

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ Yes ☒ No

II. OPERATOR: Saga Petroleum LLC

ADDRESS: 415 W. Wall, #835, Midland, TX 79701

CONTACT PARTY: Joe Clement PHONE: 915-684-4293

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: _____

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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources 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: Joe N. Clement TITLE: New Mexico Engineer

SIGNATURE: [Signature] DATE: 5/11/00

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location. Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisements must include:

(1) The name address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

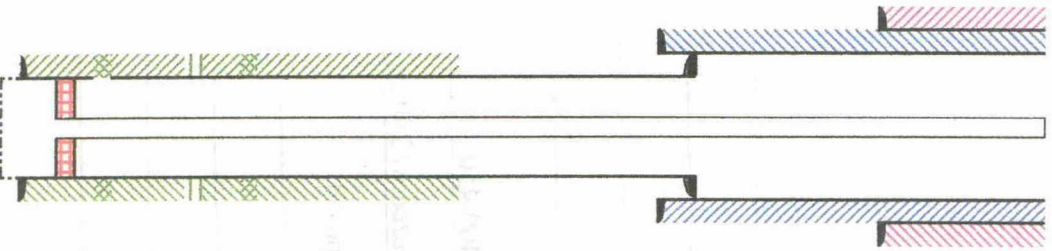
(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 2040 South Pacheco, San Jose, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

OPERATOR: Saga Petroleum LLCWELL NAME & NUMBER: U.D. Sawyer #4WELL LOCATION: 660' FNL & 660' FEL
FOOTAGE LOCATIONUNIT LETTER ASECTION 27TOWNSHIP 9SRANGE 36EWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 17 1/4"Casing Size: 13 3/8" @ 259'Cemented with: 300 sx. 0rft³Top of Cement: surfaceMethod Determined: circulationIntermediate CasingHole Size: 12 1/4"Casing Size: 9 5/8" @ 466'Cemented with: 2400 sx. 0rft³Top of Cement: surfaceMethod Determined: circulationProduction CasingHole Size: 7 7/8"Casing Size: 5 1/2" @ 454'-12188'Cemented with: 1175 sx. 0rft³Top of Cement: 6020'Method Determined: temp. surveyTotal Depth: 12132'Injection IntervalPerfs 12085 feet to 12100'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEETTubing Size: 2 3/8" EUE Lining Material: PlasticType of Packer: Baker Lok-SetPacker Setting Depth: 12035'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? Yes X No

If no, for what purpose was the well originally drilled? oil production

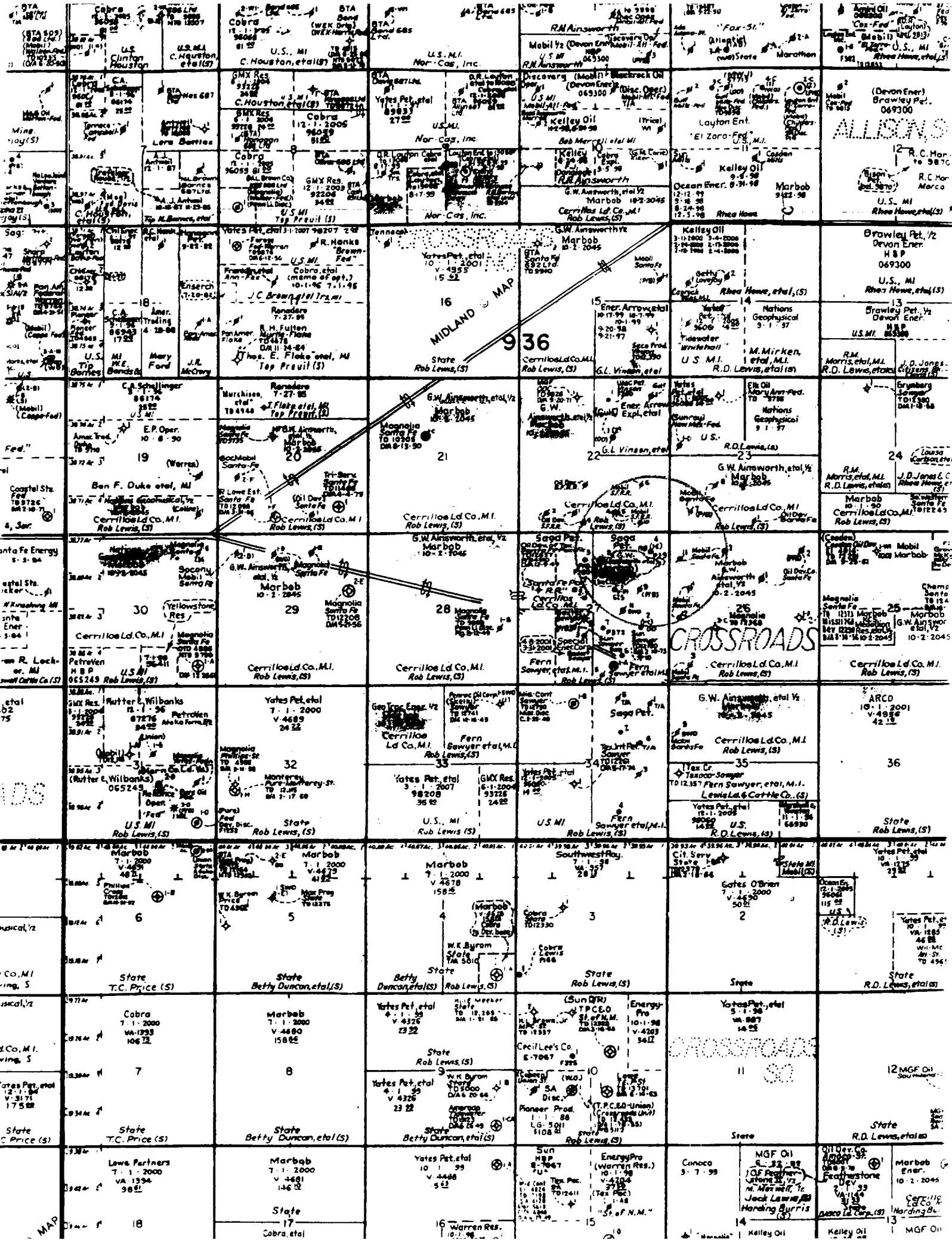
2. Name of the Injection Formation: Devonian

3. Name of Field or Pool (if applicable): Crossroads Siluro Devonian

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. Penn 11400-450',

Devonian 12085-95', Devonian 12085-100 squeezed w/ 435 sx, 12188-132' squeezed w/ 290 sx

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: San Andres 4800-4850', no zones underlying



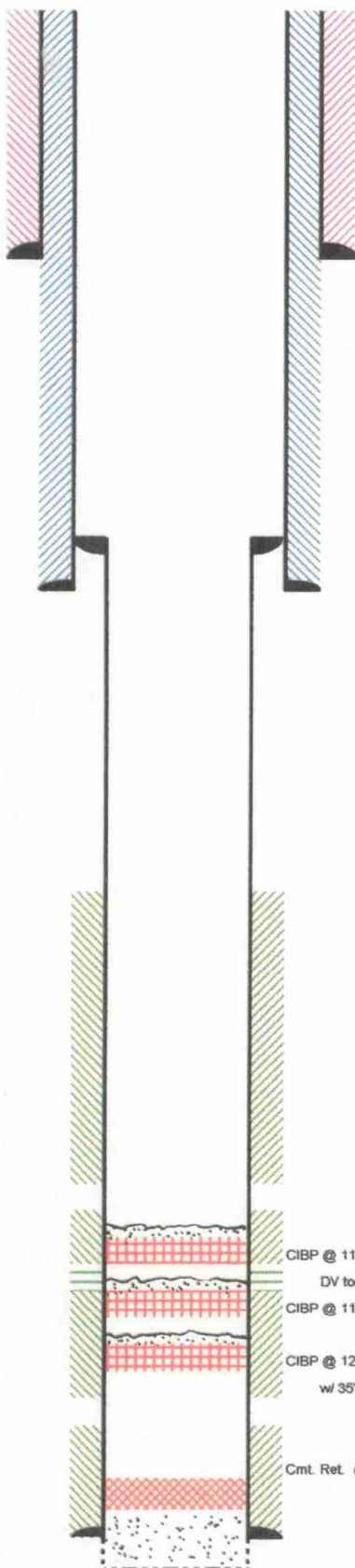
**Offset wells to the
U.D. Sawyer #4**

Well	Location	Surface Casing	Inter. Casing	Prod. Casing	TD	Completions	P&A
U.D. Sawyer #2 Spud 6/25/50	Sec. 27-T9S-R36E Unit I	13 3/8" @ 240'	9 5/8" @ 4614'	5 1/2" @ 12097'	12100	12040-092'	
	1980' FSL & 990' FEL	Cmt. w/ 300 sx TOC @ surf by circ.	Cmt w/ 3500 sx TOC @ surf by circ.	Cmt w/ 1178 sx TOC @ 6320' by TS		Open hole 12097-102' 12010-016'	
U.D. Sawyer #3 Spud 2/25/49	Sec. 27-T9S-R36E Unit G	13 3/8" @ 258'	9 5/8" @ 4651'	5 1/2" @ 12147'	12147	12000-050'	
	1980' FNL & 1980' FWL	Cmt. w/ 300 sx TOC @ surf by circ.	Cmt w/ 2125 sx TOC @ 648' by calc.	Cmt w/ 1090 sx TOC @ 6550' by TS			
U.D. Sawyer #4 Spud 12/19/51	Sec. 27-T9S-R36E Unit A	13 3/8" @ 259'	9 5/8" @ 4668'	5 1/2" @ 4544-12147'	12132	11400-450' 12085-100' sqz w/ 290sx 12118-32' sqz w/ 290sx	
	660' FNL & 660' FEL	Cmt. w/ 300 sx TOC @ surf by circ.	Cmt w/ 2400 sx TOC @ surf by circ.	Cmt w/ 1175 sx TOC @ 6020' by TS			
U.D. Sawyer #8 Spud 7/11/72	Sec. 27-T9S-R36E Unit B	13 3/8" @ 266'	9 5/8" @ 4294'	7" @ 12057'	12057	12029-051'	P/A'd Schematic Attached
	990' FNL & 2310' FEL	Cmt. w/ 275 sx TOC @ surf by circ.	Cmt w/ 1440 sx TOC @ 1100' by TS	Cmt w/ 250 sx TOC @ 10140' by TS			
U.D. Sawyer #9 Spud 9/10/72	Sec. 27-T9S-R36E Unit H	13 3/8" @ 273'	9 5/8" @ 4240'	7" @ 12049'	12068	12020-48' sqz w/ 250sx Open hole 12049-068' 11358-368'	P/A'd Schematic Attached
	1980' FNL & 990' FEL	Cmt. w/ 275 sx TOC @ surf by circ.	Cmt w/ 1440 sx TOC @ 1520' by TS	Cmt w/ 250 sx TOC @ 9400' by TS			
U.D. Sawyer #11 Spud 10/4/84	Sec. 27-T9S-R36E Unit J	13 3/8" @ 356'	9 5/8" @ 4500'	5 1/2" @ 12890'	12890'	12120-54' sqz w/ 60 sx 12074-84' sqz w/ 100 sx 12007-017'	
	2561' FSL & 1610' FEL	Cmt. w/ 350 sx TOC @ surf by circ.	Cmt w/ 2000 sx TOC @ surf by circ.	Cmt w/ 1650 sx TOC @ 1550' by TS			
Santa Fe Pacific #1 Spud 4/25/51	Sec. 26-T9S-R36E Unit E	13 3/8" @ 393'	9 5/8" @ 4273'	7" @ 12130'	12137	Open hole 12130-137'	P/A'd Schematic Attached
	1980' FNL & 660' FWL	Cmt. w/ 400 sx TOC @ surf by circ.	Cmt w/ 2300 sx TOC @ surf by circ.	Cmt w/ 2310 sx TOC @ surf by circ.			
Santa Fe Pacific #2 Spud 11/6/63	Sec. 26-T9S-R36E Unit C	13 3/8" @ 472'	9 5/8" @ 4765'	5 1/2" @ 4557-12174'	12183'	Open hole 12174-183' 12140-160'	P/A'd Schematic Attached
	660' FNL & 1980' FWL	Cmt. w/ 500 sx TOC @ surf by circ.	Cmt w/ 2615 sx TOC @ surf by calc.	Cmt w/ 850 sx TOC @ 4557' by sqz.		11999-12026', 109-129'	
Santa Fe Pacific "D" #1 (#4 on map) Spud 1/19/50	Sec. 22-T9S-R36E Unit O	13 3/8" @ 335'	8 5/8" @ 4555'	7" @ 9650'	9670'	Open hole 9650-670'	P/A'd Schematic Attached
	660' FSL & 1980' FEL	Cmt. w/ 350 sx TOC @ surf by circ.	Cmt w/ 2450 sx TOC @ surf by circ.	Cmt w/ 2167 sx TOC @ 3840' by TS			
Santa Fe Pacific #5 Spud 3/26/53	Sec. 22-T9S-R36E Unit O	13 3/8" @ 441'	8 5/8" @ 4605'	5 1/2" @ 4595-12136'	12150'	Open hole 12136-150' 12096-110'	P/A'd Schematic Attached
	660' FSL & 1880' FEL	Cmt. w/ 500 sx TOC @ surf by circ.	Cmt w/ 3497 sx TOC @ surf by calc.	Cmt w/ 990 sx TOC @ 4595' by sqz.			
Santa Fe Pacific #6 Spud 3/11/74	Sec. 22-T9S-R36E Unit I	13 3/8" @ 426'	8 5/8" @ 4950'	5 1/2" @ 4586-12153'	12190'	Open hole 12153-190'	P/A'd Schematic Attached
	1651.8' FSL & 990' FEL	Cmt. w/ 425 sx TOC @ surf by circ.	Cmt w/ 3250 sx TOC @ surf by calc.	Cmt w/ 1400 sx TOC @ 5729' by calc.			

**Offset wells to the
U.D. Sawyer #4**

Santa Fe Pacific #7 1/6/53	Sec. 23-T9S-R36E Unit M 660' FSL & 660' FWL	13 3/8" @ 360' Cmt. w/ 375 sx TOC @ surf by circ.	8 5/8" @ 4895' Cmt w/ 2500 sx TOC @ surf by calc.	5 1/2" @ 4645-12191' Cmt w/ 2075 sx TOC @ 2669' by calc.	12212'	12191-212' sqz w/ CIBP 11367-378'sqz w/ CIBP 9652-660' sqz w/ CIBP 4818-899'	P/A'd Schematic Attached
Santa Fe Pacific #10 Spud 9/24/72	Sec. 22-T9S-R36E Unit P 330' FSL & 990' FEL	13 3/8" @ 360' Cmt. w/ 400 sx TOC @ surf by circ	9 5/8" @ 5000' Cmt w/ 2600 sx TOC @ surf by circ	7" @ 4800 - 12108' Cmt w/ 1800 sx TOC @ 4800' by sqz	12126'	Open hole 12108-126'	P/A'd Schematic Attached
Santa Fe Pacific #11 Spud 7/31/72	Sec. 26-T9S-R36E Unit D 990' FNL & 380' FWL	13 3/8" @ 360' Cmt. w/ 400 sx TOC @ surf by circ.	9 5/8" @ 5000' Cmt w/ 2000 sx TOC @ 1535' by TS	7" @ 4785 - 12096' Cmt w/ 1800 sx TOC @ 4785' by sqz.	12117	Open hole 12096-117'	P/A'd Schematic Attached
Santa Fe Pacific #12 Spud 11/27/72	Sec. 26-T9S-R36E Unit L 2310' FSL & 330' FWL	13 3/8" @ 360' Cmt. w/ 400 sx TOC @ surf by circ.	9 5/8" @ 5000' Cmt w/ 2600 sx TOC @ surf by circ.	7" @ 4810 - 12119' Cmt w/ 2050 sx TOC @ 4810' by calc.	12120	12076-102'	P/A'd Schematic Attached
Santa Fe Pacific #27-3 Spud 6/7/72	Sec. 27-T9S-R36E Unit C 2310' FNL & 2310' FWL	13 3/8" @ 315' Cmt. w/ 300 sx TOC @ surf by circ.	8 5/8" @ 5000' Cmt w/ 400 sx TOC @ 4200' by calc.	5 1/2" @ 4873-11987' Cmt w/ 350 sx TOC @ 10026' by CBL	12018	11277-88' sqz 11930-940' sqz 11972-85', 987-12018'	
SFPRR "27" #4 Spud 1/18/73	Sec. 22-T9S-R36E Unit N 330' FSL & 2310' FWL	13 3/8" @ 309' Cmt. w/ 300 sx TOC @ surf by circ	9 5/8" @ 4200' Cmt w/ 625 sx TOC @ 2006 by calc	7" @ 12170' Cmt w/ 200 sx TOC @ 11112' by calc.	12170'	12128-160' sqz w/ 50 sx 12020-174' sqz w/ 50 sx 12128-144'	P/A'd Schematic Attached

OPERATOR: Saga Petroleum	LOCATION: Sec. 27, T9S, R36E, Lea County, NM
LEASE: U.D. Sawyer #4	Unit A, 660' FNL & 660' FEL



13 3/8 " casing set at 259 ' with 300 sx of cement.

Hole Size: 17 1/2 ". TOC @ Surface by circ.

5 1/2" cut and pulled from 4566', ran 5 1/2" casing patch and hanger.
5 1/2" casing hung @ 4544'.

9 5/8 " casing set at 4668 ' with 2400 sx of cement.

Hole Size: 12 1/4 ". TOC @ Surface by Circ.

Perfs - 11400-413, 442-450'

CIBP @ 11490' w/ 35' cmt.

DV tool @ 11636'

CIBP @ 11850' w/ 45' cmt.

CIBP @ 12010'

w/ 35' cmt.

Cmt. Ret. @ 12108'

Perfs - 12089-95'

Perfs - 12085-100', squeezed

Open hole - 12118-32', squeezed

5 1/2 " casing set at 12118 ' with 1175 sx of cement

Hole Size: 7 7/8 ". TOC @ 6020' by TS

Prepared by: JNC

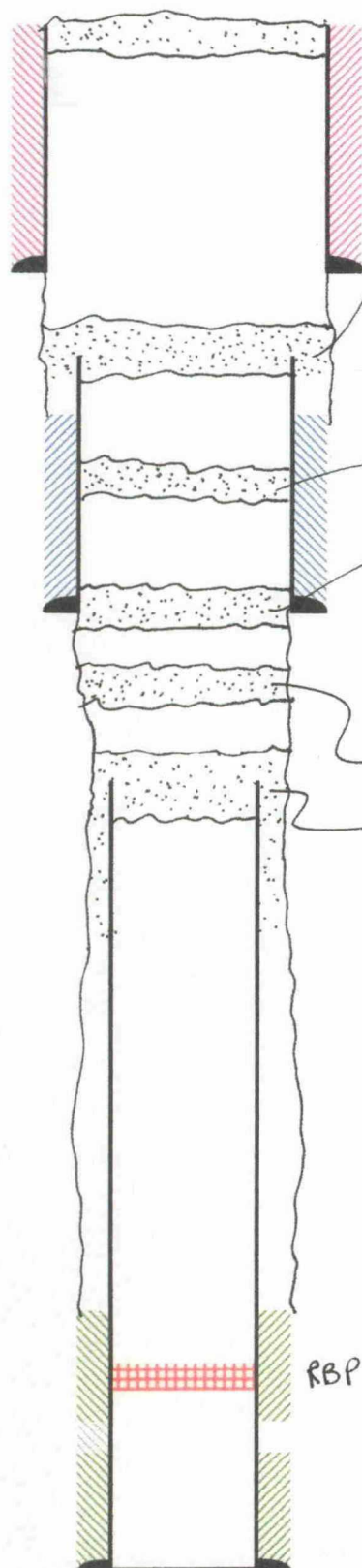
Revised: 4/25/00

OPERATOR: Saga Petroleum LLC

LOCATION: Sec. 27, T9S, R36E, Lea County, NM

LEASE: U.D. Sawyer #8

Unit B, 990' FNL & 2310' FEL



105x surface

50sx 775'-875'

13 3/8 " casing set at 266 ' with 275 sx of cement.

Hole Size: 17 1/2 ". TOC @ Surface by circ.

9 5/8 " cut and pulled from 824 '.

50 sx 1900'-2100'

50 sx 4295'-4344'

9 5/8 " casing set at 4294 ' with 1440 sx of cement.

Hole Size: 12 1/4 ". TOC @ 1100 ' by calc.

7 " cut and pulled from 7063 '.

50 sx 5530'-5680'

50 sx 6835'-7198'

Squeezed 7170-92' w/ 200 sx

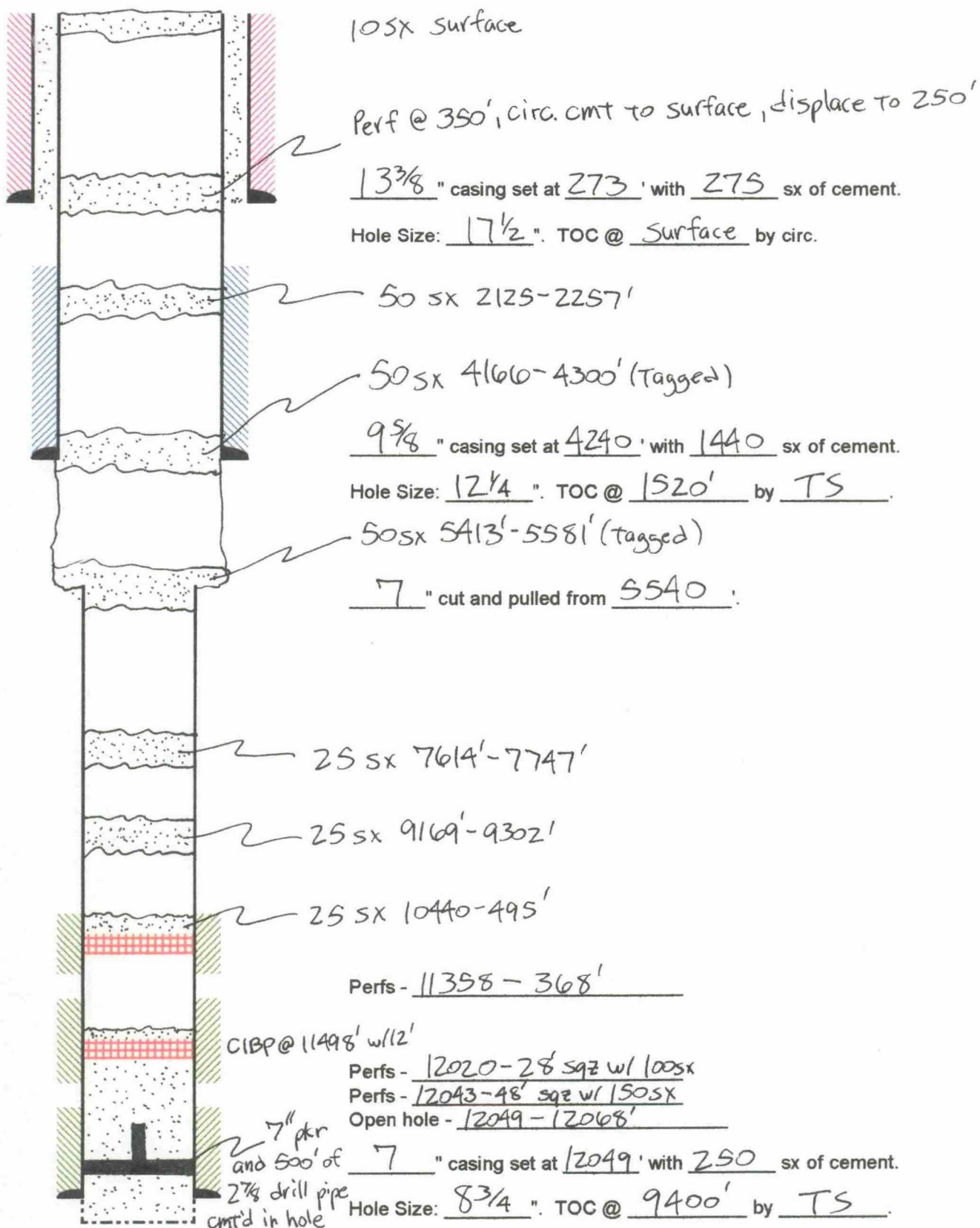
RBP @ 10795' w/ 4sx

Perfs - 12029-12051 '

7 " casing set at 12057 ' with 250 sx of cement.

Hole Size: 8 3/4 ". TOC @ 10140 by calc.

OPERATOR: Saga Petroleum LLC	LOCATION: Sec. 27, T9S, R36E, Lea County, NM
LEASE: U.D. Sawyer #9	Unit H, 1980' FNL & 990' FEL

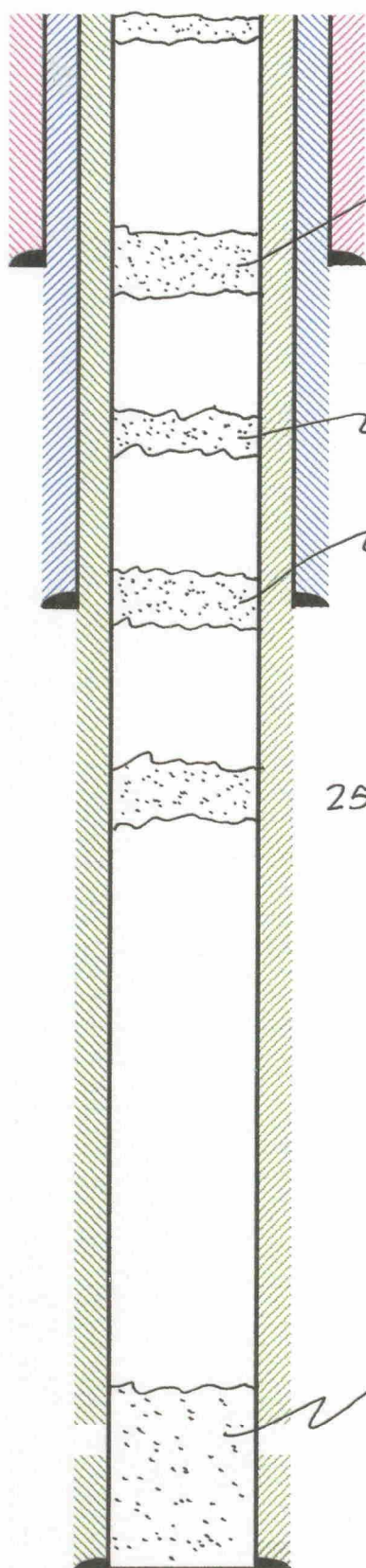


OPERATOR: Meteor Developments

LOCATION: Sec. 26, T9S, R36E, Lea County, NM

LEASE: Santa Fe Pacific #1

Unit E, 1980' FNL & 660' FWL



10sx surface

30sx 343'-443'

$1\frac{3}{8}$ " casing set at 393' with 400 sx of cement.

Hole Size: $1\frac{7}{2}$ " TOC @ Surface by circ.

30sx 2180'-2280'

30sx 4223'-4323'

$0\frac{5}{8}$ " casing set at 4273' with 2300 sx of cement.

Hole Size: $12\frac{1}{4}$ " TOC @ Surface by circ.

25sx 5500-5600'

35sx, 11765'-12130'

Perfs - 12130-137 (open hole)

7" casing set at 12130' with 2310 sx of cement.

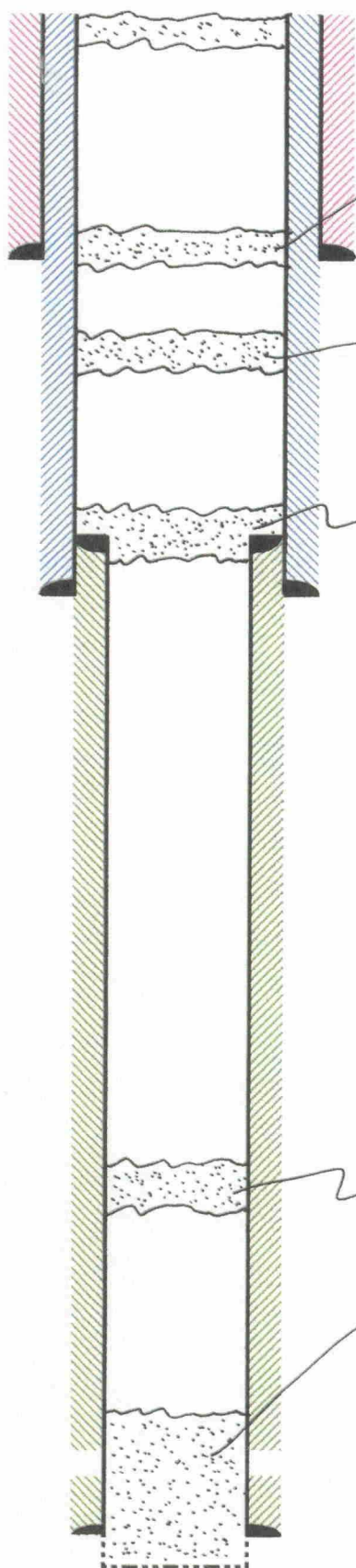
Hole Size: $8\frac{3}{4}$ " TOC @ Surface by circ.

OPERATOR: Meteor Developments

LOCATION: Sec. 26, T9S, R36E, Lea County, NM

LEASE: Santa Fe Pacific #2

Unit C, 660' FNL & 1980' FWL



155x surface

455x 375-475'

$1\frac{3}{8}$ " casing set at 472' with 500 sx of cement.

Hole Size: $1\frac{1}{2}$ ". TOC @ surface by circ.

455x 1000-1100'

355x 4480-4600' (Tagged)

$9\frac{5}{8}$ " casing set at 4765' with 2615 sx of cement.

Hole Size: $12\frac{1}{4}$ ". TOC @ surface by calc.

255x 8710-8810'

605x 11978-12183' (Tagged)

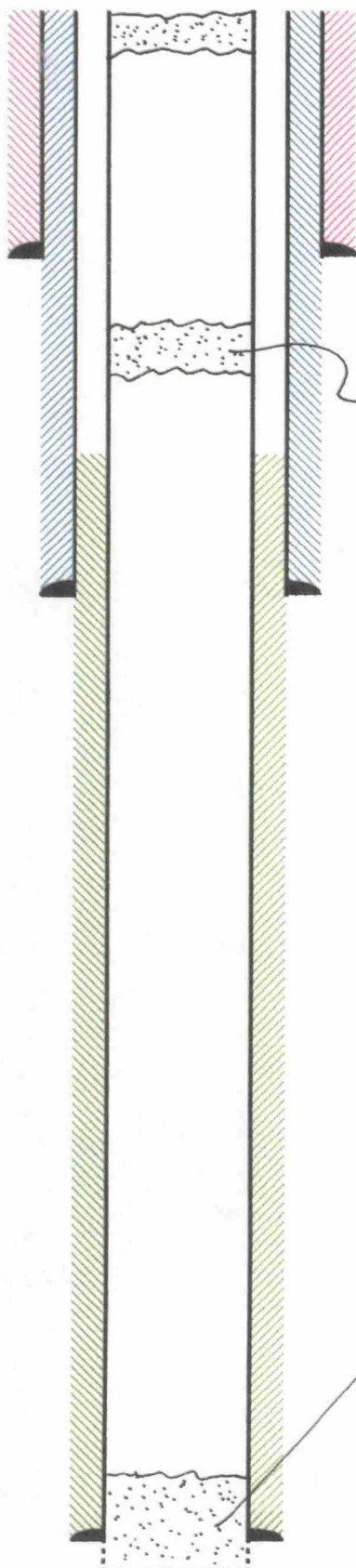
Open hole - 12174'-183'

Perfs - 12140-60, 11999-12026, 12109-129'

$5\frac{1}{2}$ " liner set at 4557-12174' with 850 sx of cement.

Hole Size: $7\frac{7}{8}$ ". TOC @ 4557' by squeeze.

OPERATOR: Socony Mobil Oil Co.	LOCATION: Sec. 22, T9S, R36E, Lea County, NM
LEASE: Santa Fe Pacific "D" #1	Unit O, 660' FSL & 1980' FEL



10 sx surface

13^{3/8} " casing set at 335 ' with 350 sx of cement.

Hole Size: 17^{1/2} ". TOC @ surface by circ.

Cut 7" @ 3500' & 2008', could not pull

25 sx 1900-2057'

8^{5/8} " casing set at 4555 ' with 2450 sx of cement.

Hole Size: 12^{1/4} ". TOC @ surface by circ.

80sx 9460'-9670'
Open hole - 9650-70'

7 " casing set at 9650 ' with 2167 sx of cement.

Hole Size: 8^{3/4} ". TOC @ 3840' by TS

PREPARED BY: JNC

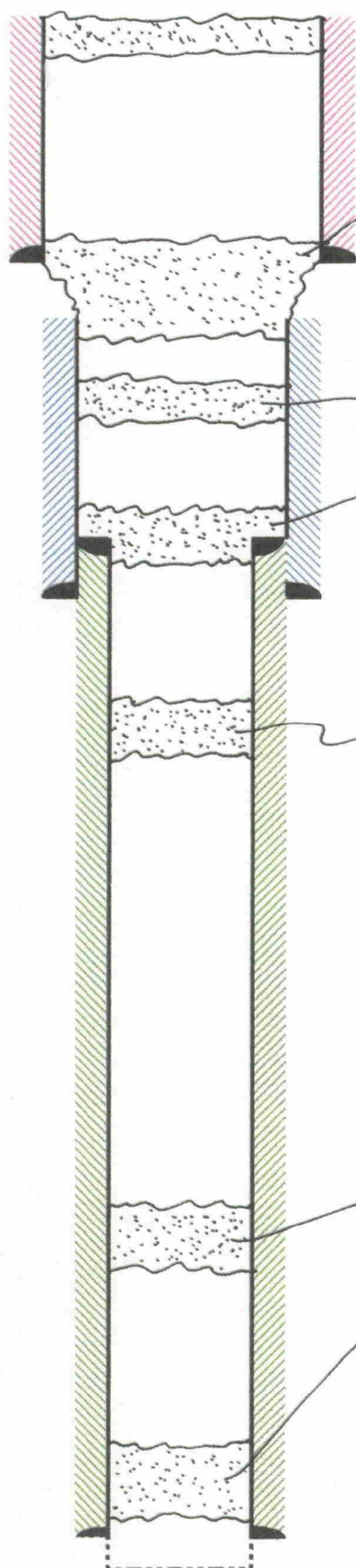
Revised: 4/24/00

OPERATOR: Meteor Developments

LOCATION: Sec. 22, T9S, R36E, Lea County, NM

LEASE: Santa Fe Pacific #5

Unit P, 660' FSL & 1880' FEL



30 sx surface

120sx 386'-555' (Tagged)

13 3/8" casing set at 441' with 500 sx of cement.

Hole Size: 17 1/2". TOC @ surface by circ.

8 5/8" cut and pulled from 505'.

35 sx 2147'-2247'

35 sx 4755'-4855'

8 5/8" casing set at 4805' with 3497 sx of cement.

Hole Size: 11". TOC @ surface by calc.

25 sx 5475'-5575'

25sx 8896'-8996'

50sx 11649'-12118' (Tagged)

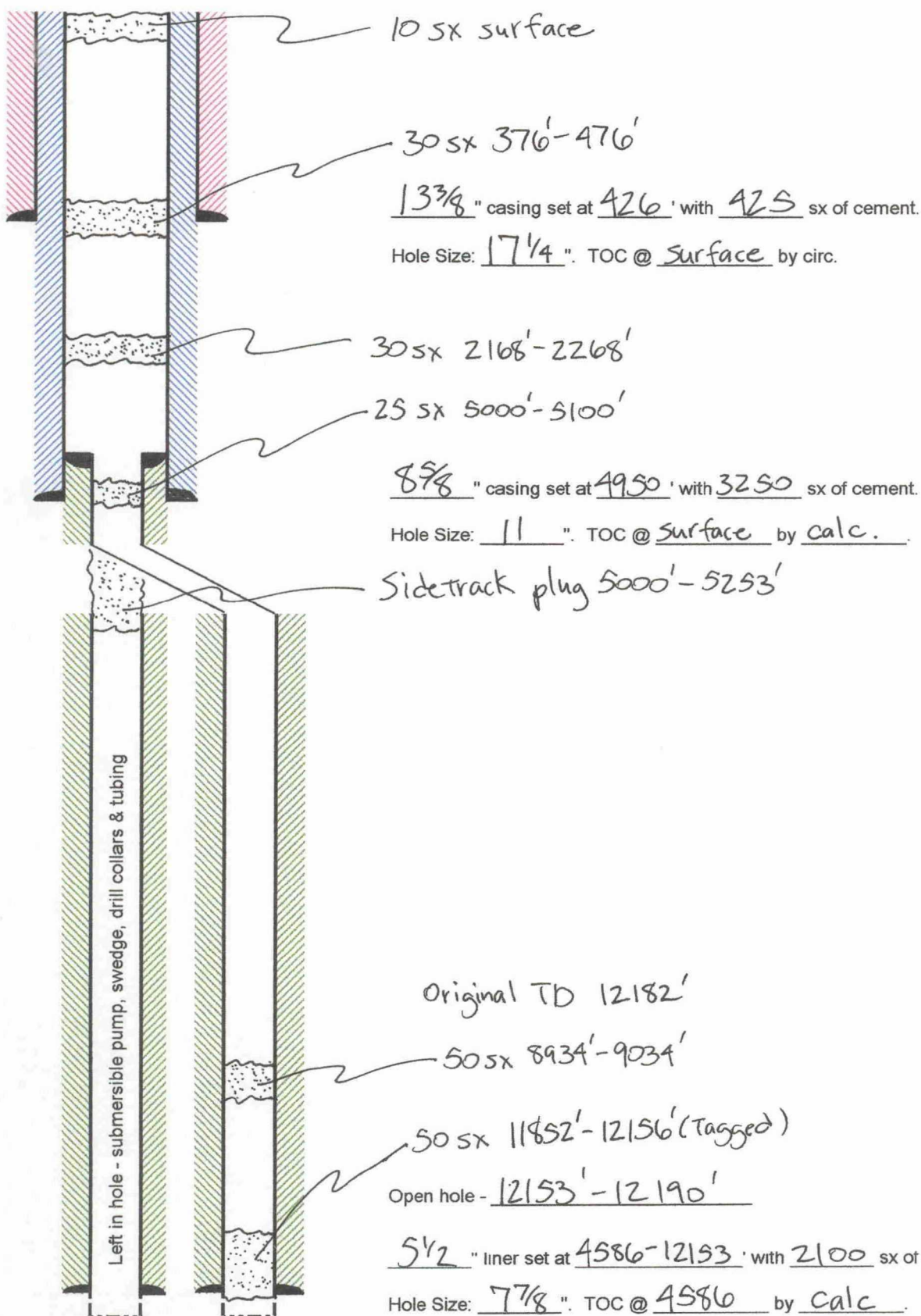
Open hole - 12136'-150'

Perfs - 12096'-110'

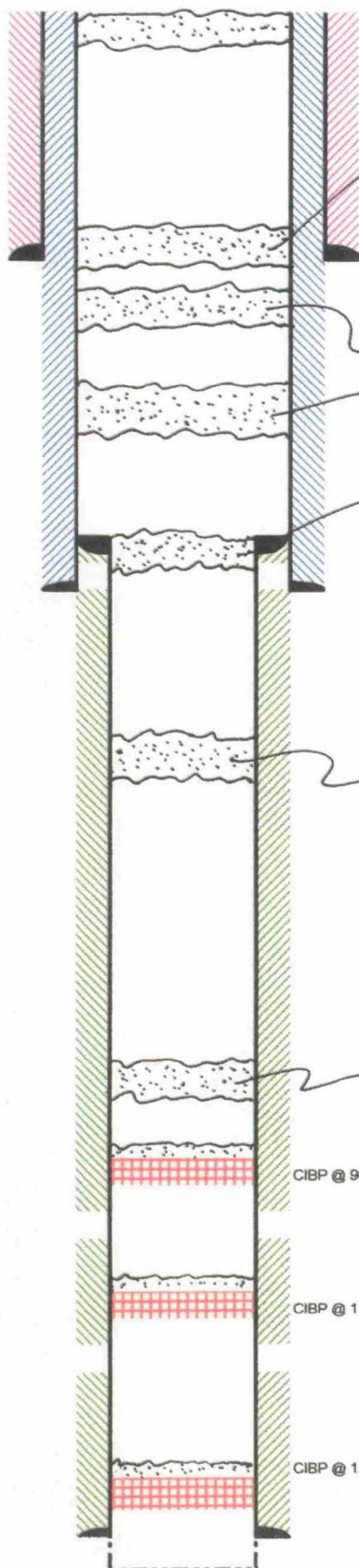
5 1/2" liner set at 4595'-12136' with 990 sx of cement.

Hole Size: 7 7/8". TOC @ 4595' by squeeze.

OPERATOR: Meteor Developments	LOCATION: Sec. 22, T9S, R36E, Lea County, NM
LEASE: Santa Fe Pacific #6	Unit I, 1651.8' FSL & 990' FEL



OPERATOR: Meteor Developments	LOCATION: Sec. 23, T9S, R36E, Lea County, NM
LEASE: Santa Fe Pacific #7	Unit M, 660' FSL & 660' FWL



10 SX Surface

35 SX 386-486'

Perf 436' & 700' c/n pump in

1 3/8" casing set at 380' with 375 sx of cement.

Hole Size: 1 1/2". TOC @ Surface by circ.

35 SX 650'-790'

40 SX 2168'-2268'

50 SX 4667'-4819' (Tagged)

Perfs - 4818-899'

8 5/8" casing set at 4895' with 2500 sx of cement.

Hole Size: 11". TOC @ Surface by calc.

25 SX 5471'-5571'

25 SX 8915'-9015'

CIBP @ 9630' w/ 35' cmt.

Perfs - 9652-660'

CIBP @ 11130' w/ 35' cmt.

Perfs - 11367-378'

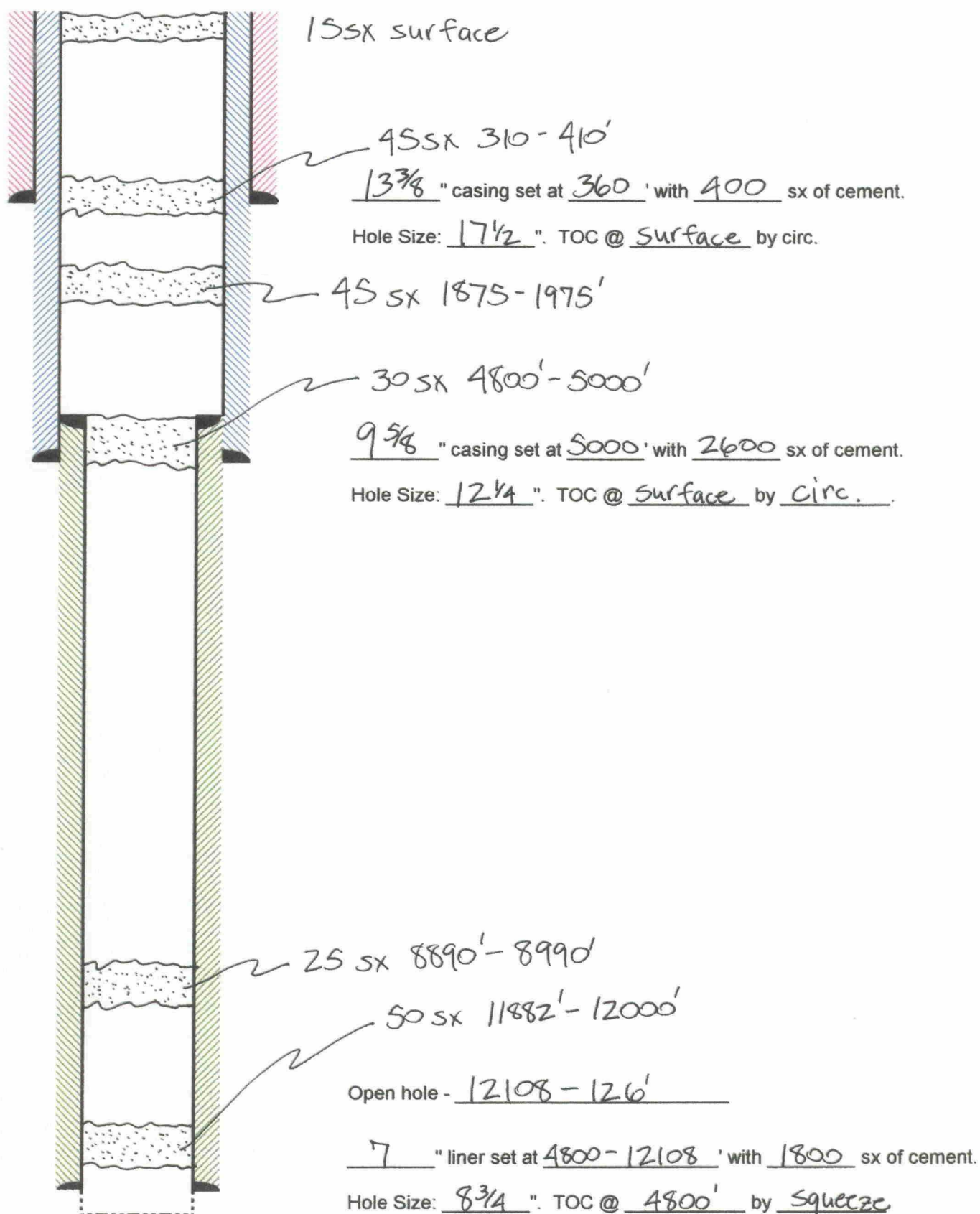
Open hole - 12191-212'

CIBP @ 12030' w/ 35' cmt.

5 1/2" liner set at 4645-12191' with 2075 sx of cement.

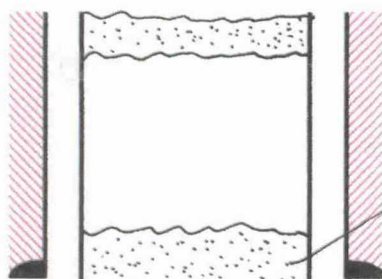
Hole Size: 7 7/8". TOC @ 2669' by calc.

OPERATOR: Meteor Developments	LOCATION: Sec. 22, T9S, R36E, Lea County, NM
LEASE: Santa Fe Pacific #10	Unit P, 330' FSL & 290' FEL



OPERATOR: Meteor Developments
LEASE: Santa Fe Pacific #11

LOCATION: Sec. 26, T9S, R36E, Lea County, NM
Unit D, 990' FNL & 380' FWL

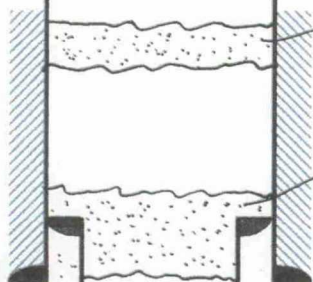


10 sx surface

Perforated @ 430', squeezed w/ 100 sx, Tagged @ 322'

$13\frac{3}{8}$ " casing set at 380' with 400 sx of cement.

Hole Size: $17\frac{1}{2}$ " TOC @ Surface by circ.

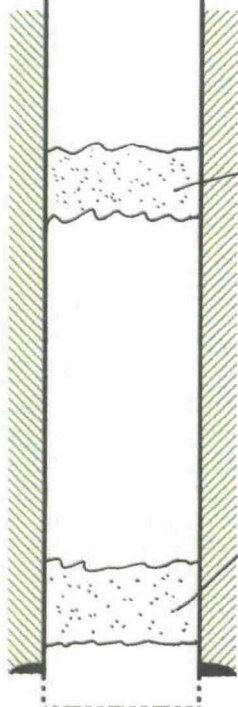


40 sx 1700'-1800'

40 sx 4705-4835'

$9\frac{5}{8}$ " casing set at 5000' with 2000 sx of cement.

Hole Size: $12\frac{1}{4}$ " TOC @ 1535' by TS



35 sx 8788-8888'

50 sx 11842-12000'

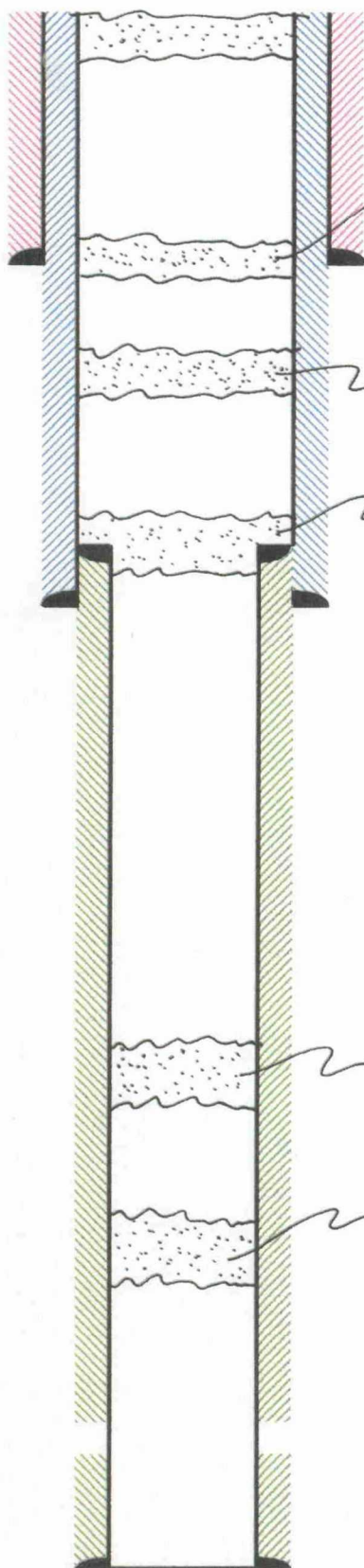
Open hole - 12096-117'

7" liner set at 4785-12096' with 1800 sx of cement.

Hole Size: $8\frac{3}{4}$ " TOC @ 4785' by squeeze.

OPERATOR: Meteor Developments
LEASE: Santa Fe Pacific #12

LOCATION: Sec. 26, T9S, R36E, Lea County, NM
Unit L, 2310' FSL & 330' FWL



10 SX Surface

40 SX 310'-410'

13 3/8 " casing set at 426 ' with 425 sx of cement.

Hole Size: 17 1/2 ". TOC @ Surface by circ.

40 SX 1700-1800'

75 SX 4725'-4860' (Tagged)

9 5/8 " casing set at 5000 ' with 2600 sx of cement.

Hole Size: 12 1/4 ". TOC @ Surface by circ.

35 SX 6700'-6800'

50 SX 7765 - 8064'

Could not get tubing below 8064'

Perfs - 12076 - 102'

7 " liner set at 4810-12119 ' with 2050 sx of cement.

Hole Size: 8 3/4 ". TOC @ 4810 by Squeeze.

Application for Authorization to Inject

- VI. Attached is a tabulation of all wells of public record that fall within the ½ mile radius of the proposed injection well, the U.D. Sawyer #4. This investigation has further shown that all these wells have a good cement seal around their casing shoe and will therefore prevent the upward migration of the disposed water into any potable water zone. The U.D. Sawyer #4 was abandoned as a Devonian producer in 1978, and recompleted in the Penn (11400-450'). The Penn zone would be cement squeezed. Geologic data and producing volumes would indicate the Devonian in the #4 is currently below the oil-water contact, and on the flank of the structure.
- VII. The proposed average daily injection rate for the subject well is 1,000 BWPd; the maximum daily injection rate would be 1,500 BWPd. This will be a closed system with an average pressure of zero and a maximum pressure of 1000 psi. Only produced Devonian water will be injected in the proposed well, so incompatibility will not be a problem.
- VIII. The injection zone is a dolomite known as the Devonian. The top of the Devonian in this well is at 12,070', and is approximately 300' thick. The zone will be selectively perforated from 12,085' - 12,100', correlative to the Upper producing zone in the offset wells. The main source of drinking water in this area comes from the Cretaceous formation, the base of which is at 180'. The Ogallala overlies the Cretaceous, but pinches out in certain areas around the zone of interest. There are no known sources of drinking water underlying the injection interval.
- IX. After perforation, the well will be stimulated with 3000 gallons of 15% NEFE HCl and ball sealers.
- X. Log and test data is on file with the Division.
- XI. Attached is an analysis of the water from a water well approximately ½ mile northwest of the proposed disposal. This is the only well which could be located.
- XII. Saga Petroleum LLC has examined the available geologic and engineering data and can find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. The required "Proof of Notice" is attached.
-

U.D. Sawyer #4
660' FNL & 660' FEL
Unit A, Sec. 27-T9S-R36E
Lea County, New Mexico

Offset Operators

G.W. Ainsworth
PO Box 7
Milnesand, NM 88215

Marbob Energy
PO Box 227
Artesia, NM 88211-0227

C.L. House
401 W. Texas
Midland, TX 79701

Meteor Development
216 16th Street, Suite 730
Denver, CO 80202

Kelly H. Baxter
PO Box 11193
Midland, TX 79702

Surface Owner

Williams Ranch
Crossroads, NM 88114

Yates Petroleum
105 S. 4th
Artesia, NM 88210

Southwest Royalty
Drawer 11390
Midland, TX 79702

Gates-O'Brian
550 W. Texas #1140
Midland, TX 79701

Special Energy Corp.
PO Box 369
Stillwater, OK 74076-0369

HALLIBURTON ENERGY SERVICES
WATER ANALYSIS REPORT
HOBBS NEW MEXICO

COMPANY Saga Petroleum

Fax: 915-684-0829

REPORT 97-152
DATE 5/2/97
DISTRICT Hobbs

SUBMITTED BY _____

WELL Off set water well DEPTH _____ FORMATION _____
COUNTY _____ FIELD _____ SOURCE _____

SAMPLE	<u>See below</u>	_____	_____
RESISTIVITY	<u>11.0988 @ 72 °F</u>	<u>_____ @ _____ °F</u>	<u>_____ @ _____ °F</u>
SPECIFIC GR.	<u>0.988</u>	_____	_____
pH	<u>7.46</u>	_____	_____
CALCIUM	<u>150</u> mpl	_____ mpl	_____ mpl
MAGNESIUM	<u>75</u> mpl	_____ mpl	_____ mpl
CHLORIDE	<u>270</u> mpl	_____ mpl	_____ mpl
SULFATES	<u>100</u> mpl	_____ mpl	_____ mpl
BICARBONATES	<u>195</u> mpl	_____ mpl	_____ mpl
SOLUBLE IRON	<u>0</u> mpl	_____ mpl	_____ mpl
	_____	_____	_____
	_____	_____	_____
OIL GRAVITY	<u>_____ @ _____ °F</u>	<u>_____ @ _____ °F</u>	<u>_____ @ _____ °F</u>

REMARKS Water well located approximately 1 mile north west of disposal

ANALYST: *Q. LEWIS*

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Resistivity measured in: Ohm/m2/m