

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

State of New Mexico
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87504-2088

Gentlemen:

SUBJECT: EXPANSION OF SECONDARY RECOVERY PROJECT
NORTHEAST DRINKARD UNIT (NEDU)
NORTH EUNICE BLINEBRY-TUBB-DRINKARD POOL
T21S, R37E
LEA COUNTY, NM

We request administrative approval to convert six NEDU wells to water injection. Administrative Order No. R-8541, dated November 9, 1987, authorized Shell Western E&P Inc. to operate the NEDU secondary recovery project within the subject pool.

The wells to be converted are the NEDU Well No.'s 402, 408, and 502 (Section 10), 616 (Section 14), 603 (Section 15), and 802 (Section 22), Lea County, NM. Form C-108 and attachments are enclosed.

As required, copies of this application (with attachments) has been sent to the surface owners and offset operators.

Please call Lori Litzen at (713) 870-3361 with questions.

Sincerely,

A handwritten signature in black ink, appearing to read "W. F. N. Kelldorf".

W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

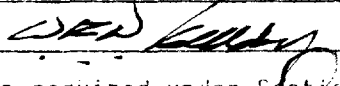
LLL:rlb

Enclosures

cc: (w/enclosures)
State of New Mexico (original and 1 copy)
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division
P. O. Box 1980
Hobbs, NM 88240

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Shell Western E&P Inc.
Address: P. O. Box 576, Houston, TX 77001
Contact party: Lori Litzen Phone: (713) 870-3361
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☒ yes ☐ no
If yes, give the Division order number authorizing the project R-8541.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- * VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- * VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- * X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- * XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: W. F. N. Kelldorf Title Division Environmental Engineer-HS&E
Signature:  Date: 12/11/91
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. Order No. R-8541 (November 9, 1987)

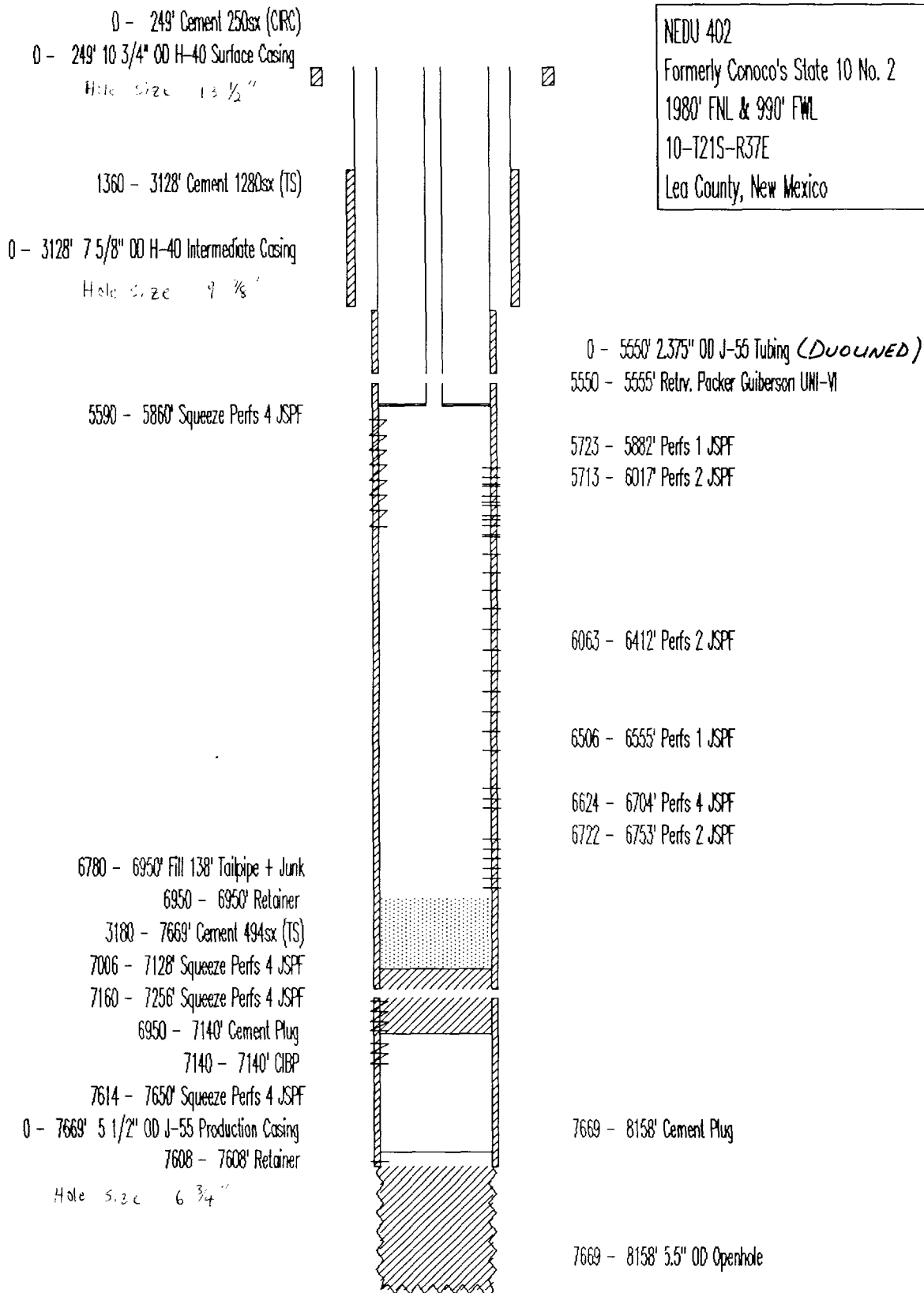
Form C-108 Information
Northeast Drinkard Unit
Six-Well Convert to Water Injection Program
Well No.'s 402, 408, 502, 603, 616, and 802

- III. A. See attached injection well data sheets.
- B. (1) Blinbry/Tubb/Drinkard Formations
North Eunice Blinbry-Tubb-Drinkard Pool
- (2) $\pm 5550'$ to $\pm 6750'$ (perforated) - see attached injection well data sheets.
- (3) Wells were originally drilled for oil production.
- (4) See attached injection well data sheets.
- (5) Next higher oil/gas zone - Paddock ($\pm 5500'$)
Next lower oil/gas zone - (Abo $\pm 6800'$)
- V. See attached maps.
- VI. Tabulation of well data within the area of review and plugged well schematics were previously submitted (Order No. R-8541, November 9, 1987). Tabulation for NEDU Well No. 514 and plugged well schematics for Conoco Hawk B-3, Well #6 and Oryx Elliot "A", Well #4 are attached.
- VII. 1. Average injection rate = 800 BWPD/well
Maximum injection rate = 3000 BWPD/well
2. Closed injection system
3. Average injection pressure = 800 psi
Maximum injection pressure = Approximately 1150 psi
(below 0.2 psi/ft to top perforation)
4. San Andres and reinjected produced water (see attached water analyses).
5. N/A
- VIII. Previously submitted (Order No. R-8541, November 9, 1987).
- IX. Acid treatments with 15% HCl is the proposed stimulation program.
- X. Logs from the original oil well completions were previously released. Potential tests and 1991 average production data is attached.

XI. None available.

XII. N/A

XIII. Copies of this application (and attachments) have been sent by certified mail to surface owners and offset operators (see attached). The legal notice and affidavit of publication in the Hobbs Daily News-Sun is also attached.



NEDU 402

Formerly Conoco's Slate 10 No. 2

1980' FNL & 990' FNL

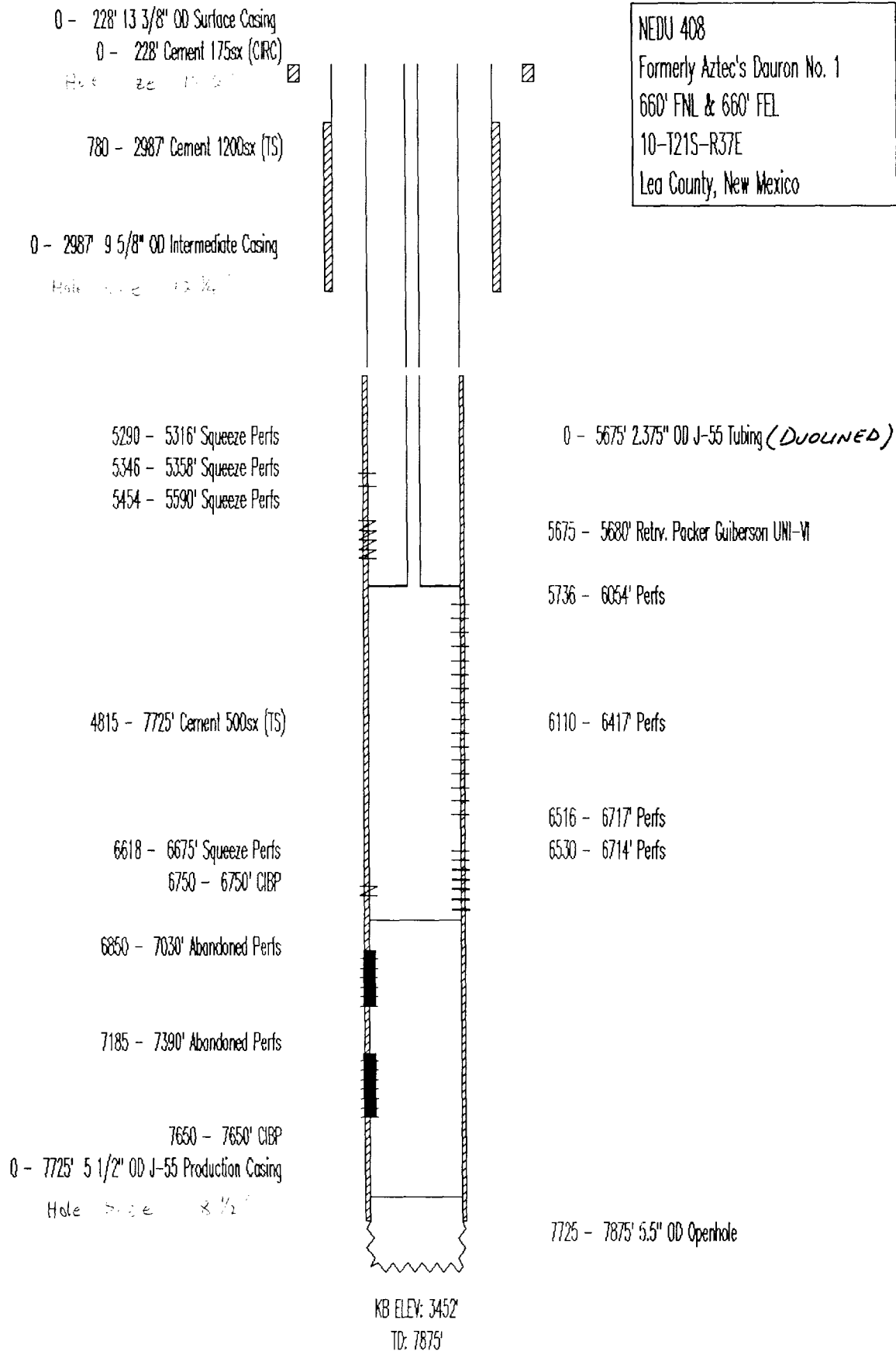
10-T21S-R37E

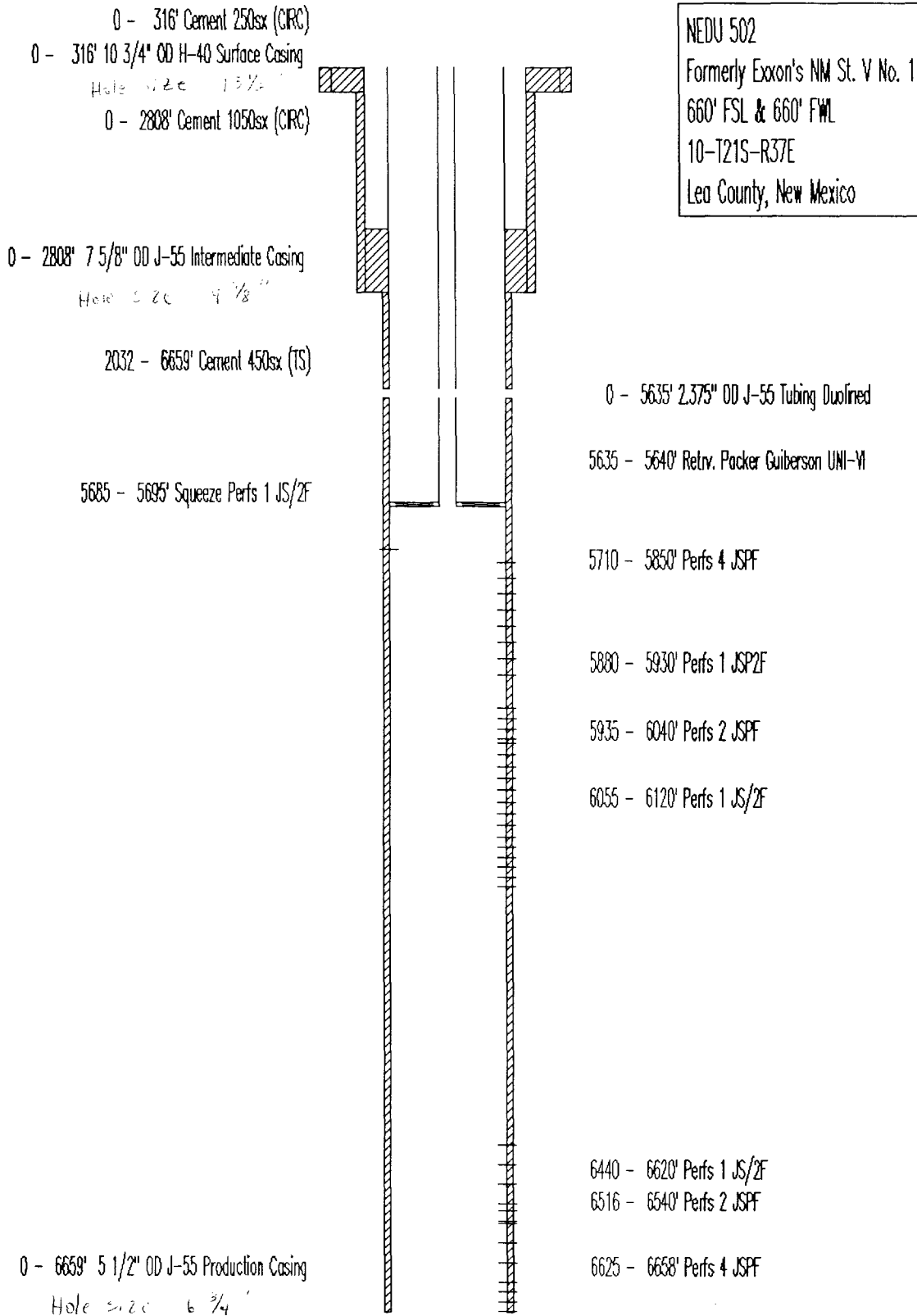
Lea County, New Mexico

KB ELEV: 3468'

PBTD: 6780'

TD: 8155'





NEDU 502

Formerly Exxon's NM St. V No. 1

660' FSL & 660' FWL

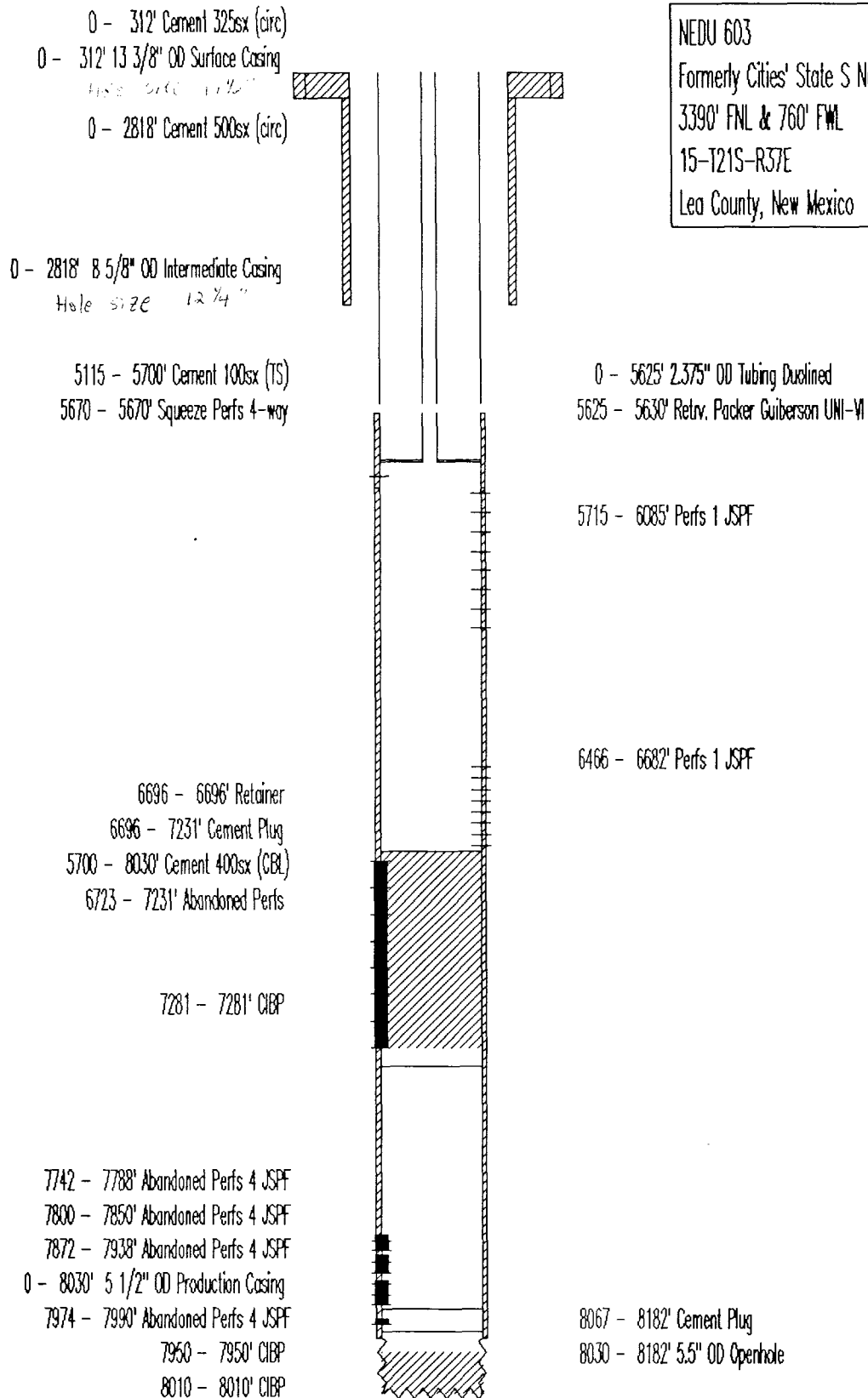
10-T21S-R37E

Lea County, New Mexico

KB ELEV: 3481'

PBTD: 6659'

TD: 6660'



NEDU 603

Formerly Cities' State S No. 4

3390' FNL & 760' FNL

15-T21S-R37E

Lea County, New Mexico

KB ELEV: 3463'

PBD: 6696'

TD: 8182'

- 0 - 222' 13 3/8" OD Surface Casing
 0 - 222' Cement 250sx (circ)
 Hole size 17 1/2"

- 0 - 3001' 8 5/8" OD Intermediate Casing
 Hole size 12 1/4"

- 4250 - 6940' Cement 450sx (FP)
 5578 - 5781' Squeeze Perfs 1 JSPF
 5705 - 5814' Squeeze Perfs 1 JSPF

6743 - 6850' Fill

- 6850 - 6850' CIBP
 0 - 6940' 5 1/2" OD Production Casing
 Hole size 7 7/8"

- 4700 - 4800' Damage sq'd csg leak
 0 - 5525' 2.375" OD Tubing Duolined
 5525 - 5530' Retr. Packer Guiberson UNI-VI

5704 - 6100' Perfs 2 JSPF

6476 - 6616' Perfs 1 JSPF
 6473 - 6680' Perfs 2 JSPF

6940 - 7443' 5.5" OD Openhole

NEDU 616

Formerly SWEPI's Andrews No. 2

990' FNL & 1980' FNL

14-T21S-R37E

Lea County, New Mexico

KB ELEV: 3412'

PBTD: 6743'

TD: 7443'

0 - 255' Cement 200sx (circ)
 0 - 255' 13 3/8" OD Surface Casing
 Hole Size 17 1/2"
 0 - 2913' Cement 1400sx (circ)

0 - 2913' 8 5/8" OD Intermediate Casing
 Hole Size 12 1/4"

4400 - 6627' Cement 600sx (calc w/50% eff)

NEDU 802

Formerly SWEPI's Argo A No. 2

1980' FNL & 660' FWL

22-T21S-R37E

Lea County, New Mexico

0 - 5600' 2.375" OD Tubing Duolined
 5600 - 5605' Retr. Packer Guiberson UNI-VI

5657 - 5957' Perfs 2 JSPF

6000 - 6060' Perfs 2 JSPF

5968 - 6280' Perfs 1 JSPF

6248 - 6248' Squeeze Perfs 4 JSPF

6431 - 6526' Squeeze Perfs 1 JSPF

6502 - 6595' Squeeze Perfs 1 JSPF

6488 - 6629' Squeeze Perfs 4 JSPF

Hole Size 0 - 6627' 5 1/2" OD Production Casing
 7 7/8"

6511 - 6609' Squeeze Perfs 2 JSPF

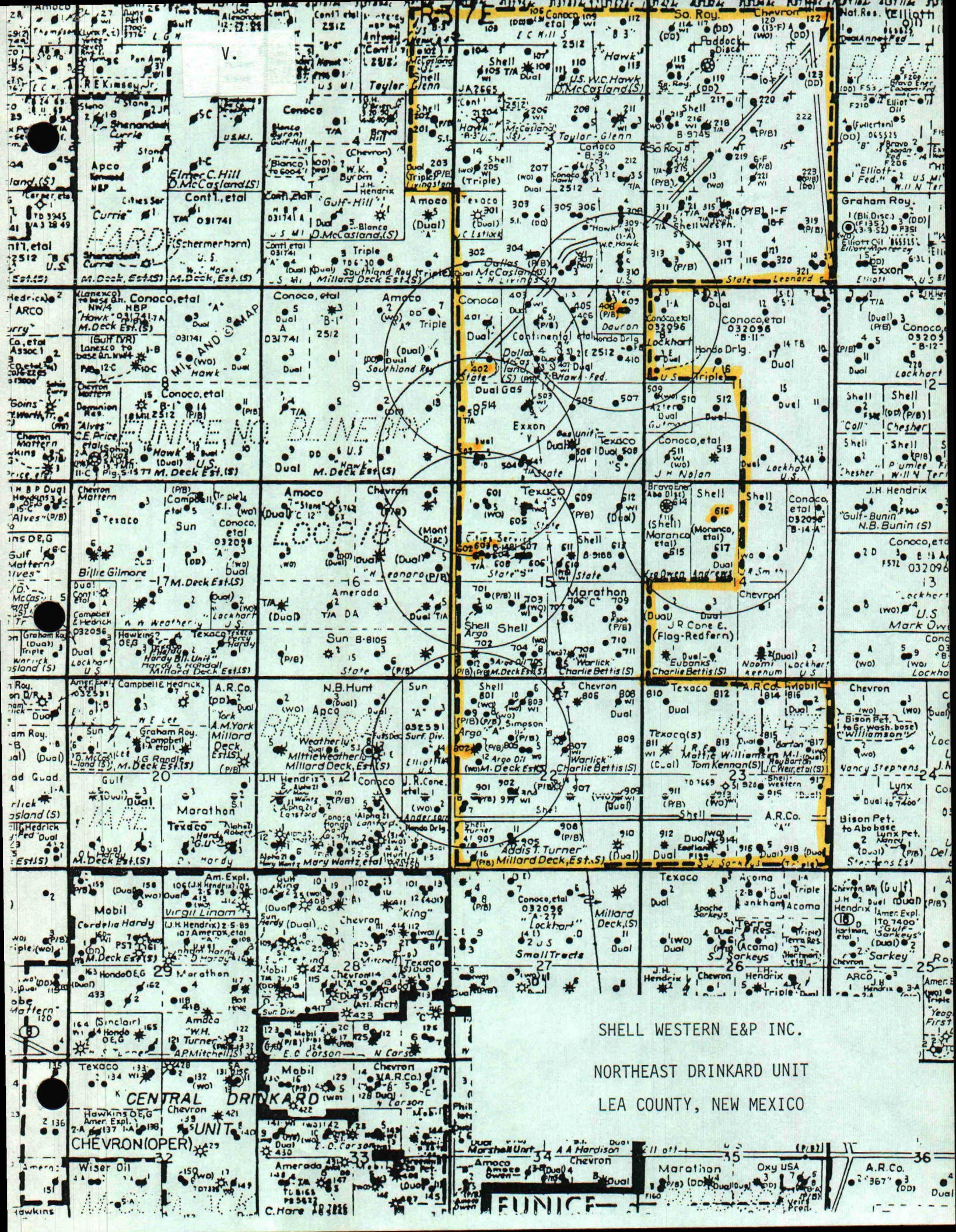
6513 - 6632' Squeeze Perfs 2 JSPF

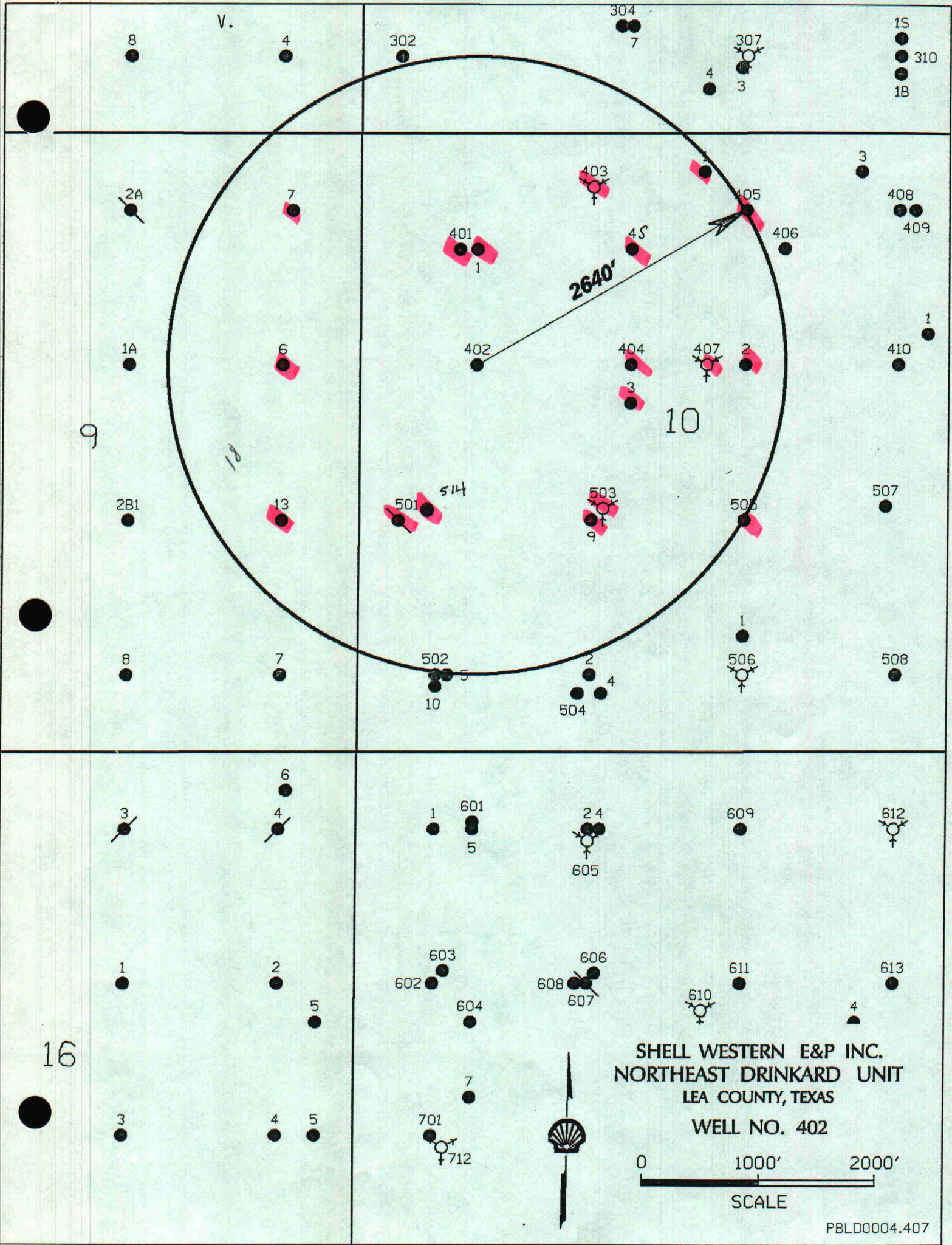
6402 - 6612' Perfs 2 JSPF

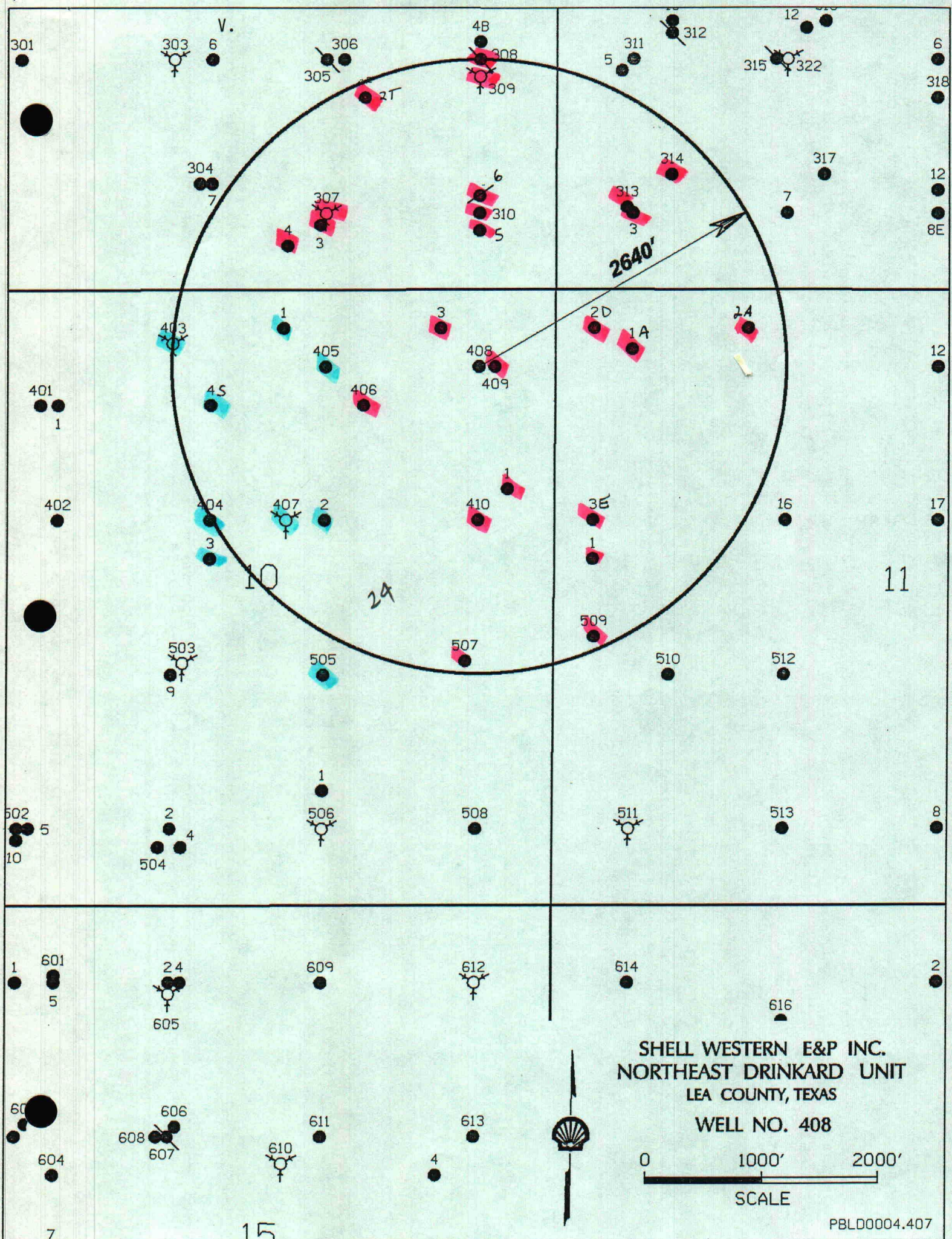
KB ELEV: 3429'

PBTD: 6627'

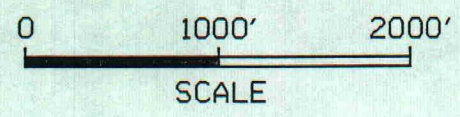
TD: 6629'

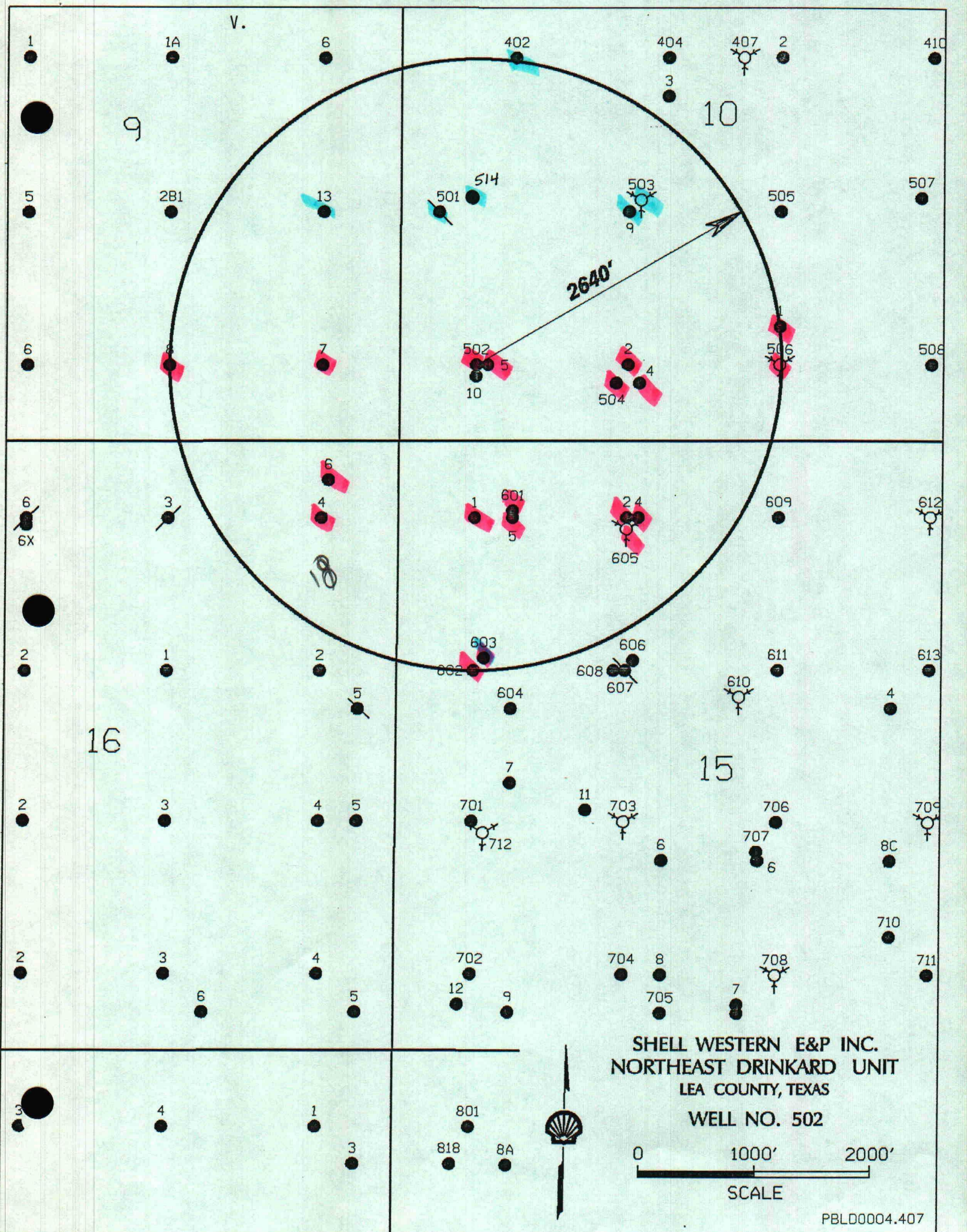




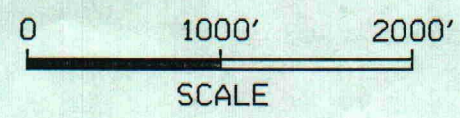


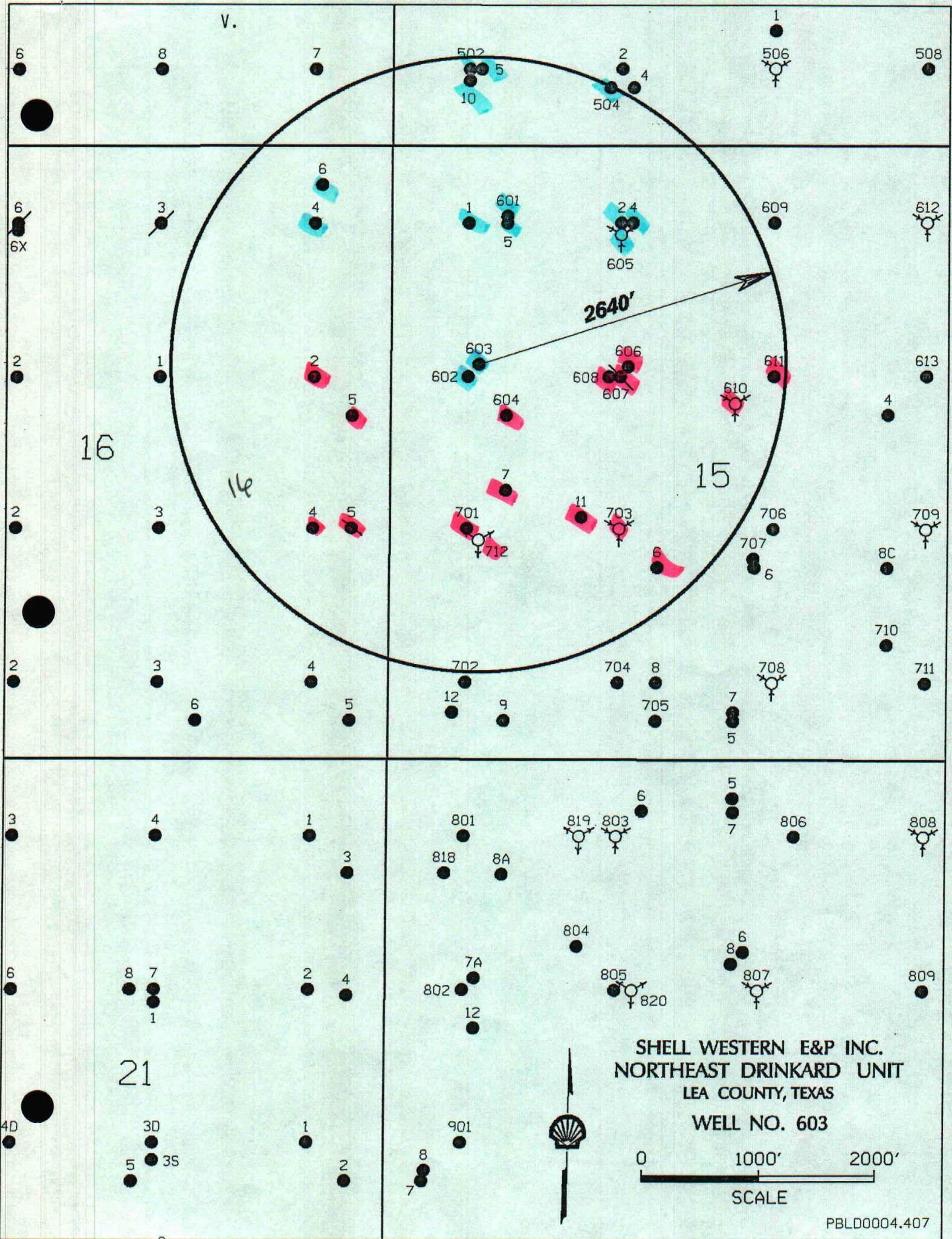
SHELL WESTERN E&P INC.
NORTHEAST DRINKARD UNIT
LEA COUNTY, TEXAS
WELL NO. 408



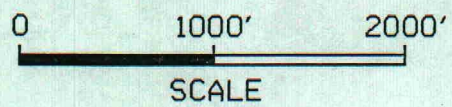


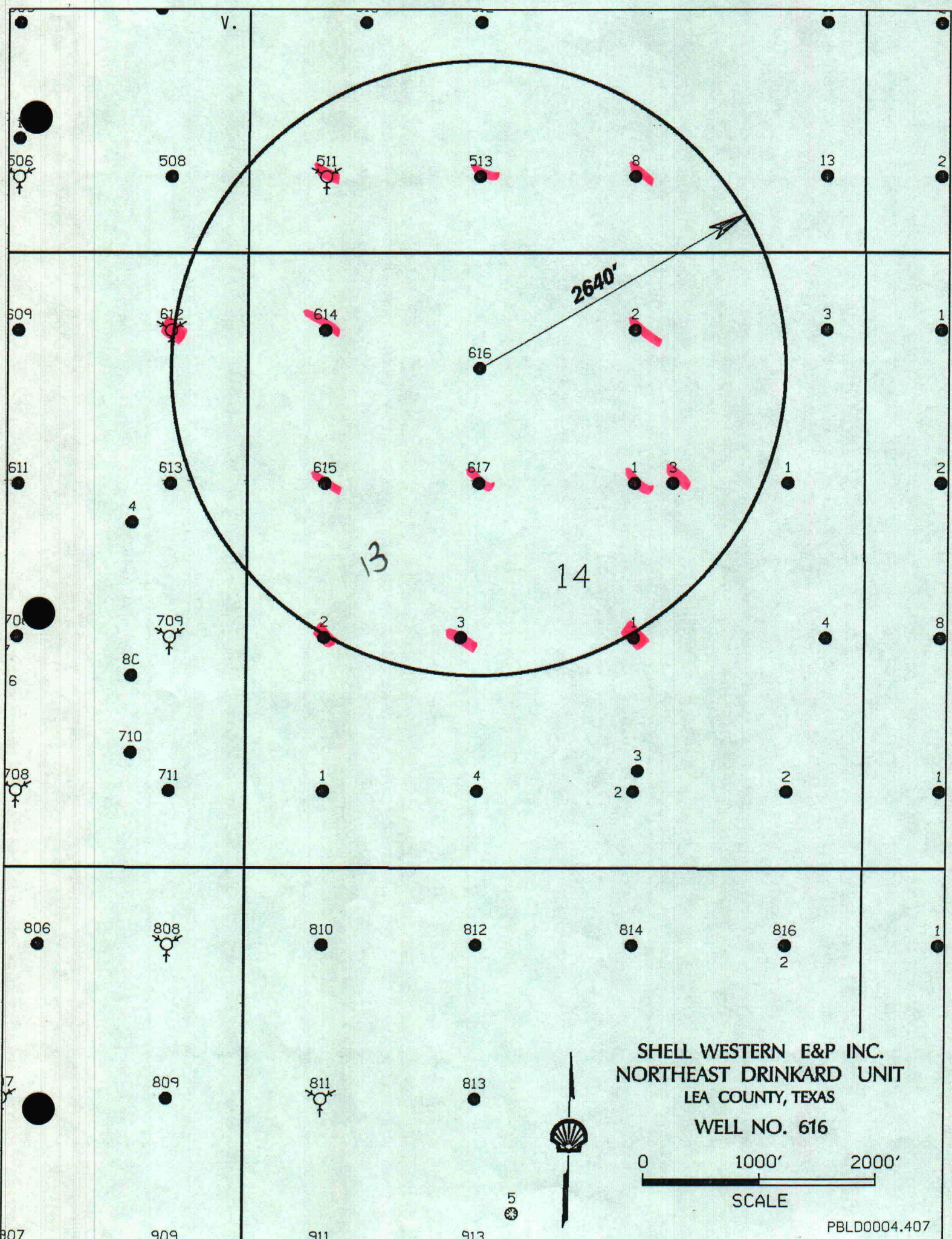
SHELL WESTERN E&P INC.
NORTHEAST DRINKARD UNIT
LEA COUNTY, TEXAS
WELL NO. 502



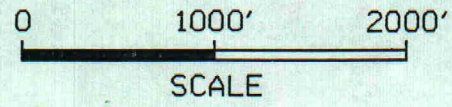


SHELL WESTERN E&P INC.
NORTHEAST DRINKARD UNIT
LEA COUNTY, TEXAS
WELL NO. 603

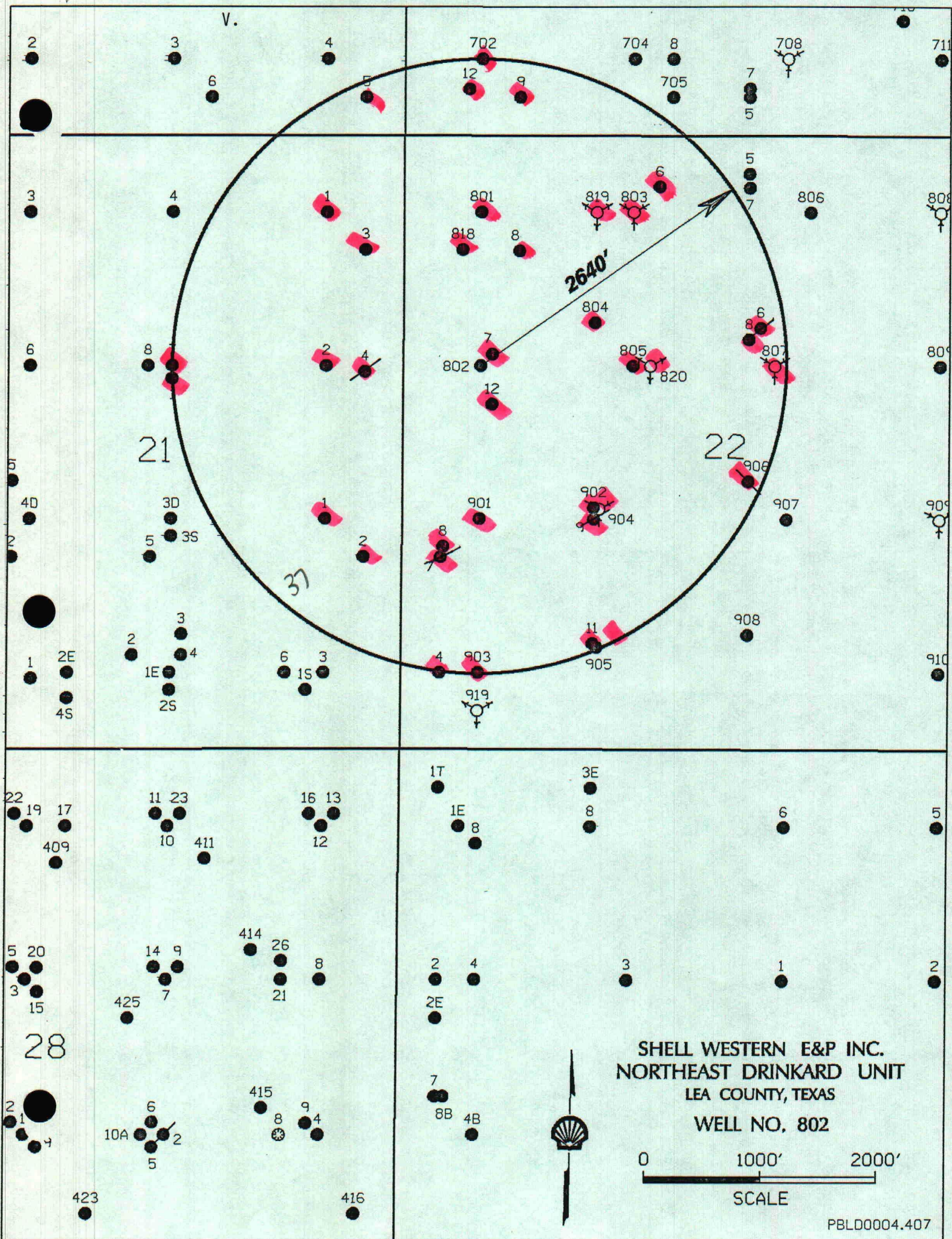




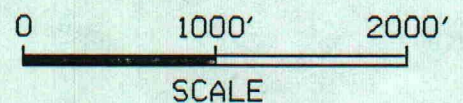
SHELL WESTERN E&P INC.
NORTHEAST DRINKARD UNIT
LEA COUNTY, TEXAS
WELL NO. 616



PBLD0004.407



SHELL WESTERN E&P INC.
NORTHEAST DRINKARD UNIT
LEA COUNTY, TEXAS
WELL NO. 802



VI.

NORTHEAST DRINKARD UNIT

ADR MAP TABULAR DATA OF WELLS

TWN-RNG	SECTION	OPERATOR	LEASE	WELL	LOCATION	SPUD DATE	INIT COMP DATE	TOTAL DEPTH	CASING			WELL TYPE
									SIZE	DEPTH	CMT	
21S-37E	10	SWEPI	ELNICE B-T-D A	514	2010 FEL, 680 FKL	12/50	1/91	6830	13 3/8	410	450 SX	OIL
									8 5/8	3015	1650 SX	
									5 1/2	6827	1055 SX	

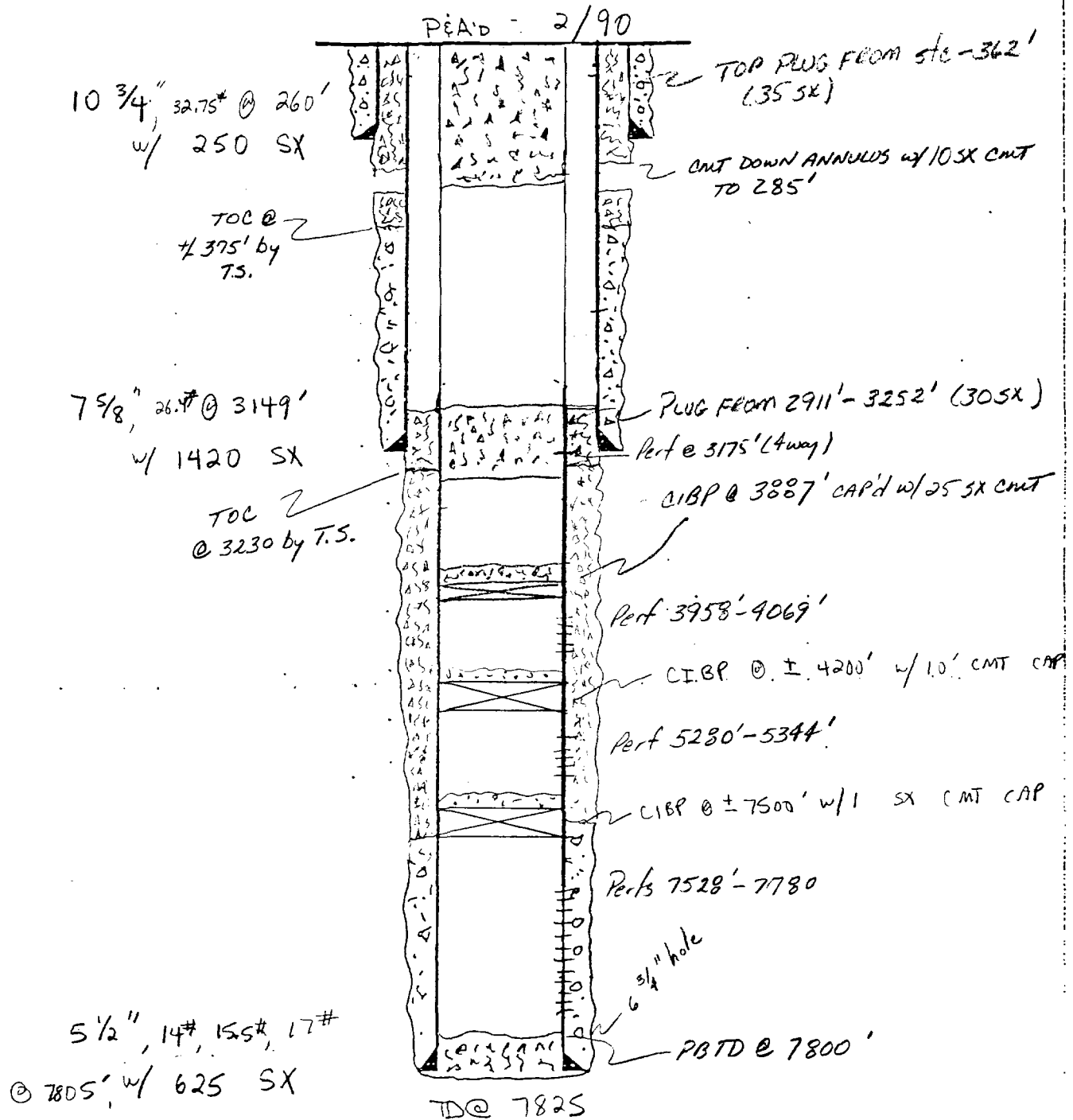
ILLEGIBLE

VI.

PEA'd well

Conoco's Hawk B-3 #6

810' FSL + 660' FEL
3-21S-37E, Unit X
LEA County, New Mexico



VI.

P&A'd well

ORYX'S Elliot "A" #4

2030' FNL + 330' FEL
21-215-37E, Unit H
LEA County, New Mexico

P&A'd - 12/81

13 3/8", 36# @ 258'
w/ 300 SX

CIRC CNT TO SFC w/ 100 SX
CLASS 'C' thru 4 way
perfs @ 260'

9 5/8", 36# @ 2950'
w/ 1500 SX

CIRC @ 2356'

SQZ w/ 75 SX CLASS 'C' @ 2400'

CIBP @ 2775' & CAP'D w/ 10 SX
CLASS 'C' CNT

SQZ w/ 150 SX CLASS 'C' @ 3000'

40 SX CLASS 'C' Plug From 5189-5239

POSSIBLE
Collapsed CSG
@ 5255'

4 way @ 5785. 582' w/ 1500 SX CNT

4 way @ 5870-1 582' w/ 75 SX TOC @ 5860'

Perfs @ 5793, 5905, 26, 48, 56

TOC @ 5860 by
T.S.

CIBP @ 6805' w/ ? SX

Perfs 6903'-7237'

145 SX CNT Plug from 6810'-7316'

CIBP @ 7325' w/ 1 SX CNT

Perfs 7726-53, 60-88, 7796-7824
w/ 4 JSPE (332 holes)

5 1/2", 17 1/2" @ 7851'
w/ 350 SX

TD @ 7857

SHELL WESTERN E&P INC.
WATER ANALYSIS REPORT
WESTERN DIVISION

CaCO₃ 0.44
CaSO₄ ✓

COMPANY Shell Western E&P, Inc.
FIELD _____
LEASE CDU
WELL NUMBER _____
COUNTY & STATE _____
PRODUCING FORMATION San Andres
WHERE SAMPLED Water Supply Well #200
REMARKS _____

LABORATORY Martin Water Labs., Inc.
LABORATORY NUMBER 387246
DATE SAMPLE TAKEN 3-17-87
DATE SAMPLE RECEIVED 3-26-87
DATE SAMPLE REPORTED 3-30-87

TOTAL HARDNESS mg/L AS CaCO₃ _____

TOTAL ALKALINITY mg/L AS CaCO_3 760

CONSTITUENT	MG/LITER	REACT. COEF.	MES/LITER
SODIUM (INCL. POTASSIUM) AS Na^+	10,057	0.04250	437.3
CALCIUM - Ca^{++}	1,000	0.04990	49.9
MAGNESIUM - Mg^{++}	334	0.05224	27.5
IRON TOTAL - Fe^{++} & Fe^{+++}	2.9	0.03581	0.1
BARIUM - Ba^{++}		0.01460	
POSITIVE SUB-TOTAL	11,394		514.8
CHLORIDE - Cl^-	14,914	0.02820	420.6
10435 X 5.2 BICARBONATE - CO_3^{--} & HCO_3^-	927	0.01638 *	15.2
SULFATE - SO_4^{--}	2,027	0.02032	42.2
HYDROXYL - OH^-	0	0.05820	0.0
SULFIDE - S^-	589	0.03238	36.8
NEGATIVE SUB-TOTAL	18,457		514.8
TOTAL DISSOLVED SOLIDS	29,851		1,029.6

• BICARBONATE

SPECIFIC GRAVITY 1.0222 @ 60 °F pH 6.74 RES. 0.270 @ 80 °F

ANALYST _____
REQUESTED BY _____

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.

Mr. Donnie Anderson, Hobbs

Na⁺ - 1000
Cl⁻ - 1000
Ca⁺⁺ - 100
Mg⁺⁺ - 100
Fe⁺⁺ - 100

SHELL WESTERN E&P INC.
WATER ANALYSIS REPORT
MID-CONTINENT DIVISION

SAMPLE DESCRIPTION

COMPANY SWEPI
FIELD DRINKARD
LEASE TURNER
WELL NUMBER 2
COUNTY & STATE LEA, NEW MEXICO
PRODUCING FORMATION BLINESBERRY
WHERE SAMPLED _____
REMARKS _____

LABORATORY _____
LABORATORY NUMBER _____
DATE SAMPLE TAKEN 4/8
DATE SAMPLE RECEIVED 4/8
DATE SAMPLE REPORTED 4/9

CHEMICAL AND PHYSICAL PROPERTIESTOTAL HARDNESS Mg/L AS CaCO₃ 30500TOTAL ALKALINITY Mg/L AS CaCO₃ 202

CONSTITUENT	Mg/LITER	REACT. COEF.	Meg/LITER
SODIUM (INCL POTASSIUM) AS Na ⁺	46995	0.04350	
CALCIUM - Ca ⁺⁺	7400	0.04990	
MAGNESIUM - Mg ⁺⁺	2916	0.08224	
IRON TOTAL - Fe ⁺⁺ & Fe ⁺⁺⁺	44	0.03581	
BARIUM - Ba ⁺⁺	0	0.01480	
POSITIVE SUB-TOTAL	57355		
CHLORIDE - Cl ⁻	93035	0.02820	
CARBONATE & BICARBONATE - CO ₃ ⁼ & HCO ₃ ⁻	246	0.01639 *	
SULFATE - SO ₄ ⁼	1262	0.07022	
HYDROXYL - OH ⁻	0	0.05830	
SULFIDE - S ⁼	0	0.05238	
NEGATIVE SUB-TOTAL	94543		
TOTAL DISSOLVED SOLIDS	151898		

* BICARBONATE

SPECIFIC GRAVITY 1.1068 @ 60 °F pH 6.33 RES. .069 @ 80 °FANALYST _____
REQUESTED BY _____

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.

	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	Cl ⁻ 1000
Na ⁺ 1000																		
Ca ⁺⁺ 100																		HCO ₃ ⁻ 100
Mg ⁺⁺ 100																		SO ₄ ⁼ 100
Fe ⁺⁺⁺ 100																		CO ₃ ⁼ 100

VII.4.

SHELL WESTERN E&P INC.
WATER ANALYSIS REPORT
WESTERN DIVISION

CaCO_3 - 0.87 (NONE)
 CaSO_4 N

SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.
FIELD Drinkard
LEASE Argo
WELL NUMBER #5
COUNTY & STATE Lee, NY
PRODUCING FORMATION Tubb
WHERE SAMPLED _____
REMARKS _____

LABORATORY Martin Water Labs., Inc.
LABORATORY NUMBER 38790
DATE SAMPLE TAKEN _____
DATE SAMPLE RECEIVED 3-12-87
DATE SAMPLE REPORTED 3-16-87

CHEMICAL AND PHYSICAL PROPERTIESTOTAL HARDNESS Mg/L AS CaCO_3 5.750TOTAL ALKALINITY Mg/L AS CaCO_3 90

CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na^+	6.152	0.04350	267.4
CALCIUM - Ca^{++}	1.640	0.04990	81.8
MAGNESIUM - Mg^{++}	401	0.05224	33.0
IRON TOTAL - Fe^{++} & Fe^{+++}	255	0.03531	9.2
BARIUM - Ba^{++}	0	0.01450	0.0
POSITIVE SUB-TOTAL	8.448		391.4
CHLORIDE - Cl^-	13.494	0.02820	380.5
SODIUM & BICARBONATE - Na^+ & HCO_3^-	110	0.01639 *	1.8
SULFATE - SO_4^{--}	438	0.02082	9.1
HYDROXYL - OH^-	0	0.05880	0.0
SULFIDE - S^{--}	0.0	0.05235	0.0
NEGATIVE SUB-TOTAL	14.041		391.4
TOTAL DISSOLVED SOLIDS	22,490		782.8

* BICARBONATE

SPECIFIC GRAVITY 1.0181 @ 60 °F pH 6.02 RES. 0.390 @ 80 °F

ANALYST _____

REQUESTED BY _____

Mr. Donnie Anderson, Hobbs

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.

	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	
Na^+ 1000																		Cl^- 1000
Ca^{++} 100																		HCO_3^- 100
Mg^{++} 100																		SO_4^{--} 100
Fe^{++} 100																		CO_3^{--} 100

VII.4.

SHELL WESTERN E&P INC.
WATER ANALYSIS REPORT
WESTERN DIVISION

 $\text{CaCO}_3 - 0.58 (\text{NONE})$ $\text{CaSO}_4 \quad N$ SAMPLE DESCRIPTION

COMPANY Shell Western E&P, Inc.
FIELD Drinkard
LEASE Arco "A"
WELL NUMBER #3
COUNTY & STATE Lee, NM
PRODUCING FORMATION Drinkard
WHERE SAMPLED _____
REMARKS _____

LABORATORY Martin Water Labs., Inc.
LABORATORY NUMBER 38791
DATE SAMPLE TAKEN _____
DATE SAMPLE RECEIVED 3-12-87
DATE SAMPLE REPORTED 3-16-87

CHEMICAL AND PHYSICAL PROPERTIESTOTAL HARDNESS Mg/L AS CaCO_3 23,200TOTAL ALKALINITY Mg/L AS CaCO_3 106

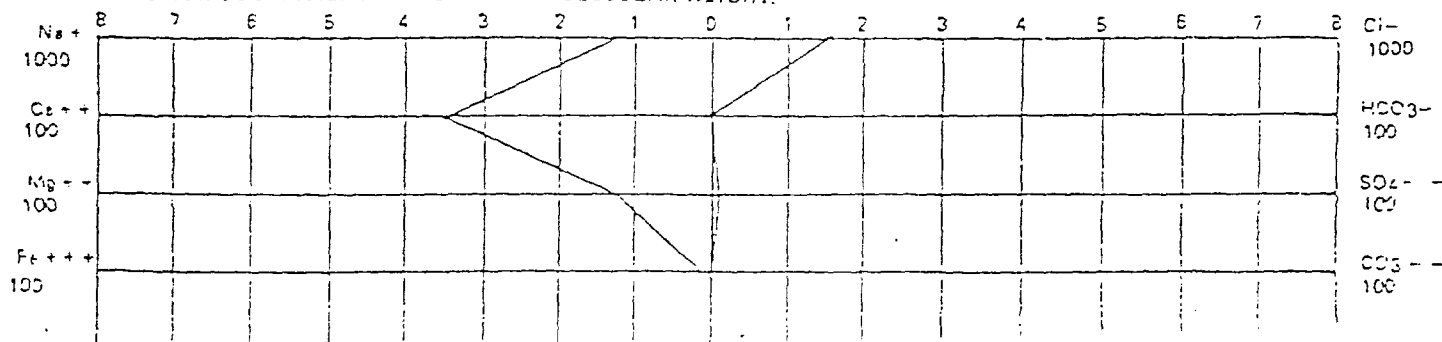
CONSTITUENT	Mg/LITER	REACT. COEF.	Mg/LITER
SODIUM (INCL. POTASSIUM) AS Na^+	26,603	0.04350	1,156.6
CALCIUM - Ca^{++}	6,920	0.04890	345.3
MAGNESIUM - Mg^{++}	1,434	0.08274	117.9
IRON TOTAL - Fe^{++} & Fe^{+++}	351	0.03581	12.6
BARIUM - Ba^{++}	0	0.01460	0.0
POSITIVE SUB-TOTAL	35,308		1,632.4
CHLORIDE - Cl^-	57,525	0.02820	1,622.2
WATER BICARBONATE - HCO_3^-	129	0.01538 *	2.1
SULFATE - SO_4^{--}	390	0.02082	8.1
HYDROXYL - OH^-	0	0.05320	0.0
SULFIDE - S^{--}	0.0	0.05238	0.0
NEGATIVE SUB-TOTAL	58,045		1,632.4
TOTAL DISSOLVED SOLIDS	93,353		3,264.8

* BICARBONATE

SPECIFIC GRAVITY 1.0651 @ 60 OF pH 5.9 RES. 0.098 @ 80 OFANALYST _____
REQUESTED BY _____

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)
REACTION COEFFICIENT = VALENCE \div MOLECULAR WEIGHT.

Mr. Donnie Anderson, Hobbs



X.

POTENTIAL TESTS & 1991 AVG PRODUCTION

NORTHEAST DRINKARD UNIT

WELL #	FORMER WELL NAME	DATE	ZONE	BOPD	MCFPD
402	CONOCO STATE SEC 10 #2	08/55	DRINKARD	29	369
			BLINEBRY		3280 (CAOF)
		06/90	N EUNICE B-T-D	11	207
		1991 AVG PRODUCTION		8	304
408	MERIDIAN'S DAURON #1	11/50	ELLENBURGER	264	232
		03/57	DRINKARD III	25	52
		01/59	WANTZ ABO	50	TSTM
		07/70	PADDOCK	12	TSTM
		10/89	N EUNICE B-T-D	3	36
		1991 AVG PRODUCTION		3	36
502	EXXON'S N MEX ST V #1	11/48	DRINKARD IV	224	416
		06/57	BLINEBRY II-III	397	508
		09/86	BLINEBRY I&IV	50	NOT REPORTED
			TUBB I		
			DRINKARD I-IV		
		01/90	N EUNICE B-T-D	27	181
		1991 AVG PRODUCTION		3	116
603	OXY'S STATE "S" #4	04/51	ELLENBURGER	705	687
		11/51	HARE/ELLENBURGER	540	463
		02/73	WANTZ ABO	239	198
		08/88	N EUNICE B-T-D	22	198
		1991 AVG PRODUCTION		9	139
616	SWEPI'S ANDREWS #2	01/53	WANTZ ABO	181	266
		09/62	BLINEBRY II-III	238	830
			DRINKARD I-III	51	150
		03/90	N EUNICE B-T-D	5	73
		1991 AVG PRODUCTION		3	43
802	SWEPI'S ARGO A #2	12/47	DRINKARD IV-V	143	384
		07/74	TUBB I-III	24	1200
		06/91	N EUNICE B-T-D	5	75
		1991 AVG PRODUCTION		2	259

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Kathi Bearden

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of _____

One weeks.
Beginning with the issue dated

Nov. 21, 19 91
and ending with the issue dated

Nov. 21, 19 91

Kathi Bearden
General Manager

Sworn and subscribed to before

me this 22 day of

November, 19 91

Paula Parrish
Notary Public.

My Commission expires _____

Aug. 5, 19 95
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

November 21, 1991

Notice is hereby given of the application of Shell Western E&P Inc., P.O. Box 576, Houston, TX. 77001, to the Oil Conservation Division, New Mexico Energy & Minerals Department, for approval of the following injection wells for the purpose of pressure maintenance and enhanced recovery.

Well No.'s: 402, 408, 502, 603, 616, and 802

Lease/Unit Name: Northeast Drinkard Unit (NEDU)

All locations are in T21S, R37E, Lea County, New Mexico (Well No.'s 402, 408 and 502 — Section 10; Well No. 616 — Section 14; Well No. 603—Section 15; and Well No. 802 - Section 22)

NEDU 402 (1980' FNL & 990' FWL), 408 (660' FEL), 502 (660' FSL & 660' FWL), 603 (3390' FNL & 760' FWL), 616 (990' FNL & 1980' FWL), and 802 (1980' FNL & 660' FWL) are conversions to water injection service. The injection formation is the San Andres at a depth of approximately 5550 feet below the surface of the ground. Expected maximum injection rate is 3000 barrels of San Andres water per day per well, and expected maximum injection pressure is 1150 psi.

Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within fifteen (15) days.

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Amerada Hess
Drawer D
Monument, NM 88265

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

It is our intent to convert the subject wells to water injection for expansion of our secondary recovery project. The New Mexico Oil Conservation Division requires that the surface owners of the tracts on which proposed injectors are located and offset operators within $\frac{1}{2}$ mile of the wells be furnished a copy of the application to inject.

Accordingly, enclosed is a copy of our application. Included are Form C-108, Application for Authorization to Inject, and all attachments that were submitted to the State of New Mexico in support of the application.

Please contact Lori Litzen at (713) 870-3361 with questions.

Sincerely,

A handwritten signature in black ink, appearing to read "W. F. N. Kelldorf".

W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:r1b

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Apache
P. O. Box 4628
Houston, TX 77210-9990

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Bravo Energy
Box 2160
Hobbs, NM 88240

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

A handwritten signature in black ink, which appears to read "W. F. N. Kelldorf", is written over the typed name.

W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

J. R. Cone
P. O. Box 10217
Lubbock, TX 79408

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Conoco
10 Desta Dr. West
Midland, TX 79705

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Please contact Lori Litzen at (713) 870-3361 with questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'W. F. N. Kelldorf', with a stylized flourish at the end.

W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Exxon
P. O. Box 1700
Midland, TX 79702

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

A handwritten signature in dark ink, appearing to read "W. F. N. Kelldorf", written in a cursive style.

W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Hondo Drilling
Drawer 2516
Midland, TX 79702

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:r1b

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

N. B. Hunt
2400 Thanksgiving Twr.
Dallas, TX 75201

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Marathon Oil Co.
P. O. Box 552
Midland, TX 79702

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Meridian Oil Co.
P. O. Box 51810
Midland, TX 79710-1810

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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Sincerely,

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Oryx
Box 26300
Oklahoma City, OK 73126

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Texaco
P. O. Box 46555
Denver, CO 80237

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Will N. Terry Trust, et al
Box 686
Hobbs, NM 88240

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
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Sincerely,

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Ms. Nadine Owen
909 W. Taos
Hobbs, NM 88240

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:r1b

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Millard Deck Estate #4193
NCNB Ft. Worth
P. O. Box 811234
Dallas, TX 75381

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
LEA COUNTY, NM

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W. F. N. Kellendorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure

XIII.

Shell Western E&P Inc.

An affiliate of Shell Oil Company



P.O. Box 576
Houston, TX 77001

December 11, 1991

CERTIFIED MAIL

Chevron
P. O. Box 1150
Midland, TX 79702

Gentlemen:

SUBJECT: FORM C-108 AND ATTACHMENTS
APPLICATION FOR AUTHORIZATION TO INJECT
NORTHEAST DRINKARD UNIT, WELL NO'S 402, 408, 502, 603, 616 & 802
T21, R37E
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W. F. N. Kelldorf
Division Environmental Engineer - HS&E
Western Division

LLL:rlb

Enclosure



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

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

RE: Proposed:

MC _____
DHC _____
NSL _____
NSP _____
SWD _____
WFX ☒ _____
PMX _____

Gentlemen:

I have examined the application for the:

Shell Western E&P Co., Inc. Hobbs Unit
Operator _____ Lease & Well No. _____ Unit _____ S-T-R _____

#402-E 10-21-37
#408-A 10-21-37
#502-M 10-21-37
#616-C 10-21-37
#603-E 10-21-37
#802-E 12-21-37

and my recommendations are as follows:

OK JS

Yours very truly,

Jerry Sexton
Jerry Sexton
Supervisor, District 1

/ed