BW - 23

PERMITS, RENEWALS, & MODS

CLOSED

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

January 27, 1986

Joe T. Janica
Natural Resources Engineering, Inc.
PO Box 2188
Hobbs, NM 88240

Re: Steve Carter & Son Maljamar Brine Station - DP-407

Dear Mr. Janica:

Thank you for your letter of January 22nd. My comments below follow the numbered paragraphs of your letter.

1. The new proposed location of the Carter & Son brine well is an improvement over their former proposed location. It will still be necessary to monitor closely the volumes of brine produced at the Carter & Son facility, so as to maintain a running estimate of cavity development in the salt section. However, the greater distance from any existing perforations at the new proposed location will buy some years of operation for the facility before cavity size will become an object of much concern.

2. Please commit to notifying the EID District Engineer in Roswell, Bill Weber at 626-6046, when your client is ready to start drilling, so that Mr. Weber may be present to witness the presence or absence of any water sand in the first 200 feet of the well.

Your plans for installing additional casing in the well should a shallow water sand be encountered, are adequate.

3. Noted.

4. Please note that an approvable location for a monitoring well would be southeast of the facility (downgradient in the Ogallala Formation), in a position where it would pick up leakage from surface activities, and no more than 100 feet away from this type of activity at the brine station.

5. Noted. Thank you for your attention to providing this additional information.

6. Noted.

7. 1000-pound pressure tests usually require at least several days of lead time to line up the necessary equipment. EID inspectors also usually require several days of lead time in order to arrange their schedule around witnessing a pressure test. Please commit to giving EID at least a week's notice prior to running a pressure test.

8. Noted.

9. On this topic, I accept the commitment made on page 17 of the Carter & Son discharge plan application: "Steve Carter & Son will report any significant spills and/or loss of mechanical integrity of the well to the EID as required in Section 1-203.A.1 and 5-208.B.1 of the WQCC regulations." The example I gave in my November 14, 1985 letter to you was to give you an idea of what would be considered a significant spill by the EID.

I await the "demonstration of financial responsibility" which will wrap up the requirements of the Carter & Son discharge plan, together with your concurrence with the points listed above.

Sincerely,

Paige Grant Morgan
Water Resource Specialist
Ground Water Section

PGM:pgm

cc: Garrison McCaslin, Acting Manager, EID District IV

natural resources engineering inc.

January 22, 1986

Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87504-0968

Attention: Paige Grant Morgan

RE: Discharge Plan DP-407

Dear Paige:

Regarding your letter of November 14, 1985, we have discussed your comments and would like to amend our plan as follows:

1. The proposed brine well will be moved to a location on our site to maximize the distance from the Maljamar (Grayburg) Unit #33. This location will be 1105' FNL and 630' FEL.

2. If a water sand is discovered during the drilling of the proposed well, this sand will be cased off and cemented back to surface. This will require the following modifications to our plan:

   A. Increase surface hole to 12-1/4".
   B. If water is encountered, 9-5/8" surface casing will be set.
   C. Hole size will be reduced to 8-3/4" and 7" casing will be set in the anhydrite casing. ?
   D. All strings will be cemented back to surface.
   E. See Figure 1, Rev. 1.

3. Steve Carter and Son will provide documentation of casing pressure tests (i.e. record chart) to the EID and will conduct a temperature survey after the casing is cemented. Our client has been advised of the notification requirements for each phase of the construction operations.

4. If a water bearing formation is encountered and a suitable monitor well is not found, Steve Carter will install a monitor well as per Section 4 of your letter. The water from this well will be sampled for major ions and total dissolved solids (TDS) initially with quarterly tests for chlorides and TDS. — Location?

5. The soil in the Maljamar area is classified as Group A Kermit Series. Soils are classified into four hydrologic soil groups (i.e. A B C D) according to their infiltration and transmission rates.

NATURAL RESOURCES ENGINEERING INC.
P. O. Box 2188 / 201 E. Sanger
Phone (505) 397-6319
Hobbs, New Mexico 88240

Figure 1, Rev 1

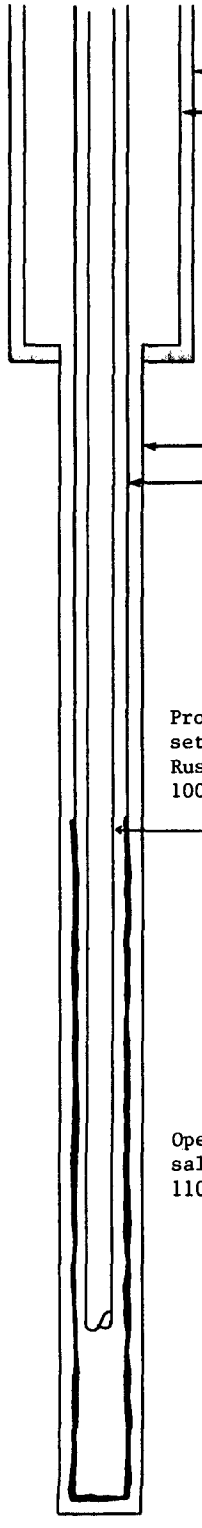
WELL BORE SKETCH

OPERATOR/LEASE/WELL Steve Carter and Son/Maljamar Brine/#1

NRE JOB NUMBER SC01-001-001 DATE April 23, 1985

FIELD/POOL NA / NA

PLUG BACK DEPTH 2000' KB 0 ELEVATION 4125' est.



Hole Size 12-1/4

SURFACE CASING:
Size 9-5/8 Weight 32# Grade H-40
Set at _____ with _____ Sacks Cement
Circulate _____ Sacks to Surface
Remarks: Cement will be calculated at casing point with 150% excess if no water bearing formations are encountered. Drill 12-1/2" to 1000' (anhydrite) and set production casing.

Surface casing set across fresh water sand will not be run if there are no sands encountered.

Hole Size 8-3/4 or 12-1/4

PRODUCTION CASING:
Size 7" or 8-5/8" Weight 26# or 32# Grade J-55
Set at 1000' with _____ Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: If surface casing is run, set 7" casing. If surface casing is not run, set 8-5/8", 32#, H-40.
Cement will be calculated to circulate to surface with 50% escess.

Production casing set in top of Rustler Anhydrite 1000'.

TUBING:
Size 2-7/8 Weight 6.5# Grade J-55
Number of Joints 61 Set at 1900'
Packer Set at NA
Bottom Arrangement: Tubing will be run in hole open-ended.

Open hole through salt section 1100-2000'.

RODS:
Size NA Number NA
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

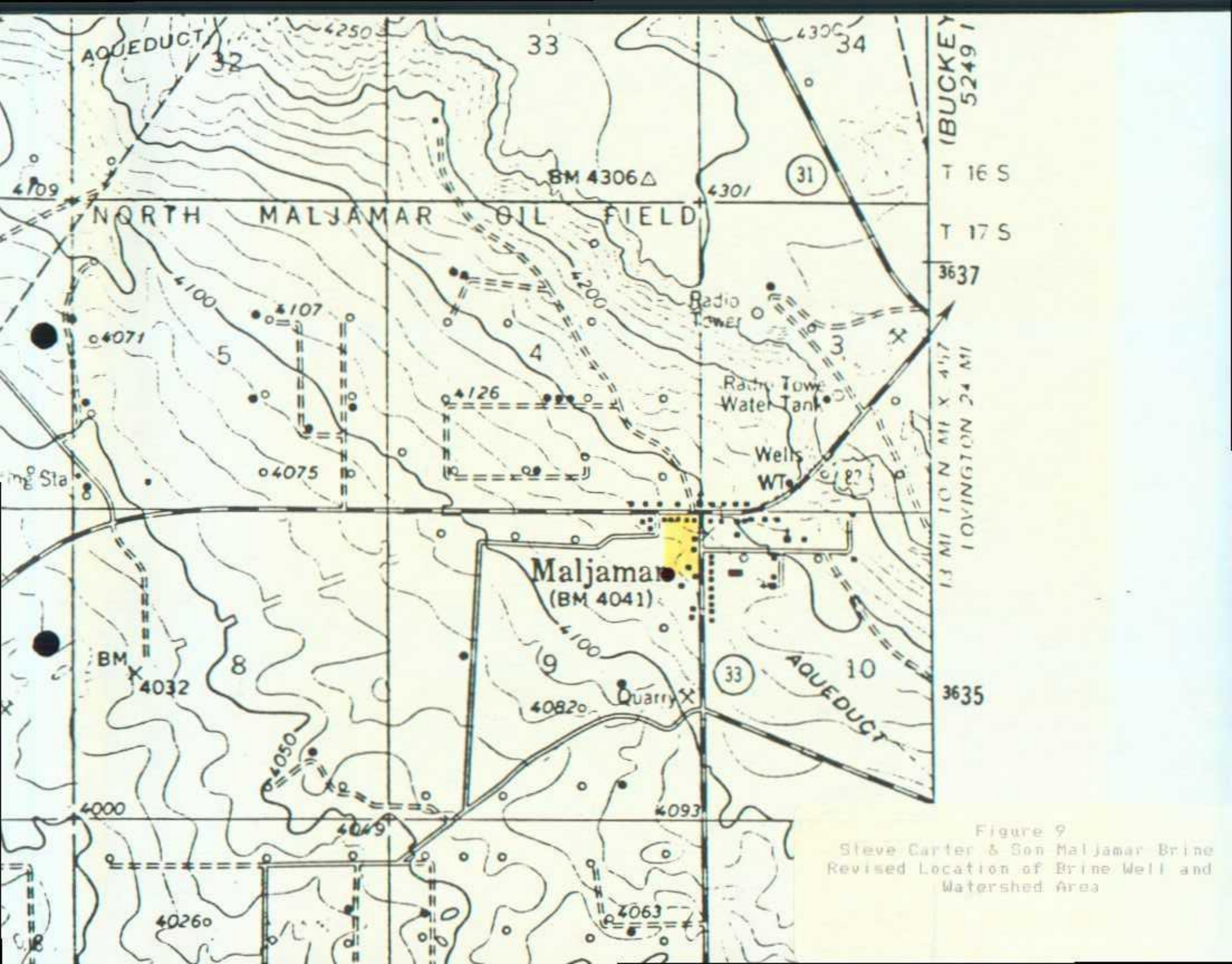


Figure 9
Steve Carter & Son Maljamar Brine
Revised Location of Brine Well and
Watershed Area

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

November 14, 1985

J.T. Janica
Natural Resources Engineering, Inc.
PO Box 2188
Hobbs, New Mexico 88240

Dear Mr. Janica:

Thank you for your submittal of a discharge plan DP-407 for Steve Carter and Son's Maljamar Brine Station. The submittal was complete with the exception of a demonstration of financial responsibility, which you explained was forthcoming. A public notice of receipt of this discharge plan was published on or before November 7th. As you know, the EID must wait for 30 days after publication of public notice before taking any action on a discharge plan. In the interim, I have the following comments for your consideration.

1) The proposed location of the brine well is only 216 feet from an existing perforation, specifically the Maljamar (Grayburg) Unit #33 well. This is a source of concern, since the salt cavity could grow over the years of operation of the Carter & Son brine station until it intercepts the adjacent perforation. This could cause problems to the #33 well if it is still operating, and if it is abandoned, the #33 well could serve as a conduit to allow brine to move into overlying formations. To avoid such a scenario, I strongly recommend that the proposed well location be at the greatest possible distance from any existing well, operating or abandoned. If your client chooses to stay at the present proposed location, he will be required to run a sonar log as a condition of renewal in order to produce a direct measurement of the encroachment of the brine cavity on the nearest perforation.

2) The present plans show only one string of casing. If the water sand which occurs in the water wells shown in Attachment A is encountered in drilling the Carter & Son brine well, please commit to casing off this formation and cementing that first string of casing back to ground surface, before continuing with a second string of casing to the top of the salt.

3) Please provide documentation of a pressure test on the casing and a temperature or cement bond log as a demonstration of a sound cement job, as part of your construction program. Also, please advise your client of his obligation to notify this office prior to each phase of your construction, logging and testing program (see Section 5-205.A.5 of the New Mexico Water Quality Control Commission (WQCC) regulations).

4) If you encounter a water-bearing formation in drilling the brine well, unless a field inspection turns up a water well in a location suited to being used for monitoring, please commit to installing a monitor well near to and downgradient of the brine station, and perforated through the entire water-bearing zone. This well may be cased with PVC of no less than 3 inches inside diameter (in order to allow access by a two-inch bailer), and may be grouted with bentonite with a concrete cap at the surface. In short, it is acceptable to minimize cost in installing this well, so long as it is sealed to surface runoff between the borehole and casing, and as long as it taps the entire saturated zone.

This well should be sampled initially for major ions and total dissolved solids, and subsequently should be monitored quarterly for chloride and TDS. It should be plugged completely back to surface at the same time that the brine well is properly plugged and abandoned. This does not, of course, apply if you locate an active domestic well that you use for purposes of monitoring.

5) Please provide additional information on flooding potential at the site. The map you provided was too small-scale to show the distance to the nearest local drainage divide (the map was lacking a scale, incidentally); and information on probable absorptive capacity of the soil was strictly qualitative. One method of making a more accurate estimate on probable runoff in resonse to a given storm is given in Chapter 21 of the Handbook of Applied Hydrology, Ven Te Chow, editor-in-chief, McGraw-Hill, Inc., 1964. You may also be able to obtain some information on this subject from the Soil Conservation Service.

6) What are the proposed dimensions of the sump in the loading pad?

7) Please give EID more than one day's notice of conducting any pressure test procedure.

8) The proposed high-low cutoff switches are an excellent feature. Please be sure that they are tested periodically.

10) Re: your definition of a "major spill": please refer to the language of WQCC regulation Section 1-203.A. Brine ponded within your bermed area for long enough to infiltrate to ground water would also be considered a major spill.

Thank you for preparing so complete a discharge plan application for initial review. Please be in touch if you have any questions regarding the points raised in this letter.

Sincerely,

Paige Grant Morgan
Water Resource Specialist

PGM:pgm

cc: John Guinn, EID District IV Manager.

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH & ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 1, 1985

Steve Carter and Son
P.O. Box 803
Hobbs, New Mexico 88240

Dear Mr. Carter:

Enclosed is a copy of the public notice pertaining to your proposed discharge which was issued by this division pursuant to New Mexico Water Quality Control Commission Regulations, Section 3-108.

If you have any questions, please do not hesitate to contact me at the above address and telephone number (ext. 279).

Sincerely,

Ron C. Conrad
Program Manager
Ground Water Section

RCC/mp

Enclosure

PS Form 3800, Feb. 1982 ★ U.S.G.P.O. 1983-403-517

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

P 612 426 593

Sent to	Steve Carter + Son
Street and No.	P.O. Box 803
P.O. State and ZIP Code	Hobbs, N.M. 88240
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT Department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 1, 1985

The Honorable Bill Waldrap, Mayor
City of Hobbs
P.O. Box 1117
Hobbs, New Mexico 88240

Dear Mr. Waldrap:

Enclosed is a public notice which includes notice of a proposed discharge plan(s) for one or more operations in or near your city.

If you have any questions, please do not hesitate to contact me at the above address and telephone number (ext. 279).

Sincerely,

Paige Morgan for

Ron C. Conrad
Program Manager
Ground Water Section

RCC/mp

Enclosure

PS Form 3800, Feb. 1982 ★ U.S.G.P.O. 1983-403-517

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

P 612 426 602

Sent to (See Reverse)	City of Hobbs
Street and No.	P.O. Box 1117
P.O., State and ZIP Code	Hobbs, N.M.
Postage	$
Certified Fee	88240
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

CERTIFIED MAIL -- RETURN RECEIPT REQUESTED

November 1, 1985

Board of County Commissioners
County of Lea
Lea County Courthouse
Hobbs, New Mexico 88240

Board of County Commissioners:

Enclosed is a public notice which includes notice of proposed discharge plan(s) for one or more operations located in your county.

If you have any questions, please do not hesitate to contact me at the address and telephone number given above.

Sincerely,

Patricia Morgan for

Ron C. Conrad
Program Manager
Ground Water Section

RCC/mp

Enclosure

PS Form 3800, Feb. 1982 ★ U.S.G.P.O. 1983-403-517

Sent to	Board of Co. Comm.
Street and No.	Lea Co. Courthouse
P.O., State and ZIP Code	Hobbs, N. M. 88240
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

(See Reverse)

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

P 612 426 598

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

November 1, 1985

Hobbs News Sun
201 North Thorp
Hobbs, New Mexico 88240

Dear Sir or Madam:

Please publish the enclosed public notice concerning discharge plan(s) in the classified legal section on or before November 7, 1985.

Send your statement and two (2) copies of the Affidavit of Publication to me at the above address.

Please print only the section(s) highlighted in yellow.

Thank you.

Sincerely,

Ron C. Conrad
Program Manager
Ground Water Section

RCC/mp

Enclosure

NOVEMBER 1, 1985

TO BE PUBLISHED ON OR BEFORE NOVEMBER 7, 1985

PUBLIC NOTICE
NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION

Notice is hereby given that, pursuant to New Mexico Water Quality Control Commission Regulations, the following proposed discharge plans have been submitted for approval to the Director of the New Mexico Environmental Improvement Division, P.O. Box 968, Santa Fe, New Mexico 87504-0968; telephone (505) 827-2906.

(DP-10) ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY, 900 Polk Street, Amarillo, Texas 79171 proposes to renew their current discharge plan to dispose of up to 20,000 gallons per day of oil-water separator water from the refueling facilities at their Clovis railroad yard. The wastewater is to be discharged into an unlined playa lake (Santa Fe Lake) in Section 19, T2N, R36E, south of the town of Clovis in Curry County, New Mexico. Hydraulic conductivity tests performed on lake bottom materials indicate that seepage from the lake is minimal. Ground-water monitoring indicates no water-quality impacts from Santa Fe Lake. The depth to ground water is approximately 270 feet with a total dissolved solids content of 450 mg/l.

(DP-278) ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY, 900 Polk Street, Amarillo, Texas 79171 proposes to modify their current discharge plan for their Belen railroad yard to include the installation and operation of three oil-recovery wells and ground-water depression pumps. The ground-water depression pumps will discharge up to 220,000 gallons per day. Effluent from two of the depression pumps will be directed to the existing holding basin and then discharged under a revised NPDES permit to the Middle Rio Grande Conservancy drainage ditch in Section 18 (projected) T5N, R2E of Valencia County. Water from the oil/water separators derived from roundhouse operations and refueling facilities, previously proposed to be discharged to lined evaporation ponds, will be combined with the discharge to the NPDES outfall. Discharges of water from the Hadley auto storage facility oil/water separator will also be directed to the conservancy ditch. The discharge from the third depression pump will be discharged directly into the conservancy ditch under a new NPDES permit and will incorporate periodic discharges from the two oil/water separators serving the east-end fueling facilities. Ground-water monitoring has been revised to include only parameters which may occur in elevated levels in the discharge. The depth to ground water is approximately 12 feet with a total dissolved solids content of 560 mg/l.

(DP-409) NEW MEXICO STATE HIGHWAY DEPARTMENT AND ETI OF NORTH AMERICA, INC., P.O. Box 1149, Santa Fe, New Mexico 87501, propose to discharge treated waste water from the decontamination of PCB release in the General Office Building, 1120 Cerrillos Road in Santa Fe, to a lined solar evaporation pond. The evaporation pond is located at the Department of Corrections State Penitentiary adjacent to the penitentiary's sewage treatment plant, Section 35, T16N, R8E. Prior to discharge the waste water will be treated to remove suspended solids and PCB's. A maximum of 165,000 gallons of water will be discharged for total evaporation. The discharge will contain approximately 1 part per billion of PCB's, 935 parts per million (ppm) sulfate, and 1869 ppm total dissolved solids (TDS). Ground water at the site occurs at a depth of approximately 90 feet and contains 200 ppm TDS.

(DP-407) STEVE CARTER AND SON, P.O. Box 803, Hobbs, New Mexico 88240, has submitted a discharge plan for a proposed brine station to be located in the town of Maljamar in the NE 1/4 of Section 9, T17S, R32E in Lea County, New Mexico. Brine will be manufactured by means of an injection well drilled to a total depth of 2135 feet. Fresh water (total dissolved solids content approximately 650 milligrams per liter) will be injected through the casing-tubing annulus into the dry salt beds of the Salado Formation, and the resulting dense brine will be brought to the surface and stored in two 1000-barrel tanks for sale to tank trucks on demand. Injection volume is anticipated to average 1650 barrels per day. Ground water most likely to be affected by this operation is at a depth of approximately 120 feet and has a TDS content of about 420 mg/l.

(DP-408) TRUOG DAIRY, Tommie Truog, owner, Rt. 1 Box 89, Hagerman, New Mexico 88232 has submitted a proposed discharge plan for the disposal of milk barn wash water and manure containing runoff from a 600 cow dairy to be located five miles west of Hagerman, New Mexico in T14S, R25E, Sections 11 and 14 NMPM in Chaves County. The effluent, estimated at 25,000 gallons per day, will be land applied to 640 acres of adjacent cropland. Storm runoff from the corrals will be retained in a holding pond and then pumped out onto the cropland. The ground water most likely to be affected is at a depth of approximately 170 feet with a total dissolved solids content ranging from 1000 to 2000 mg/l.

Any interested person may obtain further information from the Ground Water Section, Ground Water/Hazardous Waste Bureau, EID, and may submit written comments to the Director of the EID at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director of EID will allow thirty (30) days after the date of publication of this Notice during which comments may be submitted to her and a public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why the hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

natural resources engineering inc.

October 7, 1985

RECEIVED

OCT 9 1985

GROUND WATER/HAZARDOUS WASTE BUREAU

Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87504-0968

Attention: Paige Grant Morgan

RE: Discharge Plan
Maljamar Brine
SC01-001-001

Dear Paige:

Attached please find one copy of the discharge plan for Steve Carter and Son's proposed Maljamar Brine.

If you have any questions, please feel free to contact our office.

Sincerely yours,

Jan E. Clark

Jan E. Clark
Natural Resources Engineering, Inc.

Enclosures

cc: chrono
file
R. Billingsley

phone (505) 397-6319 • 201 e. sanger • p. o. box 2188 • hobbs, new mexico 88240

Discharge Plan For
Steve Carter & Son
Maljamar Brine
S9 T17S R32E
Lea County, NM

10/1/85

Table of Contents

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF DRAWINGS

I. GENERAL DESCRIPTION

A. Operator:

Steve Carter & Son
Ron Billingsley
P. O. Box 803
Hobbs, New Mexico 88240

B. Location:

Located in Section 9, T-17-S, R-32-E
835' FNL and 630' FEL
Lea County, New Mexico

C. General Operation:

At the brine well fresh water is injected down tubing casing annulus into the Salado Salt section. The fresh water dissolves the salt and brine is returned up the production tubing and sent to the storage facility. Brine is removed from the storage facility by the loading pump and metered as it is loaded onto transports. (See Drawing DW-01, System Schematic)

II. DESCRIPTION OF FACILITY

A. Surface Facilities:

The brine well is located in the West part of Maljamar. Drawing #DW-02 is a plot plan of the facility showing the general layout of the site.

The facility will be enclosed by a fence which will prevent small animals and unauthorized personnel from entering the site. The surface facilities are arranged as shown in Drawing #DW-02. Brine is carried 60' through 4" pipe to the storage facility. From the storage facility, brine is carried 60' to the loading station. Typically 1650 bbls./day are discharged to and withdrawn from the brine storage facility.

The type of pipe to be used to transport brine from the well to storage to the loading station will be plastic pipe. It will be laid on top of the ground to facilitate visual inspection for leaks.

NATURAL RESOURCES
ENGINEERING INC.
P. O. Box 2188 / 201 E. Sanger
Phone (505) 397-6319
Hobbs, New Mexico 88240

Figure 1

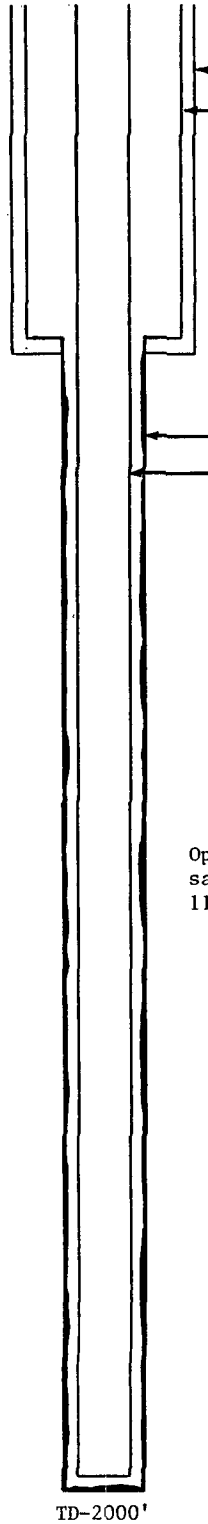
WELL BORE SKETCH

OPERATOR/LEASE/WELL Steve Carter & Son / Maljamar Brine / #1

NRE JOB NUMBER SC01-001-001 DATE 4-23-85

FIELD/POOL -NA- / -NA-

PLUG BACK DEPTH 2000' KB 0 ELEVATION 4125 Est.



Hole Size 11"

SURFACE CASING:
Size 8-5/8" Weight 32# Grade H40
Set at 1000' with 300 Sacks Cement
Circulate Yes Sacks to Surface
Remarks: 300 sacks of cement is 150% of that calculated to circulate cement to surface

Surface casing set in top of Rustler Anhydrite

Hole Size 7"

TUBING:
Size 2-7/8" Weight 6.5# Grade J55
Number of Joints 61 Set at 1900'
Packer Set at -NA-
Bottom Arrangement: Tubing will be run in hole open ended

Open hole through salt section 1100'-2000'

30-025-35716

B. Underground Facilities:

It is proposed to drill a new well located 835' FNL & 630' FEL of Section 9, T-17-S, R-32-E. This new well will be drilled to approximately 1000' where casing will be set in the Rustler Anhydrite and cemented back to surface. After pressure testing the casing to 1000 psi, hole size will be reduced and the well will be drilled out with a 7" bit through the salt section to approximately 2135' (see figure 1).

No stimulation program is planned. Tubing will be run in the hole and injection operations will begin.

Initial injection pressure is anticipated to be 300 psi with a maximum injection pressure of 400 psi. Injection volumes are estimated to be 1650 bbls/day with a maximum of 2500 bbls/day.

Fresh water is to be injected down the casing tubing annulus with brine produced up the tubing. This will prevent exposing the casing to more corrosive brine water and in the event of a leak in the casing, fresh water would be the fluid leaked limiting contamination of ground water. Periodically this injection pattern will be reversed (ie. fresh water down tubing with brine produced up annulus) to remove any salt deposits which have accumulated in the tubing. After these deposits have been removed, the normal injection method will be resumed.

III. SITE CHARACTERISTICS

A. Geology:

Maljamar, New Mexico is located just off the caprock in an area known as Quercho Plains (see figure 2). This is a region covered by dune sand which is stable to semistable and extends over an area of approximately 300 square miles.

Figure 3 shows contours on parts of the buried redbed erosion surface which underlies rocks of the tertiary and quanternary age in Southern Lea County. An important feature of the redbed surface is the ridge that extends Southeastward from the Southwestern part of T16S, R32E into T19S, R35E. This ridge forms the Northeast boundary of a broad subsurface valley that drains toward T20S, R32E and from which the Ogallala formation has been completely removed by erosion. Northeast of the ridge the Ogallala has been preserved intact. The buried ridge is a half mile to one mile Southwest of Mescalero Ridge. This indicates the amount of retreat of Mescalero Ridge since the Pleistocene erosion which removed the Ogallala from the Quercho Plains area.

Stratigraphic column to the base of the salt in the Maljamar (Grayburg) Unit #33 well which is 216' Southeast of the proposed brine extraction well is:

Caliche and Alluvium	0 - 40'
Ogallala	40 - 150'
Redbeds	150 - 363'
Dockum Group	363 - 695'
Redbeds	695 - 980'
Rustler Anhydrite	980 - 1100'
Salado Salt	1100 - 2135'
Anhydrite & Dolomite	2135 - 3265'

The salt section is bounded on the top by an anhydrite section approximately 120' thick, 980' to 1100'. The bottom of the salt is bounded by anhydrite from 2135' to 3265' (1130' thick).

The down hole pressure caused by a 400 psi maximum operating pressure would be 1324 psi. The fracture pressure of salt at 2135' is calculated to be 1936 psi, this is well above the operating pressure and no fractures should be caused. (see figure 4)

Figure 2
Physiographic Subdivisions of Southern Lea County

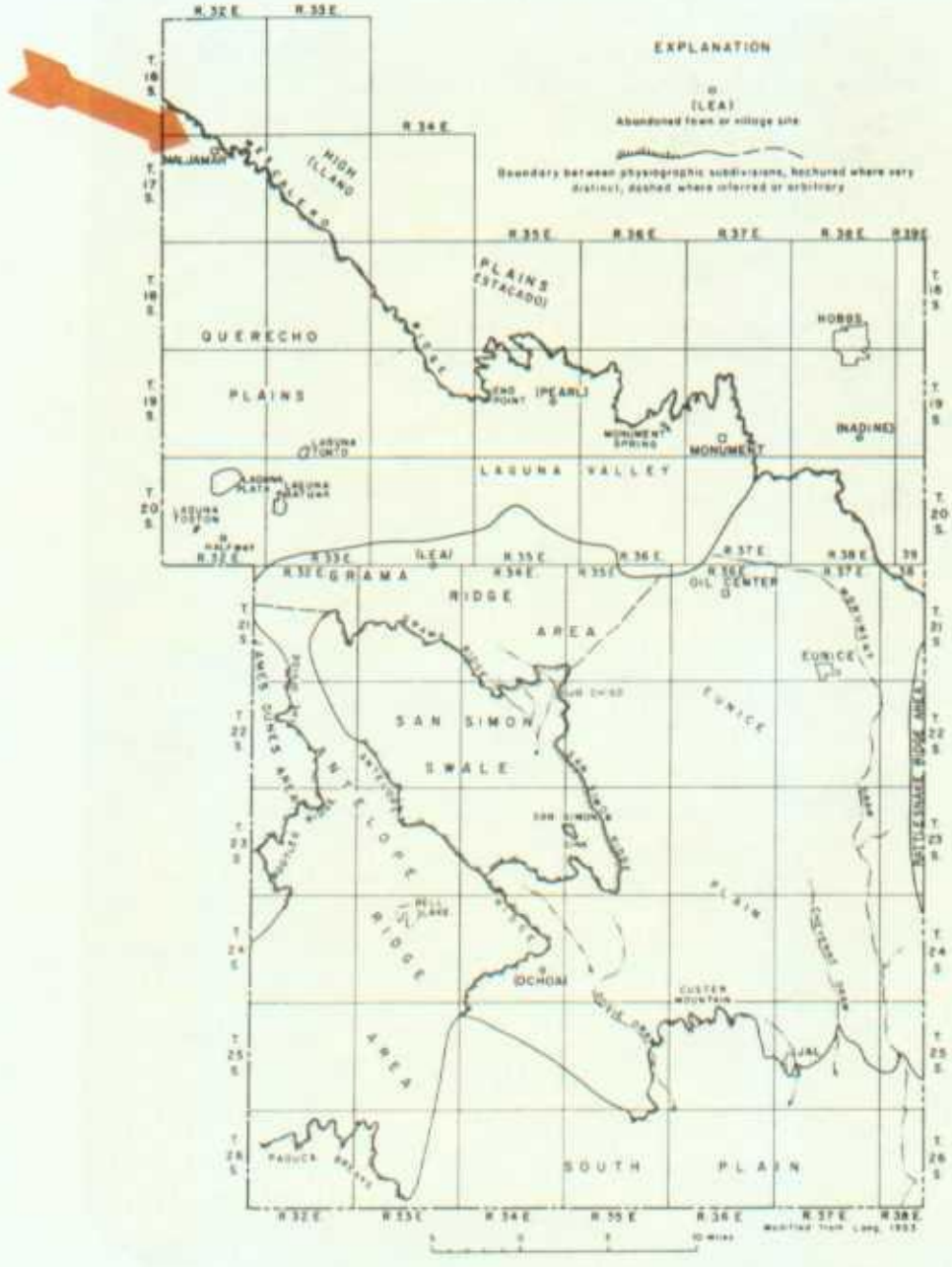
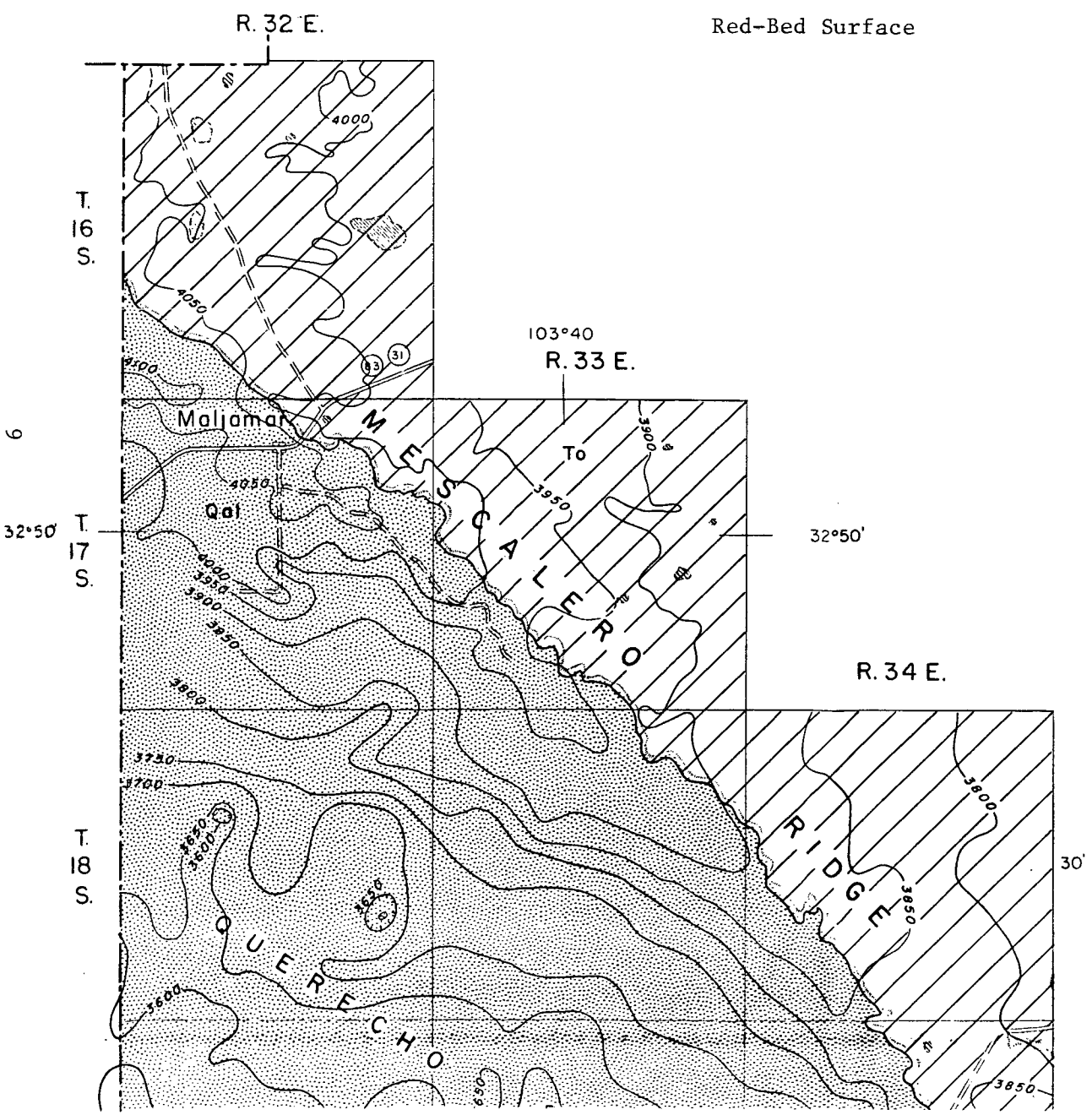


Figure 3

Geological Structure Map

Red-Bed Surface



Sand

Thin cover of drift sand in most places; locally dunes 20-40 feet high

Qal

Alluvium

Sand and gravel along dry washes; silt and sand in lake beds; includes some wind-deposited sand around depressions

Pleistocene and Recent

QUATERNARY

To

Ogallala formation

Chiefly sand, poorly to well-cemented with calcium carbonate; contains some clay, silt, and gravel; capped in most places by caliche

Pliocene

TERTIARY

Ku

Cretaceous rocks, undifferentiated

Slumped blocks of buff, tan, or white fossiliferous limestone

CRETACEOUS

TRc TRd TRs

Dockum group

TRc-*Chinle formation, red and green claystone, minor siltstone, and fine-grained sandstone;* TRs-*Santa Rosa sandstone, red to white poorly sorted, coarse-grained, crossbedded sandstone;* TRd-*rocks of the Dockum group, undifferentiated*

Upper Triassic

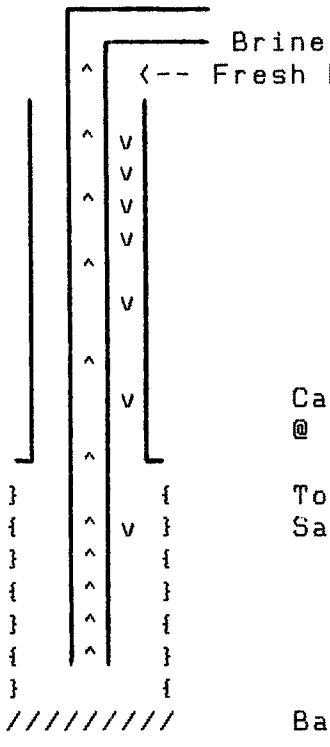
TRIASSIC

3500

Contours on the red-bed surface

Dashed where approximate or inferred. Contour interval 50 feet. Datum mean sea level

Figure 4
Fracture Calculations
Steve Carter & Sons



Given: Saturated Brine @ 20°C
Density = 9.98#/gal
Hydrostatic Press = .5195 psi/ft

Fresh Water @ 20°C
Density = 8.33#/gal
Hydrostatic Press = .433 psi/ft

Test Data From Sandia Labs
WIPP Site

Salt Section @ 2150'
Frac Press Min: 1950 psi
Avg: 2170 psi
Max: 2300 psi

Using Min Frac Press Determine Frac Gradient
Frac Gradient = Frac Press/Depth
1950 psi/2150 = 0.90698 psi/ft

Estimate Min Frac Press at 2135'
Min Frac Pressure = (.90698 psi/ft)(2135')
Min Frac Pressure at 2135' = 1936 psi

Calculate Bottom Hole Pressure Using 400 Psi Max Injection Pressure
Bottom Hole pressure = Hydrostatic Pressure of Fresh water + Hydrostatic Pressure of Brine water + Injection Pressure
Bottom Hole Pressure = (1000')(.433 psi/ft) + (1135')(.5195 psi/ft) + 400 Psi
Bottom Hole Pressure = 1423 Psi

. Minimum Fracture Pressure is Greater than Maximum
. . Bottom Hole Pressure. A 400 psi operating pressure will produce a bottom hole pressure well below (513 psi) the minimum estimated frac pressure.

B. Hydrology:

Maljamar is located at the outer edge of the Ogallala and water in the immediate area is spotty. Wells, when successful, yield relatively low volumes of water. Because of this the city of Maljamar obtains its water from wells on top of the caprock located in Sections 26 and 35 of Township 16 South, Range 32 East.

A review of State Engineer records indicates only three water wells near the proposed brine well. All of these wells are outside of the 1/4 mile radius of review. There are additional wells in Maljamar but because of the city's location outside of any declared water basin, permits to drill wells are not required and records are incomplete. Figure 5 shows the location of those water wells on record with the state engineer in Roswell. Also attached are records from the State Engineers Office on these water wells (See Attachment "A").

Figure 6 is a water table and piezometric-surface contour map. Two set of contours are shown.

1. Water table contours for the Ogallala formation and Quaternary alluvium.

2. Piezometric surface contours on Triassic aquifers.

Water movement in the Triassic aquifers (Santa Rosa and Chinle) is toward the Southwest away from Mescalero Ridge. The area near Mescalero Ridge appears to be an area of recharge for the Santa Rosa. This is due to water which moves downward from the Ogallala and precipitation that infiltrates through the thin alluvium covering the triassic rocks Southwest of Mescalero Ridge.

Water movement in the Ogallala is from Northwest to Southeast. This is caused to a great extent by the generally Southeastward slope of the redbed surface which underlies the Ogallala.

Recharge of the Ogallala is distributed evenly over the high plains; however, there may be some concentration of recharge at the escarpment due to greater rain fall along Mescalero Ridge and the alluvial fan deposits Southwest of the ridge.

The ground water most likely to be affected by a spill/leak is approximately 122 feet deep. An analysis of this water, from the Bud Mathues water well, is contained in Attachment "B". Also contained in Attachment "B" is an analysis of the water used for injection.

Samples of the water produced from selected wells will be analyzed yearly for quality.

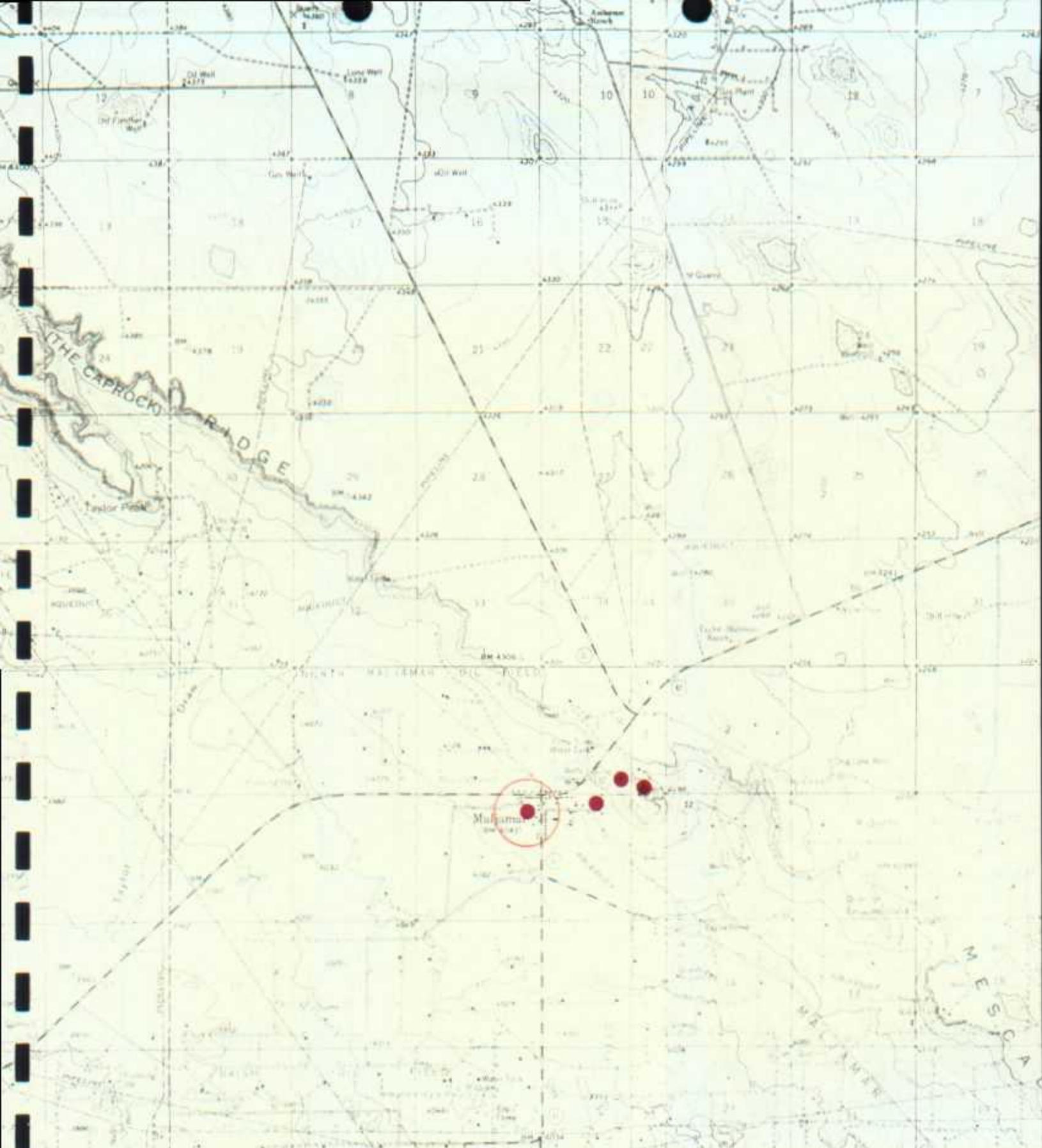


Figure 5
Fresh Water Wells on Record
With NM State Engineer

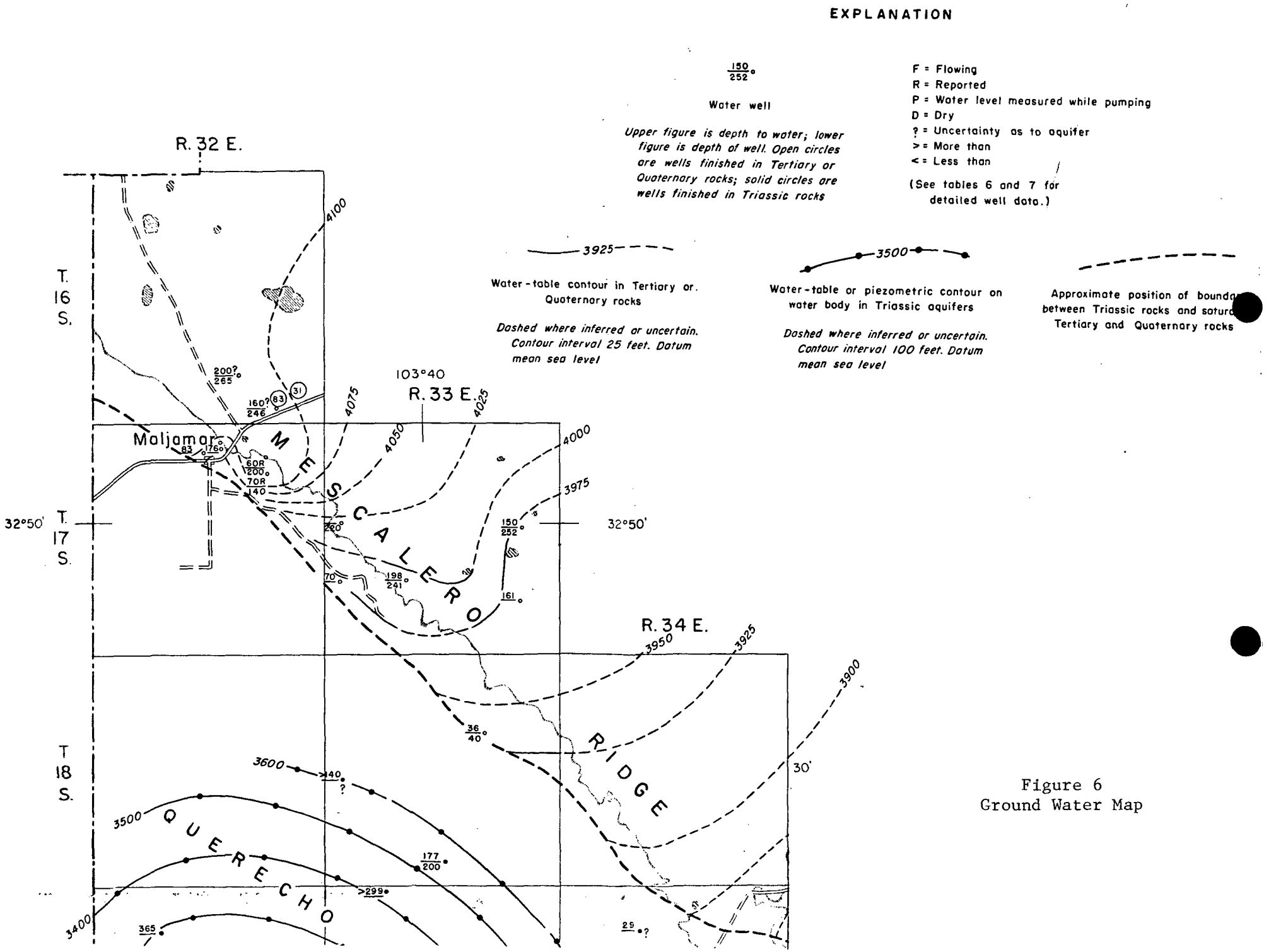


Figure 6
Ground Water Map

IV. PROCEDURES TO PROTECT GROUND WATER

A. Wells In Area of Review:

There are two (2) abandoned wells or shafts in the area of review which penetrate the injection zone. These wells have been plugged according to OCD requirements. Attachment "H" contains plugging records and completion information on these wells.

Figure 7 is an ownership plat showing all producing oil and gas wells, injection wells, and abandoned oil and gas wells within a 1/4 mile radius of the brine well.

B. Injection Well:

If there is a loss of mechanical integrity of the injection well, all operations will be suspended until remedial action can be taken to correct the potential source of water contaminations.

A loss of mechanical integrity will be detected by the following:

1. Five year pressure tests.
2. Comparing volumes injected and volumes produced.
3. Any sudden changes in injection pressures.

Prior to the start of operations, the well casing will be tested to 1000 psi. Also at regular intervals, at least every five years, the casing will be retested to 1000 psi to check for possible leaks. Steve Carter & Son will pressure test the well as follows:

1. Remove tubing.
2. Set retrievable bridge plug at end of casing.
3. Pressure up on casing to 1000 psi.
4. Record pressures for 15 minutes on pressure recorder.

This procedure will verify that there are no leaks in the casing. Steve Carter & Son will notify the EID one day before the test is conducted and submit a report of the test results.

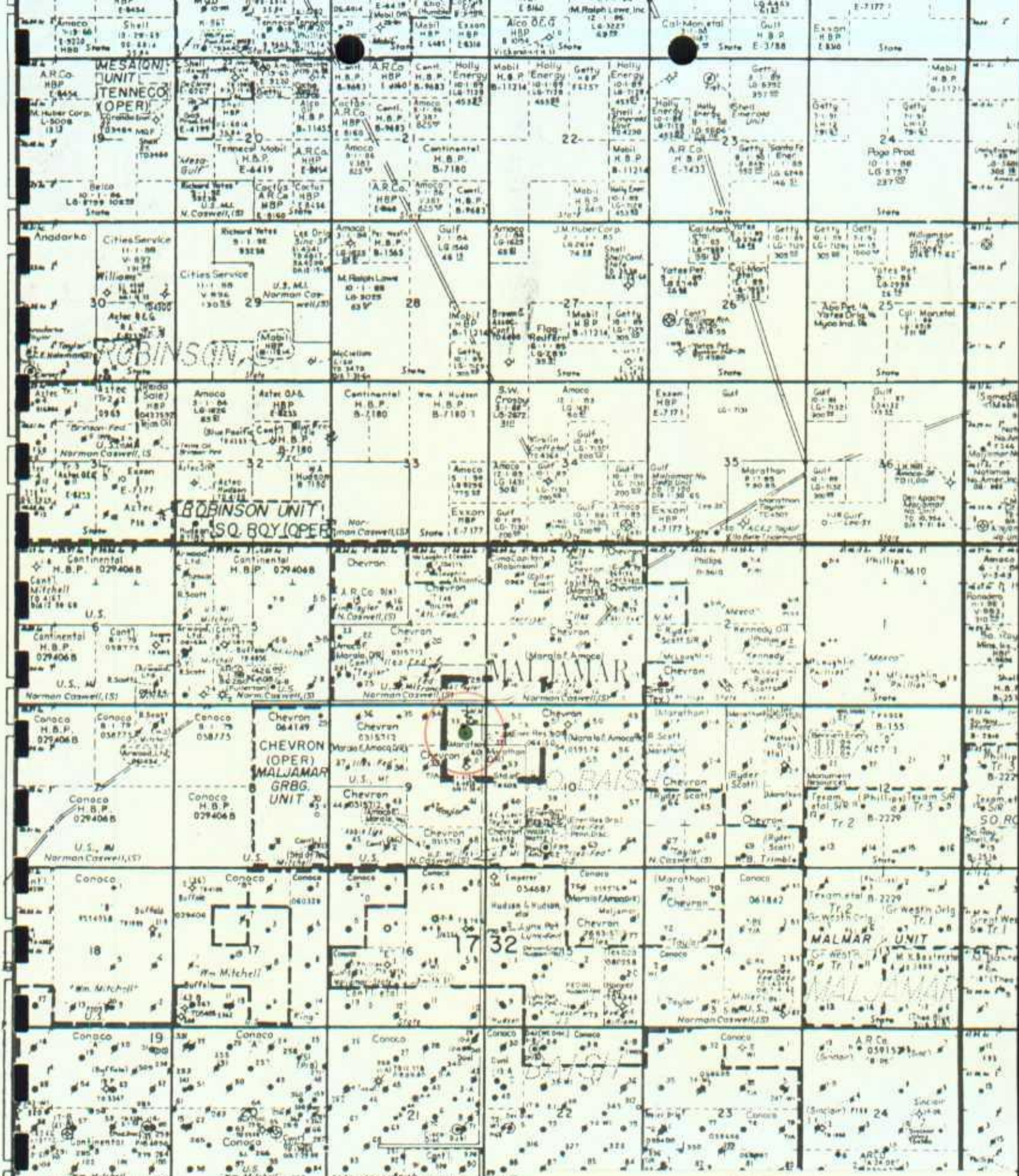


Figure 7
Ownership plat of
Producing, Injection, & Abandoned
Oil and Gas Wells

The water injected and brine recovered will be metered by turbine meters located as shown on the system schematic (Drawing DW-01). The volumes injected and recovered will be compared to detect any underground losses. The system schematic (Drawing DW-01) shows locations of sample points used to obtain samples at the proposed brine well of water injected and brine produced for analysis.

C. Surface Facilities:

Drawing DW-02 is a plot plan of the proposed surface facilities. Fresh water lines above the ground will be insulated to protect them from freezing. The injection pump and brine lines will be protected by high/low cut off switches. These switches will shut the injection pump down in the event of a line break (low pressure) or a line blockage (high pressure). This will prevent the loss of large quantities of brine in the event of a line breaking.

At the facility brine will be stored in two (2) 1000 barrel tanks. These tanks will be surrounded by a burm or dike which will contain the brine in the event of a spill.

D. Spills:

Spills will be prevented during loading by connecting trucks directly to the loading line before any valves are opened to allow brine to be pumped onto the trucks. After the trucks are loaded all valves will be closed before disconnecting to prevent spillage of brine water. All trucks will be loaded on a 20' X 45' concrete loading pad. This pad will be constructed such that any brine spilled will flow toward its center where a drain to the sump is located. The sump of the loading pad will be concrete lined. This will prevent any minor spills from contaminating ground water.

As this facility will only be producing brine, it is the main material which may be spilled. Small amounts of hydrocarbon residue inside the trucks could possibly be spilled if a truck is filled to overflowing. This will be prevented by careful monitoring of the trucks during loading. A timer will ~~also be tied into the loading pump~~ motor circuit so that the pump will only run for the amount of time required to pump 150 barrels of brine. When this time has elapsed the pump will automatically shut off. This will act to limit the amount of brine which may be spilled by overflowing a truck.

If a truck is overflowed, the brine and any other material spilled would be collected in the sump of the loading pad and later disposed of at an approved disposal well. In the event of a major spill at the surface facilities the following will be done:

1. If a spill occurs, contaminated soil will be removed and disposed of at a location approved by the state.

A major spill would be any spill which causes brine to get off of the facility site. Steve Carter & Son will report any significant spills and/or loss of mechanical integrity of the well to the EID as required in Section 1-203.A.1 and 5-208.B.1 of the WQCC regulations.

E. Plugging & Abandonment:

At such time when this injection well is ready for plugging and abandonment, the well will be plugged as per Attachment "D" (Plugging Procedure). This plugging procedure will be approved before any plugging operations begin.

A plugging bond is offered as proof of financial responsibility to properly abandon this well. (See Attachment "E")

V. Flooding Potential

The proposed brine well is located just off the caprock (Mescalero Ridge) in an area of stable to semistable dune sand. Figure 8 is a map showing the flooding potential of the site.

Drainage in the area is to the Southwest away from the well site. Areal drainage toward the site should be minimal due to the relative closeness to The caprock where drainage is to the Southeast and the sandy soil in the area which absorbs runoff very rapidly.

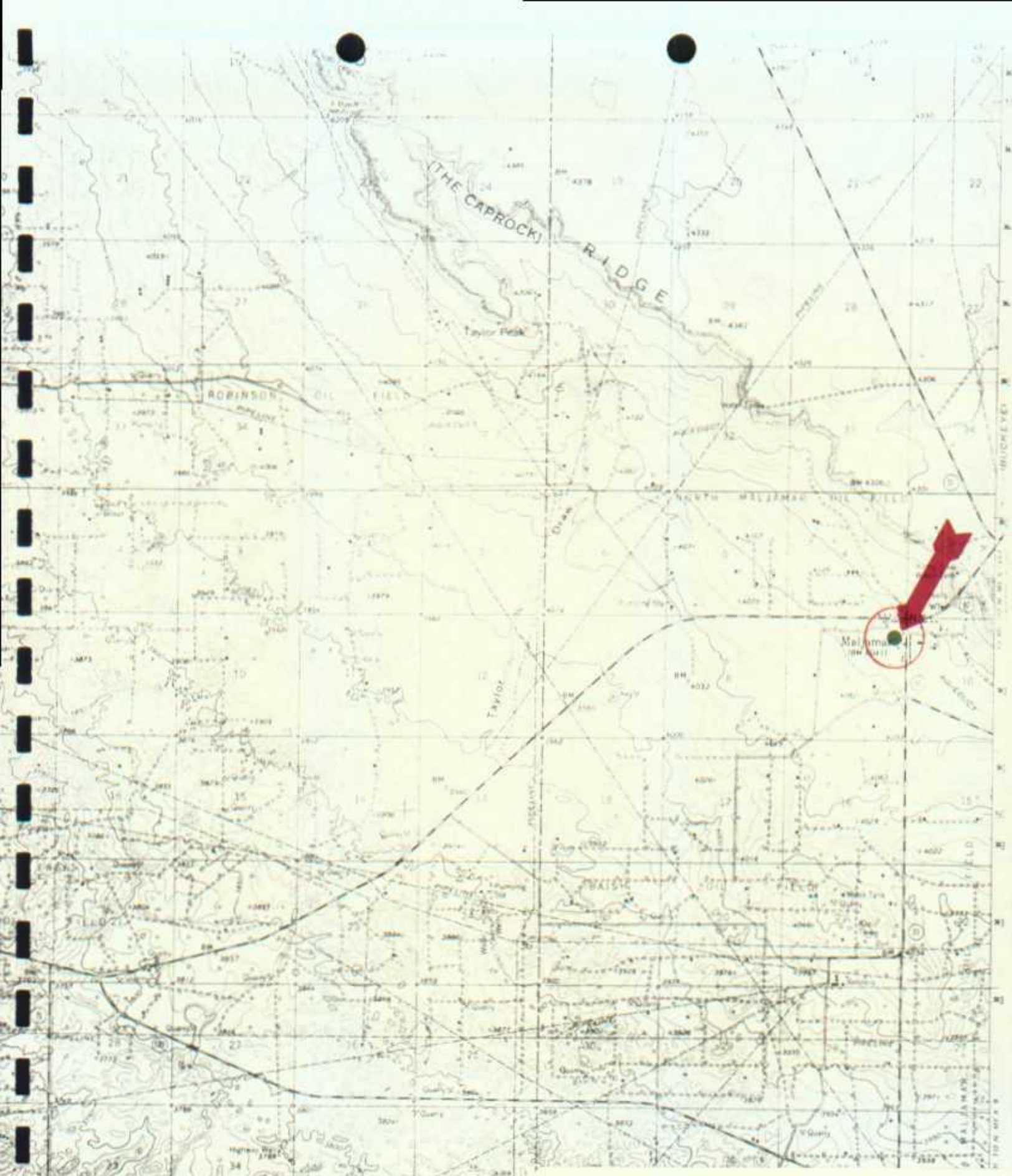


Figure 8
Steve Carter & Son Maljamar Brine
Flooding Potential

VI. SIGN-OFF REQUIREMENT

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Ron Billingsley
Steve Carter & Son

10/7/85
DATE

References

The references and sources of information used in preparing this discharge plan were:

1. USGS Ground-Water Report 6
   Geology and Ground Water Conditions in Southern Lea County New Mexico
   A. Nicholson Jr. and A. Clebsch Jr.

2. The U.S. Corps of Engineers

3. Well logs and sample records from
   New Mexico State Engineer
   Roswell, New Mexico

4. Well Records and Electric Logs from
   N.M. Energy & Minerals Department - Oil Conservation Division
   Hobbs, New Mexico

5. U.S. Minerals Management Service

Attachments and Drawings
Steve Carter and Son
Maljamar Brine

Attachment "A"

State Engineer Records of
Water Wells Within the
Area of Review

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.3.4323334

Depth in Feet From	To	Thickness in Feet	Color and Type of Material Encountered
	40		Caliche
40	116		Anhydrite and sand
116	150		Sand
150	363		Red bed
363	695		Red bed and shells
695	990		Red shale with shells

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.3.4323334 Elevation: 4284' GL
Owner: Chevron U.S.A. Inc.
Maljamar (Grayburg) Unit #12
Record of Casing: 8 5/8" - 1344'

Rotary

660' FSL - 1905' FEL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1, and Section 7 need be completed.

Revised June 1972

STATE ENGINEER OFFI

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well _____ Owner's Well No. _____
Street or Post Office Address _____
City and State _____

Well was drilled under Permit No. _____ and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor _____ License No. _____

Address _____

Drilling Began _____ Completed _____ Type tools _____ Size of hole _____ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received Typed 5/11/78

Quad _____ FWL _____ FSL _____

File No. _____ Use 011 Location No. 17.32.3.44300

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	115		Caliche
115	255		Red rock
255	290		Sand
290	1055		Red rock
			L S Elev 4285 4285
			Depth to K 290 Trc 115
			Elev of K 3995 Trc 4170

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well record is an excerpt from Oil Conservation Commission files at Hobbs, N.M.

Location: 17.32.3.44300 Elevation: 4285' DF
Owner: Chevron Oil Co.
Maljamar (Grayburg) Unit #14
Record of Casing: 8 5/8" - 1275'

Rotary

330' FSL - 990' FEL

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1, and Section 7 need be completed.

Form WR-23 STATE ENGINEER OFFICE

FIELD ENGR. LOG

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

(Plat of 640 acres)

(A) Owner of well [illegible]

Street and Number

City [illegible] State New Mexico

Well was drilled under Permit No. Misc. 2-6-59 and is located in the ¼ ¼ ¼ of Section 11 Twp. 17S Rge. 32E

(B) Drilling Contractor C. O. Allred License No. [illegible]

Street and Number Box 519

City Lovington State New Mexico

Drilling was commenced December 29 19 61

Drilling was completed January 1, 19 62

Elevation at top of casing in feet above sea level Total depth of well 150

State whether well is shallow or artesian Shallow Depth to water upon completion 132

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	132	150	24	Red Water Sand
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6 5/8	Welded		0	150	150	None	130	150

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used
		7			5 sacks of drilling mud placed in top of hole while drilling well to keep hole from caving

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received STATE ENGINEER OFFICE DISTRICT II ROSWELL, N. MEX. 1962 JAN 18 AM 8:14

File No. Misc. 2-6-59 Use Dom Location No. 17.32.11.2.2

Section 6

LOG OF WELL

Depth in Feet		Thickness in Feet	Color	Type of Material Encountered
From	To			
[illegible]	[illegible]	5	Brown	Top Soil
[illegible]	[illegible]	7	White	Caliche Rock
12	122	[illegible]	Brown	Sandy Clay
122	[illegible]	34	Red	Water Sand

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

C. O. Aldredge
Well Driller

Attachment "B"

Water Analysis
Injected Water
Ground Water

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. [illegible]

TO: [illegible] Jr.
[illegible] 2166, Hobbs, NM

SAMPLE RECEIVED [illegible]

RESULTS REPORTED [illegible]

COMPANY [illegible] Resources [illegible] Inc. LEASE [illegible]

FIELD OR POOL

SECTION BLOCK SURVEY COUNTY [illegible] STATE [illegible]

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 [illegible] Brine. [illegible]

NO. 2 [illegible] - taken from [illegible] water well [illegible] of proposed [illegible]

NO. 3

NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	[illegible]	[illegible]		
pH When Sampled				
pH When Received	[illegible]	[illegible]		
Bicarbonate as HCO_3	[illegible]	[illegible]		
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	[illegible]	[illegible]		
Calcium as Ca	[illegible]	[illegible]		
Magnesium as Mg	[illegible]	14		
Sodium and/or Potassium	[illegible]	[illegible]		
Sulfate as SO_4	[illegible]	[illegible]		
Chloride as Cl	[illegible]	47		
Iron as Fe	0.32	[illegible]		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	[illegible]	[illegible]		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	[illegible]	[illegible]		
Resistivity, ohms/m at 77° F.	[illegible]	[illegible]		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Nitrate, as N	[illegible]	2.6		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Based on [illegible] herein, [illegible] of anything unusual about [illegible] these waters. If we can be of any assistance in interpreting the results for your particular objectives, please contact us.

Form No. 3

By [illegible]

Attachment "C"

Plugging Records of
P&A Wells Within the
Area of Review

Form C-103

DUPLICATE

OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

RECEIVED
DEC 1 1947
HOBBS OFFICE

Sumbit this report in triplicate to the Oil Conservation Commission or its proper agent within ten days after the work specified is completed. It should be signed and sworn to before a notary public for reports on beginning drilling operations, results of shooting well, results of test of casing shut off, result of plugging of well, and other important operations, even though the work was witnessed by an agent of the Commission. Reports on minor operations need not be signed and sworn to before a notary public. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of report by checking below.

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL		REPORT ON PULLING OR OTHERWISE ALTERING CASING	
REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON DEEPENING WELL	
REPORT ON RESULT OF PLUGGING OF WELL	x		

November 28, 1947 (Date) Hobbs, New Mexico (Place)

OIL CONSERVATION COMMISSION,
SANTA FE, NEW MEXICO.

Gentlemen:

Following is a report on the work done and the results obtained under the heading noted above at the The Ohio Oil Company (Company or Operator) A. C. Taylor "D" (Lease) Well No. 1 in the SE/4, NE/4 of Sec. 9, T. 17-S, R. 32-E, N. M. P. M., West Roberts Field, Lea County.

The dates of this work were as follows:

Notice of intention to do the work was (~~submitted~~) submitted on Form C-102 on November 24, 1947 and approval of the proposed plan was (~~verbal~~) obtained. (Cross out incorrect words.)

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Total depth 4026' White Dolomite. Well has been a bandoned and plugged according to the following procedure: 1380' of 5½" csg. was recovered. A 30 sax cement plug was set @ 4026' up to 3758', a 10 sax plug was set in top of 5½" csg. (which was left in hole @ 1380' and was set thru salt section @ 3840' and cemented W/500 sax) all intervals between plugs were filled with heavy mud laden fluid, sand and gravel used for bridging. 8-5/8" surface casing was set @ 1105' cemented W/300 sax cement and was left intact as this cement was circulated, the top 20' of this string was filled W/18 sax cement plug. 4½" marker was set in cement to extend 5' above surface.

Witnessed by J. B. Reese (Name) The Ohio Oil Company (Company) Foreman (Title)

Subscribed and sworn before me this 28 day of November, 1947

E. M. Gallaway
Notary Public

My Commission Expires August 19, 1951

My commission expires

I hereby swear or affirm that the information given above is true and correct.

Name P. B. Stewart

Position Superintendent

Representing The Ohio Oil Company (Company or Operator)

Address Box 1607, Hobbs, New Mexico

Remarks:

APPROVED

Date DEC 1 1947

EFFECTIVE AUGUST 1, 1952

Roy Yarbrough
Name
OIL & GAS INSPECTOR
Title

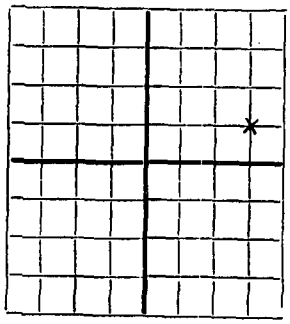
DUPLICATE

OIL CONSERVATION COMM.
SANTA FE, NEW MEXICO

RECEIVED
DEC 15 1947
HOBBS OFFICE

FORM C-105

N



AREA 640 ACRES
LOCATE WELL CORRECTLY

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

WELL RECORD

Mail to Oil Conservation Commission, Santa Fe, New Mexico, or its proper agent not more than twenty days after completion of well. Follow instructions in the *Rules and Regulations of the Commission.* *Indicate questionable data by following* it with (?). SUBMIT IN TRIPLICATE. FORM C-110 WILL NOT BE APPROVED UNTIL FORM C-105 IS PROPERLY FILLED OUT.

The Ohio Oil Company — Company or Operator — Hobbs, New Mexico — Address

A. C. Taylor "D" — Lease — Well No. 1 in SE/4 NE/4 of Sec. 9, T. 17-S

R. 32-E, N. M. P. M., West Roberts Field, Lea County.

Well is 1980 feet south of the North line and 660 feet west of the East line of Sec. 9-17-32

If State land the oil and gas lease is No. ____ Assignment No. ____

If patented land the owner is A. C. Taylor, Address Maljamar, New Mexico

If Government land the permittee is ____, Address ____

The Lessee is The Ohio Oil Company, Address Hobbs, New Mexico

Drilling commenced 10-4-1947 19__ Drilling was completed 11-6-1947 19__

Name of drilling contractor C. E. Blount Drlg. Co., Address Okla. City, Oklahoma

Elevation above sea level at top of casing 4124 feet.

The information given is to be kept confidential until ____ 19__

OIL SANDS OR ZONES

No. 1, from 3685 to 4000 — No. 4, from ____ to ____

No. 2, from 4000 to 4026 — 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 ____ to ____ feet. ____

No. 2, from ____ to ____ feet. ____

No. 3, from ____ to ____ feet. ____

No. 4, from ____ to ____ feet. ____

CASING RECORD

SIZE	WEIGHT PER FOOT	THREADS PER INCH	MAKE	AMOUNT	KIND OF SHOE	CUT & FILLED FROM	PERFORATED FROM	PERFORATED TO	PURPOSE
8-5/8"	28#	8 rd	Spang	1100'	HOWCO				
5-1/2"	15.5#	8 rd	"	2452'	(Left in well after being shot off @ 1400')				

MUDDING AND CEMENTING RECORD

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHODS USED	MUD GRAVITY	AMOUNT OF MUD USED
11"	8-5/8"	1092'	300	HOWCO		
7"	5-1/2"	2434'	500	" (Shot off @ 1400')		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth Set ____

Adapters—Material ____ Size ____

RECORD OF SHOOTING OR CHEMICAL TREATMENT

EXPLOSIVE OR	DEPTH SHOT

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

IMPORTANT WATER SANDS

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

No. 1, from ..... to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

CASING RECORD

SIZE	WEIGHT PER FOOT	THREADS PER INCH	MAKE	AMOUNT	KIND OF SHOE	CUT & FILLED FROM	PERFORATED FROM	PERFORATED TO	PURPOSE
8-5/8"	28#	8 rd	Spang	1100'	HOWCO				
5-1/2"	15.5#	8 rd	"	2452'	(Left in well after being shot off @ 1400')				

MUDDING AND CEMENTING RECORD

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHODS USED	MUD GRAVITY	AMOUNT OF MUD USED
11"	8-5/8"	1092'	300	HOWCO		
7"	5-1/2"	2434'	500	" (Shot off @ 1400')		

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth Set .....

Adapters—Material ..... Size .....

RECORD OF SHOOTING OR CHEMICAL TREATMENT

SIZE	SHELL USED	EXPLOSIVE OR CHEMICAL USED	QUANTITY	DATE	DEPTH SHOT OR TREATED	DEPTH CLEANED OUT
4"x8'	6	Nitro	175 qts.	11-7-47	3865' to 3980'	
		Acid	2000 gal.	11-18-47	3840' to 4026'	

Results of shooting or chemical treatment: Well swabbed dry with no show of oil or gas. Well plugged and abandoned.

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 surface feet to T.D. 4026 feet, and from - feet to - feet

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

PRODUCTION

Put to producing Abandoned 11-26- -, 1947

The production of the first 24 hours was - barrels of fluid of which - % was oil; ..... %

emulsion; ..... % water; and ..... % sediment. Gravity, Be .....

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. .....

EMPLOYEES

W. P. Morris, Driller Ben Gamlin, Driller

J. C. Hill, Driller ....., Driller

FORMATION RECORD ON OTHER SIDE

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.

Subscribed and sworn to before me this 12th day of December, 1947

E. M. Colleen
Notary Public

My Commission Expires August 19, 1951

My Commission expires .....

Hobbs, New Mexico (Place) 12-12-47 (Date)

Name O. B. Stevens

Position Superintendent

Representing The Ohio Oil Company (Company or Operator)

Address Box 1607, Hobbs, New Mexico

FORMATION RECORD

FROM	TO	THICKNESS IN FEET	FORMATION
0	60	60	Surface Sand.
60	960	900	Red Beds.
960	1270	310	Anhydrite.
1270	2440	1170	Salt.
2440	3254	814	Anhydrite.
3254	3280	26	Artesia Red Sand.
3280	3685	405	Anhydrite.
3685	4000	315	Grayburg Dolomite.
4000	4026	26	San Andres Dolomite.

X

Deviation Survey shows straight hole.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

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—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: NM 0315712

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1. OIL WELL ☐ GAS WELL ☐ OTHER: Water Injection Well

7. UNIT AGREEMENT NAME: Maljamar (Grayburg)

2. NAME OF OPERATOR: Chevron Oil Company

RECEIVED
SEP 25 1975
U. S. GEOLOGICAL SURVEY
HOBBS, NEW MEXICO

8. FARM OR LEASE NAME: Maljamar Unit

3. ADDRESS OF OPERATOR: P. O. Box 1660, Midland, Texas 79701

9. WELL NO.: 34

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface

Unit B, 330' FNL & 1980' FEL, Section 9, T-17-S, R-32-E

10. FIELD AND POOL, OR WILDCAT: Maljamar Grayburg-San Andres

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Section 9, T-17-S, R-32-E, NMPM

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): GR 4116

12. COUNTY OR PARISH: Lea

13. STATE: New Mexico

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	X
REPAIR WELL	☐	CHANGE PLANS	☐				
(Other)				(Other)			

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

8-23-75 Dug pit. Move in rig up pulling unit.

8-25-75 Pulled out of hole with tubing. Ran in hole with tubing to 3700'. Attempted to circulate hole with mud laden fluid with out success. Spotted 25 sacks cement, pulled tubing.

8-26-75 Ran tubing and tagged cement at 3510'. Attempted to circulate without success. Pulled tubing to 2400', spotted 30 sacks cement. Pulled tubing and waited on cement. Ran in hole and tagged cement at 2131'. Attempted to circulate without success. Pulled tubing to 1000', spotted 35 sacks cement. Pulled tubing and waited on cement. Ran in hole did not tag plug. Ran tubing to 1000' and spotted 35 sacks cement. Pulled tubing.

8-27-75 Tagged cement at 1100'. Ran tubing to 1000' and established circulation. Pumped 35 sacks cement. Pull out of hole with tubing. Perforated 5 1/2" casing at 344'. Established circulation. Pumped 90 sacks cement circulating to surface via 8 5/8" x 5 1/2" annulus leaving 5 1/2" full to surface.

9-11-75 Installed 4' marker. Backfilled pit. Cleaned up location as per "Statement of Surface Restoration Intention" filed 6-30-75.

18. I hereby certify that the foregoing is true and correct

SIGNED J. W. Leonard TITLE Senior Drilling Engineer DATE September 22, 1975

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED
OCT 8 1975
ARTHUR R. BROWN
DISTRICT ENGINEER

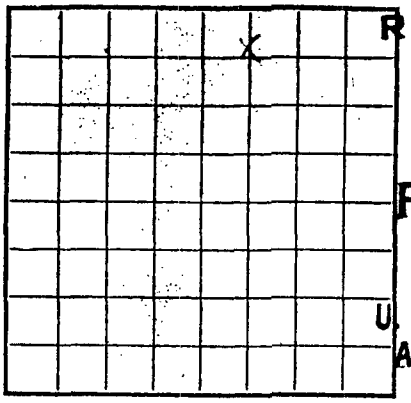
*See Instructions on Reverse Side

Form 9-330

N. M. O. C. C. COPY

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

U. S. LAND OFFICE Las Cruces
SERIAL NUMBER 059576
LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

RECEIVED
DEC 27 1961
O. C. C.
ARTESIA, OFFICE

RECEIVED
DEC 26 1961
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Boller & Nichols Address Maljamar, New Mexico

Lessor or Tract Iles Field Maljamar State New Mexico

Well No. 21 Sec. 9 T. 17n R. 32 Meridian B County Lea

Location 330 ft. {N./S.} of N Line and 1980 ft. {E./W.} of E Line of 9-14-32 Elevation 4016
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed [signature]

Date 12-20-61 Title Supt.

The summary on this page is for the condition of the well at above date.

Commenced drilling 11-29, 19 61 Finished drilling 12-8, 19 61

OIL OR GAS SANDS OR ZONES

(*Denote gas by G*)

No. 1, from 3860 to 3870 No. 4, from ____ to ____

No. 2, from 3890 to 3900 No. 5, from ____ to ____

No. 3, from 3970 to 3990 No. 6, from ____ to ____

IMPORTANT WATER SANDS

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
8 5/8	24	8		294	Tex				
5½	14	8		4060	Halliburton		3860	3870	
							3890	3900	
2 3/8	4.70	8		3875			3970	3990	

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
8 5/8	294	200	Halliburton		hole full
5½	4060	350	Halliburton		hole full

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

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

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

DATES

....., 19..... Put to producing ....., 19.....

The production for the first 24 hours was ..... barrels of fluid of which .....% was oil; .....% emulsion; .....% water; and .....% sediment. Gravity, °Bé. .....

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. .....

EMPLOYEES

....., Driller ....., Driller

....., Driller ....., Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
0	1094	1094	Red bed & gyp
~~1094~~	~~2310~~	~~1216~~	~~salt~~
1094	2310	1226	salt
2310	3716	1406	anhydrite
3716	3860	144	lime
3860	3870	10	oil sand
3870	3970	100	lime
3970	3990	20	sandy lime
3990	4060	70	lime

COMPLETE DRILLER'S LOGS, TOPS, DATE OR SAMPLES.

FOLD MARK

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.: LC 064150

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

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—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER: Water Injection Well

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7. UNIT AGREEMENT NAME: Maljamar (Grayburg)

2. NAME OF OPERATOR: Chevron Oil Company

8. FARM OR LEASE NAME: Maljamar Unit

3. ADDRESS OF OPERATOR: P. O. Box 1660, Midland, Texas

9. WELL NO.: 52

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: Unit D, 660' FNL, 690' FWL, Sec 10, T-17-S, R-32-E NMPM

10. FIELD AND POOL, OR WILDCAT: Maljamar (Grayburg-SA)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 10, T-17-S, R-32-E NM

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): Not Available

12. COUNTY OR PARISH: Lea

13. STATE: New Mexico

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	X
REPAIR WELL	☐	CHANGE PLANS	☐				
(Other)				(Other)			

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

10-7-76 Dug pit and cellar. Moved in and rigged up pulling unit. Pulled out of hole. with tubing. Set CIBP at 3800'. Displaced hole with 9.5 ppg mud laden fluid.

10-8-76 Ran in hole with tubing. Set 25 sacks cement plug from 3800' to 3600'. Pulled tubing to 2550', set 30 sacks cement plug from 2550' to 2300'. Pulled out of hole with tubing. Perforated 5½" casing at 1100' with 4 shots. Pumped 130 sacks cement plug. Calculated top of cement in 5½" by 8½" annulus at 540', inside 5½" casing at 540'. Perforated 5½" and 8½" casing at 200'. Pumped 40 sacks cement plug outside 8 5/8" casing. Cement did not circulate. Well plugged and abandoned 10-8-76.

Casing will be cut of 2-3' below ground level. A 4' marker will be set Pits and cellar will be back filled. Location will be cleaned up as per Federal or State requirements.

18. I hereby certify that the foregoing is true and correct

SIGNED J. C. Ridens TITLE Drilling Assistant DATE 10-28-76

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED
JUN 21 1977
BERNARD MOROZ
ACTING DISTRICT ENGINEER

*See Instructions on Reverse Side

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TRANSPORTER	OIL	
	GAS	
OPERATOR		
PRORATION OFFICE		

NEW MEXICO OIL CONSERVATION COMMISSION

REQUEST FOR ALLOWABLE

AND

AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

MAY 1, 1970, STANDARD OIL COMPANY OF TEXAS IS CHANGING ITS OPERATING NAME TO CHEVRON OIL COMPANY.

Operator: Standard Oil Company of Texas
A Division of Chevron Oil Company

Address: 3610 Avenue S
Snyder, Texas 79549

Reason(s) for filing (Check proper box)

New Well ☐
Recompletion ☐
Change in Ownership ☐

Change in Transporter of:
Oil ☐ Dry Gas ☐
Casinghead Gas ☐ Condensate ☐

Other (Please explain)
Change of lease name and well number due to unitization.
Formerly: Iles "Y" Federal #2

If change of ownership give name and address of previous owner _____

DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease	Lease No.
Maljamar (Grayburg) Unit.	52	Maljamar (Grayburg-San Andres)	State, Federal or Fee Federal	LC 064150

Location

Unit Letter D ; 660 Feet From The North Line and 690 Feet From The West

Line of Section 10 Township 17S Range 32E , NMPM, Lea County

DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil ☒ or Condensate ☐	Address (Give address to which approved copy of this form is to be sent)
Texas New Mexico Pipeline	P.O. Box 1510, Midland, Texas
Name of Authorized Transporter of Casinghead Gas ☒ or Dry Gas ☐	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum Company	P.O. Box 6666, Odessa, Texas

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When
	WATER INJECTION WELL				~~Yes~~	

If this production is commingled with that from any other lease or pool, give commingling order number: _____

COMPLETION DATA

Designate Type of Completion – (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v.	Diff. Res'v.

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
Elevations (DF, RKB, RT, GR, etc.)	Name of Producing Formation	Top Oil/Gas Pay	Tubing Depth
Perforations			Depth Casing Shoe

TUBING, CASING, AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT

TEST DATA AND REQUEST FOR ALLOWABLE

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

OIL WELL

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil-Bbls.	Water-Bbls.	Gas-MCF

GAS WELL

Actual Prod. Test-MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method (pitot, back pr.)	Tubing Pressure (Shut-in)	Casing Pressure (Shut-in)	Choke Size

CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

E. W. McDants
(Signature)

District Engineer
(Title)

April 28, 1967
(Date)

OIL CONSERVATION COMMISSION

APPROVED _____, 19 _____

BY _____

TITLE _____

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

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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.

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-

7. Unit Agreement Name

2. Name of Operator
Chevron U.S.A. Inc.

8. Farm or Lease Name
Maljamar (Grayburg) Unit

3. Address of Operator
P. O. Box 1660, Midland, Texas 79702

9. Well No.
39

4. Location of Well
UNIT LETTER **G** , **1980** FEET FROM THE **North** LINE AND **1980** FEET FROM THE **East** LINE, SECTION **9** TOWNSHIP **17-S** RANGE **32-E** NMPM.

10. Field and Pool, or Wildcat
Maljamar (Grayburg-San And

15. Elevation *(Show whether DF, RT, GR, etc.)*
GR 4096

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 **Temporarily abandoned** ☒		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.

We request one year temporary abandonment authority for the subject well pending future evaluation. Recent workovers in producers have been encouraging and plans are to evaluate the potential of all temporarily abandoned producers, and if warranted, return them to production.

The Maljamar Unit No. 39 is safely cased and controlled and periodically checked by field personnel. No hazard will be created by deferring abandonment.

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

SIGNED W. A. Goudeau TITLE **Area Supervisor** DATE **Oct. 3, 1977**

Orig. Signed By
Jerry Sexton
Dist. I, Sup.

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

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LAND OFFICE		
OPERATOR		

Form C-105
Revised 1-1-65

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

SEP 13 8 13 AM '65

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

5. State Oil & Gas Lease No.

a. TYPE OF WELL
b. TYPE OF COMPLETION
OIL WELL ☒ GAS WELL ☐ DRY ☐ OTHER
NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER

7. Unit Agreement Name

8. Farm or Lease Name: A. C. Taylor et al

2. Name of Operator: Standard Oil Company of Texas
A Division of Chevron Oil Company

9. Well No.: 4

3. Address of Operator: 3610 Avenue S - Snyder, Texas

10. Field and Pool, or Wildcat: Maljamar Grayburg-San Andres

4. Location of Well
UNIT LETTER G LOCATED 1980 FEET FROM THE North LINE AND 1980 FEET FROM THE East LINE OF SEC. 9 TWP. 17S RGE. 32E 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
7-16-65	7-26-65	8-20-65	Gr 4096'	4094

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
4180'	4145	Single	→	Rotary	None

24. Producing Interval(s), of this completion — Top, Bottom, Name
3808-4112 Grayburg-San Andres

25. Was Directional Survey Made: No

26. Type Electric and Other Logs Run
BHC Sonic (GR) Caliper, LL, MLL, and CBL

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
8-5/8"	24	301	11"	150 sxs. to surface	None
5½"	17	4179	7-7/8"	400 sxs cement	None

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2-3/8"	4050	None

31. Perforation Record (Interval, size and number)
3808, 10, 41, 43, 45, 57, 59, 64, 70, 72, 74, 3897, 99
3908, 21, 23, 37, 39, 47, 58, 60, 62, 64, 66, 68, 70
4089, 4108, 10, 12

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
3808-4112	2100 gals mud acid
3808-4112	60,000 gals gelled wtr, 120,0 sand

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping — Size and type pump)	Well Status (Prod. or Shut-in)
8-20-65	Pumping	Producing

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Gas — Oil Ratio
8-22-65	24	-		60	170.7	14	2845

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Oil Gravity — API (Corr.)
-	100		60	170.7	14	38.2

34. Disposition of Gas (Sold, used for fuel, vented, etc.)
Sold to Phillips Petroleum Company

Test Witnessed By: W.W. Hardin

35. List of Attachments
Logs

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.

NED B. Davidson (SAM) TITLE Lead Drilling Engineer DATE September 10, 1

B. Davidson

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon		T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn		T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka		T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg	3668	T. Montoya		T. Mancos		T. McCracken	
T. San Andres	3976	T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs		T. Wingate		T.	
T. Wolfcamp		T.		T. Chinle		T.	
T. Penn.		T.		T. Permian		T.	
T Cisco (Bough C)		T.		T. Penn. "A"		T.	

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
Surface	3668	3668	Salt, red shale and anhy				
3668	3976	308	Dolomite with streaks of sand and anhy				
3976	TD	204	Dolomite with streaks sand and shale				

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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.

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- **Water Injection Well**

7. Unit Agreement Name: **Maljamar (Grayburg)**

2. Name of Operator: **Chevron Oil Company**

8. Farm or Lease Name: **Maljamar Unit**

3. Address of Operator: **P. O. Box 1660, Midland, Texas 79701**

9. Well No.: **40**

4. Location of Well: UNIT LETTER **H**, **1800** FEET FROM THE **North** LINE AND **660** FEET FROM THE **East** LINE, SECTION **9** TOWNSHIP **17-S** RANGE **32-E** NMPM.

10. Field and Pool, or Wildcat: **Maljamar (Grayburg-San Andres)**

15. Elevation *(Show whether DF, RT, GR, etc.)*: **GR-4115**

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 ☐		OTHER ☐	

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.

9-2-75 Dug pit and cellar. Moved in and rigged up pulling unit.

9-3-75 Ran in hole with tubing to 3800', displaced hole with 9.5 ppg mud laden fluid. Pumped 25 sacks cement. Pulled tubing and waited on cement. Tagged plug at 3478'. Pulled tubing to 2400'.

9-4-75 Spotted 30 sacks cement. Pulled tubing to 1000', spotted 35 sacks cement. Pulled out of hole with tubing. Perforated 4 1/2" casing 355', establish circulation. Pumped 80 sacks cement down 4 1/2" casing circulating to surface via 8 5/8" x 4 1/2" annulus leaving 4 1/2" full to surface.

9-18-75 Installed 4' marker, backfilled pit and cellar. Cleaned up location.

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

SIGNED J. W. Leonard TITLE **Senior Drilling Engineer** DATE **Sept. 23, 1975**

APPROVED BY John W. Runyan TITLE Geologist DATE FEB 2 1977

CONDITIONS OF APPROVAL, IF ANY:

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Form C-105
Revised 1-1-65

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

AUG 20 11 40 AM '65

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

5. State Oil & Gas Lease No.

a. TYPE OF WELL

b. TYPE OF COMPLETION

OIL WELL ☒ GAS WELL ☐ DRY ☐ OTHER

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

7. Unit Agreement Name

8. Farm or Lease Name: **A. C. Taylor et al**

2. Name of Operator: **Standard Oil Company of Texas**
A Division of Chevron Oil Company

9. Well No.: **3**

3. Address of Operator: **3610 Avenue S - Snyder, Texas**

10. Field and Pool, or Wildcat: **Eumont**
Grayburg-San Andres

4. Location of Well

UNIT LETTER **K** LOCATED **1800** FEET FROM THE **North** LINE AND **660** FEET FROM THE **East** LINE OF SEC. **9** TWP. **17S** RGE. **32E** 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
7-6-65	7-14-65	7-25-65	GR 4115'	4116.50

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By →	Rotary Tools	Cable Tools
4200'	4148'			Rotary	None

24. Producing Interval(s), of this completion — Top, Bottom, Name: **3842-4139 Grayburg-San Andres**

25. Was Directional Survey Made: **Yes**

26. Type Electric and Other Logs Run: **BHC Sonic/Gamma Ray/Caliper, Laterolog, Microlaterolog, Cement Bond Log**

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
8-5/8"	24	305'	11"	200 sxs. to surface	None
4½"	11.6	4200	7-7/8"	550 sxs.	

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
None				

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2-3/8	3968	

31. Perforation Record (Interval, size and number)

Perf 31 - 3/8" casing jets 3842-4139

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
3842-4139	4500 gals sandsol acid & 10 [illegible]
3842-4139	Fraced w/25,000 gals wtr and 50,000lbs sand in 3 stages.

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
8-6-65	Pumping	Producing

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Gas — Oil Ratio
8-7-65	24	None		28	51.3	22	1832

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Oil Gravity — API (Corr.)
None	None		28	51.3	22	37.4

34. Disposition of Gas (Sold, used for fuel, vented, etc.): **Sold to Phillips Petroleum Company**

Test Witnessed By

35. List of Attachments: **Log**

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.

ORIGINAL / SIGNED
B. DAVIDSON

SIGNED B. Davidson TITLE Lead Drilling Engineer DATE August 18, 1965

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. *For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required.* See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon		T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn		T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka		T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg	3703	T. Montoya		T. Mancos		T. McCracken	
T. San Andres	4002	T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs		T. Wingate		T.	
T. Wolfcamp		T.		T. Chinle		T.	
T. Penn.		T.		T. Permian		T.	
T Cisco (Bough C)		T.		T. Penn. "A"		T.	

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
Surface	3703	3703	Shale, salt, anhydrite and sand				
3703	4002	299	Dolomite, sand and shale				
4002	4200	198	Dolomite with streaks of sand.				

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NEW MEXICO OIL CONSERVATION COMMISSION

REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C
Effective 1-1-65

MAY 2 8 35 AM '67

I.

Operator: Standard Oil Company of Texas
A Division of Chevron Oil Company

Address: 3610 Avenue S
Snyder, Texas 79549

Reason(s) for filing (Check proper box)
- New Well ☐
- Recompletion ☐
- Change in Ownership ☐
- Change in Transporter of: Oil ☐ Casinghead Gas ☐ Dry Gas ☐ Condensate ☐

Other (Please explain)
Change of lease name and well number du formerly to unitization.
A. C. Taylor "B" #2

If change of ownership give name and address of previous owner _____

II. DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease	Lease No.
Maljamar (Grayburg) Unit.	33	Maljamar (Grayburg-San Andres)	State, Federal or Fee Fee	

Location
Unit Letter A ; 670 Feet From The North Line and 770 Feet From The East

Line of Section 9 Township 17S Range 32E , NMPM, Lea County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil ☒ or Condensate ☐	Address (Give address to which approved copy of this form is to be sent)
Texas New Mexico Pipeline	P.O. Box 1510, Midland, Texas
Name of Authorized Transporter of Casinghead Gas ☒ or Dry Gas ☐	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum Company	P.O. Box 6666, Odessa, Texas

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When
	J	9	17S	32E	Yes	

If this production is commingled with that from any other lease or pool, give commingling order number: CTB-166

IV. COMPLETION DATA

Designate Type of Completion – (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v.	Diff. Res'v.

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
Elevations (DF, RKB, RT, GR, etc.)	Name of Producing Formation	Top Oil/Gas Pay	Tubing Depth
Perforations			Depth Casing Shoe

TUBING, CASING, AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT

V. TEST DATA AND REQUEST FOR ALLOWABLE (Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

OIL WELL

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil-Bbls.	Water-Bbls.	Gas-MCF

GAS WELL

Actual Prod. Test-MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method (pitot, back pr.)	Tubing Pressure (Shut-in)	Casing Pressure (Shut-in)	Choke Size

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

E. W. McCants
(Signature)

District Engineer
(Title)

April 28, 1967
(Date)

OIL CONSERVATION COMMISSION

APPROVED MAY 4 1967, 19____

BY _____

TITLE _____

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

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	GAS	
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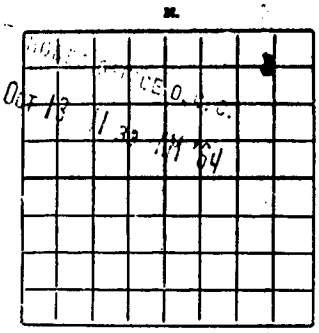


AREA 640 ACRES
LOCATE WELL CORRECTLY

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 If State Land submit 6 Copies

Leonard Nichols (Company or Operator) AGV Taylor "B" (Lease)

Well No. 2, in NE ¼ of NE ¼, of Sec. 9, T. 17, R. 32, NMPM.

Maljamar Pool, Lea County.

Well is 670 feet from North line and 770 feet from East line of Section 9. If State Land the Oil and Gas Lease No. is Fee

Drilling Commenced Sept. 19, 19 64. Drilling was Completed Sept. 20, 19 64

Name of Drilling Contractor Red Rig Drilling Co.

Address Midland, Texas

Elevation above sea level at Top of Tubing Head 4125 The information given is to be kept confidential until ....., 19.....

OIL SANDS OR ZONES

No. 1, from 3888 to 3894 No. 4, from ..... to .....

No. 2, from 3914 to 3922 No. 5, from ..... to .....

No. 3, from 3983 to 4016 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 ..... to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

CASING RECORD

SIZE	WEIGHT PER FOOT	NEW OR USED	AMOUNT	KIND OF SHOE	CUT AND PULLED FROM	PERFORATIONS	PURPOSE
8-5/8	24	New	289	Texas		3888-94	
5-1/2	14	Used	4050	Halliburton		3914-22	
						3983-87	
						3992-4016	

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	8-5/8	289	225	Halliburton		
7-1/2	5-1/2	4050	200	Halliburton		
	2-3/8	3978				

RECORD OF PRODUCTION AND STIMULATION

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

40,000 Gals. Jellied Water and 42,000 lbs sand.

Result of Production Stimulation Well pumping 40 bbls. oil and 10 bbls. water.

Depth Cleaned Out .....

RECORD OF DRILL-STEM AND S[illegible]

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 4050 feet, and from ..... feet to ..... feet.

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

PRODUCTION

Put to Producing October 8, 19 64

OIL WELL: The production during the first 24 hours was 50 barrels of liquid of which 80 % was was oil; ..... % was emulsion; 20 % water; and ..... % was sediment. A.P.I. Gravity 34.2

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	2135	T. Devonian		T. Ojo Alamo	
T. Salt	1100	T. Silurian		T. Kirtland-Fruitland	
B. Salt	2135	T. Montoya		T. Farmington	
T. Yates	2455	T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen	3265	T. Ellenburger		T. Point Lookout	
T. Grayburg	3615	T. Gr. Wash		T. Mancos	
T. San Andres	4030	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	1100	1100	Gyp and Red Bed				
1100	2135	1035	Salt				
2135	3265	1130	anhydrite				
3265	3290	25	Red Sand				
3290	3615	325	Anhydrite				
3615	3888	273	Lime				
3888	3894	6	Sandy oil and gas				
3894	3983	89	Lime				
3983	4016	33	Sandy lime, oil and gas				
4016	4050	34	Lime				

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.

Maljamar, New Mexico October 12, 1964
(Date)

Company or Operator Leonard Nichols Address P.O. Box 123, Maljamar, N.M. 88264

Name E. L. Nichols Position or Title Supt.

Attachment "D"

Plugging Procedure
Steve Carter & Son
Maljamar Brine

Attachment "D"
Steve Carter & Son Maljamar Brine
Plugging Procedure

OPERATOR: Steve Carter & Son

WELL: Maljamar Brine FIELD: Brine Well

COUNTY: Lea STATE: NM

LOCATION: 835' FNL & 630' FEL Sec 9, T-17-S, R-32-E

DATE: 5/18/85 ELEV. RKB: _____ GR: 4125 est REV: 0

****

1. Move in and rig up plugging unit. Unload work string and tally.
2. Displace hole and cavity with brine.
3. Pull tubing out of hole and run in hole with wire line bridge plug.
4. Set bridge plug at bottom of casing (1000').
5. Run in hole with tubing and set cement plug from 1000' to surface (150 Sacks).
6. Rig down, clean location, move surface equipment (tank battery, loading station, etc.) off location and return ground to original contour.

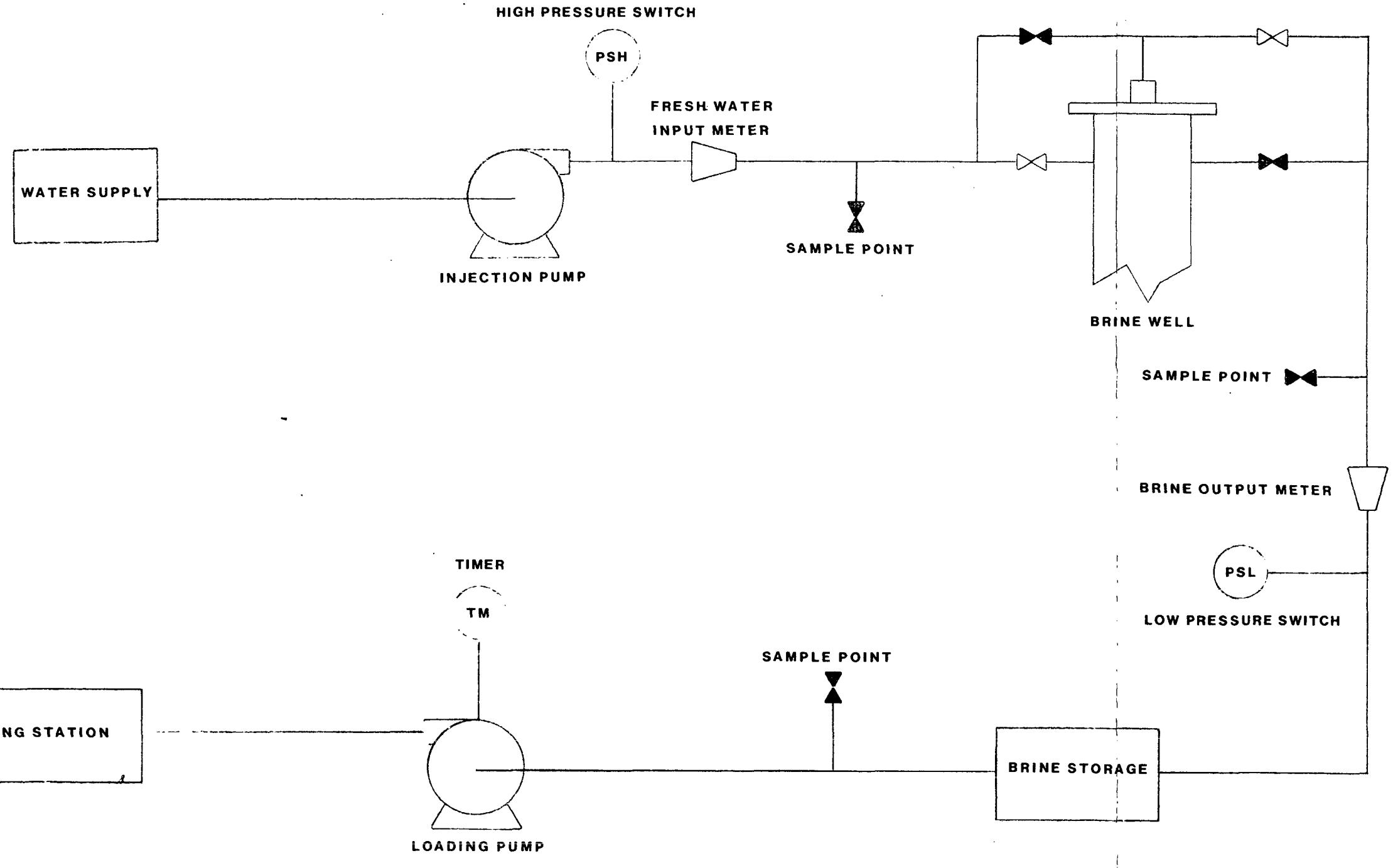
Attachment "E"

Plugging Bond

Steve Carter and Son is in the process of obtaining an approved plugging Bond for the proposed Maljamar brine well. Upon receipt of an approved bond a copy will be sent to the Environmental Improvement Division for inclusion in this discharge plan.

Drawings
Steve Carter and Son
Maljamar Brine

nre ○ phone (505) 397-6319 ○ 201 e. sanger ○ p. o. box 2188 ○ hobbs, new mexico 88240



NOTES

SCALE: NONE

REVISIONS	BY	DATE

NATURAL RESOURCES ENGINEERING INC.

Engineers/Geologists

STEVE CARTER & SON

MALJAMAR BRINE #1

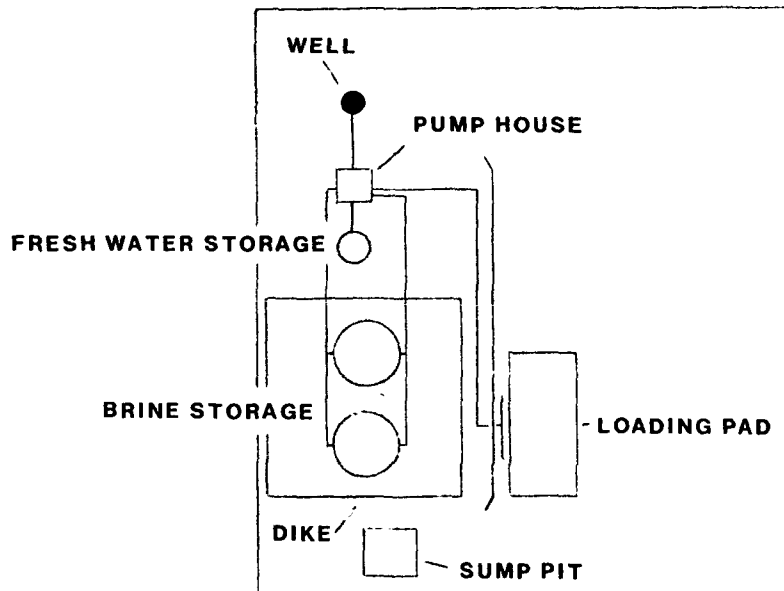
SYSTEM SCHEMATIC

DRAWN BY JTJ CHECKED JE APPROVED [illegible] DATE 4 24 85

JOB. NO. SC01-001-001

DWG. NO. DW-01

SHT 1 OF 1



N

STATE HIGHWAY #33

SCALE: 1"=60'

NOTES

REVISIONS	BY	DATE

NATURAL RESOURCES ENGINEERING INC.

Engineers/Geologists

STEVE CARTER & SON

MALJAMAR BRINE

PLOT PLAN

DRAWN BY JTJ CHECKED [illegible] APPROVED JEC DATE 9/16/85

JOB. NO. SC01-001-001

DWG. NO. DW-02

SHT 1 OF 1

Maljamar Rolf Ruffner

Someone is drilling Brine Well

*Steve Caster + Sons

392-3571

500 N. Delmont

88240 Hobbs

Women called concerned it was near her property

Page, I found this on my desk this morning

393-2333

397-1291

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

July 1, 1985

Steve Carter and Sons
PO Box 803
Hobbs, NM 88241

Dear Sirs:

I understand that your company is considering setting up a brine station in Maljamar. Please be advised that prior to operating such a facility, you must prepare and obtain approval for a discharge plan from the New Mexico Environmental Improvement Division (EID). A discharge plan is a description of how you will construct and operate your facility in such a way that ground water quality will not be threatened. An approved discharge plan is equivalent to a permit.

The EID permit review procedure is summarized in the Discharge Plan Outline and associated materials accompanying this letter. Discharge plan applications are reviewed by staff geologists and hydrologists, and are evaluated on a case-by-case basis: that is, you are required to demonstrate that your operation will not cause an exceedance of ground water quality standards (see Section 3-103 of the enclosed Water Quality Control Commission regulations), but you are not required to meet specific engineering requirements (i.e., "double-line with 30-mil Hypalon all surface impoundments containing brine").

I hope that this information is useful to you. Please contact me at the above address and telephone number, extension 206, if you need any further information.

Sincerely,

Paige Grant Morgan

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Water Resource Specialist

PGM:pgm

encls: Part V DP outline
WQCC regs

cc: Roelf Ruffner, EID Hobbs
John Guinn, EID District IV Manager

File: brine wells gen'l

INFORMATION SHEET TO ACCOMPANY IN SITU EXTRACTION WELL OUTLINE

The purpose of a discharge plan is to provide the technical staff of the regulating agency (in this case, EID) with sufficient information about your operation to demonstrate that your activities will not degrade the quality of ground water that contains less than 10,000 mg/l of total dissolved solids (TDS).

Please note that the word "discharge" covers inadvertent as well as intentional discharge - i.e., leaks and spills. It is necessary in your discharge plan to anticipate where any leaks or spills might occur, to indicate how you will guard against such accidents, and to develop a monitoring system to warn you when they have occurred.

In the event of a leak, spill, casing rupture, or any type of accidental discharge of a water contaminant (as defined in Section **1-101.BBB** of the Water Quality Control Commission (WQCC) Regulations) you are required to notify the Ground Water and Hazardous Waste Bureau of EID and take whatever measures are necessary to avoid contamination of surface water or ground water with TDS less than 10,000 mg/l. Similarly, if you plan any significant change in your operation once your discharge plan is approved, you are required to notify this agency, and have the modification approved prior to its implementation.

The following outline condenses the requirements stated in the WQCC Regulations for operations like yours, and sets up a logical sequence in which to present the information required in your discharge plan. Using this format is optional. The final reference for what must be contained in your discharge plan is the WQCC Regulations. The codes in bold type in the outline refer to Sections of the WQCC regulations, for your convenience.

As an in situ extraction well operator, you may either submit a complete discharge plan and have it approved prior to drilling or constructing an in situ extraction well; or you may submit only those portions of this outline that are underlined, by way of "Notification" to the Director of EID at least 90 days prior to beginning construction that you plan to begin construction of an in situ extraction well or well field. You must subsequently receive approval of a complete discharge plan for your facility prior to going into operation, if you take this alternative approach. The advantage of the alternative approach is that it may allow you to start up operations more quickly than if you wait for complete discharge plan approval. The disadvantage is that if you have constructed the well or wells in a fashion that is not approvable by EID, you may never receive permission to operate those wells. For this reason, if you plan to use the alternative approach, it is important to consider carefully the comments of EID technical staff on the material you submit with your Notification.

The attached flow charts summarize the two approaches to obtaining approval for an in situ extraction operation in New Mexico.

SUGGESTED OUTLINE FOR DISCHARGE PLAN SUBMITTAL:

In Situ Extraction Facilities

I. GENERAL DESCRIPTION

A. Name of facility and name and address of responsible party

B. Location: county, township, range and ¼¼¼ Section or latitude/longitude coordinates (3-106.C.2)
-indicate on USGS topo map, 7½' or 15' quad

C. Schematic or plot plan of facility
-include short verbal description of process, including transportation elements (e.g., loading trucks), and
-quantity, quality, and flow characteristics of the discharge (3-101.C.1)

D. Operational history of injection and production at facility (5-203.C.4)
-include dates of well construction and beginning of injection

II. DESCRIPTION OF FACILITY

A. Surface Facilities

1. Dimension of storage and/or disposal pond(s)/tank(s)
-include side slope angle for pond(s)

2. Length and type of pipe(s) carrying fluids to/from well(s) to/from pond(s)/tank(s)

3. Average daily discharge to and, if applicable, withdrawal from pond(s)/tank(s) (3-106.C.1)

4. Type of pond liner, if any
-include manufacturer's specs, technique used to seal seams

B. Underground Facilities

1. Depth, diameter, production and protection casing and tubing specs of well(s)
-include schematic drawings (5-102.B.1.d.8.; 5-210.B.13; 5-205.A.3.d.)

2. Construction procedures, including cementing and casing program, logging procedures, deviation checks and a drilling, testing and coring program (5-102.B.1.d.9.; 5-210.B.14; 5-204.B.2.b; 5-205.A.3.d,e). Include logs and results of tests for all new and worked-over wells (5-205.A.4).

3. Stimulation program (5-102.B.1.d.6.; 5-210.B.11). Note: 5-206 limitations.

4. Maximum and average injection pressures, injection volume, and other injection procedures (5-102.B.1.d.7.; 5-210.B.12; 5-203.B.1; 5-205.A.3.b,f).

5. Notification prior to drilling, casing etc. (5-205.A.5).

6. The proposed formation testing program to obtain an analysis or description, whichever the Director requires, of the chemical, physical and radiological characteristics of, and other information on, the receiving formation (5-102.B.1.d.5)

III. SITE CHARACTERISTICS

A. Soils (This section need only be submitted if unlined surface impoundments are proposed or in use. Additional ground water monitoring may be required for facilities using unlined surface impoundments. If impoundments do not adequately protect ground water, they will not be approved for use.)

1. Texture class

2. Soil Conservation Service (SCS) assessment of capability/limitations

3. Percolation test

B. Geology (5-203.C.3)

1. Stratigraphic section (drilling log) of well(s) on the site, indicating depth, thickness and chemical characteristics of water-bearing strata 3-106.C.3,6; 5-205.A.3.j). Also give the lithology, stratigraphy, and fracture pressure of the receiving formation and confining zones (5-205.A.3.i).

2. Maps and cross-sections detailing the geology and geologic structures of the local area, including faults (known or suspected) (5-102.B.1.d.4.; 5-210.B.6 & 7). Are the faults known to be conduits or barriers to ground water flow?

3. Depth to and lithologic description of rock at base of alluvium below the discharge site, if such information is available (3-106.C.6)

C. Hydrology **(5-203.C.3)**

1. Maps and cross-sections indicating the general vertical and lateral limits of all ground water having 10,000 mg/l or less TDS within one mile of the site, the position of such ground water within this area relative to the injection formation, and the direction of water movement, where known, in each zone of ground water which may be affected by the proposed injection operation **(5-102.B.1.d.3.; 5-210.B.5)**.

2. A map showing the injection well(s) which are to be constructed and the number, name, and location of all producing wells (water and other), injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines, quarries, residences and roads, and any other pertinent surface features that are within the area of review of the well or well field **(5-102.B.1.d.2.; 5-202.B.3; 5-210.B.2.)** See 5-202 for definition of area of review.

3. Flooding potential of the site **(3-106.C.4)**.

4. Depth to and quality of ground water most likely to be affected by spills/leaks **(3-106.C.3)**. Analysis should include sodium (Na^+), potassium (K^+), calcium (Ca^{++}), magnesium (Mg^{++}), bicarbonate (HCO_3^-), carbonate ($CO_3^=$), chloride (Cl^-), sulfate ($SO_4^=$), nitrate (NO_3^-) as nitrogen, and TDS. Other constituents may be required by EID on a case-by-case basis.

5. Analysis or description of water used for injection (if different from III.C.4, above) **(3-106.C.1; 5-203.C.1)**. Include density, corrosiveness and temperature **(5-205.A.3.g)**, as well as above constituents (and such others as may be required by EID). Analyses are to be submitted at least quarterly **(5-207.C.1)**, unless the source is such that a change in makeup is very unlikely (e.g. a city water system).

6. Chemical analysis or description of discharge to the surface (if facility is presently in operation) **(3-106.C.1)**. Analysis should include those constituents indicated in III.C.4 (and such others as may be required by EID). Once in operation, reports to be submitted quarterly **(5-207.C.1)**.

IV. PROCEDURES TO PROTECT GROUND WATER QUALITY

A. During Operation

1. Identify those abandoned wells/shafts or other conduits in the area of review which penetrate the injection zone and which, through being improperly sealed, completed or abandoned, provide a

[illegible] for [illegible] of contaminants. Detail what corrective action (e.g. plugging open holes) will be taken to prevent any movement of contaminants into ground water of less than/equal to 10,000 mg/l TDS through such conduits due to the proposed injection activity (5-203.A, B.1). Include completion and plugging records of such wells/shafts (5-203.C.5.).

2. In the event that operations have begun before information comes to light regarding such a conduit that will require plugging, injection pressure will be required to be limited to avoid movement of contaminants through such a conduit into protected ground water (5-203.B.2).

3. Mechanical integrity testing, such as:

   a. pressure test prior to start of operation (5-204.B.1.a).

   b. monitoring of annulus pressure (5-204.B.1.b; 5-201.C.)

4. Means and locations for measuring inflow to and outflow from the pond(s)/tank(s). (Locations may be indicated on the plot plan required under 1.C) (3-105.C.2, 5).

5. Compare volumes of fresh water injected to volume of fluid extracted to detect underground losses (3-107.A.1). May be done by recording injection pressure and either flow rate or volume every two weeks, or by metering and daily recording of fluid volumes (5-107.C.2).

6. Location and design of site(s) and method(s) for sampling for quality of fresh water and discharge fluids at facility (3-106.C.5).

7. Leak detection system under pond(s): drains, lysimeters, other? (3-107.A.1,3,9).

8. Monitoring to detect any deterioration of ground water quality in area; do you have access to water well(s) within 100 feet downgradient from the facility and perforated in the zone most likely to be affected by discharges from your facility, in order to detect variation in quality? If not, you need to put in [illegible] wells (3-107.A.2,9; 5-205.C); [illegible] quality reports (5-107.C.2.b,c). Also, identify wells in the area for which the potential contamination from your brine [illegible] is very low, which can serve to indicate "background" levels of water quality parameters in the area.

9. How will spillage/leakage be prevented during truck loading or at transfer points within the facility?

10. Contingency plans (3-107.A.12) in the event of:

    a. leak/spill from surface facilities;

    b. loss of mechanical integrity of injection/production well. How will ground water be protected from contamination or treated if contamination has occurred (1-203.3.4)?

11. If there is a leak, spill or other unanticipated discharge of a significant amount of water contaminants on the surface or underground at your facility, will you commit to notifying the OCD Ground Water Section within 48 hours (3-107.A.1., 5-203.B.1)?

B. Further operational requirements required prior to plan approval

1. Plugging and abandonment

    a. Plug and cap wells. Procedure must conform to that specified in 5-209, and be approved in advance.

    b. Demonstrate financial ability (5-110.B.17) to:

        i. plug well and clean site for proper abandonment;

        ii. restore projected ground water if contaminated by your operations; and

        iii. undertake measures necessary to prevent contamination of groundwater having 10,000 mg/l or less TDS, after cessation of operations.

2. Pond closure

    a. Remove liner, if any, from pit (3-107.A)

    b. Restore area to original contours or take other appropriate measures to prevent post-operational contamination (3-107.A.11).

V. CERTIFICATION

The responsible official must certify as follows:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (5-110.A.2).

[illegible] S FOR IN [illegible] WELLS [illegible]

Notify the Director of the EID in writing that you are planning to begin construction of an in situ extraction well. Submit the materials that are [illegible]lined in the attached outline.

↓

Branch 1: ≤ 30 days → EID will publish public notice of the planned operation. → [illegible]-day period for public comment → Public hearing if sufficient interest.

Branch 2: ≥ 90 days →

Branch 3: ≤ 30 days → EID will notify discharger whether proof of financial responsibility is adequate →

Branch 4: ≤ 60 days → EID will provide co[illegible] to you on partial discharge plan regarding shortcomings of the plan.

↓

Notify EID of beginning construction IF proof of financial responsibility has been approved.

↓

Construct well/complete well. Notify EID within 30 days of well construction.

↓

Report to EID that well was completed according to plans. Send EID as-built specifications as well as reports of various tests performed. Complete all [illegible] of discharge plan listed in attached outline.

↓

Branch 1: ≤ 30 days → [illegible] will [illegible] public notice [illegible] discharge plan. → [illegible] day period for public comment → Public hearing if sufficient interest

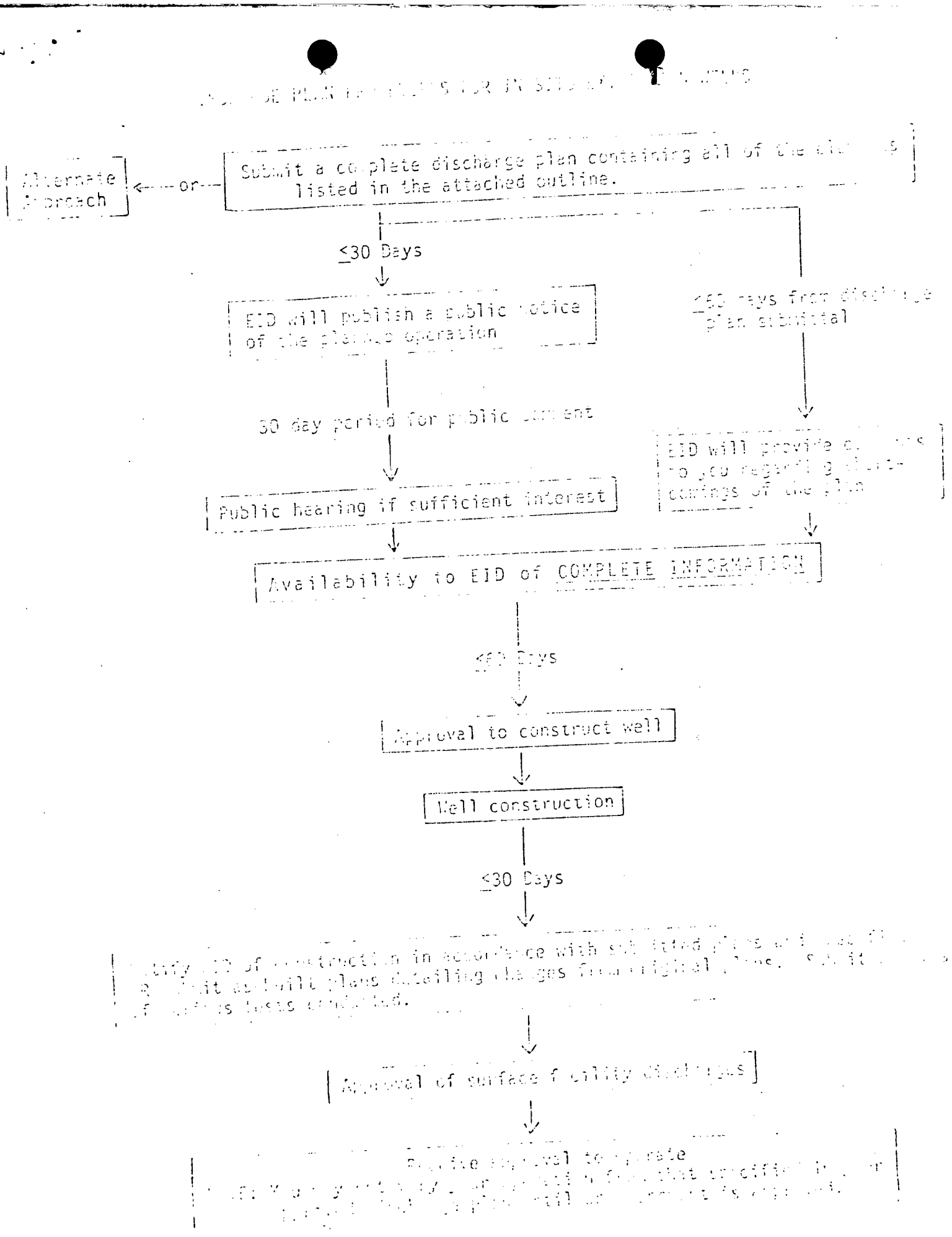
Branch 2: ≤ 60 days → EID will provide [illegible] regarding shortcomings of [illegible] plan.

↓

Availability to EID of COMPLETE [illegible]

↓

Receive [illegible] of discharge plan for surface [illegible] and well/s. [illegible]: You may not vary your [illegible] from that [illegible] approved discharge plan until [illegible] is approved.


Submit a complete discharge plan containing all of the items listed in the attached outline.
or
Alternate approach
≤30 Days
EID will publish a public notice of the pit/sump operation
30 day period for public comment
Public hearing if sufficient interest
≤60 days from discharge plan submittal
EID will provide comments to you regarding shortcomings of the plan
Availability to EID of COMPLETE INFORMATION
≤60 Days
Approval to construct well
Well construction
≤30 Days
Approval of surface facility discharges

11-6-91 Carter & San Majanar

Oil around tanks. Note one tank is open - ie. not storing anything

K. Brown

11-6-91

Carter & San Mayamar

Oil all around tank on ground.
Valve in background appears to
have been used recently.

K Brown

Carter & Son - Majamar
11-6-91
Abandoned Site

Oil-residue in pit at back of abandoned facility.

K. Brown

11-6-91

Carter & Son Mayamar [illegible]

Oil spilled on ground around tank at abandoned (?) brine facility.

K. Brown