

County - ea Pool South Hardy-Strawn

TOWNSHIP	20 South	Range 37 East	NMPM		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Description: NE 1/4 Sec. 36 (R-11883, 5-19-99)  
Redesignate as North Hardy-Strawn Pool (R-11203, 6-14-95)  
Ext. NY and PA Sec. 25 (K-11533, 2-8-01)

County Lea Pool North Hardy-Strawn

TOWNSHIP	20 South	Range 38 East	NMPM		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Ext. NY Sec. 30, NY Sec. 31 (R-11304, 1-12-00) Ext. NY Sec. 31 (K-11475, 10-20-00)

CMD :  
OG5SECT

ONGARD  
INQUIRE LAND BY SECTION

03/07/01 08:37:35  
OGOMES -TPZI  
PAGE NO: 1

Sec : 36 Twp : 20S Rng : 37E Section Type : NORMAL

D 40.00 CS B11300 0004 CONOCO INC U 06/10/54 A P	C 40.00 CS B02366 0011 CONOCO INC U 01/11/39 A P	B 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A A	A 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A
E 40.00 CS E05376 0001 CONOCO INC U 07/10/61 A A	F 40.00 CS E05376 0001 CONOCO INC U 07/10/61 A C	G 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A	H 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A

PF01 HELP    PF02            PF03 EXIT    PF04 GoTo    PF05            PF06  
PF07 BKWD   PF08 FWD       PF09 PRINT   PF10 SDIV     PF11            PF12

CMD :  
OG5SECT

ONGARD  
INQUIRE LAND BY SECTION

03/07/01 08:37:49  
OGOMES -TPZT  
PAGE NO: 2

Sec : 36 Twp : 20S Rng : 37E Section Type : NORMAL

L 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A A	K 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A A A	J 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A A	I 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A C
M 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A	N 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A	O 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A A	P 40.00 CS B02656 0000 CONOCO INC U 09/25/38 A C

PF01 HELP    PF02            PF03 EXIT    PF04 GoTo    PF05            PF06  
PF07 BKWD   PF08 FWD      PF09 PRINT   PF10 SDIV     PF11            PF12

Facilities Data Dictionary Actions Exit Help

New Table - Data Table (DB2)TOBEDEL

19 COPY

IN 77 Rows - Data Table (AS)#CORR001

OUT 77 Rows - Data Table (DB2)TOBEDEL

20 \* WHEN THIS COMPLETES SUCCESSFULLY, GO TO QMF TO RUN QDELETE QUERIES

End line 20 - Pro Table (AS)OGOJEP.TRSH/PPEWEEKLY

? end now

1 Help

2 Run

3

4 Print

5 Recall

6 Toggle

7 Up

8 Down

9

10

11 Select

12 Command



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenbery**  
Director  
Oil Conservation Division

May 23, 2000

**Conoco, Inc.**  
10 Desta Drive – Suite 100W  
Midland, Texas 79705-4500  
Attention: Kay Maddox

Telefax No. (915) 686-5780

*Administrative Order NSL-4450*  
*And*  
*AMENDED Administrative Order NSL-4412*

Dear Ms. Maddox:

Reference is made to your applications dated April 24 and 25, 2000 for exceptions to **Rule 4** of the "Temporary Special Pool Rules for the North Hardy-Strawn Pool," as promulgated by New Mexico Oil Conservation Division ("Division") Order No. R-11221, issued in Case No. 12182 and dated July 12, 1999:

(i) for Conoco, Inc.'s ("Conoco") proposed State "KL" 36-Well No. 29 (API No. 30-025-34999) to be drilled at an unorthodox oil well location within a standard 160-acre oil spacing and proration unit comprising the NW/4 of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, 330 feet from the North line (which is 50% closer to the north line of this well's proposed unit than allowed) and 2310 feet from the West line (which is also 50% closer to the east line of this well's proposed unit than allowed) (Unit C) of Section 36; and

(ii) to amend Division Administrative Order NSL-4412, dated February 18, 2000, which order authorized Conoco to drill its State "25-A" Well No. 3 (API No. 30-025-34953) at an unorthodox oil well location within a standard 160-acre oil spacing and proration unit comprising the SW/4 of Section 25, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, 510 feet from the South line and 1980 feet from the West line (Unit N) of Section 25, to accommodate a move of this location 376 feet southeast to a more unorthodox oil well location within this 160-acre unit.

Both of the above-described 160-acre units are within the governing limits of the North Hardy-Strawn Pool and both applications have been duly filed under the provisions of Division Rule 104.F, revised by Division Order No. R-11231, issued by the New Mexico Oil Conservation Commission in Case No. 12119 on August 12, 1999, and the applicable provisions of the rules governing this pool.

Administrative Order NSL-4450  
And Amended Administrative Order NSL-4412  
Conoco Inc.  
May 23, 2000  
Page 2

---

These applications are based on a 3-D seismic survey of the immediate area and by well control from recent drilling activity, which indicates that a well drilled at this location will be at a more favorable geologic position within the Undesignated North Hardy-Strawn Pool underlying both 160-acre units.

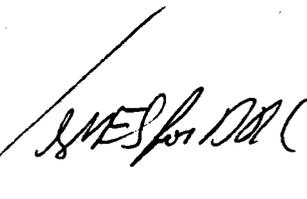
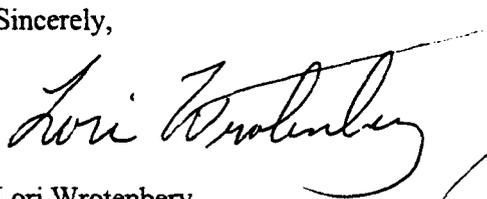
By the authority granted me under the provisions of: (i) Rule 5 of these special pool rules; and (ii) Division Rule 104.F (2);

(i) the unorthodox oil well location within the standard 160-acre oil spacing and proration unit comprising the NW/4 of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, for the Undesignated North Hardy-Strawn Pool for Conoco's proposed State "KL" 36 Well No. 29 is hereby approved; and

(ii) Division Administrative Order NSL-4412 is hereby amended to reflect a location change for Conoco's proposed State "25-A" Well No. 3 in the SW/4 of Section 25, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, to be drilled an unorthodox gas well location that is 330 feet from the South line and 2310 feet from the West line (Unit N) of Section 25.

Further, all other provisions of Division Administrative Order NSL-4412 shall remain in full force and effect until further notice.

Sincerely,



Lori Wrotenbery  
Director

LW/MES/kv

cc: New Mexico Oil Conservation Division - Hobbs  
New Mexico State Land Office - Santa Fe  
File: Case No. 12182  
W. Thomas Kellahin, Legal Counsel for Conoco, Inc. - Santa Fe

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

OIL CONSERVATION DIVISION  
 2040 South Pacheco  
 Santa Fe, NM 87505

WELL API NO. 30 025 34999
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
State Oil & Gas Lease No. B2366

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

1a. Type of Well: OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input type="checkbox"/> OTHER _____	7. Lease Name or Unit Agreement Name  State "KL" 36
b. Type of Completion: NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> OTHER <input type="checkbox"/> P & A	

2. Name of Operator Conoco, Inc.	8. Well No. 29
-------------------------------------	-------------------

3. Address of Operator 10 Desta Dr., Suite 100W, Midland, TX 79705	9. Pool name or Wildcat North Hardy Strawn
---	---

4. Well Location Unit Letter <u>C</u> <u>330</u> Feet From The <u>North</u> Line and <u>2310</u> Feet From The <u>West</u> Line Section <u>36</u> Township <u>20S</u> Range <u>37E</u> NMPM Lea County	
--	--

10. Date Spudded 7-6-00	11. Date T.D. Reached 7-24-00	12. Date Compl. (Ready to Prod.) P & A-7/24-25-00	13. Elevations (DF& RKB, RT, GR, etc.) 3504'	14. Elev. Casinghead
----------------------------	----------------------------------	--	---	----------------------

15. Total Depth 7921'	16. Plug Back T.D.	17. If Multiple Compl. How Many Zones?	18. Intervals Drilled By	Rotary Tools X	Cable Tools
--------------------------	--------------------	--	--------------------------	-------------------	-------------

19. Producing Interval(s), of this completion - Top, Bottom, Name	20. Was Directional Survey Made side wall
---	--

21. Type Electric and Other Logs Run GR/CFL/FMI/	22. Was Well Cored no
---	--------------------------

23. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED-
8 5/8"	24#	1525'	12 1/4"	656 SX	none

24. LINER RECORD				25. TUBING RECORD			
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number) none	27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.	
	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

**28. PRODUCTION**

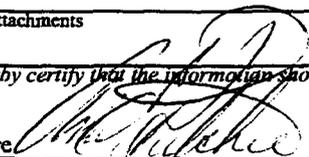
Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in) P & A
-----------------------	---	---

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl	Gas - Oil Ratio
--------------	--------------	------------	------------------------	-----------	-----------	-------------	-----------------

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl	Gas - MCF	Water - Bbl	Oil Gravity - API - (Corr.)
--------------------	-----------------	-------------------------	-----------	-----------	-------------	-----------------------------

29. Disposition of Gas (Sold, used for fuel, vented, etc.)	Test Witnessed By
--	-------------------

30. List Attachments
----------------------

31. I hereby certify that the information shown on both sides of this form as true and complete to the best of my knowledge and belief		
Signature 	Printed Name Ann E. Ritchie Title Regulatory Agent	Date 9-20-00

# INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

## INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

### Southeastern New Mexico

T. Anhy _____	T. Canyon _____
T. Salt _____	T. Strawn <u>7583</u>
B. Salt _____	T. Atoka _____
T. Yates <u>2708</u>	T. Miss _____
T. 7 Rivers <u>2959</u>	T. Devonian _____
T. Queen <u>3521</u>	T. Silurian _____
T. Grayburg <u>3780</u>	T. Montoya _____
T. San Andres <u>4007</u>	T. Simpson _____
T. Glorieta <u>5256</u>	T. McKee _____
T. Paddock _____	T. Ellenburger _____
T. Blinebry <u>5850</u>	T. Gr. Wash _____
T. Tubb <u>6351</u>	T. Delaware Sand _____
T. Drinkard <u>6667</u>	T. Bone Springs _____
T. Abo <u>6936</u>	T. _____
T. Wolfcamp _____	T. _____
T. Penn _____	T. _____
T. Cisco (Bough C) _____	T. _____

### Northwestern New Mexico

T. Ojo Alamo _____	T. Penn "B" _____
T. Kirtland-Fruitland _____	T. Penn "C" _____
T. Pictured Cliffs _____	T. Penn "D" _____
T. Cliff House _____	T. Leadville _____
T. Menefee _____	T. Madison _____
T. Point Lookout _____	T. Elbert _____
T. Mancos _____	T. McCracken _____
T. Gallup _____	T. Ignacio Otzte _____
Base Greenhorn _____	T. Granite _____
T. Dakota _____	T. _____
T. Morrison _____	T. _____
T. Todilto _____	T. _____
T. Entrada _____	T. _____
T. Wingate _____	T. _____
T. Chinle _____	T. _____
T. Permian _____	T. _____
T. Penn "A" _____	T. _____

### OIL OR GAS SANDS OR ZONES

No. 1, from.....to.....  
 No. 2, from.....to.....  
 No. 3, from.....to.....  
 No. 4, from.....to.....

### IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....  
 No. 2, from.....to.....feet.....  
 No. 3, from.....to.....feet.....

### LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology
1280			Rustler
2708			Yates
2959			Seven Rivers
3521			Queen
3648			Penrose
3780			Grayburg
4007			San Andres
5256			Glorieta
5850			Blinebry Mkr
6351			Tubb Mkr
6667			Drinkard
6936			Abo
7583			Strawn



Conoco, Inc.

P.O. Box 953  
Midland, Texas 79702

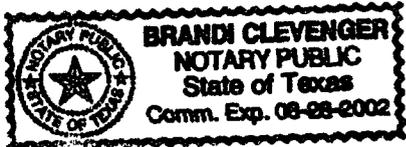
State KL-36 # 29  
Lea County, New Mexico

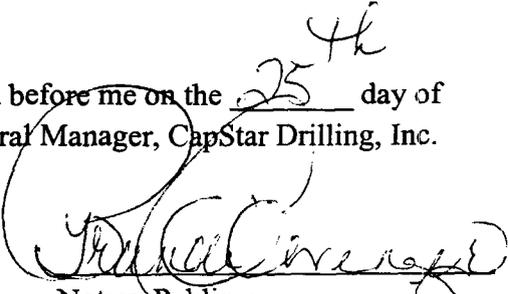
Unit C 36-20s-37e  
330/W & 2310/W  
30-025-34999

460	4.60	1/2	0.88	4.03	4.03
1018	5.58	1/2	0.88	4.88	8.91
1525	5.07	1/2	0.88	4.44	13.34
1945	4.20	1/2	0.88	3.68	17.02
2440	4.95	2 1/4	3.94	19.49	36.51
2784	3.44	1 1/4	2.19	7.53	44.03
3287	5.03	1	1.75	8.80	52.84
3783	4.96	1	1.75	8.68	61.52
4284	5.01	3/4	1.31	6.58	68.09
4784	5.00	3/4	1.31	6.56	74.66
5190	4.06	1	1.75	7.11	81.76
5696	5.06	1	1.75	8.86	90.62
6198	5.02	3/4	1.31	6.59	97.20
6680	4.82	1	1.75	8.44	105.64
7190	5.10	1 1/4	2.19	11.16	116.80
7687	4.97	1 1/4	2.19	10.87	127.67
7920	2.33	1 1/4	2.19	5.10	132.76

  
Michael Roghair - General Manager

The attached instrument was acknowledged before me on the 25<sup>th</sup> day of July, 2000 by Michael Roghair - General Manager, CapStar Drilling, Inc.



  
Notary Public

Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-103  
Revised 1-1-89

District I  
P.O. Box 1980, Hobbs, NM 88240  
District II  
P.O. Drawer DD, Artesia, NM 88210  
District III  
1000 Rio Brazos Rd, Aztec, NM 87410

**OIL CONSERVATION DIVISION**  
310 Old Santa Fe Trail, Room 206  
Santa Fe, New Mexico 87503

WELL API NO. 30 025 34999
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas No. B2366
7. Lease Name or Unit Agreement Name State "KL" 36
8. Well No. 29
9. Pool Name or Wildcat North Hardy Strawn
10. Elevation (Show whether DF, RKB, GR, etc.) 3504'

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>
2. Name of Operator Conoco, Inc.
3. Address of Operator 10 Desta Dr., Suite 100W, Midland, TX 79705 (915) 684-6381 or 686-5580
4. Well Location Unit Letter <u>C</u> <u>330</u> Feet From The <u>North</u> Line and <u>2310</u> Feet From The <u>West</u> Line Section <u>36</u> Township <u>20S</u> Range <u>37E</u> NMPM <u>Lea</u> County
10. Elevation (Show whether DF, RKB, GR, etc.) 3504'

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PWG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PUNS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PUORALTER CASING <input type="checkbox"/>		CASING TEST AND CEMENT JOB <input checked="" type="checkbox"/>	
OTHER: _____ <input type="checkbox"/>		OTHER <u>Surface Commingling</u> <input checked="" type="checkbox"/>	

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.  
7-6-00: Spudded well. Drilling 12 1/4" hole.  
7-8-00: Ran 1525' of 8 5/8", 24#, J-55 casing with 14 centralizers. Cemented with 656 sx Cl C cement, circulated 78 sx to pit. WOC. Tested to 1500 psi.

I hereby certify that the above is true and complete to the best of my knowledge and belief.  
SIGNATURE *Ann E. Ritchie* TITLE Regulatory Agent DATE 7-25-00  
TYPE OR PRINT NAME Ann E. Ritchie TELEPHONE NO. 915 684-6381/686-5580

(This space for State Use)  
*Chris Williams* DISTRICT SUPERVISOR  
DATE JUL 31 2000

Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C103  
Revised 1-1-89

DISTRICT I

P. O. Box 1980, Hobbs, NM 88240

P.O. Drawer DD, Artesia, NM 88210

DISTRICT II

1000 Rio Brazos Rd., Aztec, NM 87410

**OIL CONSERVATION DIVISION**

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

WELL API NO.	30-025-34999
5. Indicate type of Lease	STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No	
7. Lease Name or Unit Agreement Name	State "KL" 36
8. Well No.	29
9. Pool name or Wildcat	Hardy Strawn North

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR DEEPEN OR PLUG BACK TO DIFFERENT RESERVOIR. USE APPLICATION FOR PERMIT (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well  
Oil Well  Gas Well  Other

2. Name of Operator  
Conoco Inc.

3. Address of Operator  
10 Desta Dr., Suite 649W, Midland, Texas 79705-4500

4. Well Location  
Unit Letter C 330 Feet From The North Line and 2310 Feet From The West Line  
Section 36 Township 20S Range 37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GK, etc.)  
3504'

**Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data**

**NOTICE OF INTENT TO:**

**SUBSEQUENT REPORT OF:**

- |  |   |   |   |
|--|---|---|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> | REMEDIAL WORK <input type="checkbox"/>              | ALTERING CASING <input type="checkbox"/>      |
| TEMPORARILY ABANDON <input type="checkbox"/>   | CHANGE PLANS <input type="checkbox"/>     | COMMENCE DRILLING OPNS. <input type="checkbox"/>    | PLUG AND ABANDONMENT <input type="checkbox"/> |
| PULL OR ALTER CASING <input type="checkbox"/>  |   | CASING TEST AND CEMENT JOB <input type="checkbox"/> |   |
| OTHER: Change type of cement                   |   | OTHER: _____ <input type="checkbox"/>               |   |

12. Describe proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work)SEE RULE 1103.

Conoco Inc. proposes to change the type of cement used as per the attached Cement Plan.

*Btm 70% of casing must reach compressive strength of 500psi in 8 hours. CW*

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

SIGNATURE Jo Ann Johnson TITLE Sr. Property Analyst DATE 6/29/00  
 TYPE OR PRINT NAME Jo Ann Johnson TELEPHONE NO. 915-686-5515

(this space for State Use)

APPROVED BY Chris Williams TITLE DISTRICT 1 SUPERVISOR DATE JUN 05 2000  
*See note.*

**State 'KL' 36 #29  
Cement System Proposal**

8-5/8" surface  
@ 1,500'

**Original: Lead:** 528 sx (35:65) Poz: Class C cement + 2% bwoc Calcium Chloride + 0.25 pps Cello Flake + 0.005 gps FP-6L + 6% bwoc Bentonite + 96.5% fresh water.

**Tail:** 195 sx Class C cement + 2% bwoc Calcium chloride + 0.005 gps FP-6L + 56.3% fresh water.

**New: Lead:** 460 sx Class C + 0.25 pps Cello Flake + 0.005 gps FP-6L + 2% bwoc Sodium Metasilicate + 109.4% fresh water.

**Tail:** Same as original

**New Lead Slurry properties:**

Slurry weight: 12.4 ppg

Slurry yield: 2.15 cf/sx

Amount of mix water: 12.33 gps

Pump time: 6:25 hr:mins

Free water: 0

Compressive strength: 124 psi in 12 hrs and 250 psi in 24 hrs

5-1/2" production casing @ 7,920'

**Original: Lead:** 718 sx (35:65) Poz: Class C cement + 0.25 pps Cello Flake + 0.005 gps FP-6L + 6% bwoc Bentonite + 95.7% fresh water.

**Tail:** 465 sx Class C cement + 1% bwoc BA-58 + 2 pps Potassium Chloride + 0.4% bwoc CD-32 + 0.7% bwoc FL-52 + 0.005 gps FP-6L + 0.2% bwoc sodium metasilicate + 56.2% fresh water.

**New: Lead:** 551 sx (50:50) Poz: Class C cement + 5% bwow Sodium Chloride + 0.25 pps Cello Flake + 0.005 gps FP-6L + 10% bwoc Bentonite + 136.9% fresh water.

**Tail:** 426 sx (15:61:11) Poz: Class C:CSE + 5% bwow Sodium Chloride + 1% bwoc FL-62 + 0.005 gps FP-6L + 70% fresh water.

**New Lead Slurry properties:**

Slurry weight: 11.85 ppg

Slurry yield: 2.41 cf/sx

Amount of mix water: 13.79 gps

Pump time: 2:58 hr:mins

Free water: 1 mls

Fluid loss: 792 cc/30 min

Compressive strength: 50 psi in 12 hrs and 175 psi in 24 hrs

**New Tail Slurry properties:**

Slurry weight: 13.6 ppg

Slurry yield: 1.49 cf/sx

Amount of mix water: 7.31 gps

Pump time: 2:31 hr:mins

Free water: 0

Fluid loss: 62 cc/30 min

Compressive strength: 1013 psi in 12 hrs and 1877 psi in 24 hrs

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

Form C-101  
Revised March 17, 1999

Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

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**

<sup>1</sup> Operator Name and Address Conoco Inc., 10 Desta Drive, Suite 649W, Midland, TX 79705		<sup>2</sup> OGRID Number 005073
		<sup>3</sup> API Number 30-025-34999
<sup>3</sup> Property Code +3396 25612	<sup>5</sup> Property Name State "KL" 36	<sup>6</sup> Well No. 29

<sup>7</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	36	20S	37E		330	North	2310	West	Lea

<sup>8</sup> 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
<sup>9</sup> Proposed Pool 1 Hardy-Strawn North					<sup>10</sup> Proposed Pool 2				

<sup>11</sup> Work Type Code N	<sup>12</sup> Well Type Code O	<sup>13</sup> Cable/Rotary R	<sup>14</sup> Lease Type Code S	<sup>15</sup> Ground Level Elevation 3504'
<sup>16</sup> Multiple No	8220'	<sup>18</sup> Formation Strawn	<sup>19</sup> Contractor	<sup>20</sup> Spud Date 4/15/00

<sup>21</sup> Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	J-55, 8-5/8"	24#	1500'	723	Surface
7-7/8"	J-55, 5-1/2"	17#	7920'	1183	Surface

<sup>22</sup> 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

Permit Expires 1 Year From Approval  
Date Unless Drilling Underway

<sup>23</sup> I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Jo Ann Johnson*

Printed name: Jo Ann Johnson

Title: Sr. Property Analyst

Date: 4/5/00

Phone: 915/686-5515

OIL CONSERVATION DIVISION

Approved by: *Gayle W. Wink*

Title:

Approval Date: *APR 15 2000* Expiration Date:

Conditions of Approval:

Attached

DISTRICT I  
1825 N. French Dr., Hobbs, NM 88240

DISTRICT II  
811 South First, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

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 30-025-34999	Pool Code 96893	Pool Name North Hardy Strawn
Property Code 43396 25612	Property Name STATE "KL" 36	Well Number 29
OGRID No. 005073	Operator Name CONOCO INC.	Elevation 3504'

Surface Location

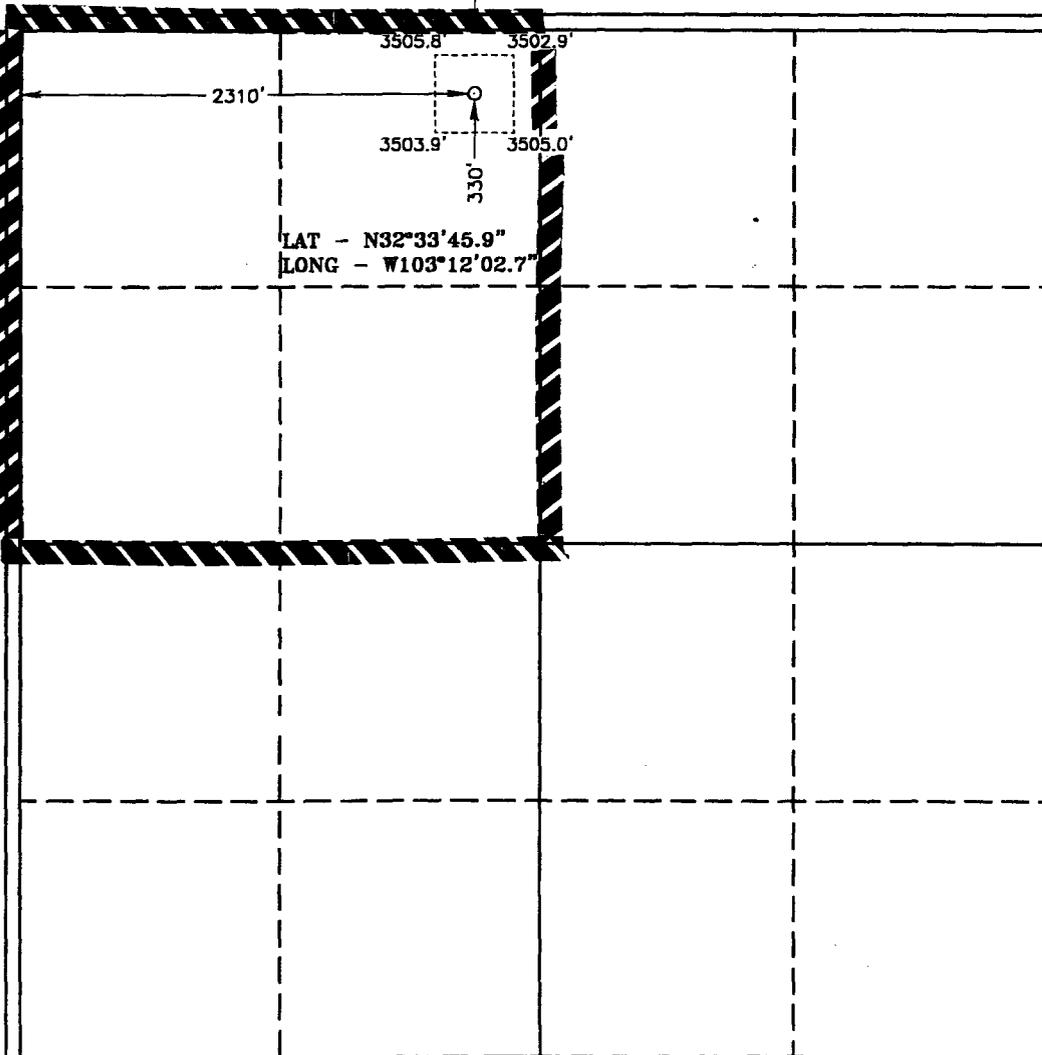
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	36	20 S	37 E		330	NORTH	2310	WEST	LEA

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



**OPERATOR CERTIFICATION**

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

*Jo Ann Johnson*  
Signature  
Jo Ann Johnson  
Printed Name  
Sr. Property Analyst  
Title  
April 5, 2000  
Date

**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.

March 30, 2000  
Date Surveyed

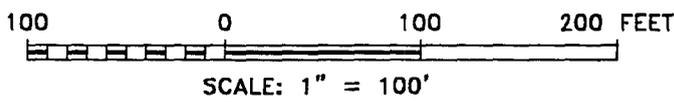
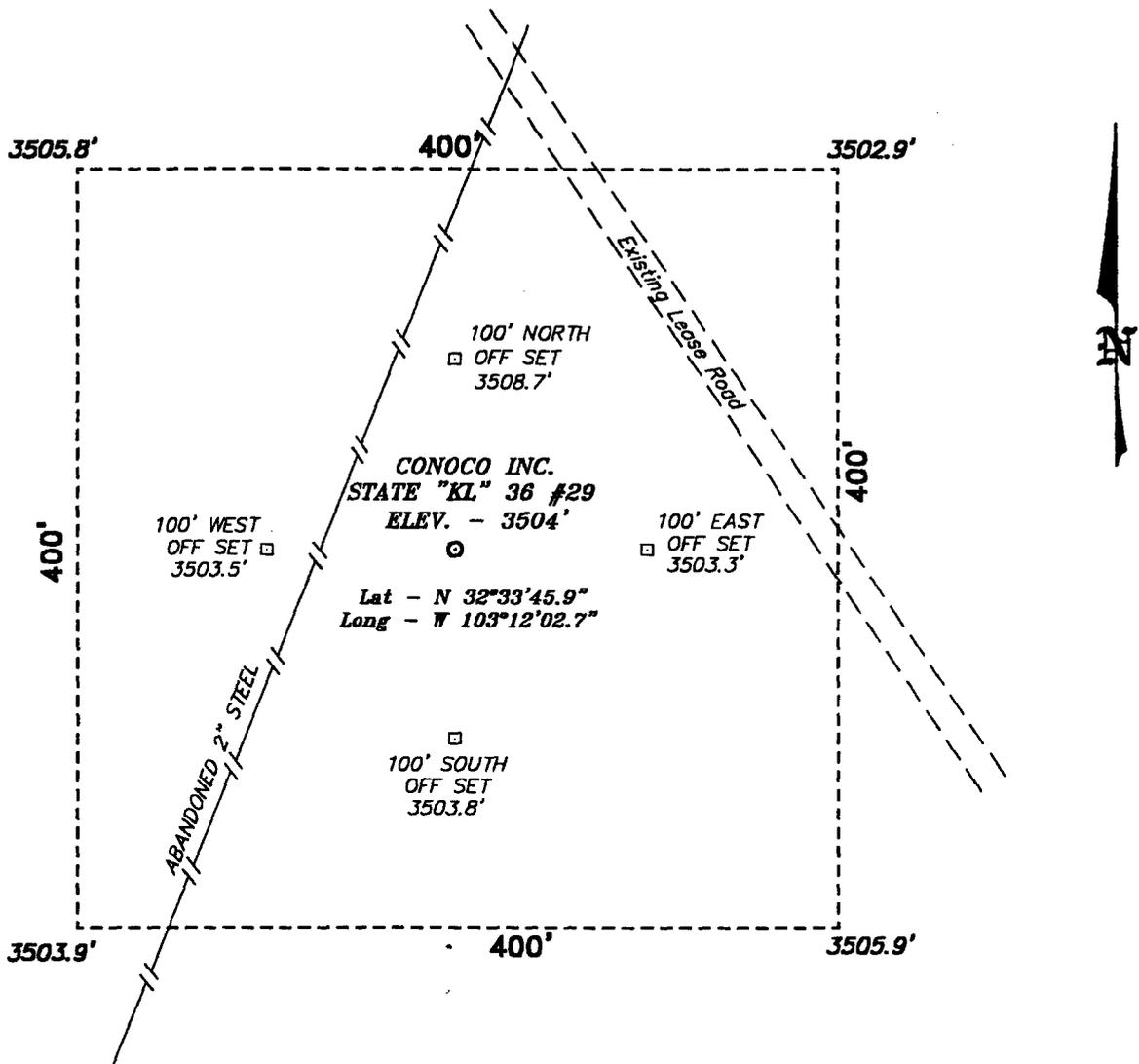
GARY L. JONES  
Signature & Seal of  
Professional Surveyor  
NEW MEXICO  
7977

W.Q. No. 01986

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

**SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.**



**DIRECTIONS TO WELL LOCATION:**

FROM JUNCTION NORTH LOOP 18 AND STATE HWY. 18,  
GO GO SOUTHWEST ON LOOP 18 APPROX. 3.5 MILES TO  
COUNTY ROAD C-34; THENCE NORTHWEST ON C-34  
APPROX. 4 MILES TO A POINT WHICH LIES APPROX. 1  
MILE SOUTH OF THE PROPOSED WELL LOCATION.

**Conoco Inc.**

REF: STATE "KL" 36 No. 29 / Well Pad Topo

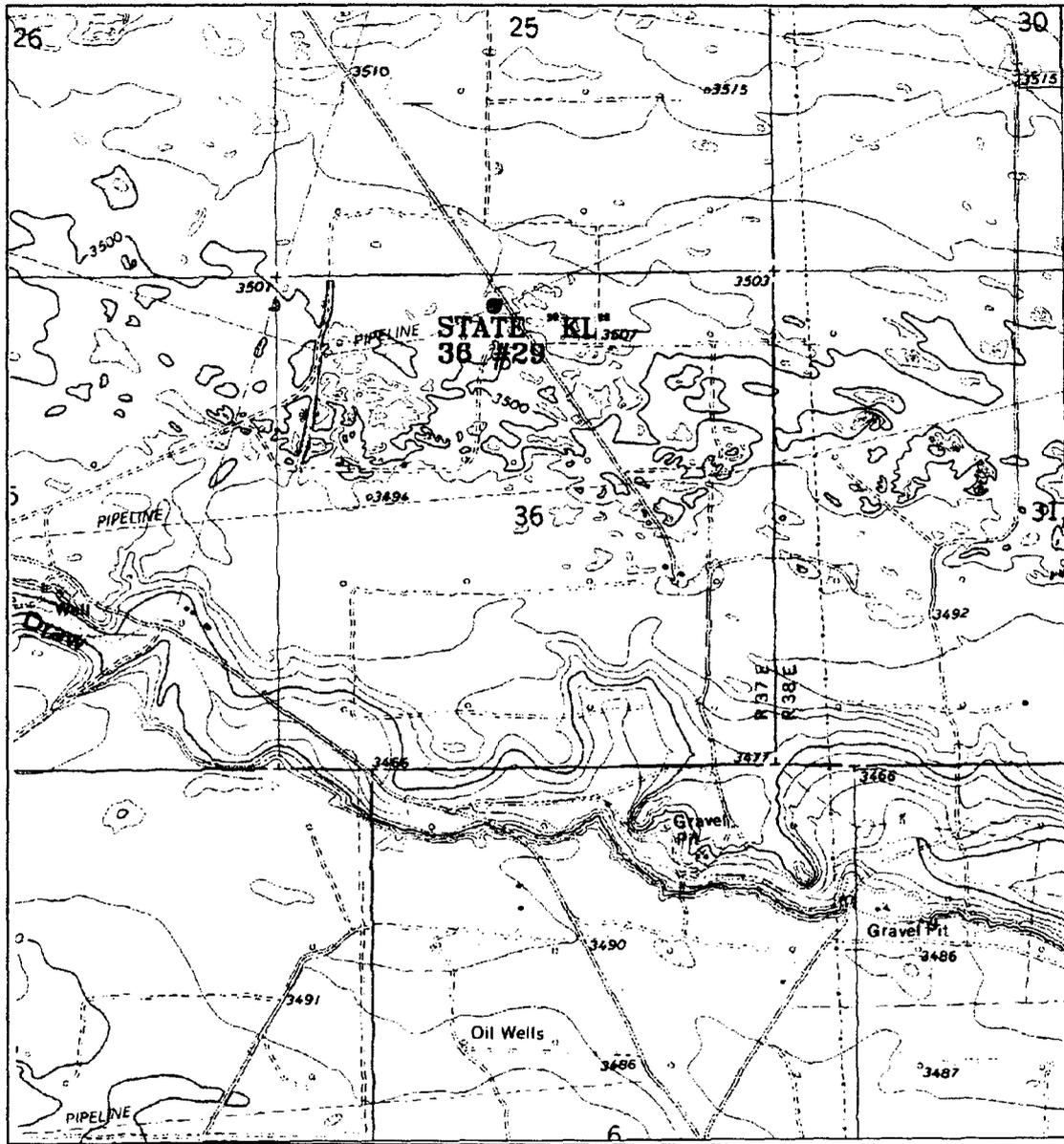
THE STATE "KL" 36 No. 29 LOCATED 330' FROM THE  
NORTH LINE AND 2310' FROM THE WEST LINE OF  
SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST,  
N.M.P.M., LEA COUNTY, NEW MEXICO.

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

W.O. Number: 0198      Drawn By: **K. GOAD**

Date: 04-03-2000      Disk: KJG #122 - 0198A.DWG

Survey Date: 03-30-2000      Sheet 1 of 1 Sheets



**STATE "KL" 36 #29**

Located at 330' FNL and 2310' FWL  
 Section 36, Township 20 South, Range 37 East,  
 N.M.P.M., Lea County, New Mexico.



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: 0198AA - KJG #122

Survey Date: 03-30-2000

Scale: 1" = 2000'

Date: 04-03-2000

**CONOCO INC.**



**PROPOSED WELL PLAN OUTLINE**

WELL NAME  
LOCATION

State "KL" 36 No.29  
330' FNL & 2310' FWL Sec 36, T20S, R37E

Ground Level : 3516 est.  
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 @ 1,300'				8-5/8", 24#, J-55 ST&C @ 1,500'				3
2000	Base Salt @ 2,550' Yates 2,680' 7 Rivers 2,960'	Washouts in Salt Section		7-7/8"	Circulate Cement		Less than 8.4	10 Brine	
3000	Queen 3,535' Penrose 3,655'	Shallow gas flows in SEMU # 125 & 126 not expected at this location	H2S Monitor on at 2,650'						
4000	Grayburg 3,790' San Andres 4,030'	Lost Returns in San Andres	Mud Log 3,776' to TD						7
5000	Glorietta 5,260'	Possible differential sticking thru Glorietta & Paddock							
6000	Blinebry Mkr 5,811'								
7000	Tubb 6,335' Drinkard 6,640' Abo 6,930'								
8000	Strawn 7,570' TD @ 7,920' Devonian 8,050'	STOP DRILLING WHEN WOODFORD SHALE IS CUT Severe losses in Devonian	First Log Run: SGR-CAL-DLL-MLL-BHC FDC-CNL-PE : TD to 2650' Pull GR-CNL-Cal to Surf SGR from TD to 6400'  Second Log Run: 30 rotary sidewall cores  Third Run: FMI imaging log		5-1/2", 17.0#, J-55 LT&C 1/0'-7,920' Circulate Cement			10 ppg Starch Gel	20

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 about 40' thick and sits on top of the Devonian. Stop drilling once the Woodford is entered.

DATE 05-Apr-00

Joe Huck, Geophysical Advisor

APPROVED

Yong Cho, Drilling Engineer

Joe Miller, Reservoir Engineer



Proposal No: 180253437B

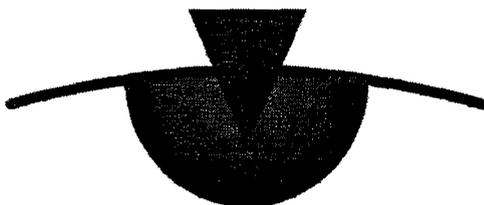
**Conoco**  
State 'KL' 36 No. 29

Sec. 36-T20S-R37E  
Lea County, New Mexico  
April 5, 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



**POWERVISION™**

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

**Service Representatives:**  
Wayne Davis  
Account Manager  
Bus Phone: (915) 683-2781  
Fax: (915) 683-1443

Operator Name: Conoco  
 Well Name: State 'KL' 36 No. 29  
 Job Description: 8-5/8" Surface  
 Date: April 5, 2000



Proposal No: 180253437B

**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

8

**Operator Name:** Conoco  
**Well Name:** State 'KL' 36 No. 29  
**Job Description:** 8-5/8" Surface  
**Date:** April 5, 2000



**Proposal No:** 180253437B

**FLUID SPECIFICATIONS**

Spacer 1,000.0 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

**CEMENT PROPERTIES**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
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

9

Operator Name: Conoco  
 Well Name: State 'KL' 36 No. 29  
 Job Description: 5-1/2" Long String  
 Date: April 5, 2000



Proposal No: 180253437B

**WELL DATA**

**ANNULAR GEOMETRY**

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.097 CASING	1,500	1,500
7.875 HOLE	7,920	7,920

**SUSPENDED PIPES**

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
5.500	4.892	17	7,920	7,920

Float Collar set @ 7,880 ft  
 Mud Density 8.70 ppg  
 Est. Static Temp. 128 ° F  
 Est. Circ. Temp. 121 ° 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  
 2,420 ft x 0.1733 cf/ft with 50 % excess = 628.9 cf  
 40 ft x 0.1305 cf/ft with 0 % excess = 5.2 cf (inside pipe)  
**TOTAL SLURRY VOLUME = 1962.6 cf**  
 = 350 bbls

10

Operator Name: Conoco  
 Well Name: State 'KL' 36 No. 29  
 Job Description: 5-1/2" Long String  
 Date: April 5, 2000



Proposal No: 180253437B

**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	634 /	1.36	= 465 sacks Class C Cement + 1% bwoc BA-58 + 2 lbs/sack Potassium Chloride + 0.4% bwoc CD-32 + 0.7% bwoc FL-52 + 0.005 gps FP-6L + 0.2% bwoc Sodium Metasilicate + 56.2% Fresh Water

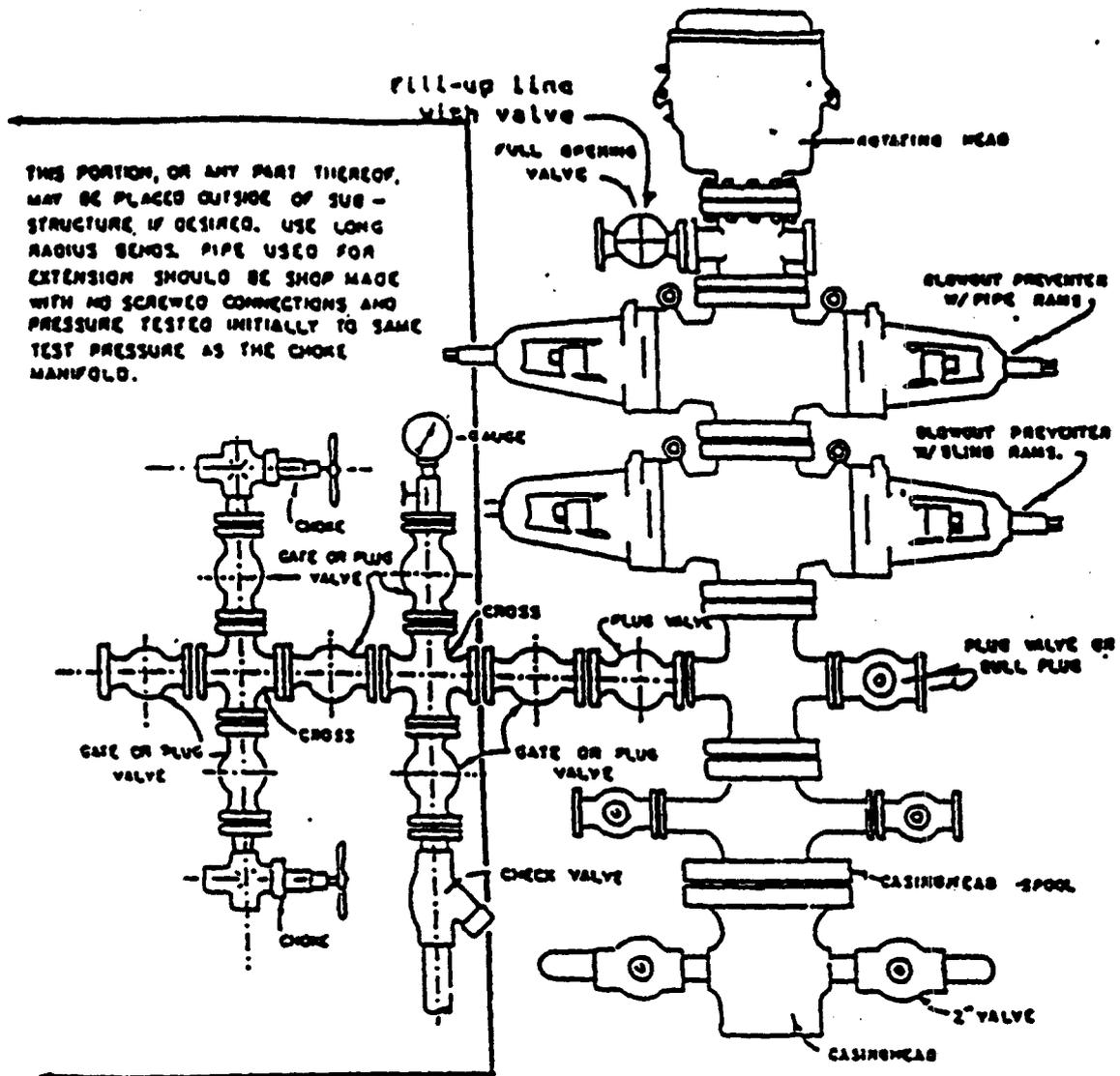
Displacement 183.2 bbls FRESH WATER

**CEMENT PROPERTIES**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
Slurry Weight (ppg)	12.70	14.80
Slurry Yield (cf/sack)	1.85	1.36
Amount of Mix Water (gps)	9.98	6.34
Amount of Mix Fluid (gps)	9.99	6.34
Estimated Pumping Time - 70 BC (HH:MM)	2:19	2:30
Free Water (mls) @ 80 ° F @ 90 ° angle	2.0	0.0
Fluid Loss (cc/30min) at 1000 psi and 80 ° F	722.0*	98.0

**RHEOLOGIES**

<u>FLUID</u>	<u>TEMP</u>	<u>600</u>	<u>300</u>	<u>200</u>	<u>100</u>	<u>6</u>	<u>3</u>
Lead Slurry	@ 80 ° F	102	92	88	84	40	25
Tail Slurry	@ 80 ° F	300	250	185	110	12	7



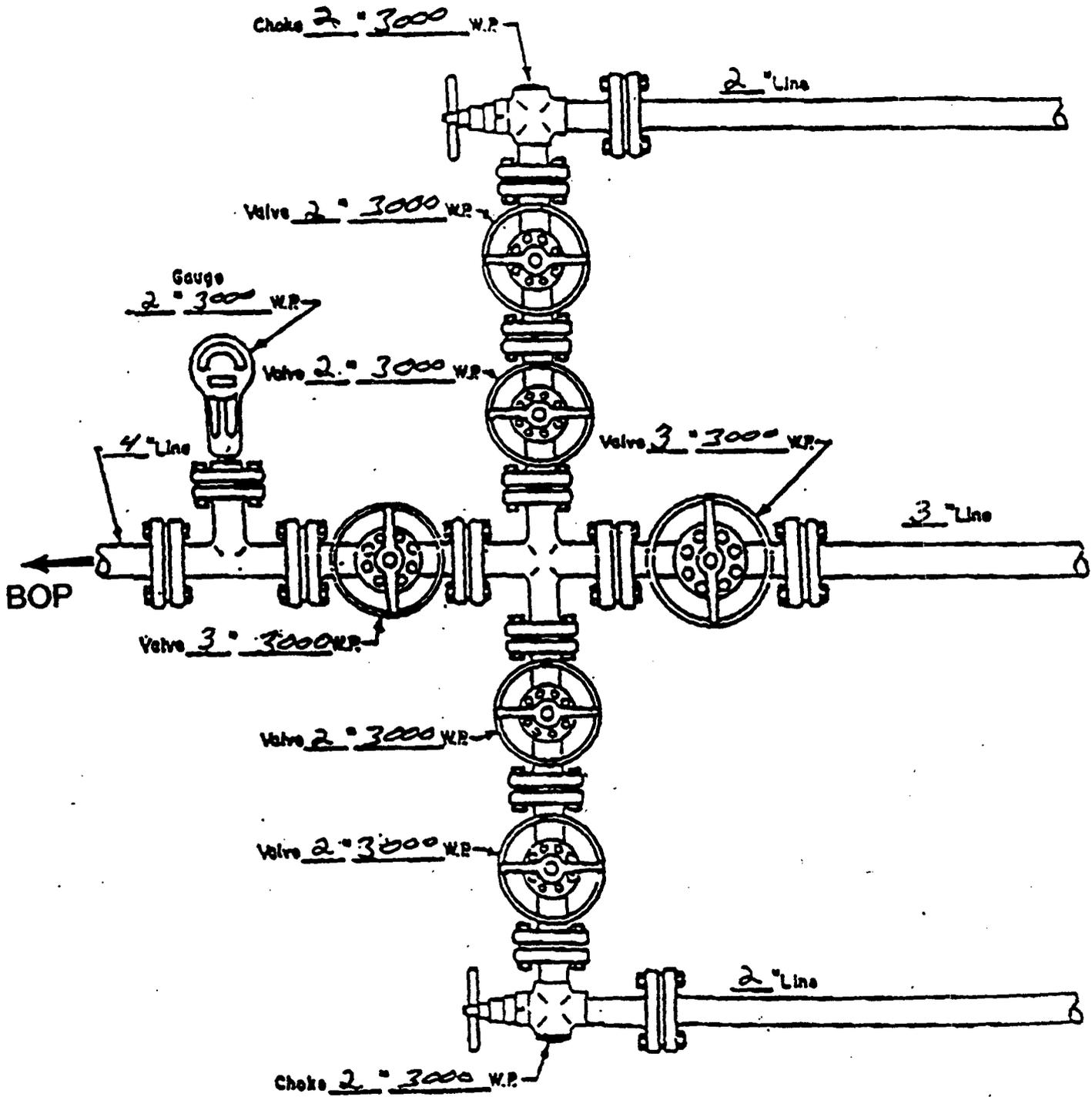
THIS PORTION, OR ANY PART THEREOF, MAY BE PLACED OUTSIDE OF SUB-STRUCTURE IF DESIRED. USE LONG RADIUS BENDS. PIPE USED FOR EXTENSION SHOULD BE SHOP MADE WITH NO SCREWED CONNECTIONS AND PRESSURE TESTED INITIALLY TO SAME TEST PRESSURE AS THE CHORE MANIFOLD.

### BLWOUT 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

**STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:**

**Nomenclature  
Case No. 12182  
Order No. R-11221**

**APPLICATION OF CONOCO INC. FOR POOL CREATION, SPECIAL POOL  
RULES, AND THE ASSIGNMENT OF A SPECIAL DEPTH BRACKET  
ALLOWABLE, LEA COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on May 13, 1999, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 12<sup>th</sup> day of July, 1999, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

**FINDS THAT:**

- (1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.
- (2) The applicant, Conoco Inc., seeks the creation of a new pool for the production of oil from the Strawn formation comprising the NE/4 of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) The applicant further seeks the adoption of special pool rules therefor, including provisions for 160-acre spacing and proration units and designated well location requirements such that wells can be located no closer than 660 feet from the outer boundary of the spacing unit nor closer than 10 feet from any quarter-quarter section line or subdivision inner boundary. The applicant further seeks the assignment of a special depth bracket allowable of 600 barrels of oil per day.
- (4) At the hearing, the applicant requested that its Hardy "36" State Well No. 26 (API No. 30-025-34311), located 870 feet from the North line and 1650 feet from the East line (Unit B) of Section 36, be assigned a bonus discovery allowable pursuant to Division Rule No. 509 in the amount of 37,825 barrels of oil.
- (5) Division records indicate that by Order No. R-11183 issued in Case No. 12184 on May 19, 1999, the Division:

- a) created the South Hardy-Strawn Pool comprising the NE/4 of Section 36, Township 20 South, Range 37 East, NMPM; and
- b) assigned the Conoco Inc. Hardy "36" State Well No. 26 a bonus discovery allowable in the amount of 37,825 barrels of oil to be produced over a two-year period.

(6) Division records further indicate that by Order No. R-11204 issued in Case No. 12200 on June 14, 1999, the Division corrected its previous nomenclature by redesignating the South Hardy-Strawn Pool as the **North Hardy-Strawn Pool**.

(7) That portion of the application seeking the creation of a new pool for production of oil from the Strawn formation and for the assignment of a bonus discovery allowable to its Hardy "36" State Well No. 26 should be dismissed.

(8) In support of its proposed 160-acre spacing and special depth bracket allowable of 600 barrels of oil per day for the North Hardy-Strawn Pool, the applicant presented engineering evidence and testimony indicating that:

- a) the Hardy "36" State Well No. 26 was drilled during March, 1998 and completed in the Strawn formation during April, 1998;
- b) the Hardy "36" State Well No. 26 initially produced at a rate of 722 BOPD, 0 BWPD and 778 MCF gas per day. Peak production from the well, which occurred on April 29, 1998, was 1,570 BOPD, 0 BWPD and 1,331 MCF gas per day;
- c) the Hardy "36" State Well No. 26 is currently capable of production in excess of 600 barrels of oil per day;
- d) the North Hardy-Strawn Pool appears to be a solution gas drive reservoir;
- e) extensive production testing demonstrates that producing the Hardy "36" State Well No. 26 at a rate of 600 barrels of oil per day has little or no effect on the producing GOR, which is consistently at or below 1,000 cubic feet of gas per barrel of oil; and

- f) preliminary production and drainage data demonstrate that the Hardy "36" State Well No. 26 is capable of draining an area of approximately 190 acres.

(9) The applicant requested that the proposed 160-acre well spacing and special depth bracket allowable for the North Hardy-Strawn Pool be adopted for a temporary period of eighteen months in order to provide the applicant and other operators in the pool the opportunity to gather additional engineering data to support continuation of the special pool rules on a permanent basis.

(10) No offset operator and/or interest owner appeared at the hearing in opposition to the application.

(11) Approval of this application will provide the applicant the opportunity to efficiently develop the Strawn reservoir underlying the NE/4 of Section 36, thereby preventing waste, will prevent the drilling of unnecessary wells, and will otherwise protect correlative rights.

(12) Special pool rules, including provisions for 160-acre spacing and proration units, designated well location requirements, and a special depth bracket allowable of 600 barrels of oil per day for the North Hardy-Strawn Pool should be established for a temporary period of eighteen months.

(13) The applicant did not present sufficient evidence to justify the establishment of 10-foot interior quarter-quarter section setback requirements; therefore, standard 330-foot interior quarter-quarter section setback requirements should be adopted.

(14) This case should be re-opened at an examiner hearing in December, 2000, at which time the operators in the North Hardy-Strawn Pool should be prepared to appear and present evidence and testimony to support the continuation of the special pool rules on a permanent basis.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Conoco Inc. for the creation of a new pool for the production of oil from the Strawn formation comprising the NE/4 of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, is hereby dismissed.

(2) The application of Conoco Inc. for the assignment of a bonus discovery allowable for its Hardy "36" State Well No. 26 (API No. 30-025-34311), located 870 feet from the North line and 1650 feet from the East line (Unit B) of Section 36, in the amount of 37,825 barrels of oil is hereby dismissed.

(3) Pursuant to the application of Conoco Inc., special pool rules for the North Hardy-Strawn Pool are hereby adopted as follows:

**TEMPORARY SPECIAL POOL RULES FOR THE  
NORTH HARDY-STRAWN POOL**

Rule 1. Each well completed in or recompleted in the North Hardy-Strawn Pool or in the Strawn formation within one mile thereof, and not nearer to or within the limits of another designated Strawn pool, shall be spaced, drilled, operated, and produced in accordance with these Rules.

Rule 2. Each well completed in or recompleted in the North Hardy-Strawn Pool shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square which is a governmental quarter section and a legal subdivision of the United States Public Lands Survey.

Rule 3. The Director may grant an exception to the requirements of Rule 2 without hearing when an application has been duly filed under the provisions of **Division Rule 104.D.(2)**.

Rule 4. Each well shall be located no closer than 660 feet to the outer boundary of the spacing unit nor closer than 330 feet to any quarter-quarter section line or subdivision inner boundary.

Rule 5. The Director may grant an exception to the requirements of Rule 4 without hearing when an application has been duly filed under the provisions of **Division Rule No. 104.F**.

Rule 6. The allowable for a standard proration unit (158 through 162 acres) shall be based on a special depth bracket allowable of 600 barrels of oil per day, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion. The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

*Note: These rules will expire in December 2000, unless evidence is presented at a hearing at that time supporting their continuation on a permanent basis.*

**IT IS FURTHER ORDERED THAT:**

(1) The location of any well presently drilling to or completed in the North Hardy-Strawn Pool or in the Strawn formation within one mile thereof is hereby approved. The operator of any well having an unorthodox location shall notify the Division's Hobbs District Office in writing of the name and location of the well within 20 days from the date of this order.

(2) Existing oil wells in the North Hardy-Strawn Pool shall have dedicated thereto 160 acres in accordance with the foregoing pool rules, or may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 160 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable.

(3) This case shall be re-opened at an examiner hearing in December, 2000, at which time the operators in the North Hardy-Strawn Pool should be prepared to appear and present evidence to support the continuation of the special pool rules on a permanent basis.

(4) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
LORI WROTENBERY  
Director



S E A L

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:**

**APPLICATION OF CONOCO, INC. FOR POOL  
CREATION, SPECIAL POOL RULES, AND THE  
ASSIGNMENT OF A SPECIAL DEPTH BRACKET  
ALLOWABLE, LEA COUNTY, NEW MEXICO.**

**NOMENCLATURE  
Reopened Case No. 12182**

**APPLICATION OF CONOCO, INC. TO INCREASE  
THE SPECIAL DEPTH BRACKET ALLOWABLE  
FOR THE NORTH HARDY-STRAWN POOL, LEA  
COUNTY, NEW MEXICO.**

**Case No. 12532**

**Order No. R-11221-A**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

These cases came on for hearing at 8:15 a.m. on November 16, 2000, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this *2nd* day of February, 2001, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

**FINDS THAT:**

(1) Due public notice has been given and the Division has jurisdiction of these cases and their subject matter.

(2) By Order No. R-11183 issued in Case No. 12184, dated May 19, 1999 and made effective June 1, 1999, the Division created and defined the South Hardy-Strawn Pool for the production of oil from the Strawn formation, later redesignated as the North Hardy-Strawn Pool by Division Order No. R-11204 issued in Case No. 12200, dated June 14, 1999 and made effective July 1, 1999. The horizontal limits for this pool, as currently designated, include the following lands in Lea County, New Mexico:

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM

Section 36: NE/4

TOWNSHIP 20 SOUTH, RANGE 38 EAST, NMPM

Section 30: SW/4

Section 31: W/2.

(3) The "*Temporary Special Pool Rules for the North Hardy-Strawn Pool*," as promulgated by Division Order No. R-11221, issued in Case No. 12182 and dated July 12, 1999, currently provide for the following:

(A) 160-acre spacing;

(B) designated well locations such that wells are to be located no closer than 660 feet to any outer boundary of a unit and no closer than 330 feet to any quarter-quarter section or subdivision inner boundary; and

(C) a special depth bracket oil allowable of 600 barrels of oil per day and a limiting gas/oil ratio of 2,000 cubic feet of gas per barrel of oil, which results in a casinghead gas allowable of 1200 MCF per day.

(4) In addition, upon application by Conoco Inc., the Division has previously issued the following administrative orders granting exceptions to the aforementioned special well location requirements for the North Hardy-Strawn Pool:

(A) Administrative Order NSL-4332, dated July 21, 1999, for the SEMU Well No. 134 (API No. 30-025-34382) located 450 feet from the West line and 1650 feet from the South line (Lot 3/Unit L) of Section 30, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico and Administrative Order NSL-4332-A (SD), dated February 18, 2000, for the D. M. Warren Well No. 137 (API No. 30-025-34963) located 400 feet from the South line and 990 feet from the West line (Lot 4/Unit M) of Section 30, both wells to be simultaneously dedicated to a standard 160.50-acre oil spacing and proration unit comprising Lots 3 and 4 and the E/2 SW/4 (SW/4 equivalent) of Section 30;

(B) Administrative Order NSL-4433, dated July 21, 1999, as corrected by order dated January 25, 2000, for the SEMU Well No. 135 (API No. 30-025-34666) located 1330 feet from the South line and 1980 feet from the East line

(Unit J) of Section 25, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 25;

(C) Administrative Order NSL-4412, dated February 18, 2000, as amended by order dated May 23, 2000, for the State "25-A" Well No. 3 (API No. 30-025-34953) located 330 feet from the South line and 2310 feet from the West line (Unit N) of Section 25, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit comprising the SW/4 of Section 25;

(D) Administrative Order NSL-4413, dated February 18, 2000, for the SEMU Well No. 139 (API No. 30-025-35043) located 990 feet from the North line and 330 feet from the East line (Unit A) of Section 25, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit comprising the NE/4 of Section 25;

(E) Administrative Order NSL-4429, dated April 5, 2000, for the Meyer "B-31" Well No. 5 (API No. 30-025-34960) located 2310 feet from the South line and 1850 feet from the West line (Unit K) of Section 31, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico and dedicated to a standard 160.10-acre oil spacing and proration unit comprising Lots 3 and 4 and the E/2 SW/4 (SW/4 equivalent) of Section 31;

(F) Administrative Order NSL-4430, dated April 5, 2000, as amended by Administrative Order NSL-4430-A (NSBHL), dated January 26, 2001, for the Hardy "36" State Well No. 27 (API No. 30-025-34794) located on the surface 2200 feet from the South line and 1650 feet from the East line (Unit J) of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit/high-angle horizontal directional drilling project area comprising the SE/4 of Section 36;

(G) Administrative Order NSL-4450, dated May 23, 2000, for the State "KL" 36 Well No. 29 (API No. 30-025-34999) located 330 feet from the North line and 2310 feet from the West line (Unit C) of Section 36, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit comprising the NW/4 of Section 36; and

(H) Administrative Order NSL-4543, dated January 26, 2001, for the SEMU Well No. 154 to be drilled 1760 feet from the South line and 2310 feet from the East line (Unit J) of Section 30, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico and dedicated to a standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 30.

(5) At the hearing the applicant presented oil and gas ownership and other evidence, which demonstrates that:

(A) Conoco, Inc. is the only operator of wells within the North Hardy-Strawn Pool;

(B) the only other working interest owners are Atlantic Richfield Company ("ARCO") and Chevron USA Production Company ("Chevron"), which have interests in some of the wells;

(C) both ARCO and Chevron support granting Conoco, Inc.'s applications to make the current spacing and well location requirements permanent and increase the depth bracket allowable; and

(D) Conoco has complied with the notification requirements of Division Rule 1207.A (4) (b) (ii).

(6) As required by Ordering Paragraph No. (3) of Division Order No. R-11221, the applicant presented geologic and geophysical evidence, which demonstrates that:

(A) the location of high capacity producing wells in this pool is highly dependent upon lithology and influenced by structural positioning;

(B) even with the use of 3-D seismic data, it is difficult to locate wells where the lithology is favorable and consists of thick portions of net dolomite with good permeability;

(C) the current well location requirements for this pool restrict standard well locations to essentially four (4) 2.5-acre drill blocks within a standard 160-acre spacing unit (quarter section);

(D) 160-acre spacing units have served to expedite the orderly development of the pool by allowing the drilling of the fewest wells necessary to define the

probable limits of the pool;

(E) it has been necessary and will continue to be necessary to consider exceptions to the special pool rules for unorthodox well locations, which is best accomplished on a well-by-well basis; this will serve to assure the continued orderly development of this pool and the shallower oil pools above the Strawn spaced on 40-acre spacing; and

(F) 160-acre spacing units continue to be the most appropriate sized spacing unit for the North Hardy-Strawn Pool.

(7) There have been ten completions within the North Hardy-Strawn Pool, seven of which are currently producing. In mid-2000 the Hobbs District Office of the Division allowed Conoco, Inc. to conduct step rate tests on the Meyer "B-31" Well No. 5, the D. M. Warren Well No. 137, and the SEMU Well No. 139 by authorizing a testing allowable for each. Based on data obtained from these step rate tests and from the other completions, Conoco, Inc. presented petroleum engineering evidence demonstrating that:

(A) the pool is a solution gas drive reservoir with no water drive, and no primary or secondary gas cap;

(B) reservoir waste will not occur by increasing the depth bracket oil allowable because ultimate oil recovery will not be affected by the rates at which wells are produced;

(C) there has been no pressure depletion between wells and thus, even with the various unorthodox well locations, wells in the pool have not been drilled on too dense a pattern;

(D) drainage areas on the seven producing wells range from 80 acres to 190 acres and therefore 160-acre spacing units are appropriate for this pool;

(E) wells can be produced at rates up to 900 barrels of oil per day with little effect on the producing GOR, which is consistently at or below 2,000 cubic feet of gas per barrels of oil;

(F) four of the seven wells in the pool are capable of effectively and efficiently producing Strawn formation oil at rates of up to 900 barrels per day which is in excess of this pool's current maximum oil allowable of 600 barrels per day; and

(G) once liquid load up occurs within flowing wells, these wells have the capacity to produce on artificial lift at optimum economic rates up to 900 BOPD.

(8) At the time of the hearing the applicant requested the Division consider retroactive approval of its request to increase the depth bracket allowable to correspond with the time the Hobbs District Office authorized the step-rate testing of the three aforementioned wells.

(9) Approval of Conoco, Inc.'s applications by making the special rules governing the North Hardy-Strawn Pool permanent will not cause waste nor impair correlative rights. Further, increasing the depth bracket allowable from 600 BOPD to 900 BOPD should serve to provide the necessary incentive to most economically produce the wells in this pool and can be accomplished without waste or violation of correlative rights. Approval of these applications is in the best interest of conservation and is consistent with sound engineering practices.

**IT IS THEREFORE ORDERED THAT:**

(1) Effective July 1, 2000, the application of Conoco Inc. seeking an order increasing the depth bracket oil allowable within the North Hardy-Strawn Pool from 600 BOPD to 900 BOPD per standard 160-acre spacing unit is hereby granted.

(2) Rule 6 of the "*Special Pool Rules for the North Hardy-Strawn Pool*," as promulgated by Division Order No. R-11221, issued in Case No. 12182 and dated July 12, 1999, is hereby amended to read as follows:

"Rule 6. The allowable for a standard proration unit (158 through 162 acres) shall be based on a special depth bracket allowable of 900 barrels of oil per day, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion. The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres."

(3) The special rules governing the North Hardy-Strawn Pool, including the increase in depth bracket oil allowable to 900 BOPD, are hereby made permanent.

Reopened Case No. 12182/12532

Order No. R-11221-A

Page 7

---

(4) All existing wells and spacing and proration units assigned to the North Hardy-Strawn Pool will be subject to all applicable portions of Division Rules 501 through 509 related to oil proration and allocation.

(5) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

*Lori Wrotenbery*

LORI WROTENBERY  
Director

District I  
625 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

Form C-101  
Revised March 17, 1999

Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

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**

<sup>1</sup> Operator Name and Address Conoco Inc., 10 Desta Drive, Suite 649W, Midland, TX 79705		<sup>2</sup> OGRID Number 005073
		<sup>3</sup> API Number 30-025-34969
<sup>1</sup> Property Code 4390 25982	<sup>5</sup> Property Name State "KM" 36	<sup>6</sup> Well No. 28

<sup>7</sup> 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		675	North	760	West	Lea

<sup>8</sup> 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
<sup>9</sup> Proposed Pool 1 Hardy-Strawn North					<sup>10</sup> Proposed Pool 2				

<sup>11</sup> Work Type Code N	<sup>12</sup> Well Type Code O	<sup>13</sup> Cable/Rotary R	<sup>14</sup> Lease Type Code S	<sup>15</sup> Ground Level Elevation 3505'
<sup>16</sup> Multiple No	<sup>17</sup> Proposed Depth 8370'	<sup>18</sup> Formation Strawn	<sup>19</sup> Contractor	<sup>20</sup> Spud Date 4/15/00

<sup>21</sup> Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	J-55, 8-5/8"	24#	1500'	723	Surface
7-7/8"	J-55, 5-1/2"	17#	8070'	1212	Surface

<sup>22</sup> 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.

Conoco proposes to amend an existing APD due to the name change from Hardy 36 State #28 to State "KM" 36 #28 and the location change from 990' FNL to 675' FNL and from 510' FWL to 760' FWL.

Attached are the supporting documents to indicate the changes.

Permit Expires 1 Year From Approval Date Unless Drilling Underway

<sup>23</sup> I hereby certify that the information given above is true and complete to the best of my knowledge and belief.		<b>OIL CONSERVATION DIVISION</b>	
Signature: <i>Jo Ann Johnson</i>		Approved by: <i>Chris Williams</i>	
Printed name: Jo Ann Johnson		Title:	
Title: Sr. Property Analyst		Approval Date: <i>5/18/00</i>	Expiration Date:
Date: 4/6/00	Phone: 915/686-5515	Conditions of Approval: <i>18 2000</i>	
		Attached <input type="checkbox"/>	

DISTRICT I  
1625 N. French Dr., Hobbs, NM 58240

State of New Mexico

Form C-102  
Revised March 17, 1999

Energy, Minerals and Natural Resources Department

DISTRICT II  
611 South First, Artesia, NM 58210

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

DISTRICT III  
1000 Rio Brazos Rd., Artesia, NM 57410

OIL CONSERVATION DIVISION

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 57505

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 25982	Property Name STATE "KM" 36	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		675	NORTH	760	WEST	LEA

Bottom Hole Location If Different From Surface

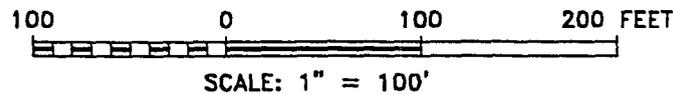
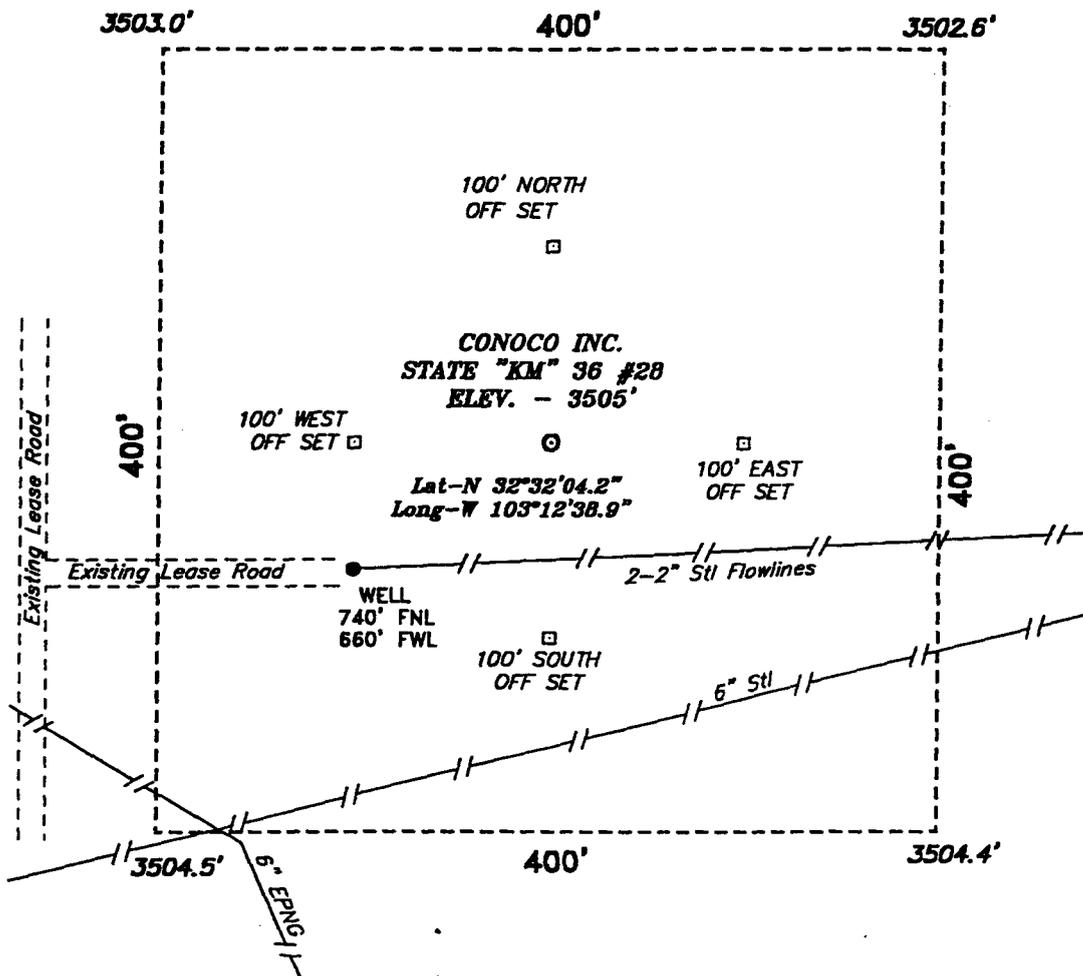
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
------------------------	-----------------	--------------------	-----------

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><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that 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>April 6, 2000 Date</p>
	<p><b>SURVEYOR CERTIFICATION</b></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>March 21, 2000 Date Surveyed</p> <p><i>W. Q. Jones</i> Signature &amp; Seal of Professional Surveyor</p> <p>W. Q. Jones Professional Surveyor</p> <p>W. Q. Jones Certificate No. 7977</p> <p>NEW MEXICO PROFESSIONAL LAND SURVEYORS</p>

**SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.**



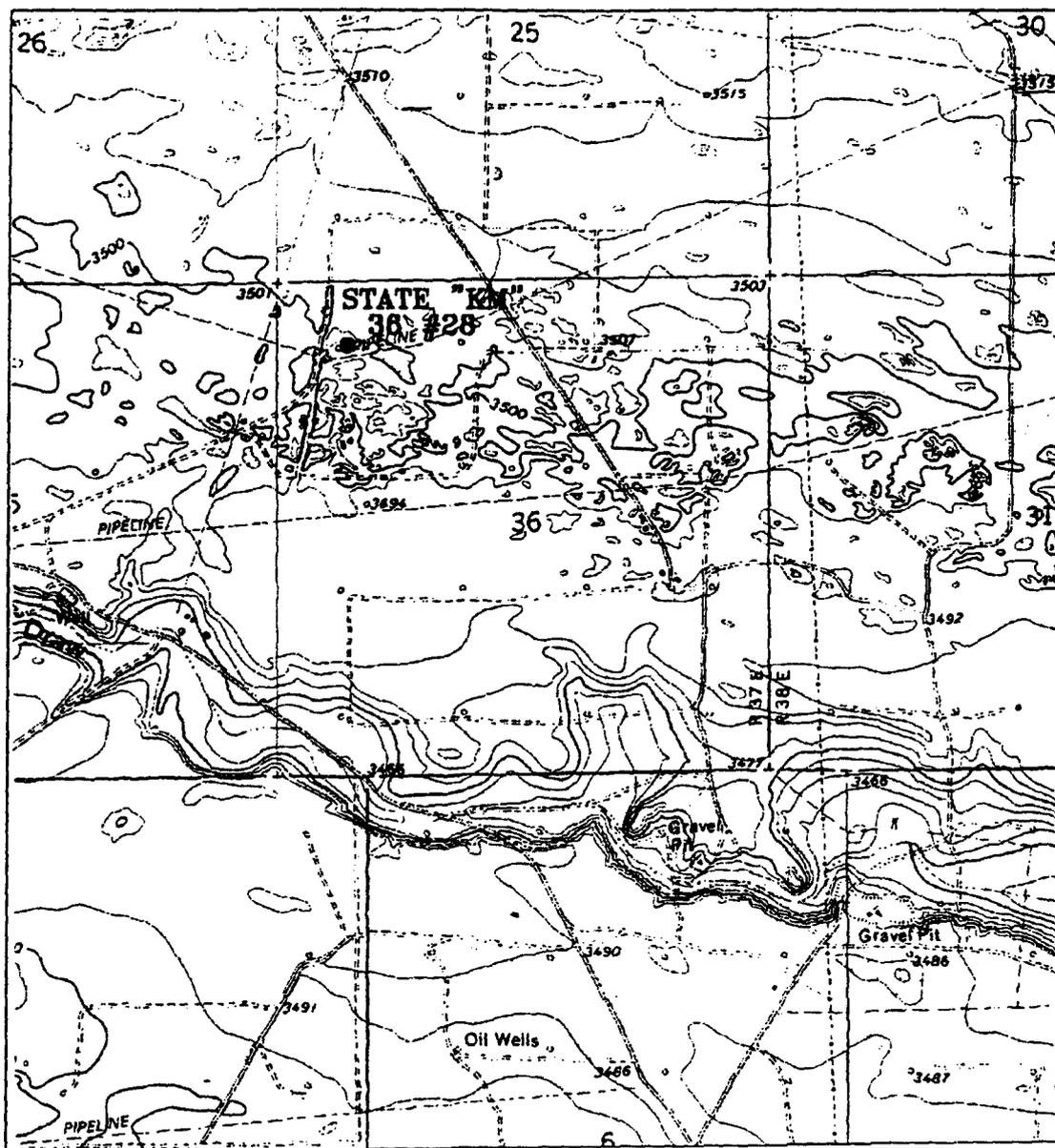
**DIRECTIONS TO WELL LOCATION:**

FROM THE JUNCTION OF CO. RD. 18 AND CO. RD. 49,  
GO NORTHWEST ON CO. RD. C-49 APPROX. 5 MILES TO  
A LEASE ROAD; THENCE NORTHEAST ON LEASE ROAD  
APPROX. 4400 FEET; THENCE EAST ON A LEASE ROAD  
TO A POINT ON THE PROPOSED WELL PAD.

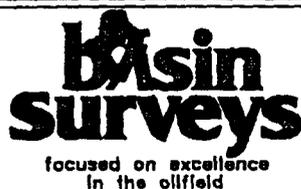
**BASIN SURVEYS** P.O. BOX 1786 --HOBBS, NEW MEXICO

W.O. Number: 0149      Drawn By: K. GOAD  
Date: 03-22-200      Disk: KJG #122 - 0149A.DWG

<b>Conoco Inc.</b>	
REF: STATE "KM" 36 No. 28 / Well Pad Topo	
THE STATE "KM" 36 No. 28. LOCATED 675' FROM THE NORTH LINE AND 760' FROM THE WEST LINE OF SECTION 36, TOWNSHIP 20 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.	
Survey Date: 03-21-2000	Sheet 1 of 1 Sheets



STATE "KM" 36 #28  
 Located at 675' FNL and 760' FWL  
 Section 36, Township 20 South, Range 37 East,  
 N.M.P.M., Lea County, New Mexico.



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: 0149AA - KJG #122

Survey Date: 03-21-2000

Scale: 1" = 2000'

Date: 03-22-2000

CONOCO INC.



PROPOSED WELL PLAN OUTLINE



WELL NAME  
LOCATION

State "KM" 36 No. 28  
876' FNL & 760' FWL Sec 36, T20S, R37E

Ground Level : 3516 est.  
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 @ 1,300'				8-5/8", 24#, J-55 ST&C @ 1,500'				3
2000	Base Salt @ 2,550'	Washouts in Salt Section		7-7/8"	Circulate Cement		Less than 8.4	10 Brine	
3000	Yates 2,710'								
	7 Rivers 2,962'		H2S Monitor on at 2,650'						
	Queen 3,509'	Shallow gas flows in SEMU # 125 & 126 not expected at this location							
	Penrose 3,634'								
	Grayburg 3,777'		Mud Log 3,776' to TD						
4000	San Andres 3,998'	Lost Returns in San Andres							7
5000	Glorietta 5,223'	Possible differential sticking thru Glorietta & Paddock							
6000	Blinberry Mkr 5,788'								
	Tubb 6,341'								
	Drinkard 6,632'								
	Abo 6,929'		First Log Run: SGR-CAL-DLL-MLL-BHC FDC-CNL-PE : TD to 2650' Pull GR-CNL-Cal to Surf SGR from TD to 6400'						
7000	Strawn 7,720'		Second Log Run: 30 rotary sidewall cores						
	TD @ 8,070'	STOP DRILLING WHEN WOODFORD SHALE IS CUT Severe losses in Devonian	Third Run: FMI imaging log		5-1/2", 17.0#, J-55 LT&C 1/0'-8,070' Circulate Cement			10 ppg Starch Gel	20
	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 about 40' thick and sits on top of the Devonian. Stop drilling once the Woodford is entered.

DATE 06-Apr-00

Joe Huck, Geophysical Advisor

APPROVED Yong Cho, Drilling Engineer

Joe Miller, Reservoir Engineer



Proposal No: 180253435B

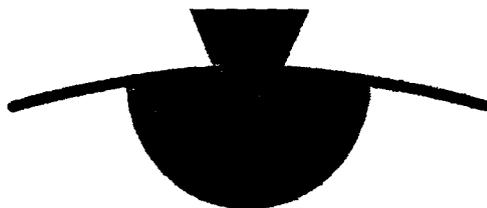
**Conoco**  
State 'KM' 36 No. 28

Sec. 36-T20S-R37E  
Lea County, New Mexico  
April 5, 2000

### Cement 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



**POWERVISION™**

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

**Service Representatives:**  
Wayne Davis  
Account Manager  
Bus Phone: (915) 683-2781  
Fax: (915) 683-1443

Well Name: State 'KM' 36 No. 28  
 Job Description: 8-5/8" Surface  
 Date: April 5, 2000



Proposal No: 180253435B

**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

Well Name: State 'KM' 36 No. 28  
 Job Description: 8-5/8" Surface  
 Date: April 5, 2000



Proposal No: 180253435B

**FLUID SPECIFICATIONS**

Spacer				1,000.0 gals Mud Clean I @ 8.4 ppg
<b>FLUID</b>	<b>VOLUME CU-FT</b>	<b>VOLUME FACTOR</b>		<b>AMOUNT AND TYPE OF CEMENT</b>
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

**CEMENT PROPERTIES**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
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

well Name: State 'KM' 36 No. 28  
 Job Description: 8-5/8" Surface  
 Date: April 5, 2000



Proposal No: 180253435B

**PRICE ESTIMATE**

**Product Material**

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
539	sacks	Class C Cement	10.60	5,713.40	50.0	2,856.70
1286	lbs	Calcium Chloride	0.49	630.14	50.0	315.07
2757	lbs	Bentonite	0.22	606.54	50.0	303.27
132	lbs	Cello Flake	2.30	303.60	50.0	151.80
185	sacks	Poz (Fly Ash)	5.45	1,008.25	50.0	504.13
1	ea	Cement Plug, Rubber, Top 8-5/8 in	139.00	139.00	50.0	69.50
1500	gals	Mud Clean I	0.75	1,125.00	48.0	585.00
4	gals	FP-6L	45.00	180.00	50.0	90.00
Product Material Subtotal:				\$9,705.93		\$4,875.47

**Service Charges**

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
804	cu ft	Bulk Materials Service Charge	1.60	1,286.40	50.0	643.20
Service Charges Subtotal:				\$1,286.40		\$643.20

**Equipment**

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
1	6hrs	Cement Pump Casing, 1001 - 1500 ft	1,360.00	1,360.00	50.0	680.00
1	job	Data Acquisition, Cement, Standard	670.00	670.00	50.0	335.00
40	miles	Mileage, Heavy Vehicle	3.60	144.00	50.0	72.00
40	miles	Mileage, Auto, Pick-Up or Treating Van	2.15	86.00	50.0	43.00
Equipment Subtotal:				\$2,260.00		\$1,130.00

Unless specified, the prices are based on 6 hours on location.

The technical data contained in this proposal is based on the best information available at the time of writing and is subject to further analysis and testing. The pricing data contained in this proposal are estimates only and may vary depending on the work actually performed. Pricing does not include federal, state and local taxes or royalties.

This quotation is based on BJ Services Company being awarded the work on a first call basis and within thirty (30) days of the proposal date. These prices will be subject to review if the work is done after thirty (30) days from the proposal date, or on a second or third call basis.

Well Name: State 'KM' 36 No. 28  
Job Description: 8-5/8" Surface  
Date: April 5, 2000



Proposal No: 180253435B

**PRICE ESTIMATE**

**Freight/Delivery Charges**

QTY	UNIT	PRODUCT DESCRIPTION	UNIT PRICE	GROSS AMOUNT	DISC (%)	NET AMOUNT
684	ton-mi	Bulk Delivery, Dry Products	1.20	820.80	50.0	410.40
Freight/Delivery Charges Subtotal:				\$820.80		\$410.40
<b>TOTAL:</b>				<b>\$14,073.13</b>		<b>\$7,059.07</b>

Unless specified, the prices are based on 6 hours on location.

The technical data contained in this proposal is based on the best information available at the time of writing and is subject to further analysis and testing. The pricing data contained in this proposal are estimates only and may vary depending on the work actually performed. Pricing does not include federal, state and local taxes or royalties.

This quotation is based on BJ Services Company being awarded the work on a first call basis and within thirty (30) days of the proposal date. These prices will be subject to review if the work is done after thirty (30) days from the proposal date, or on a second or third call basis.

Well Name: State 'KM' 36 No. 28  
 Job Description: 5-1/2" Long String  
 Date: April 5, 2000



Proposal No: 180253435B

**WELL DATA**

**ANNULAR GEOMETRY**

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.097 CASING	1,500	1,500
7.875 HOLE	8,070	8,070

**SUSPENDED PIPES**

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
5.500	4.892	17	8,070	8,070

Float Collar set @ 8,030 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  
 2,570 ft x 0.1733 cf/ft with 50 % excess = 667.9 cf  
 40 ft x 0.1305 cf/ft with 0 % excess = 5.2 cf (inside pipe)  
**TOTAL SLURRY VOLUME = 2001.5 cf**  
 = 357 bbls

Well Name: State 'KM' 36 No. 28  
 Job Description: 5-1/2" Long String  
 Date: April 5, 2000



Proposal No: 180253435B

**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	673 /	1.36	= 494 sacks Class C Cement + 1% bwoc BA-58 + 2 lbs/sack Potassium Chloride + 0.4% bwoc CD-32 + 0.7% bwoc FL-52 + 0.005 gps FP-6L + 0.2% bwoc Sodium Metasilicate + 56.2% Fresh Water

Displacement 186.7 bbls FRESH WATER

**CEMENT PROPERTIES**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
Slurry Weight (ppg)	12.70	14.80
Slurry Yield (cf/sack)	1.85	1.36
Amount of Mix Water (gps)	9.98	6.34
Amount of Mix Fluid (gps)	9.99	6.34
Estimated Pumping Time - 70 BC (HH:MM)	2:19	2:30
Free Water (mls) @ 80 ° F @ 90 ° angle	2.0	0.0
Fluid Loss (cc/30min) at 1000 psi and 80 ° F	722.0	98.0

**RHEOLOGIES**

<u>FLUID</u>	<u>TEMP</u>	<u>600</u>	<u>300</u>	<u>200</u>	<u>100</u>	<u>6</u>	<u>3</u>
Lead Slurry	@ 80 ° F	102	92	88	84	40	25
Tail Slurry	@ 80 ° F	300	250	185	110	12	7

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

Form C-101  
Revised March 17, 1999

Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

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**

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

<sup>7</sup> 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

<sup>8</sup> 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

<sup>9</sup> Proposed Pool 1 Hardy-Strawn North	<sup>10</sup> Proposed Pool 2
--	-------------------------------

<sup>11</sup> Work Type Code N	<sup>12</sup> Well Type Code O	<sup>13</sup> Cable/Rotary R	<sup>14</sup> Lease Type Code S	<sup>15</sup> Ground Level Elevation 3505'
<sup>16</sup> Multiple No	<sup>17</sup> Proposed Depth 8300'	<sup>18</sup> Formation Strawn	<sup>19</sup> Contractor	<sup>20</sup> Spud Date 3/15/00

<sup>21</sup> 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

<sup>22</sup> 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

Permit Expires 12/31/2000  
Date Unless Drilling Underway

<sup>23</sup> I hereby certify that the information given above is true and complete to the best of my knowledge and belief.		<b>OIL CONSERVATION DIVISION</b>	
Signature: <i>Jo Ann Johnson</i>		Approved by: <i>Chris Williams</i>	
Printed name: Jo Ann Johnson		Title: DISTRICT I SUPERVISOR	
Title: Sr. Property Analyst		Approval Date: MAR 13 2000	Expiration Date:
Date: 3/6/00	Phone: 915/686-5515	Conditions of Approval:	
		Attached <input type="checkbox"/>	

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II  
811 South First, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

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
OGRD 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

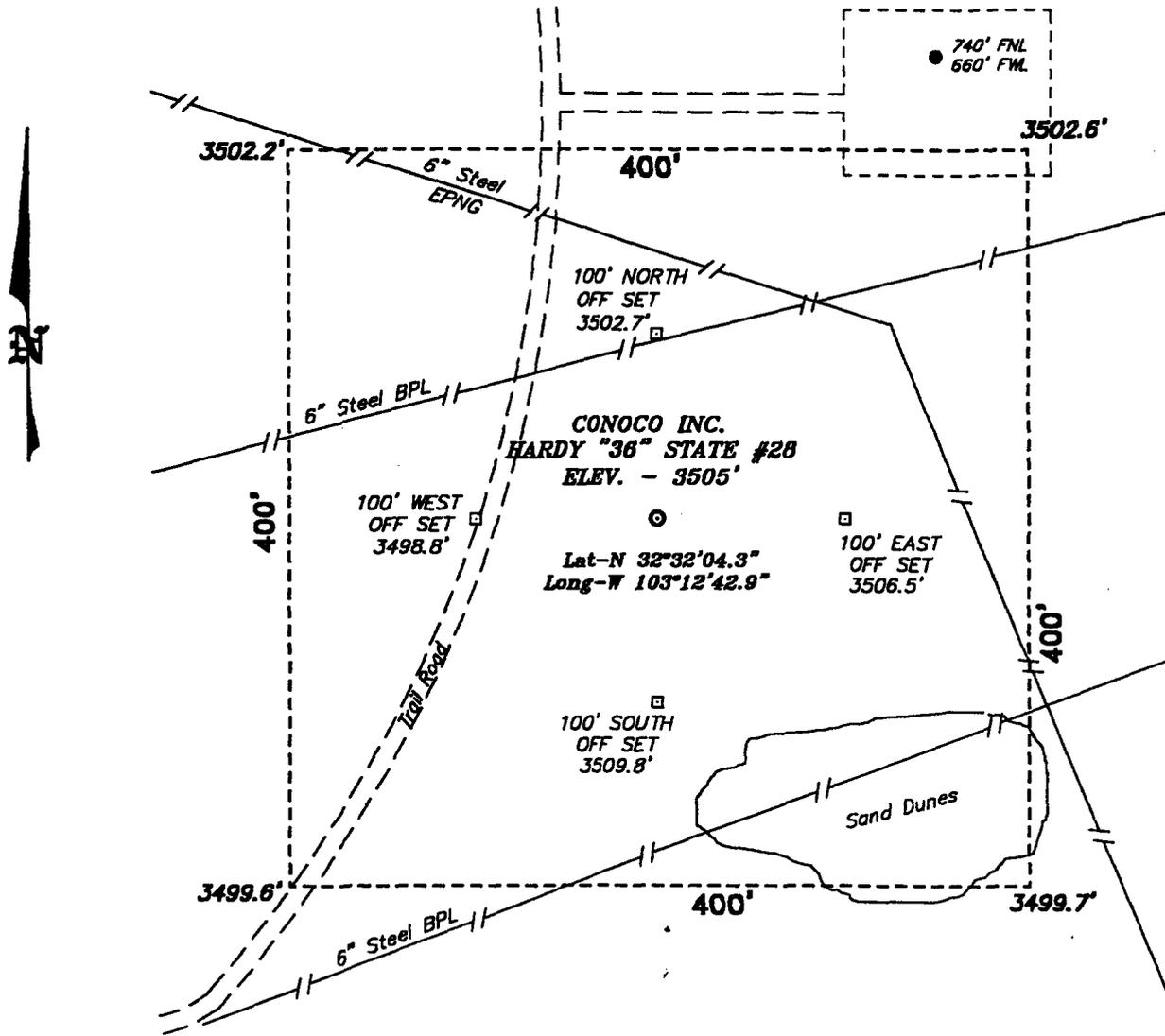
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

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

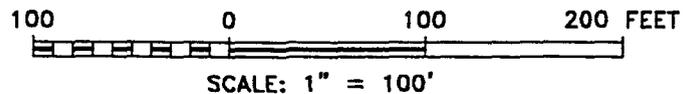
	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Jo Ann Johnson</i> Signature</p> <p>Jo Ann Johnson Printed Name</p> <p>Sr. Property Analyst Title</p> <p>3/6/00 Date</p>
	<p><b>SURVEYOR CERTIFICATION</b></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>L. JONES</i> Signature of Surveyor</p> <p>Professional Surveyor</p> <p>7977</p> <p>W.O. No. 0068A</p> <p>Certificate No. Jones 7977</p> <p>BASIN SURVEYS</p>

**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.



**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

**Conoco Inc.**

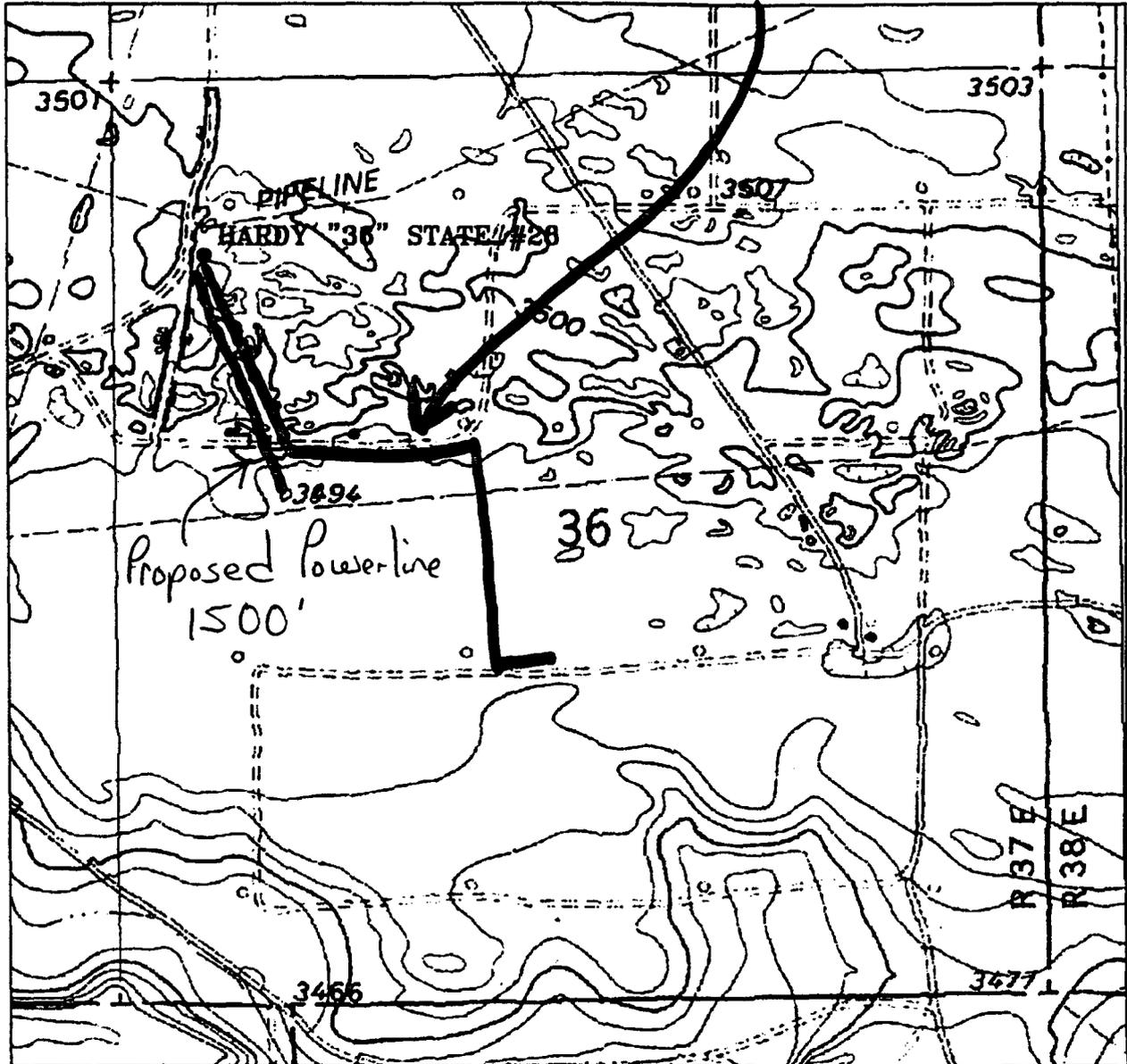
REF: HARDY "36" STATE No. 28 / Well Pad Topo

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.

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

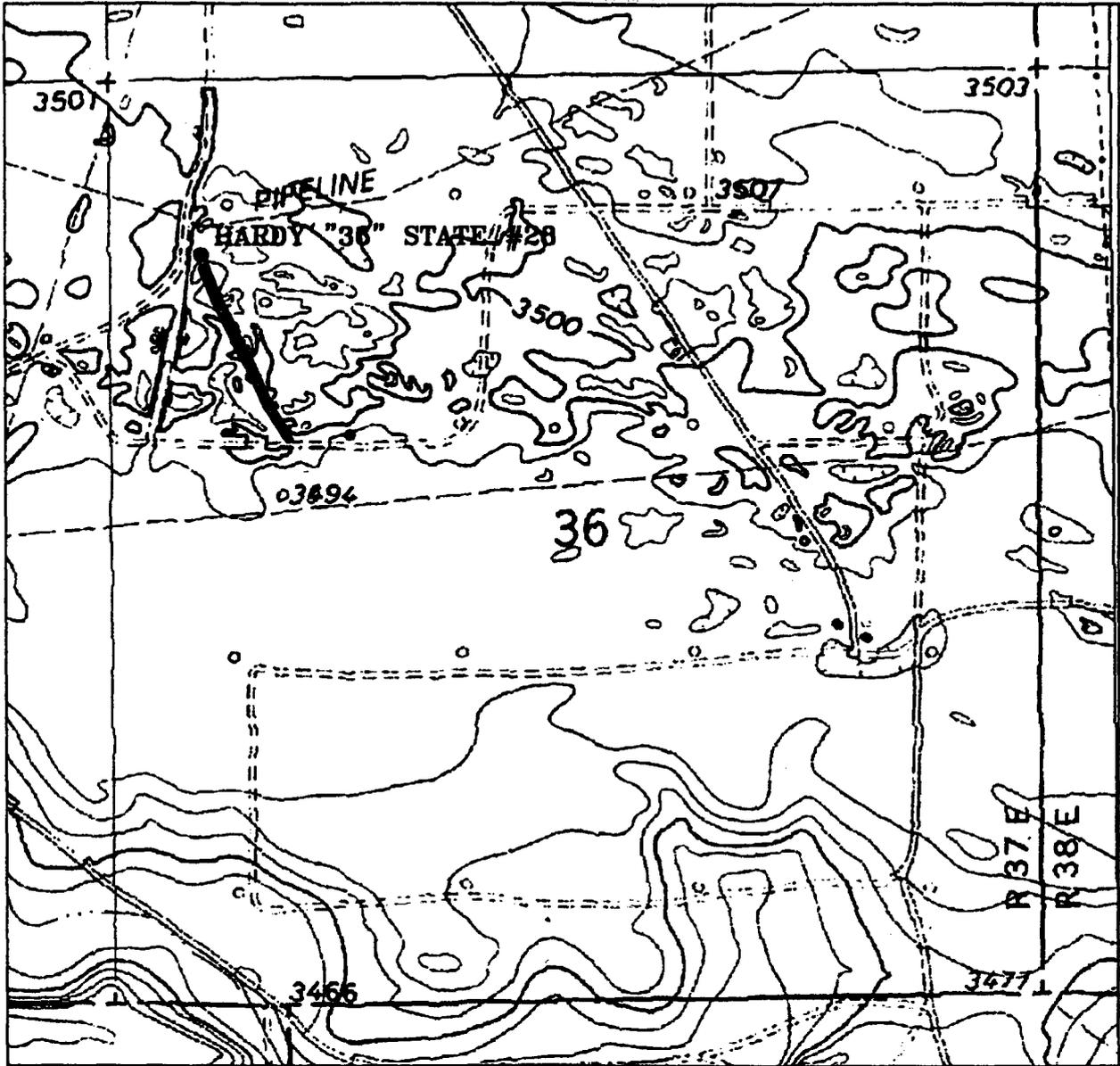
Scale: 1" = 1000'

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.

**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 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					8-5/8", 23#, M-50 ST&C @ 1,500'				3
	Top Salt @ 1,400'	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							
	Blinbry 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		5-1/2", 17.0#, J-55 LT&C f/0'-8,000' Circulate Cement			10 ppg Starch Gel	20
8000	TD @ 8,000'	STOP DRILLING WHEN WOODFORD SHALE IS CUT 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

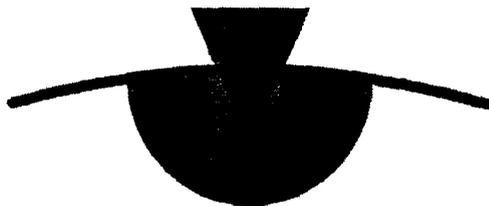
**Conoco**  
Hardy 36 St. #28

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



POWERVISION™

**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
<b>FLUID</b>	<b>VOLUME CU-FT</b>	<b>VOLUME FACTOR</b>		<b>AMOUNT AND TYPE OF CEMENT</b>
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**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
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**

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



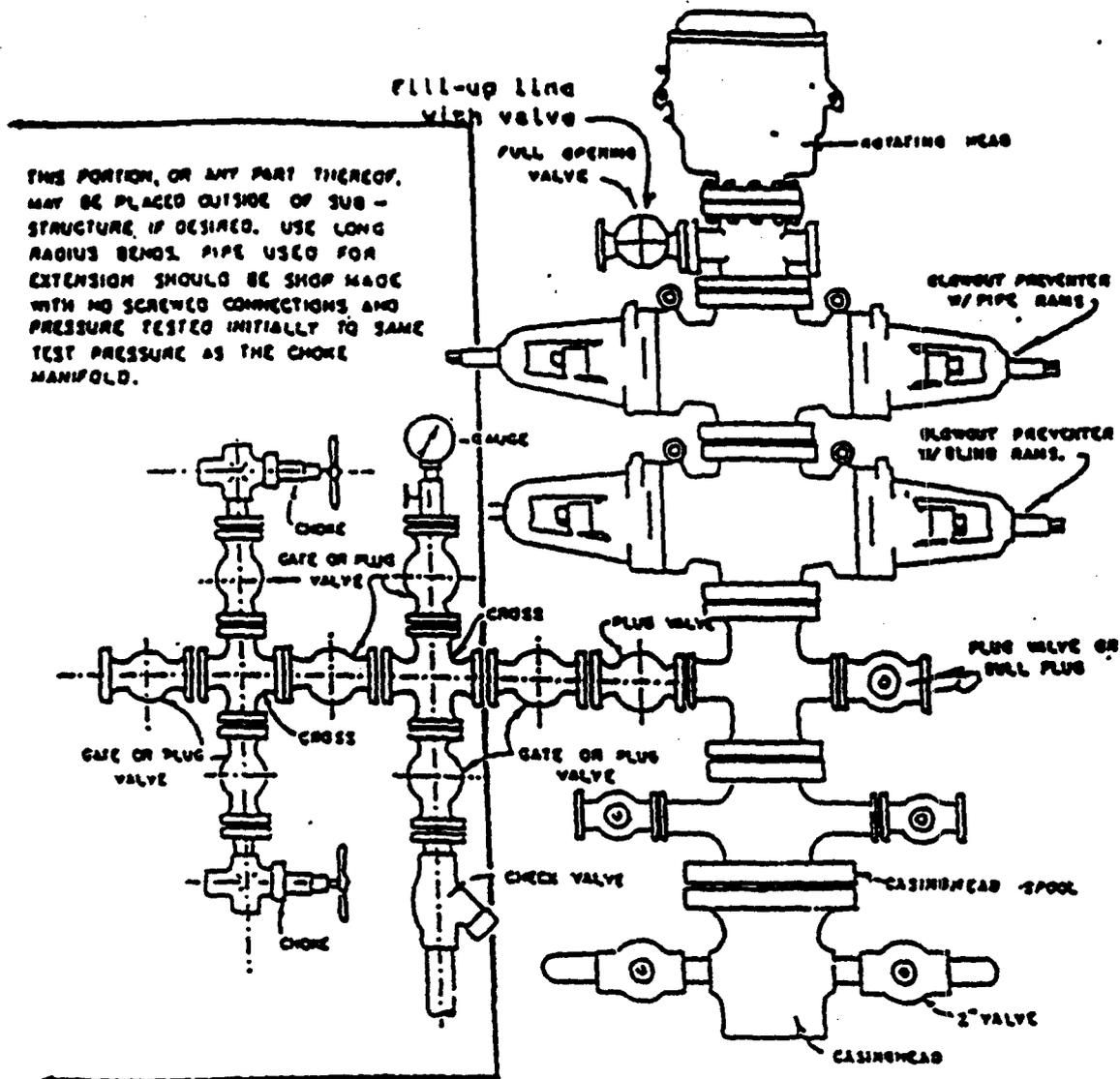
Proposal No: 180253051A

**FLUID SPECIFICATIONS**

Spacer				1,500.0 gals Mud Clean I @ 8.4 ppg
<b><u>FLUID</u></b>	<b><u>VOLUME CU-FT</u></b>	<b><u>VOLUME FACTOR</u></b>		<b><u>AMOUNT AND TYPE OF CEMENT</u></b>
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**

	<b>SLURRY NO. 1</b>	<b>SLURRY NO. 2</b>
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

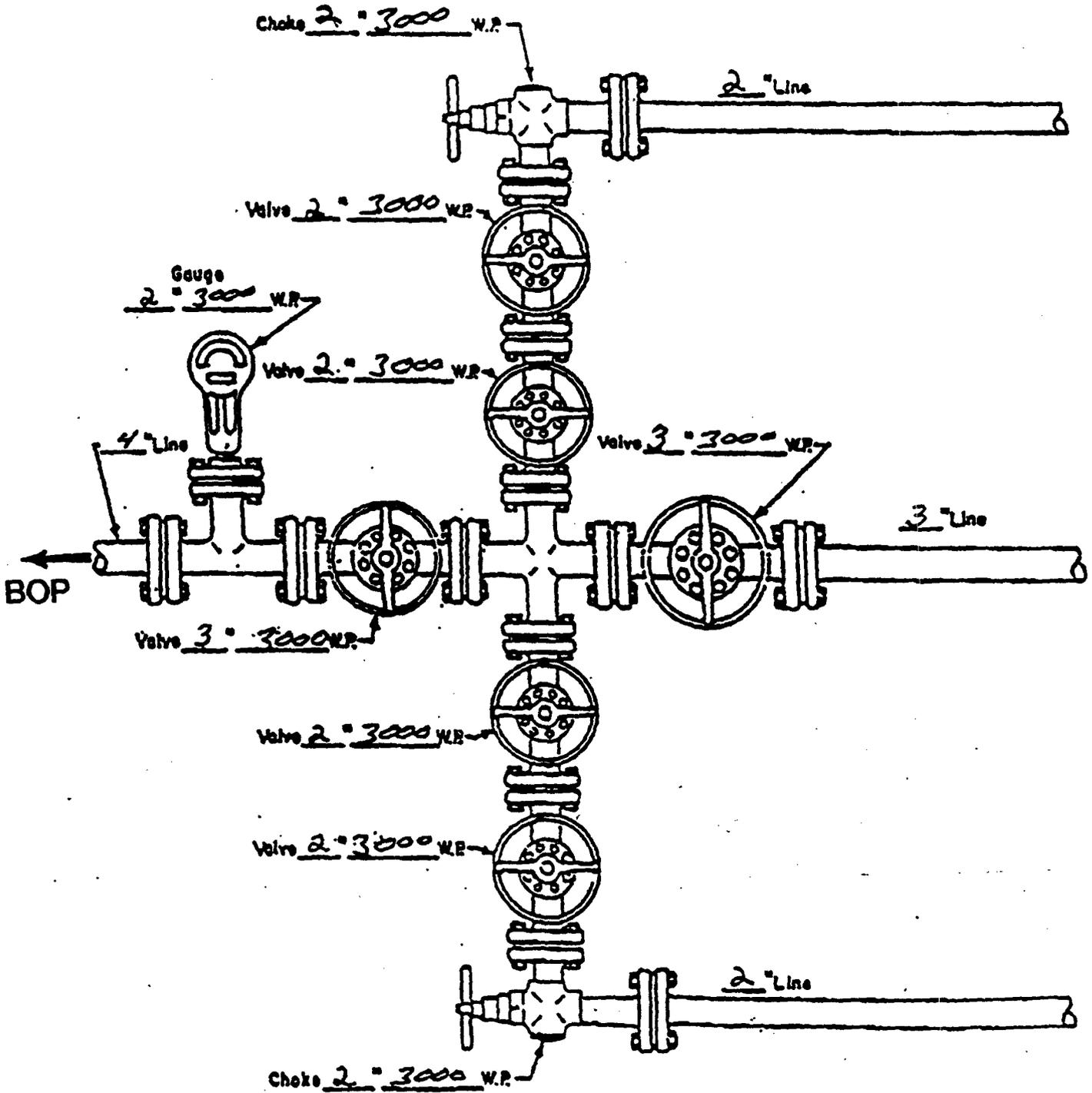


### BLOWOUT PREVENTER HOOKUP

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

NSL-4450A



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON  
Governor  
Jennifer A. Salisbury  
Cabinet Secretary

2/28/01

Lori Wrotenbery  
Director  
Oil Conservation Division

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:  
MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL   X   \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD \_\_\_\_\_  
WFX \_\_\_\_\_  
PMX \_\_\_\_\_

Gentlemen:

I have examined the application for the:

Conoco Inc      Hardy 36 State      # 31-F, 36-20s-37e  
Operator                      Lease & Well No.      Unit                      S-T-R

and my recommendations are as follows:

OK -  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours very truly,

Chris Williams  
Supervisor, District 1