

CASE 3653, Application of DEPCO,
INC. for a waterflood project,
Eddy County, New Mexico.

Case No.

3653

Application, Transcript,
Small Exhibits, Etc.

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

September 11, 1967

Re: Case No. 3653
Order No. R-3311
Applicant:
DEPCO, INC.

A. L. PORTER, Jr.
Secretary-Director

other.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3653
Order No. R-3311

APPLICATION OF DEPCO, INC.,
FOR A WATERFLOOD PROJECT, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 6, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 11th day of September, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Depco, Inc., as successor to International Oil and Gas Corporation, operates a waterflood project in the Artesia Pool pursuant to Order No. R-2876, dated March 5, 1965, by the injection of water into the Grayburg formation through two wells located in Sections 25 and 36, Township 17 South, Range 28 East.

(3) That the applicant seeks permission to expand said waterflood project in its Artesia Unit Area, Artesia Pool, by the injection of water into the Grayburg formation through 15 additional injection wells in Sections 26, 34, 35, and 36, Township 17 South, Range 28 East, and Sections 2 and 3, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

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CASE No. 3653

Order No. R-3311

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Depco, Inc., is hereby authorized to expand its Highway Waterflood Project in its Artesia Unit Area, Artesia Pool, by the injection of water into the Grayburg formation through the following-described wells in Eddy County, New Mexico:

OPERATOR	LEASE	WELL NO.	UNIT	SECTION	TOWNSHIP	RANGE
NMPM						
Depco	State 647	164	M	26	17 South	28 East
Depco	State 647	169	O	26	17 South	28 East
Depco	Delhi State	1	O	34	17 South	28 East
Depco	Welch State	2	E	35	17 South	28 East
Depco	MRY State	2	G	35	17 South	28 East
Depco	Sinclair B State	1	M	35	17 South	28 East
Depco	Castle State	2	O	35	17 South	28 East
Depco	State 647	139	E	36	17 South	28 East
Depco	Sinclair B State	2	M	36	17 South	28 East
Depco	State A	2	E	2	18 South	28 East
Depco	Featherstone State B	7	M	2	18 South	28 East
Depco	Lanning State	1	E	3	18 South	28 East
Depco	State 647	130	G	3	18 South	28 East
Depco	State 647	38	M	3	18 South	28 East
Depco	Resler State	2	O	3	18 South	28 East

(2) That the subject waterflood project is hereby redesignated the Depco Artesia Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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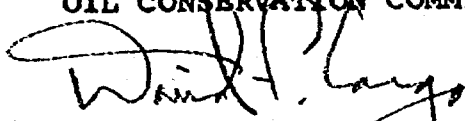
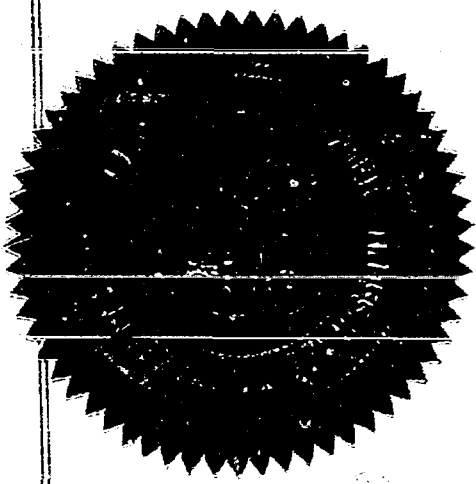
CASE No. 3653

Order No. R-3311

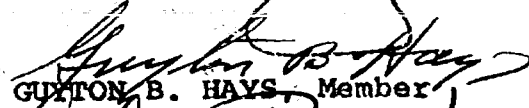
(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



DAVID F. CARGO, Chairman



GUXTON B. HAYS, Member



A. L. PORTER, Jr., Member & Secretary

esr/

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

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September 15, 1967

Mr. A. J. Losee
Losee & Stewart
Attorneys at Law
Artesia, New Mexico

C injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 2464 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

O Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

P In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Y Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/esr

cc: Oil Conservation Commission
Drawer DD
Artesia, New Mexico

United States Geological Survey
Drawer U
Artesia, New Mexico

Mr. Frank Irby
State Engineer Office
Capitol Building
Santa Fe, New Mexico

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

September 15, 1967

C
Mr. A. J. Losee
Losee & Stewart
Attorneys at Law
P. O. Box 239
Artesia, New Mexico

O
Dear Sir:

Reference is made to Commission Order No. R-3311, recently entered in Case No. 3653, approving the expansion of Depco's Highway Waterflood Project and re-designating it as the Depco Artesia Waterflood Project.

P
Y
Injection into each of the 15 newly authorized water injection wells shall be through 2-inch internally plastic-coated tubing which shall be set in a packer. Packers, in the case of wells which have casing set in the Lower Grayburg or Upper San Andres formation, shall be set within 100 feet of the uppermost perforation in the Premier zone. In the case of wells with open-hole completions above the Lower Grayburg formation (Lanning State Well No. 1 and State 647 Well No. 38), formation packers shall be set as near as practicable above the top of the Premier zone of the Grayburg formation. The casing-tubing annulus in each well not having open perforations above the packer shall be loaded with an inert fluid and shall be left open at the surface or equipped with a pressure gauge to determine the presence of leaks in the packer or in the tubing. Those wells equipped with formation packers shall have radioactive or other acceptable injectivity profiles run on them at the time of commencement of water injection and also at the time of apparent reservoir fill-up, to ensure that injected water is not breaking through around or behind the formation packer. Wells demonstrating such break-through shall have liners run and cemented or other approved remedial action taken.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active

August 25, 1967

Depco, Inc.
First National Bank Bldg.
Suite 204
Artesia, N. M. 88210

Attn. Mr. J. M Strader, District Engineer

Gentlemen:

Receipt of a copy of your application to the Oil Conservation Commission seeking approval for Unitization and Waterflood operations in the proposed "Artesia Unit" is gratefully acknowledged.

It is noted that the Lanning State No. 1 well has no cement behind the one string of casing. It is also noted that the State 647 No. 38 well has no cement behind either of the two strings of casing, the longer of which is set at 807'.

MAIN OFFICE

FEI/ma
cc-Oil Conservation Commission

Yours truly,

'67 AUG 28 AM 8 06

S. E. Reynolds
State Engineer

By:

Frank E. Irby
Chief
Water Rights Div.

DEPCO, Inc.

Exploration & Production

First National Bank Building
Suite 204
ARTESIA, NEW MEXICO 88210

August 18, 1967

Case
3653

MAIN OFFICE

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

'67 AUG 18 PM 1 07

Subject: Application for
Unitization and Waterflood
Unit: Proposed Artesia
Field: Artesia
County: Eddy, New Mexico

Gentlemen:

DEPCO, Inc. requests a hearing to approve unitization of the contiguous, developed area shown on the attached plat for the purpose of Waterflood Operations. The area is in Section 25, 26, 34, 35, and 36 of T.17S. - R.28E. and Section 2 and 3 of T.18S. - R.28E. The vertical interval to be unitized is from the top of the Queen Formation to 163 feet below the top of the San Andres Formation.

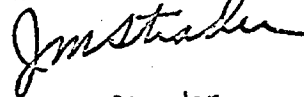
Application is also made for a hearing to permit certain producing wells, listed in Table I, to be converted to water injectors. The attached plat shows the location of present water injectors, producing wells and lease ownership within a two mile radius of the proposed injectors.

Attached is a diagrammatic sketch of each injector showing the anticipated completion after conversion to water injection. Each of the injectors will be tubed to a point approximately 50 feet above the injection interval. Where available an electric log is shown over the zones of interest.

Initial injection will be in a gross thickness of approximately 80 feet at the base of the Grayburg Formation (this sand member is locally called the Premier Sand). About 500 BPD per well is the proposed injection rate. The water source for the project will be purchased from one of the water companies which have distribution facilities in the vicinity.

Attached is a copy of a letter sent to the State Engineer Office transmitting a copy of this application.

Yours very truly,



J. M. Strader
District Engineer

cc: State Engineer Office - State Land Office
C. D. Crump - Denver

ATTACHMENTS

DEPCO, Inc.

Exploration & Production

First National Bank Building
Suite 204
ARTESIA, NEW MEXICO 88210

August 18, 1967

State Engineer Office
Capitol Building
Santa Fe, New Mexico

Subject: Application for
Unitization and Waterflood
Unit: Proposed Artesia
Field: Artesia
County: Eddy, New Mexico

Gentlemen:

This letter serves to transmit a copy of our Application, complete with all attachments, requesting a hearing for the proposed unit.

Yours very truly,

DEPCO, Inc.

J. M. Strader

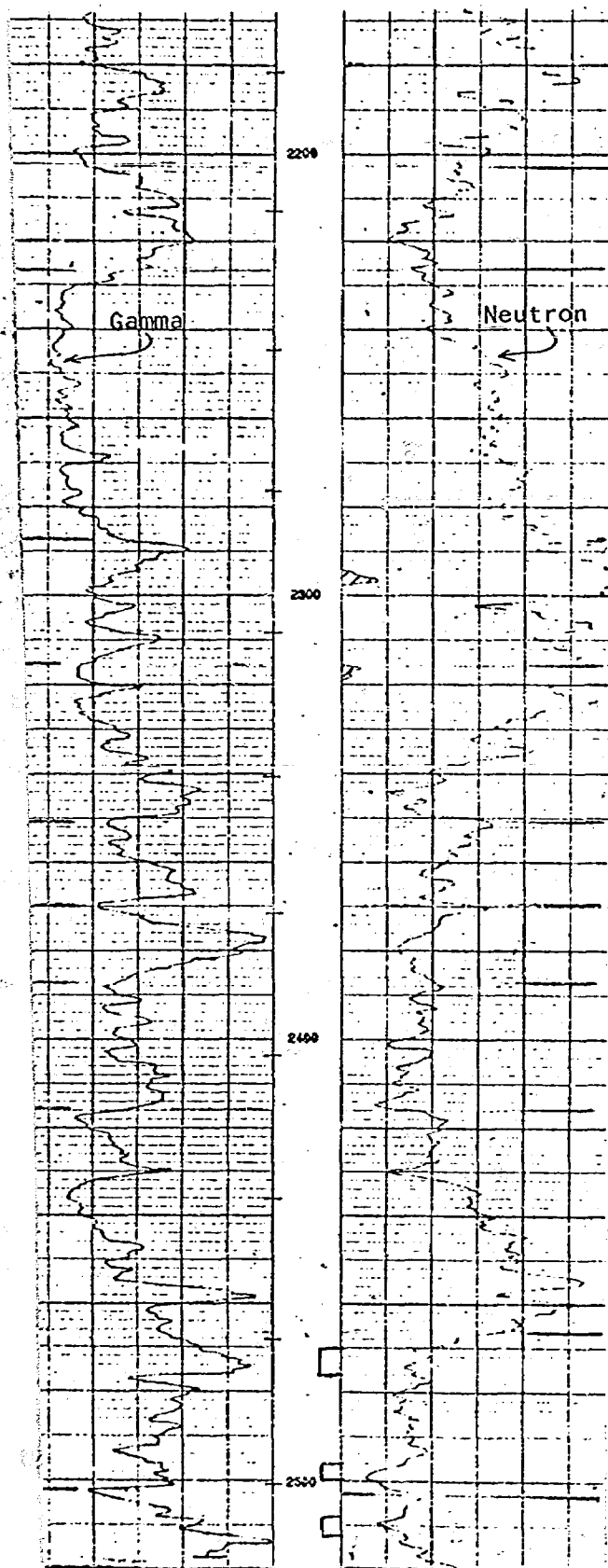
J. M. Strader
District Engineer

JMS:jm

TABLE 1

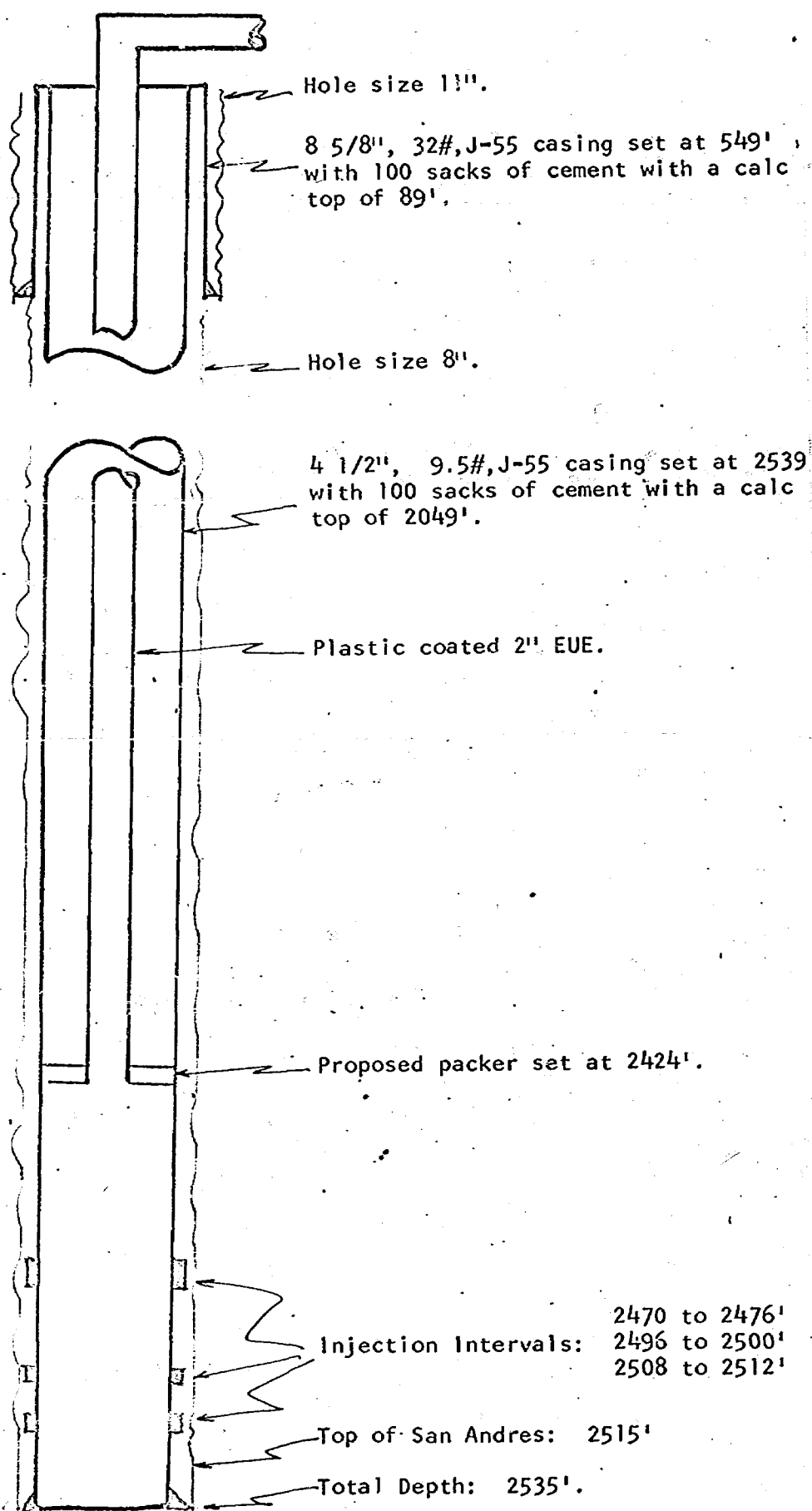
Proposed Injectors
 Artesia Unit
 Eddy County, New Mexico

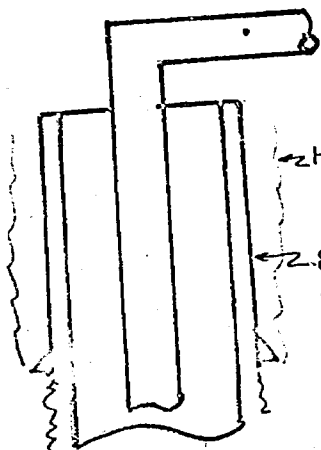
<u>Operator</u>	<u>Lease</u>	<u>Well No.</u>	<u>Unit</u>	<u>Sec.-Twp.-Rng.</u>
DEPCO	Castle State	1	O	35-17-28
DEPCO	Delhi State	1	O	34-17-28
DEPCO	Featherstone State	7	M	2-18-28
DEPCO	Lanning State	1	E	3-18-28
DEPCO	MRY State	2	G	35-17-28
DEPCO	Resler State	2	O	3-18-28
DEPCO	Sinclair B State	1	M	35-17-28
DEPCO	Sinclair B State	2	M	36-17-28
DEPCO	State A	2	E	2-18-28
DEPCO	State 647	38	M	3-18-28
DEPCO	State 647	130	G	3-18-28
DEPCO	State 647	139	E	36-17-28
DEPCO	State 647	164	M	26-17-28
DEPCO	State 647	169	O	26-17-28
DEPCO	Welch State	2	E	35-17-28



Castle, State #2
O 35-17-28

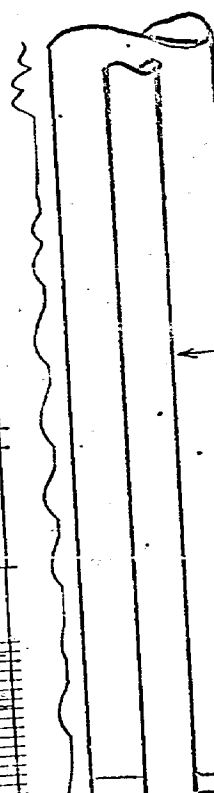
BRITISH DEFLECTION





Hole size 10".

8 5/8", 28# casing set at 537' with 50 sacks of cement with a calc top of 118'.



Hole size 8".

5 1/2", 14# casing set at 2325' with 100 sacks of cement with a calc. top of 1690'.

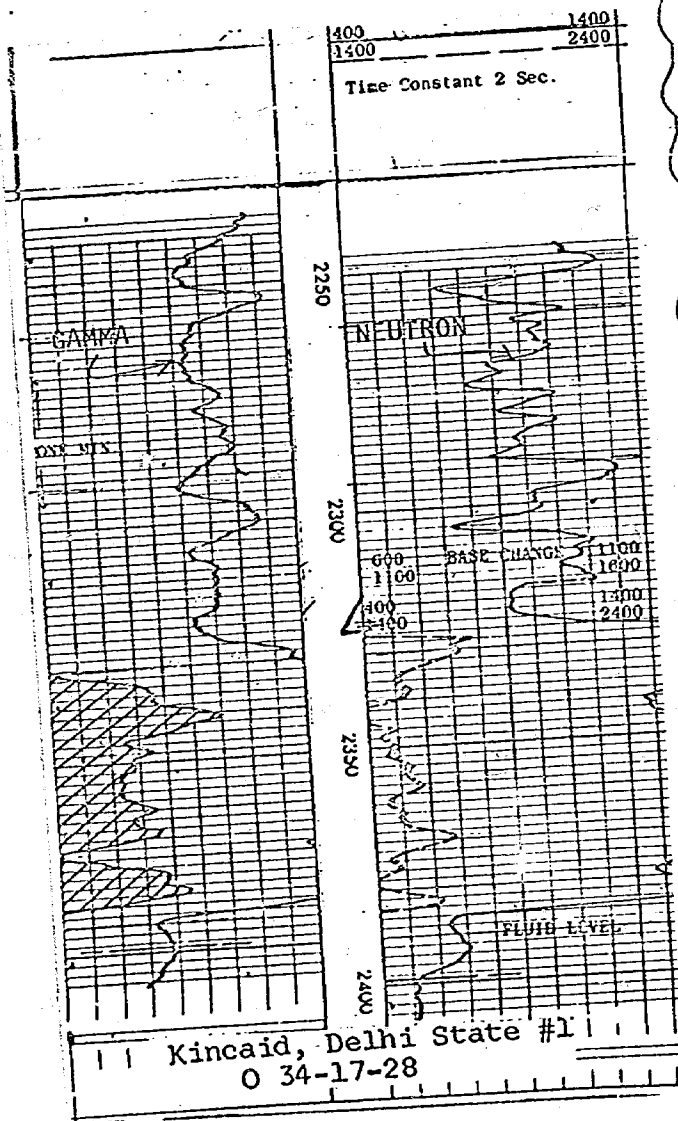
Plastic coated 2" EUE tubing.

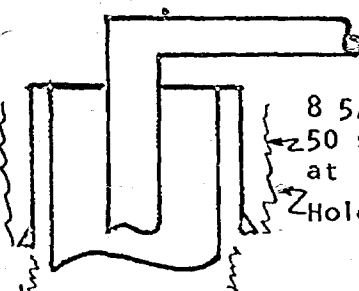
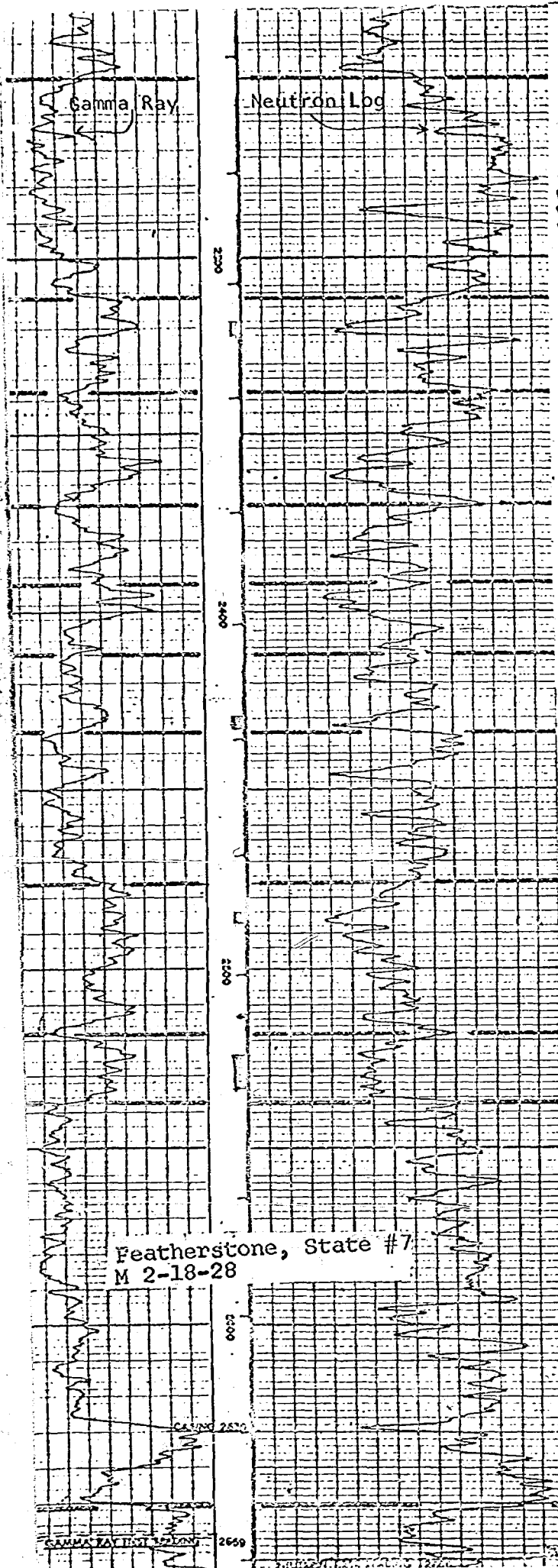
Proposed packer set at 2280'.

Open hole interval 2335' to 2399'.

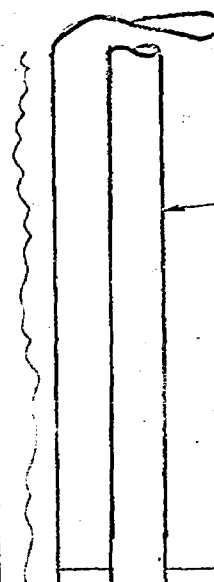
Top of San Andres 2382'.

Total Depth 2399'.





8 5/8" 32# casing. Set at 546' with
250 sacks of cement with a calc top
at 127'.
Hole size: 10".



5 1/2", 14#, J-55 casing set at 2626'
with 100 sacks of cement with a calc
top at 1991'.

Plastic Coated 2" EUE.

Hole size 8".

Present perforation 2318-22 & 2429-33
initially isolated from injection.

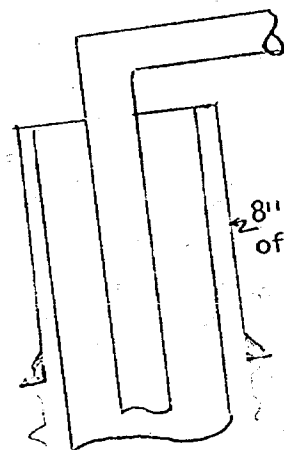
Proposed packer set at 2450'.

Injection Intervals: 2484 to 2487'
2513 to 2514'
2524 to 2534'.

Top of San Andres 2537'.

Proposed plug back to 2605.

Total Depth 2692'.



8" casing set at 400' with 30 sacks of cement.

Hole size 8"

5", 14# casing set at 2325' with 100 sacks of cement with a calc top of 1775'.

Plastic coated 2" EUE tubing.

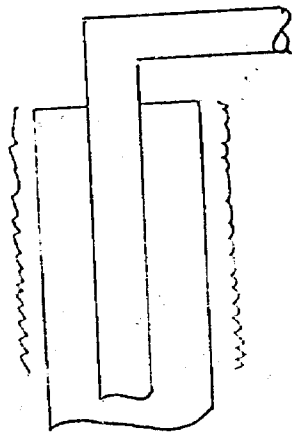
Proposed packer set at 2280'.

Injection interval: 2325 to 87' (open Hole)

Top of San Andres: 2380'.

Total Depth: 2387'.

MRY State #2
G 35-17-28



5 1/2", 14# casing set at 2517'
with 100 sacks of cement.

Plastic coated 2" EUE tubing.

Proposed packer set at 2389'.

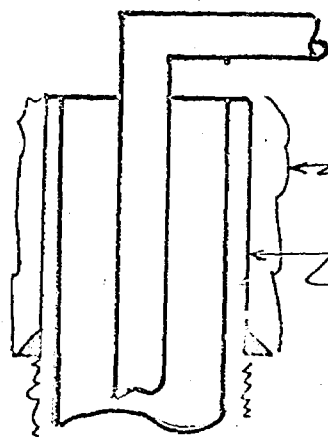
Injection interval 2434 to 2452.

Injection interval 2470 to 2490'.

Top of San Andres 2497'.

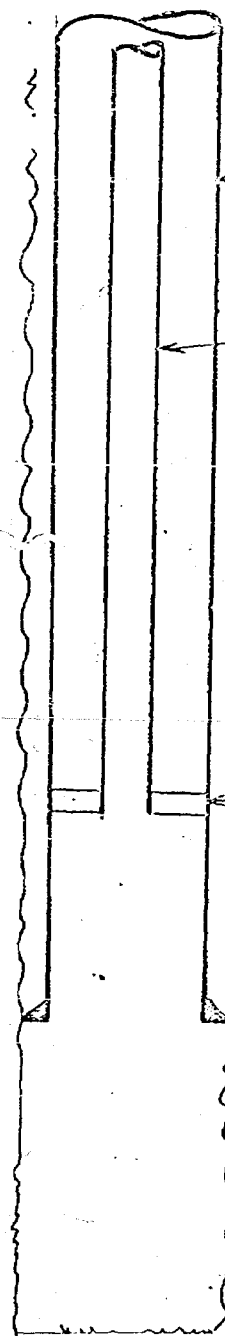
Total depth: 2517'.

Resler State #2
0 3-18-28



Hole size 10".

8 5/8", 24# casing set at 552' with 50 sacks of cement with a calc top of 133'.



Hole size 8 5/8".

5 1/2", 15.5# casing set at 2356' with 100 sacks of cement with a calc top of 1870'.

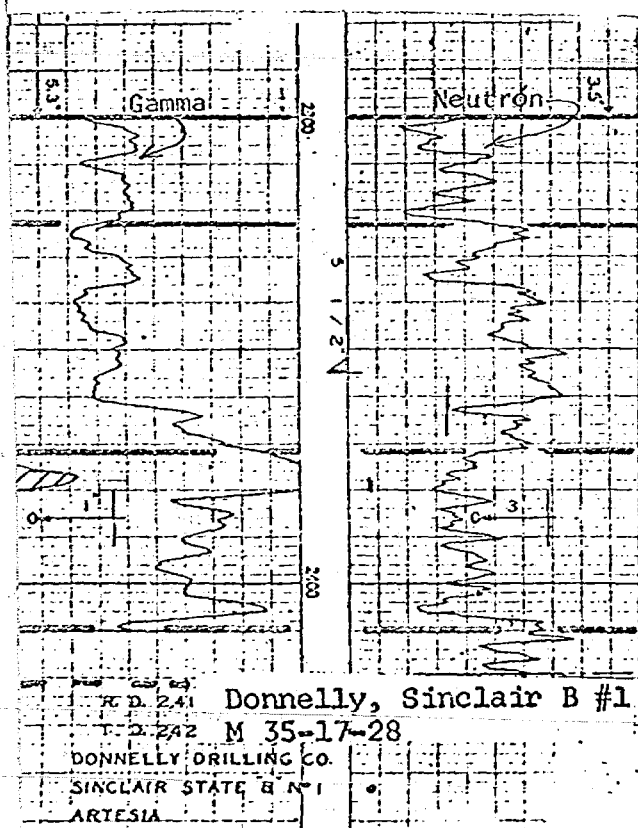
Plastic coated 2" EUE tubing.

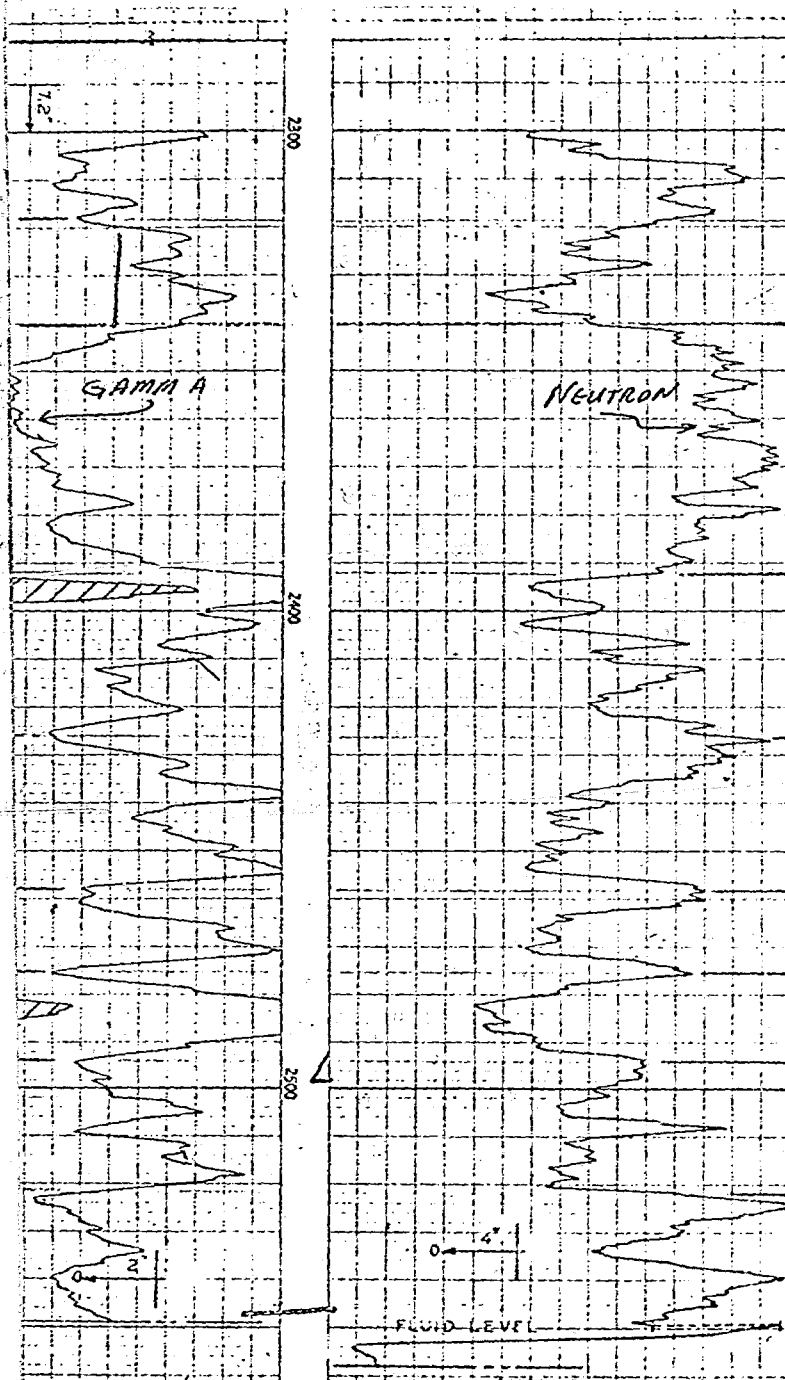
Proposed packer set at 2308'.

Injection interval: 2356 to 2421' (open hole)

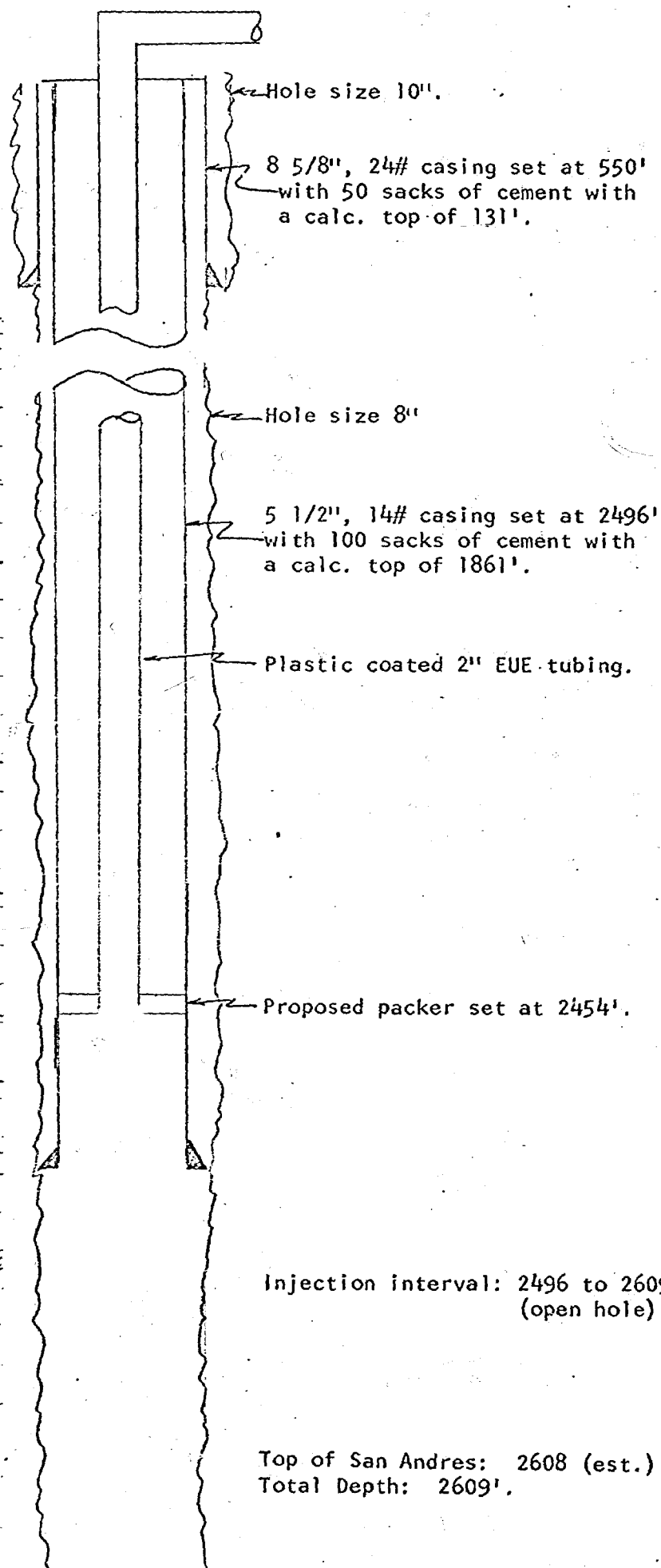
Top of San Andres 2420'.

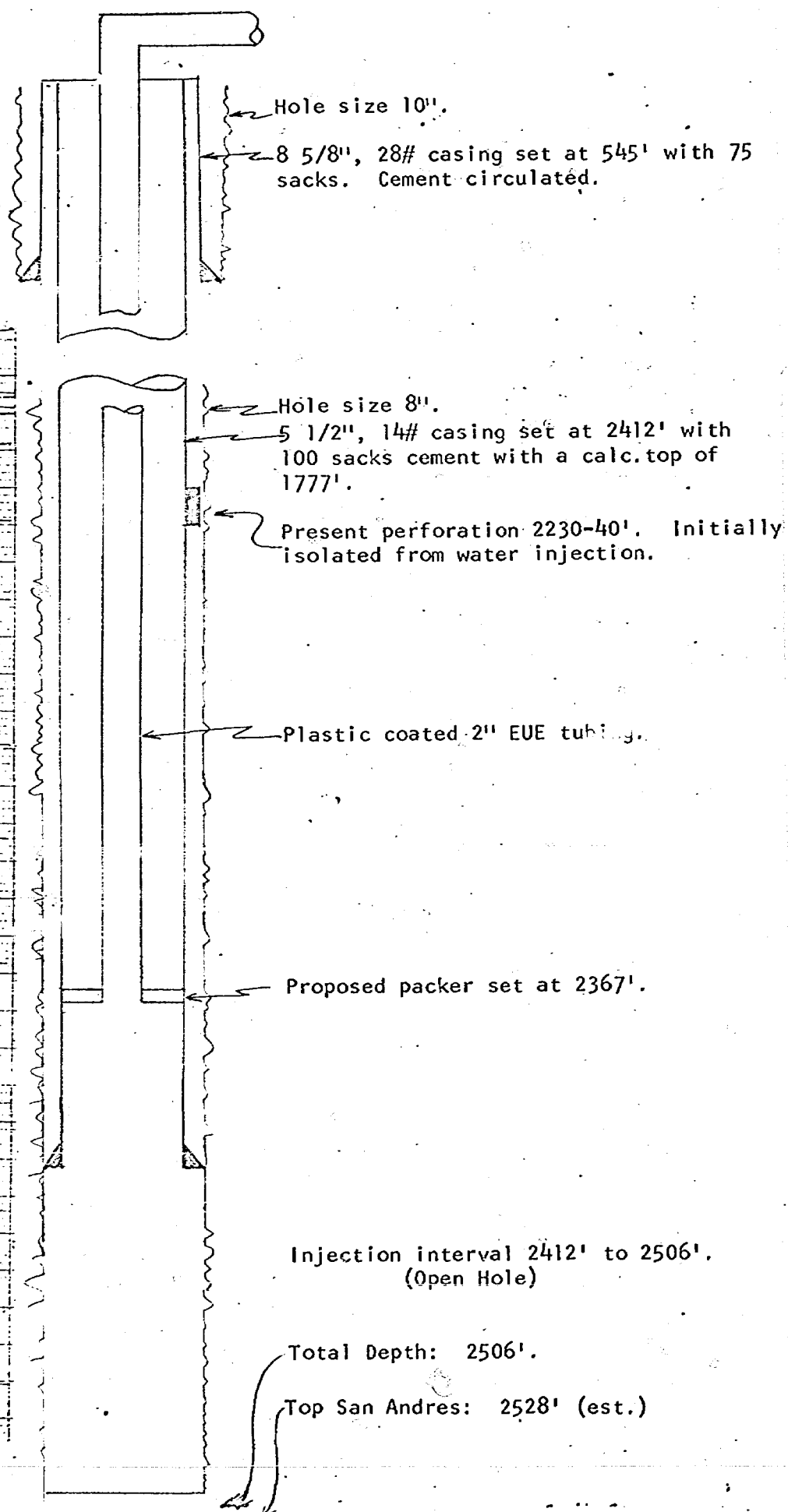
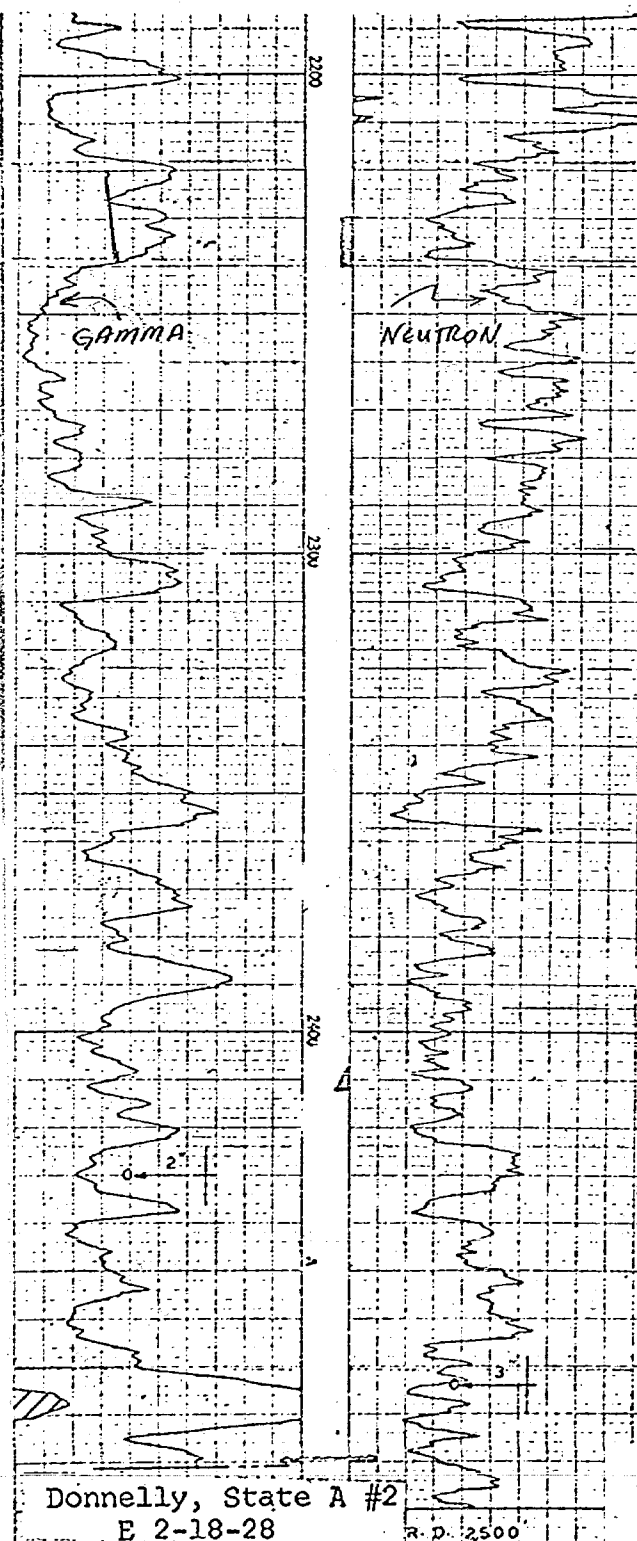
TD: 2421'.

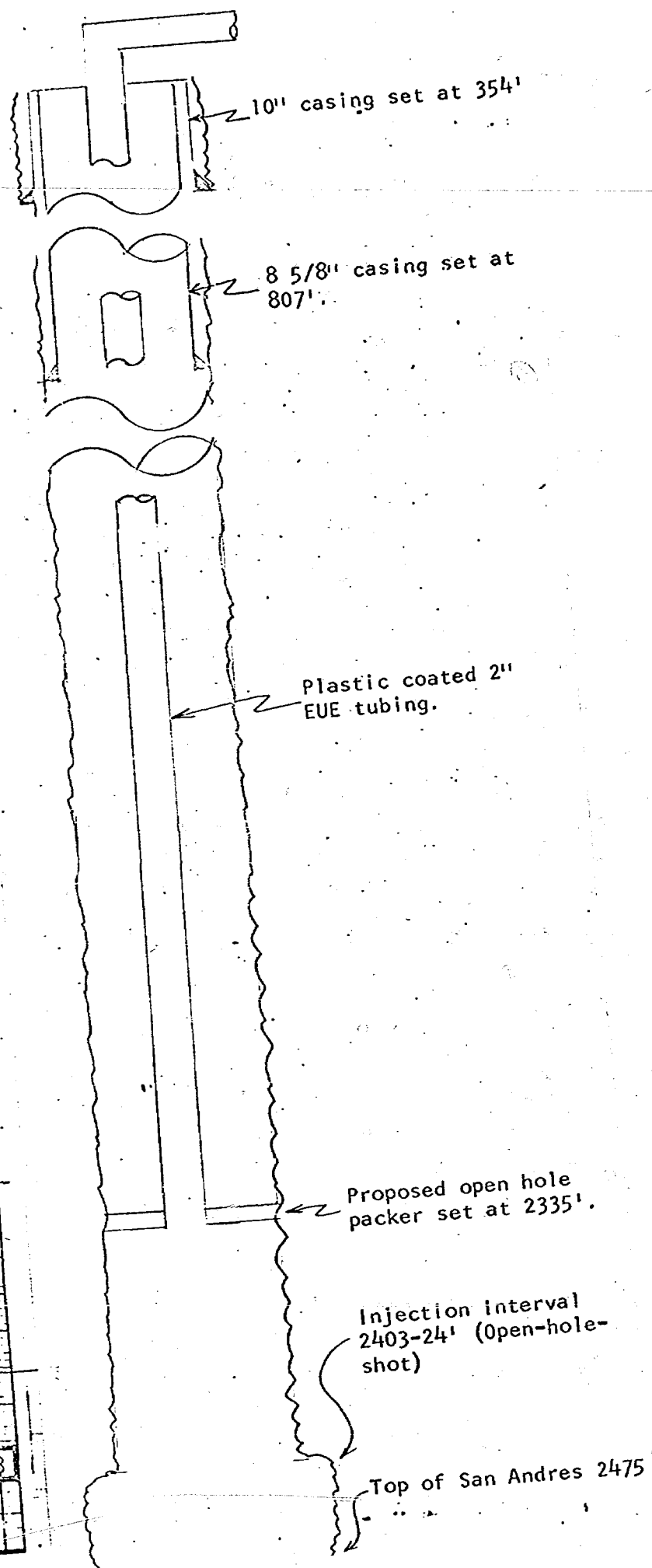
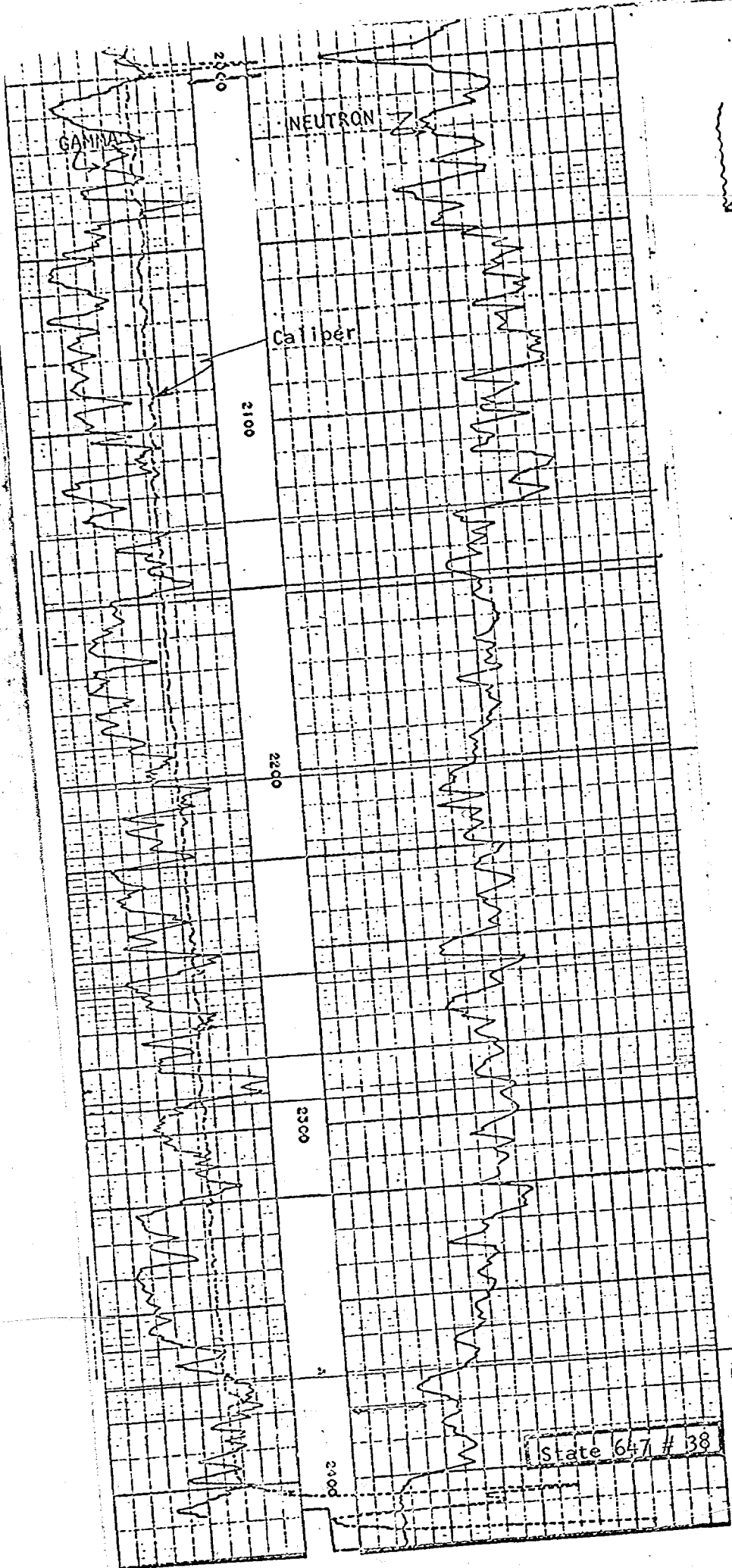


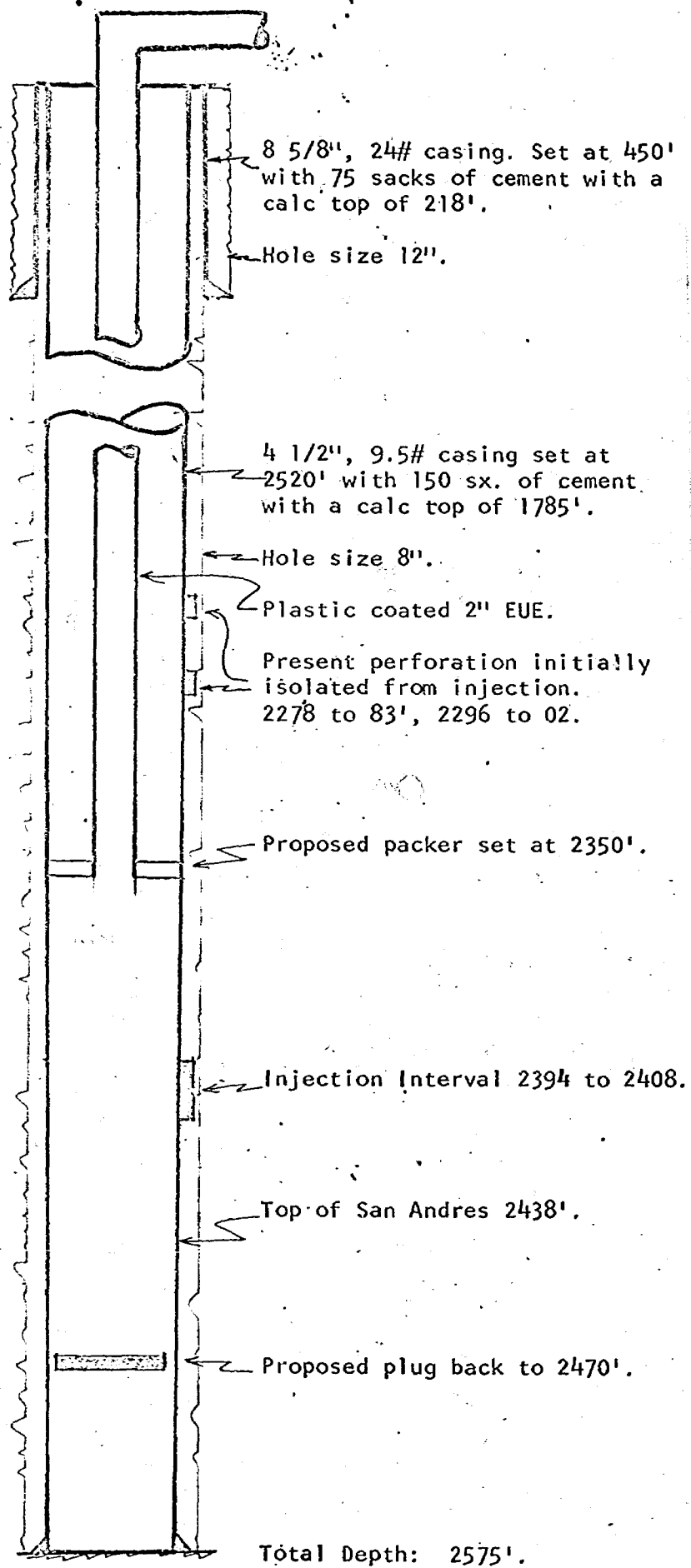
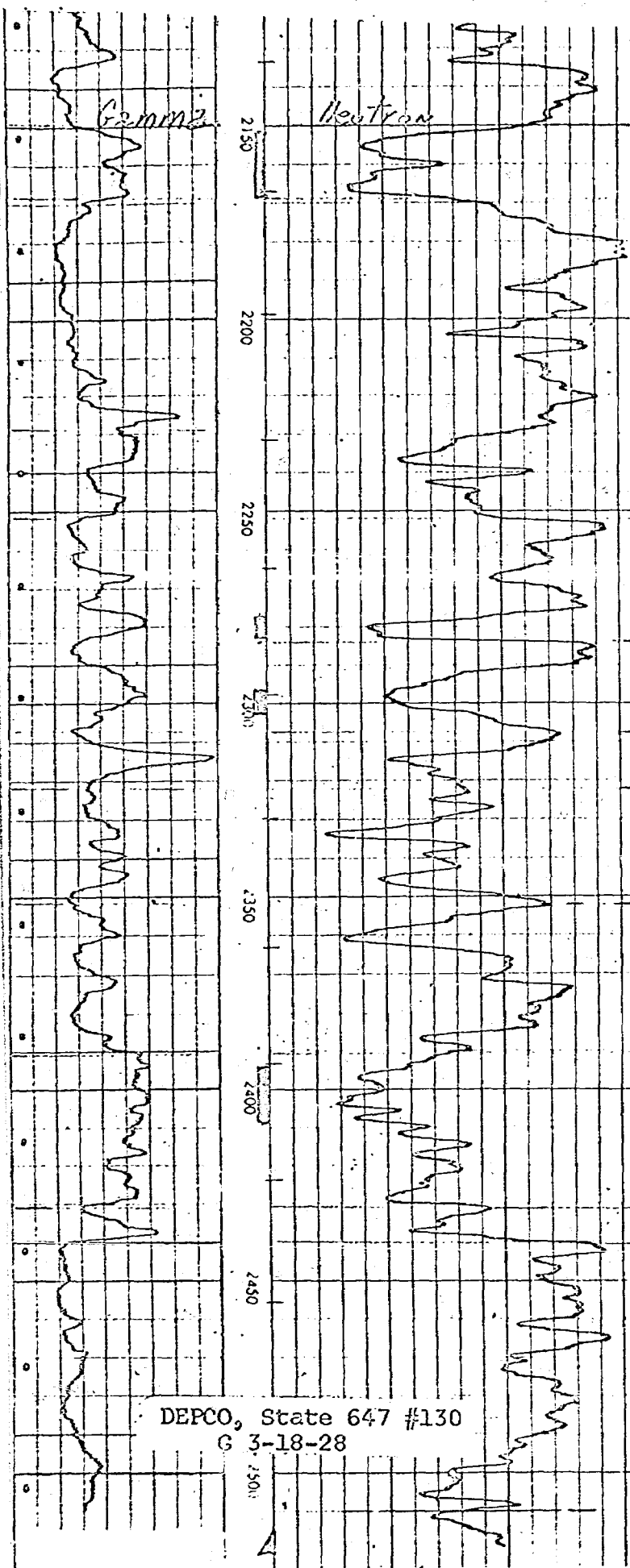


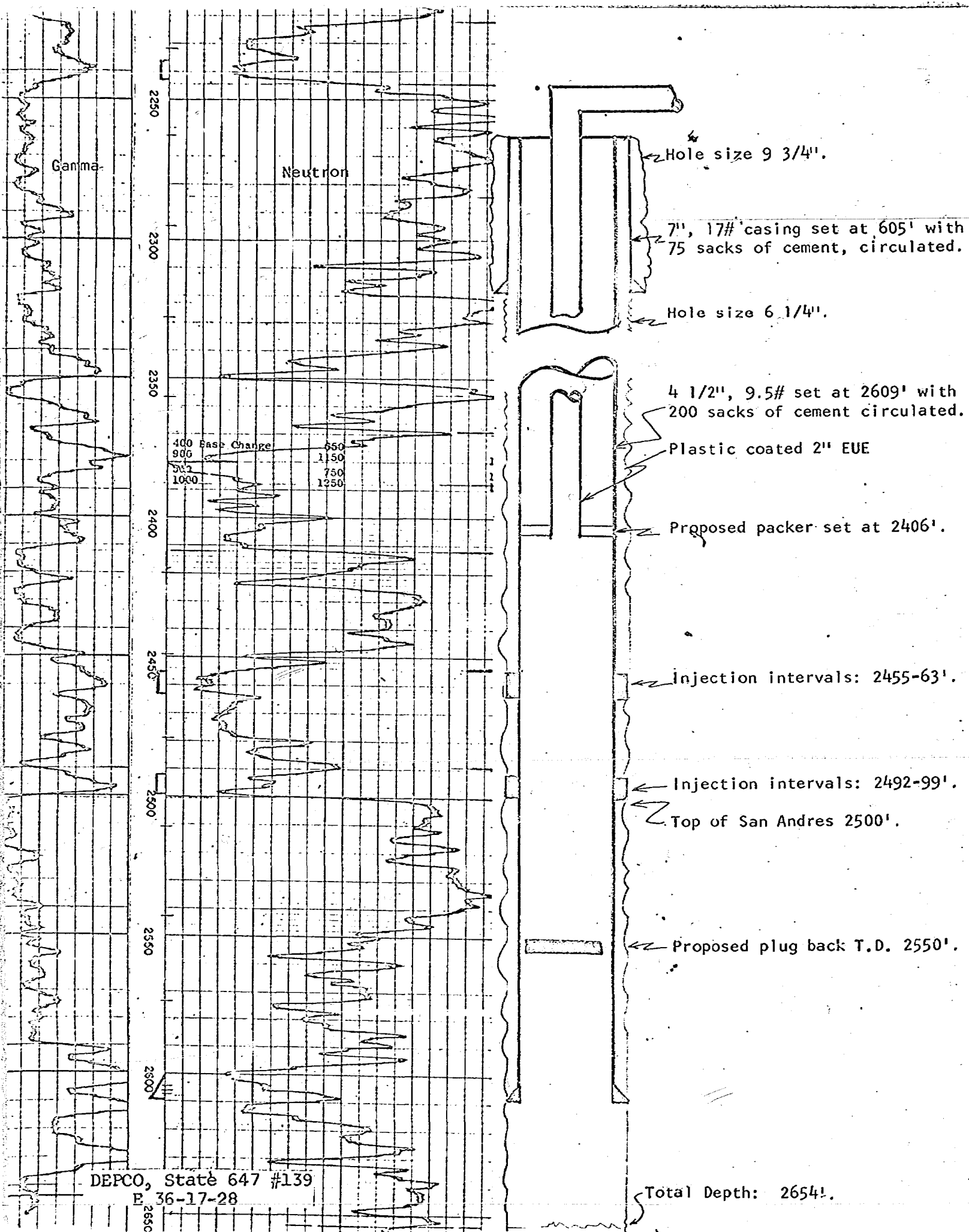
Donnelly, Sinclair State B #2
M 36-17-28

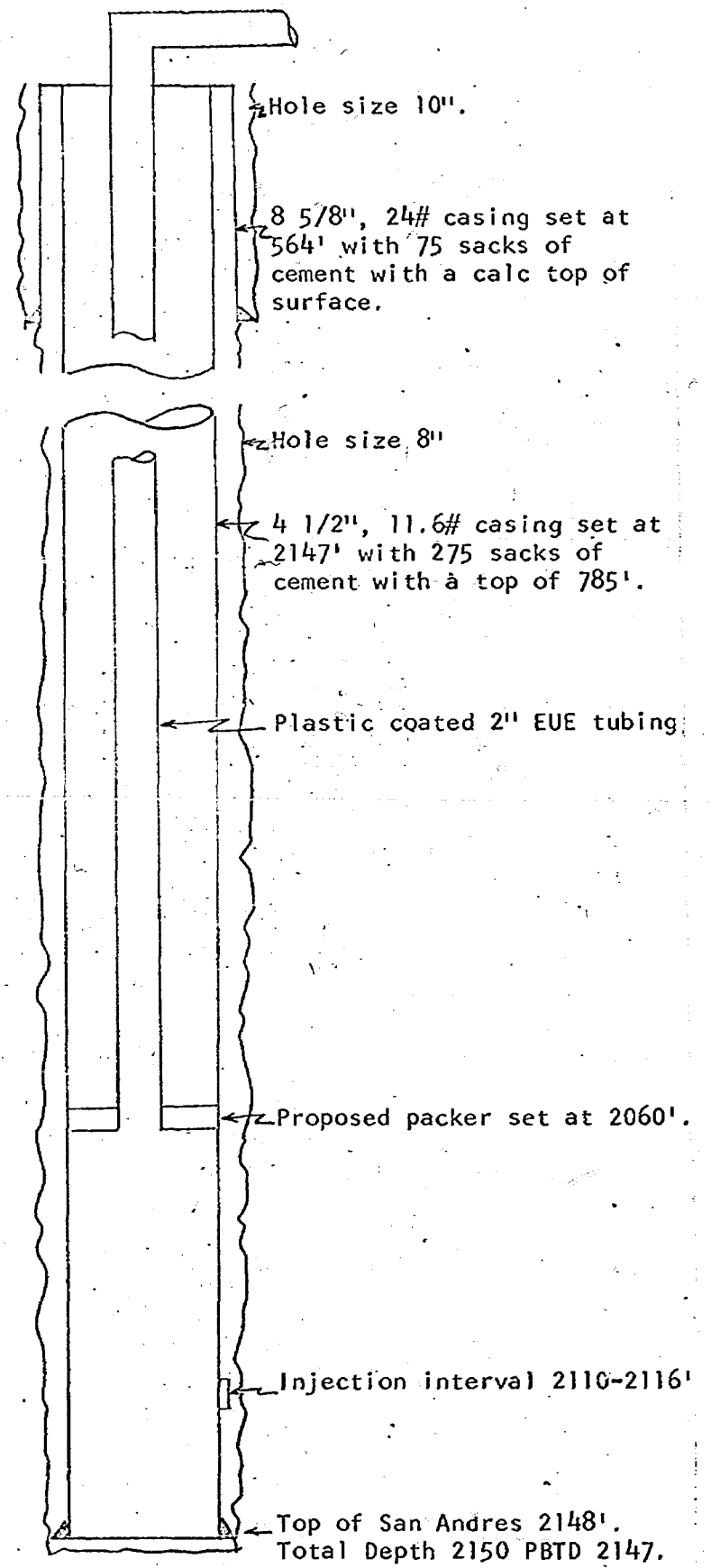
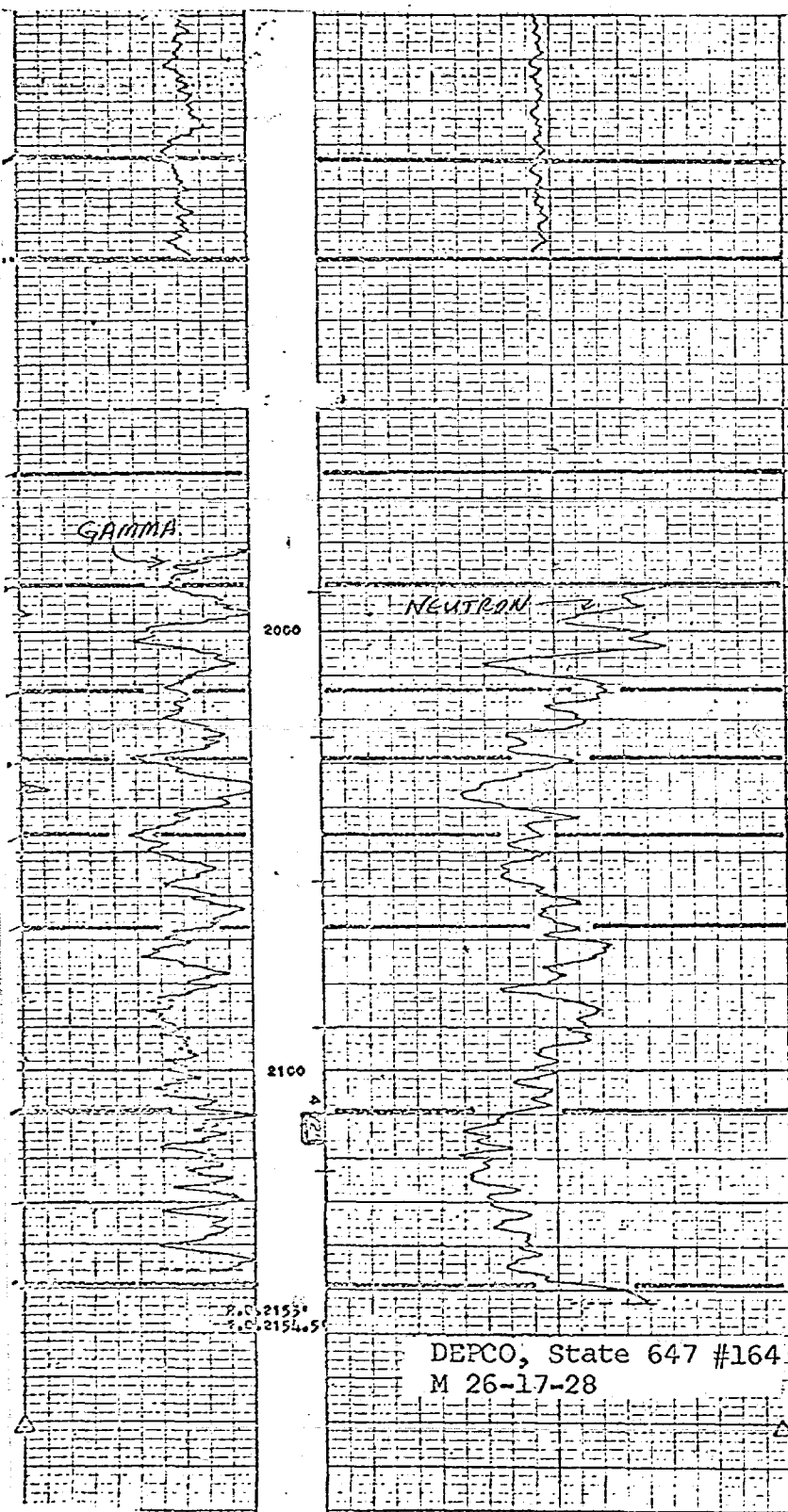


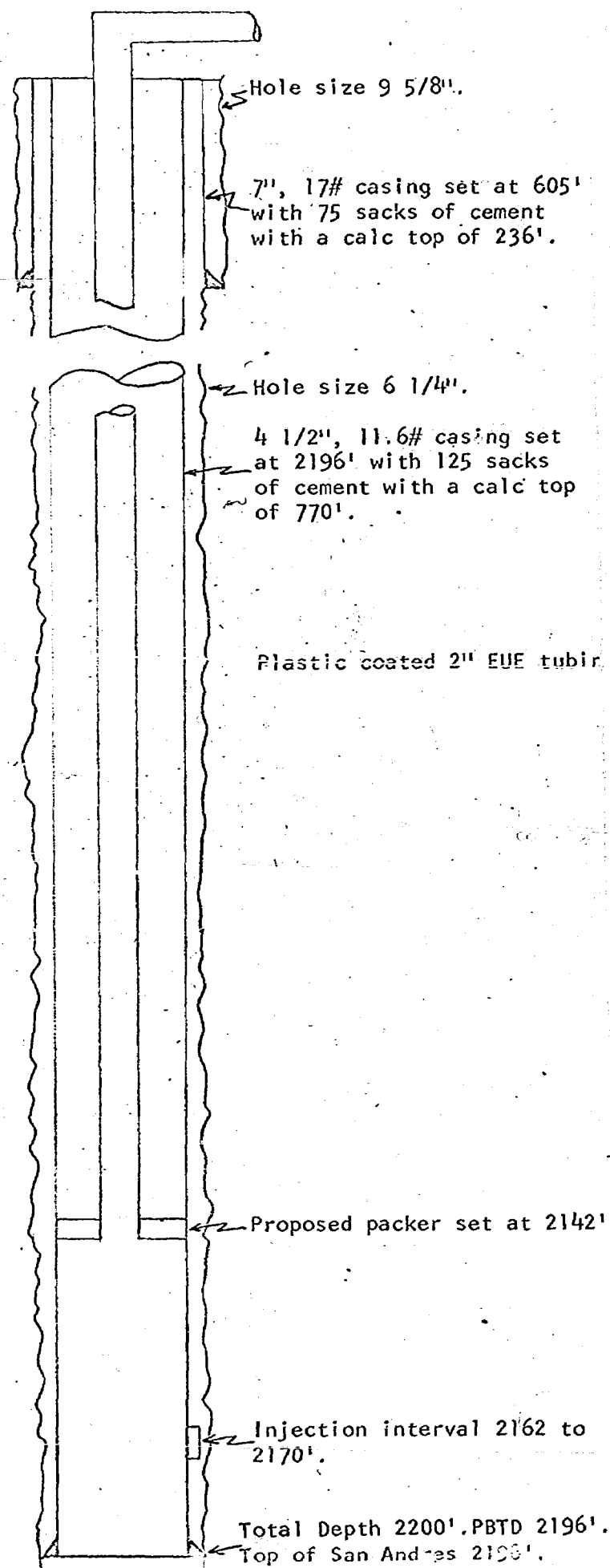
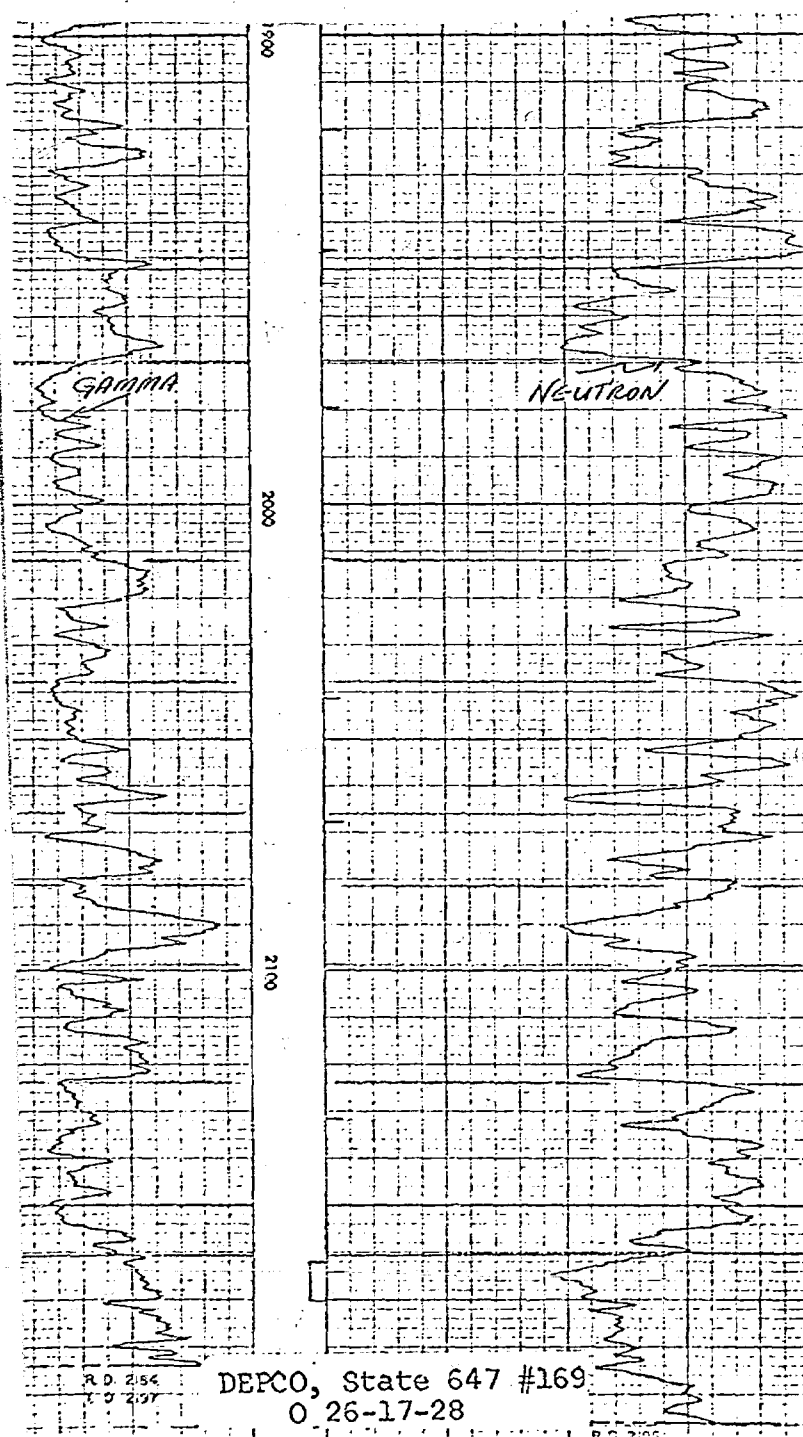


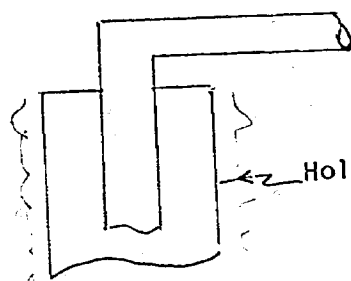




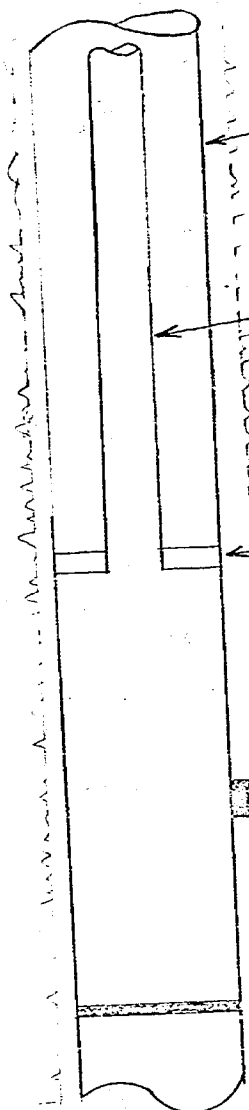








Hole size 7".



5 1/2" casing set at 2640' with 115 sacks of cement with a calc. top of 1324'.

Plastic coated 2" EUE tubing.

Proposed packer set at 2217'.

Injection interval 2262' to 2270'.

Top of San Andres 2270'.

Proposed plug back to 2310'.

Open hole interval 2640 to 2715'.

Total Depth: 2715'.

Welch State # 2A

E 35-17-28

DOCKET NO. 26-67

DOCKET: SPECIAL HEARING - WEDNESDAY - AUGUST 30, 1967

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE
BUILDING, SANTA FE, NEW MEXICO

CASE 3644: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the revision of Paragraph (1) of Order No. R-3221, to provide that the effective date for the prohibition of surface disposal of produced water from the North Bagley-Upper Pennsylvanian, North Bagley-Middle Pennsylvanian, North Bagley-Lower Pennsylvanian, North Bagley-Wolfcamp, and Northeast Bagley-Wolfcamp Pools, Lea County, New Mexico, or within one mile thereof, be changed from November 1, 1967, to some earlier date.

NOTE: A COPY OF THIS DOCKET WAS MAILED TO ALL PRODUCERS IN THE ABOVE-MENTIONED POOLS ON AUGUST 11, 1967.

DOCKET NO. 27-67

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 6, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 3431 (Reopened and continued from the August 9, 1967 Examiner Hearing)

In the matter of Case 3431 being reopened pursuant to the provisions of Order No. R-3100 to permit Sinclair Oil & Gas Company to show cause why its W. H. Turner Well No. 1 located in Unit L of Section 29, Township 21 South, Range 37 East, Lea County, New Mexico, a dual completion in the Drinkard and Blinebry Oil Pools, should not be completed in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations.

CASE 3645: Application of Skelly Oil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Lazy "J" Pennsylvanian Pool, including a provision for 80-acre spacing units for that area east of a line drawn through the centers of Sections 26 and 35, and south of a line drawn along the south line of Sections 33, 34, and 35, all in Township 13 South, Range 33 East, Lea County, New Mexico.

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Docket No. 27-67
September 6, 1967 Examiner Hearing

CASE 3646: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Delaware Sand through 12 wells in the Cotton Draw Unit Participating Area and through 3 wells on off-setting leases in Sections 10, and 28, Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.

CASE 3647: Application of Tenneco Oil Company for two waterflood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute two waterflood projects by the injection of water into the Delaware Sand through two wells on its State Monsanto Lease, in Section 16, and through one well on its J. D. Sena, Jr. Lease, in Section 28, both in Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.

CASE 3648: Application of Tenneco Oil Company for a dual completion, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Jicarilla "A" Well No. 8 located in Unit H of Section 17, Township 26 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of Tapacito-Gallup oil and Basin-Dakota gas through tubing, and the casing-tubing annulus, respectively, by means of a cross-over assembly.

CASE 3649: Application of Texas Pacific Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Ella Drinkard Well No. 2 located in Unit E of Section 25, Township 22 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce oil from an undesignated Ellenburger pool and from another undesignated pool, either pre-Ellenburger or Granite Wash, through parallel strings of tubing.

CASE 3650: Application of Albert Gackle for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice Pools in the well-bore of his Esmond "B" Well No. 3 located in Unit H of Section 33, Township 22 South, Range 36 East, Lea County, New Mexico, with the assignment of a single allowable to said commingled production.

Page -3-

Docket No. 27-67

September 6, 1967 Examiner Hearing

CASE 3635 (Corrected Notice):

Case 3635, Application of Cities Service Oil Company for an Exception to Order No. R-3221, Chaves County, New Mexico, was heard by the Commission on August 16, 1967. This notice is being given and the case will be re-opened to correct the location of one of the surface pits which were the subject of the hearing. The correct location of said pit is Unit 2 of Section 2, Township 14 South, Range 31 East, Chaves County, New Mexico, rather than Unit 1 of Section 2 as previously advertised.

CASE 3651: Application of Olen F. Featherstone for the creation of a new pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Permo-Pennsylvanian pool for his Mobil-State Well No. 1 located in Unit E of Section 32, Township 14 South, Range 35 East, Lea County, New Mexico, and for the promulgation of special rules therefor including a provision for 80-acre proration units.

CASE 3652: Application of Depco, Inc. for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Artesia Unit Area comprising 2400 acres, more or less, of State lands in Townships 17 and 18 South, Range 28 East, Eddy County, New Mexico.

CASE 3653: Application of Depco, Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Artesia Unit Area by the injection of water into the Grayburg formation through 15 wells, Artesia Pool, Eddy County, New Mexico.

CASE 3654: Application of Mobil Oil Corporation for a waterflood expansion and for an amendment of Order No. R-1244, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Bridges-State Waterflood Project by the conversion to water injection of its Bridges-State Wells Nos. 63 and 73 in Units K and G of Section 13; Wells Nos. 3 and 6 in Units O and E of Section 23; Well No. 47 in Unit K of Section 24; Well No. 5 in Unit C of Section 26, and Well No. 52 in Unit A of Section 27; its State G Well No. 3 in Unit G of Section 24 and State J Wells Nos. 1 and 4 in Units I and A of Section 22, all in Township 17 South, Range 34 East, Vacuum Pool, Lea County, New Mexico.

Applicant further seeks the amendment of Order No. R-1244 to provide that future operation and expansion of said project would be subject to the provisions of Rule 701-E of the Commission Rules and Regulations.

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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 6, 1967

IN THE MATTER OF:

Application of Depco, Inc.
for a unit agreement,
Eddy County, New Mexico

and

Application of Depco, Inc.
for a waterflood project,
Eddy County, New Mexico.

Case No. 3652

Case No. 3653

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The next case will be Case 3652.

MR. HATCH: Case 3652, Application of Depco, Inc.
for a unit agreement, Eddy County, New Mexico.

MR. NUTTER: Did you want to consolidate the next
one also, for hearing, Mr. Losee?

MR. LOSEE: Yes, sir.

MR. NUTTER: We will call Case 3653.

MR. HATCH: Case 3653, Application of Depco, Inc.
for a waterflood project, Eddy County, New Mexico.

MR. NUTTER: Cases 3652 and 3653 will be
consolidated for purpose of hearing.

MR. LOSEE: A. J. Losee, of Artesia, appearing
for Depco. I have one witness, Mr. Strader.

(Witness sworn.)

(Applicant's Exhibits, Case 3653,
1 through 5; Case 3652, Exhibits 1
through 4 marked for identification.)

J O H N S T R A D E R, called as a witness,
having been first duly sworn, was examined and testified as
follows:

DIRECT EXAMINATION

BY MR. LOSEE:

Q Will you state your name, please?

A John Strader.

Q Where do you live, Mr. Strader?

A Artesia, New Mexico.

Q What is your occupation?

A District Engineer for Depco, Incorporated.

Q You have never testified before this Commission,
have you?

A That is correct, I have not.

Q Would you please tell us where your formal higher
education was obtained, and when?

A I graduated from the University of Oklahoma in
1959 with a B. S. degree in Petroleum Engineering.

Q Did you have any further formal education?

A No.

Q Since graduating from Oklahoma University in 1959,
what positions and in what fields have you been employed?

A I was employed by Texaco, Incorporated, for six
years, the last two years being in the reservoir engineering
section in Hobbs.

Q Since leaving Texaco, where were you employed?

A I started working for Depco, Incorporated, in
January of 1966.

Q In what capacity?

A As a District Engineer.

Q Where were you located?

A In Artesia.

MR. LOSEE: Are Mr. Strader's qualifications accepted?

MR. NUTTER: Yes, they are. Proceed.

Q (By Mr. Losee) Please refer to what has been marked as Exhibit 1 and which is the unit agreement for the Artesia Unit area. Would you tell the Examiner what area is covered by this unit agreement?

A The area to be covered is shown in Exhibit 1 and consists of the southwest quarter of the southwest quarter of Section 25; the northwest quarter of the southwest quarter of Section 26; the south half of the south half of Section 26; the southeast quarter of Section 34; all of Section 35; the west half of Section 36, except the northeast quarter of the northeast quarter. All of the above is in Township 17 South, Range 28 East. All of Section 3, the west half of the west half and the northeast quarter of the northwest quarter and the northwest quarter of the northeast quarter and the southeast quarter and the southwest quarter of Section 2, all in Township 18 South, Range 28 East.

Q Now, Mr. Strader, your application to the Commission actually covered 2400 acres and you have just

described 2240 acres, is that correct?

A The latest revision dated September 6, 1967, shows that Burnham Oil Company Tracts 18, 19 and 20 have been taken out of the unit. The Burnham Oil Company has made their intentions known to us that they do not intend to join the unit.

Q Is the State of New Mexico the lessor of all the oil and gas leases under all the lands in this proposed unit area?

A That is correct.

Q What vertical interval is proposed to be unitized by this agreement?

A The vertical limits include the Queen, the Grayburg and part of the San Andres formations.

MR. NUTTER: I think, Jerry, at this point, maybe just for formality's sake, we ought to amend this application to 2240 rather than 2400 acres.

MR. LOSEE: Yes.

MR. NUTTER: So the application is thereby amended.

MR. LOSEE: Thank you.

MR. NUTTER: It says, more or less.

MR. LOSEE: I noticed that in the publication notice.

A This interval is shown on the Olen Featherstone No. 7 log from 1680 to 2700 feet.

Q (By Mr. Losee) Now, that's defined in Section 2 H of your unit agreement, is it not?

A Yes.

Q Please refer to what has been marked momentarily as Exhibit 1-A, which is the log of this Olen Featherstone No. 7, and point out the tops at which, I suppose, on the log are marked, the top and the bottom of the unitized formation, is that correct?

A That is correct. The top of the Queen is at 1680 and the top, or the bottom of the unitized interval is at 2700.

Q Actually this 2700 is a few feet off the bottom of the log, is that correct?

A That's correct.

Q What zones produce within this interval in the unit area?

A The zones are locally called the Loco Hills, several Me-Tex zones, the Permian and the Lovington.

Q And you were going from top to bottom?

A That's correct.

Q Are all of the wells within this unit area

completed within at least one of these zones that you have mentioned?

A They are,

Q Is any one of the zones prevalent or present throughout the unit area?

A The Permian is the only zone that is productive over the entire area to be unitized.

Q Again turning from the unit agreement, please refer to what has been marked as Exhibit 2 and explain what is portrayed by this exhibit?

A Exhibit 2 is a south-north cross section running through the area to be unitized. This cross section shows the previously mentioned local sand members and also the top of the San Andres formation.

Q Now, although some of these producing intervals are present in some wells, they're not in every case open to production at this time?

A That is correct. The zones are continuous over the entire area; however, they are non-productive in some of the areas.

MR. NUTTER: Is, by any chance, that tight log, the number 7 on this cross section?

THE WITNESS: Yes, it is, the fifth well from

the left.

MR. NUTTER: This then, is the Featherstone
State 7?

THE WITNESS: Yes, sir.

MR. NUTTER: The Lovington, way down here at the
bottom, that's what I was looking for, the Lovington.

THE WITNESS: It's the only sand member in the
San Andres.

Q (By Mr. Losee) Actually to the northern end of
your field the Lovington is not present, is that correct?

A That's correct.

Q Referring again to your unit agreement, would you
explain what the purpose is of unitization?

A The purpose of unitization is to carry on
secondary recovery on the area or in the area.

Q Most economic manner possible?

A That's correct.

Q Does this unit agreement provide in Section 4
for its expansion in the event it's deemed necessary?

A It does.

Q Does the unit agreement provide for the

subsequent joinder of a party who is not initially joined?

A Yes, in section 29.

Q Who is designated as the unit operator?

A Depco, Incorporated is designated as the unit operator.

Q What participation formula is proposed to be adopted by the terms of this agreement?

A Cumulative oil production is the proposed participation formula.

Q In other words, one hundred percent of the cumulative production?

A Yes.

MR. NUTTER: Is that spelled out here in the agreement somewhere?

A Yes, it is.

MR. LOSEE: It's section 13.

Q (By Mr. Losee) It's the cumulative production actually up to November 1, 1966, is that right?

A That's correct.

Q Why did you or why is it proposed to use one hundred percent cumulative in this unit area?

A The unit area is practically depleted of primary reserves and cumulative production is indicative of the

floodable remaining oil.

Q Do you have an opinion as to whether this formula of one hundred percent cumulative is fair and equitable to all interest owners within the unit?

A It is fair and equitable to all interest owners.

Q When would this unit become effective?

A The effective date is covered in Section 23 and 14 of the unit agreement.

Q And that is when one hundred percent of the working interest owners and seventy-five percent of the royalty interest owners under each tract have been committed and there are seventy-five percent of those committed tracts?

A That's correct.

Q Has this type of commitment been accomplished --

A I would like to introduce Exhibit 3 which is a tabulation of working interest commitment and royalty and overriding royalty commitment. One hundred percent of the working interest operators have committed and all but one tract of the overriding royalty interests have committed. This is Tract 4, the present commitment is 71.4285, Tenneco having the remainder. We have a telegram, although not at this hearing, which states that they will join.

Q Now, this exhibit has been prepared as if the State of New Mexico as the Lessor has actually committed?

Actually, Mr. Strader, they have given tentative approval and when the agreement has been approved by the Commission, they've advised us they will then commit the State acreage?

A That is correct.

Q The working interest is actually common throughout the unit, is it not?

A That is correct.

Q And owned by three companies?

A Yes, sir.

Q I suppose Tenneco being the only non-committed overriding owner, has been given an opportunity and has indicated in a telegram that they will execute the ratification?

A They have.

Q Will this proposed plan prevent waste and protect the correlative rights of the interest owners?

A Yes, it will.

Q Please refer to what has been marked as Exhibit 1 in Case 3653, being a map of the area, within the area of the Artesia unit, and explain what is shown on this map.

A Exhibit 1 is a plat of the area with all wells located within a two mile radius of the proposed project. The map shows injection wells, producing wells and deep

producing wells which are producing from the entire Abo Field.

Q

It shows the names of the off set operators?

A

That's correct.

Q

And it also colors in red the proposed injection wells?

A

That's correct.

Q

Let me call your attention to what is marked up in the northwest corner of the unit area as Depco's well State 647191 and State 647194, which are shown in the left hand as being presently injectors. Under what authority are those wells presently converted to injection?

A

State 647 Well Number 191 and 194 were approved for injection in case No. 3213, Order R-2876 dated March 5th, 1965.

Q

And they are actually now on injection?

A

That is correct.

Q

Would you please explain to the Examiner why it is proposed to use what appears to be a nine-spot well pattern?

A

A nine-spot well pattern will allow us to solve operational problems before we are irrevocably committed to a pattern. It also has a better aerial sweep efficiency than does a more conventional five-spot pattern.

Q Mr. Strader, on this map, are there any other flood, waterflood projects presently in existence?

A In the northwest portion of the map, we have the Red Lake Unit, which has had response from water injection, to the east of our proposed project, the old Loco Unit which has not been on injection long enough to have received response; to the south of our proposed unit, we have a cooperative waterflood with Waterflood Associates now operated by Rider Scott & Depco, Inc., and to the southwest of our project we have a cooperative waterflood operated by Pedco.

MR. NUTTER: Where was the Rider Scott?

THE WITNESS: Approximately one and a half miles south.

MR. LOSEE: It's not outlined as a unit.

MR. NUTTER: Section 14?

THE WITNESS: Yes, Waterflood Associates.

Q (By Mr. Losee) Have those last two units had any response?

A Both have received a response from water injection.

Q Now, all of these four units or waterflood projects that you have just testified to, are they producing from substantially the same interval as covered by this waterflood application?

A They are.

Q Let me refer you back to what was Exhibit 3 in Case 3652, you testified that you had one hundred percent working interest commitment, and yet on Tracts 18, 19 and 20 it shows zero. Are those the tracts owned by Burnham Oil Company that have actually been deleted from this application?

A That is correct.

Q Please refer to what has been marked as Exhibit 2 and explain what is reflected by this exhibit.

A Exhibit 2 is a tabulation of individual wells showing cumulative oil production as of 7-1-67, the average daily rate for each well, the date of completion, the completion interval and the stimulation given the well. The data, it will be noted that some of the stimulation is incomplete in that these are old wells and no data is available.

Q I notice some of them were completed back in 1925 and '26.

A That's correct. The first oil production from the area started in November of '25. Also it will be noted that the wells, that no well produces over four barrels a day except three producing wells that off set injectors that were previously mentioned.

Q Those are your State 647 and wells 139's?

A Wells 171 and 173, that is correct.

Q And they are actually off setting the present injection wells that you previously testified to?

A That is correct.

Q And they have received this response in production from the water injection?

A Yes.

Q Do you have an opinion as to whether all the wells within this project have reached an advanced or stripper state of depletion?

A They have.

Q Please refer to what has been marked as Exhibit 3 and explain what is portrayed by this exhibit?

A This is a graphical presentation of production and injection data starting in 1925, to the present day, or to July of 1967. The graph shows the number of wells, the average monthly oil production, the cumulative oil production and the water injection rate in barrels per month, from the wells in the area.

Q Now, it's noted that the oil production rate went up starting in 1952, up through '56. Was that partially attributed to the increased number of wells shown on the graph?

A That's correct, the majority of the wells were

completed in the years 1955, '56 and '57.

Q That was also, those wells were completed by fracturing?

A That's correct.

Q Now, your period at which you started water injection in those two mentioned wells as shown on this graph, starting with the year 1965?

A In July of 1965.

Q Based upon your study of this proposed project area, Mr. Strader, have you reached an opinion as to the amount of oil that will be recovered by this waterflood project?

A I feel that we will recover 1,553,000 barrels in addition to our primary recovery. This will be as a direct result from waterflooding.

Q Do you know approximately what the primary recovery from all these wells, cumulative, has been?

A It will be that figure, 1,553,000 barrels.

Q So that actually you are estimating that the secondary recovery will be equal to the primary recovery?

A Yes, sir.

MR. NUTTER: Please refer to what has been marked Exhibit 4 in this Case 3653 and also marked as Exhibit 2 in Case 3652, which is the south-north cross section; it

points out the pay zones. It is Depco's intention to go in and commence injection in all of these zones at the same time?

A Since the Premier sand is the only producing sand in the entire interval and the most prolific, we intend to confine our injection to the Premier only, initially, and at a later date expand to these other sand stringers where it will warrant.

Q (By Mr. Losee) But your intention is, within this project area, to eventually cover all of these intervals that have produced in these wells?

A That is correct.

Q Please refer to what has been marked as Exhibit 5 in Case 3653, and explain what is reflected by this exhibit.

A In Exhibit 5, the cover sheet is an index of individual well data that follows. These are the 15 proposed injection wells. The individual well data includes the hole size, the casing size, the calculated tops of cement, the proposed tubing and packer depth, and the proposed injection interval and the total depth of the well.

Q Now, opposite those diagramatic sketches are actual excerpts of the logs of each of the proposed injection wells where the same are available?

A That is correct.

Q In every case, is it proposed to inject down tubing with a packer?

A That's correct. We will inject down tubing, the tubing will be either cement lined or plastic coated.

Q And presently your packer will be set above the Premier?

A That's correct, isolating zones above for a later date.

Q How will you know if a leak develops in this packer or if your water is not going into the Premier section or zone?

A We will make continuous observations of the tubing, casing annulus with the pressure on the tubing casing annulus and periodic injectivity profile surveys.

Q Well, in the event you determine that it is leaking, what would you propose, or how would you propose to remedy it?

A Two of the wells are not cased through the interval, in which case if the open-hole packer does not confine the injection to the Premier, we will be required to run a liner and cement.

Q Now, those wells that you mentioned relining, number one is about the fourth well down in this tabulation of tables, is it not?

A That is correct.

MR. NUTTER: It's one of the real old ones?

MR. LOSEE: Yes.

Q (By Mr. Losee) It was drilled and completed in 1925?

A This was the first well completed.

Q Now, in this one, you don't show any cement calculation on it, would you explain why?

A That data is not available in our files, nor in the Commission files or the District Commission offices files.

Q Do you have any opinion as to whether there is any cement behind that pipe?

A I believe that there is.

Q How do you arrive at that opinion?

A Other wells have been cemented that were completed at approximately this same time and it is a speculation that this was cemented. These wells have been producing since 1925 and there has been no evidence of water or foreign material coming into the wellbore.

Q The second well that is not cemented too, is the State 647, number 38, which is about what, the tenth one down on the exhibit. That well was completed in 1926, was it not?

A That is correct.

Q And is your same testimony true as to that well with respect to the presence or absence of cement, the lack of records and an opinion that it probably is cemented for the reasons you mentioned?

A That is correct.

Q What is the source of water for this proposed project?

A We are now carrying on negotiations with Yucca Water Company and Double Eagle Water Company. One of these two companies that have water distribution lines in the area will be our source of water.

Q Do you propose to reinject water, produced water?

A We do.

Q What is the proposed initial pressure and rate of injection for this project?

A We propose to inject at 1800 psi and 500 barrels per day per well.

Q From your study of this project, do you have an opinion as to whether the waterflooding of this area will prevent waste, permit you to recover oil that would not otherwise be recovered?

A It will both prevent waste and protect correlative rights.

Q This application, in making this application,

you understand that the allowable provisions of Rule 701 will be applicable to the same?

A I do.

Q Were Exhibits 1 through 4 in Case 3652 and Exhibits 1 through 5 in Case 3653 prepared by you or under your supervision?

A Yes, they were.

MR. LOSEE: We move to introduce Applicant's Exhibits 1 through 4 in Case 3652 and Exhibits 1 through 5 in Case 3653.

MR. NUTTER: Applicant's Exhibits as described by counsel will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 4, Case 3652 and 1 through 5, Case 3653, were admitted in evidence.)

MR. LOSEE: That's all I have at this time.

MR. NUTTER: Are there any questions of the witness?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Strader, when you indicated the calculated top of the cement on these various wells here, what did you do, you took the number of sacks and then you took the hole size which had been drilled out under the surface pipe and took the difference between the hole size and the pipe size and just figured that at one hundred percent fillup, or did you use any other figure?

A No, it's figured at one hundred percent fillup.

Q One hundred percent fillup?

A Yes, sir.

Q So any washed-out area would detract from that top then?

A That's correct. We do have callipers on two of the wells, the Lanning G No. 1 and the State 647 Well 38, which shows, except for the shot hole, a very uniform borehole.

Q These two wells that you are going to have to set the open hole packer in, the formation packer, the one well has 2,033 feet of pipe, the other one only has about 83 feet of pipe in it?

A Yes.

Q How will you be able to check to see that your injection water is not leaking around that packer?

A We will make a constant surveillance of the pressure on the tubing casing annulus.

Q If you had a bad cement job and you are not even sure that one of them has any cement in it, the water could be coming up and go on the outside of the pipe and never show on the annulus?

A These wells pressure up rather quickly and will have a high injection pressure and surely we'd be able to see it on the casing tubing annulus.

Q What did you say your pressure was going to be, incidentally?

A Eighteen hundred, thousand.

Q Eighteen hundred. I didn't know if you said eight hundred or eighteen hundred. Seems like there ought to be some way of determining for sure that that formation packer is set and holding real well before a long range injection program would start in a well like this.

MR. LOSEE: Would your injectivity test before you started actually determine if your water was going into the formation and not coming up behind the packer?

A We will run an injectivity profile survey very early in the injection life of the well to determine if the packer is holding.

MR. NUTTER: George, didn't we have one a while back that was similar, in which the operator was going to run a slug of radio-active water in it first and then withdraw it and if there was any radio-activity in back of the pipe it would show up? Is that type of a survey possible, in which you are going to set a formation packer?

A I am not familiar with that type.

Q (By Mr. Nutter) Now, in each of these other instances you propose to set your packer within a hundred feet of either the uppermost perforation or the casing shoe,

as the case may be, is this correct?

A That's correct.

Q And all of these tubings will be plastic coated?

A Or cement lined.

Q How about the annulus, will it be loaded with inert fluid or left dry?

A On wells that are open, several of the wells are open, will be open above the packer, in which case we cannot load the annulus. The annulus will be loaded.

Q You have perforation in some of them that will be isolated?

A Correct.

Q And these are the ones that maybe later on you will start flooding?

A That is correct.

Q But the other ones which don't have these other perforations, you will load that annulus with inert fluid?

A Yes.

MR. NUTTER: Are there any other questions of Mr. Strader? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr.

Losee?


MR. LOSEE: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3652 or Case 3653? We will take the cases under advisement.

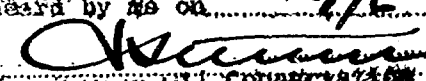
STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my hand and seal this 30th day of October, 1967.


Ada Dearnley

My commission expires
June 19, 1971.

I do hereby certify that the foregoing is a complete and correct record of the proceedings in the Bernalillo hearing of Case No. 3652-53 heard by me on 7/6 1967

Ada Dearnley, Notary Public
New Mexico Oil Conservation Commission

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
ARTESIA UNIT AREA
COUNTY OF EDDY
STATE OF NEW MEXICO

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Preamble
Agreement Proper

Map of Unit Area. Exhibit "A"
Tracts, Ownership and Tract Participation. . . Exhibit "B"

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EXHIBIT 1

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
ARTESIA UNIT AREA
COUNTY OF EDDY
STATE OF NEW MEXICO

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UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
ARTESIA UNIT AREA
COUNTY OF EDDY
STATE OF NEW MEXICO

THIS AGREEMENT entered into as of the first day of February, 1967, by and between the parties subscribing, ratifying, or consenting hereto, and herein referred to as the "parties hereto,"

W I T N E S S E T H:

WHEREAS, the parties hereto are the owners of working, royalty, or other oil and gas interests in the Unit Area subject to this agreement; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by law (Volume 2, Chapter 7, Article 11, New Mexico Statutes, 1953 Annotated) to consent to and approve the development or operation of State Lands under agreements made by lessees of State land jointly or severally with other lessees where such agreements provide for the unit operation or development of part of or all of any oil or gas pool, field or area; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 1, Chap. 162, Laws of 1951; Chap. 7, Art. 11, Sec. 41, N.M. Stats. 1953 Annot.) to amend with the approval of lessee, evidenced by the lessee's execution of such agreement or otherwise, any oil and gas lease embracing State lands so that the length of the term of said lease may coincide with the term of such agreements for the unit operation and development of part or all of any oil or gas pool, field or area; and

WHEREAS, the Oil Conservation Commission of the State of New Mexico is authorized by law (Volume 9, Part 2, Chapter 65, Article 3, New Mexico Statutes, 1953 Annotated) to approve this agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Artesia Unit Area covering land hereinafter described to give reasonably effective control of operations therein; and

Whereas, it is the purpose of the parties hereto to enable institution and consummation of secondary recovery operations to conserve natural resources, prevent waste and secure other benefits obtainable through development and operation of the area subject to this agreement under the terms, conditions and limitations herein set forth.

NOW THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this agreement their respective interests in the "Unit Area" and the "Unitized Formation" lying thereunder (as those terms are defined hereinafter) and agree severally among themselves as follows:

1. ENABLING ACT AND REGULATIONS. The oil and gas operating regulations in effect as of the effective date hereof governing drilling and producing operations not inconsistent with the terms hereof or the laws of the State of New Mexico are hereby accepted and made a part of this Agreement.

2. DEFINITIONS. For the purpose of this agreement, the following terms and expressions as used herein shall mean:

(a) "Commission" means the Oil Conservation Commission of the State of New Mexico.

(b) "Commissioner" means the Commissioner of Public Lands of the State of New Mexico.

(c) "Royalty Interest" or "Royalty" means an interest other than a Working Interest in or right to receive a portion of the Unitized Substances or the proceeds thereof and includes the royalty interest reserved by the lessor by an oil and gas lease and any overriding royalty interest, oil payment interest, net profits contract, or any other payment or burden which does not carry with it the right to search for and produce Unitized Substances.

(d) "Royalty Owner" means the owner of a Royalty Interest.

(e) "Tract" means each parcel of land described as such and given a Tract number in Exhibit "B".

(f) "Tract Participation" means the percentage of Unitized Substances allocated to a Tract under this agreement as shown in Exhibit "B".

(g) "Unit Area" means the land shown on Exhibit "A", and described by Tracts in Exhibit "B", containing 2,400.78 acres, more or less.

(h) "Unit Operating Agreement" means any agreement or agreements, whether one or more, entered into either separately or collectively by and between the Unit Operator and the Working Interest Owners, as provided in Section 9, ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT, and shall be styled "Unit Operating Agreement for the Development and Operation of the Artesia Unit Area, County of Eddy, State of New Mexico."

(i) "Unit Participation" means the sum of all Tract Participations or portions thereof which a party is entitled to receive.

(j) "Unitized Formation" means that inclusive subsurface portion throughout the Unit Area of the Queen-Grayburg-San Andres formations as such formations occur between the depth interval measured from the kelly bushing, of 1680 feet and 2700 feet in the Olen F. Featherstone State Well No. 7 as shown on the Schlumberger Gamma-Neutron log of said well which is located in the SW/4 of the SW/4 of Section 2, Township 18 South, Range 28 East, Eddy County, New Mexico.

(k) "Unitized Substances" means all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons within or produced from the Unitized Formation.

(l) "Working Interest" means an interest in Unitized Substances by virtue of a lease, operating agreement, fee title, carried interest or otherwise, which interest is chargeable with and obligated to pay or bear, either in cash or out of production or otherwise, all or a portion of the cost of drilling, developing, producing and operating the Unitized Formation. Any interest in Unitized Substances which is a Working Interest as of the date the owner thereof executes or ratifies this agreement shall thereafter be treated as a Working Interest for all purposes of this agreement.

(m) "Working Interest Owner" means a party hereto who owns a Working Interest.

(n) "Voting Interest". Each Working Interest Owner shall have a voting interest equal to its Unit Participation which is in effect at the time the vote is taken.

(o) "Unit Operator" means the Working Interest Owner designated by Working Interest Owners under the Unit Operating Agreement to develop and operate the Unitized Formation, acting as operator and not as a Working Interest Owner.

(p) "Unit Operations" means all operations conducted by Working Interest Owners or Unit Operator pursuant to this agreement and the Unit Operating Agreement for or on account of the development and operation of the Unitized Formation for the production of Unitized Substances.

(q) "Outside Substances" means all substances obtained from any source other than the Unitized Formation and which are injected into the Unitized Formation.

(r) "Oil and Gas Rights" means the right to explore, develop, and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds therefrom.

(s) "Unit Equipment" means all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(t) "Unit Expense" means all cost, expense, or indebtedness incurred by Working Interest Owners or Unit Operator pursuant to this agreement and the Unit Operating Agreement for or on account of Unit Operations.

3. EXHIBITS. Attached hereto are the following exhibits which are incorporated herein by reference:

Exhibit "A", which is a map that shows the boundary lines of the Unit Area and the Tracts therein.

Exhibit "B", which is a schedule that describes each Tract in the Unit Area, the working interest ownership and shows Tract Participation.

3.1 Reference to Exhibits. When reference herein is made to an exhibit, the reference is to the Exhibit as originally attached or, if revised, to the latest revision.

3.2 Exhibits Considered Correct. An exhibit shall be considered to be correct until revised as herein provided.

3.3 Correcting Errors. The shapes and descriptions of the respective Tracts have been established by using the best information available. If it subsequently appears that any Tract, because of diverse royalty or working interest ownership on the effective date hereof, should be divided into more than one Tract, or that any mechanical miscalculation has been made, Unit Operator, with the approval of Working Interest Owners and the Commissioner, may correct the mistake by revising the exhibits to conform to the facts. Each such revision of an exhibit shall be effective at 7:00 a.m. on the first day

of the calendar month next following the filing for record of the revised exhibit or on such other date as may be determined by Working Interest Owners and set forth in the revised exhibit.

3.4 Filing Revised Exhibits. If an exhibit is revised pursuant to this agreement, Unit Operator shall certify and file the revised exhibit for record in Eddy County, New Mexico, and with the Commissioner.

4. EXPANSION OF UNIT AREA. The Unit Area may be expanded to include acreage reasonably proved to be productive upon such terms as may be determined by Working Interest Owners including, but not limited to the following:

(a) The acreage shall qualify under a Section of Article 14.

(b) The participation to be allocated to the acreage shall be reasonable, fair and based on all available information.

(c) There shall be no retroactive allocation or adjustment of Unit Expense or of interests in the Unitized Substances produced or proceeds therefrom; however, this limitation shall not prevent an adjustment of investment by reason of the enlargement.

4.1 Determination of Tract Participation. Unit Operator, subject to Section 13.1, shall determine the Tract Participation of each Tract within the Unit Area as enlarged and shall revise Exhibits "A" and "B" accordingly.

4.2 Effective Date. The effective date of any enlargement of the Unit Area shall be 7:00 a.m. on the first day of the calendar month following compliance with conditions for enlargement as specified by Working Interest Owners, approval by the Commissioner and the Commission, and the filing for record of revised Exhibits "A" and "B" in the records of Eddy County, New Mexico.

5. UNITIZED LAND AND UNITIZED SUBSTANCES. All oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid and liquefiable hydrocarbons in the lands committed to this agreement are, as to the Queen-Grayburg-San Andres formations, unitized under the terms of this agreement (and are herein called "Unitized Substances") and said lands shall constitute lands referred to herein as "unitized land" or "land subject to this agreement."

6. UNIT OPERATOR. Depco, Inc., is hereby designated as the Unit Operator and by signature hereto as Unit Operator agrees and consents to accept the duties of Unit Operator for the development and production of Unitized Substances as herein provided. Whenever reference is made herein to the "Unit Operator," such reference means the Unit Operator acting in that capacity and not as an owner of interest in Unitized Substances, and the term "Working Interest Owner" when used herein shall include or refer to Unit Operator as the owner of a Working Interest when such interest is owned by it.

7. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after notice of intention to resign has been served by Unit Operator on all Working Interest Owners and the Commissioner and the Commission, and until all wells then drilled hereunder

are placed in satisfactory condition for suspension or abandonment, whichever is required by the Commission as to State lands, unless a new Unit Operator shall have been selected and approved and shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period.

The resignation of Unit Operator shall not release Unit Operator from any liability or default by it hereunder occurring prior to the effective date of its resignation.

The Unit Operator may, upon default or failure in the performance of its duties or obligations hereunder, be subject to removal by affirmative vote of at least seventy-five percent (75%) of the Voting Interest remaining after excluding the voting interest of Unit Operator. Such removal shall be effective upon notice thereof to the Commissioner.

In all such instances of resignation or removal, until a successor Unit Operator is selected and approved, as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of Unit Operator and shall, not later than thirty (30) days before such resignation or removal becomes effective, appoint a common agent to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interests in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all equipment, materials, and appurtenances used in conducting the Unit Operations owned by the Working Interest Owners to the new duly qualified successor Unit Operator, or to the common agent, or to the owner thereof if no such new Unit Operator is elected, to be used for the purpose of conducting Unit Operations hereunder. Nothing herein shall be construed as authorizing removal of any material, equipment and appurtenances needed for the preservation of any wells.

8. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender his or its resignation as Unit Operator, or shall be removed as hereinabove provided, the Working Interest Owners shall, by affirmative vote of at least seventy-five per cent (75%) of the Voting Interests, select a successor Unit Operator; provided, however, that should any Working Interest Owner own a Voting Interest of more than twenty-five percent (25%), the vote of said party shall not serve to disapprove the selection of a new Unit Operator approved by eighty per cent (80%) or more of the Voting Interests of the remaining Working Interest Owners and provided, further, that the Unit Operator shall not vote to succeed itself and its Voting Interest shall not be counted in a vote concerning its removal as the Unit Operator. Such selection shall not become effective until (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Commissioner. If no successor Unit Operator is selected and qualified as herein provided, the Commissioner may, at his election, declare this Unit Agreement terminated.

9. ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT. All costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be apportioned among, borne and paid by the Working Interest Owners, all in accordance with this agreement and the Unit Operating Agreement. The Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases or other independent contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as they may agree upon. However, the Unit

Operating Agreement shall not be deemed either to modify the terms and conditions of this Unit Agreement or to relieve the Unit Operator of any right or obligation established under this Unit Agreement; in case of any inconsistency or conflict between the Unit Agreement and the Unit Operating Agreement, this agreement shall prevail. One true copy of any Unit Operating Agreement shall be filed with the Commissioner.

10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein, the exclusive right, privilege, and duty of exercising any and all rights of the parties hereto (including surface rights) which are necessary or convenient for the prospecting for, producing, storing, allocating, and distributing the Unitized Substances, are hereby granted and delegated to and shall be exercised by the Unit Operator as herein provided. Upon request therefor, acceptable evidence of title to said rights shall be deposited with said Unit Operator and, together with this agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land, lease, Royalty Interest, operating agreement or communitization agreement, it being understood that under this agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

10.1 Surface Damages. Working Interest Owners shall pay the owner for damages to growing crops, timber, fences, improvements, and structures on the Unit Area that result from Unit Operations in accordance with and as specified in the leases subject to this agreement.

11. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. All lease and well equipment, materials, and other facilities heretofore or hereafter placed by any of the Working Interest Owners on the lands covered hereby shall be deemed to be and shall remain personal property belonging to and may be removed by the Working Interest Owners and is hereby excepted from the provisions of this agreement. The rights and interests therein as among Working Interest Owners are covered by the Unit Operating Agreement.

12. PLAN OF FURTHER DEVELOPMENT AND OPERATION. It is recognized and agreed by the parties hereto that the object and purpose of this agreement is to formulate and to put into effect a secondary recovery project in order to effect the optimum recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a plan of operation by the Working Interest Owners, the Commissioner and the Commission, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gas, or any other substance or a combination of any of said substances, whether produced from the Unitized Formation or not, and that the location of input wells and the rates of injection therein and the rate of production shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. This agreement is and shall be subject to the conservation laws of the State of New Mexico, to all other applicable federal, state and municipal laws, rules, regulations, and orders. The parties hereto, subject to prior rights, if any, grant to Unit Operator the use of brine or water or both from any formation in and under the Unit Area for injection into the Unitized Formation. After commencement of secondary operations, Unit Operator shall furnish the Commissioner monthly injection and production reports for each well in the Unit Area. The Working Interest Owners and the Commissioner shall be furnished periodic reports on the progress of the plan of operation and any revisions or changes thereto necessary to meet changed conditions or to protect the interests of all parties to this agreement; provided, however, that any major revisions of the plan of operation involving a basic deviation from the initial plan of operation shall be subject to the consent and approval of the Working Interest Owners, the Commissioner and the Commission.

13. PARTICIPATION. In Exhibit "B" attached hereto, there are listed and numbered the various tracts within the Unit Area and set forth opposite each tract is a figure which represents the percentage of participation allocated to each tract in the Unit Area, being hereinafter defined:

(a) The Tract Participation of each Tract shall be equal to one hundred per cent (100%) times the ratio of the cumulative production to November 1, 1966 from the Unitized Formation underlying each such Tract to the cumulative production to November 1, 1966 from the Unitized Formation underlying all such tracts, as approved by the Working Interest Owners and shown in Exhibit "B".

13.1 Relative Tract Participations. If the Unit Area is enlarged or reduced, the revised Tract Participations of the Tracts remaining in the Unit Area and which were within the Unit Area prior to the enlargement or reduction shall remain in the same ratio one to another.

14. TRACTS QUALIFIED FOR PARTICIPATION. On and after the effective date hereof and until the enlargement or reduction thereof, the Unit Area shall be composed of the Tracts listed in Exhibit "B" that corner or have a common boundary (Tracts separated only by a public highway or a railroad right of way shall be considered to have a common boundary) and that otherwise qualify as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred per cent (100%) of the Working Interest have become parties to this agreement and as to which Royalty Owners owning seventy-five per cent (75%) or more of the Royalty Interest have become parties to this agreement.

(b) Each Tract as to which Working Interest Owners owning one hundred per cent (100%) of the Working Interest have become parties to this agreement and as to which Royalty Owners owning less than seventy-five per cent (75%) of the Royalty Interest have become parties to this agreement, and as to which (a) all Working Interest Owners in such Tract have joined in a request for the inclusion of such Tract in the Unit Area, as to which (b) seventy-five per cent (75%) of the combined voting interests of Working Interest Owners in all Tracts that meet the requirements of Section 14(a) have voted in favor of the inclusion of such Tract.

(c) Each Tract as to which Working Interest Owners owning less than one hundred per cent (100%) of the Working Interest having become parties to this agreement regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (a) the Working Interest Owner who operates the Tract and all of the other Working Interest Owners in such Tract who have become parties to this agreement have joined in a request for inclusion of such Tract in the Unit Area, and have tendered or executed and delivered an indemnity agreement indemnifying and agreeing to hold harmless the other Working Interest Owners in the Unit Area, their successors and assigns, against all claims and demands that may be made by the owners of Working Interests in such Tract who are not parties to this

agreement and which arise out of the inclusion of the Tract in the Unit Area; and as to which (b) seventy-five per cent (75%) of the combined voting interest of Working Interest Owners in all Tracts that meet the requirements of Sections 14(a) and 14(b) have voted in favor of the inclusion of such Tract and to accept the indemnifying agreement. Upon the inclusion of such a Tract in the Unit Area, the Unit Participation that would have been attributed to the non-subscribing owners of the Working Interest in such Tract, had they become parties to this agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements in proportion to their respective Working Interests in the Tract.

14.1 Revision of Exhibits. If any of the Tracts described in original Exhibit "B" fail to qualify for inclusion in the Unit Area, Unit Operator shall recompute, using the original basis of computation, the Tract Participation of each of the qualifying Tracts and shall revise Exhibits "A" and "B" accordingly. The revised exhibits shall be effective as of the effective date hereof and upon approval by the Commissioner.

15. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved shall be allocated to the several tracts in accordance with the respective Tract Participations effective during the period that the Unitized Substances were produced. The amount of Unitized Substances allocated to each Tract, regardless of whether it is more or less than the actual production of Unitized Substances from the well or wells, if any, on such Tract, shall be deemed for all purposes to have been produced from such tract.

15.1 Distribution Within Tracts. The Unitized Substances allocated to each Tract shall be distributed among, or accounted for to, the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and upon the same conditions as they would have participated and shared in the production from such Tract, or in the proceeds therefrom, had this agreement not been entered into and with the same legal effect. If any Oil and Gas Rights in a Tract hereafter become divided and owned in severalty as to different parts of the Tract, the owners of the divided interests, in the absence of an agreement providing for a different division, shall share in the Unitized Substances allocated to the Tract, or in the proceeds therefrom in proportion to the surface acreage of their respective parts of the Tract.

If the participation of any Oil and Gas Rights in Unitized Substances depends on the average production per well or the average pipeline runs per well on any Tract for any specified period, such average per-well production or such average per-well pipeline runs shall be determined from and after the effective date hereof by dividing the production of Unitized Substances allocated to such Tract by the number of wells located thereon which are completed in the Unitized Formation as of the effective date hereof plus the number of wells thereafter completed therein that are capable of producing Unitized Substances.

15.2 Taking Unitized Substances in Kind. The Unitized Substances allocated to each Tract shall be delivered in kind to the respective parties entitled thereto by virtue of the ownership of Oil and Gas Rights therein or by purchase from such owners. Such parties shall have the right to construct, maintain, and operate within the Unit Area all necessary facilities for that purpose,

provided that they are so constructed, maintained, and operated as not to interfere with Unit Operations. Any extra expenditures incurred by Unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the receiving party. If a Royalty Owner has the right to take in kind a share of Unitized Substances and fails to do so, the Working Interest Owner whose Working Interest is subject to such Royalty Interest shall be entitled to take in kind such share of the Unitized Substances.

15.3 Failure to Take in Kind. If any party fails to take in kind or separately dispose of its share of Unitized Substances Unit Operator shall have the right, for the time being and subject to revocation at will by the party owning the share, to purchase for its own account or sell to others such share at not less than the market price prevailing in the area and not less than the price Unit Operator receives for its share of Unitized Substances; provided that all contracts of sale by Unit Operator of any other party's share of Unitized Substances shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such contract be for a period in excess of one year. The proceeds of the Unitized Substances so disposed of by Unit Operator shall be paid to a payee who shall distribute such proceeds to the parties entitled thereto, such payee being the Working Interest Owners of each affected Tract or a party designated by such Working Interest Owners under an agreement between such party and such Working Interest Owners. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any other party's share of gas production without first giving such other party sixty (60) days notice of such intended sale.

15.4 Royalty on Outside Substances. If gas obtained from lands or formations not subject to this agreement is introduced into the Unitized Formation for use in pressure maintenance, stimulation of production, or increasing ultimate recovery, which shall be in conformity with a plan first approved by the Commissioner, a like amount of gas, less appropriate deductions for loss from any cause, may be withdrawn from the formation into which the gas was introduced royalty free as to dry gas but not as to the products extracted therefrom; provided that such withdrawal shall be pursuant to such conditions and formulas as may be prescribed or approved by the Commissioner as conforming to good petroleum engineering practice; and provided further that such right of withdrawal shall terminate on the termination of this agreement.

If liquefied petroleum gases obtained from lands or formations not subject to this agreement be injected into the Unitized Formation for the purpose of increasing ultimate recovery, which shall be in conformance with a plan first approved by the Commissioner, part or all such liquefied petroleum gases may be withdrawn royalty free pursuant to such conditions and formulas as may be prescribed or approved by the Commissioner.

15.5 Use of Unitized Substances. Working Interest Owners may use as much of the Unitized Substances as they deem necessary for Unit Operations including, but not limited to, the injection thereof into the Unitized Formation.

15.6 Royalty Payments. No royalty, overriding royalty, production, or other payments shall be payable upon, or with respect to, Unitized Substances used or consumed in Unit Operations, or which otherwise may

be lost or consumed in the production, handling, treating, transportation, or storing of Unitized Substances.

16. BALANCING OF PRODUCTION. Unit Operator shall gauge all lease and other tanks within the Unit Area to ascertain the amount of merchantable oil produced from the Unitized Formation in such tanks, above the pipeline connections, as of 7:00 a.m. on the effective date hereof. The oil that is a part of the prior allowable of the wells from which it was produced shall remain the property of the parties entitled thereto the same as if the Unit had not been formed. Any such oil not promptly removed may be sold by the Unit Operator for the account of the parties entitled thereto, subject to the payment of all royalties, overriding royalties, production payments, and all other payments under the provisions of the applicable lease or other contracts. The oil that is in excess of the prior allowable of the wells from which it was produced shall be regarded as Unitized Substances produced after effective date hereof.

16.1 Overproduction. If, as of the effective date hereof, any Tract is overproduced with respect to the allowable of the wells on that Tract and the amount of overproduction has been sold or otherwise disposed of, such overproduction shall be regarded as a part of the Unitized Substances produced after the effective date hereof and shall be charged to such Tract as having been delivered to the parties entitled to Unitized Substances allocated to such Tract.

17. ROYALTY SETTLEMENT. Any party receiving in kind or separately disposing of all or part of the Unitized Substances allocated to any Tract or receiving the proceeds therefrom shall be responsible for the payment thereof to the persons entitled thereto, and shall indemnify all parties hereto, including Unit Operator, against any liability for all royalties, overriding royalties, production payments and all other payments chargeable against or payable out of such Unitized Substances or the proceeds therefrom.

18. RENTAL SETTLEMENT. Rentals due on leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations; provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental due under their leases. Rental for lands of the State of New Mexico subject to this agreement shall be paid at the rate specified in the respective leases from the State of New Mexico.

19. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted so as to provide for the most economical and efficient recovery of such substances to prevent waste as defined by State laws or regulations.

20. DRAINAGE. Unit Operator shall take appropriate and adequate measures to prevent drainage of Unitized Substances from the committed Tract by wells on land not subject to this agreement, or, with consent of the Commissioner and pursuant to applicable regulations, pay a fair and reasonable compensatory royalty as determined by the Commissioner.

21. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases, and other contracts relating to exploration, drilling, development, or operation for oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons in and under lands committed to this agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect; and

the parties hereto hereby consent that the Commissioner as to State leases, by his approval hereof or by the approval by his duly authorized representative, does hereby establish, alter, change or revoke, the drilling, producing, rental, minimum royalty and royalty requirements of State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this agreement, and without limiting the generality of the foregoing, all leases, subleases, and contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each and every part or separately owned Tract committed to this agreement, regardless of whether there is any development of any particular part of or Tract of unitized land, notwithstanding anything to the contrary in any lease, operating agreement, or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling and producing operations performed hereunder upon any Tract of unitized land will be accepted and deemed to be performed upon and for the benefit of each and every Tract of unitized land, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Commissioners shall be deemed to constitute such suspension pursuant to such direction or consent as to each and every Tract of unitized land.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development, or operation for oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons which by its terms might expire prior to the termination of this agreement, is hereby extended beyond any such term so provided therein so that it shall be continued in full force and effect for and during the term of this agreement.

(e) Any lease embracing lands of the State of New Mexico which is made subject to this agreement shall continue in force beyond the terms provided therein as to the lands committed hereto until the termination hereof.

(f) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto, shall be segregated as to the portion committed and that portion not committed, and the terms of such lease shall apply separately as to such segregated portions commencing as of the effective date hereof. Notwithstanding any of the provisions of this agreement to the contrary, any lease embracing lands of the State of New Mexico having only a portion of its lands committed hereto shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease (whether within or without the Unit Area), (i) if and for so long as oil or gas is capable of being produced in paying quantities from some part of the lands embraced in such lease committed to this agreement; or (ii) if and for so long as some part of the lands embraced in such State lease are allocated Unitized Substances; or (iii) if, at the expiration of the secondary term, the lessee or the Unit Operator

is then engaged in bona fide drilling or reworking operations on some part of the lands embraced therein and for so long as such operations are being diligently pursued, and if they result in the production of oil or gas, said lease shall continue in full force and effect as to all the lands embraced therein, as provided in (i) and (ii) above.

22. COVENANTS RUN WITH LAND. This agreement shall extend to, be binding upon and inure to the benefit of the respective heirs, devisees, legal representatives, successors, and assigns of the parties hereto, and shall constitute a covenant running with the lands, leases, and interests covered hereby.

22.1 Notice of Transfer. Any conveyance of all or any part of any interest owned by any party hereto with respect to any Tract shall be made expressly subject to this agreement. No change of title shall be binding on the Unit Operator, or upon any party hereto other than the party so transferring, until the first day of the calendar month next succeeding the date of receipt by Unit Operator of a photocopy or a certified copy of the recorded instrument evidencing such change in ownership.

22.2 Waiver of Rights to Partition. Each party hereto covenants that, during the existence of this agreement, it will not resort to any action to partition the Unit Area or the Unit Equipment, and to that extent waives the benefits of all laws authorizing such partition.

23. EFFECTIVE DATE AND TERM. This agreement shall become binding upon each party as of the date such party signs the instrument by which it becomes a party hereto, and unless sooner terminated as provided in Section 23.1 shall become effective as to qualified Tracts at the time and date as determined by the Working Interest Owners in all the qualified Tracts, and set forth in a certificate filed for record by Unit Operator in Eddy County, New Mexico. The certificate shall also recite the percentage of the Unit Area represented by the Tracts qualified under Article 14 and the book and page in which a counterpart of this agreement has been recorded. The certificate shall not be filed until after the following requirements have been met:

(a) Tracts comprising seventy-five per cent (75%) or more of the Unit Area as shown on the original Exhibit "A" have qualified under the provisions of Article 14.

(b) At least one counterpart of this agreement has been filed for record by Unit Operator in Eddy County, New Mexico.

(c) This agreement has been approved by the Oil Conservation Commission of the State of New Mexico.

(d) This agreement has been approved by the Commissioner of Public Lands of the State of New Mexico.

23.1 Ipsa Facto Termination. If the requirements above are not accomplished on or before January 1, 1968, this agreement shall ipso facto terminate on that date (hereinafter called "termination date") and thereafter be of no further effect, unless prior thereto Working Interest Owners owning a combined Unit Participation of at least seventy-five per cent (75%) have become parties to this agreement and at least seventy per cent (70%) of the combined voting interests of such signatory parties have decided to extend the

termination date for a period not to exceed twelve (12) months. If the termination date is so extended and the above requirements are not accomplished on or before the extended termination date, this agreement shall ipso facto terminate on the extended termination date and thereafter be of no further effect.

23.2 Term. The term of this agreement shall be for the time that Unitized Substances are produced in paying quantities and as long thereafter as Unit Operations are conducted without a cessation of more than ninety (90) consecutive days unless sooner terminated by Working Interest Owners in the manner herein provided.

23.3 Termination by Working Interest Owners. This agreement may be terminated with approval of the Land Commissioner by Working Interest Owners having a combined Unit Participation of at least eighty per cent (80%), as shown in Exhibit "C" attached to the Unit Operating Agreement, whenever such Working Interest Owners determine that Unit Operations are no longer profitable or feasible and Unit Operator shall file an affidavit stating such fact and the date thereof in the records of Eddy County, New Mexico.

23.4 Effect of Termination. Upon termination of this agreement, the further development and operation of the Unitized Formation as a unit shall be abandoned, Unit Operations shall cease, and thereafter the parties shall be governed by the provisions of the leases and other instruments affecting the separate Tracts.

23.5 Salvaging Equipment Upon Termination. If not otherwise granted by the leases or other instruments affecting each Tract unitized under this agreement, Royalty Owners hereby grant Working Interest Owners a period of six (6) months after the date of termination of this agreement within which to salvage and remove Unit Equipment.

24. APPEARANCES. Unit Operator shall, after notice to other parties affected, have the right to appear for or on behalf of any and all interests affected hereby before the Commission and to appeal from orders issued under the regulations of said Commission or to apply for relief from any of said regulations or in any proceedings relative to operations before the Commission, or other legally constituted authority; provided however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceeding.

25. NOTICES. All notices, demands, objections, or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and delivered to the party or parties at their respective addresses set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party may have furnished in writing to party sending the notice, demand or statement.

26. NO WAIVER OF CERTAIN RIGHTS. Nothing in this agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State of New Mexico, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive.

27. UNAVOIDABLE DELAY. All obligations imposed by this agreement on each party, except for the payment of money, shall be suspended while compliance is prevented, in whole or in part, by a strike, fire, war, civil disturbance, act of God; by federal, state, or municipal laws, by any rule, regulation, or order of a governmental agency; by inability

to secure materials; or by any other cause or causes beyond reasonable control of the party. No party shall be required against its will to adjust or settle any labor dispute. Neither this agreement nor any lease or other instrument subject hereto shall be terminated by reason of suspension of Unit Operations due to any one or more of the causes set forth in this article.

28. LOSS OF TITLE. If a Tract ceases to have sufficient Working Interest Owners or Royalty Owners committed to this agreement to meet the conditions of Article 14 because of failure of title of any party hereto, such Tract shall be removed from the Unit Area effective as of the first day of the calendar month in which the failure of title is finally determined; however, the Tract shall not be removed from the Unit Area if within ninety (90) days of the date of final determination of the failure of title the Tract requalifies under a Section of Article 14.

28.1 Revision of Exhibits. If a Tract is removed from the Unit Area because of the failure of title, Unit Operator, subject to Section 13.1, shall recompute the Tract Participation of each of the Tracts remaining in the Unit Area and shall revise Exhibits "A" and "B" accordingly. The revised exhibits shall be effective as of the first day of the calendar month in which such failure of title is finally determined.

28.2 Working Interest Titles. If title to a Working Interest fails, the rights and obligations of Working Interest Owners by reason of the failure of title shall be governed by the Unit Operating Agreement.

28.3 Royalty Owner Titles. If title to a Royalty Interest fails but the Tract to which it relates is not removed from the Unit Area, the party whose title failed shall not be entitled to share hereunder with respect to such interest.

28.4 Production Where Title is in Dispute. If the title or right of any party claiming the right to receive in kind all or any portion of the Unitized Substances allocated to a Tract is in dispute, Unit Operator, at the discretion of Working Interest Owners, shall either:

(a) require that the party to whom such Unitized Substances are delivered, or to whom the proceeds therefrom are paid, furnish security for the proper accounting therefor to the rightful owner if the title or right of such party fails in whole or in part, or

(b) withhold and market the portion of Unitized Substances with respect to which title or right is in dispute, and impound the proceeds thereof until such time as the title or right thereto is established by a final judgment of a court of competent jurisdiction or otherwise to the satisfaction of Working Interest Owners, whereupon the proceeds so impounded shall be paid to the party rightfully entitled thereto;

(c) notwithstanding any provisions contained herein to the contrary, no payments of funds due the State of New Mexico shall be withheld, but such funds shall be deposited as directed by the Commissioner, to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

29. NONJOINDER AND SUBSEQUENT JOINDER. After the effective date of this agreement, the commitment of any interest in any Tract within the Unit Area shall be upon such terms as may be negotiated by Working Interest Owners and the owner of such interest and upon approval by the Commissioner.

30. COUNTERPARTS. A person may become a party to this agreement by signing the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof. The signing of any such instrument shall have the same effect as if all the parties had signed the same instrument.

30.1 Joinder in Dual Capacity. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests that may be owned or controlled by such party.

30.2 Commitment of State Lands by Lessee of Record. No lease or portion thereof embracing lands of the State of New Mexico shall be committed hereto unless the original of this instrument, a counterpart thereof or other instrument agreeing to be bound by the provisions hereof has been signed by the lessee of record who, for the purposes of this provision, shall be the original lessee or the assignee whose assignment was last approved by the Commissioner as shown by the records in the State Land Office.

31. TAXES. The owners of (1) the surface rights of lands within the Unit Area, (2) the severed mineral or Royalty Interests in the land, and (3) the improvements located on the lands not utilized for Unit Operations shall individually be responsible for the rendition and assessment for ad valorem tax purposes of all such property and for the payment of such taxes, except as otherwise provided in any contract or agreement between such owners and a Working Interest Owner. If any ad valorem taxes are not paid by such Owner responsible therefor when due, Unit Operator may, with approval of Working Interest Owners, at any time prior to tax sale, or expiration of period of redemption after tax sale, pay the same, redeem such property and discharge such tax liens as may arise through nonpayment. Any such payment shall be treated as an item of Unit Expense. Unit Operator shall, if possible, withhold from any proceeds derived from the sale of Unitized Substances otherwise due to any delinquent taxpayer or taxpayers an amount sufficient to defray the costs of such payment or redemption, such withholding to be credited to the joint account. Such withholding shall be without prejudice to any other remedy, either at law or in equity, which may be available for exercise by the Unit Operator or by the Working Interest Owners.

32. CONFLICT OF SUPERVISION. Neither the Unit Operator nor the Working Interest Owners or any of them shall be subject to any forfeiture, termination, or expiration of any rights hereunder or under any leases or contracts subject hereto, or to any penalty or liability on account of delay or failure in whole or in part to comply with any applicable provisions thereof to the extent that the said Unit Operator, Working Interest Owners, or any of them are hindered, delayed or prevented from complying therewith by reason of the failure of the Unit Operator to obtain, in the exercise of due diligence, the concurrence of proper representatives of the State of New Mexico in and about any matters or things concerning which it is required herein that such concurrence be obtained. The parties hereto, including the Commission, agree that all powers and authority vested in the Commission in and by any provisions of this contract are vested in the Commission and shall be exercised by it pursuant to the provisions of the laws of the State of New Mexico and subject, in any case, to appeal or judicial review as may now or hereafter be provided by the laws of the State of New Mexico.

33. NO PARTNERSHIP. The duties, obligations, and liabilities of the parties hereto are intended to be several and not joint or collective. This agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation, or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

33.1 No Sharing of Market. This agreement is not intended to provide, and shall not be construed to provide, directly or indirectly, for any cooperative refining, joint sale, or marketing of Unitized Substances.

34. BORDER AGREEMENTS. Subject to the approval of the Commissioner, the Unit Operator, with concurrence of sixty-five per cent (65%) of the then Voting Interests of the Working Interest Owners, may enter into a border protection agreement or agreements with the working interest owners of lands adjacent to the committed Tracts with respect to the operations in the border area for the maximum ultimate recovery, conservation purposes and proper protection of the parties and interest.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed as of the date first above written and have set opposite their respective names the date of execution and the address of each of the respective executing parties.

UNIT OPERATOR AND WORKING INTEREST OWNER

ATTEST:

DEPCO, INC.

Assistant Secretary

By

A. P. Tiddens
A. P. Tiddens - Vice President

DATE: _____

825 Petroleum Club Building
Denver, Colorado 80202

ATTEST:

HUSKY OIL COMPANY

Secretary

By

W. B. Macey
Its Attorney-in-fact

DATE: _____

P.O. Box 380
Cody, Wyoming

ATTEST:

YATES PETROLEUM CORPORATION

Secretary

By

309 Carper Building
Artesia, New Mexico

DATE: _____

By

E. Jeffers, D/B/A Burnham Oil Company
Artesia, New Mexico

DATE: _____

33. NO PARTNERSHIP. The duties, obligations, and liabilities of the parties hereto are intended to be several and not joint or collective. This agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation, or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

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IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed as of the date first above written and have set opposite their respective names the date of execution and the address of each of the respective executing parties.

UNIT OPERATOR AND WORKING INTEREST OWNER

ATTEST:

DEPCO, INC.

Assistant Secretary

By

A. P. Tiddens - Vice President

DATE: _____

825 Petroleum Club Building
Denver, Colorado 80202

ATTEST:

HUSKY OIL COMPANY

Secretary


By

DATE: _____


P.O. Box 380
Cody, Wyoming

ATTEST:

YATES PETROLEUM CORPORATION


Ass't. Secretary

By


President

DATE: July 3, 1967

207 S. 4th St. - Yates Bldg.
~~300 - Copper Building~~
Artesia, New Mexico 88210

DATE: _____

By

E. Jeffers, D/B/A Burnham Oil Company
Artesia, New Mexico

STATE OF COLORADO)
CITY &) SS
COUNTY OF DENVER)

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this ____ day
of February, 1967, by A. P. Tiddens, Vice President of DEPCO, INC., a
Delaware Corporation, on behalf of said corporation.

My commission expires

Notary Public

September 27, 1969

STATE OF WYOMING)
COUNTY OF) SS

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this ____ day
of _____, 1967, by _____,
_____ of HUSKY OIL COMPANY., a Delaware Corporation, on behalf
of said corporation.

My commission expires

Notary Public

STATE OF NEW MEXICO)
COUNTY OF) SS

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this 3rd day
of July, 1967, by S. P. Yates,
President of YATES PETROLEUM CORPORATION, a New Mexico
corporation, on behalf of said corporation.

My commission expires
Nov. 17, 1968

Shirley Patterson
Notary Public

STATE OF NEW MEXICO)
COUNTY OF) SS

Individual Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this ____ day
of _____, 1967, by E. Jeffers, D/B/A Burnham Oil Company.

My commission expires

Notary Public

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

Lonnie Kemper
Fern B. Kemper

STATE OF New Mexico)
COUNTY OF Chaves) ss.

The foregoing instrument was acknowledged before me this 17th day of July, 1967, by Lonnie Kemper, and wife Fern B. Kemper
My commission expires June 1, 1971

Jean Day
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____
My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____
My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ a _____ corporation, on behalf of said corporation.
My commission expires _____

Notary Public

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

ATTEST:

CONTINENTAL ILLINOIS NATIONAL BANK
AND TRUST COMPANY OF CHICAGO

John E. Bombardieri
Assistant Cashier

By W. W. Wilson
Vice President

STATE OF Texas
COUNTY OF Mulland

CENTAUR TRADING CO.
ss. By Geo. J. Conly President
ATTEST: A. Wayne Peters Secretary

The foregoing instrument was acknowledged before me this 18th
day of August, 1967, by Geo. J. Conly & A. Wayne Peters
My commission expires 6-30-69

STATE OF TEXAS)
COUNTY OF) ss.

The foregoing instrument was acknowledged before me this 18th
day of August, 1967, by Geo. J. Conly & A. Wayne Peters of CENTAUR TRADING CO.,
an Nevada corporation, on behalf of said corporation.

My commission expires: 6-30-69

Fayallene Stute
Notary Public

COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF Illinois
COUNTY OF Champaign) ss.

The foregoing instrument was acknowledged before me this 2nd
day of August, 1967, by W. W. WILSON of
CONTINENTAL ILLINOIS NATIONAL BANK
corporation, on behalf of said corporation.
My commission expires _____ MY COMMISSION EXPIRES NOVEMBER 14, 1970.

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

ATTEST:

Assistant Secretary

Continental Illinois National Bank and Trust Company of Chicago,
~~Trustee of the Estate of William D. Flynn~~
not in its individual capacity, but as trustee under the Last Will and Testament of William D. Flynn, Deceased.

STATE OF _____)
COUNTY OF _____)

ss. By

Vice President

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____)

ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____)

ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF ILLINOIS)
COUNTY OF COOK)

ss.

The foregoing instrument was acknowledged before me this 1st day of August, 1967, by J. J. EORLAND, Vice President of Continental Illinois National Bank and Trust Company of Chicago, a national banking association, on behalf of said corporation, Bank as Trustee aforesaid.

My commission expires May 9, 1971.

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

[Signature]
El Paso National Bank, Executor and
Trustee of Estate of Cyrus Jones

STATE OF Texas)
COUNTY OF El Paso) ss.

The foregoing instrument was acknowledged before me this 2nd
day of August, 1967, by Jack R. Sargent

My commission expires LILLIAN HEDLEY, Notary Public
in and for El Paso County, Texas
My commission expires May 31, 1969

Lillian Hedley
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____ of _____

corporation, on behalf of said corporation.
My commission expires _____

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RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

F. D. Shuffbarger
F. D. Shuffbarger

STATE OF New Mexico)
COUNTY OF Bernalillo) ss.

The foregoing instrument was acknowledged before me this 26th day of July, 1967, by F.D. Shuffbarger.
My commission expires October 25, 1970.

James K. Alexander
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____ corporation, on behalf of said corporation.
My commission expires _____.

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

HONDO OIL & GAS COMPANY

By: Stanley L. Smith
Vice President

STATE OF NEW MEXICO)
COUNTY OF CHAVES) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by Stanley L. Smith

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF NEW MEXICO)
COUNTY OF CHAVES) ss.

The foregoing instrument was acknowledged before me this 31 day of July, 1967, by Stanley L. Smith, Vice President of Hondo Oil & Gas Company, a New Mexico corporation, on behalf of said corporation.
My commission expires SEP. 20, 1968

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

ATTEST:

Murva Penlow
Assistant Secretary
(Seal)

SUNRAY DX OIL COMPANY

By G. E. Wellhouse
Vice President

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF Oklahoma)
COUNTY OF Tulsa) ss.

The foregoing instrument was acknowledged before me this 2nd day of July, 1967, by _____ of _____.

SUNRAY DX OIL COMPANY, a Delaware corporation, on behalf of said corporation.

My commission expires _____.

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

Nella B. Taylor, Individually and as
Administratrix with the will Annexed of
the Estate of J. L. Taylor, deceased

STATE OF NEW MEXICO)
COUNTY OF Eddy) ss. K. L. Taylor

The foregoing instrument was acknowledged before me this 1st
day of September, 1967, by Nella B. Taylor

My commission expires 4-22-70

Ethel McGuire
Notary Public

STATE OF NEW MEXICO)
COUNTY OF Eddy) ss.

The foregoing instrument was acknowledged before me this 1st
day of September, 1967, by K. L. Taylor

My commission expires 4-22-70

Ethel McGuire
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

corporation, on behalf of said corporation.

My commission expires _____

ARTESIA UNIT AGREEMENT

IN WITNESS WHEREOF this instrument is executed by the undersigned
as of the date set forth in their respective acknowledgments.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____, a _____ corporation, on behalf of said corporation.
My commission expires _____.

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

TRAC 416

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

_____ *Olen F. Featherstone*

STATE OF NEW MEXICO)
COUNTY OF CHAVES) ss.

The foregoing instrument was acknowledged before me this 10th day of July, 1967, by Olen F. Featherstone.

My commission expires 12-6-68.

Alys M. Norton
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____

_____, a _____ corporation, on behalf of said corporation.

My commission expires _____.

ARTESIA UNIT AGREEMENT

Tracy's 11416

IN WITNESS WHEREOF this instrument is executed by the undersigned
as of the date set forth in their respective acknowledgments.

My commission expires March 29, 1971

My commission expires.

My commission expires.

corporation, on behalf of said corporation.

My commission expires.

RATIFICATION AND JOINDER

Tract 14

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

attest:
George H. Johnson, Clerk

[Signature]
First National Bank of Artesia,
Trustee of James M. Welch Estate

STATE OF New Mexico)
COUNTY OF Eddy) ss.

The foregoing instrument was acknowledged before me this 12th day of July, 1967, by Charles H. Johnson.
My commission expires Sept. 14, 1968.

[Signature]
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____ corporation, on behalf of said corporation.
My commission expires _____.

Notary Public

STATE OF COLORADO)
CITY &) SS
COUNTY OF DENVER)

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this 1st day of February, 1967, by A. P. Tiddens, Vice President of DEPCO, INC., a Delaware Corporation, on behalf of said corporation.

My commission expires

September 27, 1969

Elizabeth J. Anderson
Notary Public

COLORADO
STATE OF ~~WYOMING~~) SS
COUNTY OF DENVER)

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this 20th day of June, 1967, by W. B. Macey, Attorney-in-Fact for of ~~of~~ HUSKY OIL COMPANY., a Delaware Corporation, on behalf of said corporation.

My commission expires

Sept. 27, 1969

Elizabeth J. Anderson
Notary Public

STATE OF NEW MEXICO)
COUNTY OF) SS

Corporate Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this ___ day of _____, 1967, by _____, _____ of YATES PETROLEUM CORPORATION, a _____ corporation, on behalf of said corporation.

My commission expires

Notary Public

STATE OF NEW MEXICO)
COUNTY OF) SS

Individual Acknowledgment
State of New Mexico

The foregoing instrument was acknowledged before me this ___ day of _____, 1967, by E. Jeffers, D/B/A Burnham Oil Company.

My commission expires

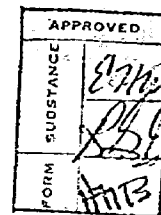
Notary Public

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.



Attest:

SINCLAIR OIL & GAS COMPANY

Assistant Secretary

By [Signature]
Vice President

STATE OF TEXAS)

ss.

COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this August day of 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)

ss.

COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)

ss.

COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF TEXAS)

ss.

COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this August day of 1967, by O. G. Simpson, Vice President of Sinclair Oil & Gas Company of Maine corporation, on behalf of said corporation.

My commission expires June 1, 1969

[Signature]

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

Mrs. Amy E. Williams Lund, Individually and
as Guardian of Jack K. Williams, and
Richard D. Williams

STATE OF New Mexico)
COUNTY OF Sherman) ss.

The foregoing instrument was acknowledged before me this 1st
day of August, 1967, by Amy E. Williams Lund

My commission expires 2-11-68

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____

My commission expires _____

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1967, by _____ of _____

_____, a _____
corporation, on behalf of said corporation.
My commission expires _____

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

Jerry Curtis
Louise S. Curtis

Ralph Nix

Frances Nix

STATE OF New Mexico)
COUNTY OF Eddy)

ss.

The foregoing instrument was acknowledged before me this 20th day of July, 1967, by Ralph Nix + Frances Nix, his wife and
Jerry Curtis + Louise S. Curtis, his wife.
My commission expires 1-12-68.

Alfred Leon Williams
Notary Public

STATE OF _____)
COUNTY OF _____)

ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____)

ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.
My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____)

ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____ corporation, on behalf of said corporation.
My commission expires _____.

Notary Public

RATIFICATION AND JOINDER

ARTESIA UNIT AGREEMENT

The undersigned (whether one or more) hereby acknowledge receipt of a copy of the Artesia Unit Agreement embracing lands situated in Eddy County, New Mexico, said Agreement dated February 1, 1967, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned being the owners of a royalty or other interest in and to the lands or minerals embraced in the Unit Area, as indicated on the schedule attached to the Unit Agreement as Exhibit "B", do hereby expressly join said Unit and do hereby commit all of their said interest to the Artesia Unit Agreement and do hereby consent thereto the same as if the undersigned had executed the original of said Unit Agreement or counterparts thereof.

IN WITNESS WHEREOF this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

YATES BROTHERS

BY: S. P. Yates
Partner

STATE OF NEW MEXICO)
COUNTY OF EDDY) ss.

The foregoing instrument was acknowledged before me this 14th day of July, 1967, by S. P. Yates, a partner in and on behalf of YATES BROTHERS, a partnership.

My commission expires Nov. 17, 1968

[Signature]
Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____.

My commission expires _____.

Notary Public

STATE OF _____)
COUNTY OF _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 1967, by _____ of _____

_____, a _____ corporation, on behalf of said corporation.

My commission expires _____.

Notary Public

325
626
2286
2326
2517
2356
2496
2412
107
il.
il. 2520
al.
al.
al.
al.
al.
al.
al.
al. 2609
gal.
gal.
gal.
gal. 2147
gal.
gal. 2196
gal.
gal.
gal.
gal.
gal.
gal.
gal. 2610

BEFORE EXAMINER ROUTER

Case NO. 3653

ARTESIA UNIT
Individual Well Data

Lease	Well No.	Cumulative 7-1-67	July BPD	Date of Completion	Completion Interval	Stimulation
Castle State	1	20,909	1	12-56	2400-2467	Frac w/20,000 gal.
	2	14,861	2	12-56	2470-2500	Frac w/20,000 gal. 2500
	3	17,710	1	1-57	2506-2556	Frac w/30,000 gal.
Curtis State	1	59,513	3	10-55	2205-2512	Frac w/20,000 gal.
	2	40,163	2	2-56	2396-2724	Frac w/38,000 gal.
	3	9,653	0	3-57	2476-2510	Frac w/26,000 gal.
Delhi State	1	33,327	1	4-56	2325-2399	Frac w/20,000 gal. 2325
	2	32,616	1	5-56	2331-2413	Frac w/19,000 gal.
Featherstone B	6	35,598	1	12-55	2192-2525	Frac w/10,000 gal.
	7	22,360	2	3-56	2318-2692	Frac w/10,000 gal. 2626
Gray State	1	28,581	1	4-41	2136-2286	Shot w/70 qts.
	2	28,580	1	7-55	2282-2325	Frac w/20,000 gal.
Hanson State	1	24,164	2	4-56	2327-2438	Frac w/20,000 gal.
	2	25,421	1	6-56	2440-2450	Frac w/20,000 gal.
	3	20,386	1	8-56	2403-2415	Frac w/20,000 gal.
	4	18,575	1	10-56	2420-2432	Frac w/20,000 gal.
Lanning State	1	23,391	0	11-25	2033-2365	
	2	26,685	0	3-26	2071-2460	
	3	26,685	0	7-26	2115-2448	
	4	31,163	0	1-27	2260-2365	Shot w/200 qts.
	5	28,333	0	1-28	2171-2450	
	6	23,482	0	6-28	1994-2366	
	7	27,022	1	8-55	2342-2473	Frac w/30,000 gal.
	8	28,755	0	9-55	1847-2419	Frac w/30,000 gal.
	9	31,662	1	11-55	2315-2400	Frac w/10,000 gal.
	1	27,705	3	3-55	2275-2300	Frac w/10,000 gal.
MRY State	2	25,227	4	7-55	2325-2387	Frac w/10,000 gal. 2325
	3	20,719	0	12-55	2350-2367	Frac w/10,000 gal.
	1	25,684	3	4-55	2351-2466	Frac w/20,000 gal.
Resler State	2	25,198	0	6-55	2434-2490	Frac w/20,000 gal. 2317
	1	16,312	2	5-57	2460-2686	Frac w/29,000 gal.
Shufflebarger	1	37,694	1	5-56	2356-2421	Frac w/30,000 gal. 2356
Sinclair State	2	37,753	2	7-56	2498-2609	Frac w/30,000 gal. 2496
State "A"	1	24,595	1	11-55	2453-2537	Frac w/15,000 gal.
	2	20,698	1	1-56	2230-2506	
State 647	3	10,311	1	3-59	2225-2636	Frac w/23,000 gal.
	33	48,734	0	1-26	635-2445	Shot w/100 qts.
	38	50,102	0	2-26	807-2474	Shot w/90 qts. 807
	50	51,280	0	8-27	682-2438	Shot w/120 qts.
	127	20,784	0	1-56	2310-2424	Frac w/10,000 gal.
	130	13,942	2	11-56	2152-2576	Frac w/40,000 gal. 2520
	133	11,667	0	11-56	1968-2240	Frac w/30,000 gal.
	134	11,382	0	12-56	2014-2294	Frac w/30,000 gal.
	135	12,859	1	12-56	2370-2378	Frac w/10,000 gal.
	136	7,575	0	3-57	2150-2444	Frac w/40,000 gal.
	137	7,241	0	3-57	2180-2477	Frac w/60,000 gal.
	138	9,498	0	2-57	2230-2508	Frac w/42,000 gal.
	139	26,257	11	2-57	2236-2654	Frac w/51,000 gal. 2609
	140	21,870	2	3-57	2296-2730	Frac w/75,000 gal.
	141	19,010	3	5-57	2306-2685	Frac w/55,000 gal.
	142	13,380	0	5-57	2356-2750	Frac w/48,000 gal.
	164	27,007	1	12-60	2110-2116	Frac w/16,000 gal. 2117
	166	25,938	1	11-61	2072-2082	Frac w/18,000 gal.
	168	26,433	1	1-61	2136-2142	Frac w/14,000 gal.
	169	25,631	1	1-61	2162-2170	Frac w/15,000 gal. 2196
	170	25,040	1	2-61	2167-2173	Frac w/16,000 gal.
	171	18,070	1	8-61	2195-2201	Frac w/23,000 gal.
	172	34,081	41	8-61	2160-2236	Frac w/26,000 gal.
	173	27,524	18	8-61	2191-2196	Frac w/25,000 gal.
	191	9,370	Inj	4-63	2323-2350	Frac w/40,000 gal.
	194	8,429	Inj	4-63	2208-2258	Frac w/52,000 gal.
Sunray State	2	7,406	1	12-56	2555-2785	Frac w/76,000 gal.
Welch State	1	23,253	1	12-60	2130-2140	Frac w/22,000 gal.
	2	22,905	1	12-54	2262-2270	Frac w/10,000 gal. 2270

ARTESIA UNIT
TRACT COMMITMENT ASSUMING
RATIFICATION BY COMMISSIONER OF PUBLIC LANDS

	<u>PERCENT WI COMMITTED</u>	<u>PERCENT RI & ORRI COMMITTED</u>
Tract 1	100	100
Tract 2	100	100
Tract 3	100	100
Tract 4	100	100
Tract 5	100	71.4285
Tract 6	100	100
Tract 7	100	100
Tract 8	100	100
Tract 9	100	100
Tract 10	100	100
Tract 11	100	100
Tract 12	100	100
Tract 13	100	100
Tract 14	100	100
Tract 15	100	100
Tract 16	100	100
Tract 17	100	100
Tract 18	0	100
Tract 19	0	100
Tract 20	0	100

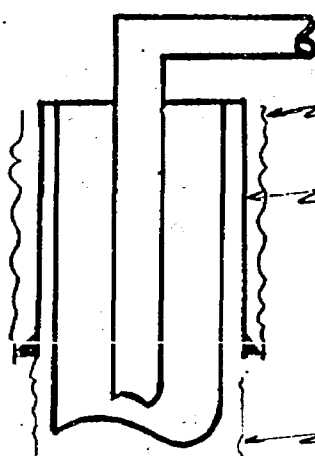
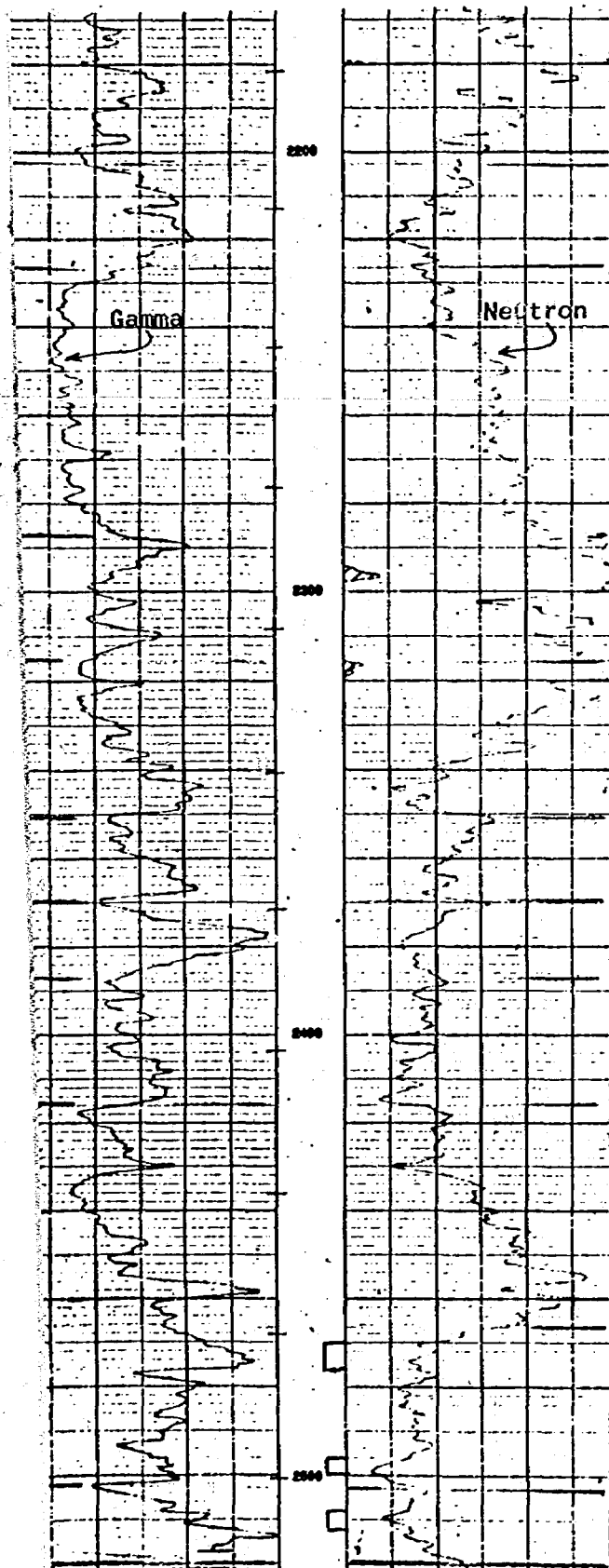
TABLE 1

Proposed Injectors
Artesia Unit
Eddy County, New Mexico

<u>Operator</u>	<u>Lease</u>	<u>Well No.</u>	<u>Unit</u>	<u>Sec.-Twp.-Rng.</u>
DEPCO	Castle State ✓	2	O	35-17-28
DEPCO	Delhi State ✓	1	O	34-17-28
DEPCO	Featherstone State ✓	7	M	2-18-28
DEPCO	Lanning State ✓	1	E	3-18-28
DEPCO	MRY State ✓	2	G	35-17-28
DEPCO	Resler State ✓	2	O	3-18-28
DEPCO	Sinclair B State ✓	1	M	35-17-28
DEPCO	Sinclair B State ✓	2	M	36-17-28
DEPCO	State A ✓	2	E	2-18-28
DEPCO	State 647	38	M	3-18-28
DEPCO	State 647	130	G	3-18-28
DEPCO	State 647	139	E	36-17-28
DEPCO	State 647	164	M	26-17-28
DEPCO	State 647	169	O	26-17-28
DEPCO	Welch State ✓	2	E	35-17-28

USACWILL Inc.
purchased from
Dorothy Langley
with inf. 200 P. 10/2000
and inf. pressure 1800

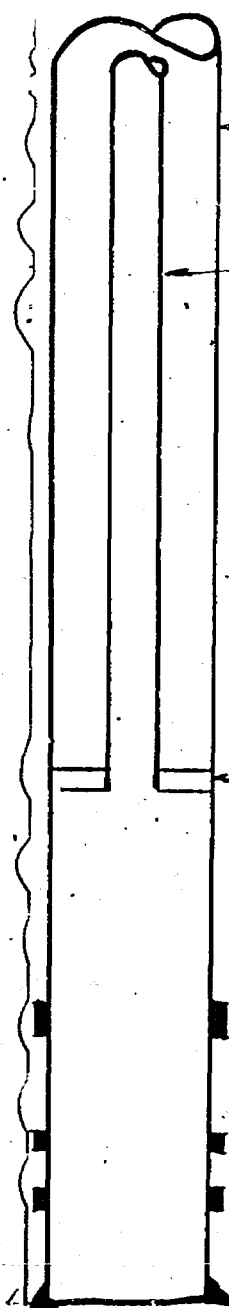
BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 3653



Hole size 11".

8 5/8", 32#, J-55 casing set at 549' with 100 sacks of cement with a calc top of 89'.

Hole size 8".



4 1/2", 9.5#, J-55 casing set at 2539 with 100 sacks of cement with a calc top of 2049'.

Plastic coated 2" EUE.

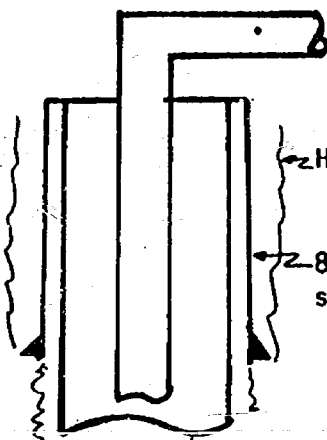
Proposed packer set at 2424'.

Injection Intervals: 2470 to 2476'
2496 to 2500'
2508 to 2512'

Top of San Andres: 2515'

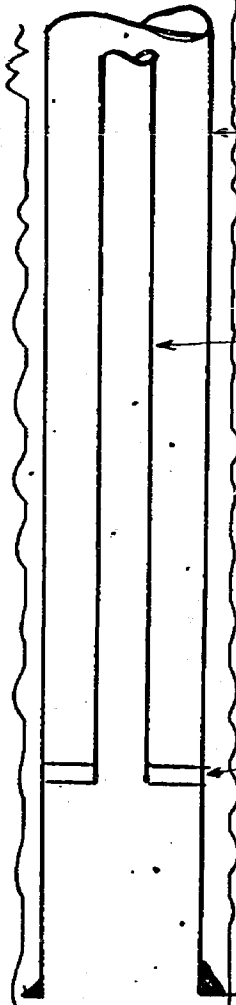
Total Depth: 2535'.

2515
2470
05



Hole size 10".

2-8 5/8", 28# casing set at 537' with 50 sacks of cement with a calc top of 118'.



Hole size 8".

5 1/2", 14# casing set at 2325' with 100 sacks of cement with a calc. top of 1690'.

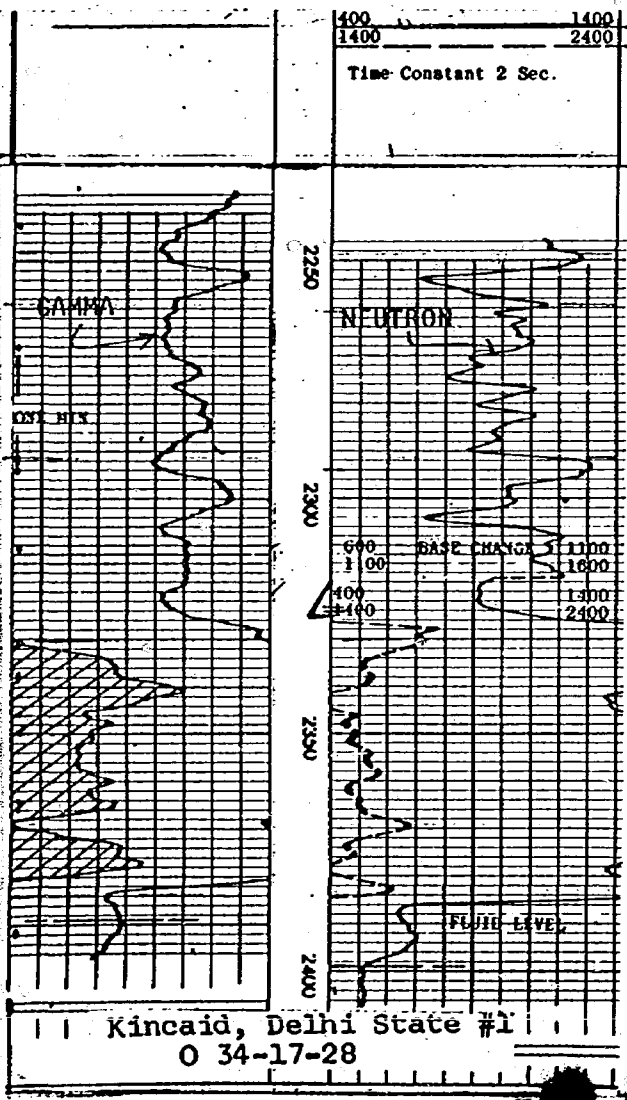
Plastic coated 2" EUE tubing.

Proposed packer set at 2280'.

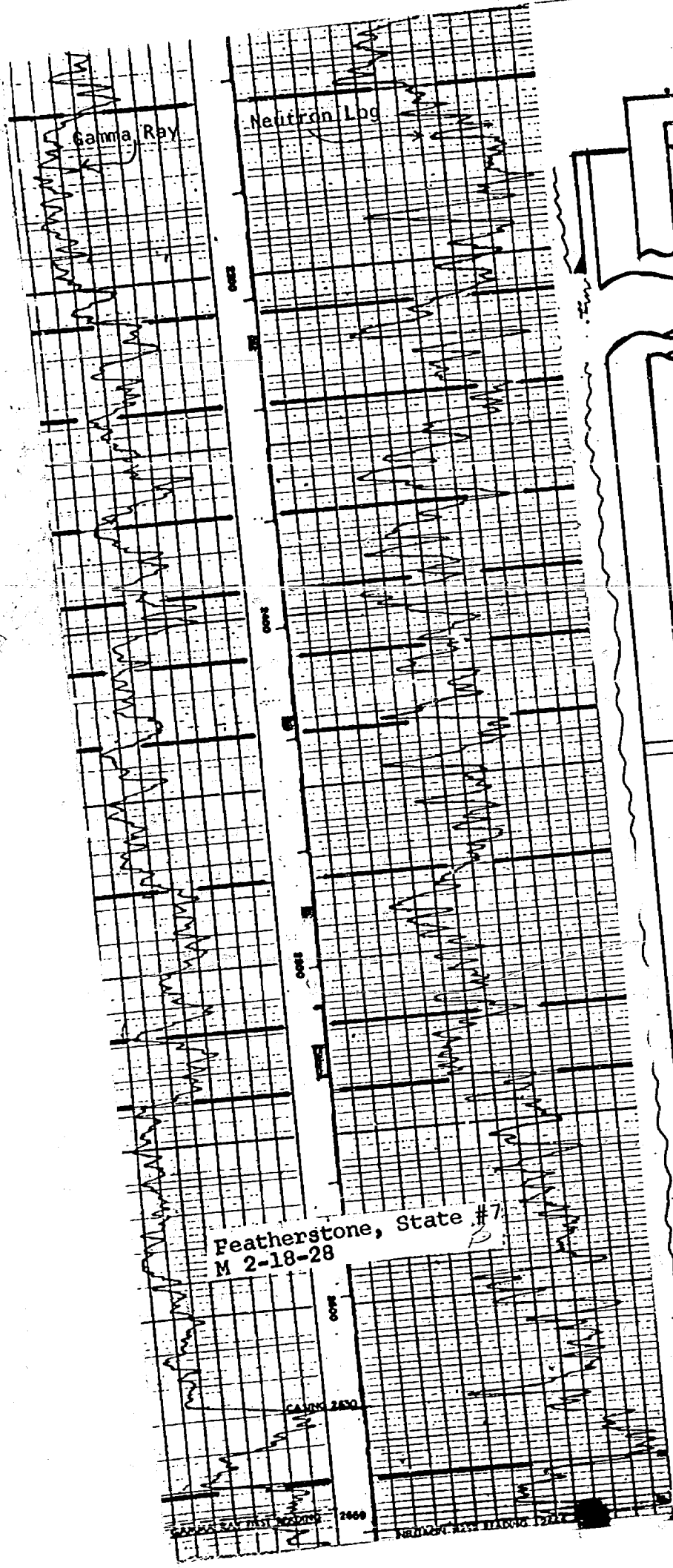
Open hole interval 2335' to 2399'.

Top of San Andres 2382'.

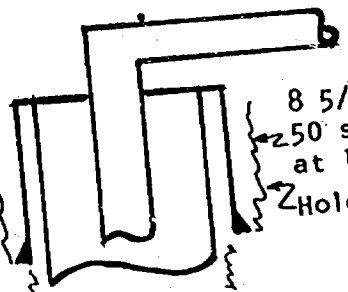
Total Depth 2399'.



2382
2325
4.7



Featherstone, State #7
M 2-18-28



8 5/8" 32# casing. Set at 546' with
50 sacks of cement with a calc top
at 127'.
Hole size: 10"



5 1/2", 14#, J-55 casing set at 2626'
with 100 sacks of cement with a calc
top at 1991'.

Plastic Coated 2" EUE.

Hole size 8".

Present perforation 2318-22 & 2429-33
initially isolated from injection.

Proposed packer set at 2450'.

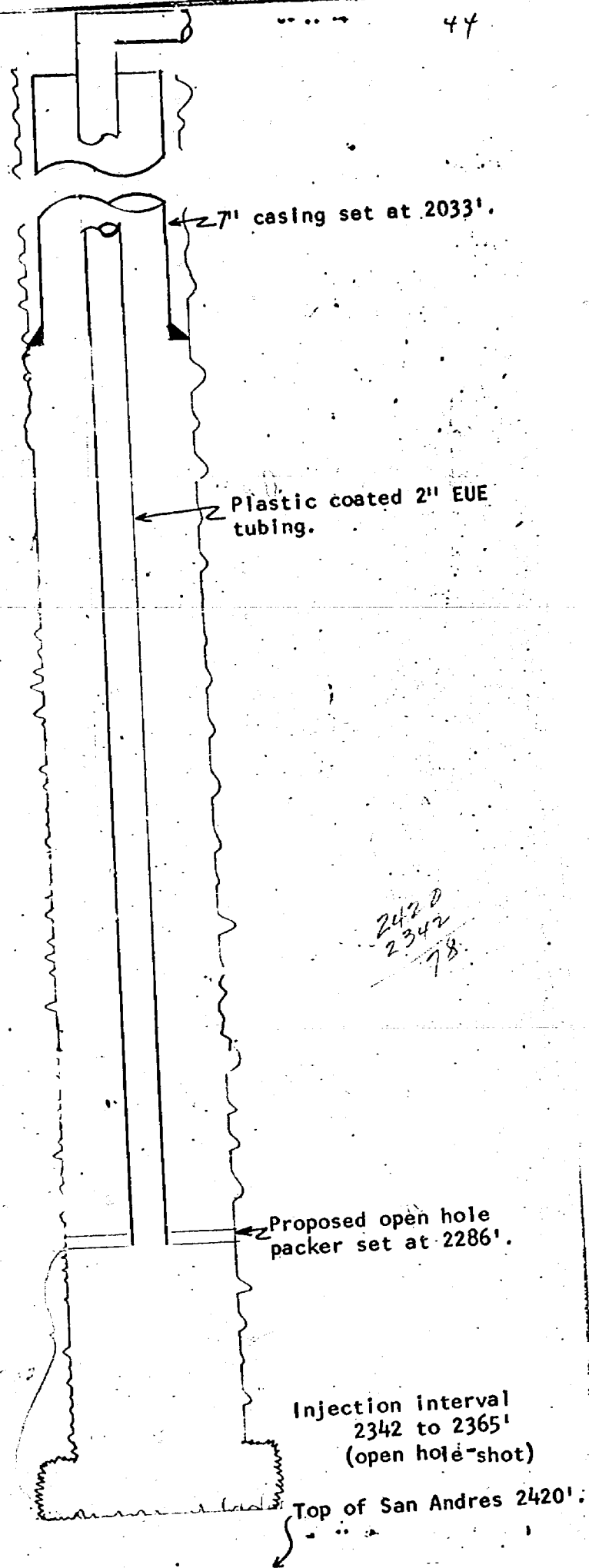
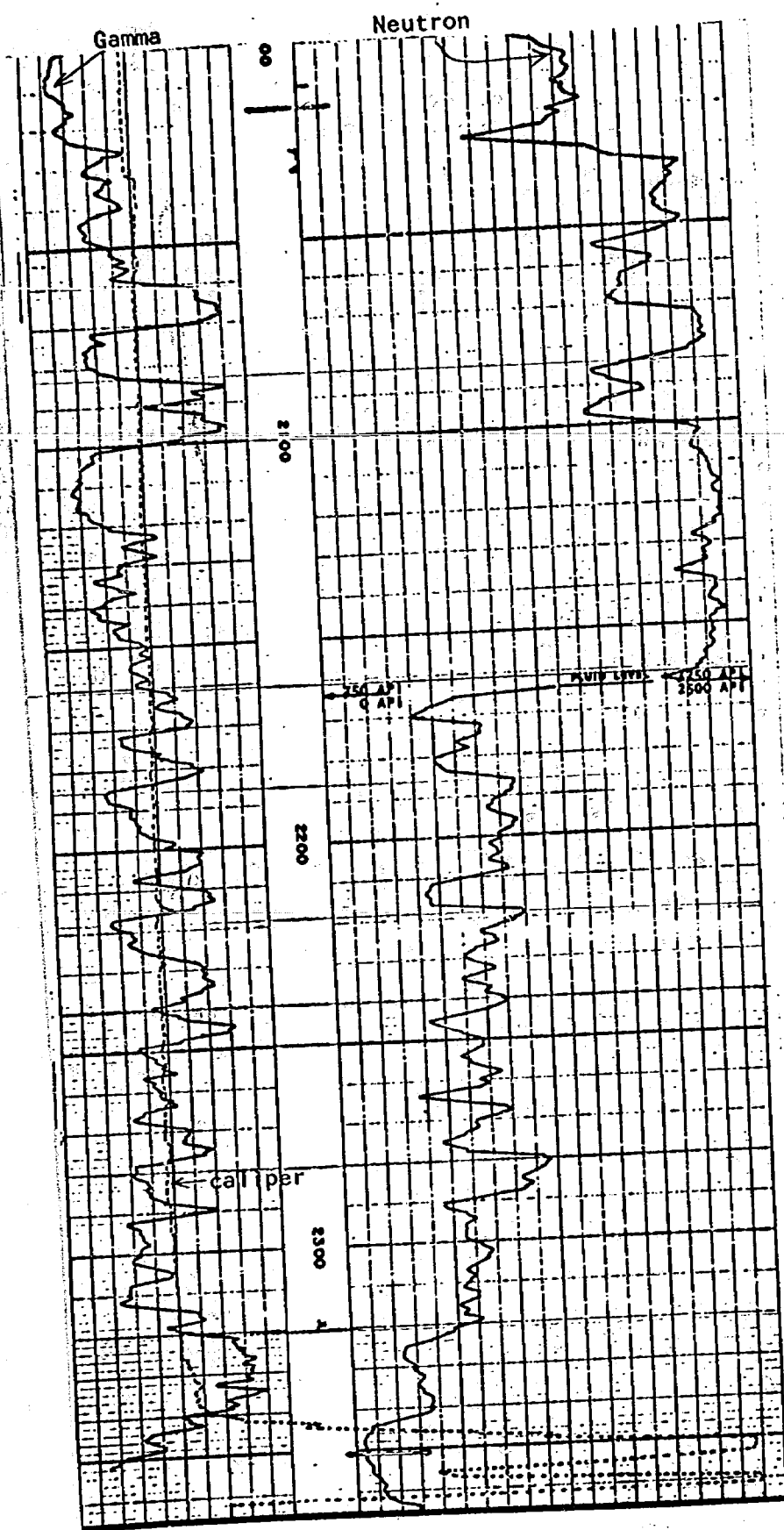
2537
2487
33

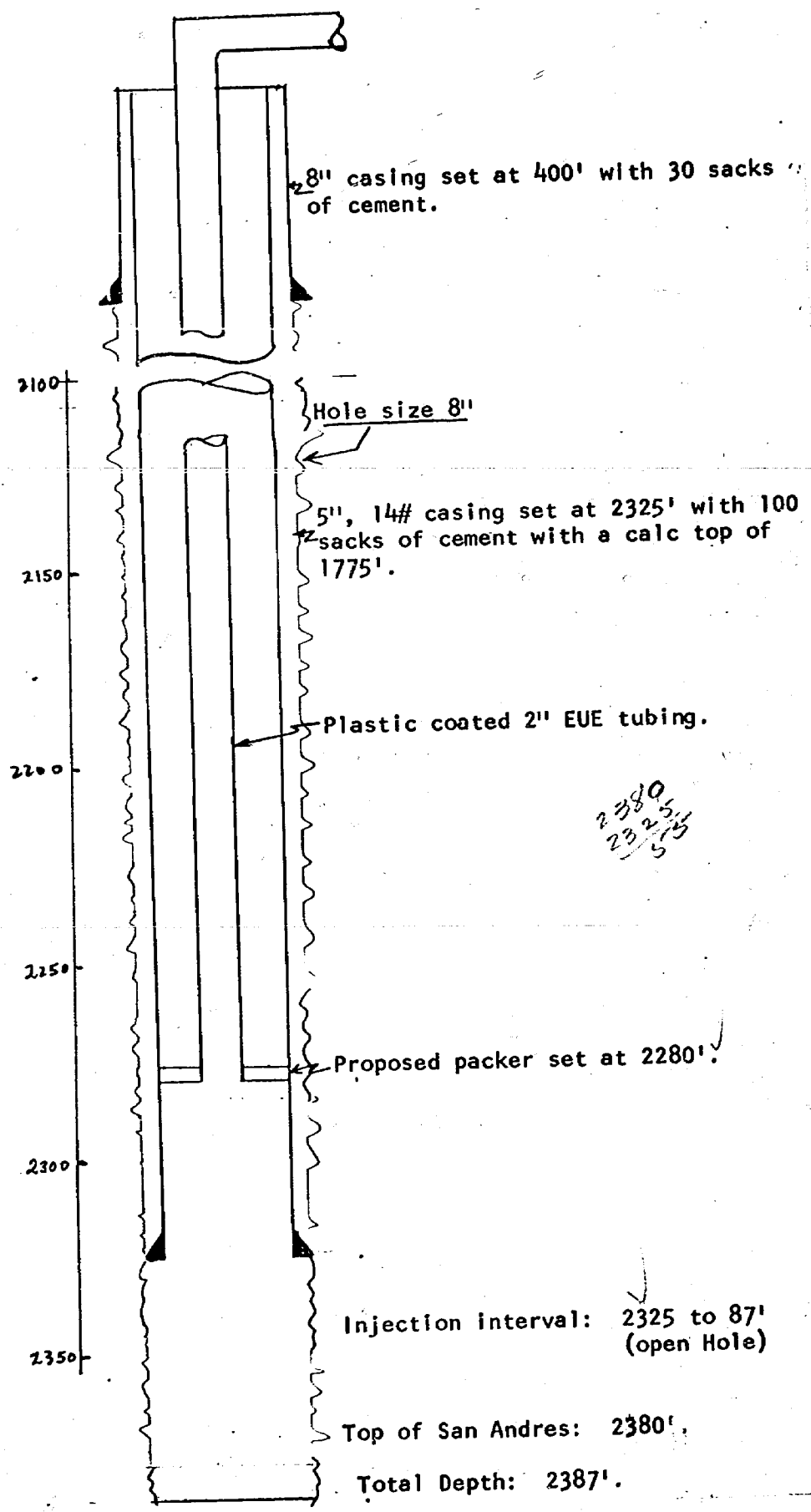
Injection Intervals: 2484 to 2487'
2513 to 2514'
2524 to 2534'.

Top of San Andres 2537'.

Proposed plug back to 2605.

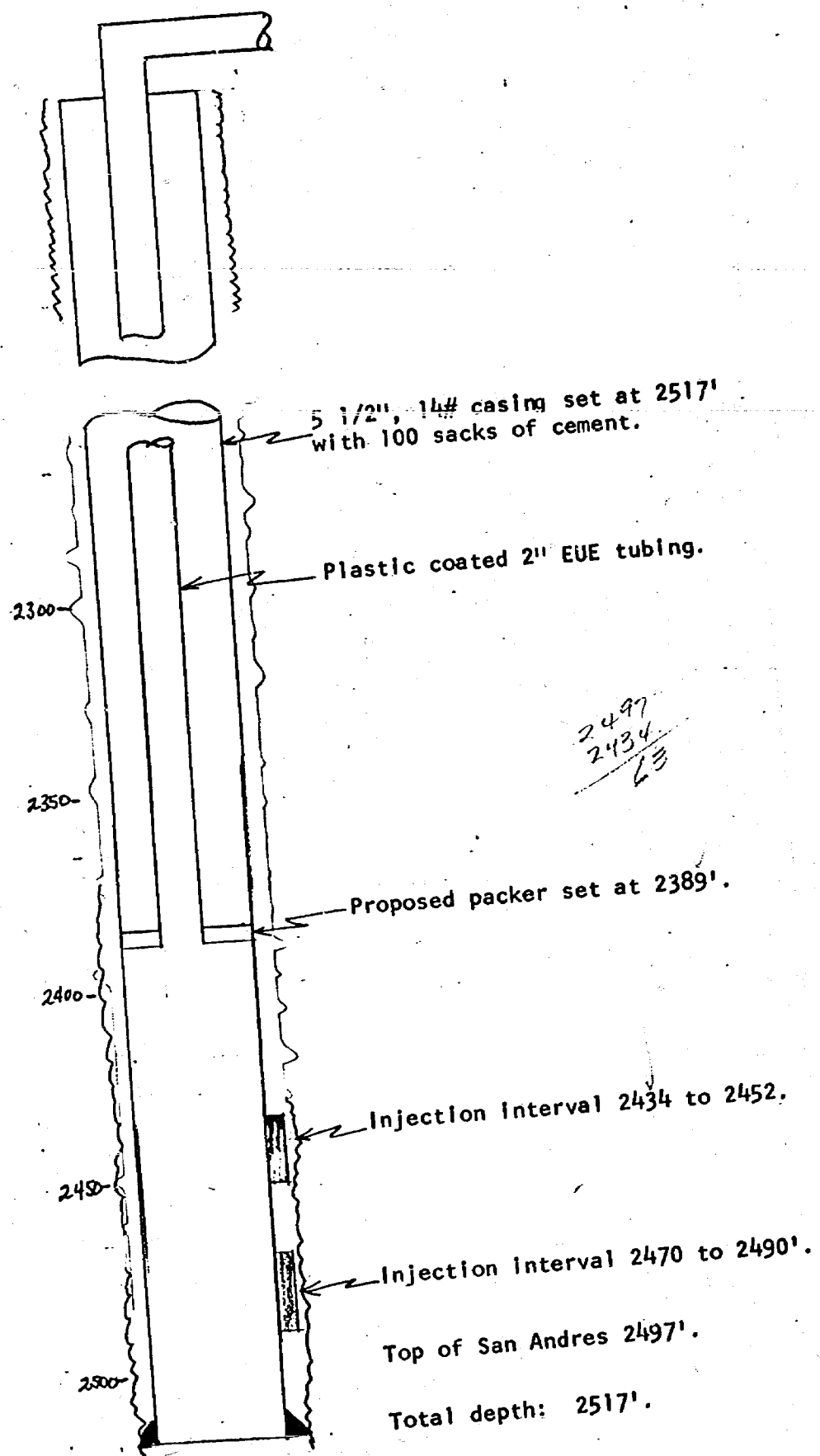
Total Depth 2692'.

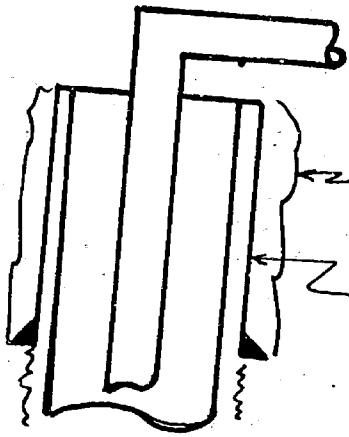




2380
2325
2387

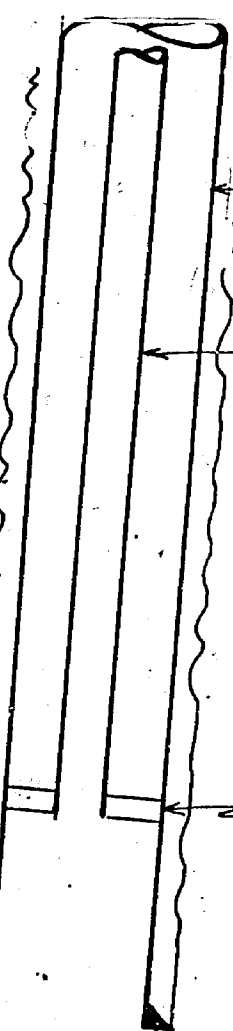
MRY State #2
G 35-17-28





Hole size 10".

8 5/8", 24# casing set at 552' with 50 sacks of cement with a calc top of 133'.



Hole size 8 5/8".

5 1/2", 15.5# casing set at 2356' with 100 sacks of cement with a calc top of 1870'.

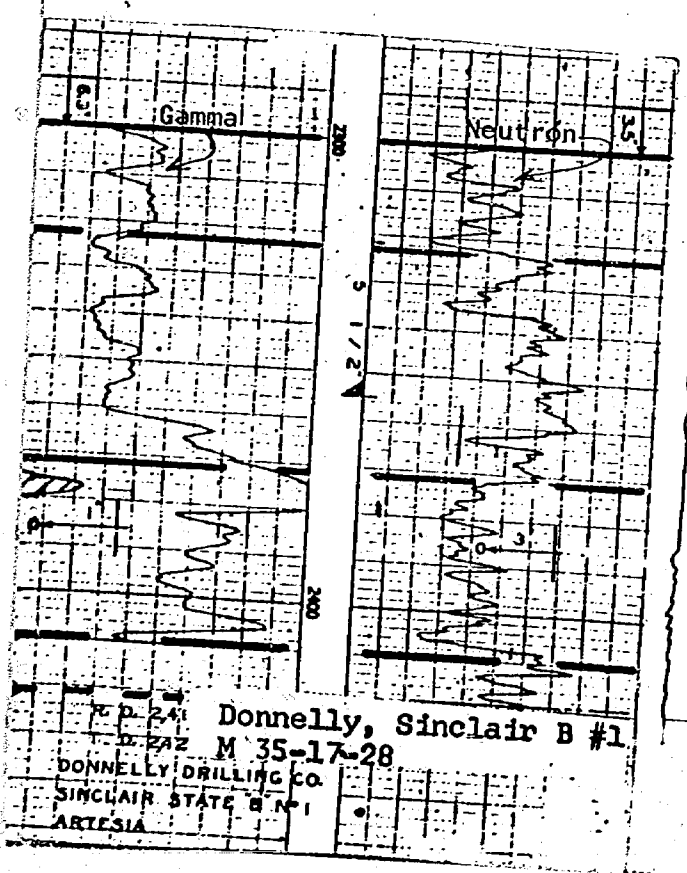
Plastic coated 2" EUE tubing.

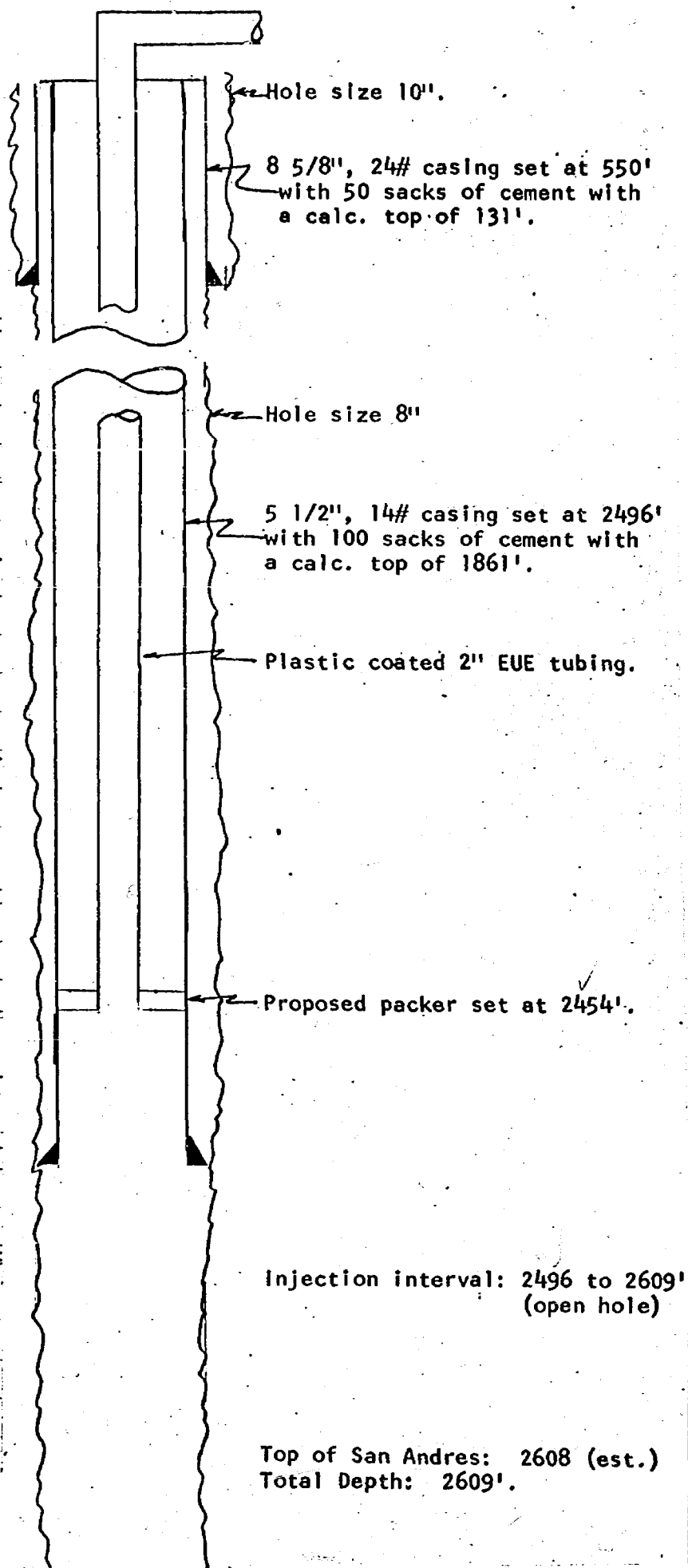
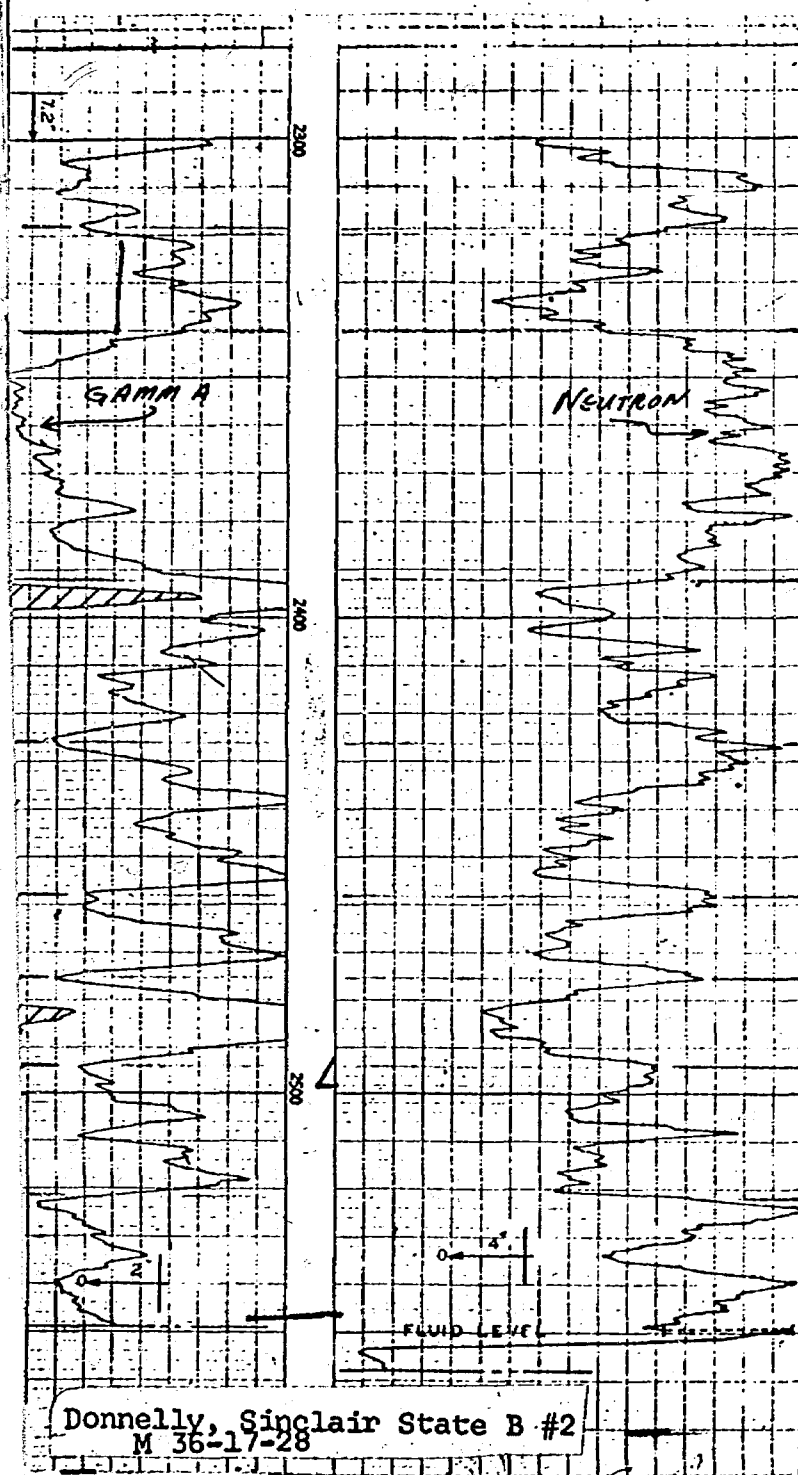
Proposed packer set at 2308'.

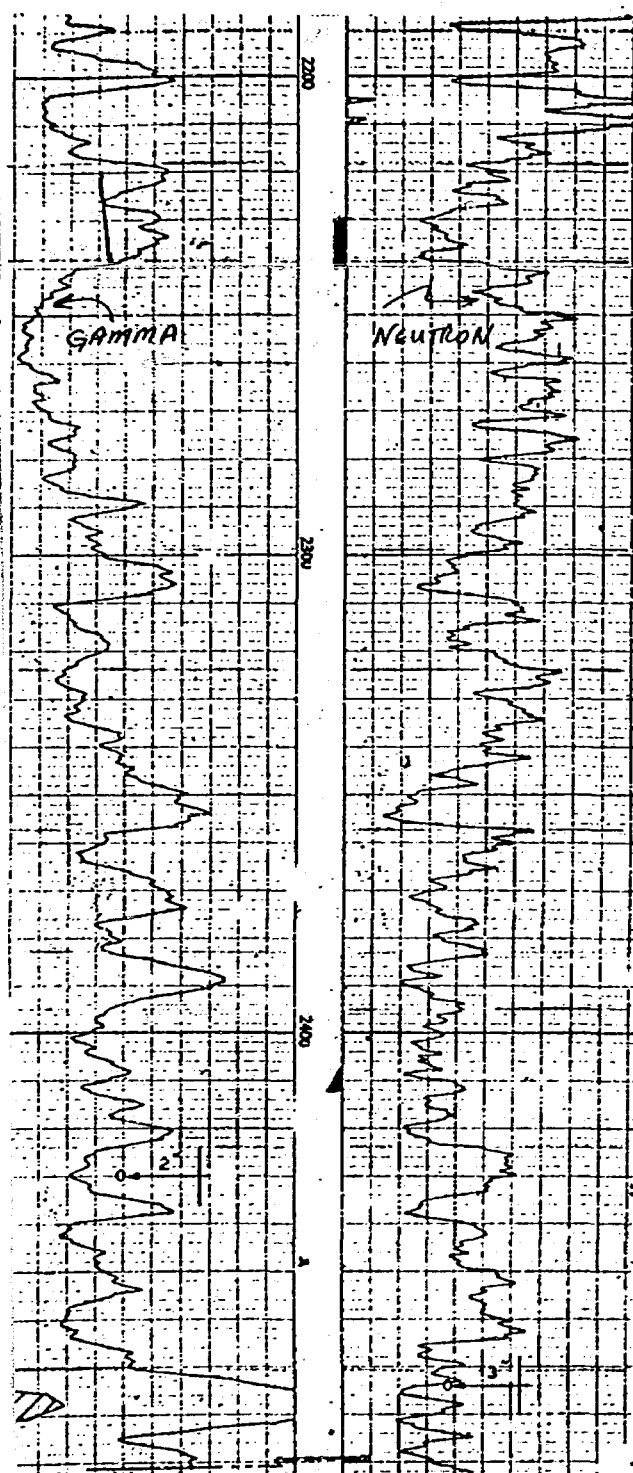
Injection interval: 2356 to 2421' (open hole)

Top of San Andres 2420'.

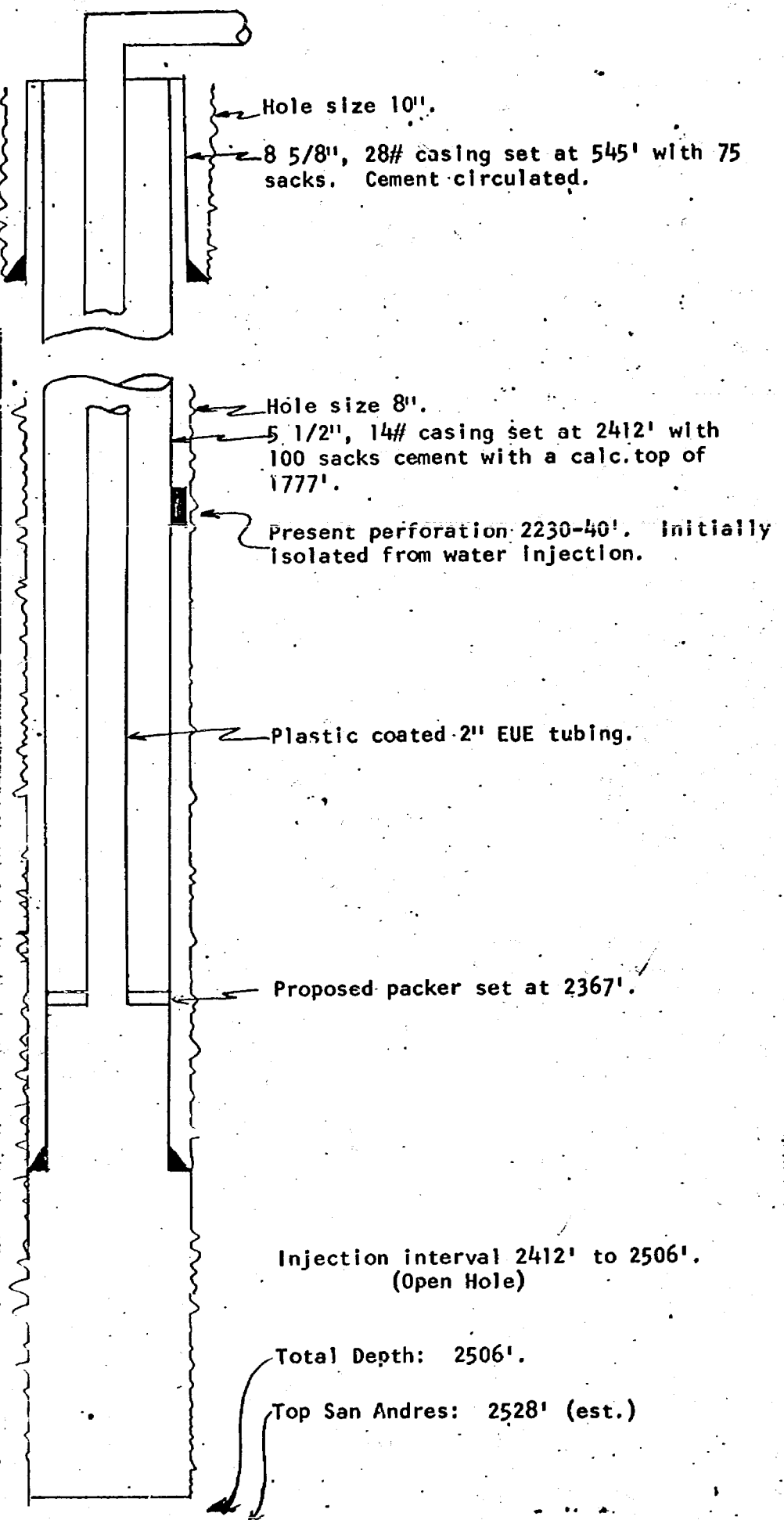
TD: 2421'.

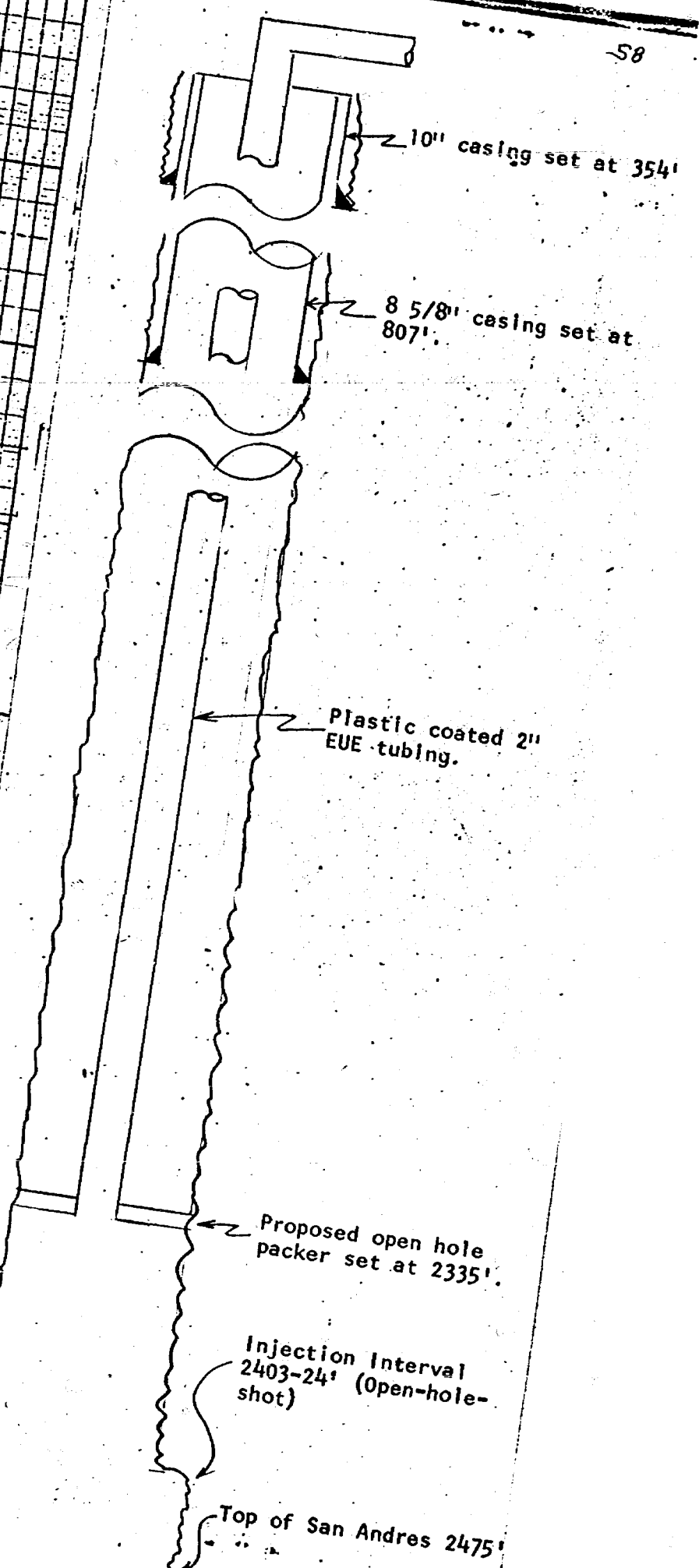
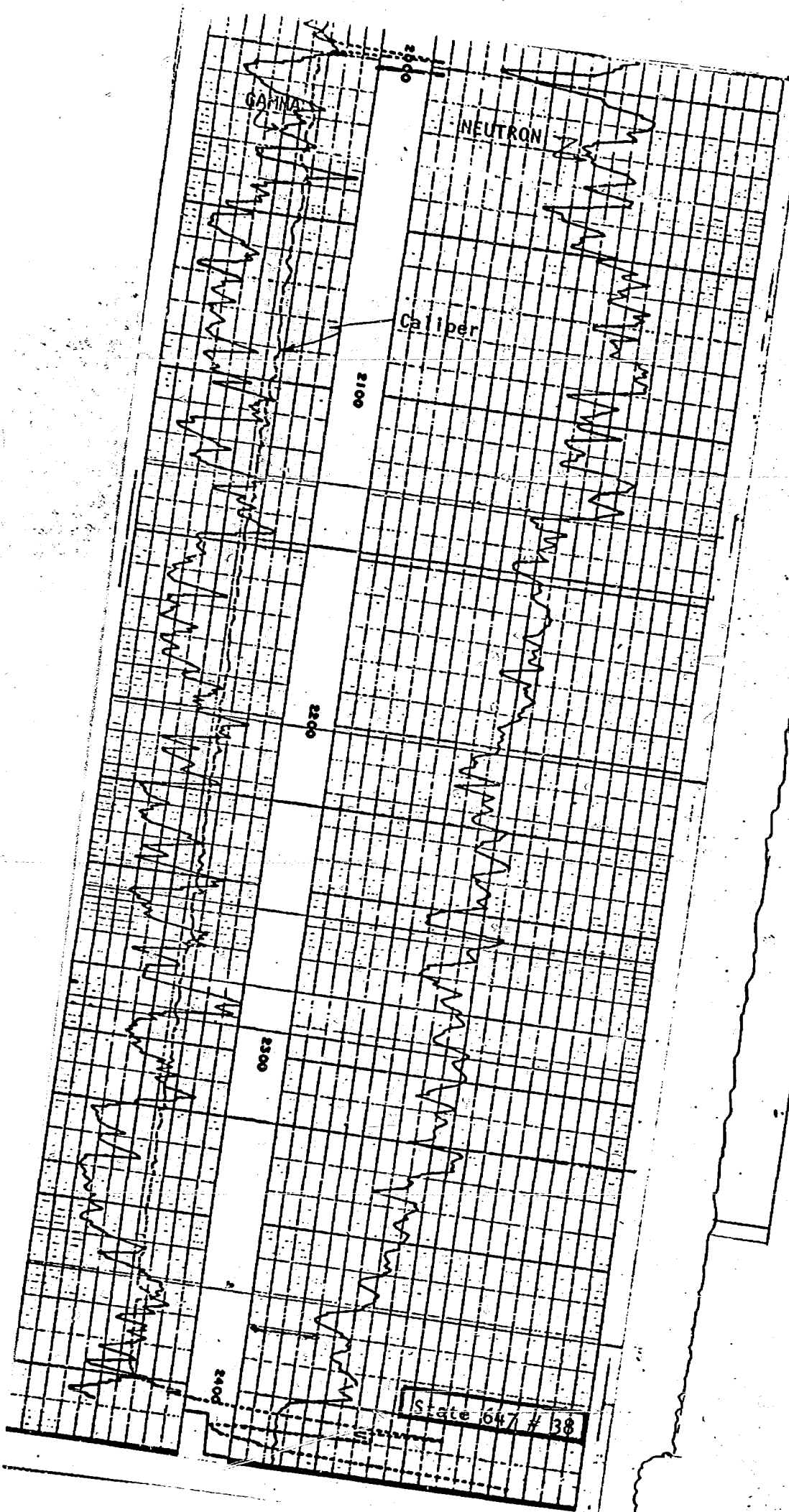


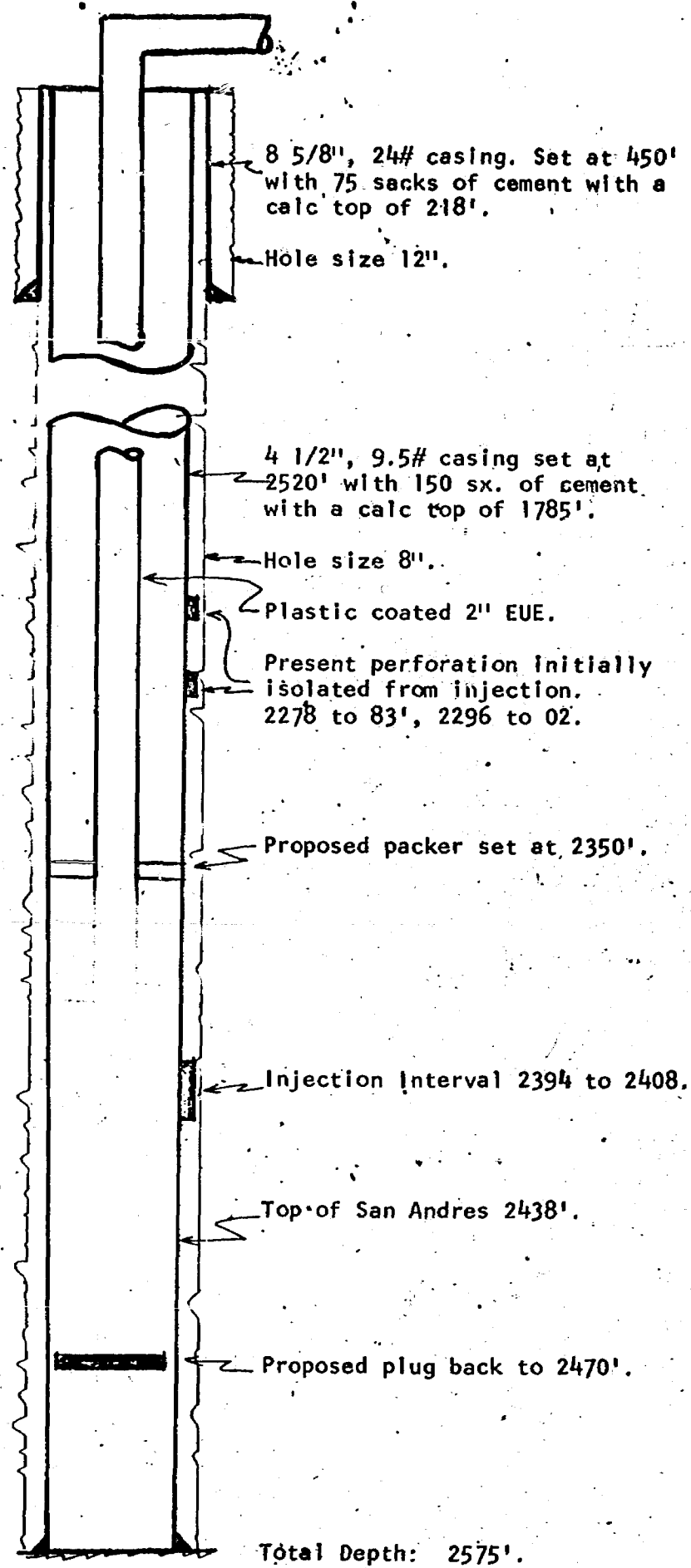
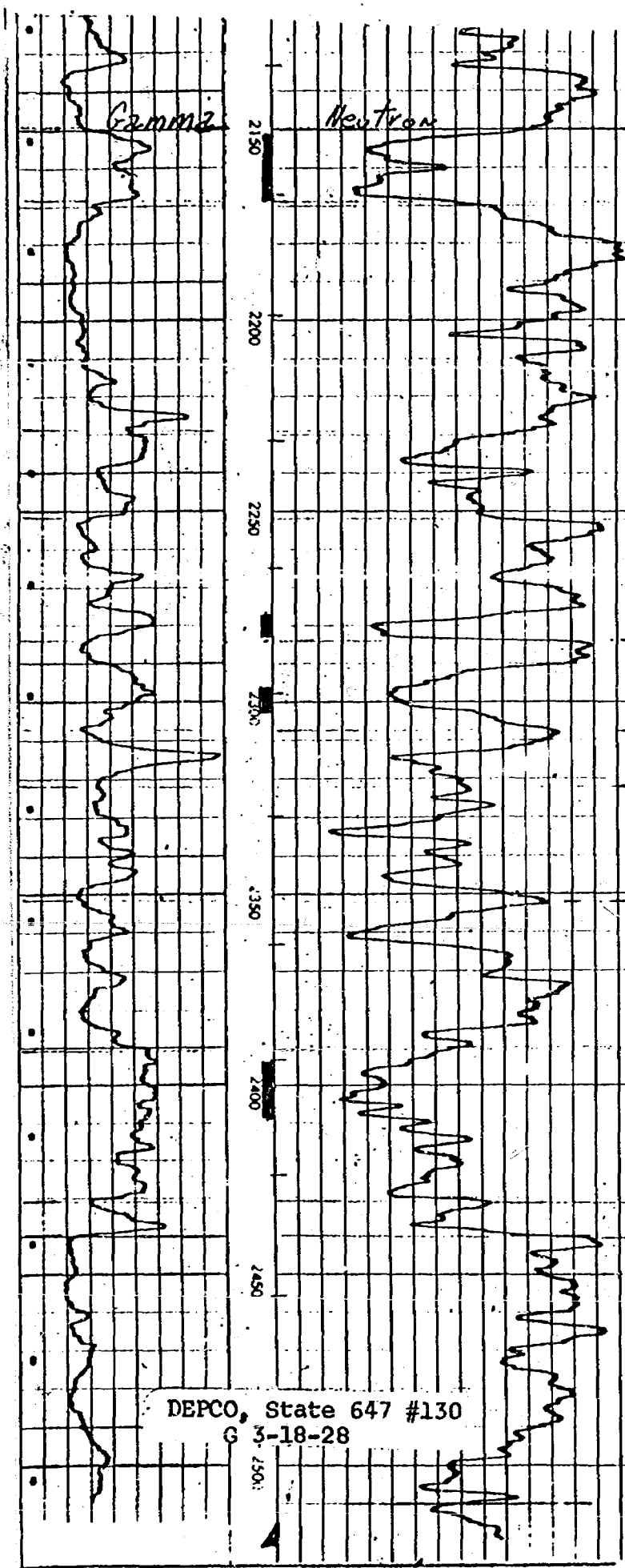


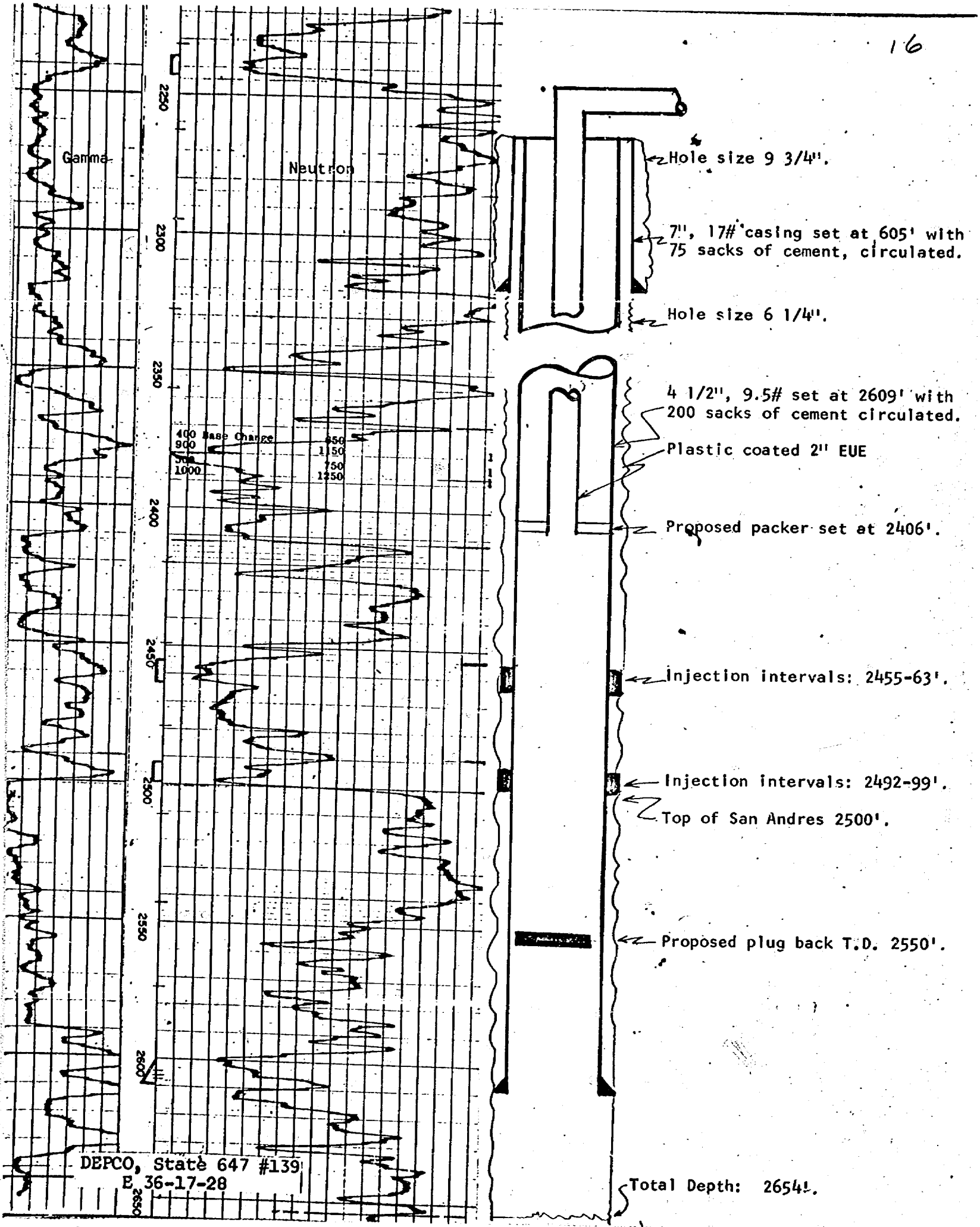


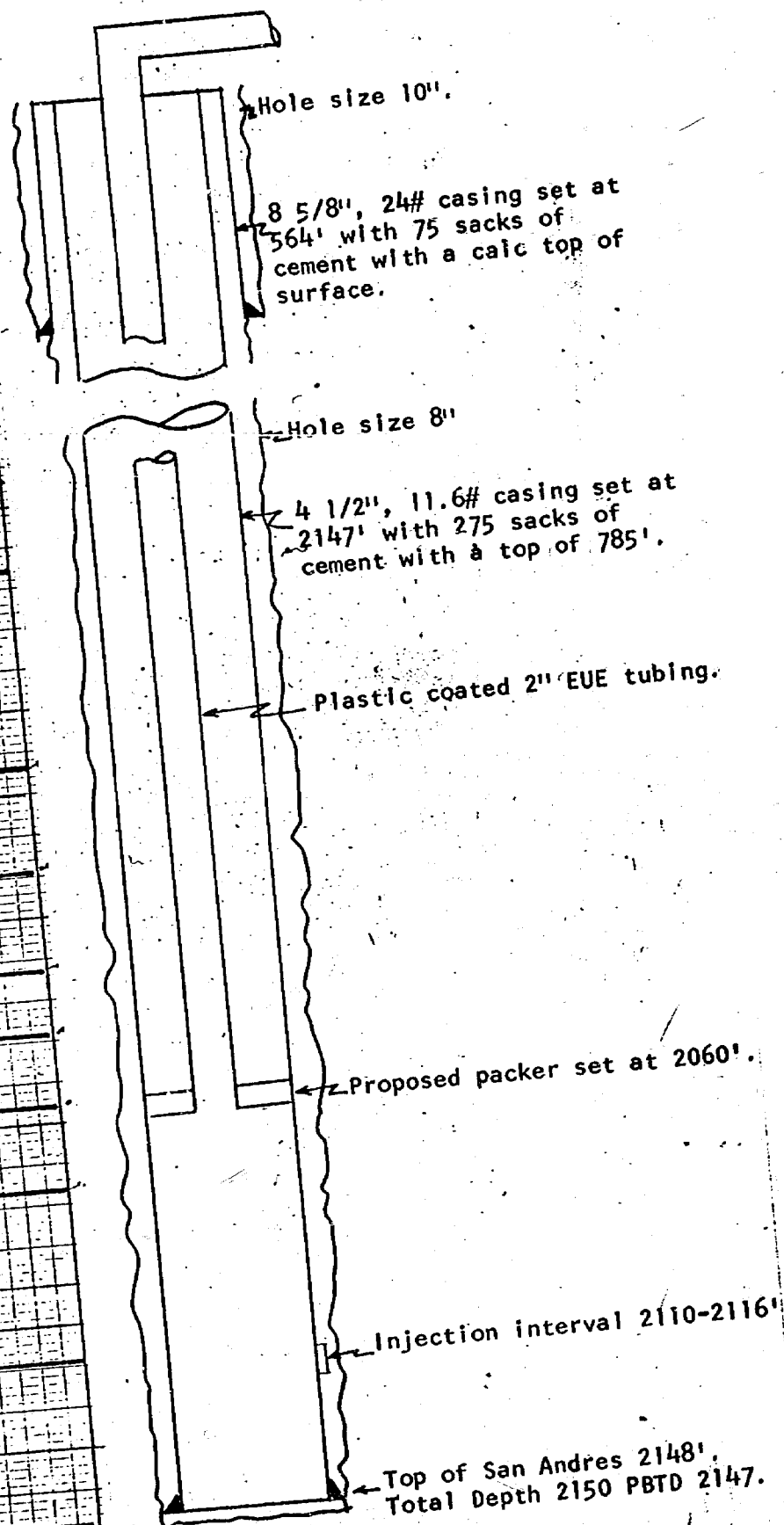
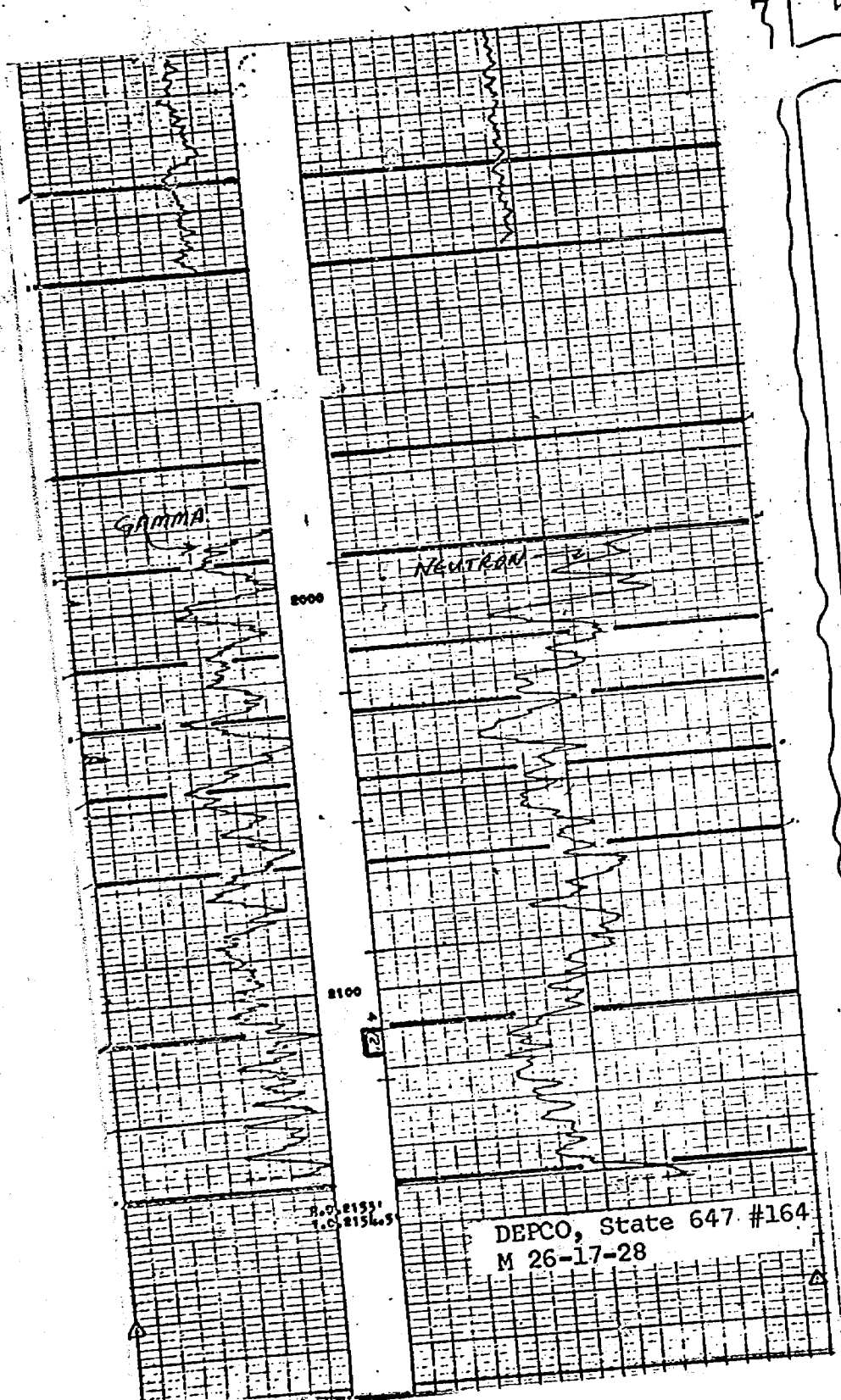
Donnelly, State A #2
E 2-18-28
R.P. 2500

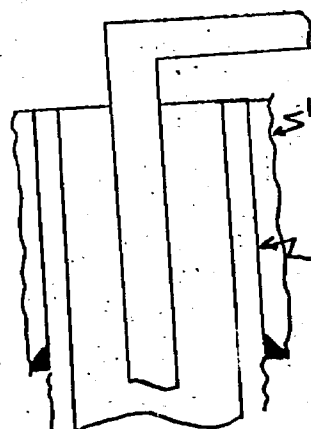
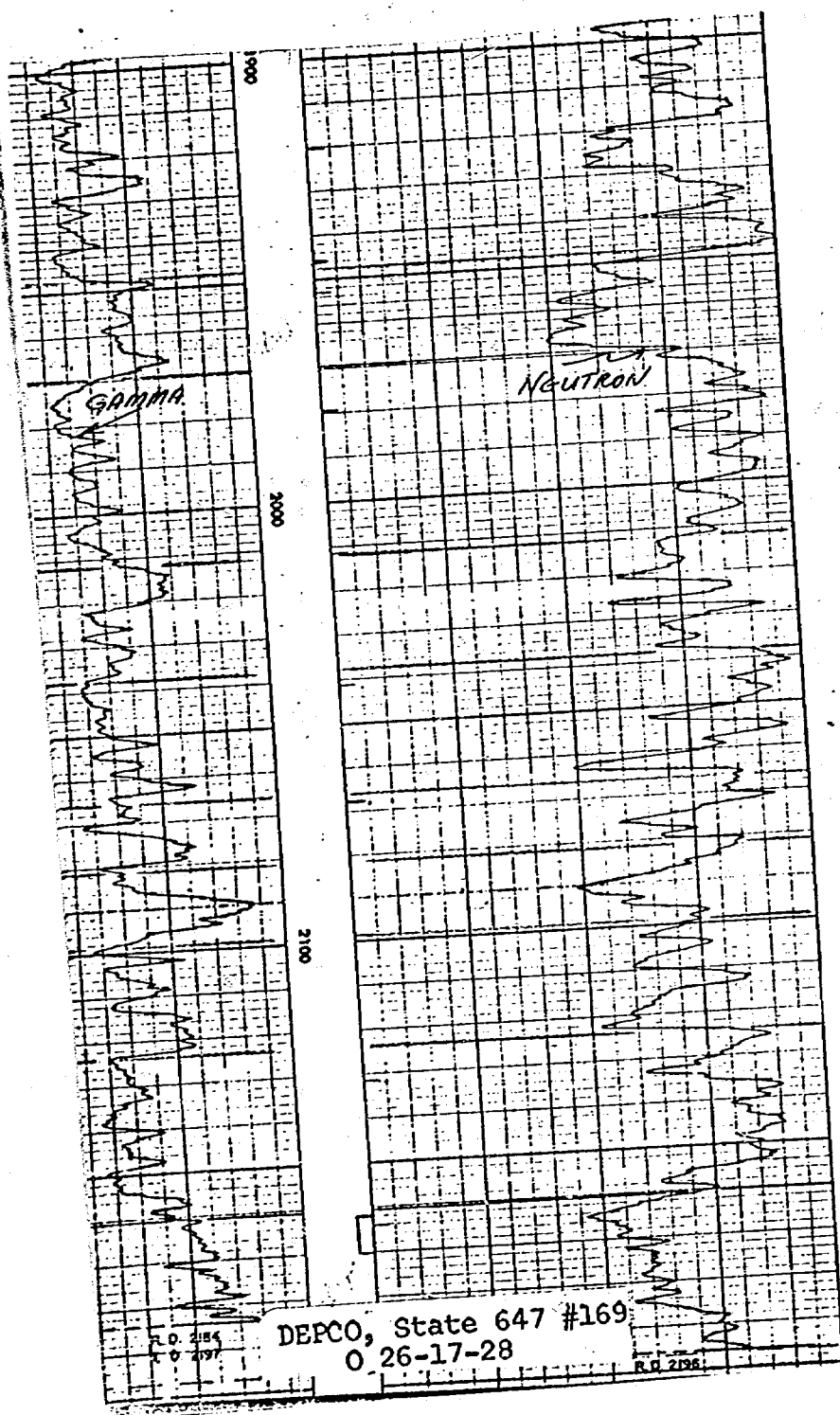












Hole size 9 5/8".

7", 17# casing set at 605'
with 75 sacks of cement
with a calc top of 236'.



Hole size 6 1/4".

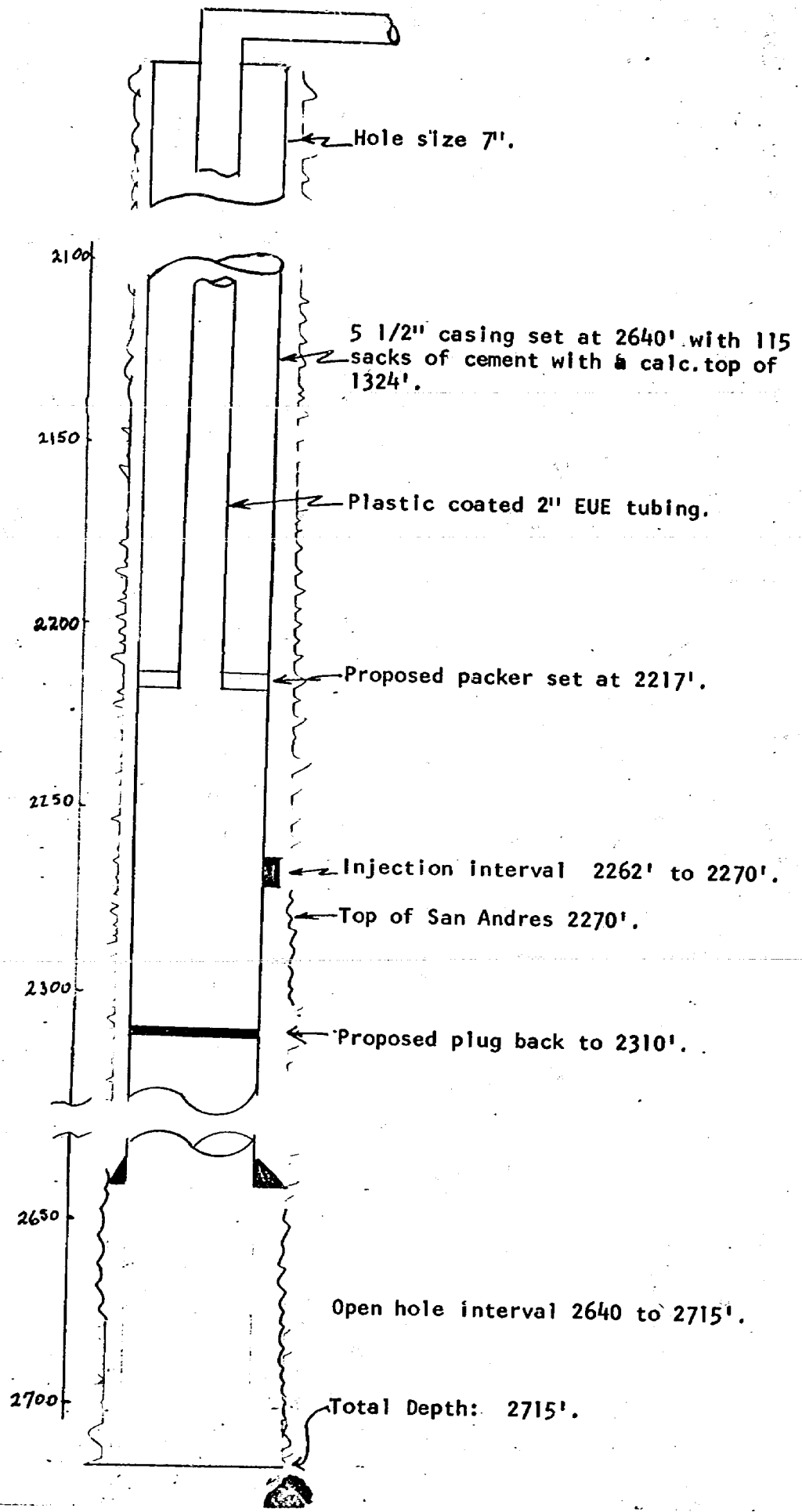
4 1/2", 11.6# casing set
at 2196' with 125 sacks
of cement with a calc top
of 770'.

Plastic coated 2" EUE tubin

Proposed packer set at 2142'

Injection interval 2162 to
2170'.

Total Depth 2200'. PBTD 2196'.
Top of San Andres 2198'.



Welch State #2A
E 35-17-28