GW - 226

PERMITS, RENEWALS, & MODS Application

B. Quick, Inc.
Application for Permit
Class I Non-hazardous Salt Cavern Disposal Wells
for Oilfield and Non-hazardous Waste
UIC-CLI-006
Lea County, New Mexico

Safety & Environmental Solutions, Inc.
703 E. Clinton Suite 103
Hobbs, New Mexico 88240
(505) 397-0510

1. **Type of Operation:** The major operational purpose of the salt cavern disposal well is to economically place oilfield waste in a safe and secure environment below the water table to insure that the waste is not a threat to human health and the surface environment.

2. **Name of Operator or Legally responsible Party and Local Representative:**

Responsible Party	**Local Representative**
B. Quick, Inc.	Safety & Environmental Solutions, Inc.
9535 Forest Lane	703 E. Clinton Suite 103
Dallas, Texas 75243	Hobbs, New Mexico 88240

3. **Location of Discharge Plan Facility:** The location of the proposed disposal well is in the SE/4 SE/4 of Section 34, Township 19 South, Range 36 East, Lea County, New Mexico. Appendix A

4. **Landowners:**

Section 34 Township 19 South, Range 36 East

James W. Foster - 160 acres
Landowner at well site
1901 West Avenue j
Lovington, New Mexico 88260

Betty T. Cooper - 320 acres
P.O. Box 55
Monument, New Mexico 88265

G. T. Sims - 160 acres
P.O. Box 1046
Eunice, New Mexico 88231

Section 35 Township 19 South, Range 36 East

DLD Resources - 560 acres
P.O. Drawer A
82055 Hwy 322
Monument, New Mexico 88265

Jimmy T. Cooper Trust - 40 acres
Betty T. Cooper Trust
Star Route A, Box 55
Monument, New Mexico 88265

Section 3 Township 20 South, Range 36 East

Federal Land
Lessee E.H. Lkein Estate
P.O. Box 1503 Hobbs, New Mexico 88241

Section 2 Township 20 South, Range 36 East

NW/4 Lot 1 40.16 acres - State land leased to DLD Resources
Lot 2 40.21 acres - State land leased to DLD Resources
Lot 3 40.25 acres - State land leased to DLD Resources
Lot 4 4.31 acres - owned by DLD Resources

Remaining acreage in this section is State land leased to James R. Byrd

5. Facility Description:

The facility will consist of the following:

A waste receiving area
A brine loading area
Brine Storage (3) 1000 bbl. Tanks
Waste Storage (slurry tank) 500 bbl.
Crusher/ball mill operating area
Solids storage area
Waste transfer and injection area
Oil Recovery system

Appendix B

6. Type and Quantities of Fluids Stored or Used at the Facility:

Type	Quantity Produced	Quantity Stored	Storage Type
Produced Water	0	up to 500	500 bbl. Slurry tank
Drilling Mud	0	up to 500	500 bbl. Slurry tank
Work over Fluids	0	up to 500	500 bbl. Slurry tank
Tank bottoms	0	up to 500	500 bbl. Slurry tank
Other Oil/Gas Waste	0	up to 500	500 bbl. Slurry tank
Brine Water	5000 bbls	3000 bbls	(3) 1000 bbl. tanks
Oil Settling/Storage	500 bbls	up to 700	(3) 210 bbl. tanks

7. Transfer, Storage and Disposal of Fluids and Solids:

(A) (1) Tankage and Chemical Storage Areas - Storage tanks on the facility will be bermed in order to contain one-third more than the volume of the largest tank.

Any and all chemical and drum storage areas will be paved and curbed in order to contain any leaks or spills.

(A) (2) There will be no surface impoundments at this facility.

(A) (3) There will be no leach fields at this location.

(A) (4) All solids will be slurried and injected into the cavern.

(B) (1) The tankage and chemical storage area will be inspected on and daily and weekly routine. The secondary containment of these areas will insure no damage to the ground water in the area.

(B) (2) The storage tank and slurry tank will be able to be sampled from the hatch located at the top of each tank and the associated piping will provide ports for sampling and calculating flow.

(B) (3) The monitoring system to be implemented will include a daily inspection of all tanks and associated piping and a more thorough weekly inspection will be completed by the project manager. All inspections will be documented and available for inspection by all regulatory agencies. There are no current plans to install ground water monitoring wells.

(C) Only RCRA exempt oilfield waste or other OCD approved non-hazardous waste will be accepted for disposal at this facility. The waste will be in a physical form that will be compatible with the disposal procedures established for this facility. No other wastes will be accepted and therefore it will not be necessary for any wastes to be shipped off-site for disposal.

(D) This facility will be constructed upon approval of the permit and the construction will incorporate all areas discussed in this application.

(E) The amount of buried piping constructed at this facility will be minimized for inspection purposes. Any underground lines will be pressure tests with 3 pounds per square inch above the normal operating pressure of the line. A proposal for the duration of the test will be submitted to the OCD for approval.

(F) (1) Daily and weekly visual inspections will be conducted by operators and project manager. The inspections will be documented and available for inspection by all regulatory agencies.

(F) (2) One up-gradient and one down-gradient ground water monitor wells will be installed at the facility. These wells will be sampled quarterly and analyzed for hazardous characteristics pursuant to 40 CFR 261. The results will be submitted to the OCD long with the ground water elevations of the wells.

(F) (3) All tanks will be bermed to contain one-third more than the largest tank within the bermed area. All other storage areas will be paved and curbed for containment purposes. The facility will be level and the amount of runoff will be limited to the pad area. This area will not be subject to spills and leaks.

(F) (4) Daily and weekly visual inspections will be conducted by operators and project manager. The inspections will be documented and available for inspection by all regulatory agencies.

(F) (5) (a) Tanks and piping will be drained of all fluids which will be injected into the cavern.

(F) (5) (b) After all equipment is removed, the ground will be returned to the natural contour of the surrounding area.

(F) (5) (c) All fluids, sludges and solids will be disposed of pursuant to rules and regulations in effect at the time of closure.

8. Underground Injection/Extraction Well Facilities:

(A) (1) Prior to start-up of planned operations at this facility, Form C-101 and a "Notice of intent to Discharge" will be filed with the appropriate OCD District office.

(A) (2) A Division approved bond or materials shall be approved and executed prior to discharge plan permit approval and shall become effective upon start-up of construction.

(A) (3) These wells are currently existing and no drilling will be done.

(A) (4) Appendix A.

(A) (5) Appendix C.

(A) (6) Appendix D.

(A) (7) Proof that a copy of the discharge plan has been sent to the owner of the surface land will be provided upon approval of the plan.

(A) (8) Appendix E.

(B) (1) The facility will be identified by a sign posted at the entrance providing the following information: Facility name, discharge plan number, well number, name of lease, name of lessee, owner or operator and the location by quarter-quarter section, township and range.

(B) (2) Access for emergency response will be identified as well as emergency response names, addresses and phone numbers. Safety & Environmental Solutions, Inc., 703 East Clinton, Hobbs, NM 88240, (505) 397-0510 or pager (800) 588-4702 is a local emergency contact.

(B) (3) Prior to performing any remedial work or any other workover, approval will be requested on OCD Form C-103, with copies sent to the appropriate District office. Any pertinent information will be included with the request.

(C) (1) (a) DLD Resources Plant and the Dynagy Monument Gas Plant are the only industrial sites located within a two mile radius to the facility. Amarada Hess Corp. has a field office located within the two mile radius of the facility.

(C) (1) (b) The properties adjacent to the facility are used as range land and for oil and gas production. The DLD Resources and Dynagy Plants are used for the production of chemicals and gas respectively.

(C) (1) (c) Not applicable to this facility.

(C) (1) (d) Upon receipt of the permit, the wells will be logged to provide the exact depth to the cavern top. The best estimate at this time is 1,310'.

(C) (1) (e) Upon receipt of the permit, the wells will be logged to provide the exact proximity to salt boundary.

(C)(1)(f) Appropriate chemical analysis of fresh water from two or more water wells within one mile of the disposal well, both up-gradient and down-gradient, will be performed upon receipt of the permit.

(C)(1) (g) Seismic activity in the area of the facility is highly unlikely. The formations above and below the salt beds are stable with no major fault lines traversing the area. Appendix F

(C)(1) (h) The Dynagy Plant has two caverns in operation that are currently being use for the storage of LPG.

(C)(1) (i) Appendix E.

(C)(1) (j) The potential for subsidence for the proposed cavern will be controlled by monitoring the fluid levels in the cavern and not allowing unsaturated (brine) to be introduced into the cavern that would cause additional erosion of the salt formation.

(C)(1) (k) The wells of record in the area do not indicate severe corrosion problems. If corrosion becomes a problem with the disposal wells, cathodic protection will be installed.

(C)(1) (l) The casing of the wells is set below the fresh water resources and cemented to surface in order to prevent corrosion, loss of disposal fluids, and contamination of ground water.

(C)(1) (m) The casing integrity testing of each well will be conducted prior to operation, annually, and after any workover. The test will consist of isolating the well from each other and tested to 1.5 times the average operating pressure or 300 psi, whichever is greater, for four hours with zero bleed-off. The cavern pressure will be allowed to stabilize to a rate change of less than 1- psi in 24 hours prior to testing. In the event the well cannot pass the integrity test, the well will be shut in and the OCD notified immediately.

(C)(1) (n) The cavern size and configuration will be surveyed, using an OCD approved method, prior to beginning operations, and prior to discharge plan renewal, or at least every five years thereafter.

(C)(1) (o) The cavern will be equipped with a hydrocarbon blanket prior to operations. The cavern roof will be monitored suing an OCD approved method.

(C)(1) (p) The cavern will be filled with fully saturated brine prior to beginning operations. The brine will be tested for hazardous constituents pursuant to 40 CFR 261.

(C)(1) (q) Operator will provide all wireline logs of the cavern and well bore to the OCD.

(C)(1) (r) If liners are used, they will be designed with casing requirements and overlap 100 feet in the previous string.

(C)(1) (s) The tubing will be equipped with a mechanical packer set within 100 above above the casing shoe and the casing/tubin annulus will be loaded with inert packer fluid.

(C)(1) (t) Appropriate records of all waste accepted for disposal will be kept and available for inspection by all regulatory agencies.

(C)(1) (u) All wastes will only be accepted while an attendant is on duty.

(C)(1) (v) The maximum injection pressure will be limited to 0.2 psi/ft times the depth of the upper most perforations or the casing shoe. Pressure limiting devices will be installed and demonstrated annually to the OCD.

(C)(1) (w) Waste emplacement will be down the tubing and brine withdrawal will be from the casing/tubing annulus volume for volume. (Figure 1) In the event that the suspected communication between cavern 1 and cavern 2 in

confirmed, the emplacement of waste may be down the tubing into cavern 1 and the withdrawal of brine from the tubing in cavern 2.

(C)(1) (x) Carrier fluid will be exempt or non-hazardous fully saturated brine. All volumes will be recorded and maintained at the facility and submitted to the OCD.

(C)(1) (y) The final disposition of displaced brine will be recorded and submitted to the OCD. The operation plan called for this displaced brine to be sold, used as carrier fluid, or properly disposed in an OCD permitted well.

(C)(1) (z) Continuous monitoring and recording devices will be installed and mechanical charts made of cavern pressure, injection pressure, flow rate, and flow volumes.

(C)(1) (aa) Ground subsidence monitoring will be conducted at least every five years due the same season of the year.

(C)(1) (bb) One monitor well up-gradient and one monitor well down-gradient will be installed and sampled quarterly. The samples will be analyzed for hazardous constituents per 40 CFR 261. Ground water elevations will be measured quarterly. All results will be submitted to the OCD.

(C)(1) (cc) In the event of a fluid loss or abnormal pressure increase or decrease, the OCD will be notified immediately.

(C)(1) (dd) All personnel at the facility will receive the appropriate training in all aspects of the operation. The training will be documented.

(C)(1) (ee) Records of all maintenance work on the well and associated equipment will be maintained.

(C)(1) (ff) - (kk) All requirements stated in these sections will be met prior to; during and after disposal operations are completed.

9. Spill/Leak Prevention and Reporting Procedures (Contingency Plans):

(A) Prevention of spills or leaks at the facility will involve daily visual inspection of associated piping, containment and transfer stations for leaks. The containment areas are bermed to prevent runoff. The transfer areas will be monitored during unloading to ensure spills are kept to a minimum. Th daily inspections will include a site walk-through to monitor and/or correct any areas within the facility that could contribute to a spill including equipment storage areas, office areas and parking areas.

(B) The containment areas are bermed with lined earthen material and have secondary containment to prevent spill/leak runoff. In the event of a spill, the spilled material will be contained and returned to the system for disposal. Any sorbent materials used will be disposed of within the system as applicable.

(C) In the event of a reportable spill, both the OCD District office and the Santa Fe office will be notified within 24 hours and with written notification within 15 days.

10. Site Characteristics:

(A) (1) (a) Appendix F.

(A) (1) (b) Appendix F.

(A) (2) (a) The facility is situated on a relatively level site and runoff is not anticipated with major precipitation.

(A) (2) (b) The storage/containment areas are bermed at this time.

(B) No information was required from the OCD at this time.

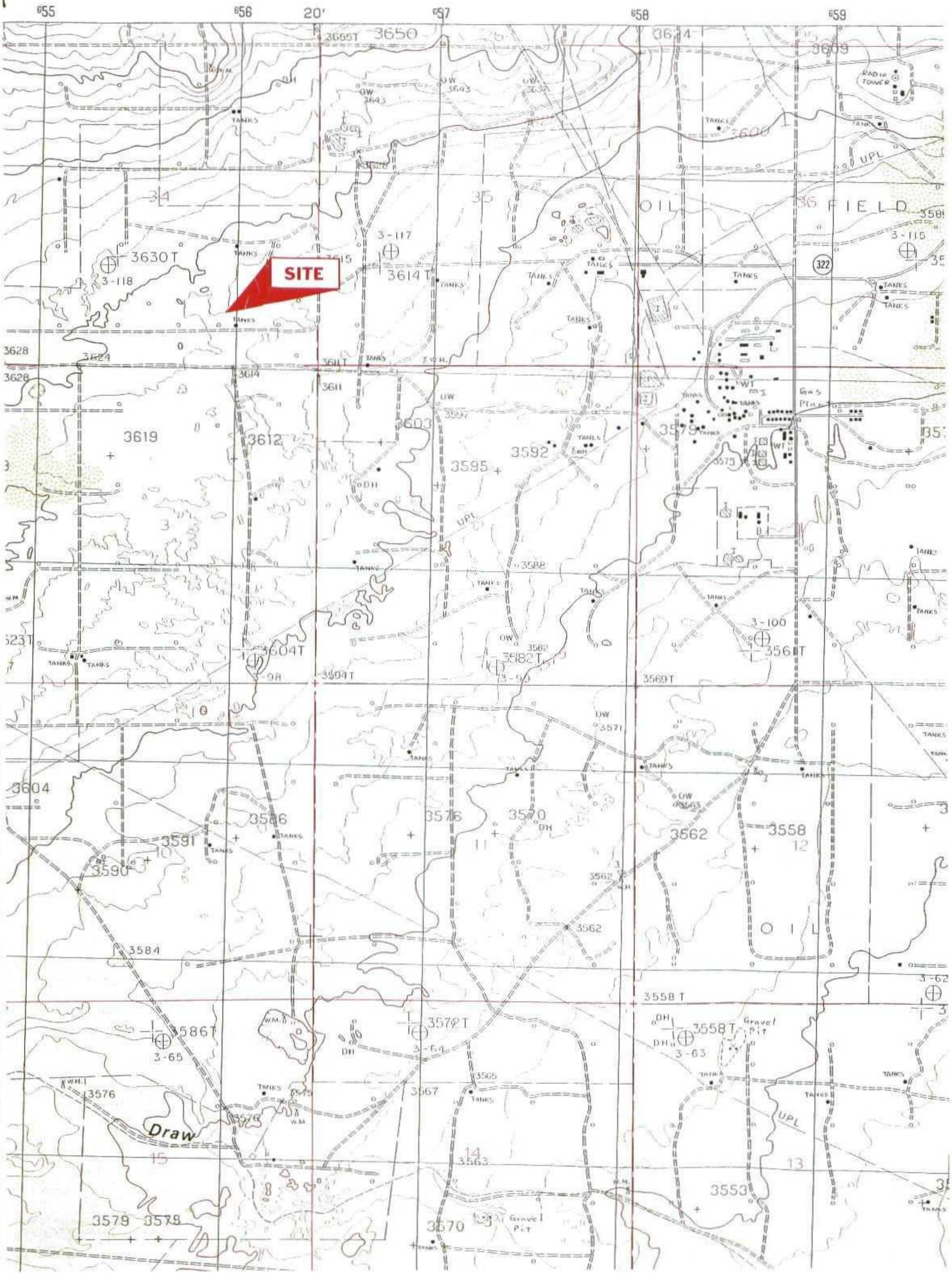
11. Other Compliance Information:

Salt cavern disposal of oil field and other non-hazadous waste has been the subject of several studies since 1996. These studies address the economics and legality of this type of disposal. Without exception, the reports conclude that salt cavern waste disposal facilities may be operated in full compliance with State and Federal laws and regulations while providing an acceptable alternative to land disposal.

The study prepared by Argonne National Laboratory in Washington, DC for the U.S. Department of Energy under Contract W-31-109-ENG-38 is made part of this application. Chapters 4, 5, 6 and 7 are the standard by which this facility will be constructed and operated. These chapters contain additional information that may be necessary for the completion of this application regarding types of waste to be accepted, disposal operations, and cavern design.

Appendix A

Appendix A
Topographic Map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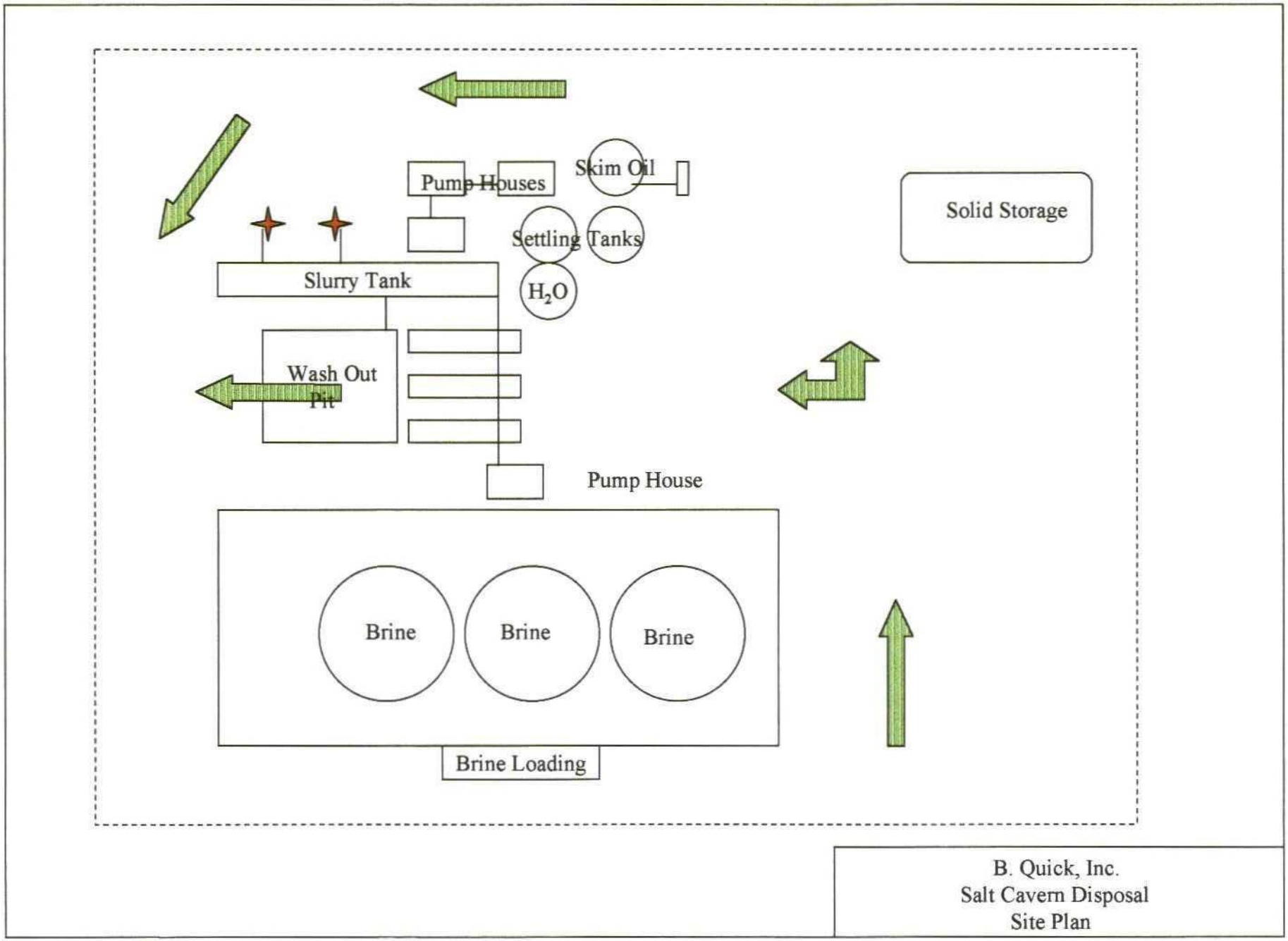
Appendix B

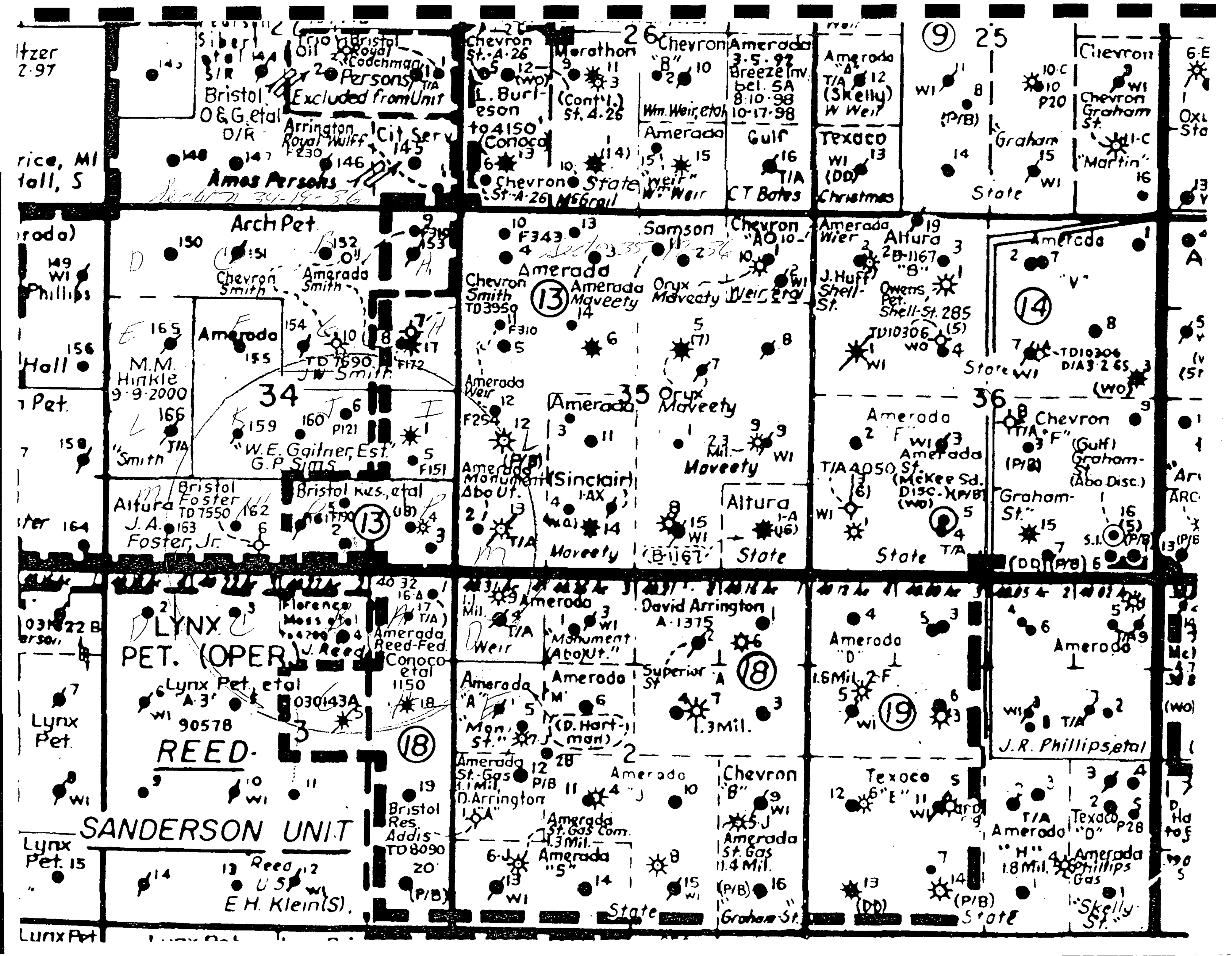
Appendix B
Site Plan



B. Quick, Inc.
Salt Cavern Disposal
Site Plan

Appendix C

Appendix C
Area of Review Map



Bristol O&G etal
Excluded from Unit
Amos Persons
Arch Pet
Chevron Smith
Amerada Smith
Amerada
M.M. Hinkle 9-9-2000
W.E. Gaitner, Est. G.P. Sims
Bristol Foster TD 7550
Altura J.A. Foster, Jr.
Bristol Res., etal
L. Burleson
Conoco
Marathon
Chevron "B"
Wm. Weir, etal
Amerada 3-5-92 Breeze Inv. bel. SA 8-10-98 10-17-98
Gulf
C T Bates
Texaco
Christmas
Samson
Amerada Maveety
Oryx Maveety
Chevron Smith TD 3950
Amerada Weir
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(Sinclair)
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J. Huff Shell St.
Owens Pet. Shell-St. 285
Amerada "V"
Chevron "F"
Graham St.
LYNX PET. (OPER.)
Lynx Pet. etal
REED
SANDERSON UNIT
E H. Klein (S).
Amerada Reed-Fed.
Conoco etal
David Arrington A-1375
Amerada "D"
Texaco "E"
J.R. Phillips, etal
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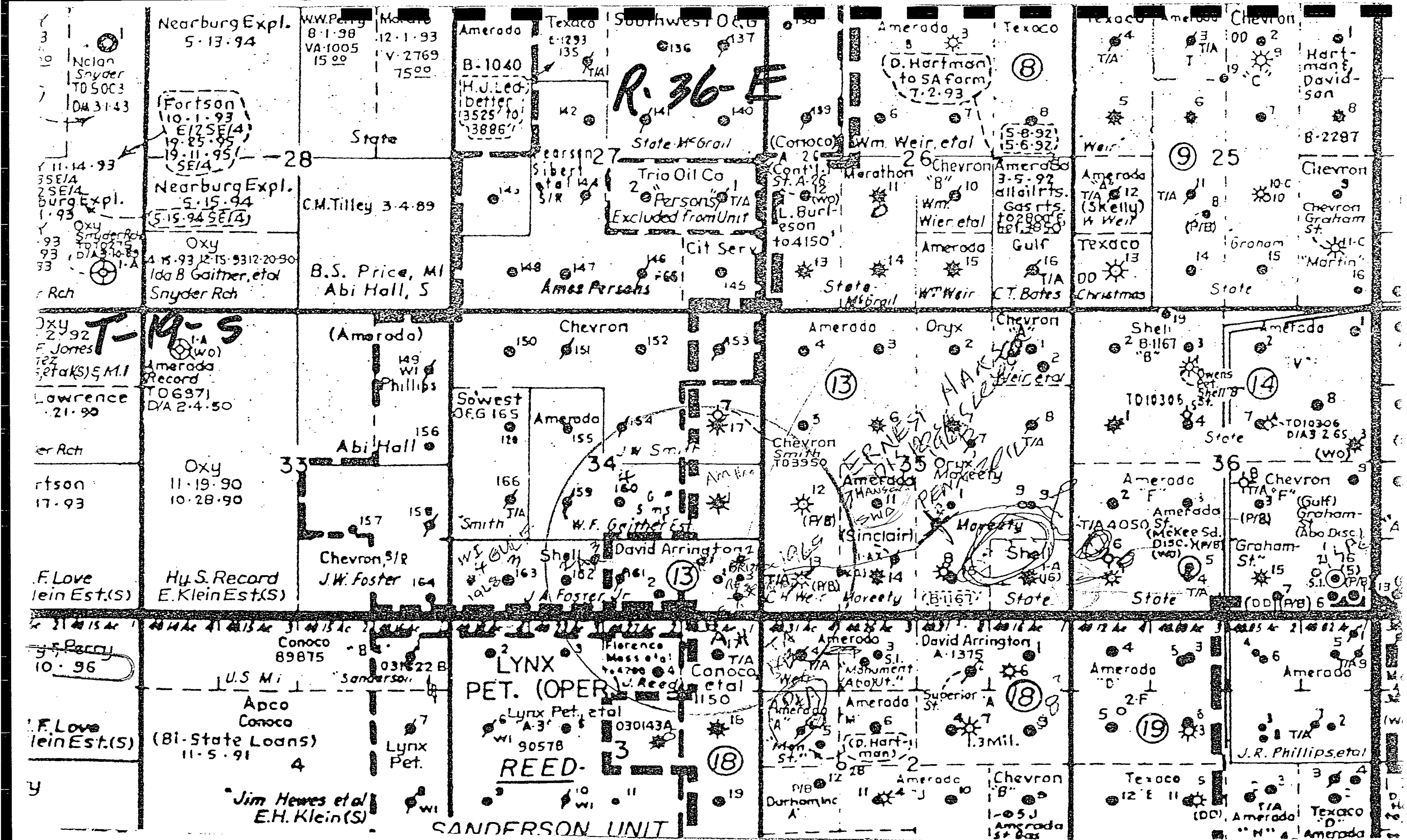
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C.M.Tilley 3·4·89
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Ida B Gaitner, etal
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Abi Hall, S
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Graham St.
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Abi Hall
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Sowest
O&G 165
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J.W. Smith
W.F. Gaither Est.
Smith
Chevron
J.W. Foster
Hy S. Record
E. Klein Est.(S)
F. Love
lein Est.(S)
Shell
David Arrington
J.A. Foster Jr
Amerada
Onyx
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Chevron
Smith
Sinclair
Moreely
Shell
State
Shell
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36
Amerada
Chevron
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PET. (OPER.)
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Conoco
etal
Jim Hewes et al
E.H. Klein (S)
Lynx Pet.
Amerada
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Superior St.
Durham Inc
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Texaco
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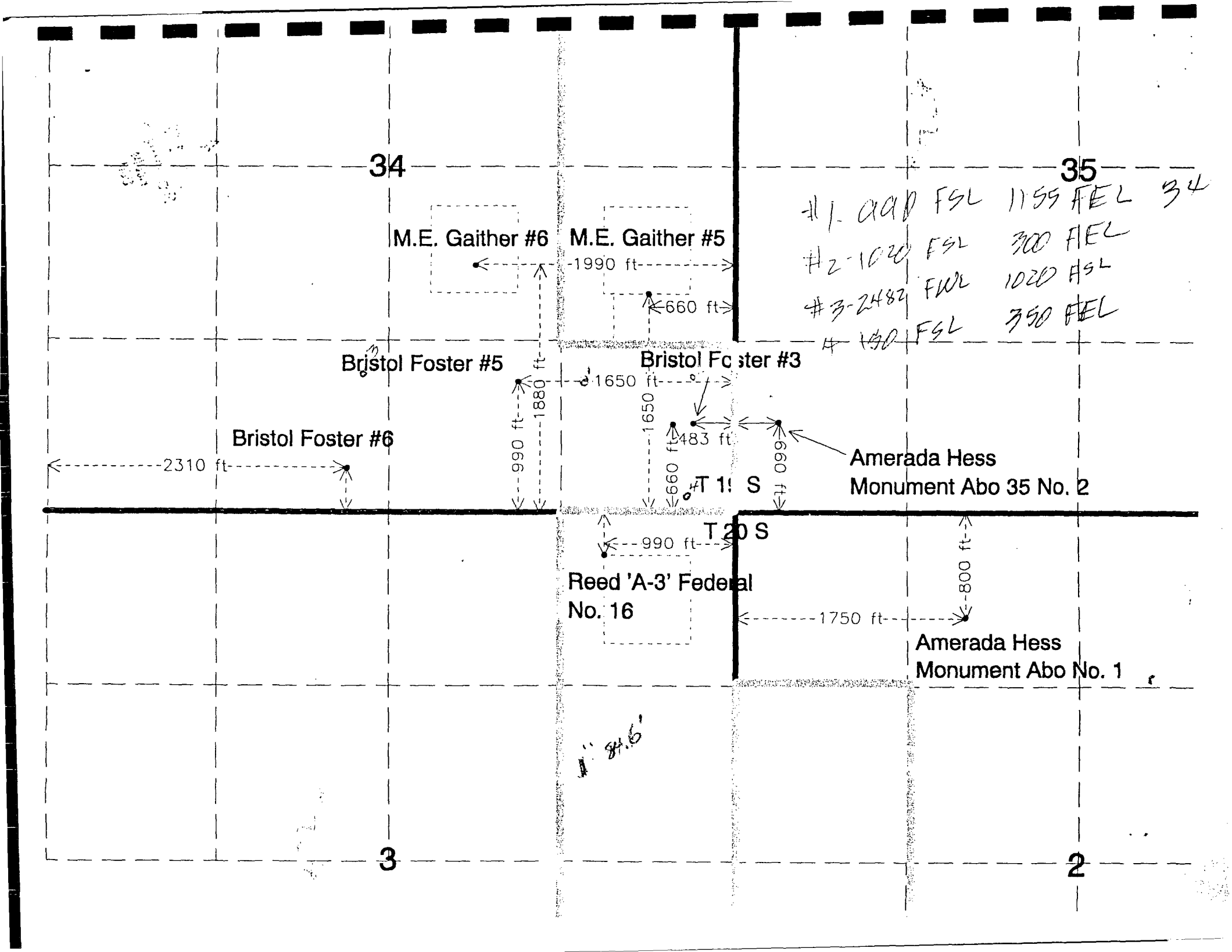
Amerada



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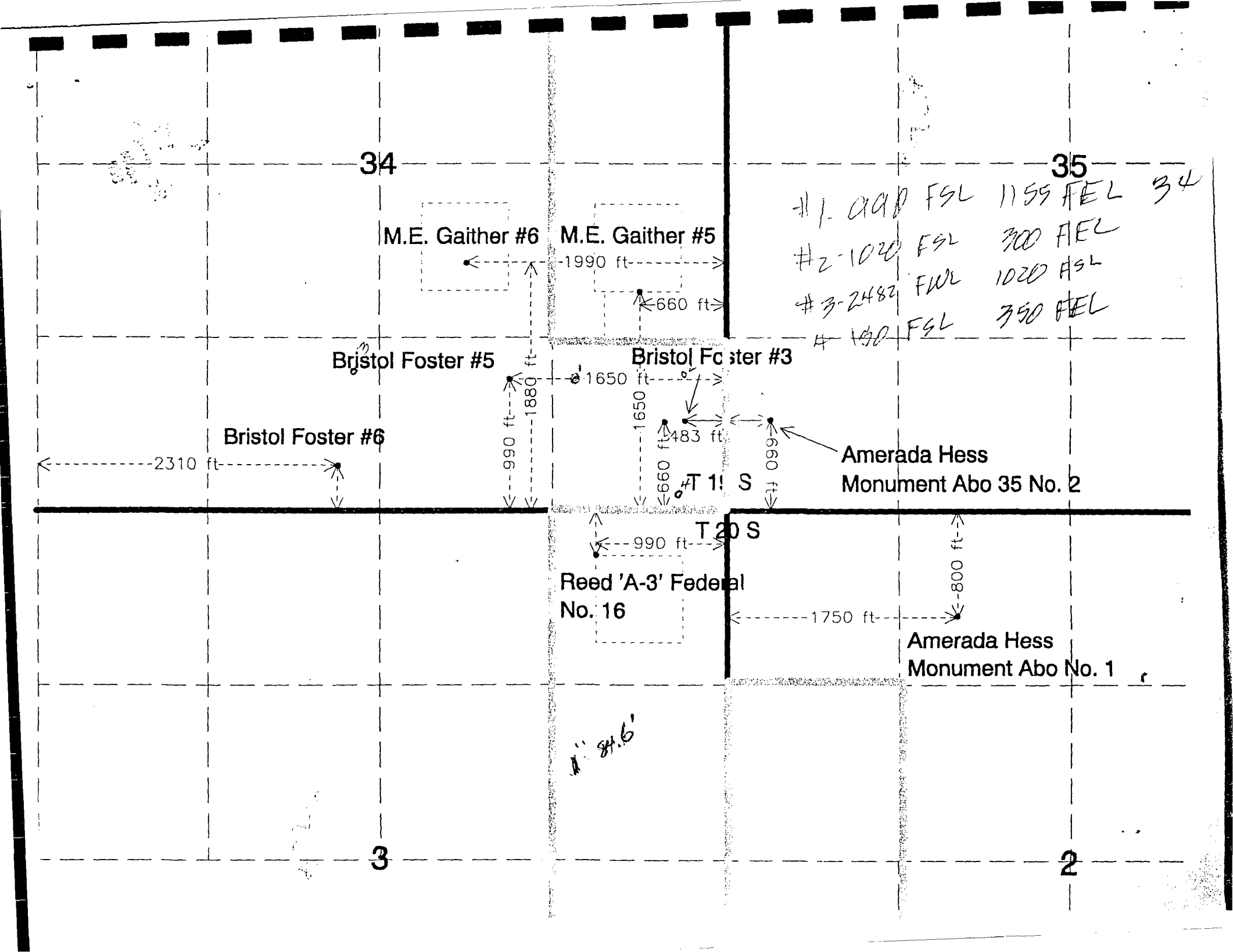
#2 1020 FSL 300 FEL
#3 2482 FNL 1020 FSL
190 FSL 350 FEL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35
M.E. Gaither #6
M.E. Gaither #5
1990 ft
660 ft
#1 660 FSL 1155 FEL 34
#2 1020 FSL 300 FEL
#3 2482 FWL 1020 FSL
190 FSL 350 FEL
Bristol Foster #5
Bristol Foster #3
1650 ft
1880 ft
990 ft
1650
660 ft
483 ft
660 ft
Bristol Foster #6
2310 ft
T 19 S
Amerada Hess
Monument Abo 35 No. 2
T 20 S
990 ft
Reed 'A-3' Federal
No. 16
800 ft
1750 ft
Amerada Hess
Monument Abo No. 1
3
2

Appendix D

Appendix D
Wells of Public Record

T 19 S, R 36 E

COMPANY & LSE	SEC.	UNIT	SURF CSG DEPTH SX	INTERMEDIATE	PAY CSG DEPTH SX	T.D.	ELEV	COMPL. DATE
Amerada Gaither 1	34	I	12½-227-150	8-5/8 2540-500	6/5/8-3814-100	3950	3632	7/13/36
" " 2	34	F	9-5/8-310-300	- - - - - - - -	7"- 3996- 800	3996	3652	10/11/54
" " 3	34	K	9-5/8-317-300	- - - - - - - -	7"-3800- 700	3940	3638	11/7/64
" " 4	34	J	8-5/8-1314-800	- - - - - - - -	5½-3870-400	3940		6/7/56
Climax Chem 3	34	K						
" " 4	34	P						
Gulf Oil Smith 1	34	H	10-3/4-228-200	7-5/8-1281-300	5½-3800-300	3970	3642	6/11/36
" " " 2	34	A	12½-285-250	9-5/8-1240-375	7 -3843-200	3975	3657	5/11/37
" " " 3	34	C	9-5/8-311-275	- - - - - - - -	7- 3832-1650	4000	3677	1/28/55
" " " 4	34	D	9-5/8-338-275	- - - - - - - -	7- 3860-1750	4000	3681	5/26/55
" " " 5	34	B	9-5/8-1377-900	- - - - - - - -	7- 3980-600	3980	3685	3/16/56
" " " 6	34	G	8-5/8-1378-850	- - - - - - - -	5½-3950-600	3950	3651	4/9/56
Resler & Sheldon Smith 1	34	E	8-5/8-234-100	- - - - - - - -	5½-4000-400	4000	3654	8/9/54
" " 2	34	L	8-5/8-285-150	- - - - - - - -	5½- 3903-400	3980	3642	9/30/54
Shell Foster 1	34	P	12½-248-125	9-5/8-1201-350	7 -3707-250	3957	3632	6/11/36
" " 2	34	O	8-5/8-1265-500,	- - - - - - - -	5½-3702-125	3953	3627	3/13/39
" " 2A	34	O	8-5/8-304- 300	- - - - - - - -	5½-3866-750	3961		1/22/57
" " 3	34	N	8-5/8-301- 250	- - - - - - - -	5½-3950-750	3950	3633	12/2/54
" " 4	34	M	8-5/8-306-300	- - - - - - - -	5½-3971-660 ,,	3972	3638	12/30/54
Amerada Weir 1	35	M	12½-205-100	9-5/8-2435-500	7 -3815-100	3945	3621	2/5/36
" " 3	35	L	12½-219-150	8-5/8-2455-500	6-5/8-3815-100	3945	3626	4/19/36
" " 4	35	F	12½-217-150.	8-5/8-2425-500	6-5/8-3815-100	3945	3627	4/22/16
" " 5	35	E	12½-222-50	8-5/8-2479-500	6-5/8-3819-100,	3955	3636	7/6/36
" " 6	35	C	12½-188-180	8-5/8-2492-500	6-5/8-3828-100	3975	3652	8/22/36
" " 8	35	D	12½-191-200,	8-5/8-2539-600	6-5/8-3845-100	3960	3653	4/15/37
Gulf Oil Weir 1	35	A	10-3/4-279-250	7-5/8-1181-250	5½- 3866-300	3978	3633	3/5/36

COMPANY & LSE	SEC	UNIT	SURF. CSG DEPTH SX	INTERMEDIATE	PAY CSG. DEPTH SX	T.D.	ELEV.	COMPL DATE
Shell State 1	35	P	12½-174-150	9-5/8-2450-450	7-3800-135	3929	3594	6/22/35
Republic Prod.								
Selby-Maveety 1	35	N	12½-253-100	9-5/8-2375-400	7-3975-200	3940?	3975	11/9/35
" " " 2	35	K	12½-313-200	9-5/8-2400-400	7-3815-232	3927	3610	2/5/36
" " " 1A	35	K	7 - 308-300	Excessive deviation @ 2310" P @ A				
Sinclair,Selby1AX	35	N				3950	3653	11/19/59
Sun Maveety 1	35	P		7"-2532-400	4-3/4-3790-200	3935	3591	7/16/35
" " 2	35	O	12½-162-100	9-5/8-2340-400	7-3776-200	3936	3607	9/3/35
" " 3	35	H	12½-258-250	9-5/8-2395-400	7-3774-215	3945	3604	10/27/35
" " 4	35	J	13¼-249-400	9-5/8-2397-400	7-3777-200	3939	3610	2/7/36
" " 5	35	G	12½-305-125	9-5/8-2476-400	7-3825-200	3940	3609	5/8/36
" " 6	35	B	12½-297-125	9-5/8-2481-400	7-3824-200	3972	3647	6/24/36 Few Holes
" " 7	35	G	8-5/8-342-200 - - - - - - - -		4½-4100-454	4100	3611	12/3/66 (in csg (503-1075
Sun Oil Weir 1	35	I	12½-158-100	9-5/8-2334-390	7-3795-200	3935	3601	7/20/35

T 20 S, R 36 E

Amerada St. J 1	2	O	12½-220-150	9-5/8-2376-500	7-3789-200	3921	3591	1/20/36
" " " 2	2	J	12½-197-150	8-5/8-2334-500	7-3784-125	3900	3597	1/20/36
" " " 3	2	K	13/58-162-	8-5/8-2346-500	6-5/8-3810-100	3930	3612	4/13/36
" " " 4	2	K	8-5/8 383-350 - - - - - - - -		4½-3499-1150	3500	3598	6/12/76
Amerada St. M 1	2	F	12½-225-150	8-5/8-2386-500	7-3805-160	3920	3605	3/18/36
" St. S 1	2	N	12½-239-150	8-5/8-2372-500	6-5/8-3811-100	3915	3604	5/25/36
" " " 2	2	M	12½-224-150	8-5/8-2435-500	6-5/8-3756-100	3920	3605	7/19/36
" Weir 1	2	C	12½-216-150	8-5/8-2408-500	6-5/8-3800-100	3930	3614	4/1/36
" " 2	2	D	12½-216-150	8-5/8-2412-500	7-3800-100	3930	3614	4/1/36
Anderson-Prich.								
State 1	2	E	12½-265-250	9-5/8-2541-600	7-3795- 50	3910	3614	6/11/36
Gulf Graham St "B"1	2	P	13-255-250	9-5/8-2353-800	7-3696-125	3903	3579	11/22/35
" " 2	2	I	13-311-300	9-5/8-1065-350	7-3724-525	3915	3583	2/28/36

T 20 S, R 36 E

COMPANY & LSE		SEC.	UNIT	SURF CSG. Depth Sx	INTEEMEDIATE	PAY CSG. Depth Sx	T.D.	ELEV.	COMPL DATE	
Superior St A	1	2	A	13-3/8- 170-110	9-5/8-2344-450	7-3791-75	3945	3596	7/10/35	
" "	2	2	B	12½-265-100	9-5/8-2385-500	7-3785-45	3935	3603	10/30/35	
" "	3	2	H	13-3/8-255-200	9-5/8-2441-500	7-3791-45	3923	3592	12/14/35	
" "	4	2	G	13-3/8-166-110	9-5/8-2383-500	7-3815-165	3912	3594	1/27/36	
" "	6	2	A		9-5/8-340 -250	7-4000-300	4000	3597	9/8/54	
Turner St,A	1	2	K	12½-255-200,	9-5/8-1210-500 ,,	7-3773-200	3899	3604	6/8/36	
Union Tex. Pet. Corp.CSt.A	2	2	E	8-5/8-370-170	- - - - - - - -	5½-4050-1800	4050	3618	10/3/63	(2 wells on this unit. Easterly test.Plugged
Cont'l Oil Co. Reed A-3	1	3	A	10-3/4-254-200	7-5/8-2628-900	5½-3787-150	3896	3628	4/17/36	Temp. Abnd
"	2	3	H	10-3/4-250-250	7-5/8-1221-400	5½-3812-400	3930	43616	6/27/36	Gas well
"	3	3	I	10-3/4-245-200	7-5/8-1235-400	5½-3817-400	3930	3616	8/24/36	Gas well
"	4	3	P	10-3/4-272-225	7-5/8-1278-425	5½-3768-425	3851	3611	10/19/36	Temp S.I.
"	5	3	G	10-3/4-274-250	7-5/8-1301-425	5½-3925-425	3925	3622	12/9/36	P & A
"	6	3	D	8-5/8-1404-600		5½-4001-1095	4003	3632	4/19/55	Injec.Well
"	7	3	C	8-5/8-1339-650		5½-3950-1203	3950	3627	4/20/55	Injec Well
"	8	3	F	9-5/8-1369-70		5½-3949-1360	3950	3626	6/3/55	
"	9	3	E	8-5/8-1372-650		5½-4009-1402	4010	3631	6/30/55	
"	10	3	K	8-5/8-1324-650		5½-3949-1045	3950	3626	8/3/55	Injec Well
"	11	3	L	8-5/8-1399-650		5½-3995-888	3996	3630	8/30/55	
"	12	3	N	8-5/8-325- 250		5½-3949-1390	3950	3621	9/9/55	
"	13	3	M	8-5/8-334-215		5½-3999-1530	4000	3626	10/9/55	Injec Well
"	14	3	O	8-5/8-318-250		5½-4006-348	4000	3619	8/12/57	
"	15	3	J	8-5/8-314-250		5½-3999-1675	4000	3622	5/1/58	
H.S. Moss (Cont'l Oil) Reed	1	3	G	10-3/4-295-225		7"3804-200	3913	3625	2/20/53	

See Next Page For Additional Data Cont'l. Reed #6, #7, #10, #13, #14, etc

Continental	Reed A-3	#1	Temporarily Abandoned
"	"	#2	Recpmpleted as a gas well
"	"	#3	Recompleted as a gas well
"	"	#4	Temporarily shut in
"	"	#5	Plugged and abandoned
"	"	#6	Converted to water injection well. Packer on tbg. @ 3689
"	"	#7	Converted to water injection well. Packer on tbg. @ 3910
"	"	#10	Converted to water injection well. Packer on tbg. @ 3865
"	"	#13	Converted to water injection well. Packer on tbg. @ 3678
"	"	#14	Converted to water injection well. Packer on tbg. @ 3698

Appendix E

Appendix E
Geology Summary

GEOLOGIC CROSS SECTION AT CLIMAX PLANT SITE
SECTION 35, TOWNSHIP 19S, RANGE 36W
MONUMENT, NEW MEXICO
ELEVATION -3595'

GROUND WATER/HAZARDOUS WASTE BUREAU

FROM	TO	THICKNESS IN FEET	FORMATION	TDS RANGE IN MG/L
0 -	2	2	Soil	
2 -	22	20	Calichi	
22 -	45	23	Ogallala	600->3250
45 -	1008	963	Red Beds	
	(Top of Anhydrite @ 1008')			
1008 -	1160	152	Dockum Group	
1160 -	2303	1143	Salt	
2303 -	2423	120	Tansill	
2423 -	2853	430	Yates	
2853 -	3225	372	7-Rivers	
3225 -	3570	345	Queen	
	(Top of Penrose @ 3380')			13-19,000
3570 -	3800	230	Grayburg	15 - 34,000
3800 -	5150	1350	San Andres	15,000+
	(Top of Oil/Water contact - 3995')			
	(Disposal Zone 4300'-5150'±)			

Revised 2/13/84

KEN E. DAVIS ASSOCIATES

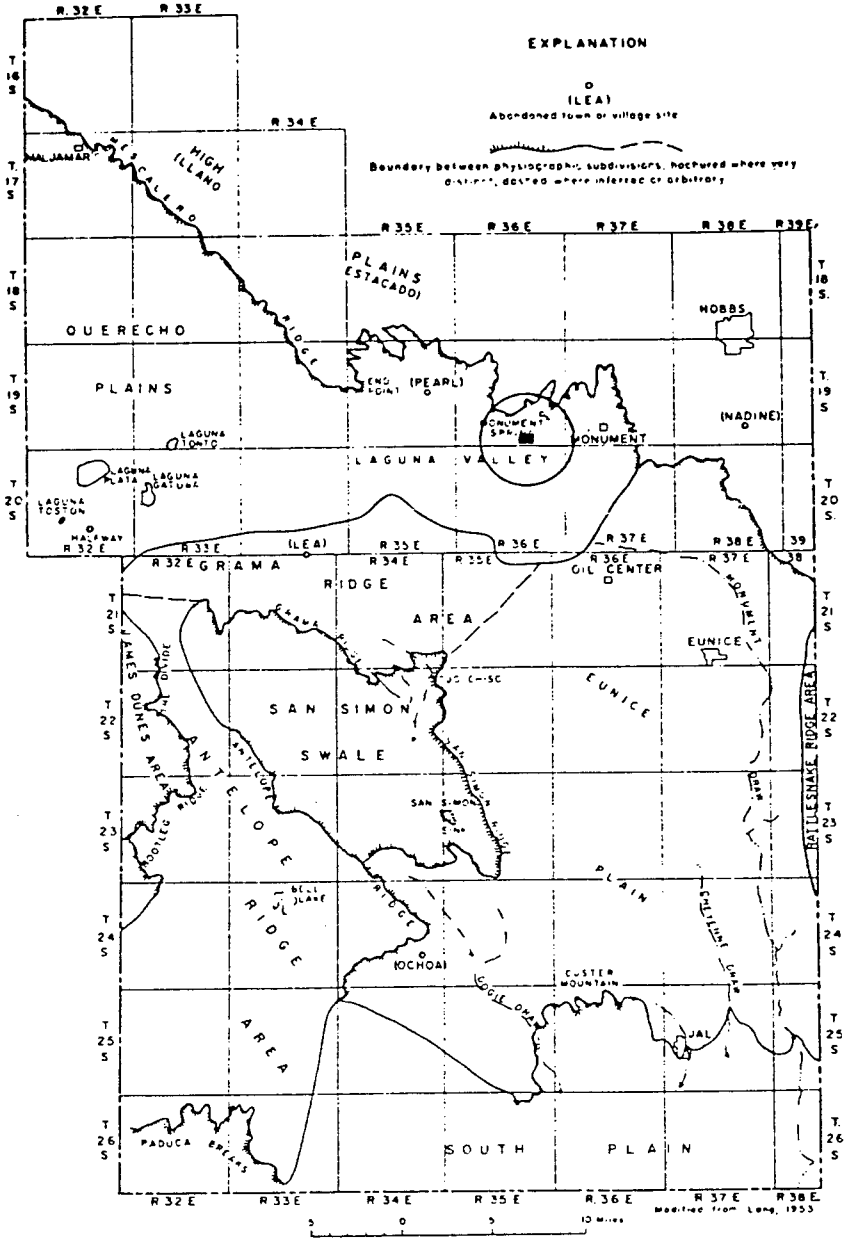
GEOLOGY

PHYSIOGRAPHY

The Climax Chemical plant is located near Monument, Lea County, New Mexico, approximately 20 miles west of the Texas - New Mexico border (Plate 1). The nearest populated area is Hobbs, located ten miles northeast of Monument. The climate of the area ranges from dry subhumid to arid, and is characterized by low annual precipitation, low humidity and high average annual temperature. Mean annual precipitation ranges from 15.68 to 12.63 inches per year and the mean annual temperature is about 62°F (Nicholson and Clebsch, 1961). Due to the low precipitation and rapid infiltration into the surficial sediments, flood potential is extremely low.

Lea County is divided into two physiographic subdivisions of the Great Plains physiographic province, the Pecos Valley section and the High Plains section. As illustrated in Figure 3.1, the proposed well location is in the Pesos Valley section which is divided into the Querecho Plains, Laguna Valley, Grama Ridge Area, Eunice Plains, San Simon Swale, Antelope Ridge Area and the South Plain (Nicholson and Clebsch, 1961).

To the north of Climax Chemical, the southern extent of the High Plains section is marked by the Mescalero Ridge of the Llano Estacado. An abrupt change in topography is the primary contrast between the Llano Estacado and the Pecos Valley. The Llano Estacado is an almost uniform depositional surface of low relief sloping southeastward. In contrast, the Pecos Valley is a very irregular erosional surface



PHYSIOGRAPHIC SUBDIVISIONS OF SOUTHERN LEA COUNTY, N. MEX.
AFTER GROUND WATER REPORT 6, STATE BUREAU OF MINES AND MINERAL RESOURCES

KEN E. DAVIS ASSOCIATES
BATON ROUGE LA HOUSTON TX

FIGURE 3.1
PHYSIOGRAPHIC MAP
OF SOUTHERN LEA COUNTY
CLIMAX CHEMICAL
HOBBS, NEW MEXICO

DATE 6-14-83	CHECKED BY MDJ	JOB NO 83-261
DRAWN BY PJE	APPROVED BY MDJ	DWG NO

sloping toward the Pecos River (westward). Total relief of the area is about 1,300', having altitudes ranging from 4,000' mean sea level (MSL) to 2,900' MSL. A geologic map depicting the physiographic subdivisions of southern Lea County is included as Plate 2 and a brief description of the divisions follow:

Mescalero Ridge and High Plains

Mescalero Ridge is the most prominent topographic feature in southern Lea County and as previously stated, marks the southern limit of the High Plains section. The ridge is a nearly perpendicular cliff capped by a thick layer of resistant caliche, locally called caprock.

The High Plains is a uniformly flat surface sloping about 17' per mile southeast. The only significant relief features are small sand dunes and shallow depressions called buffalo wallows. These depressions range in size from a few feet to more than a quarter of a mile and can be up to 20' deep. Buffalo wallows collect rainfall and contain it until removed by evaporation or seepage.

Querecho Plains and Laguna Valley

Immediately southwest and south of Mescalero Ridge is a vast sand dune area of approximately 400 square miles called Querecho Plains (to the west) and Laguna Valley (to the east). As shown on Figure 3.1, the Climax Chemical plant is located in Laguna Valley. The Querecho Plains - Laguna Valley area is almost entirely covered by dune sand which is stable or semi-stable over most of the area. The sand is generally

underlain by Recent alluvium and may be underlain by caliche in places. Drillers logs indicate surface sand underlain by caliche is found to depths of about 35'.

The most significant feature in the area is a group of four playas or dry lakes. These playas are irregularly shaped, flat-bottomed, and are underlain by fine sediments with some pebble gravel and precipitated salt and gypsum.

Grama Ridge Area

The Grama Ridge Area is directly south of the Querecho Plains-Laguna Valley area and is topographically higher, indicating it may be an outlier, or detached portion of the High Plains. It is characterized by a hard caliche surface with a texture and composition indicating it was once part of the Llano Estacado. The surface of the Grama Ridge Area has many shallow depressions which do not have integrated drainage.

Eunice Plain

The area east of Laguna Valley and Grama Ridge is referred to as the Eunice Plain. It is bounded on the north by the Llano Estacado and on the southwest by San Simon Ridge and Antelope Ridge. The westward extension of the Eunice Plain is the Grama Ridge area. Dune sands almost entirely cover the Eunice Plain and it is usually underlain by a hard caliche surface. In some places; however, it is underlain by alluvial sediments. A sand cover is generally 2' to 5' thick, but may be 20' to 30' thick locally.

Rattlesnake Ridge

Toward the east, the Eunice Plain rises into a north-trending topographic high called Rattlesnake Ridge. It parallels the state line for most of its length and is regarded as the drainage divide between the Pecos Basin and the Colorado River Basin, Texas.

San Simon Swale

To the west of Eunice Plain is San Simon Swale, a large depression covering about 100 square miles. Most of San Simon Swale is covered by stabilized dune sand and shows no apparent drainage pattern. The deepest point of the swale is San Simon Sink, being 100' deep and a half mile across. Calcareous silt and fine sand are the predominant fill material in the sink.

Antelope Ridge Area

The area to the west and southwest of Antelope Ridge has been called the Antelope Ridge Area, located in southwestern Lea County. The area is relatively flat, sand-covered surface similar to the Eunice Plain and it is also partially underlain by caliche. Towards the south, the area appears to be underlain by Quaternary fill and loamy soil similar to the San Simon Swale. Because the Antelope Ridge is an anomalous geographic feature similar to the High Plains, it is thought to be an outlying remnant of the High Plains.

3.2 HISTORICAL GEOLOGY

The Precambrian history of Southern Lea County is a complex history of mountain building, metamorphism and erosion. Active deposition was taking place in the area during most of the Paleozoic Era. In later Paleozoic time, the south-central United States was a region of crustal unrest with the most significant activity in the West Texas-New Mexico area taking place in Pennsylvanian time. During this time and earlier in the the Paleozoic, a geosyncline (the Llanoria geosyncline) formed across West Texas and adjacent states. (A geosyncline is a linear trough which has subsided throughout time accumulating large volumes of clastic sediment). Strong compressional forces from the southeast caused the geosynclinal area to be raised into mountain ranges which some refer to as the Marathon folded belt. Although much of the folded belt was eroded, it remained high during most of Permian time. During the Pennsylvanian Period, what is now the Central Basin Platform was also emergent in the form of mountain ranges and the area was subject to erosion.

At the close of the Pennsylvanian, the major features of the Permian Basin formed as the whole area subsided. The Central Basin Platform subsided more slowly than the Delaware and Midland Basins and received fewer sediments under different depositional conditions. The basins were areas of accumulation of large amounts of sediment. Limestone tended to form in higher areas, such as the Central Basin Platform, while the formation of evaporites took place at the fringes

of the sea. At the very edge of the seas, redbeds were formed by the deposition of sediments from nearby land masses.

During Wolfcamp time (early Permian), seas spread over the region and later became restricted causing deposition of redbeds, evaporites and limestones. The final event of the Permian was the retreat of evaporite-depositing waters from the West Texas region which caused the deposition of a thin layer of redbeds known as the Ochoan Series.

The end of the Permian, and therefore the end of the Paleozoic Era, marks a major time break in the geologic column. During most of the Triassic (except late Triassic) and Jurassic, most of southern Lea County was emergent and undergoing erosion.

During early to middle Cretaceous time, Southeastern New Mexico was covered by a large shallow sea which deposited a thick sequence of Cretaceous rocks. In the late Cretaceous, during the uplift of the Rocky Mountains, seas retreated from the Lea County area and intense erosion took place removing almost all Cretaceous rocks.

In the Pliocene Age, the Ogallala Formation was evenly deposited across the High Plains area, effectively removing the irregular surface formed by previous episodes of erosion. An erosional cycle again began during the Quaternary, removing much of the Ogallala Formation and eroding Triassic rocks for the third time at some locations. Accordingly, erosion by the major rivers of New Mexico and Texas caused the isolation of a large remnant of the Ogallala Formation, the Llano

Estacado. The climate of the region became more arid in the late Quaternary, and detrital material was reworked by wind creating the large sand dune deposits in the area.

3.3 STRATIGRAPHY

The Climax Chemical plant is located in the Central Basin Platform of the Permian Basin. According to the work of Nicholson and Clebsch (1961), approximately 8,000' of geologic strata overlie the Precambrian basement rocks in the Central Basin Platform. Only strata of middle Permian age and younger are pertinent to this study. Included as Figure 3.2 is a generalized stratigraphic column for Southeastern New Mexico and a regional cross-section is shown in Plate 3 . In addition, a colored stratigraphic column based on driller's logs near the site is depicted in Figures 3.3 and 3.4. Following in ascending order is a brief description of the stratigraphy beneath the proposed well site.

Guadalupian Series (Middle Permian)

The Guadalupian Series in the Central Basin Platform consists of the San Andres Formation and the Whitehorse Group. The Whitehouse Group consist of a fine-grained sandstone with thin layers of black shale and argillaceous limestone and, according to King (1942), can also be referred to as the Artesia or Chalk Bluff Group. The Whitehorse Group of the Central Basin Platform is correlative to the Delaware Mountain Group of the Delaware Basin. In the Monument area, it

TABLE 3.1

GEOLOGIC CROSS SECTION AT CLIMAX PLANT SITE
SECTION 35, TOWNSHIP 19S, RANGE 36W
MONUMENT, NEW MEXICO
ELEVATION -3595'

FROM	TO	THICKNESS IN FEET	FORMATION	TDS RANGE IN MG/L
0 -	2	2	Soil	
2 -	22	20	Calichi	
22 -	45	23	Ogallala	600->3250
45 -	1008	963	Red Beds	
	(Top of Anhydrite @ 1008')			
1008 -	1160	152	Dockum Group	
1160 -	2303	1143	Salt	
2303 -	2423	120	Tansill	
2423 -	2853	430	Yates	
2853 -	3225	372	7-Rivers	
3225 -	3570	345	Queen	
	(Top of Penrose @ 3380')			13-19,000
3570 -	3800	230	Grayburg	15 - 34,000
3800 -	5150	1350	San Andres	15,000+
	(Top of Oil/Water contact - 3995')			
	(Disposal Zone 4300'-5150'±)			

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Ochoan Series (Upper Permian)

The lowermost formation of the Ochoan Series is the "Salt" Formation, consisting of anhydrite and some halite. It rests unconformably on the Whitehorse Group in the Central Basin Platform but does not extend beyond the basin margins. Total thickness of the anhydrite and halite at the plant site is approximately 1200'. Halite was mined by Climax Chemical Company in the subsurface interval between 1400' to 2616'.* Three brine wells previously used to leach salt have been plugged and abandoned by Climax. The base of mineable salt was found to be at a depth of approximately 2610'.

The "Salt" Formation is unconformable in places with the overlying Rustler Formation. The top of the Rustler is considered to be the top of the first continuous anhydrite bed penetrated by oil and gas wells in southeastern New Mexico and occurs at a depth of 1008' in the Climax area. The Rustler is characterized as dolomitic limestone with some sandstone and chert pebble conglomerates at the base. Eastward, in the area of Monument, the limestone is overlain by anhydrite, redbeds and halite which is considered an upper member. In Lea County, the Rustler is between 90' to 360' thick and appears to be 100'± thick at the proposed well site.

The "Salt" Formation and Rustler Formation together compose the Salado Group or Ochoan Series as shown in Figure 3.2.

Upper Permian or Triassic

Above the Rustler Formation are the undifferentiated redbeds of Permian or Triassic age. They consist of micaceous red siltstone, sandstone, shale and are cemented with gypsum. They are thought to retard the movement of water between the rocks of the Permian and the overlying aquifers (Nicholson and Clebsch, 1961). The Middle and Upper Triassic consists of a sequence of redbeds, the Dockum Group, which rest unconformably on the lower undifferentiated redbeds. The Dockum can usually be differentiated into the Santa Rosa Formation and the uppermost Chinle Formation. The Santa Rosa is a fine-to-coarse-grained sandstone containing minor shale layers and ranging in thickness from 140' to 300'. The Santa Rosa and the Chinle are similar lithologically and in some places have been mapped as the Dockum Group, undifferentiated.

The Chinle Formation consists of red and green claystone which is interbedded with fine-grained sandstone and siltstone. The Chinle has been eroded in the west; however, it reaches a thickness of 1,270' near the Monument area. About 2 miles southeast of Monument, the Chinle grades into a micaceous red clay (Nicholson and Clebsch, 1961).

Both the Dockum Group and the undifferential redbeds are estimated to be 888' thick at the plant site with the top at approximately 120' below the surface.

Cretaceous

The rocks of Cretaceous age, although once present in Lea County, have been almost entirely removed by erosion. The only known exposure of Cretaceous rocks in Lea County are found in a gravel pit of the Lea County Concrete Company about seven miles south of Hobbs. At the site, the limestone is white, light gray or buff and highly fossiliferous. There are no known deposits of Jurassic rocks in Lea County.

Tertiary

Beneath the surficial deposits, at the proposed location, are rocks of the Tertiary System represented by the Ogallala Formation of Pliocene age. It is a heterogeneous complex of terrestrial sediments, consisting chiefly of a calcareous, unconsolidated sand containing clay, silt, and gravel. Conditions of deposition varied rapidly during Ogallala time causing well-sorted sediments to be interbedded with poorly sorted sediments. The Ogallala Formation ranges from a few feet to as much as 300' thick and is a major aquifer where it has sufficient thickness.

Quaternary System

In the Monument area, sediments of the Quaternary System exist in the form of alluvial deposits of Pleistocene and Recent age and dune sands of Recent age. The older alluvium is exposed locally in small duneless patches, or in pits and it underlies the areas of Querecho Plains, Laguna Valley, San Simon Swale and several smaller areas. The

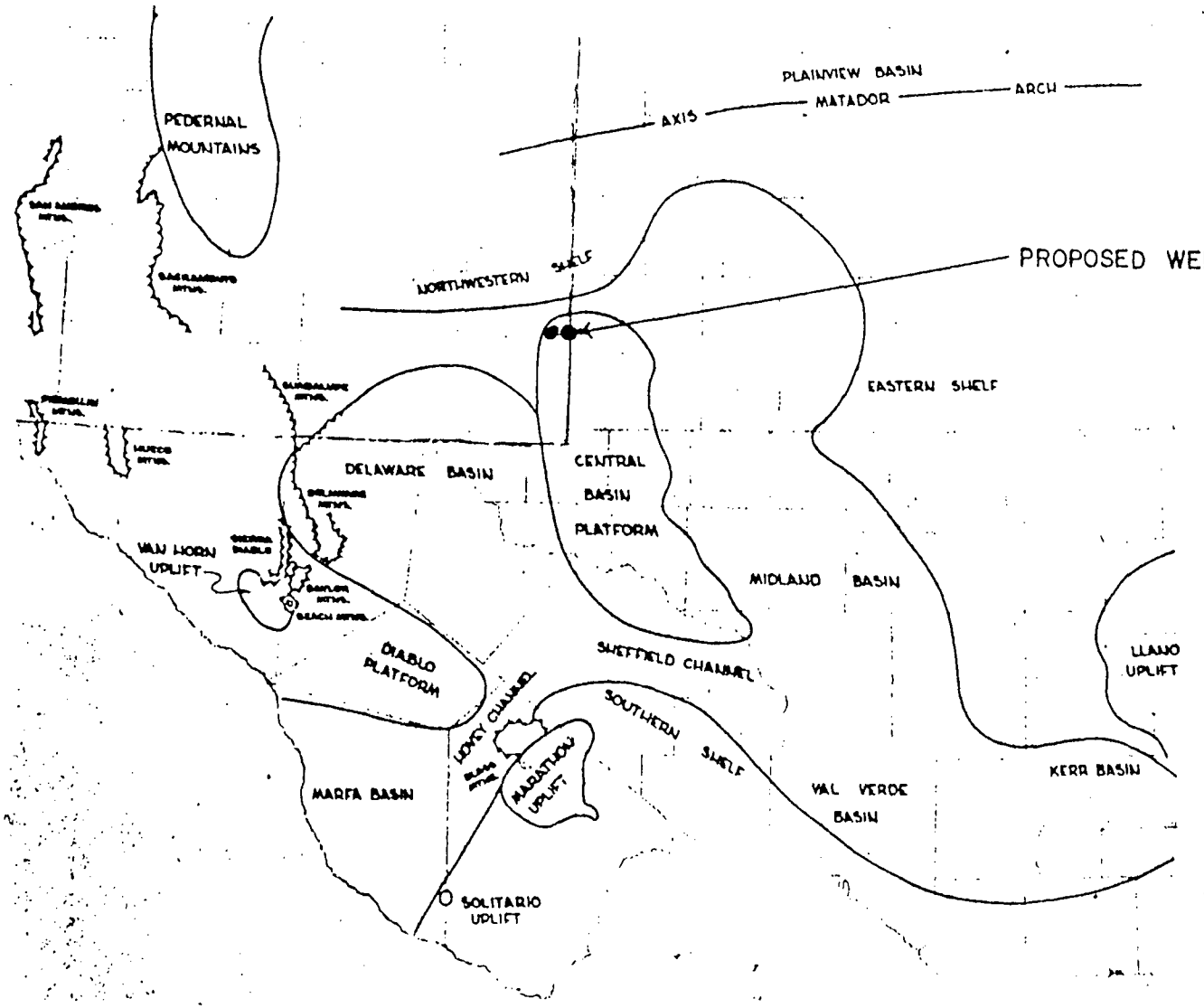
alluvium ranges in thickness from a few inches to more than 400' in San Simon Sink.

The most extensive Quaternary unit is the cover of red dune sand called the Mescalero Sands. This fine-to-medium grained, reddish-brown sand, which covers 80% of Lea County, parts of Eddy County, and West Texas, was probably derived from the Permian and Triassic rocks of the Pecos Valley. In the vicinity of Climax, the alluvial deposits consist of unconsolidated fine to coarse sand and gravel with stringers of silt and clay, and Eaolian sands cover the surface. (Geohydrology Associates, 1982).

3.4 STRUCTURAL GEOLOGY

Regional Structure

West Texas and half of Southern New Mexico is part of a large subsurface structural feature known as the Permian Basin, which is subdivided into several smaller areas. As previously mentioned, Climax Chemical Plant is located on the Central Basin Platform (See Figure 3.5) and is bounded by the Northwestern Shelf on the North, the Delaware Basin on the West, the Sheffield Channel and Southern Shelf on the south and the Midland Basin on the East. Basins are depressed areas that may vary in size and shape and are formed by subsidence of an area or uplift of the surrounding regions. In most cases, basins probably result from both subsidence and uplift (Huffington, et al 1951).



AFTER JONES, 1953

KEN E. DAVIS ASSOCIATES
BATON ROUGE LA HOUSTON TX

FIGURE 3.5

PERMIAN BASIN STRUCTURE

CLIMAX CHEMICAL
HOBBS, NEW MEXICO

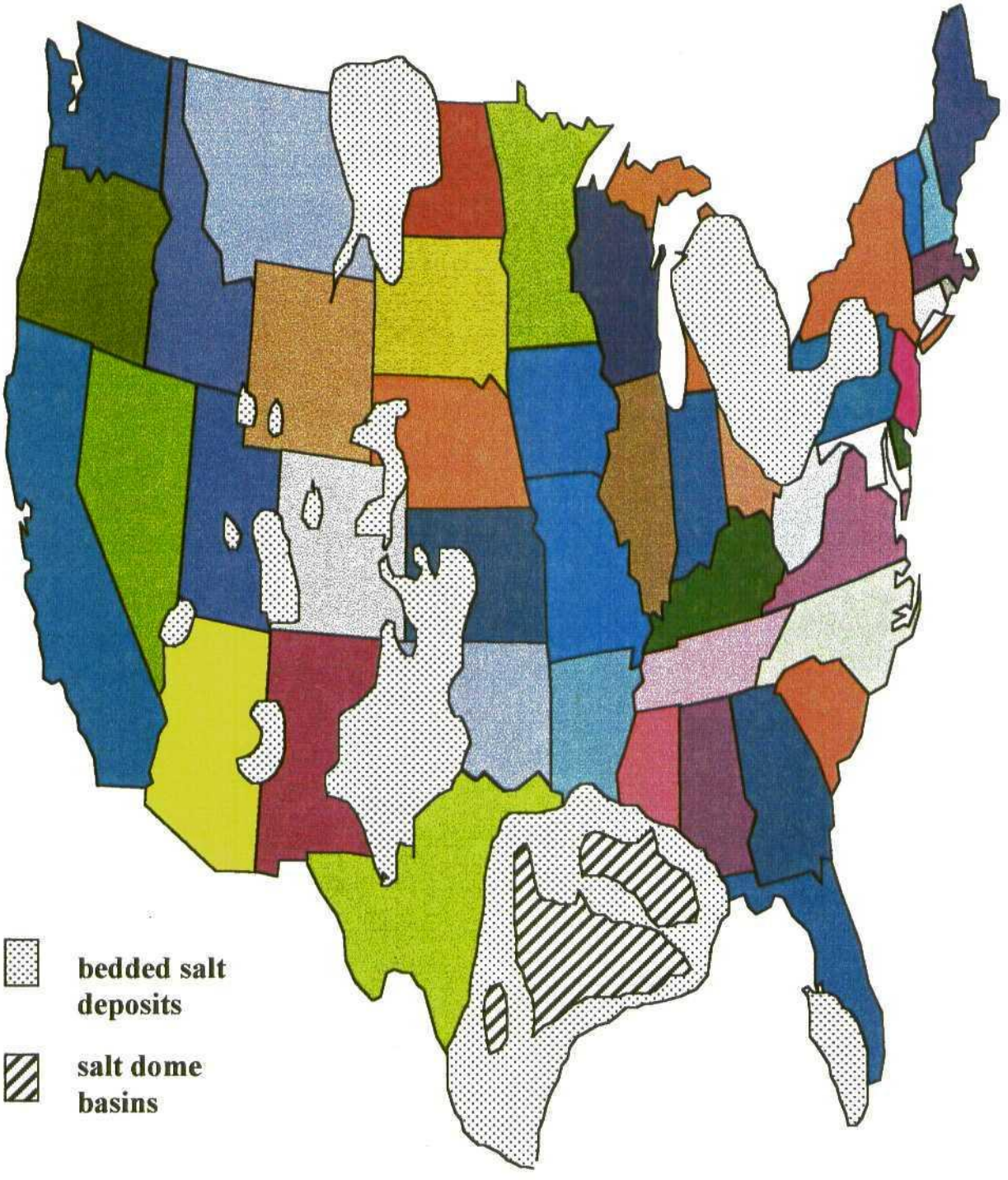
DATE 6-14-83	CHECKED BY SEO	JOB NO 83-261
DRAWN BY PJE	APPROVED BY SEO	DWG NO

Appendix F

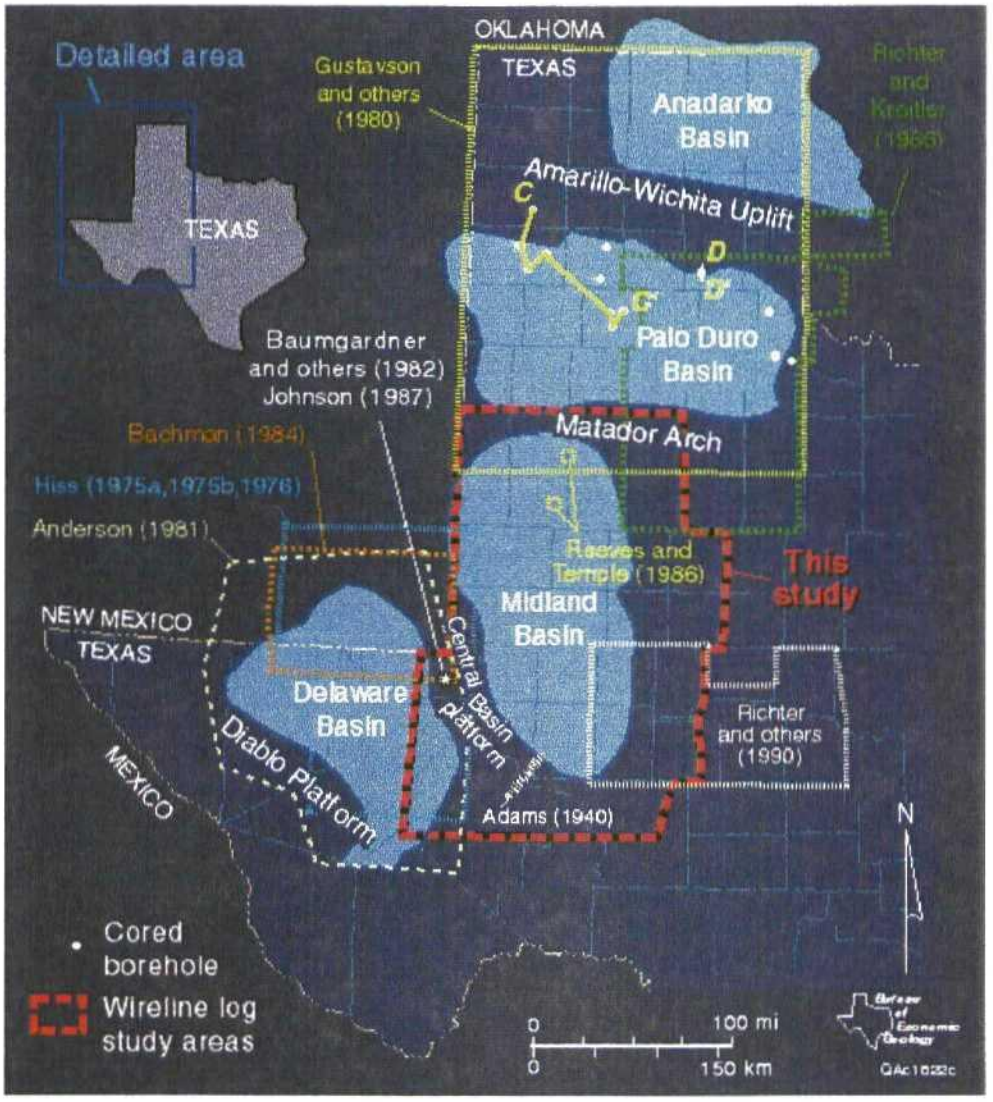
Appendix F
Cross Section Geology Information

Figure 1 - Major U.S. Subsurface Salt Deposits

(from Veil et al. 1996)



Index Map of the Permian Basin

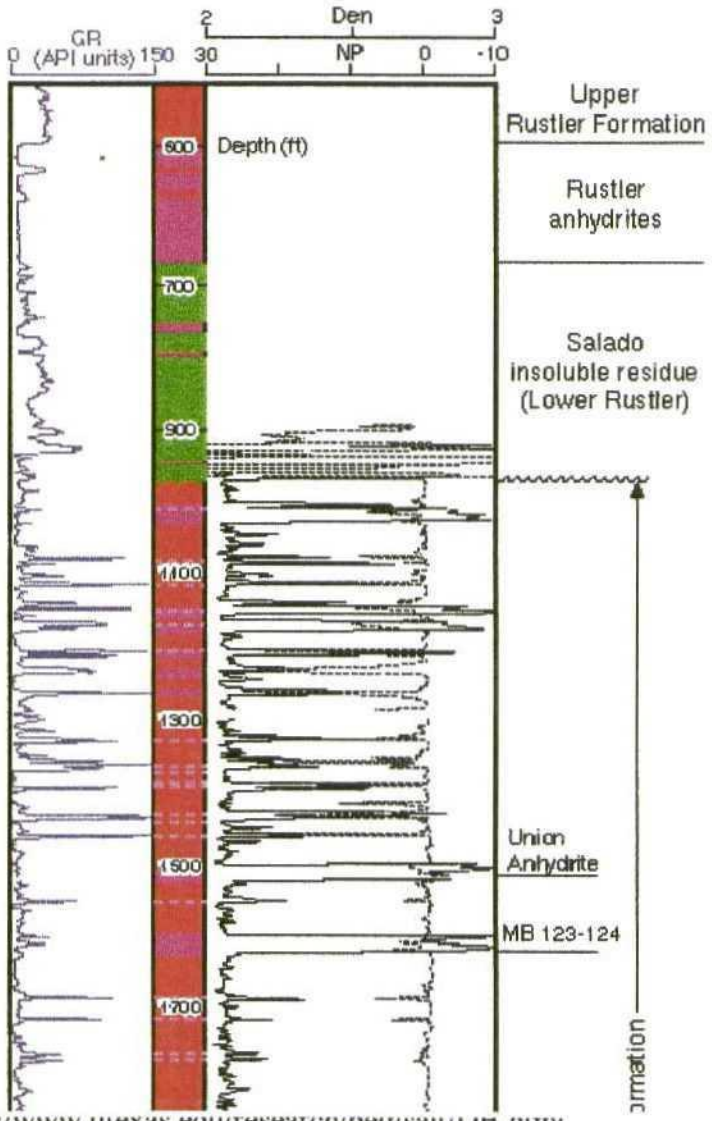


Regional data for interpreting the geometry of salt in the Midland Basin. Previous studies are cited in References.

Back to geology of salt
Back to Previous Work: Geologic Setting of Bedded Salt in the Permian Basin

Delaware Basin Stratigraphy

This brief discussion is for the purpose of setting the context for understanding the relationship of the Midland Basin salts to the Delaware Basin adjacent to the study area. More detailed descriptions are presented elsewhere (for example, Adams, 1944; Anderson and others, 1972; Snider, 1966; Lowenstein, 1988; and Hovorka, 1990). The upper Guadalupian section is composed of the Bell Canyon Formation, capped by the Lamar limestone, a finely laminated, organic-rich, silty limestone deposited prior to evaporite precipitation. The Bell Canyon Formation is the deep-water basinal equivalent of the Seven Rivers, Yates, and Tansill Formations on the Platform (Garber and others, 1989). Because of its high gamma-ray-log response and sharp contact with overlying Castile Anhydrite I, this contact serves as an excellent stratigraphic marker.



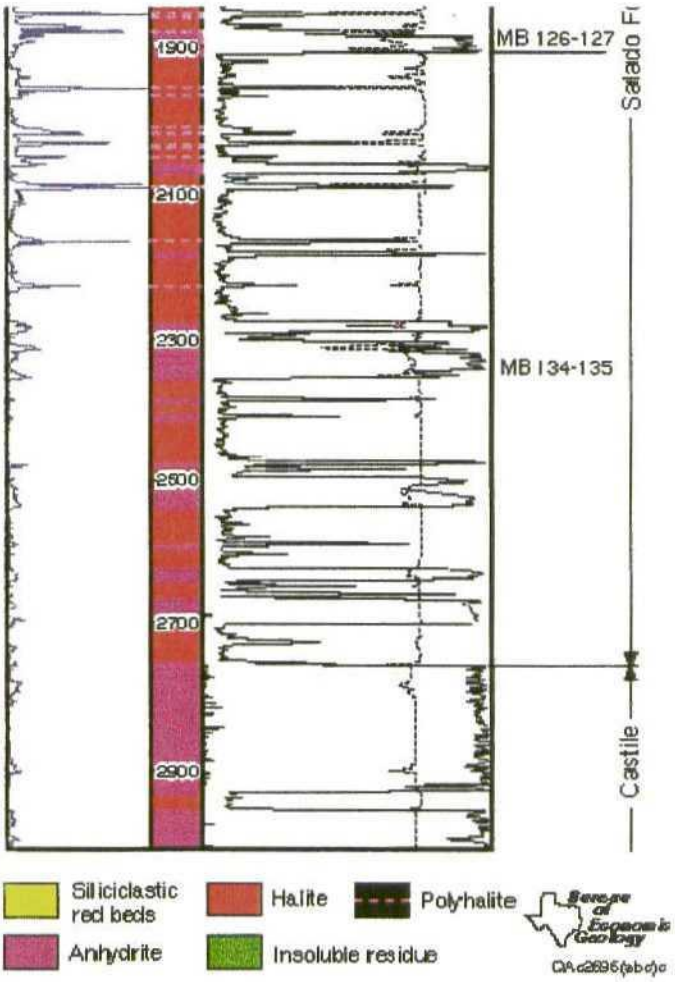
Gulf Research PDB-03 serves as a type log through the Delaware Basin section.

Rustler Formation

The two regionally traceable anhydrite-dolomite beds of the Rustler Formation are tentatively correlated with the two anhydrite-dolomite beds of the Alibates Formation, and the siliciclastics of the Dewey Lake with upper Rustler siliciclastics. In the Delaware Basin, insoluble residue is commonly included within the lower clastic unit of the Rustler Formation (Holt and Powers, 1987). Additional stratigraphic complexity observed elsewhere in the Rustler Formation (Holt and Powers, 1987) may be important for resolving the evolution of this part of the section but is outside the scope of this study.

Salado Formation

The Salado Formation in the Delaware Basin was examined in the Gulf Research PDB-03 core has a log response similar to the Salado



Formation of the Midland Basin. Cycles defined by anhydrite with or without polyhalite replacement define the base of cycles. Thick relatively pure halite (minor mud, polyhalite, and anhydrite) make up the upper part of cycles.

For this study, I used a unit tentatively correlated with the lower Salado MB 134 of Snider (1966) as a genetic break between the Salado and the Castile Formations. This unit was selected because, during my study of the PDB-03 core from Pinial Dome in Loving County, Texas, Salado MB 134 was observed to be an inflection point in the gradual upward-shallowing facies observed in the upper part of anhydrite IV and the lower Salado Formation. Above this marker, fabrics indicating shallow-water deposition and intermittent exposure are dominant in the halite as well as the anhydrite. A dolomite and magnesite bed within Salado MB 134 provided a moderately traceable gamma-ray-log kick, but, in some logs close to the Capitan Reef, the position of this anhydrite had to be estimated.

Castile Formation

The Castile Formation (only partly shown on this log) has been divided into four anhydrite units designated with Roman numerals (Snider, 1966), separated by laminated halite having dominantly recrystallized cumulate textures (Hovorka, 1990). Anhydrite beds I, II, and III, and their overlying halite units, can be traced widely over the Delaware Basin (Snider, 1966; Anderson and others, 1972), but near the Capitan Reef in the study area, the halite units pinch out or are laterally equivalent to anhydrite. Anhydrite bed

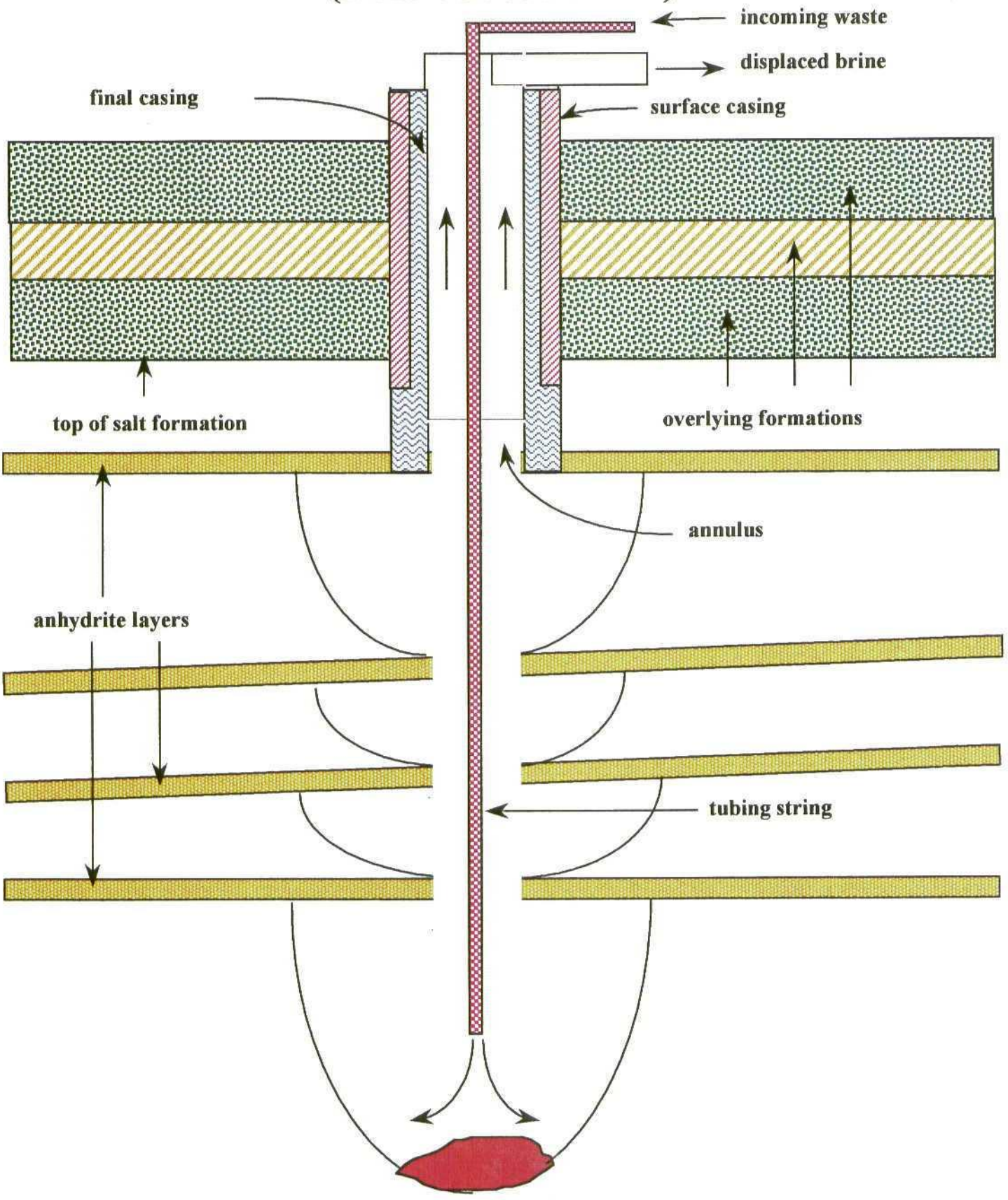
IV is a composite of multiple genetic units and, therefore, the stratigraphy and facies relationships are complex over much of the Delaware Basin as well as all of the study area (Hovorka, 1990); it is therefore difficult to identify and correlate a contact between the Castile and the Salado Formations.

Back to table of contents
Back to stratigraphic units and type logs
Relationship between Midland and Delaware Basin units

Figure 1

Figure 1
Cavern Disposal Well Schematic
And Casing Records

Figure 3 - Idealized Cavern in a Bedded Salt Formation (from Veil et al. 1996)



NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-128
Revised 5/1/57

WELL LOCATION AND ACREAGE DEDICATION PLAT

SEE INSTRUCTIONS FOR COMPLETING THIS FORM ON THE REVERSE SIDE

SECTION A

Operator	Lease	Well No.
CLIMAX CHEMICAL CORP.	SALINE WATER WELL	1

Unit Letter	Section	Township	Range	County
P	34	19 SOUTH	36 EAST	LEA

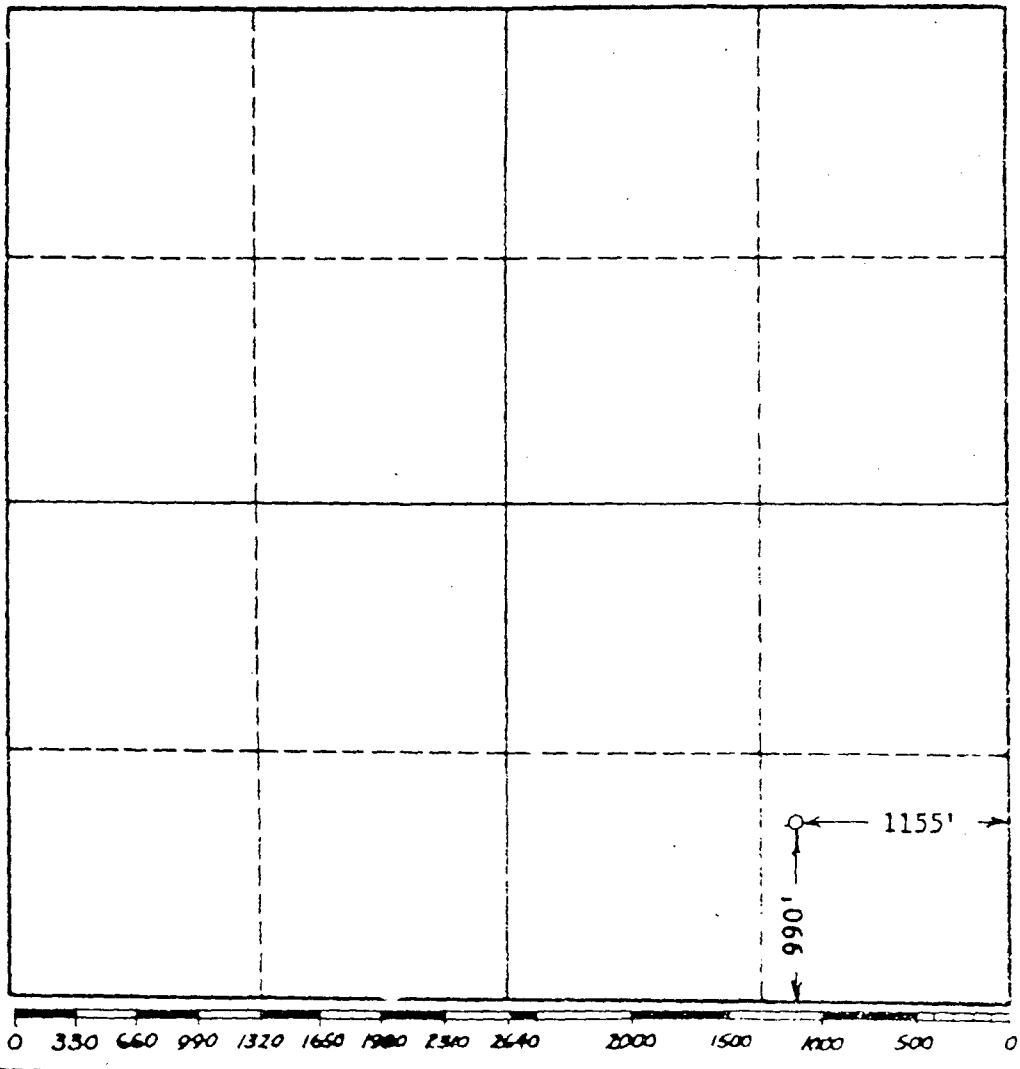
Actual Footage Location of Well: 990 feet from the SOUTH line and 1155 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
			Acres

1. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES _____ NO _____. *("Owner" means the person who has the right to drill into and to produce from any pool and to appropriate the production either for himself or for himself and another. (65-3-29 (e) NMSA 1935 Comp.)*
2. If the answer to question one is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES _____ NO _____. If answer is "yes," Type of Consolidation _____
3. If the answer to question two is "no," list all the owners and their respective interests below:

Owner	Land Description

SECTION B



CERTIFICATION

I hereby certify that the information in *SECTION A* above is true and complete to the best of my knowledge and belief.

E. D. Smith
Name

Mech. Supt.
Position

Climax Chemical Co
Company

1-4-62
Date

I hereby certify that the well location shown on this plat in *SECTION B* was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

REGISTERED ENGINEER & LAND SURVEYOR 676 STATE OF NEW MEXICO JOHN W. WEST

Date Surveyed
12-26-1961

Registered Professional Engineer and/or Land Surveyor, JOHN W. WEST

John W. West

Certificate No.
N. M. P.E. & L.S. NO. 676

NEW M CO OIL CONSERVATION COMMI N
Santa Fe, New Mexico

Form C-101
Revised (12/1/55)

NOTICE OF INTENTION TO DRILL IN 1962

Notice must be given to the District Office of the Oil Conservation Commission and approval obtained before drilling or recompletion begins. If changes in the proposed plan are considered advisable, a copy of this notice showing such changes will be returned to the sender. Submit this notice in QUINTUPLICATE. One copy will be returned following approval. See additional instructions in Rules and Regulations of the Commission. If State Land submit 6 Copies Attach Form C- 128 in triplicate to first 3 copies of form C-101

Hobbs, New Mexico (Place) January 16, 1962 (Date)

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Gentlemen:

You are hereby notified that it is our intention to commence the Drilling of a well to be known as

CLIMAX CHEMICAL COMPANY (Company or Operator)

Foster (Lease), Well No. 1, in P (Unit). The well is located 990 feet from the South line and 1155 feet from the East line of Section 34, T. 19 S, R. 36 E, NMPM.

(GIVE LOCATION FROM SECTION LINE) Undesignated Pool, Lea County

D	C	B	A
E	F	G	H
L	K	J	I
M	N	O	P

If State Land the Oil and Gas Lease is No.....

If patented land the owner is J. W. Foster

Address.....

We propose to drill well with drilling equipment as follows: Rotary tools from surface to bottom Rustler Anhydrite. Cable tools Base Anhy. to Base Salt

The status of plugging bond is $5,000 bond approved

Drilling Contractor Not determined at this date

We intend to complete this well in the Base of the Salt section at depth of formation at an approximate depth of approximately 2520 feet feet.

CASING PROGRAM

We propose to use the following strings of Casing and to cement them as indicated:

Size of Hole	Size of Casing	Weight per Foot	New or Second Hand	Depth	Sacks Cement
12-1/4"	9-5/8"	32	New	1310'	Circulate to surf
8-3/4"	5-1/2"	15.5	New	Will hang inside 9-5/8" casing and use as input for fresh water to wash Salt section and return Brine water.	

If changes in the above plans become advisable we will notify you immediately.

ADDITIONAL INFORMATION (If recompletion give full details of proposed plan of work.)

pproved....., 19.....
xcept as follows:

OIL CONSERVATION COMMISSION

Sincerely yours,

Climax Chemical Company (Company or Operator)

By Charles P. Fuller

Position Agent

Send Communications regarding well to

Name W. H. Kolins

Address Box 1595, Hobbs, New Mexico

NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-103
(Rev 3-55)

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 1106)

Name of Company	Address
Climax Chemical Company	Hobbs, New Mexico

Lease	Well No.	Unit Letter	Section	Township	Range
(Foster) Saline Water Well	1	P	34	19 South	36 East

Date Work Performed	Pool	County
January 30,31 1962	Undesignated	Lea

THIS IS A REPORT OF: *(Check appropriate block)*

☐ Beginning Drilling Operations ☒ Casing Test and Cement Job ☐ Other *(Explain)*:

☐ Plugging ☐ Remedial Work

Detailed account of work done, nature and quantity of materials used, and results obtained.

Spudded 12-1/4" hole with Rotary tools January 26, 1962. Drilled to depth of 1300 feet. Ran 42 joints H-40 32.3# 8.3/4" casing with Halliburton Float shoe. Tagged bottom of hole then picked casing up one foot and cemented same with 145 sax Incor cement, 145 sax Diamax A 6% jel, 100 sax regular cement. Plug pumped down at 2:45 P.M. January 30, 1962. Cement did not circulate. At 3:00 P.M. January 31, 1962 ran 1" tubing down annulus between hole and casing and found firm cement forty feet below ground level. Pumped water into hole and circulated to pits to lighten mud load in annulus. Thenpumped 50 sacks Regular cement to bottom of uncemented hole and circulated cement to surface. Estimated to have circulated about 25 sax cement back to pits. Bailed hole dry to top of plug at 1260 feet. Allowed hole to stand one hour and ran bailer again. Found no increase in fluid. Drilled plug and shoe, then allowed hole to stand one hour. Hole remained dry after bailing test. Drilling new hole below casing with Cable tools.

Cement allowed to set on 9-5/8" casing from 2:45 P.M., January 30, 1962 until 3:00 A.M. February 1, 1962 before plug was drilled.

Witnessed by	Position	Company
Charles F. Miller	Agent	Climax Chemical Company

FILL IN BELOW FOR REMEDIAL WORK REPORTS *ONLY*

ORIGINAL WELL DATA

D F Elev.	T D	P B T D	Producing Interval	Completion Date

Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth

Perforated Interval(s)

Open Hole Interval	Producing Formation(s)

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION

Approved by

Title

Date

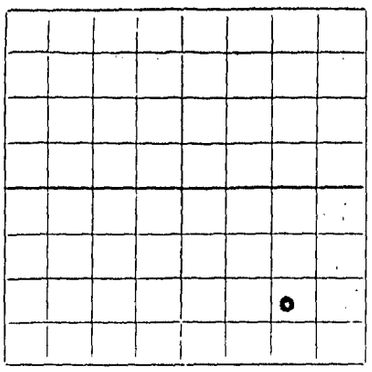
I hereby certify that the information given above is true and complete to the best of my knowledge.

Name Charles F. Miller

Position Agent

Company Climax Chemical Company

(Revised 7/1/52)
(Form C-108)



AREA 640 ACRES
LOCATE WELL CORRECTLY

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

WELL RECORD

Mail to District Office, Oil Conservation Commission, to which Form C-101 was sent not later than twenty days after completion of well. Follow instructions in Rules and Regulations of the Commission. Submit in QUINTUPLICATE.

Climax Chemical Company (Company or Operator) (Foster) Saline Water Well (Lease)

Well No. 1, in SE ¼ of SE ¼, of Sec. 34, T. 19 S, R. 36 E, NMPM.

Undesignated Pool, Lea County.

Well is 990 feet from South line and 1155 feet from East line of Section 34. If State Land the Oil and Gas Lease No. is - - - - - - - - - -

Drilling Commenced January 26, 1962 Drilling was Completed February 7, 1962

Name of Drilling Contractor Cactus Drilling Company

Address Hobbs, New Mexico

Elevation above sea level at Top of Tubing Head ..... The information given is to be kept confidential until Not Confidential, 19.....

OIL SANDS OR ZONES

No. 1, from ..... to ..... No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

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

No. 1, from 45 to 60 feet. 15

No. 2, from 320 to 335 feet. 15

No. 3, from 525 to 540 feet. 15

No. 4, from 740 to 760 feet. 20

CASING RECORD

SIZE	WEIGHT PER FOOT	NEW OR USED	AMOUNT	KIND OF SHOE	CUT AND PULLED FROM	PERFORATIONS	PURPOSE
9-5/8	32.3	N	1297	Guide-Float			
5-1/2	15.5	N	2466	None*			

MUDDING AND CEMENTING RECORD

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHOD USED	MUD GRAVITY	AMOUNT OF MUD USED
12-1/4	9-5/8	1300	440	Plug	9.2	
8-3/4	5-1/2	2467	None	Open end		

RECORD OF PRODUCTION AND STIMULATION

(Record the Process used, No. of Qts. or Gals. used, interval treated or shot.)

* 5-1/2" casing run as input string for injection of fresh water over Salt section

Result of Production Stimulation .....

Depth Cleaned Out .....

RECORD OF DRILL-STEM AND SPECIAL TESTS

If drill-stem or other special tests or deviation surveys were made, submit report on separate sheet and attach hereto.

TOOLS USED

Rotary tools were used from 0 feet to 1300 feet, and from ..... feet to ..... feet.

Cable tools were used from 1300 feet to 2482 feet, and from ..... feet to ..... feet.

PRODUCTION

Put to Producing ....., 19..... **Saline water well. No test for oil or gas.**

OIL WELL: The production during the first 24 hours was ..... barrels of liquid of which ..... % was was oil; ..... % was emulsion; ..... % water; and ..... % was sediment. A.P.I. Gravity .....

GAS WELL: The production during the first 24 hours was ..... M.C.F. plus ..... barrels of liquid Hydrocarbon. Shut in Pressure ..... lbs.

Length of Time Shut in .....

PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE):

Southeastern New Mexico		Northwestern New Mexico			
T. Anhy 1196		T. Devonian		T. Ojo Alamo	
T. Salt 1297		T. Silurian		T. Kirtland-Fruitland	
B. Salt 2480		T. Montoya		T. Farmington	
T. Yates		T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen		T. Ellenburger		T. Point Lookout	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres		T. Granite		T. Dakota	
T. Glorieta		T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs		T.		T.	
T. Abo		T.		T.	
T. Penn		T.		T.	
T. Miss		T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	95	95	Sand	1865	1880	15	Salt & polyhalite
95	565	470	Red beds	1880	1905	25	Salt
565	635	70	Red beds and sand	1905	1965	60	Salt & polyhalite
635	875	240	Red beds, sand, shale	1965	1995	30	Salt
875	1065	190	Red beds	1995	2005	10	Anhydrite & polyhalite
1065	1200	135	Red beds & sdy. red shale	2005	2123	118	Salt
1200	1297	97	Anhydrite & shells	2123	2143	20	Salt & polyhalite
1297	1335	38	Salt	2143	2175	32	Anhydrite & salt
1335	1370	35	Anhydrite & shale	2175	2275	100	Salt
1370	1380	10	Anhydrite	2275	2315	40	Salt & polyhalite
1380	1415	35	Shale & salt	2315	2480	165	Salt
1415	1440	25	Red shells	2480	2482	2	Anhydrite
1440	1480	40	Shell & salt				
1480	1535	55	Salt & shale				
1535	1610	75	Salt				
1610	1640	30	Salt & anhy. streaks				
1640	1655	15	Salt				
1655	1675	20	Anhydrite				
1675	1865	190	Salt				

ATTACH SEPARATE SHEET IF ADDITIONAL SPACE IS NEEDED

I hereby swear or affirm that the information given herewith is a complete and correct record of the well and all work done on it so far as can be determined from available records.

March 19, 1962
(Date)

Company or Operator Climax Chemical Company Address Hobbs, New Mexico

Name Charles V. Miller Position or Title Agent

NEW M CO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

HOBBS OFFICE O. C. C.
JAN 7 3 49 PM '70

Operator	Lease	Well No.
CLIMAX CHEMICAL CORP.	SALINE WATER WELL	2

Unit Letter	Section	Township	Range	County
P	34	19 SOUTH	36 EAST	LEA

Actual Footage Location of Well:
1020 feet from the SOUTH line and 300 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

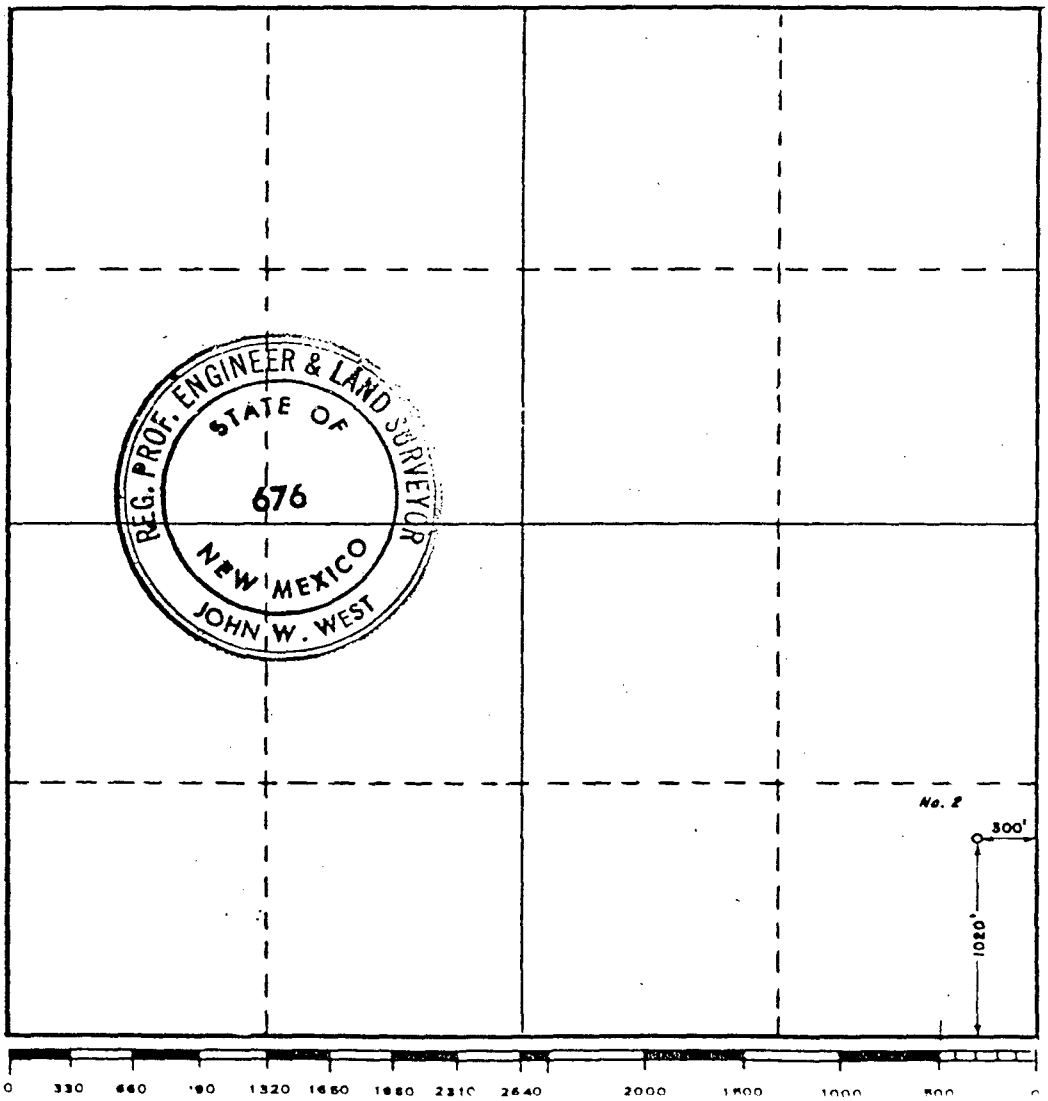
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[·] Yes [ ] No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: W. A. Kolius

Position: Vice-President

Company: Climax Chemical Company

Date: December 30, 1969

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: 12-27-69

Registered Professional Engineer and/or Land Surveyor

John W West

Certificate No. 676

NO. OF COPIES RECEIVED		
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-1-65

5A. Indicate Type of Lease STATE ☐ FEE ☒

5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

b. Type of Well DRILL ☐ DEEPEN ☐ PLUG BACK ☐

OIL WELL ☐ GAS WELL ☐ OTHER Saline water well SINGLE ZONE ☐ MULTIPLE ZONE ☐

7. Unit Agreement Name

8. Farm or Lease Name: Saline water well

2. Name of Operator: Climax Chemical Company

9. Well No.: 2

3. Address of Operator

10. Field and Pool, or Wildcat: ---

4. Location of Well UNIT LETTER P LOCATED 1020 FEET FROM THE S LINE AND 300 FEET FROM THE E LINE OF SEC. 34 TWP. 19S RGE. 36E NMPM

12. County: Lea

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
2480	Salt	R

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
		Lohmann Well Service	12/30/69

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
0-1353-12¼"	9 5/8"	32.30	1353'	700	Surface
1353'-Bottom-8 3/4	5 1/2"	15.50	0-Bottom	Cement from Surface to Bottom	

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. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

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

Signed Climax Chemical Company W. W. Rowland Title Vice-President Date December 30, 196

(This space for State Use)

APPROVED BY [signature] TITLE SUPERVISOR DISTRICT I DATE DEC 31 1969

CONDITIONS OF APPROVAL, IF ANY:

NO. OF COPIES RECEIVED		
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease
State ☐ Fee ☒

5. State Oil & Gas Lease No.
Patented Land

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL ☐ GAS WELL ☐ OTHER- Saline Water Well #2

7. Unit Agreement Name
None

2. Name of Operator
CLIMAX CHEMICAL COMPANY

8. Farm or Lease Name
~~Foster~~ Saline

3. Address of Operator
Box 1595 - Hobbs, New Mexico 88240

9. Well No.
2

4. Location of Well
UNIT LETTER none , 300' FEET FROM THE East LINE AND 1020 ~~2310~~ FEET FROM THE ~~North~~ South LINE, SECTION 34 TOWNSHIP 19 RANGE 36E NMPM.

10. Field and Pool, or Wildcat
Monument

15. Elevation *(Show whether DF, RT, GR, etc.)*
3618 G. R.

12. County
Lea

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	
TEMPORARILY ABANDON	☐			COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	
PULL OR ALTER CASING	☐	CHANGE PLANS	☐	CASING TEST AND CEMENT JOB	☐		
OTHER Drill New Well	☐			OTHER			

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

Started drilling 12-30-69. Drilled 1359.53 12 1/4" hole. Set 9 5/8" H-40-32.30# casing cemented with 500 sacks incor with 2% calcium chloride and 200 neet sacks. Circulated 150 sacks cement into pits. Bumped insert float (set 1 joint off bottom of string) with plug and pressured casing to 1500# PSI. Casing held pressure O.K. 9 5/8" casing cemented at 1359.53 from rotary bushing 12' above ground.

After cement set drilled plug and drilled to 2449' base of salt 2445. Set 5 1/2" J-55-15.5# tubing to 2425' using Braden Head to support tubing. Well completed 1-9-70 and put in service

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

SIGNED E. L. Smith TITLE Mechanical Superintendent DATE 7-15-70

APPROVED BY [illegible] TITLE SUPERVISOR DISTRICT DATE AUG 17 19[illegible]

CONDITIONS OF APPROVAL, IF ANY:

OFFICE PHONE EX 3-2961
RES. PHONE EX 3-2062

905 NORTH DALMONT

MILLER ENGINEERING & GEOLOGICAL CO.

POST OFFICE BOX 417
ZIP CODE 88240
HOBBS, NEW MEXICO

EDS 7-6-70

Climax Chemical Company
P. O. Box 1395
Hobbs, New Mexico

Dear Sir: Attn: Mr. Ed Smith

Following herewith please find Drilling and Completion data on Climax #2 Saline Water Well, SE¼ SE¼ section 34, township 19 South, range 36 East, Lea County, New Mexico.

Total depth of hole - - - - - - - - - - - - 2454'

Casing Record

9-5/8" H-40- 32.30# casing cemented with 500 sax incor with 2% calcium chloride and 200 Neat sax. Circulated 150 sax cement out into pits. Pumped insert float (set 1 joint off bottom of string) with plug and pressured casing to 1500# to meet requirements of New Mexico Oil Conservation Commission. Casing held pressure OK. 9-5/8" casing cemented at 1359.53' from Rotary bushing 12 feet above ground.

5-1/2" J-55 - 15.5# casing hung at depth of 2435' from Rotary table.

Deviation Record

Depth	Deviation
300'	3/4 degrees
517'	1/4 degree
1000'	3/4 degree
1925'	1-1/2 degree

Formation Tops (Measured from Rotary Table)

Top Rustler Anhydrite - - - - -1172'
Top Salado Salt - - - - - - - -1272'
Top Cowden Anhydrite - - - - - 2287'
Base Cowden Anhydrite - - - - -2309'
Base Salt - - - - - - - - - - -2445'

100 OF ANHYDR

Inasmuch as this hole was drilled with Rotary tools and insufficient mud was used, together with the fact that contractor was incorrect; several times; on drilling measurements it was deemed inadvisable to try and rely on sample information. They were, therefore, not read and formation tops were determined by correlation with information from Saline Water well #1; based upon adjusted drilling time from Saline well #2. This proved to

be the most reliable method available to us under the circumstances.

cpm.

Yours very truly,

Charles P. Miller

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
Climax Chemical Company	Saline	3

Unit Letter	Section	Township	Range	County
N	34	19 South	36 East	Lea

Actual Footage Location of Well:
2482 feet from the West line and 1020 feet from the South line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3623.9			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

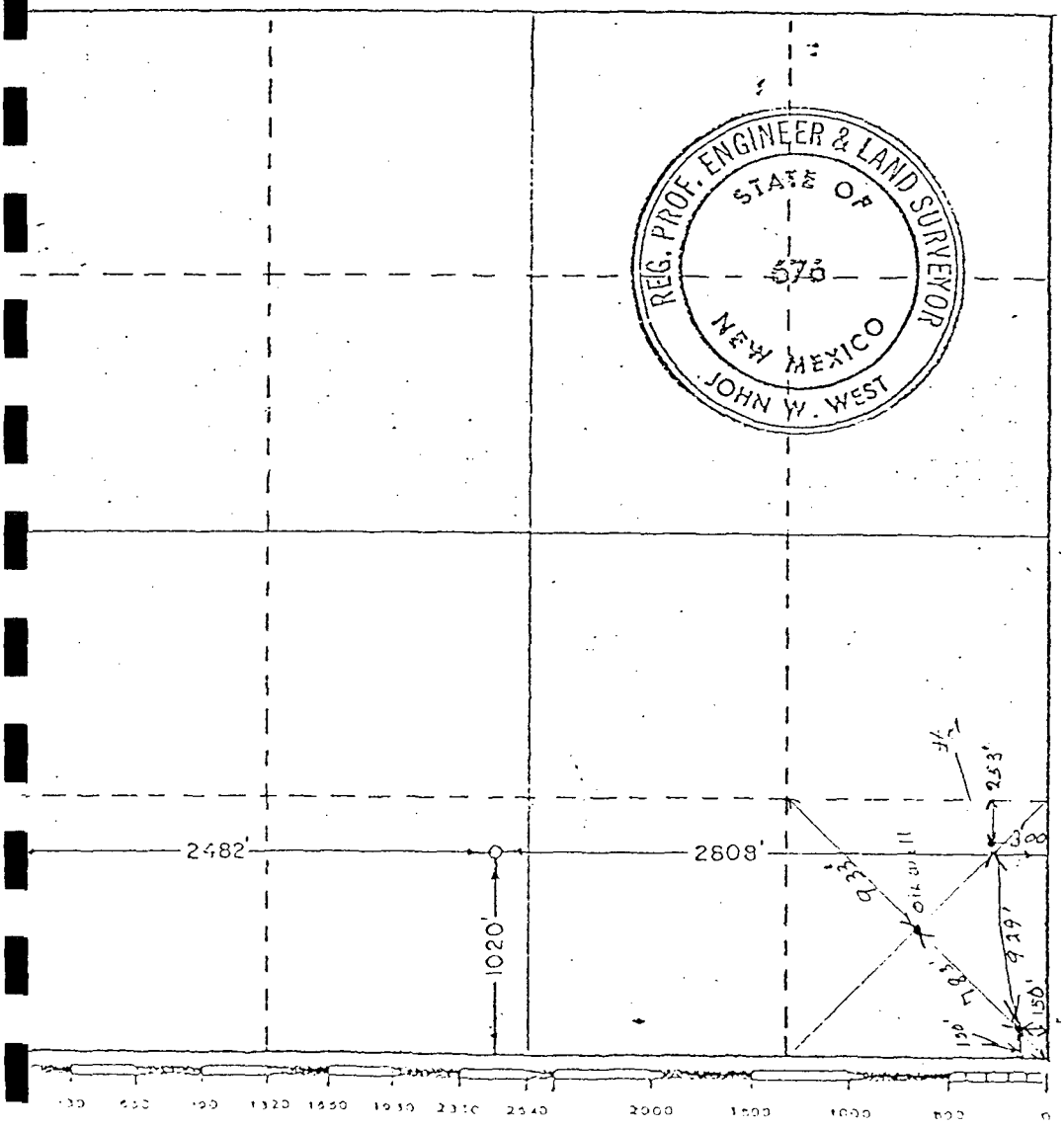
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
December 19, 1974

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No.
676

INCLINATION REPORT

OPERATOR Climax Chemical Co. ADDRESS Box 1595, Hobbs, N. M. 88240

LEASE Brine Well WELL NO. 3 FIELD

LOCATION Section 34, T-19S, R-36E, Lea County, New Mexico

Depth	Angle (Inclination 'degrees)	Displacement	Displacement Accumulated
250	1/4	1.1000	1.1000
481	1/4	1.0164	2.1164
700	1/2	1.9053	4.0217
921	3/4	2.8951	6.9168
1170	1	4.3575	11.2743
1456	1	5.0050	16.2793
1764	1 1/4	6.7144	22.9937
2265	1 1/2	13.1262	36.1199
2484	1 1/2	5.7378	41.8577
2620	1 1/2	3.5632	45.4209

I hereby certify that the above data as set forth is true and correct to the best of my knowledge and belief.

Cactus Drilling Company

By: Ken Hedrick

Title: Ken Hedrick, Drlg. Supt.

Affidavit:

Before me, the undersigned authority, appeared Ken Hedrick known to me to be the person whose name is subscribed herebelow, who, on making deposition, under oath states that he is acting for and in behalf of the operator of the well identified above, and that to the best of his knowledge and belief such well was not intentionally deviated from the true vertical whatsoever.

Ken Hedrick

(Affiant's Signature)

Sworn and subscribed to in my presence on this the 19th day of February 19 75

Seal

MY COMMISSION EXPIRES 3-1-76

Jerry L. Myrick

Notary Public in and for the County of Lea, State of New Mexico

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Form C-105
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease: State ☐ Fee XXX

5. State Oil & Gas Lease No.: PATENTED LAND

TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER Saline Water Well

7. Unit Agreement Name: none

TYPE OF COMPLETION: NEW WELL XX WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER

8. Farm or Lease Name: Climax Chemical Company

Name of Operator: CLIMAX CHEMICAL COMPANY

9. Well No.: #3 Saline Water Well

Address of Operator: P. O. Box 1595, Hobbs, New Mexico 88240

10. Field and Pool, or Wildcat:

Location of Well: LETTER N LOCATED 2482 FEET FROM THE West LINE AND 1020 FEET FROM

South LINE OF SEC. 34 TWP. 19 South RGE. 36 East NMPM

12. County: LEA

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Cashinghead
1-30-75	2-4-75	5-7-75		

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
2616'			→	XX	

24. Producing Interval(s), of this completion — Top, Bottom, Name:

25. Was Directional Survey Made: YES

26. Type Electric and Other Logs Run: NONE

27. Was Well Cored: NO

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9 5/8"	36#	1440'	12¼"	750 Sacks Circulated	

LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
5½" -J55-		
15.5#	to 2591'	

28. Perforation Record (Interval, size and number)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

PRODUCTION

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

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

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

29. Disposition of Gas (Sold, used for fuel, vented, etc.):

Test Witnessed By:

List of Attachments:

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED E. D. SMITH TITLE Mechanical Supervisor DATE May 7, 1975

CLIMAX CHEMICAL COMPANY

MONUMENT, NEW MEXICO

TO: W. H. Kolins DATE: 2-24-75

FROM: E. D. Smith

SUBJECT: #3 Saline WaterWell, Section 34, Township 19S, Range 36E

Started drilling 12:30 p. m. 1-30-75 $12\frac{1}{4}$" bit.

Pulled drill pipe installed new bit at 1220' on 1-31-75.

Top of salt at 1439' from top of braden head 3:01 a. m. 2-1-75.

Set 1440' 9 5/8" 36# casing from top of braden head and cemented with 750 sacks Halliburton cement and circulated about 100 sacks to pit. Let cement set 12 hours and cut off casing. Welded on collar, tested casing at 800# for 30 minutes.

Started drilling plug and guide shoe with 8 3/4" bit at 12:30 p. m. on 2-3-75. Bottom of salt at 2611' and T. D. 2616' from top of braden head at 5:00 a. m. 2-4-75. Circulated until 7:00 a. m. and came out hole.

Ran $5\frac{1}{2}$" 15.50# tubing to 2616' T. D. Pulled up set 20' from bottom salt 2591' from top of braden head. 12:35 p. m. on 2-4-75. Installed used Hindenliter braden head 9 5/8" to $5\frac{1}{2}$".

Deviation $1\frac{1}{2}^{\circ}$ on total depth.

E. D. Smith

E. D. Smith

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
Climax Chemical Co.	Saline Water Well	4

Unit Letter	Section	Township	Range	County
P	34	19 South	36 East	Lea

Actual Footage Location of Well:
350 feet from the East line and 150 feet from the South line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

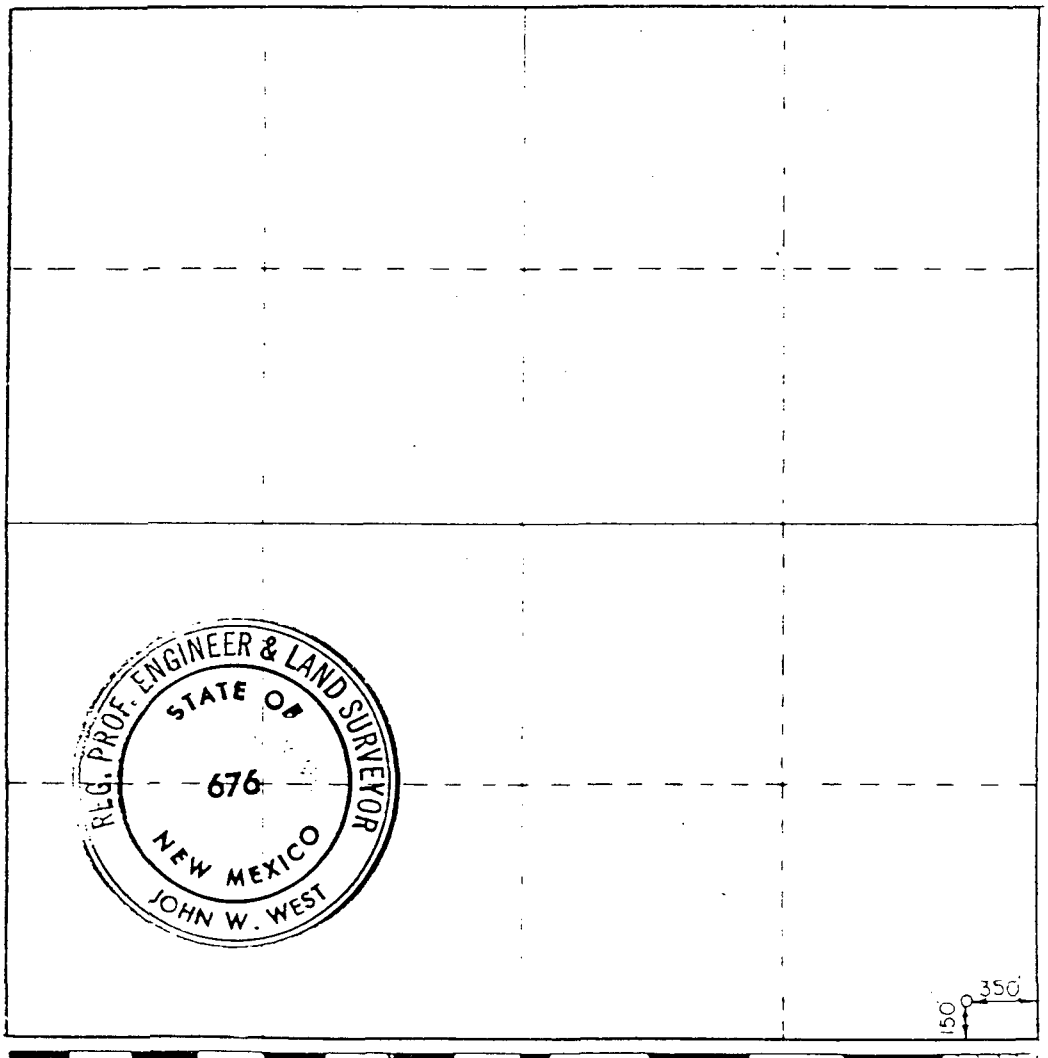
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

E-D Smith

Name

Mech. Supt.

Position

Climax Chemical Co.

Company

9-13-77

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Sept. 8, 1977

Registered Professional Engineer and/or Land Surveyor

John W West

Certificate No.

676

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NEW MEXICO OIL CONSERVATION COMMISSION

Supersedes Old C-102 and C-103 Effective 1-1-65

5a. Indicate Type of Lease: State ☐ Fee

5. State Oil & Gas Lease No.: Patented Land

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

OIL WELL ☐ GAS WELL ☐ OTHER- Saline Water Well #4

7. Unit Agreement Name: none

2. Name of Operator: CLIMAX CHEMICAL COMPANY

8. Farm or Lease Name: Saline Water Well

3. Address of Operator: P. O. Box 1595 Hobbs, New Mexico 88240

9. Well No.: #4

4. Location of Well: UNIT LETTER P, 350 FEET FROM THE East LINE AND 150 FEET FROM THE South LINE, SECTION 34 TOWNSHIP 19 RANGE 36E NMPM.

10. Field and Pool, or Wildcat: Monument

15. Elevation (Show whether DF, RT, GR, etc.): 3618 GR

12. County: Lea

6. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING
TEMPORARILY ABANDON ☐		COMMENCE DRILLING OPNS. ☐	PLUG AND ABANDONMENT
PULL OR ALTER CASING ☐	CHANGE PLANS ☐	CASING TEST AND CEMENT JOB ☐	
OTHER Drill New Well XX		OTHER	

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

Started drilling October 7, 1977. Drilled 1250 ft. 12¼" hole. Set 1248 ft. of 9 5/8" 36# casing and cemented with 500 sacks cement. Circulated 125 sacks to pit. Let set 18 hours, installed blowout preventer and tested casing at 800 P.S.I. for 30 minutes - no leaks.

Drilled plug and drilled to 2420 ft. base of salt. Set 5½" J-55-15.5# tubing to 2391 ft. using Braden Head to support tubing.

Well completed - October 11, 1977 and put into service.

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

SIGNED E.D. Smith E.D.Smith TITLE Mech. Superintendent DATE 10-31-77

APPROVED BY Orig. Signed by Jerry Sexton TITLE Dist. I Supv. DATE NOV 3 1977

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Form C-105
Revised 11-1-58

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease: State ☐ Fee ☒

5. State Oil & Gas Lease No.: Patented Land

1a. TYPE OF WELL

b. TYPE OF COMPLETION

OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER Saline Water Well

NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER

7. Unit Agreement Name: None

8. Farm or Lease Name: Saline Water Well

2. Name of Operator: CLIMAX CHEMICAL COMPANY

9. Well No.: #4

3. Address of Operator: P. O. Box 1595 Hobbs, New Mexico 88240

10. Field and Pool, or Wildcat:

4. Location of Well

UNIT LETTER P LOCATED 350 FEET FROM THE East LINE AND 150 FEET FROM THE South LINE OF SEC. 34 TWP. 19 RGE. 36E NMPM

12. County: Lea

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Cashinghead
10-7-77	10-11-77	10-11-77		

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
2420			→	XXX	

24. Producing Interval(s), of this completion — Top, Bottom, Name

25. Was Directional Survey Made: Yes

26. Type Electric and Other Logs Run: None

27. Was Well Cored: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9 5/8"	36#	1248 ft.	12 1/4"	500 sacks circulated	

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
5 1/2"	2391 ft.	

31. Perforation Record (Interval, size and number)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

33. PRODUCTION

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

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

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

34. Disposition of Gas (Sold, used for fuel, vented, etc.)

Test Witnessed By

35. List of Attachments

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED E. D. Smith E.D.Smith TITLE Mech. Superintendent DATE 10-31-77

INCLINATION REPORT

OPERATOR Climax Chemical Company ADDRESS Box 1595, Hobbs, New Mexico 88240

LEASE NAME Brine Well #4 WELL NO. 4 FIELD

LOCATION Section 34, T-19S, R-36E, Lea County, New Mexico

DEPTH	ANGLE INCLINATION DEGREES	DISPLACEMENT	DISPLACEMENT ACCUMULATED
163	1/2	1.4181	1.4181
500	1/2	2.9319	4.3500
1000	3/4	6.5500	10.9000
1257	1/4	1.1308	12.0308
1870	1	10.7275	22.7583
2430	1 1/2	14.6720	37.4303

I hereby certify that the above data as set forth is true and correct to the best of my knowledge and belief.

CACTUS DRILLING COMPANY

Garlin Taylor

TITLE Garlin Taylor, Admn. Asst.

AFFIDAVIT:

Before me, the undersigned authority, appeared Garlin Taylor known to me to be the person whose name is subscribed herebelow, who, on making deposition, under oath states that he is acting for and in behalf of the operator of the well identified above, and that to the best of his knowledge and belief such well was not intentionally deviated from the true vertical whatsoever.

Garlin Taylor

AFFIANT'S SIGNATURE

Sworn and subscribed to in my presence on this the 26th day of October, 1977

MY COMMISSION EXPIRES MARCH 1, 1980

Jerry L. Mizell

Notary Public in and for the County of Lea, State of New Mexico

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NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-1-65

5A. Indicate Type of Lease STATE ☐ FEE ☒

5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

b. Type of Well: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

OIL WELL ☐ GAS WELL ☐ OTHER Saline Water Well SINGLE ZONE ☐ MULTIPLE ZONE ☐

7. Unit Agreement Name

8. Farm or Lease Name: Saline Water Well

2. Name of Operator: Climax Chemical Company

9. Well No.: 4

3. Address of Operator: Box 1595 Hobbs, New Mexico 88240

10. Field and Pool, or Wildcat

4. Location of Well UNIT LETTER P LOCATED 350 FEET FROM THE East LINE AND 150 FEET FROM THE South LINE OF SEC. 34 TWP. 19 RGE. 36 East NMPM

12. County: Lea

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
2500 ft.	Salt	R

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
	$5,000 Bond		

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12 1/4"	9 5/8"	36.00	1300 ft.	Circulate to Surface	
8 3/4"	5 1/2"	15.5		Will hang inside 9 5/8" casin	
				and use as input for fresh water t	
				wash salt section and return brine	
				water.	

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRO TIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

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

Signed E. L. Smith Title Mech. Supt. Date 9-26-77

(This space for State Use)

APPROVED BY Jerry Sexton TITLE SUPERVISOR DISTRICT I DATE SE

CONDITIONS OF APPROVAL, IF ANY: