal No: 180253051A

FLUID SPECIFICATIONS

Spacer

1,500.0 gals Mud Clean I @ 8.4 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	989	/ 1.88	= 528 sacks (35:65) Poz (Fly Ash):Class C Cement + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005 gps FP-6L + 6% bwoc Bentonite + 96.5% Fresh Water
Tail Slurry	262	/ 1.34	= 195 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.005 gps FP-6L + 56.3% Fresh Water
Displacement			93.0 bbls FRESH WATER + 56.3% Fresh Water

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.70	14.80
Slurry Yield (cf/sack)	1.88	1.34
Amount of Mix Water (gps)	10.07	6.35
Amount of Mix Fluid (gps)	10.07	6.35

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 5-1/2" Long String
Date: February 2, 2000



Proposal No: 180253051A

JOB AT A GLANCE

Depth (TVD)	8,000 ft
Depth (MD)	8,000 ft
Hole Size	7.875 in
Casing Size/Weight :	5 1/2 in, 17 lbs/ft
Pump Via	Casing 5 1/2" O.D. (4.892" I.D) 17 #
Total Mix Water Required	10,238 gals
Spacer	
Mud Clean I	1,500 gals
Density	8.4 ppg
Lead Slurry	
LEAD SLURRY	718 sacks
Density	12.7 ppg
Yield	1.85 cf/sack
Tail Slurry	
TAIL SLURRY	488 sacks
Density	14.8 ppg
Yield	1.34 cf/sack
Displacement	
FRESH WATER	185 bbls

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 5-1/2" Long String
Date: February 2, 2000



Proposal No: 180253051A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.097 CASING	1,500	1,500
7.875 HOLE	8,000	8,000

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
5.500	4.892	17	8,000	8,000

Float Collar set @ 7,960 ft
 Mud Density 8.70 ppg
 Est. Static Temp. 129 ° F
 Est. Circ. Temp. 122 ° F

VOLUME CALCULATIONS

1,500 ft	x	0.1926 cf/ft	with	0 % excess	=	288.9 cf
4,000 ft	x	0.1733 cf/ft	with	50 % excess	=	1039.5 cf
2,500 ft	x	0.1733 cf/ft	with	50 % excess	=	649.7 cf
40 ft	x	0.1305 cf/ft	with	0 % excess	=	5.2 cf (inside pipe)
TOTAL SLURRY VOLUME					=	1983.3 cf
					=	354 bbls

Operator Name: Conoco
Well Name: Hardy 36 St. #28
Job Description: 5-1/2" Long String
Date: February 2, 2000



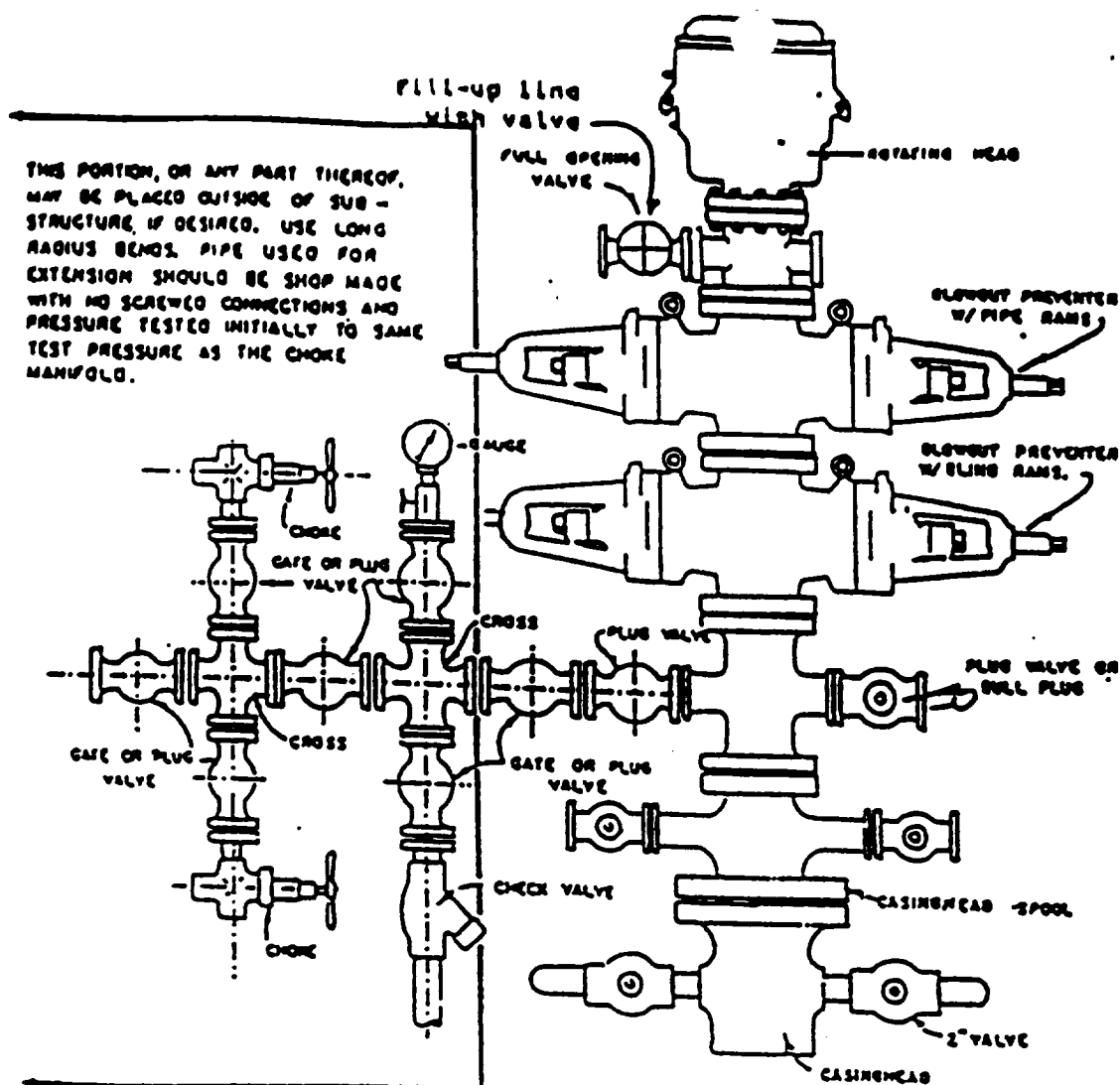
Proposal No: 180253051A

FLUID SPECIFICATIONS

Spacer		1,500.0 gals Mud Clean I @ 8.4 ppg	
<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	1328	/ 1.85	= 718 sacks (35:65) Poz (Fly Ash):Class C Cement + 0.25 lbs/sack Cello Flake + 0.005 gps FP-6L + 6% bwoc Bentonite + 95.7% Fresh Water
Tail Slurry	655	/ 1.34	= 488 sacks Class C Cement + 1% bwoc BA-58 + 0.8% bwoc FL-50 + 0.4% bwoc CD-32 + 0.005 gps FP-6L + 0.2% bwoc Sodium Metasilicate + 55.8% Fresh Water
Displacement		185.1 bbls FRESH WATER + 55.8% Fresh Water	

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.70	14.80
Slurry Yield (cf/sack)	1.85	1.34
Amount of Mix Water (gps)	9.98	6.29
Amount of Mix Fluid (gps)	9.99	6.30

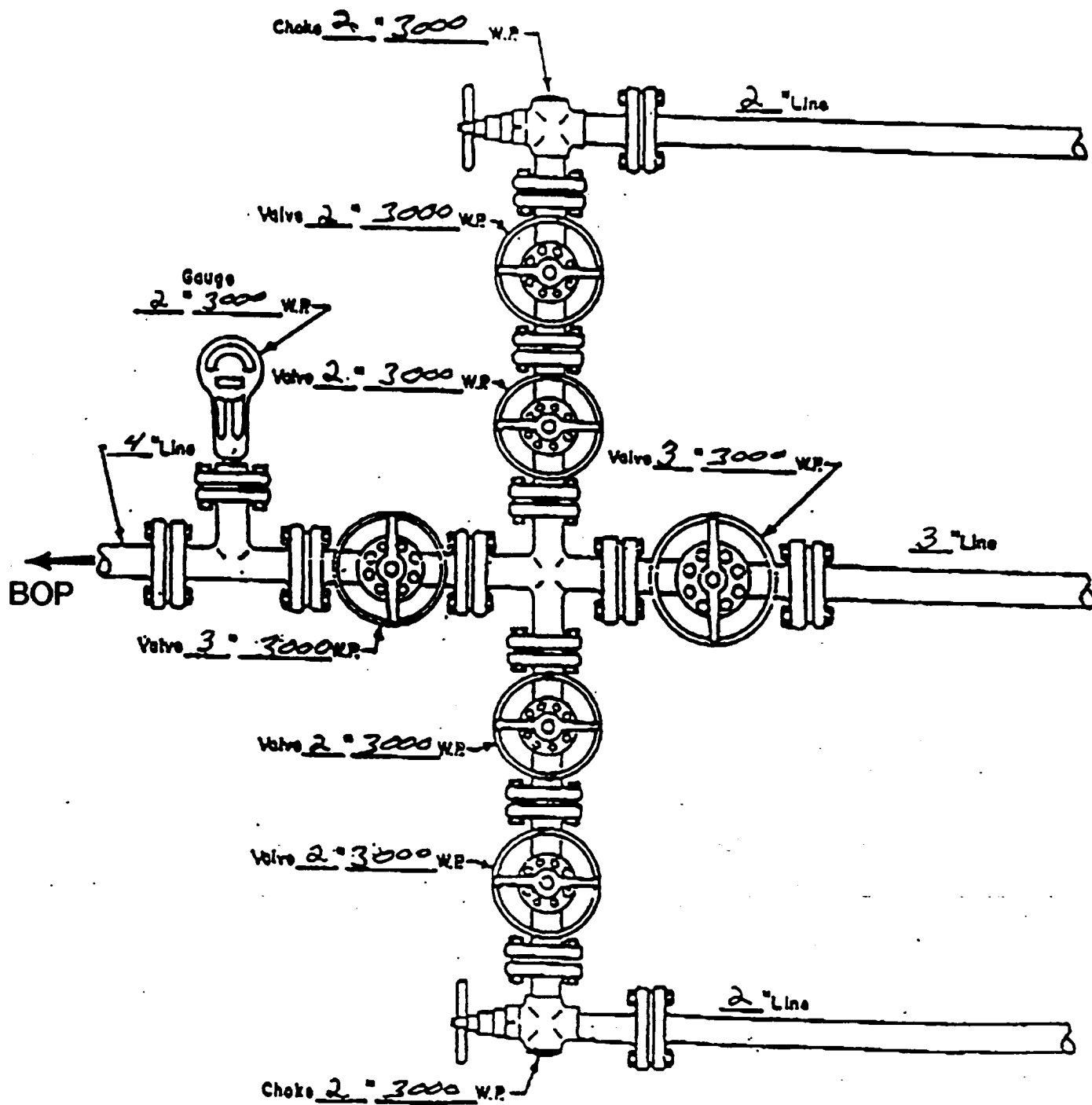


BLOWOUT PREVENTER HOOKUP

Drilling contractors used in the San Juan Basing supply 3000 psi equipment, but cannot provide annular preventors because of sub-structure limitations. Maximum anticipated surface pressures for this well will not exceed the working pressure of the proposed BOP system. Please see the attached BOP diagram details 2000 psi equipment according to Onshore Order No. 2 even though the equipment will test to 3000 psi. The 2000 psi system allows deletion of the annular preventor and fulfills your requirements (note diagram No. 1). In addition, the following equipment will comprise the 2000 psi system:

1. Two rams with one blind and one pipe ram.
2. Kill line (2 inch maximum).
3. One kill line valve.
4. One choke line valve.
5. Two chokes (reference diagram No. 1).
6. Upper kelly cock valve with handle.
7. Safety valve and subs to fit all drill strings in use.
8. Two-inch minimum choke line.
9. Pressure gauge on choke manifold.
10. Fill-up line above the upper most preventor.
11. Rotating head.

CHOKE MANIFOLD DIAGRAM



MANIFOLD
3000 #W.P.

- ☒ Manual
- ☐ Hydraulic