Charles B. Gillespie, Jr.
Oil Producer-Investor
P. O. Box Eight
Midland, Texas 79702
(915) 683-1765

October 9, 1989

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. David Catanach

Re: Request for Administrative Approval
Form C-108, Application for Authorization to Inject
The Pan American Petroleum Corporation
Poker Lake Unit Well No. 36
Section 28-T24S-R31E,
Eddy County, New Mexico

Dear Mr. Catanach:

Enclosed herewith, in duplicate, is the application of Charles B. Gillespie, Jr. for authority to convert to water disposal the Pan American Petroleum Corporation Poker Lake Unit Well No. 36, a plugged and abandoned well located 660 feet from the South line and 660 feet from the East line of Section 28, Township 24 South, Range 31 East, Eddy County, New Mexico.

Water to be disposed of will consist of produced Cherry Canyon formation water from the Charles B. Gillespie, Jr. producing wells in the Poker Lake South, Delaware Field located in the same Section as the proposed disposal well.

Application is made pursuant to Rule 701 D of the Division Rules and Regulations for administrative approval for disposal into the Bell Canyon and the Upper Cherry Canyon, formations older than Triassic which are non-productive of oil or gas within a radius of two miles from the proposed injection well.

Publication of Gillespie's intent to utilize the subject well for water disposal has been made in the Carlsbad Current Argus and copies of this application have been furnished to the surface owner, surface leasee and to each lease hold operator within one half mile of the well.

Your approval of the referenced application at the expiration of the required 15 day waiting period is respectfully requested.

Very truly yours,

William R. Crow

William R. Crow
Exploration Manager

cc: Attached Mailing List

Enclosures

WRC/vjc

Mailing List

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501
Attn: Mr. David Catanach

Oil Conservation Division
Drawer DD
811 South First Street
Artesia, New Mexico 88210
Attn: Mr. Mike Williams

Bureau of Land Management
P. O. Box 1778
Carlsbad, New Mexico 88220
Attn: Ms. Cecelia Johnson

JR Engineering & Construction Company
P. O. Box 12237
Odessa, Texas 79768
Attn: Mr. Jimmy Ray Richardson

Bass Enterprises Production Company
First City Bank Tower
201 Main Street
Fort Worth, Texas 76102
Attn: Mr. Louis W. Wilpitz

Pauley Petroleum, Inc.
P. O. Box 2208
Roswell, New Mexico 88202
Attn: Mr. Gene Wentworth

Amoco Production Company
P. O. Box 3092
Houston, Texas 77253
Attn: Mr. V. P. Whitfield

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: Charles B. Gillespie, Jr.

Address: P. O. Box 8 Midland, Texas 79702

Contact party: Mr. David W. Hastings Phone: (915) 683-1765

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: David W. Hastings Title Production Manager

Signature: David W. Hastings Date: 10/9/89

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

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

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

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

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

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

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

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

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION FOR ADMINISTRATIVE APPROVAL

CHARLES B. GILLESPIE, JR.

FOR WATER DISPOSAL

the

PAN AMERICAN PETROLEUM CORPORATION POKER LAKE UNIT NO. 36

Located 660' FSL & 660' FEL Sec. 28-T24S-R31E

Eddy County, New Mexico

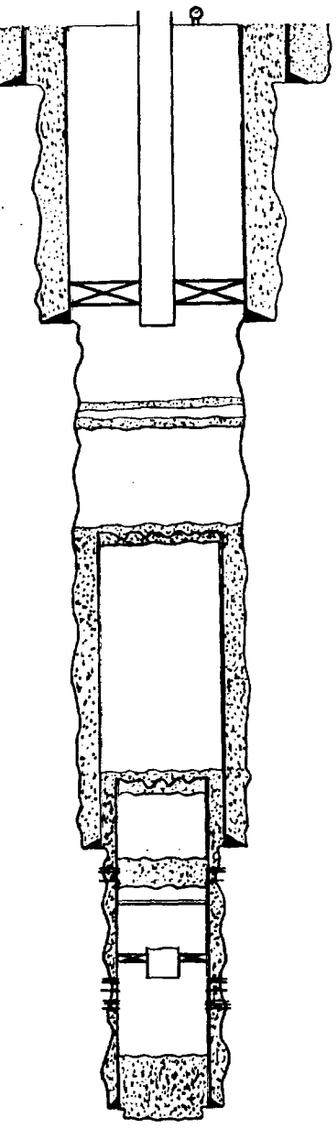
T A B L E O F C O N T E N T S

INJECTION WELL DATA SHEET

Pan American Petroleum Corporation Poker Lake Unit
Operator Lease

36	660' FSL & 660' FEL	28	24S	31E
Well No.	Footage Location	Section	Township	Range

Schematic



Tabular Data

Surface Casing

Size 20 " Setting depth 875 ' Cemented with 1300 sx.
TOC Surface determined by cmt. circ. Hole size 26 "

Intermediate Casing

Size 13 3/8 " Setting depth 4513 ' Cemented with 4050 sx.
TOC Surface determined by cmt. circ. Hole size 17 1/2 "

Long String

Size 9 5/8 " Setting depth 12,551 ' Cemented with 2300 sx.
TOC 8400 ' determined by calc. Hole size 12 1/4 "

Liner

Size 7 " Setting depth 16,526 ' Cemented with 1150 sx.
TOC 12,400 ' determined by calc. Hole size 8 3/4 "

Open hole 16,526-16,660 ' Hole size 5 7/8 "

Total depth 16,660 '

For more detailed information on the subject well, see Attachment C-108 VI (a) 1;

For more detailed schematic drawing of present condition of the subject well, see Attachment C-108 VI (b) 1.

Tubing size 2 7/8 " lined with fiberglass (material) set in a Baker lok-set (brand and model)
packer at 4500 ' (or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Bell Canyon & Upper Cherry Canyon
   Name of Field or Pool (if applicable) Poker Lake South - Delaware

2. Injection interval 4513 ' to 5700 ' open hole.
   (perforated or open-hole, indicate which)

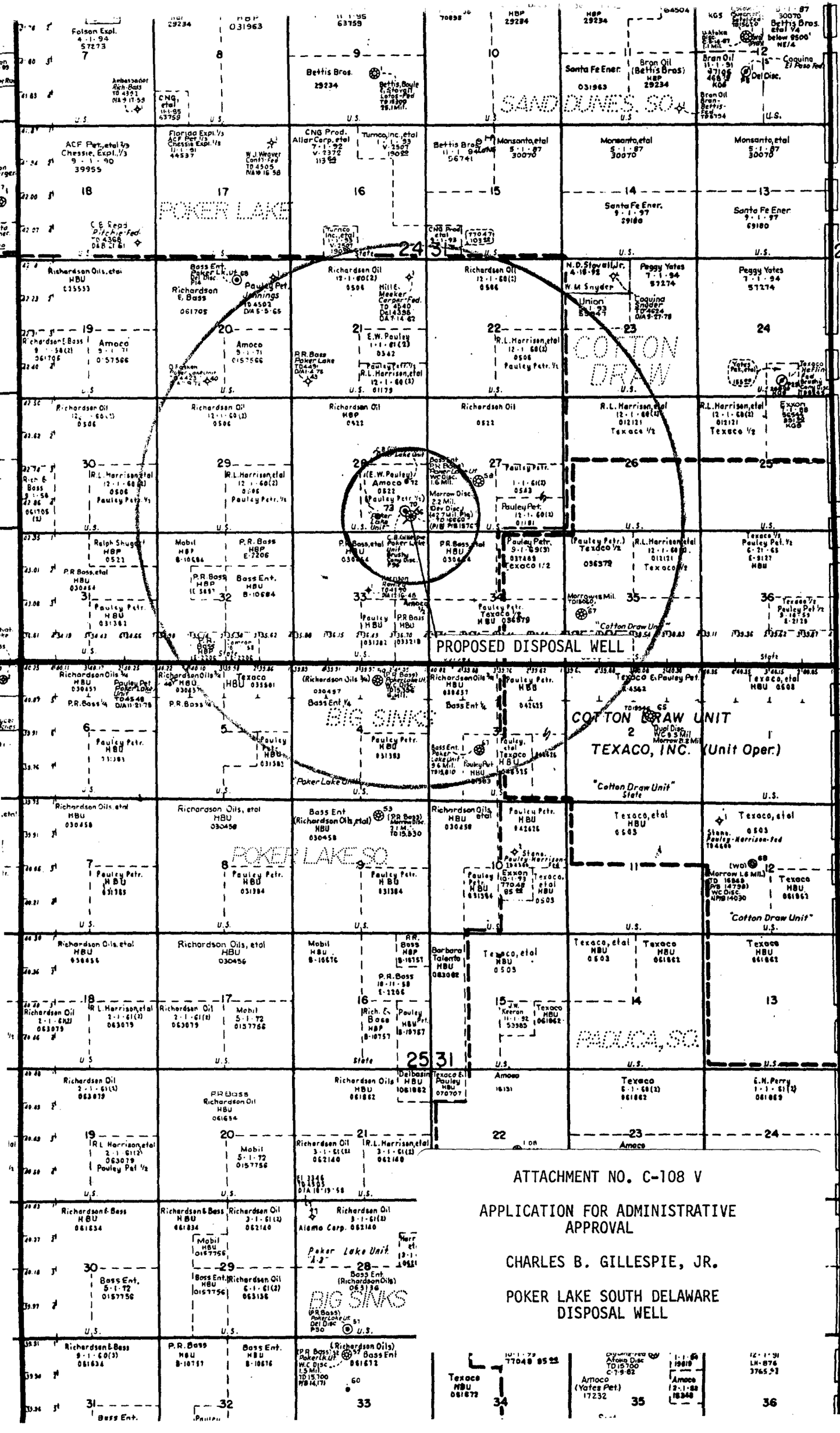
3. Is this a new well drilled for injection? __ Yes X No
   If no, for what purpose was the well originally drilled? Oil and gas production

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used). Open hole completion in the Devonian 16,526-16,660'. Squeezed open hole w/200 sx. cmt. PBTD 15,767'. Recompleted in the Morrow 14,590-15,010'. CIBP set @ 13,400'. Attempt

5. Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any. No overlying production in the area. Nearest underlying production is @ 5810' in the Cherry Canyon formation or the Poker Lake South - Delaware Pool.

Attachment C-108 III

4. (cont.) recompletion in the Wolfcamp 12,843-13,061'. 100 sx. cmt. plug set @ 12,710-13,170'. Shot and pulled 7" csg. liner @ 11,470', spot 100 sx. cmt. plug in and out of csg. stub. Shot and pulled 9 5/8" csg. @ 7730', spot 50 sx. cmt. plug in and out of csg. stub. 100 sx. cmt. plug set @ 6000-6100', 100 sx. cmt. plug set @ 4460-4560' and 10 sx. cmt. plug set @ surface.

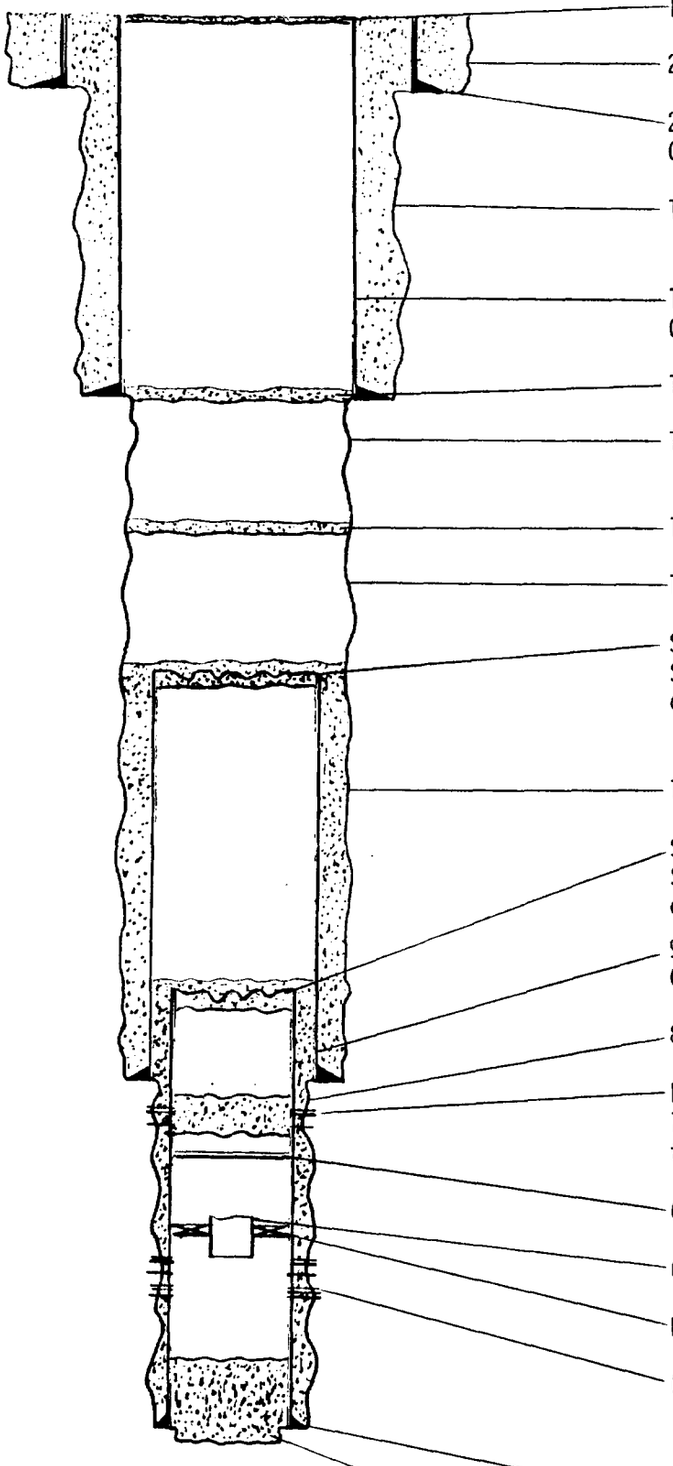

SAND DUNES SO.
POKER LAKE
COTTON DRAW
PROPOSED DISPOSAL WELL
BIG SINKS
COTTON DRAW UNIT
2
TEXACO, INC. (Unit Oper.)
"Cotton Draw Unit"
State
Poker Lake Unit
POKER LAKE SO.
PARDUCA SO.
ATTACHMENT NO. C-108 V
APPLICATION FOR ADMINISTRATIVE APPROVAL
CHARLES B. GILLESPIE, JR.
POKER LAKE SOUTH DELAWARE DISPOSAL WELL

OPERATOR, LEASE NAME AND WELL NUMBER	LOCATION	CASING AND CEMENT				PERFORATIONS	POTENTIAL	TOTAL DEPTH AND CURRENT STATUS
		SURFACE	INTERMEDIATE	PRODUCTION	LINER			
Pan American Petroleum Corporation Poker Lake Unit No. 36	660' FSL & 660' FEL 28-24S-31E, Unit P	20" @ 875' w/1300 sx. cement cmt. circ.	13 3/8" @ 4513' w/4050 sx. cement cmt. circ.	9 5/8" @ 12,551' w/2300 sx. cement Calc. TOC @ 8400'	7" 12,320-16,526' w/1150 sx. cement Calc. TOC @ 12,400'	16,526-16,660' Open Hole 14,590-14,650' 14,950-53', 14,969-71' 14,988-15,010' 14,740-55', 14,910-25' 14,940-44'. 12,843-49', 12,850-58', 12,860-62', 12,866-71', 12,876-79', 12,885-92', 12,900-08', 12,926-33', 12,935-40', 13,055-61'.	Flowed 42,000 MCFGPD 2-28-67 CAOF 2400 MCFGPD 6-14-67 No shows Slight show of gas Plugged and Abandoned 2-05-68	Proposed Disposal Well TD 16,660', Now P & A; See Attachment (b) 1.
Charles B. Gillespie, Jr. Poker Lake Unit No. 70	810' FSL & 810' FEL 28-24S-31E, Unit P	13 3/8" @ 600' w/700 sx. cement cmt. circ.	8 5/8" @ 4325' w/4325 sx. cement cmt. circ.	5 1/2" @ 7006' w/735 sx. + Squeezed 600 sx. cement TOC @ 4200'.	N/A	6738-40', 6742-45', 6747-50', 6752-55'. 6004-32'	Pumped 96 BOPD + 86.4 MCFGPD + 192 BW 2/06/89 Pumped 88 BOPD + 20 MCFGPD + 132 BW 4-12-89	TD 7238', PBTD 6060' Currently producing 65 BOPD + 135 BW.
Charles B. Gillespie, Jr. Poker Lake Unit No. 72	1980' FSL & 810' FEL 28-24S-31E, Unit I	8 5/8" @ 600' w/400 sx. cement cmt. circ.	NONE	5 1/2" @ 6850' w/1000 sx. cement TOC @ 4500'.	N/A	5832-68'	Pumped 69 BOPD + 18 MCFGPD + 140 BW 9-06-89	TD 6850', PBTD 5957' Currently producing 40 BOPD + 150 BW.

ATTACHMENT NO. C-108 VI (a)

PROPOSED DISPOSAL WELL

Pan American Petroleum Corporation
Poker Lake Unit No. 36
660' FSL & 660' FEL
Section 28-T24S-R31E
Eddy County, New Mexico



10 sx. cmt. plug @ surface with marker.

26" hole.

20" csg. set @ 875' w/1300 sx. cmt.
Cmt. circ. to surface.

17 1/2" hole.

13 3/8" csg. set @ 4513' w/4050 sx. cmt.
Cmt. circ. to surface.

100 sx. cmt. plug set @ 4460-4560'.

12 1/4" open hole.

100 sx. cmt. plug set @ 6000-6100'.

12 1/4" open hole.

Shot and pulled 9 5/8" csg. @ 7730'.
Spotted 50 sx. cmt. plug in and out of
csg. stub.

12 1/4" hole.

Shot and pulled 7" csg. liner @ 11,470'.
Spotted 100 sx. cmt. plug in and out of
csg. stub.

9 5/8" csg. set @ 12,551' w/2300 sx. cmt.
Calc. TOC @ 8400'.

8 3/4" hole.

Perforations 12,843'-13,061'.
100 sx. cmt. plug set @ 12,710-13,170'
to cover perfs.

CIBP set @ 13,400'.

Cut and pulled 2 1/2" tbg. @ 14,182'.

Baker Model "D" Packer @ 14,300'.

Perforations 14,590-650', 14,740-755',
14,910-944', 14,950-971',
14,988-15,010'.

TD 16,660'

7" csg. liner set from 12,320-16,526'
w/1150 sx. cmt. Calc. TOC @ 12,400'.

5 7/8" open hole from 16,526-16,660'.
Squeezed open hole w/200 sx. cmt. PBTD 15,767'.

Completed as producing gas well 2-28-67.
Recompleted as producing gas well 6-14-67.
P & A 2-5-68.

ATTACHMENT C-108 VI (b)

DATA SHEET
(Section VII, Form C-108)

1. Proposed Rates of Injection

   A. Average daily rate of injection: 300

   B. Maximum daily rate of injection: 650

2. Type of System

   System will be closed.

3. Anticipated Injection Pressures

   It is anticipated that injection will be accomplished by 300 to 500 psi surface pressure. However, should an increase in surface pressure be necessary to inject, such pressures would not exceed 0.2 psi per foot of depth to the top of the injection zone at 4513 feet, or 903 psi.

4. Source of Injection Water

   Source of the disposal water is production formation water from the Charles B. Gillespie, Jr. wells in Section 28, T-24-S, R-31-E. All producing from the Cherry Canyon Formation. See Attachment VII (b) for analysis of disposal water.

5. Disposal Zone Water Analysis

   Disposal is to be into a zone not productive of oil or gas at or within one mile of the proposed well, and an analysis of the disposal zone water is therefore attached hereto as Attachment VII (c).

Champion Chemicals, Inc.

P.O.BOX 2187
HOBBS, N.M. 88240

PHONE: (505) 393-7726

W A T E R A N A L Y S I S R E P O R T

Report for: ALBERT HOBBS
cc: DAVID HASTINGS
cc:
cc:
Company: CHARLES GILLESPIE
Address:
Service Engineer: KEN BEAN

Date sampled: 6-29-89
Date reported: 7-3-89
Lease or well # : POKER LAKE #70
County: State:
Formation:
Depth:
Submitted by: KEN BEAN

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	183000	5162
Iron (Fe) (total)	11.0	
Total hardness	102000	
Calcium (Ca)	30476	1521
Magnesium (Mg)	6318	507
Bicarbonates (HCO3)	36	1
Carbonates (CO3)	n/a	
Sulfates (SO4)	74	2
Hydrogen sulfide (H2S)	0	
Carbon dioxide (CO2)	526	
Sodium (Na)	72136	3136
Total dissolved solids	292040	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.208
Density (#/gal.)	10.067
pH	5.900
IONIC STRENGTH	6.18
RESISTIVITY	0.055 @80.1F

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

SI @ 86 F = +1.16
104 F = +1.39
122 F = +1.65
140 F = +1.94
158 F = +2.26

This water is 763 mg/l (-88.00%) under ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 867 mg/L PRESENT= 104 mg/L

REPORTED BY RANDOLPH SCOTT

CHEMIST

P.O.BOX 2187
HOBBS, N.M. 88240

Champion Chemicals, Inc. PHONE: (505) 393-7726

WATER ANALYSIS REPORT

Report for: ALBERT HOBBS
cc: DAVID HASTINGS
cc:
cc:
Company: CHARLES B. GILLESPIE
Address:
Service Engineer: OWEN ROBERTS

Date sampled: 9-11-89
Date reported: 9-21-89
Lease or well # : POKER LAKE #72
County: State:
Formation:
Depth:
Submitted by: OWEN ROBERTS

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	168000	4739
Iron (Fe) (total)	22.0	
Total hardness	95000	
Calcium (Ca)	31879	1591
Magnesium (Mg)	3766	302
Bicarbonates (HCO3)	244	4
Carbonates (CO3)	n/a	
Sulfates (SO4)	234	5
Hydrogen sulfide (H2S)	68	
Carbon dioxide (CO2)	1317	
Sodium (Na)	65659	2855
Total dissolved solids	269784	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.192
Density (#/gal.)	9.934
pH	5.850
IONIC STRENGTH	5.70

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

SI @ 86 F = +1.64
104 F = +1.87
122 F = +2.13
140 F = +2.42
158 F = +2.74

This water is 455 mg/l (-57.81%) under ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 787 mg/L PRESENT= 332 mg/L

REPORTED BY RANDOLPH SCOTT

CHEMIST

WF
cc in 806 FF

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. 108791

TO: Mr. Keith Bucy
P.O. Box 2760, Midland, Texas

SAMPLE RECEIVED 10-12-87
RESULTS REPORTED 10-14-87

COMPANY Bass Enterprises Production Co. LEASE Poker Lake Unit #68
FIELD OR POOL 760' FNL & 2,080' FEL Wildcat
SECTION 20 BLOCK ____ SURVEY T-24-S & R-31E COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Recovered water - taken from Poker Lake Unit #68 (before acid). 10-6-87

NO. 2 Recovered water - taken from Poker Lake Unit #68 (sample #3 after acid). 10-11-87

NO. 3

NO. 4

REMARKS: Delaware

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.1270	1.1280		
pH When Sampled				
pH When Received	6.58	6.60		
Bicarbonate as HCO_3	77	610		
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	36,000	42,500		
Calcium as Ca	11,100	12,800		
Magnesium as Mg	2,005	2,552		
Sodium and/or Potassium	56,862	57,278		
Sulfate as SO_4	320	279		
Chloride as Cl	112,920	117,892		
Iron as Fe	79.2	237		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	183,284	191,410		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	0.061	0.059		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Thiocyanate, as NH_4SCN	6.9	0.4		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: In comparing the above with our records in the general area, we show decided implication that both of the waters recovered herein have at least a very significant amount of natural Delaware water involved. Due to the fluctuations in the levels of salts shown in our Delaware records in the area, we cannot be confident as to how much Delaware is involved. Depending on the records with which these are compared, we would conclude that it could be anywhere from slightly more than one-half to nearly all natural Delaware.

Form No. 3

By _____
Waylan C. Martin, M.A.

cc: Mr. Al Gallas, Kermit

ATTACHMENT C-108 VII (c)

GEOLOGICAL DATA
(Section VIII, Form C-108)

Disposal is proposed by injection into the Bell Canyon and the upper Cherry Canyon formations of the Delaware Mountain Group in the open hole interval from 4513 feet to approximately 5700 feet in the Pan American Petroleum Corporation Poker Lake Unit No. 36 Well, located 660 feet from the South line and 660 feet from the East line of Section 28, Township 24 South, Range 31 East, Eddy County, New Mexico.

The Bell Canyon and the Cherry Canyon formations in this well, as well as throughout the general area, are a sandstone section of Guadalupian Age underlying the Lamar Limestone and overlying the Brushy Canyon formation. The top of the Bell Canyon formation in the proposed disposal well occurs at 4386 feet, while the base of the formation is found at 5286 feet, for an overall thickness of 900 feet. The Cherry Canyon formation continues from 5286 feet down to a depth of 6564 feet, for an overall thickness of 1278 feet. The Bell Canyon and the Cherry Canyon formations are productive of oil and gas throughout many areas of Southeast New Mexico, and although porosity and permeability in the subject well are good, the formations are not productive of oil or gas from the suggested open hole interval within a two-mile radius of the proposed injection well.

Fresh water may be found in the Triassic Redbeds in the vicinity of the proposed injection well. This ground water is usually found at a depth between 475 feet and 655 feet, and all oil or gas wells drilled in the area have surface casing set and cemented to a depth of at least 600 feet in the top of the Rustler Anhydrite.

There are no other known fresh water sands overlying the proposed disposal zone and there are no known fresh water sands underlying the disposal zone anywhere in the vicinity.

STIMULATION PROGRAM
(Section IX, Form C-108)

The proposed injection well was originally drilled in 1966 as a wildcat to test the Devonian formation. 20" surface casing was set at 875 feet and cement circulated to the surface. 13 3/8" intermediate casing was set at 4513 feet and cement circulated to the surface. A long string of 9 5/8" casing was set at 12,551 feet and cemented with 2300 sacks of cement. The top of the cement was not reported but it is estimated that the cement came back to at least 8400 feet. A 7" casing liner was hung from 12,320 feet and set at 16,526 feet by cementing with 1150 sacks of cement. The top of the cement was not reported but it is estimated that the cement came back to at least 12,400 feet. The well was drilled out and completed with a 5 7/8" open hole from 16,526 feet down to a total depth of 16,660 feet.

When the well was plugged back to the Morrow formation in 1967, the 5 7/8" open hole section was squeezed with 200 sacks of cement to a plugged back total depth of 15,767 feet. The Morrow was abandoned shortly thereafter in 1968 and a cast iron bridge plug was set at 13,400 feet. After a recompletion attempt in the Wolfcamp failed, a 100 sack cement plug was set from 12,710 feet to 13,170 feet to cover the perforations. The 7" casing liner was reported to be shot and pulled from 11,470 feet and a 100 sack cement plug was spotted in and out of the casing stub. The 9 5/8" casing was shot and pulled from 7730 feet and a 50 sack cement plug was spotted in and out of the casing stub. A 100 sack cement plug was set inside the 12 1/4" open hole, from 6000 feet to 6100 feet. It is proposed to re-enter the well and clean it out to the top of the cement plug at 6000 feet. An additional plug will be set from 5700 feet to 5800 feet in order to protect a potentially productive sand at 5810 feet. The open hole in-

terval from 4513 feet to 5700 feet will be used as the disposal zone.

Treatment of the aforesaid open hole interval will consist of 10,000 gallons of 10% NEFE acid.

LOGGING AND TEST DATA
(Section X, Form C-108)

The proposed injection well was originally drilled and completed as a Devonian gas discovery in 1967 but was never assigned a designated pool name. The well was recompleted later that same year as a Morrow gas discovery.

Inasmuch as the Delaware Mountain Group was not a zone of interest during the drilling of the well, no tests were made in the Delaware. All testing was reserved for the Lower Bone Spring, Morrow and Devonian sections and successful completions were made in the latter two.

No testing of the Bell Canyon or Cherry Canyon formations as to their suitability as disposal zones has as yet been conducted on the subject well, pending approval of this application.

The Schlumberger Gamma Ray - Borehole Compensated Sonic Log run on the subject well October 18, 1966 is included here, from the surface down to a depth of 6150 feet, as Attachment b to this Data Sheet with the proposed disposal interval marked in red thereon.

SCHLUMBERGER — SONIC LOG - GAMMA RAY

WELL POKER LAKE UNIT #36
COMPANY PAN AMERICAN PETROLEUM CORP.

COMPANY PAN AMERICAN PETROLEUM CORPORATION

WELL POKER LAKE UNIT #36

FIELD WILDCAT

COUNTY EDDY STATE NEW MEXICO

LOCATION 660' FROM S/L
660' FROM E/L

Sec. 28 Twp. 24S Rge. 31E

Other Services: ITL

Permanent Datum: GL, Elev. 3479 (3473)
Log Measured From KB, 23 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: KB 3502
DF
GL 3479

RICHARDSON'S SAGE GEOLOGICAL FILE COPY

Date	10-18-66	1-15-67	1-30-67	
Run No.	ONE	TWO	THREE	
Depth—Driller	12557	16 361	16660	
Depth—Logger	12552	16 351	16660	
Btm. Log Interval	12544	16 342	16651	
Top Log Interval	0	12544	16342	
Casing—Driller	13 3/8 @ 4500	9 5/8 @ 12559	7" @ 16526	@
Casing—Logger	4513	12549	16532	
Bit Size	12¼	8½	5 7/8	
Type Fluid in Hole	FLOSAL	GEL, CAUSTIC LCM	GEL, CAUSTIC	
Dens. / Visc.	8.5 / 34	12.4 / 27.5	8.5 / 38	
pH / Fluid Loss	10 ml	9.5 / 6.0 ml	10 / 5.2 ml	ml
Source of Sample	PIT	CIRCULATED	PIT	
Rm @ Meas. Temp.	1.97 @ 69 °F	.75 @ 68 °F	.84 @ 72 °F	@ °F
Rmf @ Meas. Temp.	1.75 @ 72 °F	.45 @ 74 °F	.69 @ 63 °F	@ °F
Rmc @ Meas. Temp.	4.46 @ 74 °F	1.50 @ 76 °F	M @ °F	@ °F
Source: Rmf Rmc	MEAS. / MEAS.	M / M		
Rm @ BHT	0.8 @ 166 °F	.27 @ 190 °F	26 @ 247 °F	@ °F
Time Since Circ.	3 HOURS	5 HOURS	7 HOURS	
Max. Rec. Temp.	166 °F	190 °F	247 °F	°F
Equip. / Location	3720 / HOBBS	3722 / HOBBS	3722 / HOBBS	
Recorded By			LEFLER	

REMARKS RUN TWO RECORDED BY: LEFLER; WITNESSED BY MR. ROBINSON, MR. CLEMENTS, MR. PR...

Changes in Mud Type or Additional Samples					
Date / Sample No.					
Depth—Driller					
Type Fluid in Hole					
Dens. / Visc.					
pH / Fluid Loss			ml		
Source of Sample					
Rm @ Meas. Temp.		@	°F	@	°F
Rmf @ Meas. Temp.		@	°F	@	°F
Rmc @ Meas. Temp.		@	°F	@	°F
Source: Rmf / Rmc					
Rm @ BHT		@	°F	@	°F
Rmf @ BHT		@	°F	@	°F
Rmc @ BHT		@	°F	@	°F

Scale Changes			
Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data				
Run No.	Tool Type	Pad Type	Tool Pos.	Other

EQUIP.: USED	S.O.:	RUN TWO	RUN THREE
Equip. Used: CART. No.	SLC-A-96	SLH-A-105	SLC-A-96
PANEL No.	SLP-C-251	SLP-C-74	SLP-C-251
SONDE No.	SLS-B-11	SLS-B-X1	SLS-B-11

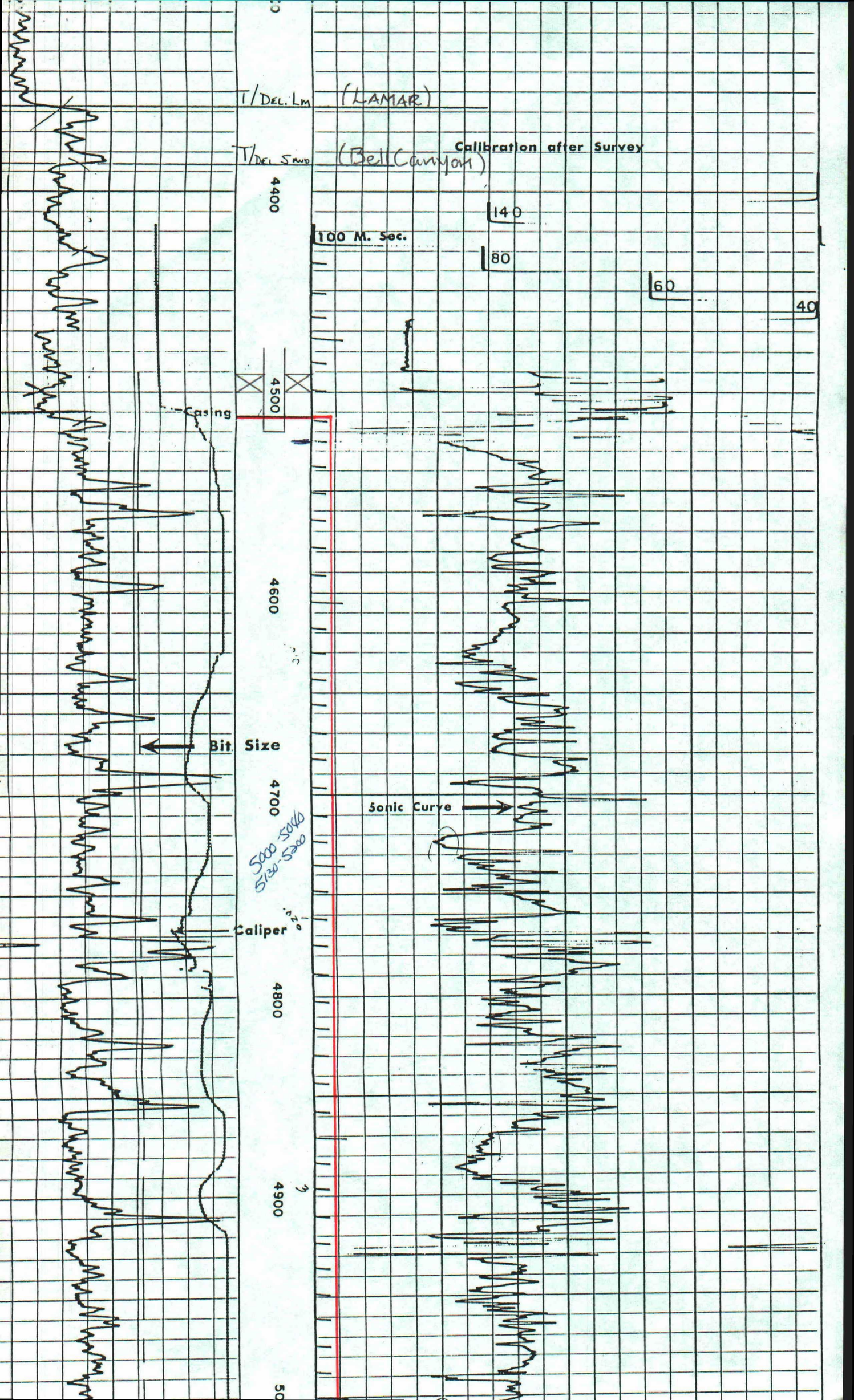
CALIBRATION:	BACKGND. CPS.	SOURCE CPS.	GALV. INCR. DIVISIONS	SENS. TAP (FOR CAL.)	SENS. TAP (RECORD)	TIME CONST.	RECORDING SPEED (FT./MIN.)
GAMMA RAY:	32	400	82.5	800	400	1	40/60
RUN TWO	64	464	82.5	800	500	1	40
RUN THREE	48	448	82.5	800	500	2/1	30/40

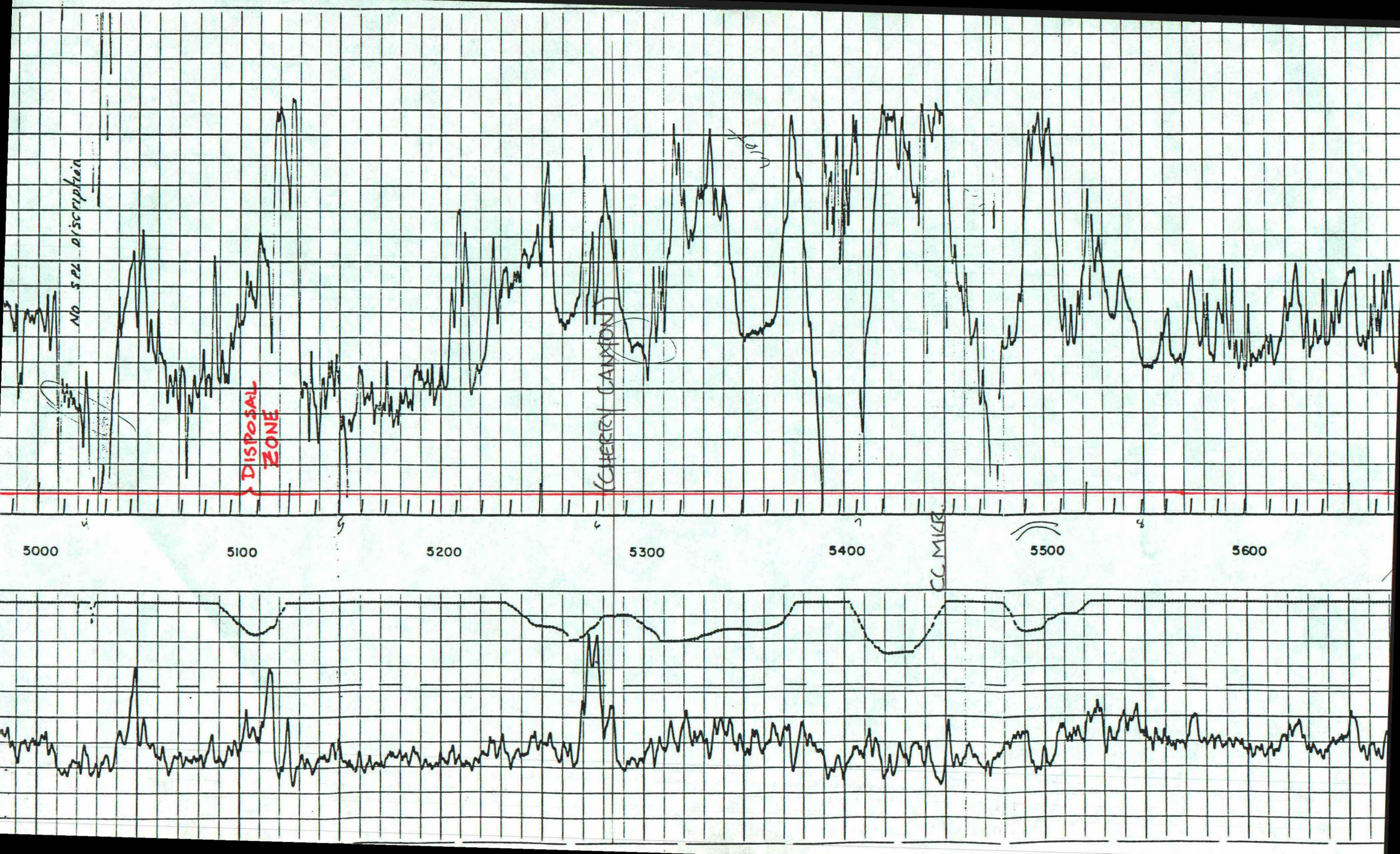
RUN THREE: WITNESSED BY: MR. ROBINSON & MR. GILMARTIN

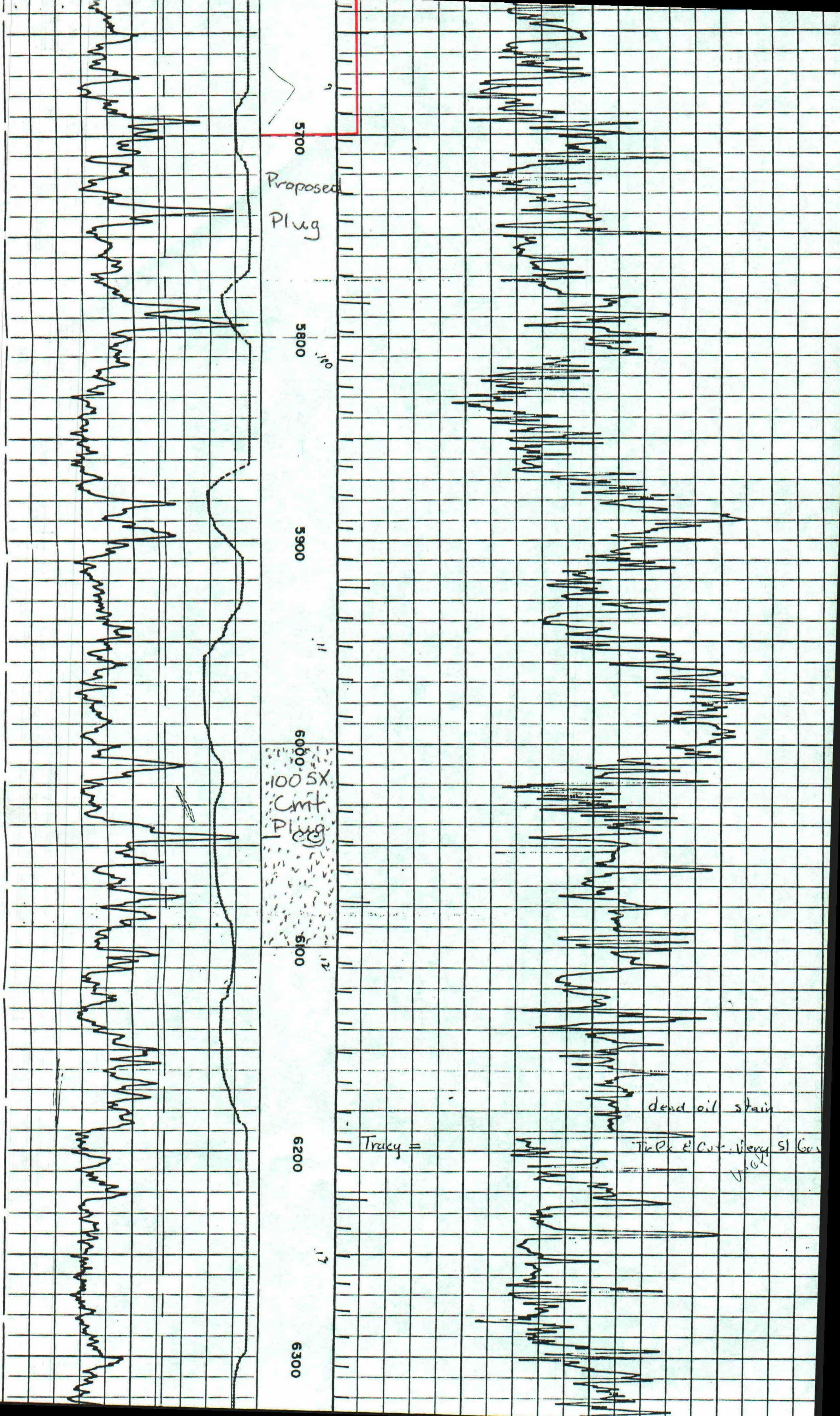
$$\text{Velocity (feet per second)} = \frac{1{,}000{,}000}{\text{Interval Transit Time (microseconds per foot)}}$$

GAMMA RAY API UNITS	DEPTHS	INTERVAL TRANSIT TIME MICROSECONDS PER FOOT
0 — 100		T3 R1 1 R2
100 — 200		100 — 70 — 40
		160 — 130 — 100
CALIPER HOLE DIAM. IN INCHES		
6" — 7' SHALLOW — 16"		

ATTACHMENT C-108 X (b)


T/Del. Lm (LAMAR)
T/Del Sand (Bell Canyon)
Calibration after Survey
140
100 M. Sec.
80
60
40
4400
4500
Casing
4600
Bit Size
4700
Sonic Curve
5000-5040
5120-5200
Caliper
4800
4900

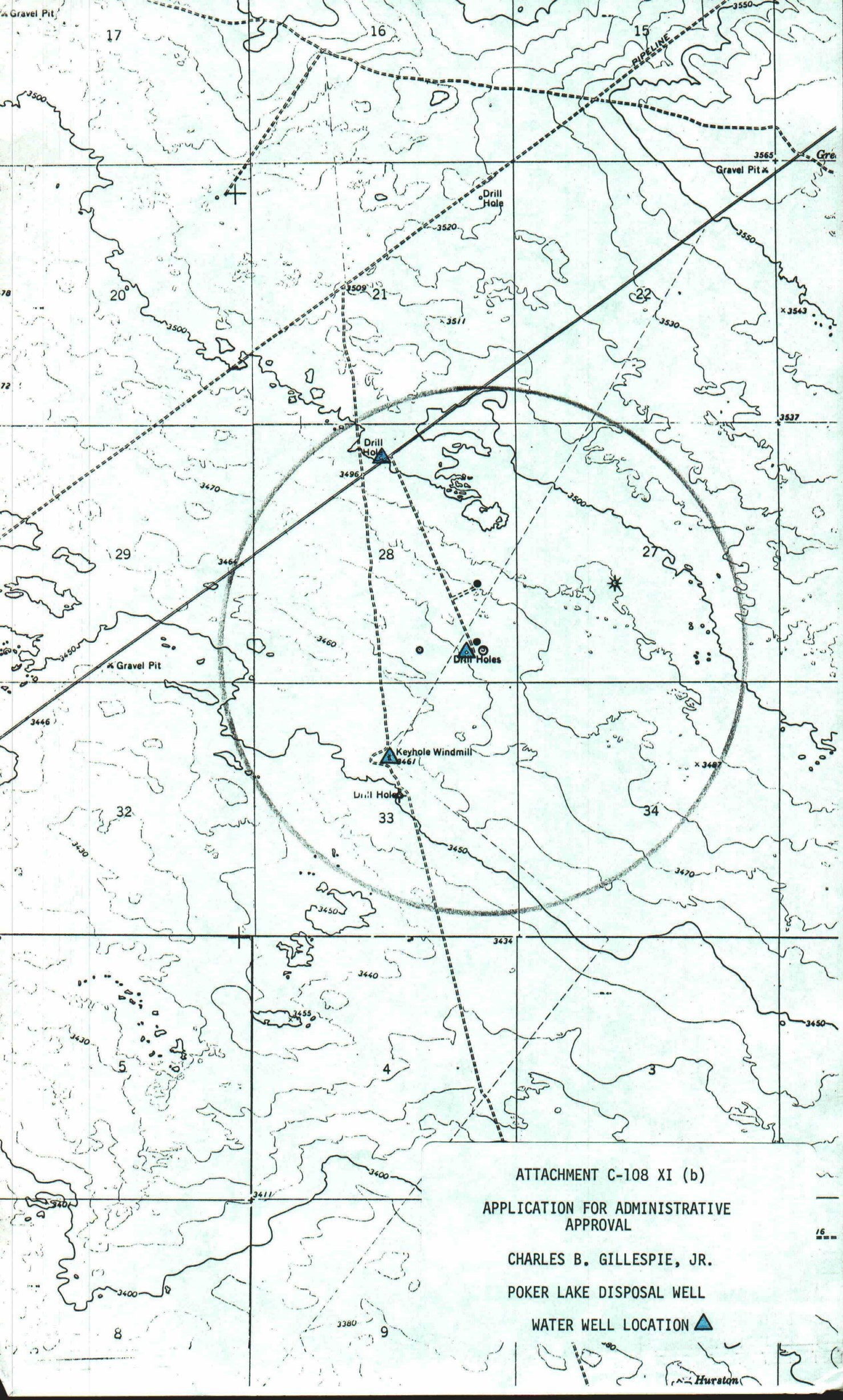

No SEL description
DISPOSAL ZONE
(CHERRY CANYON)
CC MKR.
5000
5100
5200
5300
5400
5500
5600


5700
Proposed Plug
5800
5900
6000
100 SX Cmt Plug
6100
dead oil stain
Tracy =
6200
6300

FRESH WATER ANALYSIS
(Section XI, Form C-108)

As indicated by Attachments (b) and (c) to this Fresh Water Analysis data sheet, there have been three fresh water wells drilled over the years within one mile of the proposed disposal well. Attachment (b) is a portion of a USGS topographic map of the area on a scale of approximately 2.65 inches to the mile, showing the water wells' approximate locations by quarter-quarter-quarter section. Attachment (c) is a tabulation of the water wells giving their locations and the purpose for which they were licensed.

Two of the wells were drilled as water supply wells for operations during the drilling of the Pan American Petroleum Corporation Poker Lake Unit No. 36 Well. Upon completion of the No. 36 well, the water well located to the northwest in the SW 1/4 of the NW 1/4 of the NE 1/4 of Section 28 was abandoned. The other water well, which is located at the edge of the No. 36 well's drilling pad, was kept operative and is currently being used by the surface leasee to water livestock. Attachment (d) is a water analysis of the product of this well taken on September 28, 1989. The third water well, located to the southwest in the NW 1/4 of the SW 1/4 of the NE 1/4 of Section 33, was drilled to supply water to livestock and it has been dry and abandoned since 1976.



ATTACHMENT C-108 XI (b)

APPLICATION FOR ADMINISTRATIVE APPROVAL

CHARLES B. GILLESPIE, JR.

POKER LAKE DISPOSAL WELL

WATER WELL LOCATION ▲

WATER WELLS WITHIN ONE MILE RADIUS
OF PROPOSED DISPOSAL WELL

DESCRIPTION	SERVICE	REMARKS
SW SE SE of S28-T24S-R31E	Drilling, Livestock	Water well at location Analysis is attached.
SW NW NE of S28-T24S-R31E	Drilling	Out of service
NW SW NE of S33-T24S-R31E	Livestock	Out of service

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. 10896-DW1091-1

TO: Mr. David Hastings
P.O. Box 8, Midland, Texas

SAMPLE RECEIVED 10-2-89

RESULTS REPORTED 10-3-89

COMPANY Charles B. Gillespie LEASE Poker Lake

FIELD OR POOL Poker Lake

SECTION 28 BLOCK ____ SURVEY T-24S & R-31E COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water well.

NO. 2

NO. 3

NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0044			
pH When Sampled				
pH When Received	7.42			
Bicarbonate as HCO_3	84			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	1,190			
Calcium as Ca	316			
Magnesium as Mg	97			
Sodium and/or Potassium	68			
Sulfate as SO_4	1,131			
Chloride as Cl	66			
Iron as Fe	0.08			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	1,763			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	4.33			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Nitrate, as N	2.1			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By Ronnie Tucker
Ronnie Tucker, B.S.

ATTACHMENT C-108 XI (d)

AFFIRMATIVE STATEMENT
(Section XII, Form C-108)

Applicant hereby affirms that he has examined the available geologic and engineering data and finds no evidence of open faults or other hydrologic connection between the disposal zone and any underground source of drinking water.

NOTICE BY PUBLICATION

(Section XIV, Form C-108)

No 11955

Affidavit of Publication

State of New Mexico,
County of Eddy, ss.

E. C. Cantwell, being first duly sworn, on oath says:

That he is publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

October 9 , 19 89

, 19

, 19

, 19

that the cost of publication is $ 11.69, and that payment thereof has been made and will be assessed as court costs.

E C Cantwell

Subscribed and sworn to before me this

12 day of October, 1989

Dorella Taylor

My commission expires 6/01/92

Notary Public

LEGAL NOTICE
October 9, 1989

NOTICE

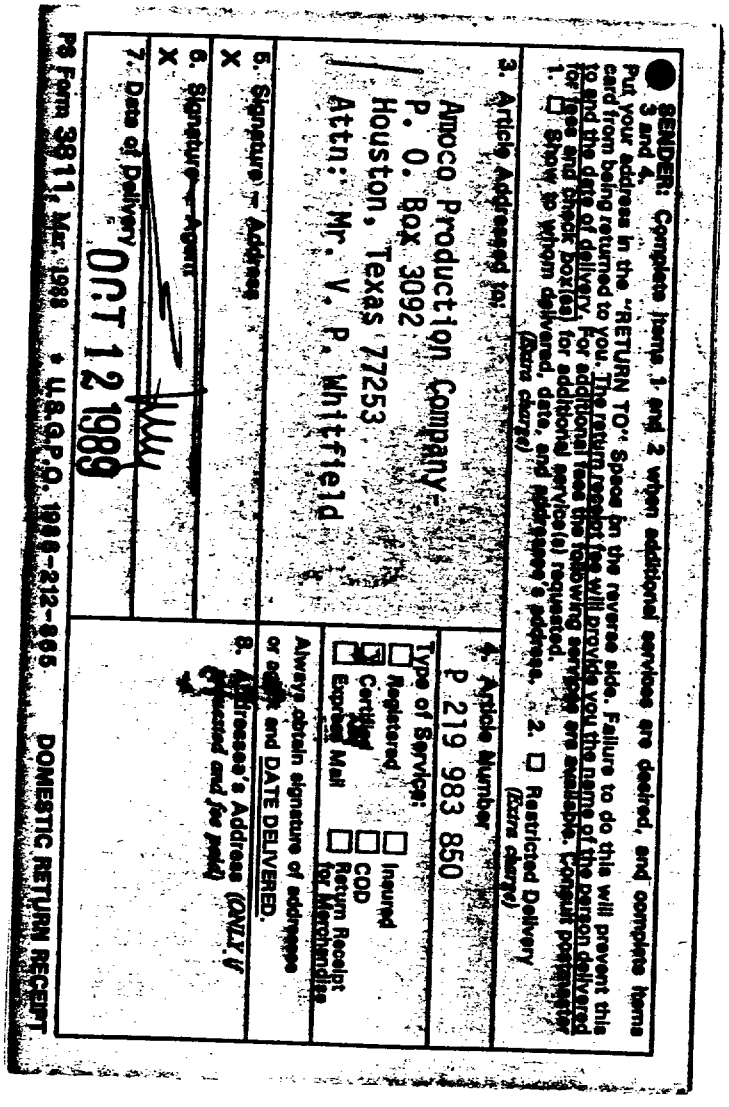
Notice is hereby given pursuant to Rule 701 B 3 of the New Mexico Oil Conservation Division Rules and Regulations that it is the intent of Charles B. Gillespie, Jr. to utilize the Pan American Petroleum Corporation Poker Lake Unit Well No. 36 located 660 feet from the South line and 660 feet from the East line of Section 28, Township 24 South, Range 31 East, Eddy County, New Mexico, for the underground disposal of production formation water from the Charles B. Gillespie, Jr. wells located in Section 28, Township 24 South, Range 31 East. Disposal will average 200 barrels per day. Maximum injection pressure will not exceed 305 pounds per square inch. Questions regarding this proposal may be directed to: David Hastings, P.O. Box 8, Midland, Texas 79702 or 915-683-1785. Objections to this proposal or request for hearing on the matter together with the reasons therefore, must be filed in writing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87504, within 15 days after date of publication of this notice.

OCT 16 REC'D

ATTACHMENT C-108 XIV (b)

NOTICE TO OFFSET OPERATORS

(Section XIV, Form C-108)



SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge) (Extra charge)

3. Article Addressed to:
Amoco Production Company
P. O. Box 3092
Houston, Texas 77253
Attn: Mr. V. P. Whitfield

4. Article Number
P 219 983 850

Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
OCT 12 1989

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

Note to File:

The injection interval in this well is 4513 - 5700 feet. There is an offset well whose TOC is @ 4500 feet. The tracer survey is required to make sure the sands at 4513 feet are not taking the bulk of the water, in which case the offset well will have to be further cemented.

DG