



Occidental Permian Ltd.

Occidental Permian Ltd.

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October 15, 2001

New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

OCT 16 2001

Attention: Mr. Richard Ezeanyim

Re: ***Case Number 12722, Examiner Hearing September 6, 2001***
Application of Occidental Permian Limited Partnership to Authorize Expansion of the
North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project
Hobbs: Grayburg - San Andres Pool
Lea County, New Mexico

Dear Richard:

Per our conversation last week, please find enclosed the following data to supplement the record in the referenced case:

1. Map entitled "North Hobbs Unit CO2 Flood Phase 1 Approximate Start Dates." This map is a blowup of the map included in Exhibit #26, and shows the estimated dates that CO2 injection will commence in various areas of Phase 1.
2. Bar chart labeled "Cumulative number of injection wells used in Phase 1 of NHU CO2 Project." This graph illustrates when the 103 injection wells will be utilized for tertiary injection service and is based on our modeling work. As you can see, over 90% of the wells will be utilized by 2012, 10 years after the start of injection into the project.
3. Corrected Injection Well Data Sheets for well #431A (in section 20 of 18S-38E), well #342A (in section 30 of 18S-38E) and well #331A (in section 32 of 18S-38E). These particular well data sheets were submitted in the C-108 package at the hearing, but the heading information was incomplete or incorrect. The information highlighted in yellow is the only data that was changed on these forms.
4. Table identified as "North Hobbs Unit CO2 Project Phase 1 Injection Well List." In reviewing the data sheets for item #3 above, I discovered that two wells of the 3 wells mentioned above (well #431A in section 20 of 18S-38E and well #342A in section 30 of 18S-38E) were incorrectly identified as proposed re-entries of old plugged and abandoned wells. In fact, these are new wells that will be drilled. Accordingly, this table has been corrected (corrections highlighted in yellow on the second page) and is submitted to replace the list previously submitted at the hearing and in a subsequent letter to Examiner Catanach dated 9/12/01.
5. A copy of the cement bond log run on well # 331 (in section 30 of 18S-38E). In our opinion, it shows the top of cement to be about 3650', which should be sufficient to prevent the migration of injectant from the proposed injection interval of 4000' to 4238'.

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6. Revised and corrected wellbore schematics for the following wells:

<u>Well Name & Number</u>	<u>API #</u>	<u>Location</u>
Grimes No. 5	30-025-07460	29-18S-38E
State "B-13" No. 3	30-025-05438	13-18S-37E
McKinley "B" No. 1	30-025-07380	20-18S-38E
State "E" No. 1	30-025-10199	14-18S-37E
State "F" No. 1	30-025-05465	23-18S-37E
State "I-29" No. 2	30-025-07443	29-18S-38E
NHGSAU No. 1	30-025-05449	13-18S-37E
Grimes No. 2	30-025-07457	29-18S-38E

These revisions and corrections result from a more thorough review of the NMOCD well records in Santa Fe that was recently conducted. OXY continues to believe that each of these wells is plugged in a manner that will allow confinement of the injectant to the proposed injection interval.

7. An affidavit certifying that the information contained herein is true and correct to the best of my knowledge and belief.

I hope this information is helpful. If you need anything else, please don't hesitate to call me at 281-552-1303 or page me at 877-326-0713.

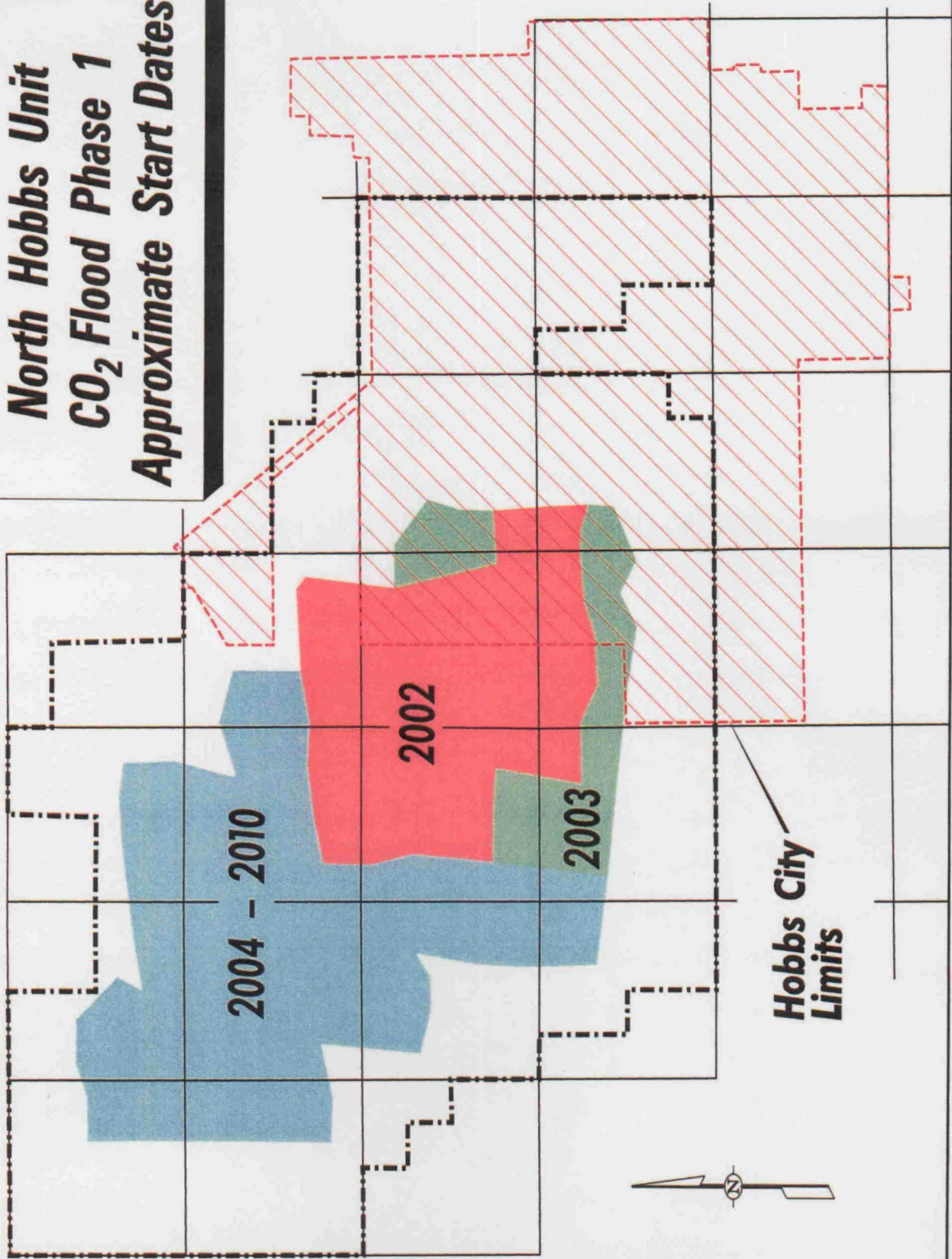
Sincerely,



Richard E. Foppiano
Senior Advisor – Regulatory Affairs

Cc: Dave Catanach, NMOCD (Santa Fe)
Tom Kellahin (Kellahin & Kellahin, Santa Fe)

**North Hobbs Unit
CO₂ Flood Phase 1
Approximate Start Dates**



ILLEGIBLE



COMBINATION
MICRO-SEISMOGRAM
FRACTURE FINDER
BOND LOG

COMPANY Shell Oil Company
WELL North Hobbs
FIELD North Hobbs
COUNTY Lea STATE New Mexico
LOCATION Unit 3
Sec. 30 Twp. 18-S Rge. 38-E
Other Services: None

Perforation Datum Ground Level Elev. N.A.
Log Measured From Ground Level 51 Above Perm Datum
Drilling Measured From N.A.
Elev. K.B. N.A.
D.F. N.A.
G.I. N.A.

Run No. PNE
Date & Time Survey 8-30-80
Date & Time Cementing N.A.
Type Cementing (Operation) N.A.
Depth Driller 3950 (R&P)
Depth Welex 3954
Logged Interval 3954 to 3950
Casing Driller N.A.
Casing Welex N.A.
Squeeze Depth N.A.
Amount & Type Cement N.A.
Amount & Type Admix N.A.
Type Fluid in hole Water
Fluid Level 460
Salinity (P.P.T.) N.A.
Spontaneous Potential N.A.
Approx. Depth of Top 3954
Cased Section 3954
Open Section 3954
Remarks Unit 3 Hobbs
W. Campbell
M. Brock

LOG-HOLE RECORD

CASING RECORD

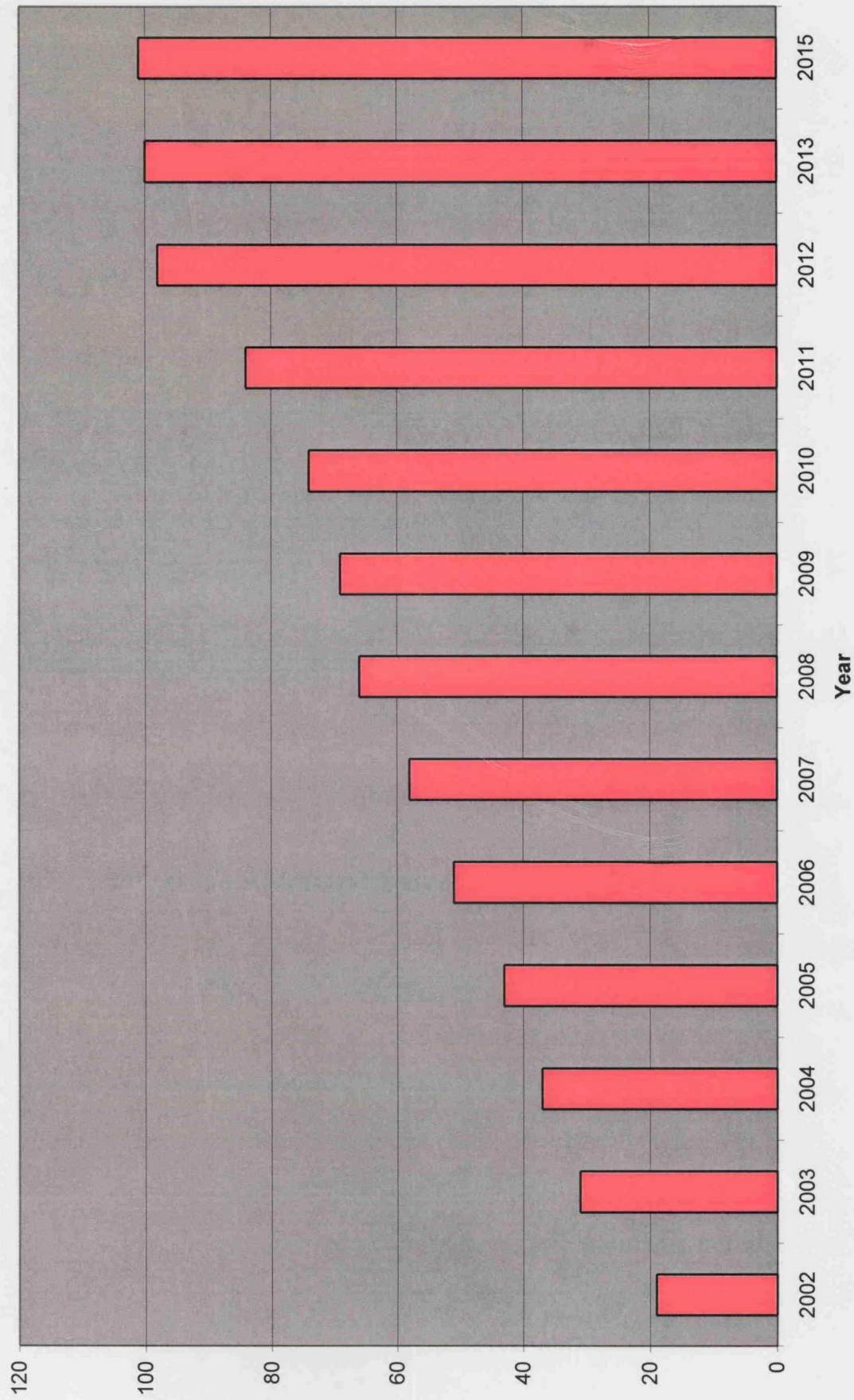
Log Size	From	To	Csg. Size	Wt.	From	To	Centralized Interval
			5 1/2"	15#	540'	3950	
							Scratched Interval
							Open Perforations

Service Ticket No. 236486 Remarks Well Blew out Oil & Water
While Logging

Welex does not guarantee the accuracy of any interpretation of log data, conversion of log data to physical rock parameters, or recommendations which may be given by Welex or any other person in connection with the use of such data. Any user of such data, interpretations, conversions, or recommendations agrees that Welex is not responsible for any loss, damages, or expenses resulting from the use thereof.

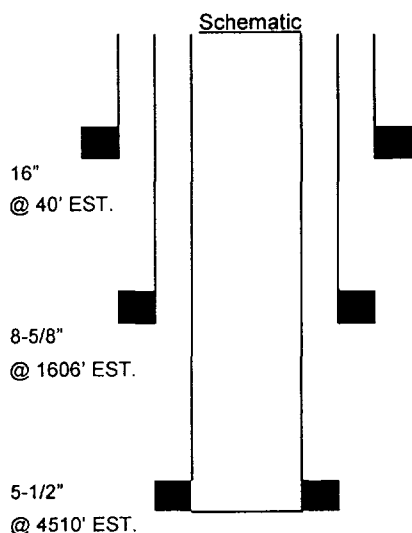
GAMMA API Gamma Ray Units		DEPTH	AMPLITUDE		MICRO-SEISMOGRAM LOG
0	100		Pipe		
100	200	Formation	100	1100	

Cumulative number of injection wells used in Phase 1 of NHU CO2 Project



INJECTION WELL DATA SHEET

Operator Occidental Permian Limited Partnership		Lease North Hobbs G/SA Unit		County Lea	
Well No. 431A	Footage Location 1650' FSL & 660' FEL	Section 20	Township 18-S	Range 38-E	Unit Letter I



<u>Surface Casing</u>		<u>Tubular Data</u>	
Size	16"	Cemented with	40 EST. sxs.
TOC	SURF	Determined by	CIRC
Hole size			
<u>Intermediate Casing</u>			
Size	8-5/8"	Cemented with	850 EST. sxs.
TOC	SURF	Determined by	CIRC
Hole size			
<u>Long string Casing</u>			
Size	5-1/2"	Cemented with	1000 EST. sxs.
TOC	SURF	Determined by	CIRC
Hole size			
<u>Liner</u>			
Size		Cemented with	sxs.
TOC		Determined by	
Hole size			
Total depth	4510' EST.		

Injection interval
Approx. 4000 feet to 4500 feet

Completion type Perforated Casing

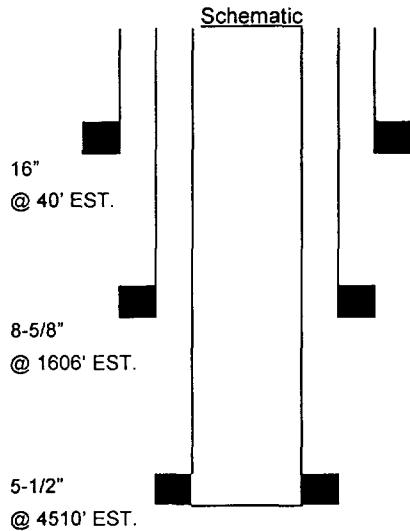
Tubing size 2-7/8" lined with Duoline (Fiberglass liner) set in a
Guiberson – Uni VI packer at Within 100 feet of the top perf.
 (brand and model)

Other Data

- Name of the injection formation San Andres
- Name of field or Pool Hobbs; Grayburg – San Andres
- Is this a new well drilled for injection? ☒ Yes ☐ No
 If no, for what purpose was the well originally drilled? Injection
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) None
- Give the depth to and name of any overlying and/or underlying oil and gas zones (pools) in this area.
Byers (Queen), +/- 3680'; Glorieta, 5300'

INJECTION WELL DATA SHEET

Operator Occidental Permian Limited Partnership		Lease North Hobbs G/SA Unit		County Lea	
Well No. 342A	Footage Location TBD	Section 30	Township 18-S	Range 38-E	Unit Letter O



<u>Surface Casing</u>		<u>Tubular Data</u>	
Size	<u>16"</u>	Cemented with	<u>40 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Intermediate Casing</u>			
Size	<u>8-5/8"</u>	Cemented with	<u>850 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Long string Casing</u>			
Size	<u>5-1/2"</u>	Cemented with	<u>1000 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Liner</u>			
Size		Cemented with	sxs.
TOC		Determined by	
Hole size			
<u>Total depth</u>	<u>4510' EST.</u>		

Injection interval
Approx. 4000 feet to 4500 feet

Completion type Perforated Casing

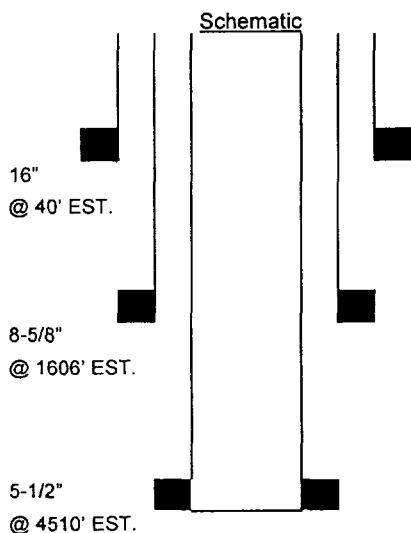
Tubing size 2-7/8" lined with Duoline (Fiberglass liner) set in a
Guiberson – Uni VI packer at Within 100 feet of the top perf.
 (brand and model)

Other Data

- Name of the injection formation San Andres
- Name of field or Pool Hobbs; Grayburg – San Andres
- Is this a new well drilled for injection? ☒ Yes ☐ No
 If no, for what purpose was the well originally drilled? Injection
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) None
- Give the depth to and name of any overlying and/or underlying oil and gas zones (pools) in this area.
Byers (Queen), +/- 3680'; Glorieta, 5300'

INJECTION WELL DATA SHEET

Operator Occidental Permian Limited Partnership		Lease North Hobbs G/SA Unit			County Lea
Well No. 331A	Footage Location 2810W, SL 3, 2810EEL	Section 32	Township 18-S	Range 38-E	Unit Letter J



<u>Surface Casing</u>		<u>Tubular Data</u>	
Size	<u>16"</u>	Cemented with	<u>40 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Intermediate Casing</u>			
Size	<u>8-5/8"</u>	Cemented with	<u>850 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Long string Casing</u>			
Size	<u>5-1/2"</u>	Cemented with	<u>1000 EST.</u> sxs.
TOC	<u>SURF</u>	Determined by	<u>CIRC</u>
Hole size			
<u>Liner</u>			
Size		Cemented with	sxs.
TOC		Determined by	
Hole size			
Total depth	<u>4510' EST.</u>		

Injection interval
Approx. 4000 feet to 4500 feet

Completion type Perforated Casing

Tubing size 2-7/8" lined with Duoline (Fiberglass liner) set in a
Guiberson – Uni VI packer at Within 100 feet of the top perf.
 (brand and model)

Other Data

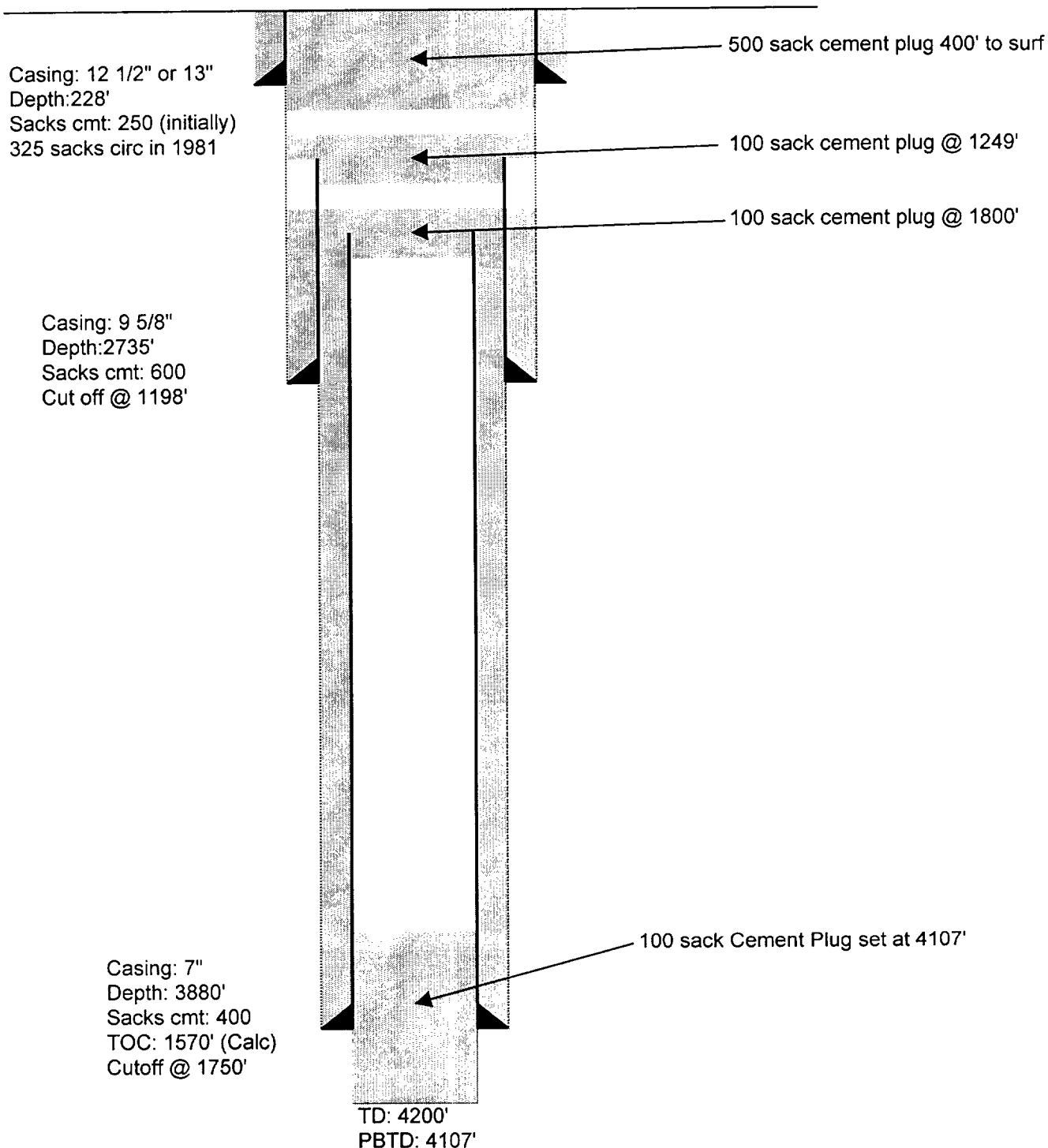
- Name of the injection formation San Andres
- Name of field or Pool Hobbs; Grayburg – San Andres
- Is this a new well drilled for injection? ☒ Yes ☐ No
 If no, for what purpose was the well originally drilled? Injection
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) None
- Give the depth to and name of any overlying and/or underlying oil and gas zones (pools) in this area.
Byers (Queen), +/- 3680'; Glorieta, 5300'

SHELL
Grimes #5
Section 29-18S-38E

OK

API Number: 3002507460
P&A: 4/22/81
Datum: 3647

Wellhead cutoff 8' below GL, plate welded on top

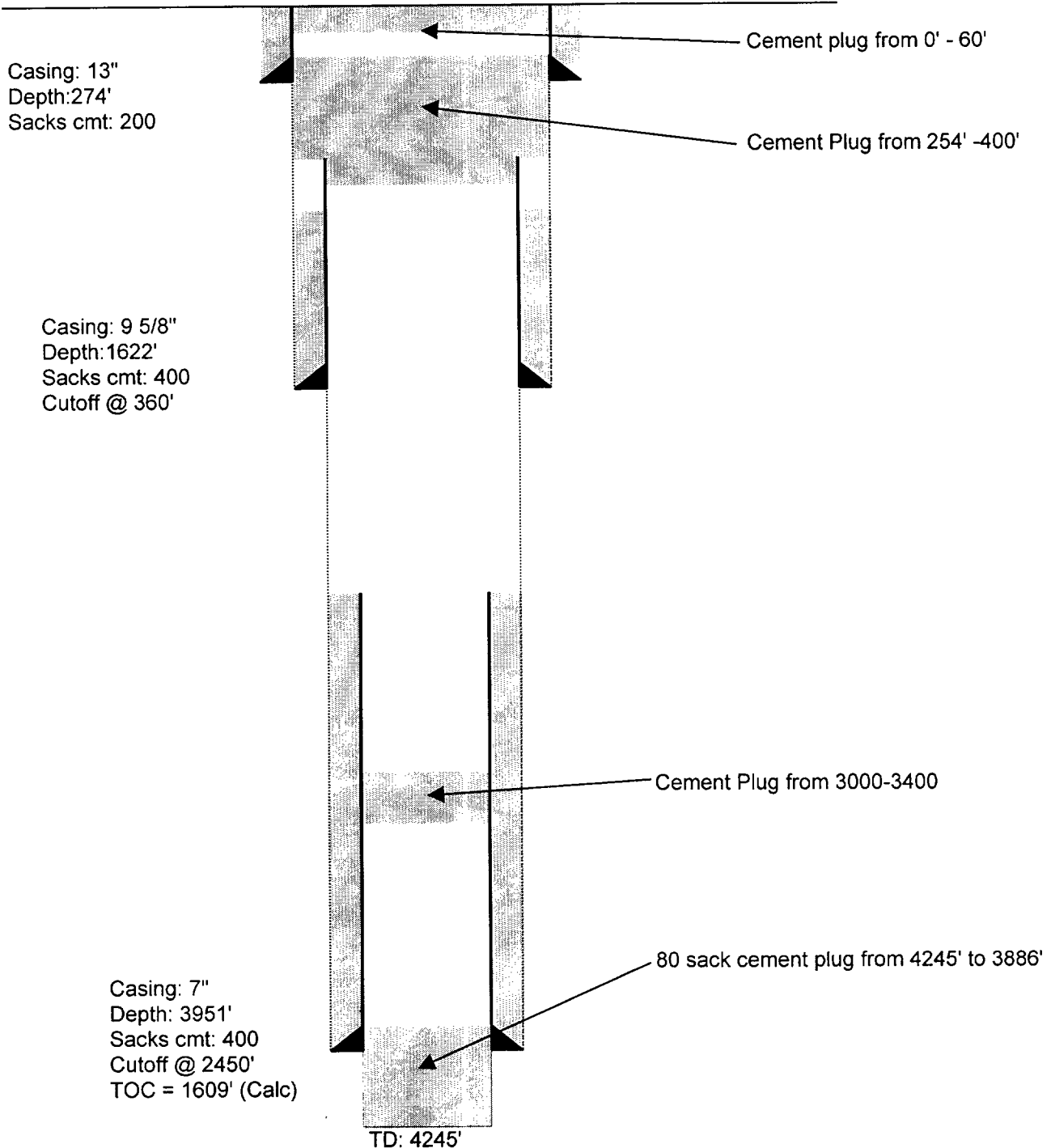


Conoco
State B-13 #3
Section 13-18S-38E

gk

API Number: 3002505438
P&A: 6/3/36
Datum: 3684

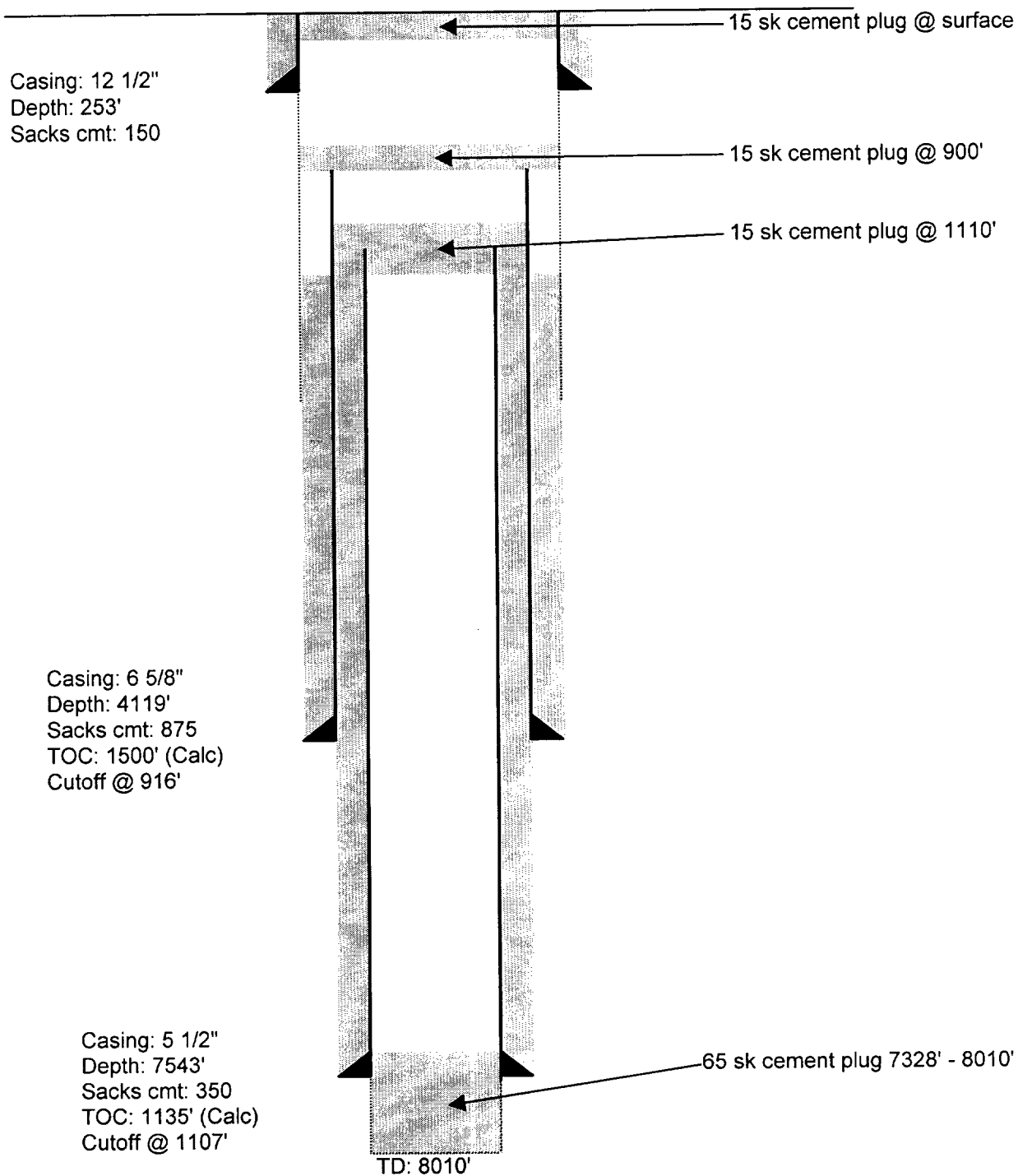
Wellhead cutoff 8' below GL, plate welded on top



SUN
McKinley B #1
Section 20-18S-38E

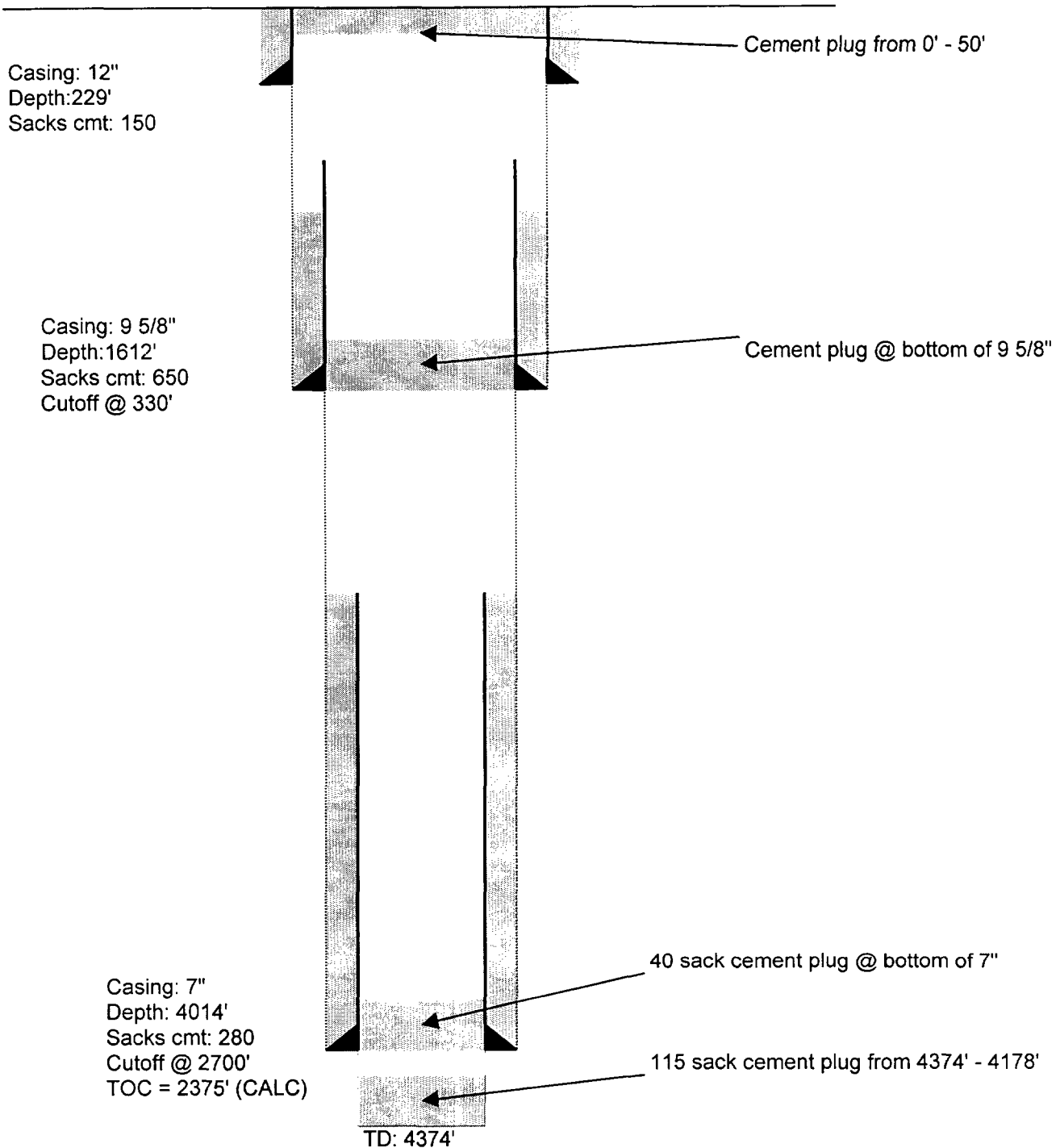
API Number: 3002507380
P&A: 2/15/47
Datum:

0-



SHELL
State E #1
Section 14-18S-38E

API Number: 3002510199
P&A: 12/21/38
Datum: 3686

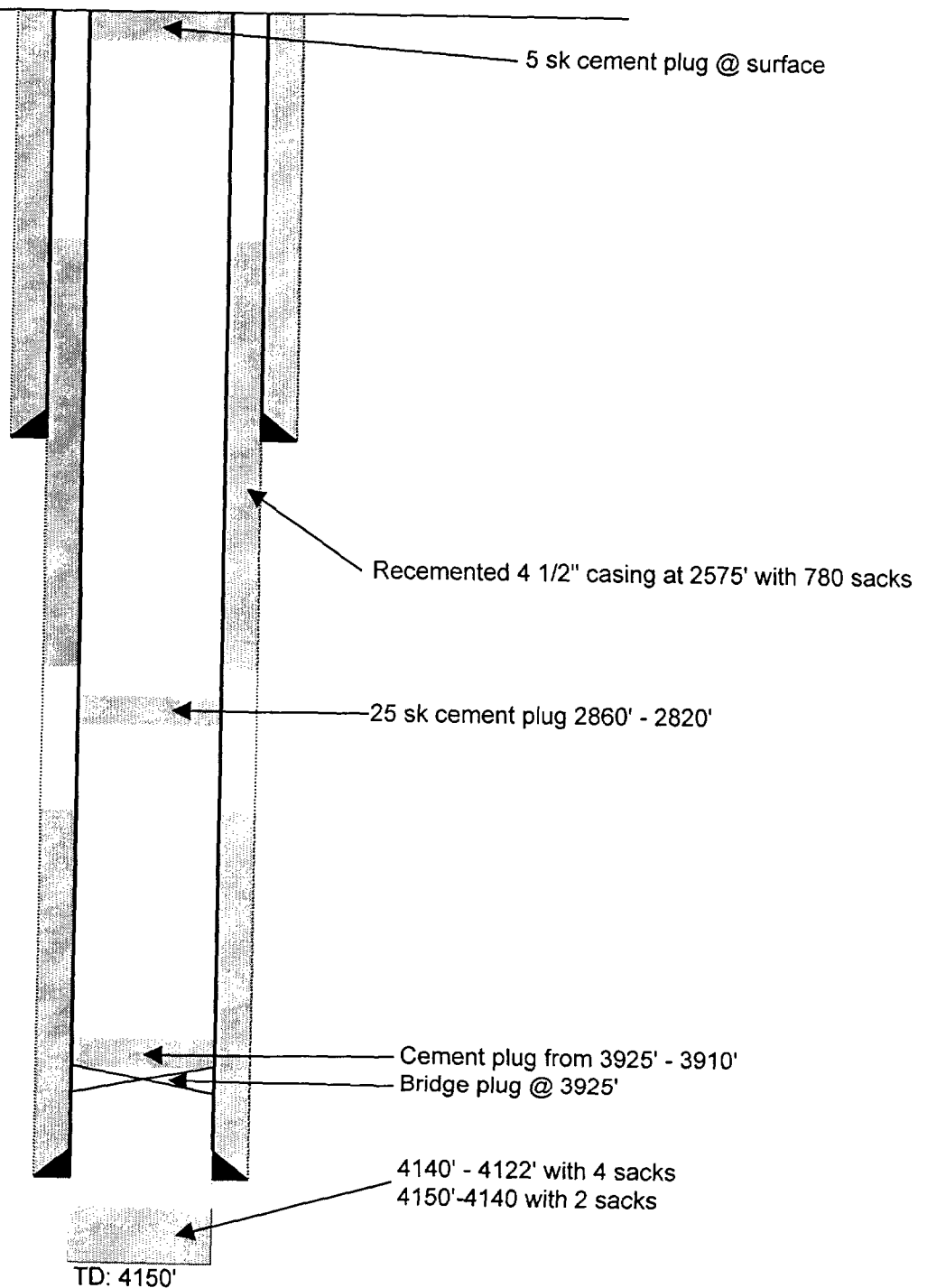


SHELL
State F #1
Section 23-18S-37E

API Number: 3002505465
P&A: 10/15/57
Datum: 3673

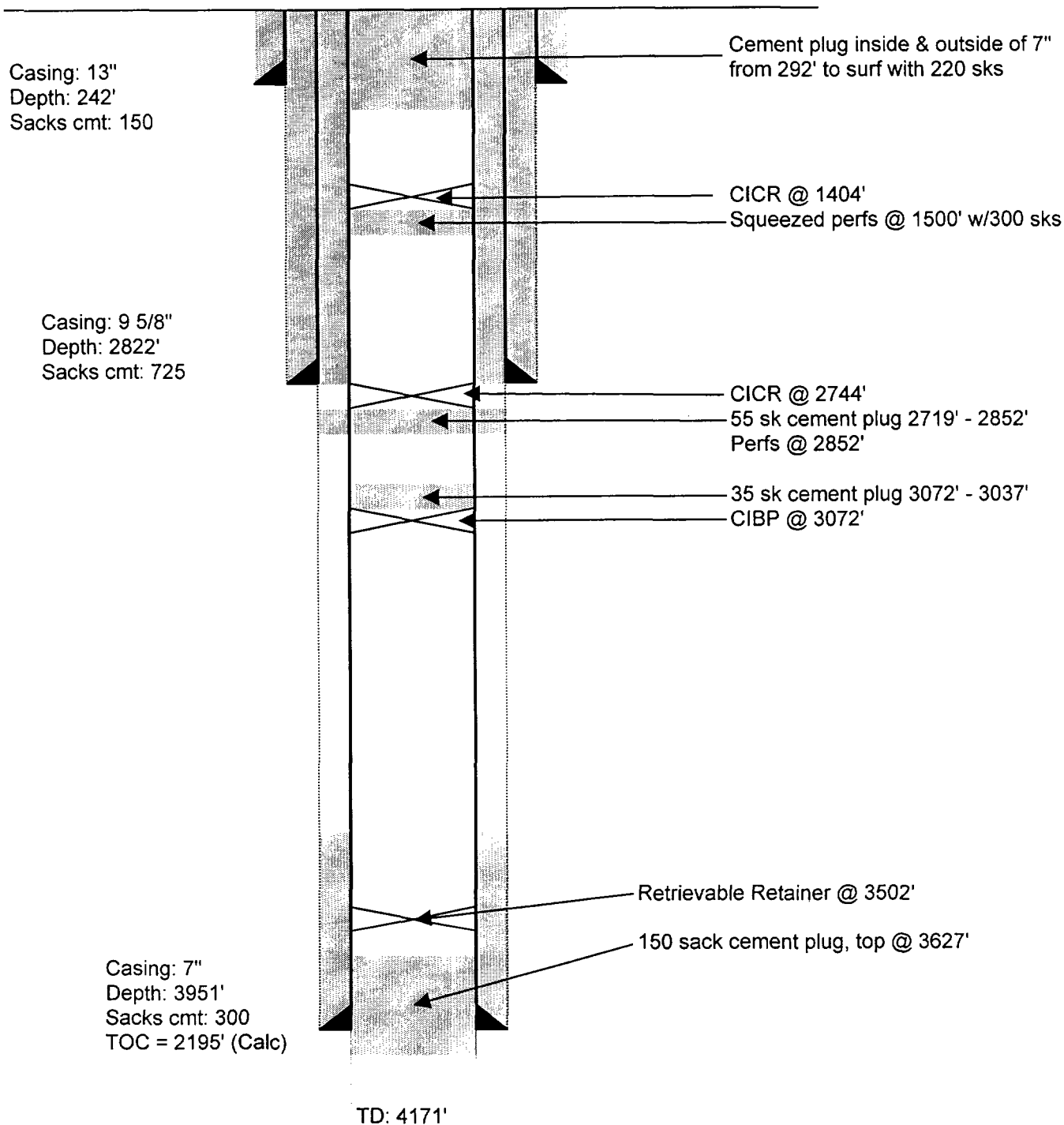
Casing: 8 5/8"
Depth: 1592'
Sacks cmt: 525

Casing: 4 1/2"
Depth: 4099'
Sacks cmt: 130
TOC = 3597' (Calc)



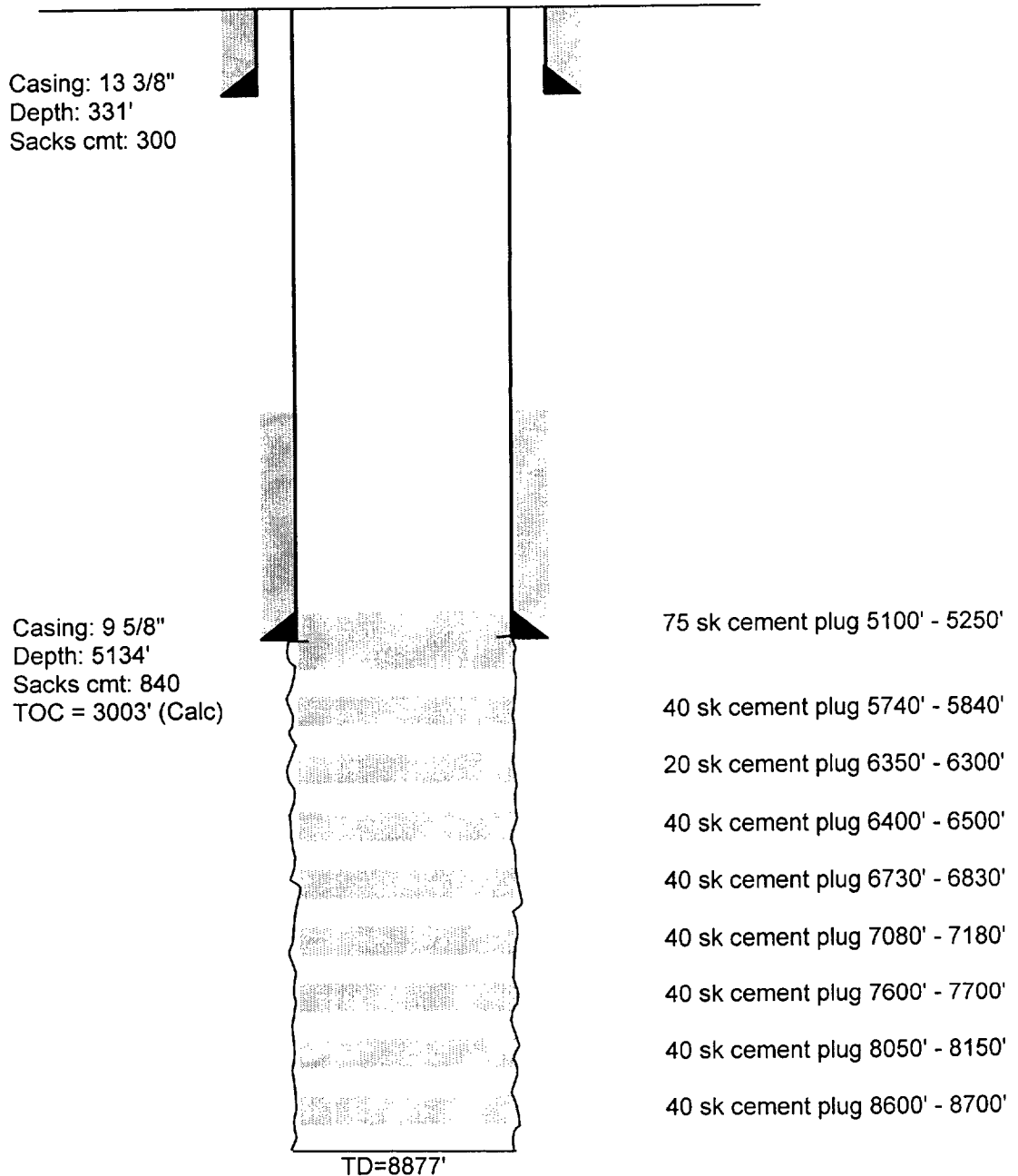
CHEVRON
State 1-29 #2
Section 29-18S-38E

API Number: 3002507443
P&A: 11/30/89
Datum: 3655



Conoco
NHGSU #1
Section 13-18S-37E

API Number: 3002505449
P&A: Well TA'd since 1979
Datum: 3686



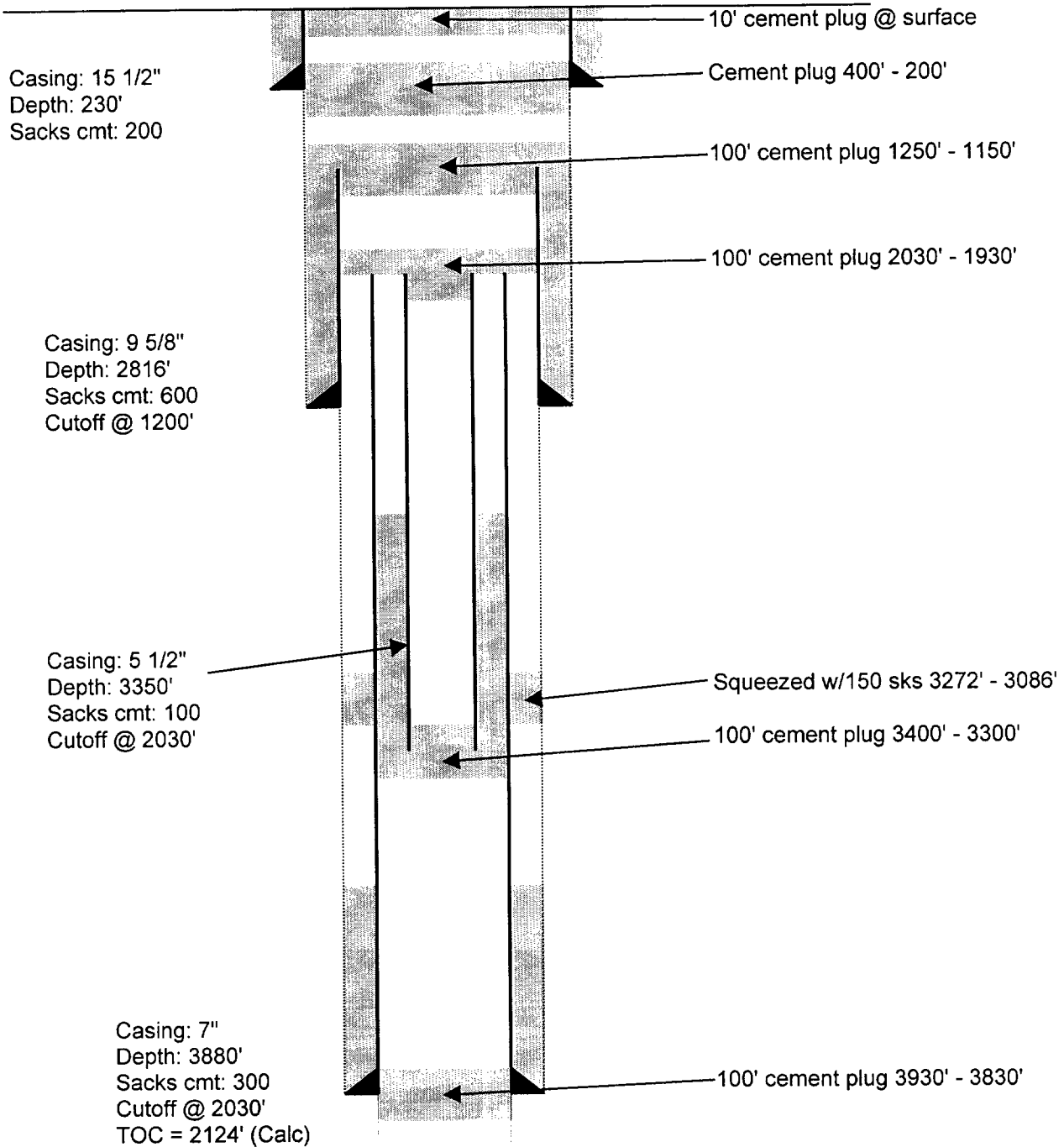
SHELL

Grimes #2

Section 29-18S-38E

API Number: 3002507457
P&A: 7/13/51, replugged 3/2/81
Datum: 3650

Plate welded on top

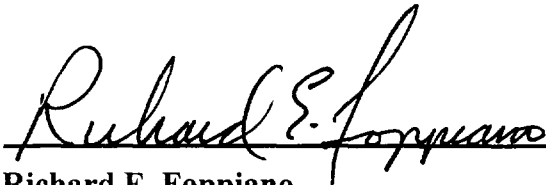


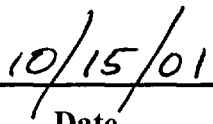
TD: 4176'

CERTIFICATION

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

I, Richard E. Foppiano, having been first duly sworn, state that I am a petroleum engineer, a duly authorized representative of Occidental Permian Limited Partnership ("OXY"), have knowledge of the facts herein and therefor certify that the facts set forth herein are true and accurate to the best of my own belief and knowledge.


Richard E. Foppiano


Date

North Hobbs Unit CO2 Project

Phase 1 Injection Well List

Well	Footage Location	Section	Township	Range	Current Status	Future Status
112	990' FNL & 990' FWL	19	18S	38E	Injector	Injector
142	1200' FSL & 1300' FWL	19	18S	38E	Injector	Injector
231	2310' FSL & 2310' FWL	19	18S	38E	Injector	Injector
332	1430' FSL & 2535' FEL	19	18S	38E	Injector	Injector
431	1650' FSL & 990' FEL	19	18S	38E	Injector	Injector
212	1263' FNL & 2605' FWL	24	18S	37E	Injector	Injector
413	1200' FNL & 206' FEL	24	18S	37E	Injector	Injector
432	2741' FSL & 1286' FEL	24	18S	37E	Injector	Injector
442	1260' FSL & 200' FEL	24	18S	37E	Injector	Injector
422	1550' FNL & 1300' FEL	25	18S	37E	Injector	Injector
221	1910' FNL & 1650' FWL	28	18S	38E	Injector	Injector
231	1325' FSL & 1325' FWL	28	18S	38E	Injector	Injector
122	1600' FNL & 180' FWL	29	18S	38E	Injector	Injector
132	1623' FSL & 1218' FWL	29	18S	38E	Injector	Injector
141	330' FSL & 330' FWL	29	18S	38E	Injector	Injector
222	1370' FNL & 850' FWL	29	18S	38E	Injector	Injector
241	330' FSL & 2310' FWL	29	18S	38E	Injector	Injector
331	1650' FSL & 1650' FEL	29	18S	38E	Injector	Injector
342	1230' FSL & 2500' FEL	29	18S	38E	Injector	Injector
442	1230' FSL & 220' FEL	29	18S	38E	Injector	Injector
112	200' FNL & 1310' FWL	30	18S	38E	Injector	Injector
222	1470' FNL & 1395' FWL	30	18S	38E	Injector	Injector
223	1770' FNL & 2405' FWL	30	18S	38E	Injector	Injector
232	1400' FSL & 1370' FWL	30	18S	38E	Injector	Injector
233	2455' FSL & 1480' FWL	30	18S	38E	Injector	Injector
313	405' FNL & 2272' FEL	30	18S	38E	Injector	Injector
332	2470' FSL & 1600' FEL	30	18S	38E	Injector	Injector
333	1400' FSL & 2430' FEL	30	18S	38E	Injector	Injector
422	1520' FNL & 1300' FEL	30	18S	38E	Injector	Injector
432	2260' FSL & 178' FEL	30	18S	38E	Injector	Injector
442	1300' FSL & 1050' FEL	30	18S	38E	Injector	Injector
443	1300' FSL & 160' FEL	30	18S	38E	Injector	Injector
312	1262' FNL & 1520' FEL	31	18S	38E	Injector	Injector
112	1370' FNL & 330' FWL	32	18S	38E	Injector	Injector
222	1720' FNL & 1370' FWL	32	18S	38E	Injector	Injector
223	2630' FNL & 1420' FWL	32	18S	38E	Injector	Injector
312	210' FNL & 1400' FEL	32	18S	38E	Injector	Injector
321	1650' FNL & 2310' FEL	32	18S	38E	Injector	Injector
323	1370' FNL & 1400' FEL	32	18S	38E	Injector	Injector
423	2540' FNL & 1280' FEL	32	18S	38E	Injector	Injector
431	2310' FSL & 330' FEL	32	18S	38E	Injector	Injector
212	205' FNL & 1420' FWL	33	18S	38E	Injector	Injector
222	1520' FNL & 1470' FWL	33	18S	38E	Injector	Injector
118JP	J/P	18	18S	38E	New	Injector
118LN	L/N	18	18S	38E	New	Injector
118MN	M/N	18	18S	38E	New	Injector
112A	D	19	18S	38E	New	Injector
142A	N	19	18S	38E	New	Injector
120DF	D/F	20	18S	38E	New	Injector
312A	B	24	18S	38E	New	Injector
331A	J	24	18S	38E	New	Injector
124G	G	24	18S	38E	New	Injector
124F	F	24	18S	38E	New	Injector

125AB		A/B	25	18S	38E	New	
323A		G	29	18S	38E	New	Injector
342A		O	29	18S	38E	New	Injector
442A		P	29	18S	38E	New	Injector
129E		E	29	18S	38E	New	Injector
222A		F	30	18S	38E	New	
422A		H	30	18S	38E	New	Injector
442A		P	30	18S	38E	New	Injector
312A		B	31	18S	38E	New	Injector
222A		F	32	18S	38E	New	Injector
323A		G	32	18S	38E	New	Injector
331A	11	2310' FSL & 2310' FEL	32	18S	38E	New	Injector
431A		1650' FSL & 660' FEL	20	18S	38E	New	Injector
342A		O	30	18S	38E	New	Injector
341		660' FSL & 1980' FEL	13	18S	37E	Producer	
441		330' FSL & 330' FEL	13	18S	37E	Producer	
232		2501' FSL & 1410' FWL	19	18S	38E	Producer	
141		1315' FSL & 1315' FWL	24	18S	37E	Producer	
331		1320' FSL & 1325' FEL	24	18S	37E	Producer	
411		990' FNL & 990' FEL	24	18S	37E	Producer	
414		10' FNL & 1280' FEL	24	18S	37E	Producer	
431		990' FSL & 330' FEL	24	18S	37E	Producer	
411		330' FNL & 330' FEL	25	18S	37E	Producer	
242		100' FSL & 1400' FWL	29	18S	38E	Producer	Injector
321		2310' FNL & 1650' FEL	29	18S	38E	Producer	Injector
113		1310' FNL & 195' FWL	30	18S	38E	Producer	
312		520' FNL & 1448' FEL	30	18S	38E	Producer	Injector
331		2335' FSL & 2310' FEL	30	18S	38E	Producer	Injector
444		215' FSL & 1225' FEL	30	18S	38E	Producer	Injector
131		2310' FNL & 330' FWL	32	18S	38E	Producer	Injector
422		1385' FNL & 110' FEL	32	18S	38E	Producer	Injector
111		330' FNL & 330' FWL	33	18S	38E	Producer	Injector
141		660' FSL & 660' FWL	13	18S	37E	TA Inj	
221		1980' FNL & 1980' FWL	13	18S	37E	TA Inj	
321		2310' FNL & 1650' FEL	14	18S	37E	TA Inj	
121		1650' FNL & 990' FWL	25	18S	37E	TA Inj	
341		660' FSL & 1650' FEL	25	18S	37E	TA Inj	
411		990' FNL & 990' FEL	29	18S	38E	TA Inj	Injector
321		1650' FNL & 1650' FEL	36	18S	37E	TA Inj	
121		1980' FNL & 660' FWL	13	18S	37E	TA Prod	
241		660' FSL & 1980' FWL	13	18S	37E	TA Prod	
341		660' FSL & 1650' FEL	14	18S	37E	TA Prod	
342		330' FSL & 2310' FEL	18	18S	38E	TA Prod	
311		1309' FNL & 2310' FEL	19	18S	38E	TA Prod	
411		1300' FNL & 1300' FEL	19	18S	38E	TA Prod	
233		1610' FSL & 1850' FWL	20	18S	38E	TA Prod	Injector
321		1650' FNL & 1650' FEL	23	18S	37E	TA Prod	
341		990' FSL & 1650' FEL	23	18S	37E	TA Prod	
121		1650' FNL & 990' FWL	24	18S	37E	TA Prod	
121		1980' FNL & 990' FWL	31	18S	38E	TA Prod	Injector

Note: Shading denotes wells that will be injecting CO2, water and produced gases. All other injectors shown above will be injecting CO2 and water.