

30-05-20915

11-9-73
Composite Compensated
Density Log & Compensated
Neutron Fm. Density

DEAD 14245

PREP 22492

POOL 22640

0-11,647
Steel Laterlog
401-11,633



IT IS THEREFORE ORDERED: R-7300 6/6/83

(1) That the applicant, Union Oil Company of California, is hereby authorized to utilize its Wersell Federal Well No. 1, located 810 feet from the North line and 1980 feet from the West line of Section 4, Township 22 South, Range 27 East, NMPM, Eddy County, New Mexico, to dispose of salt water produced from the Delaware formation in the same wellbore into a lower zone in the Delaware formation, injection to be accomplished through 2 3/8-inch plastic lined tubing installed in a packer set at approximately 4500 feet, with injection into the perforated interval from approximately 4822 feet to 4838 feet;

11-9-73
Comp. Compensated Fm.
Density Log & Comp. Neut
Fm. Density
0-11,647
DLB
401-11,633

SWD R-7300
6-6-83

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

30-015-20915

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

PLUG BACK ☐

b. TYPE OF WELL

OIL WELL ☐

GAS WELL ☒

OTHER

SINGLE ZONE ☒

MULTIPLE ZONE ☐

2. NAME OF OPERATOR

Union Oil Company of California

3. ADDRESS OF OPERATOR

P.O. Box 671 - Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

810' FNL & 1980' FWL

At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

2 miles east of Carlsbad

10. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.
(Also to nearest drilg. unit line, if any)

810'

16. NO. OF ACRES IN LEASE

320

17. NO. OF ACRES ASSIGNED TO THIS WELL

320

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

-

19. PROPOSED DEPTH

11700'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3218' GR

22. APPROX. DATE WORK WILL START*

On approval

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13-3/8"	54.5	400	600 sx - circulate to surface
12 1/2"	9-5/8"	40	5260	2500 sx
8-3/4"	5 1/2"	17	11700	Determine from log

3000# Manual B.O.P.

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ARTESIA, NEW MEXICO

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

(This space for Federal or State office use)

TITLE District Drilling Supt.

DATE June 20, 1973

PERMIT NO.

APPROVED BY

GOVERNMENT OF NEW MEXICO

H. L. BECKWITH

ACTING DISTRICT ENGINEER

APPROVAL DATE

TITLE

THIS APPLICATION IS VALID IF OPERATIONS ARE NOT COMMENCED WITHIN 3 MONTHS.
EXPIRES OCT 27 1973

See Instructions On Reverse Side

NOTES: THE FOLLOWING TIME IS FOR CASING
WITNESS THE SIGNING OF THE

Drawer 1857
Roswell, New Mexico 88201

July 26, 1973

Union Oil Company of California
Attention: Mr. W. M. Stanley
Suite 300, Security National Bank Building
Roswell, New Mexico 88201

Gentlemen:

Enclosed are three approved copies of communitization agreement No. Com.
Agr.-SW-764 involving 160.16 acres of land in Federal lease New Mexico
0454418 and 159.68 acres of sea land, Eddy County, New Mexico, comprising
a 319.84 acre well spacing unit.

Nh The agreement communitizes all rights as to dry gas and associated liquid
hydrocarbons producible from the Morrow formation in lots 1, 2, 3, 4,
SW¹/₄ and SW¹/₄ sec. 4, T. 22 S., R. 27 E., N.M.P.M., and is effective
as of July 1, 1973.

You are requested to furnish all interested principals with appropriate
evidence of this approval.

Sincerely yours,

CARL C. FRAYWICK
Acting Area Oil and Gas Supervisor

cc:
Artesia (w/cy agr.)
BLM, Santa Fe (w/cy agr.)

JAF:ars:s

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UNION OIL COMPANY OF CALIFORNIA
DISTRICT OFFICE - MIDLAND, TEXAS

DRILLING PROGRAM

Field: Undesignated Morrow Field Location: 810' FNL & 1980' FWL of
Section 4, T-22-S, R-27-E, Eddy County,
Well Name: WERSELL FEDERAL WELL NO. 1 New Mexico.

Estimated Total Depth: 11,700'

Drilling Data: Geolograph from surface to total depth.
Ten-foot drilling time from 400' to total depth.

Samples: Ten-foot from 400' to total depth.

Estimated Formation Tops:

Delaware Sand	2,000'	Atoka	10,440'
Bone Spring	5,150'	T. Morrow	10,875'
Wolfcamp	8,700'	Middle Morrow	11,220'
Fornia Zone	9,650'	Lower Morrow	11,480'
Lusk Zone (Strawn)	10,300'	Chester	11,620'

Logs: Gamma Ray Compensated Neutron Formation Density and Dual Laterolog from
total depth to surface.

DSTs: Two

Cores: None

Deviation: Five degrees maximum with rate of change not to exceed one degree per 100' of
interval.

Casing & Mud Program:

Depth	Size Hole	Casing	Cement	W.O.C.	Mud		
					Wt.	Vis.	W.L.
0' to 400'	17-1/2"	13-3/8"	* 600	18	As needed to spud.		
400' to 5260'	12-1/4"	9-5/8"	**2500	18	Brine		
5260' to 9500'	8-3/4"	-	-	-	Water		
9500' to T.D.	8-3/4"	5-1/2"	***	6	10-11	35-45	<15

Rig to be released after nipping up 5-1/2" casing.

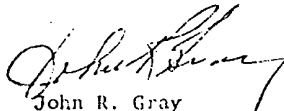
*Surface casing to be cemented with 300 sacks Class "H" cement with 4% gel and 2% calcium
chloride, followed by 500 sacks Class "H" neat cement with 2% calcium chloride added.

**Intermediate casing to be cemented with 2000 sacks Howco "Lite", or equivalent, followed
by 400 sacks Class "H" cement.

***Production casing cement to be determined from Caliper log.

NOTE: Surface casing cement is calculated to circulate.

NOTE: Changes in the above program will be at the direction of a qualified Union Oil
Company of California representative and should be clearly indicated on the pro-
gram posted at the rig.


John R. Gray
District Drilling Superintendent

FORM CR-13
1/72

CASING AND TUBING DESIGN

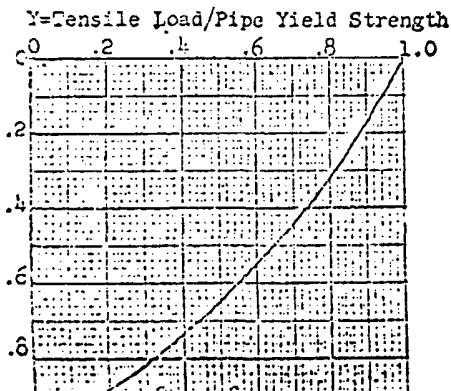
WELL Marshall Field No. 1 FIELD South Caribbean

CASING STRING Surface & Intermediate COUNTY Eddy STATE New Mexico DATE 5-11-73 DESIGN BY B.M. Johnson

CASING SIZE 13 7/8" x 95# HOLE SIZE 11 1/2" x 12 1/4" MUD WT. I 10.0 #/g. HYD GR. I 0.519 psi/ft. MUD WT. II #/g. HYD. GR. II psi/ft. M.S.P. 5000 psi.

INTERVAL		LENGTH	DESCRIPTION			WEIGHT	TENSION	MINIMUM	TDF	COLLAPSE	COLLAPSE	CDF	BURST	INTERNAL	BDF	PRICE	COST
Bottom	Top		Wt.	Grade	Thread	W/ BF W/O BF ✓ lbs	-top of section lbs	STRENGTH TENSION 1000 lbs		PRESS. @ bottom psi	RESIST. tension psi		PRESSURE psi	MINIMUM YIELD psi		PER FT.	
<u>13 7/8" Surface</u>																	
<u>0</u>	<u>0</u>	<u>400</u>	<u>54.5</u>	<u>K-55</u>	<u>STC</u>	<u>21800</u>	<u>21800</u>	<u>547</u>	<u>25.1</u>	<u>208</u>	<u>1130</u>	<u>543</u>	<u>2630</u>	<u>2730</u>	<u>1.04</u>	<u>\$ 9.87</u>	<u>\$ 3948</u>
<u>7 7/8" Intermediate</u>																	
<u>5260</u>	<u>0</u>	<u>5260</u>	<u>40</u>	<u>N-80</u>	<u>LTFC</u>	<u>210400</u>	<u>210400</u>	<u>737</u>	<u>3.50</u>	<u>2730</u>	<u>3090</u>	<u>1.13</u>	<u>5000</u>	<u>5750</u>	<u>1.15</u>	<u>\$ 8.20</u>	<u>\$ 43120</u>

Collapse Resist. w/Tension
Collapse Resist. w/o Tension



Formulae:

Collapse resistance in tension =
X (Collapse pressure rating)

Burst Pressure =
MSP + Depth (Hyd. Gr. II -.5)

BF (Bouyancy Factor) =
1.00 - (0.0153 X Mud Wt. I)

Calculations:

Total Cost

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FORM CR-13
1/72

CASING AND TUBING DESIGN

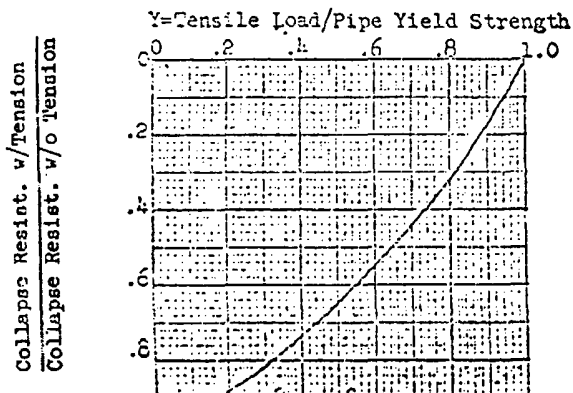
WELL

Weyrell Federal No. 1 FIELD South Carolina

CASING STRING *Production* COUNTY *Eddy* STATE *New Mexico* DATE *5-11-73* DESIGN BY *D.M. Johnson*

CASING SIZE	HOLE SIZE	MUD WT. I	#/g. HYD. CR. I	psi/ft. MUD WT. II	#/g. HYD. CR. II	psi/ft. M.S.P.	Secs	psi.
7"	6 3/4"							

INTERVAL		LENGTH	DESCRIPTION		WEIGHT	TENSION	MINIMUM	TDF	COLLAPSE	COLLAPSE	CDF	BURST	INTERNAL	BDF	PRICE	COST	
Bottom	Top		Wt.	Grade	Thread	W/ BF W/O BF ✓ lbs	-top of section lbs	STRENGTH TENSION 1000 lbs		PRESS. @ bottom psi	RESIST. tension psi		PRESSURE psi	MINIMUM YIELD psi		PER FT.	
0	0	2100	23.0	N-20	2 1/2	55200	259200	588	2.03	1370	(5820) 2016	2209	5000	6410	1.27	5.10	10040
0	2100	2500	23.0	N-20	1 1/2	57500	234000	442	1.88	2798	(5820) 2016	1.177	5000	6240	1.07	4.71	11720
0	4700	1500	23.0	Sub-75	1 1/2	31500	177100	466	2.63	3654	(5820) 2016	1.418	5000	7520	1.51	5.47	8720
0	6400	1400	26.0	N-20	1 1/2	41600	142600	519	3.64	4268	(5820) 2016	1.117	5000	7040	1.45	5.33	8020
0	8000	1100	26.0	Sub-75	1 1/2	28600	101000	543	5.42	5196	(5820) 2016	1.454	5000	8600	1.72	6.10	6710
0	9100	1600	27.0	N-20	1 1/2	46400	72400	597	8.25	6110	(5820) 2016	1.136	5000	8600	1.63	5.94	9004
0	10700	1000	26.0	Sub-75	1 1/2	26000	26000	548	21.1	6681	(5820) 2016	1.167	5000	8600	1.72	6.10	610



Formulae:

Calculations:

Total Cost [#] 6529.2

Collapse resistance in tension = $X = 0.0325, 0.101, 0.167, 0.224, 0.333, 0.441$
 X (Collapse pressure rating) $Y = 0.789, 0.969, 0.943, 0.917, 0.860, 0.790$

Burst Pressure =
MSP + Depth (Hyd. Gr. II -.5)

$$\text{BF (Bouyancy Factor)} = 1.00 - (0.0153 \times \text{Mud Wt. I})$$

5/72

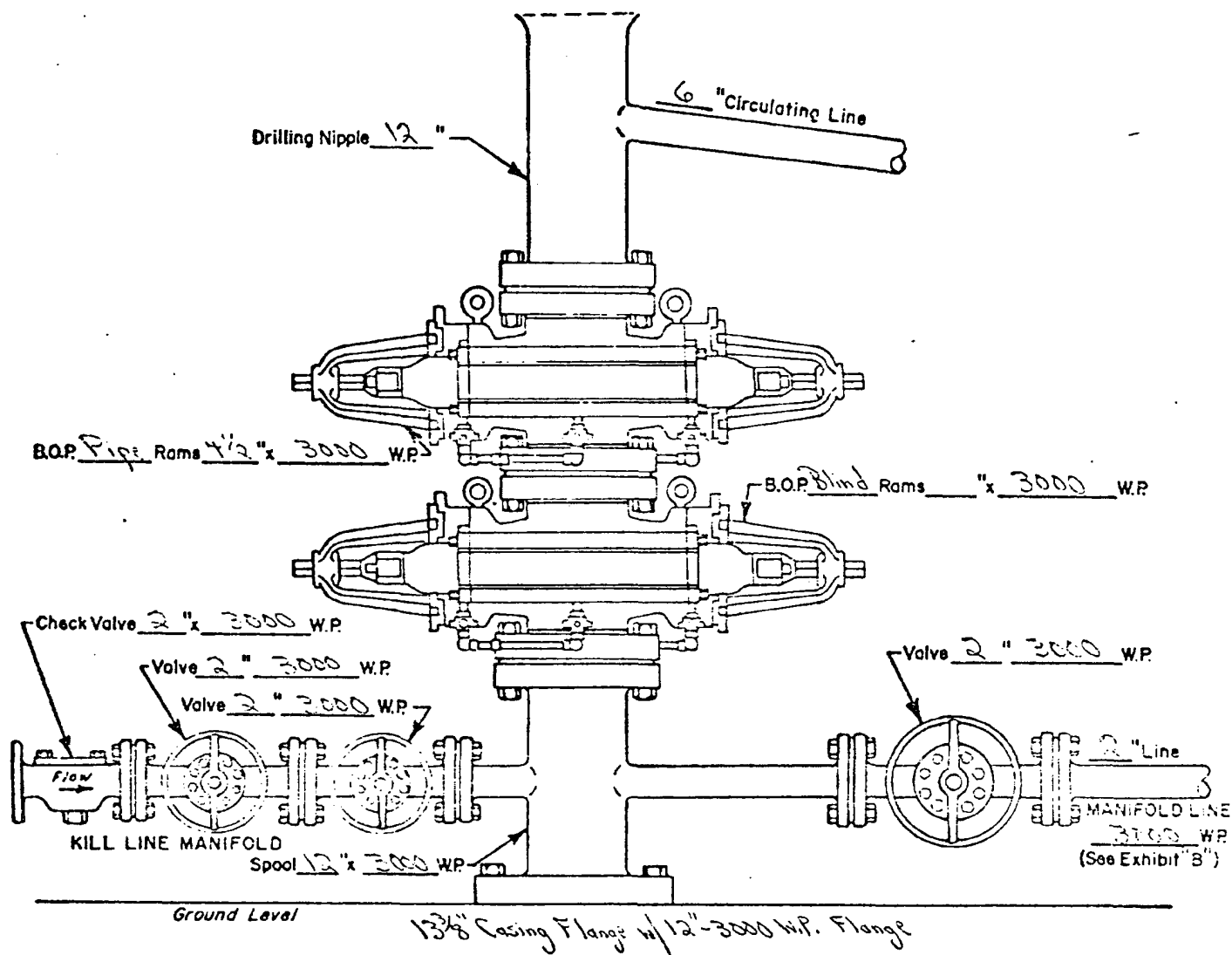
UNION OIL COMPANY OF CALIFORNIA

EXHIBIT A-1

WELL NAME: VERDELL FEDERAL WELL NO. 1

LOCATION: 600 F.W.L. & 1700 F.W.L. A Section 4, T-20-S,

R-27-E, Eddy County, New Mexico



WELL HEAD B.O.P.

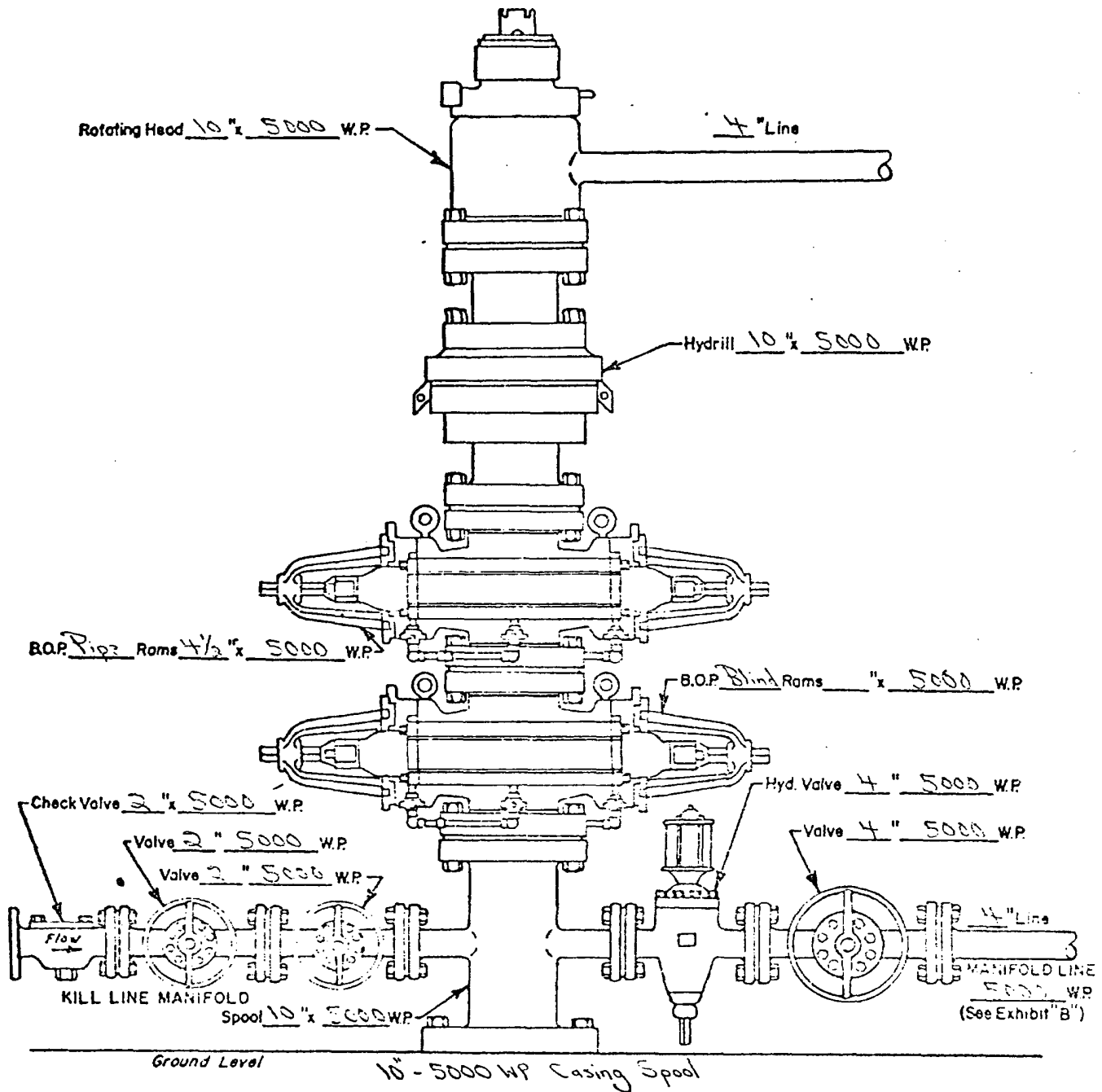
3000 #W.P.

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UNION OIL COMPANY OF CALIFORNIA
EXHIBIT A-2

WELL NAME: WERTALL FEDERAL WELL NO. 1
LOCATION: 660' FNL & 1920' FNL 4 Section 4, T-22-S
Rio Grande, El Paso County, New Mexico

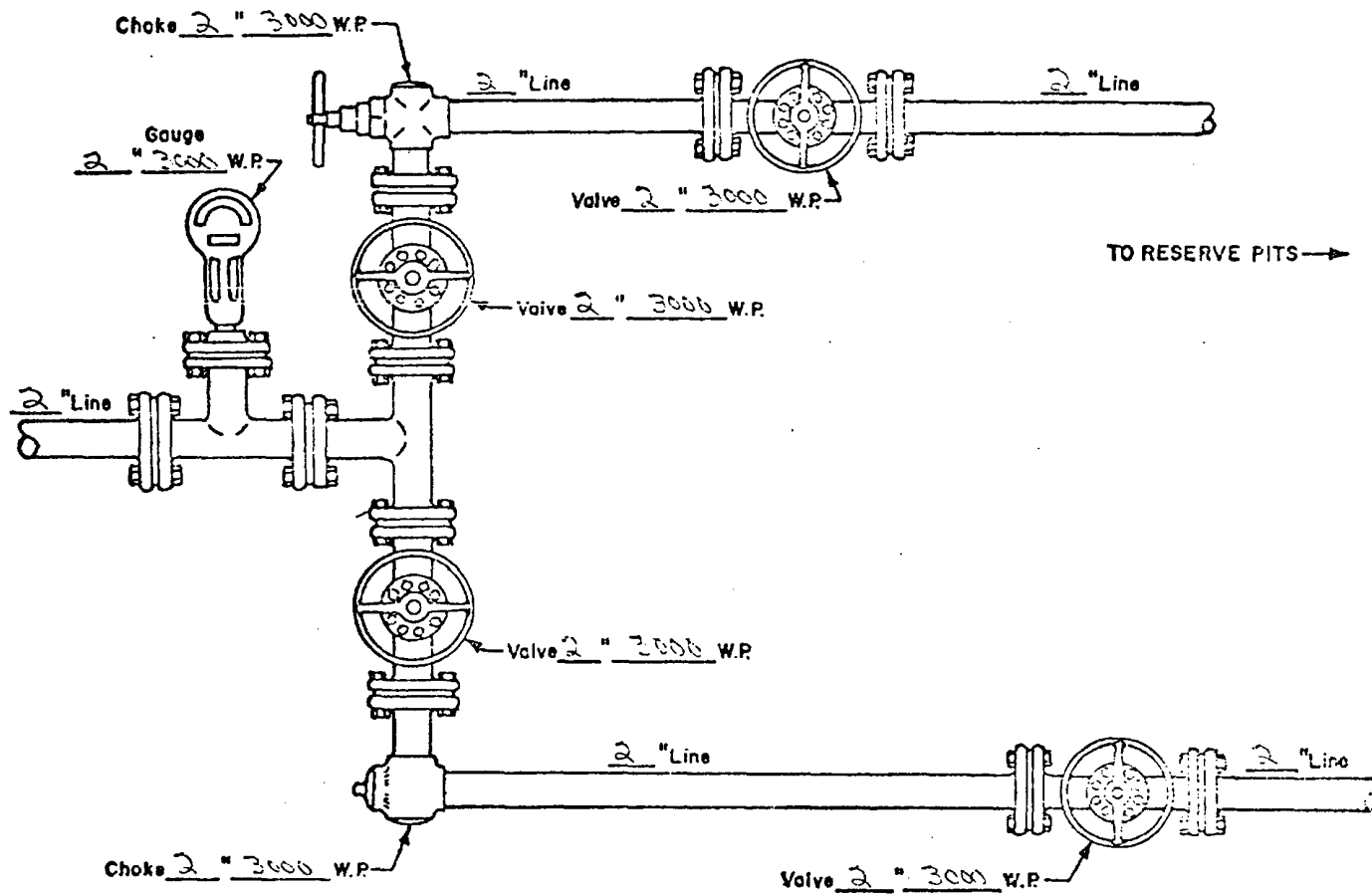


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JUL 27 1973 5000 #W.P.
(L. R. Adams)

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UNION OIL COMPANY OF CALIFORNIA
EXHIBIT B-1

WELL NAME: HERSELL FEDERAL WELL NO.1
LOCATION: 4-66 FNL 2-17-60 FNL 4 Section 4, T-22-S,
R-27-E, Eddy County, New Mexico



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L. A. BELL
GENERAL MANAGER

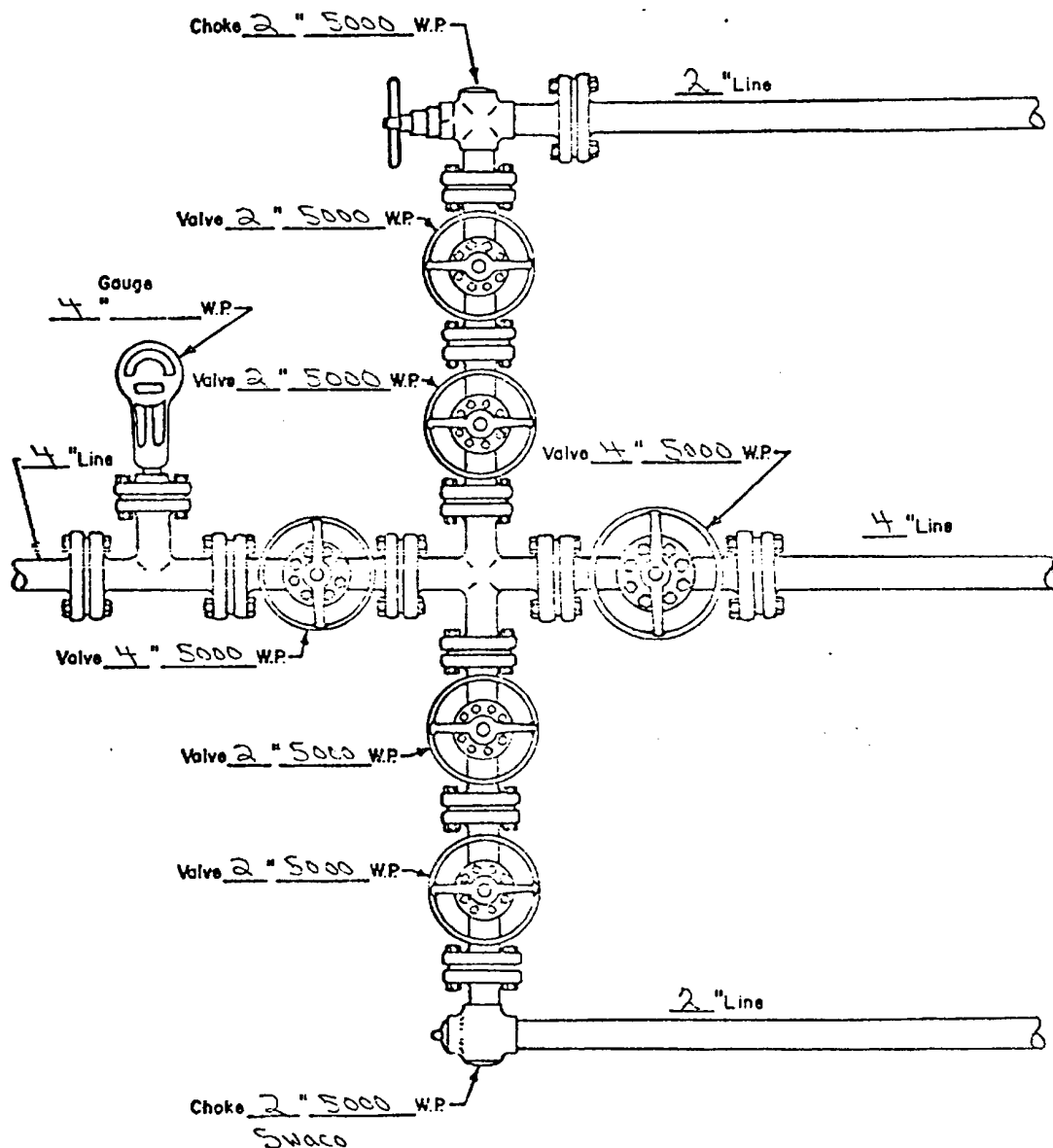
MANIFOLD
3000 W.P.

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UNION OIL COMPANY OF CALIFORNIA

EXHIBIT B-2

WELL NAME: WHEELER FEDERAL WELL No. 1
LOCATION: 600' ENCL. & 100' ENCL. of Section 4 T-20N-S
R-27-E, Eddy County, New Mexico



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ARTESIAN DIVISION

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

JUN 09 1983

O. C. D.
ARTESIA, OFFICE

CASE NO. 7886
Order No. R-7300

APPLICATION OF UNION OIL COMPANY OF
CALIFORNIA FOR SALT WATER DISPOSAL,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 25, 1983, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 6th day of June, 1983, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Union Oil Company of California, is the owner and operator of the Wersell Federal Well No. 1, located 810 feet from the North line and 1980 feet from the West line of Section 4, Township 22 South, Range 27 East, NMPM, Eddy County, New Mexico.
- (3) That the applicant proposes to utilize said well to dispose of salt water produced from the Delaware formation in the same wellbore into a lower zone in the Delaware formation, with injection into the perforated interval from approximately 4822 feet to 4838 feet.
- (4) That the injection should be accomplished through 2 3/8-inch plastic lined tubing installed in a packer set at approximately 4500 feet; and that an approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.
- (5) That the injection well or system should be equipped with a pressure limiting switch or other acceptable device

which will limit the wellhead pressure on the injection well to no more than 965 psi.

(6) That the Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the injection interval.

(7) That the operator should notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.

(8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(9) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Union Oil Company of California, is hereby authorized to utilize its Wersell Federal Well No. 1, located 810 feet from the North line and 1980 feet from the West line of Section 4, Township 22 South, Range 27 East, NMPM, Eddy County, New Mexico, to dispose of salt water produced from the Delaware formation in the same wellbore into a lower zone in the Delaware formation, injection to be accomplished through 2 3/8-inch plastic lined tubing installed in a packer set at approximately 4500 feet, with injection into the perforated interval from approximately 4822 feet to 4838 feet;

PROVIDED HOWEVER, that the casing-tubing annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That the injection well or system shall be equipped with a pressure limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than 965 psi.

(3) That the Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Delaware formation.

(4) That the operator shall notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.

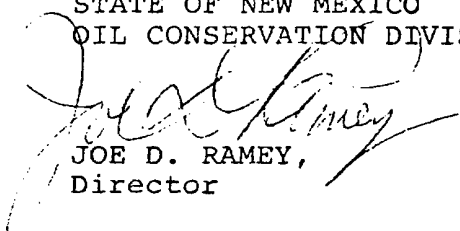
(5) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

(6) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 702, 703, 704, 705, 706, 708, and 1120 of the Division Rules and Regulations.

(7) That jurisdiction of this cause 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


JOE D. RAMEY,
Director

S E A L