

DATE IN	SUSPENSE	ENGINEER	LOGGED BY	TYPE
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION  
- Engineering Bureau -

**ADMINISTRATIVE APPLICATION COVER SHEET**

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]  
 [DD-Directional Drilling] [SD-Simultaneous Dedication]  
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]  
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]  
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]  
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]  
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] TYPE OF APPLICATION - Check Those Which Apply for [A]  
 [A] Location - Spacing Unit - Directional Drilling  
 NSL  NSP  DD  SD  
  
 Check One Only for [B] and [C]  
 [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM  
  
 [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR
- [2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or  Does Not Apply  
 [A]  Working, Royalty or Overriding Royalty Interest Owners  
  
 [B]  Offset Operators, Leaseholders or Surface Owner  
  
 [C]  Application is One Which Requires Published Legal Notice  
  
 [D]  Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office  
  
 [E]  For all of the above, Proof of Notification or Publication is Attached, and/or,  
  
 [F]  Waivers are Attached

[3] INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

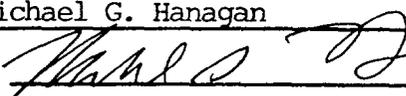
Michael G. Hanagan  
Print or Type Name

  
Signature

President, Hanagan Pet. Corp. 7/14/98  
Title Date

Case 12023

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
Application qualifies for administrative approval?  Yes  No
- II. OPERATOR: Hanagan Petroleum Corporation  
ADDRESS: P.O. Box 1737 - Roswell, New Mexico 88202-1737  
CONTACT PARTY: Mike Hanagan PHONE: 623-5053
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project:  Yes  No  
If yes, give the Division order number authorizing the project R-8611
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted.)
- \* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Michael G. Hanagan TITLE: President  
SIGNATURE:  DATE: 7/14/98
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstance of the earlier submittal. \_\_\_\_\_

**STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION**

**FORM C-108  
APPLICATION FOR AUTHORIZATION TO INJECT**

**Hanagan Petroleum Corporation**

**Twin Lakes San Andres Unit Wells:**

**#3, #5, #10, #12, #14, #18, #20, #22, #26, #29,  
#36, #39, #41, #42, #45, #47, #49, #51, #58, #60,  
#69, #72, #77, #79, #87, #89, #94, #102, #106, #110,  
#112, #117, #120 and #123 (34 wells)**

- I. PURPOSE:** Secondary Recovery  
Application does qualify for administrative approval.
- II. OPERATOR:** Hanagan Petroleum Corporation  
Post Office Box 1737  
Roswell, New Mexico 88202-1737  
Contact Party: Mike Hanagan  
Phone: (505) 623-5053
- III. WELL DATA:** See attached data sheets and schematics for each well.
- IV.** This is an expansion of an existing project as authorized by Division order number R-8611 and order number WFX-582.
- V. AREA OF REVIEW MAP:** See attached Map C-108 Item V.
- VI. AREA OF REVIEW WELL DATA:** With the exception of the wells listed below, which have been drilled, plugged or in which borehole conditions have changed subsequent to September 9, 1987; All required data on wells within the area of review was previously submitted and accepted on September 9, 1987 at the NMOCD hearing on Pelto Oil Company's application for waterflood project (OCD order # R-8611) and remains current.

A tabulation and schematic for the following wells which were drilled, plugged or in which borehole conditions have changed is attached hereto:

TLSAU #31 2310' FNL & 1650' FWL Section 31-T8S-R29E  
TLSAU #33 2310' FNL & 990' FEL Section 31-T8S-R29E  
TLSAU #62 330' FNL & 330' FWL Section 5-T9S-R29E  
TLSAU #121 1500' FNL & 1405' FWL Section 5-T9S-R29E  
TLSAU #122 1400' FNL & 250' FEL Section 36-T8S-R28E  
TLSAU #200 2310' FSL & 990' FEL Section 12-T9S-R28E  
TLSAU #201 330' FSL & 1650' FWL Section 1-T9S-R28E

## C109-Twin Lakes Unit

TLSAU #202 1300' FSL & 1300' FWL Section 36-T8S-R29E

TLSAU #203 1650' FSL & 2310' FWL Section 6-T9S-R29E

In addition to those wells shown above, there are two wells within the area of review that, by letters dated 11/18/97, the NMOCD has requested the operator to show cause as to why the wells should not be plugged and abandoned. The certified letters sent by NMOCD to the operator were returned to NMOCD as undeliverable. There is no other indication of subsequent activity in the NMOCD files so it is our assumption that these wells remain in the conditions existing on September 9, 1987 and therefore have been previously submitted and accepted on September 9, 1987 at the NMOCD hearing on Pelto Oil Company's application for waterflood project (NMOCD order # R-8611). An inspection of the 2 wells on July 14, 1998 confirms that production equipment (i.e., tank battery and pumpjacks) are still in place and apparently operational. The 2 subject wells are:

Sandco Oil and Gas, Inc. #2 Sandco  
2310' FNL & 1650' FEL  
Section 25 - T8S - R28E

Sandco Oil & Gas, Inc. #3 Sandco  
990' FNL & 330' FEL  
Section 25 - T8S - R28E

### **VII. PROPOSED OPERATION:**

1. Average injection rate of 300-500 barrels per day with maximum injection of 750 barrels per day.
2. The system is a closed injection system.
3. Maximum injection pressure will be limited to 0.2 psi/ft. Average injection pressure will not be known until commencement of injection.
4. The source water will be a mixture of Ogalla and produced water. Analysis and compatibility of injection water has been previously submitted.
5. Not applicable

**VIII. GEOLOGIC DATA:** All required geologic data on wells within the area of review was previously submitted and accepted on September 9, 1987 at the NMOCD hearing on Pelto Oil Company's application for waterflood project (OCD order # R-8611) and remains current.

**IX. STIMULATION PROGRAM:** No initial stimulations are planned on these wells; however, should injection rate be insufficient the wells will be acidized with 5,000 gallons to 10,000 gallons of 20% hydrochloric acid.

**X. WELL LOGS:** All well logs and test data have been filed with the Division.

**C109-Twin Lakes Unit**

**XI. WATER WELL ANALYSIS:** Analysis on any water wells within one mile of any well was previously submitted and accepted on September 9, 1987 at the NMOCD hearing on Pelto Oil Company's application for waterflood project (OCD order # R-8611) and remains current.

A search of State Engineer records in Roswell on July 2, 1998 revealed no new information on record.

**XII.** Not applicable.

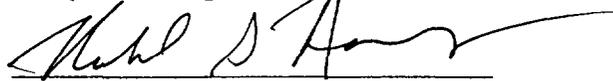
**XIII. PROOF OF NOTICE:** The surface owner is David Kent Gabel whose address is Route 3, Hereford, Texas 79045. There are two leasehold operator within the area of review; (1) Willow Pipeline Company whose address is P.O. Box 131, Weatherford, Oklahoma 73096 and (2) Sandco Oil and Gas, Inc. whose last known address was P.O. Box 881, Mesilla Park, New Mexico 88047.

Each of these parties have been provided notice of this application (See attached certified mail receipt).

For Proof of Publication see attached copy of the legal advertisement which will be published in the Roswell Daily Record on July 17, 1998.

**XIV. CERTIFICATION:**

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



Michael G. Hanagan, President

DATE: 7/14/98

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

C-108-III

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 3  
A1 **FOOTAGE:** 1650 FSL & 1650 FEL  
A1 **SECTION:** 25-T8S-R28E  
A1 **COUNTY:** Chaves

**EXISTING CASING PROGRAM**

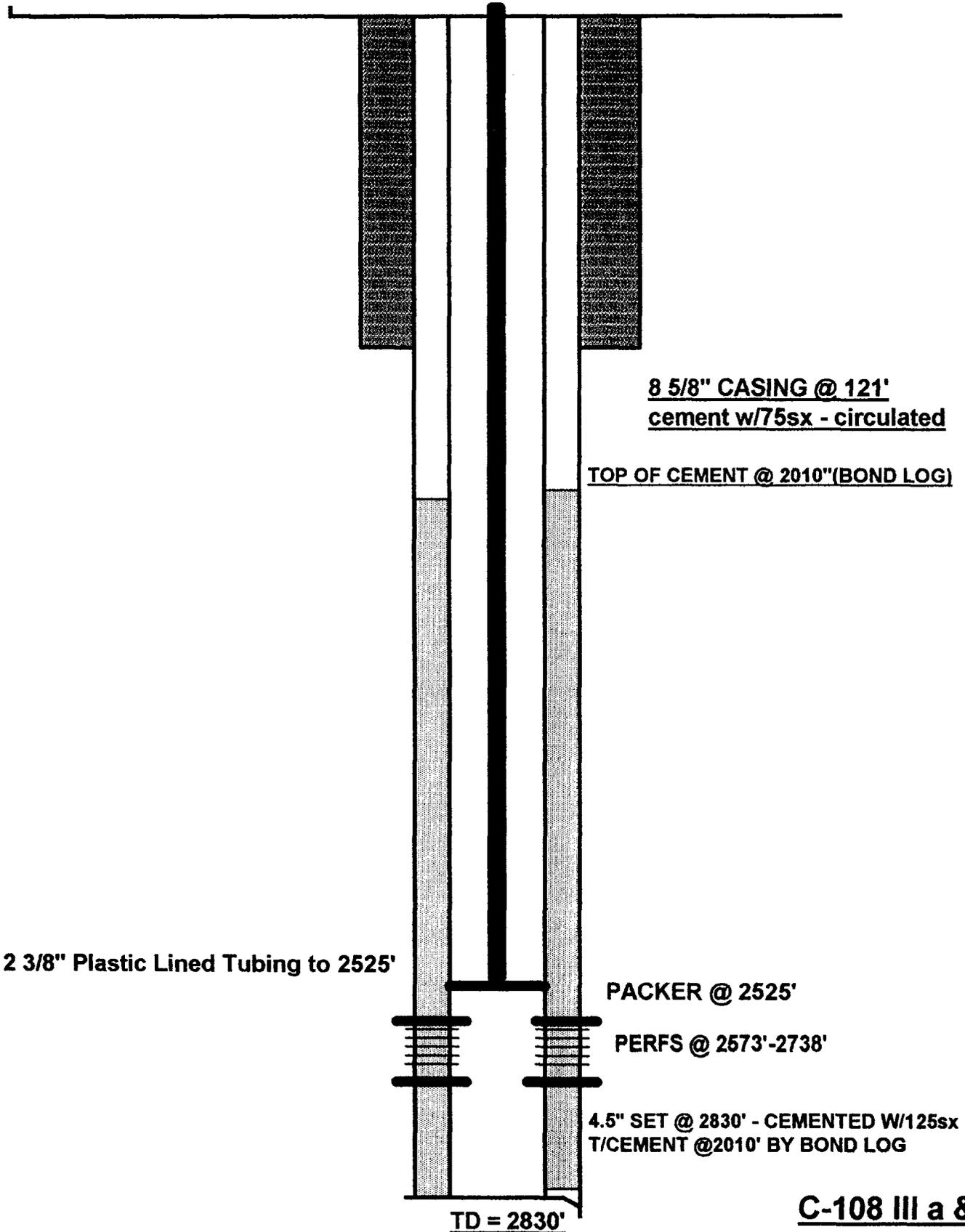
A2	<b>HOLE SIZE:</b>	11"	7.875
A2	<b>CASING SIZE:</b>	8.625"	5.5"
A2	<b>CASING WEIGHT:</b>	20 #	14 #
A2	<b>CASING DEPTH:</b>	121'	2830'
A2	<b>CEMENT:</b>	75sx	125sx
A2	<b>TOP OF CEMENT:</b>	surface	2010'
		circ. 10sx	bond log

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft, 8rt. internally plastic coated or fiberglass lined  
A3 **PACKER DEPTH:** 2525' +/- 25'  
A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
B2	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2573'-2738'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	563'
B3	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
B4	<b>OTHER PERFORATED INTERVALS:</b>	None
B5	<b>NEXT PAY ZONE - ABOVE:</b>	None
B5	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #3  
Well Schematic (Proposed)  
C-108-III a & b



**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 5  
**A1 FOOTAGE:** 1650 FSL & 330 FWL  
**A1 SECTION:** 30-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

<b>A2</b>	<b>HOLE SIZE:</b>	12.5"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	5.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	28 #	14 #
<b>A2</b>	<b>CASING DEPTH:</b>	115'	2760'
<b>A2</b>	<b>CEMENT:</b>	75sx	225sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	surface	812'
		circulated	calculated

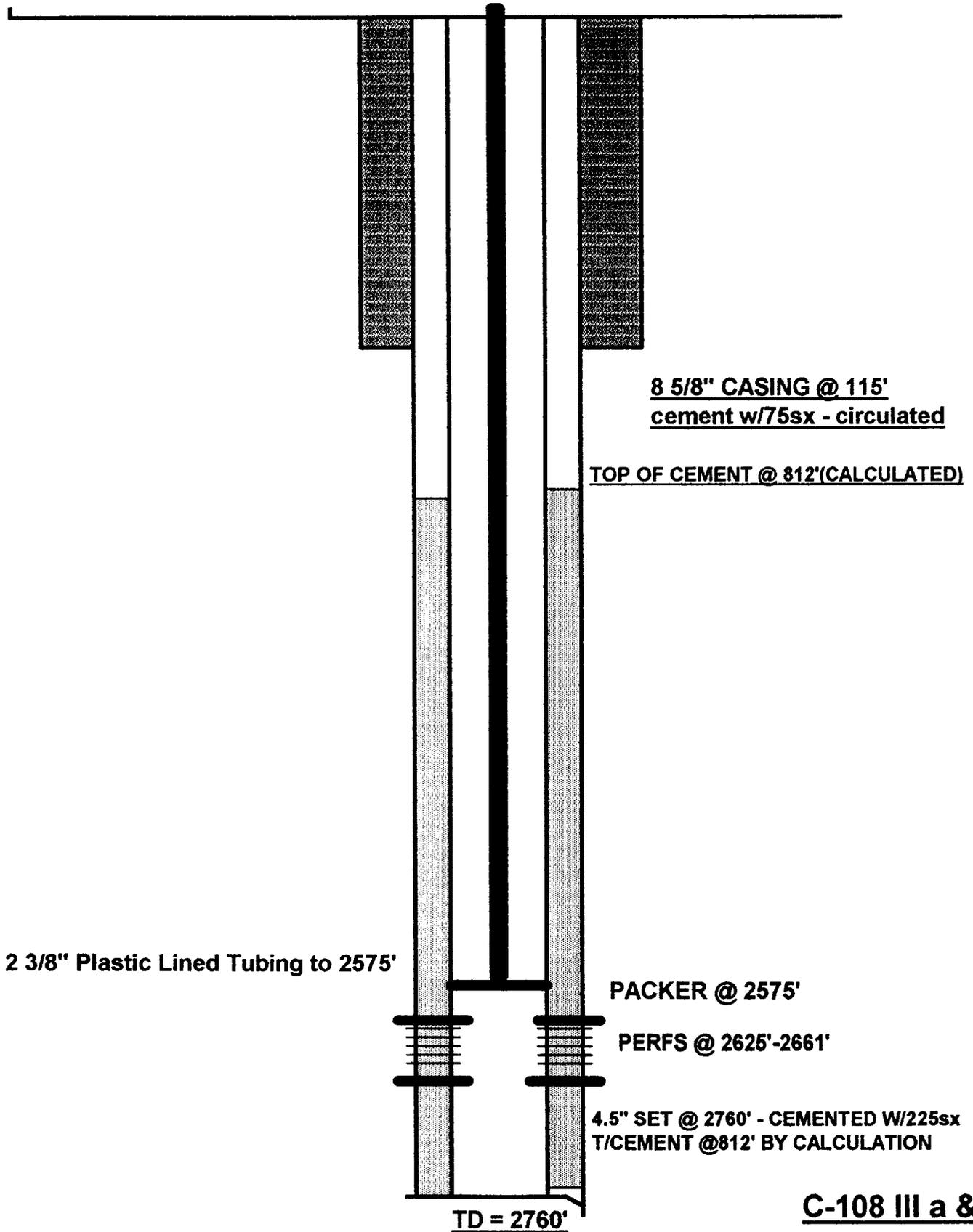
**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2575' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2625' - 2664'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1813'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #5  
Well Schematic (Proposed)  
C-108-III a & b

30-T8S-R29E, 1650 FSL & 330 F.W.L  
L  
O'BRIEN K #2  
TLSAU #5  
30-005-60572



**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 10  
**A1 FOOTAGE:** 330' FSL & 2310 FWL  
**A1 SECTION:** 25-T8S-R28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

<b>A2</b>	<b>HOLE SIZE:</b>	12.5"	7.875
<b>A2</b>	<b>CASING SIZE:</b>	8.625	5.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20#/ft	14#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	120'	2713'
<b>A2</b>	<b>CEMENT:</b>	75sx	175sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	surface	2120'
		circulated	bond log

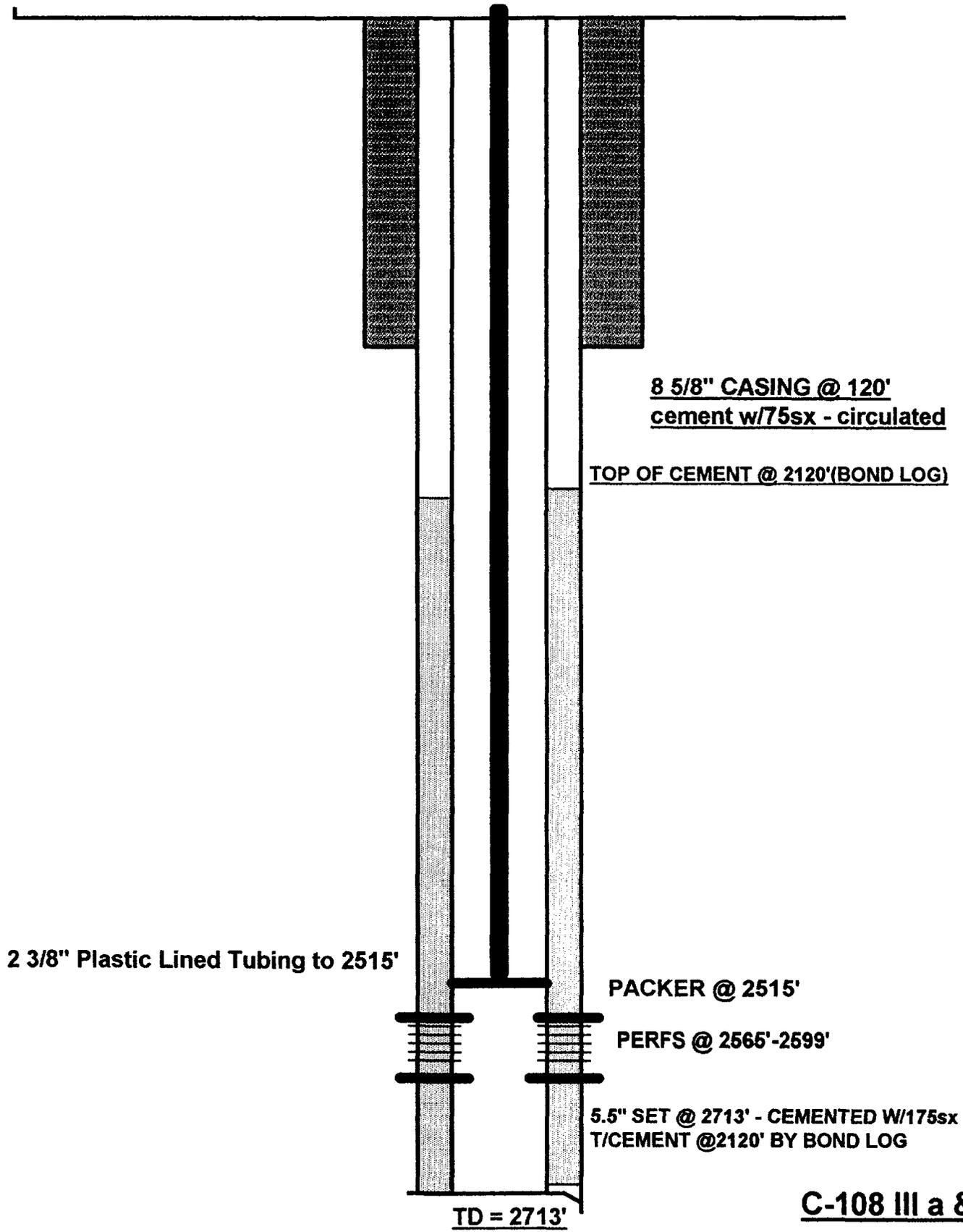
**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. intrnally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2515' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2565'-2599'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 445'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #10  
Well Schematic (Proposed)  
C-108-III a & b

25-T8S-R28E. 330 FSL & 2310 F.W.L.  
N  
O'BRIEN F #2  
TLSAU #10  
30-005-60571



**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

C-108-III

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 12  
 A1 **FOOTAGE:** 330 FSL & 330 FEL  
 A1 **SECTION:** 25-T8S-R28E  
 A1 **COUNTY:** Chaves

**EXISTING CASING PROGRAM**

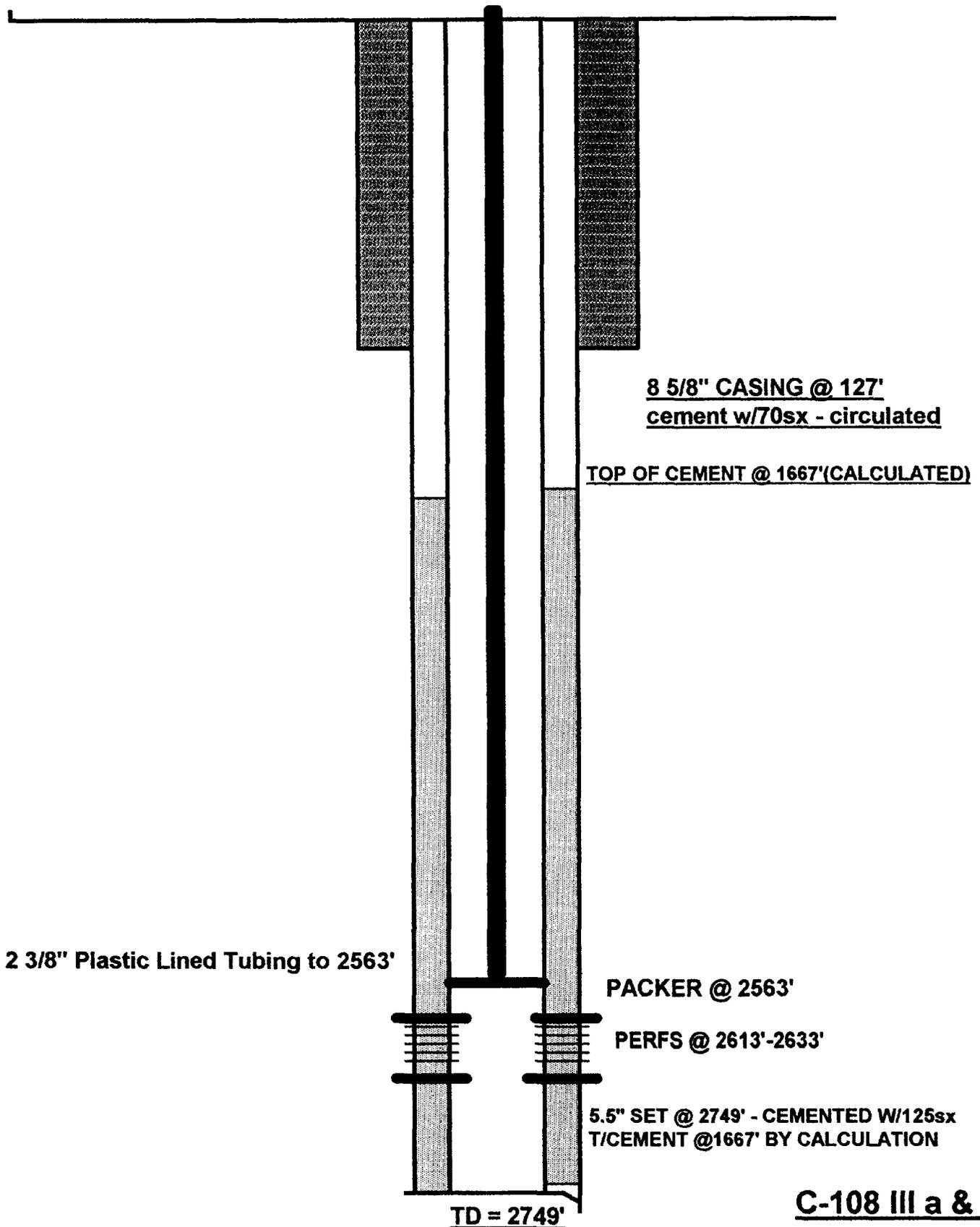
A2	<b>HOLE SIZE:</b>	11"	7.875"
A2	<b>CASING SIZE:</b>	8.625	5.5"
A2	<b>CASING WEIGHT:</b>	20#/ft	15.5#
A2	<b>CASING DEPTH:</b>	127'	2749'
A2	<b>CEMENT:</b>	70sx	125sx
A2	<b>TOP OF CEMENT:</b>	surface	1667'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
 A3 **PACKER DEPTH:** 2563' +/- 25'  
 A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
B2	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2613'-2633'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	946'
B3	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
B4	<b>OTHER PERFORATED INTERVALS:</b>	None
B5	<b>NEXT PAY ZONE - ABOVE:</b>	None
B5	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #12  
Well Schematic (Proposed)  
C-108-III a & b



25-T8S-R28E. 330 FSL & 330 FEL

P

O'BRIEN 25 #2

TLSAU #12

30-005-60578

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 14  
**A1 FOOTAGE:** 330 FSL & 1650 FWL  
**A1 SECTION:** 30-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

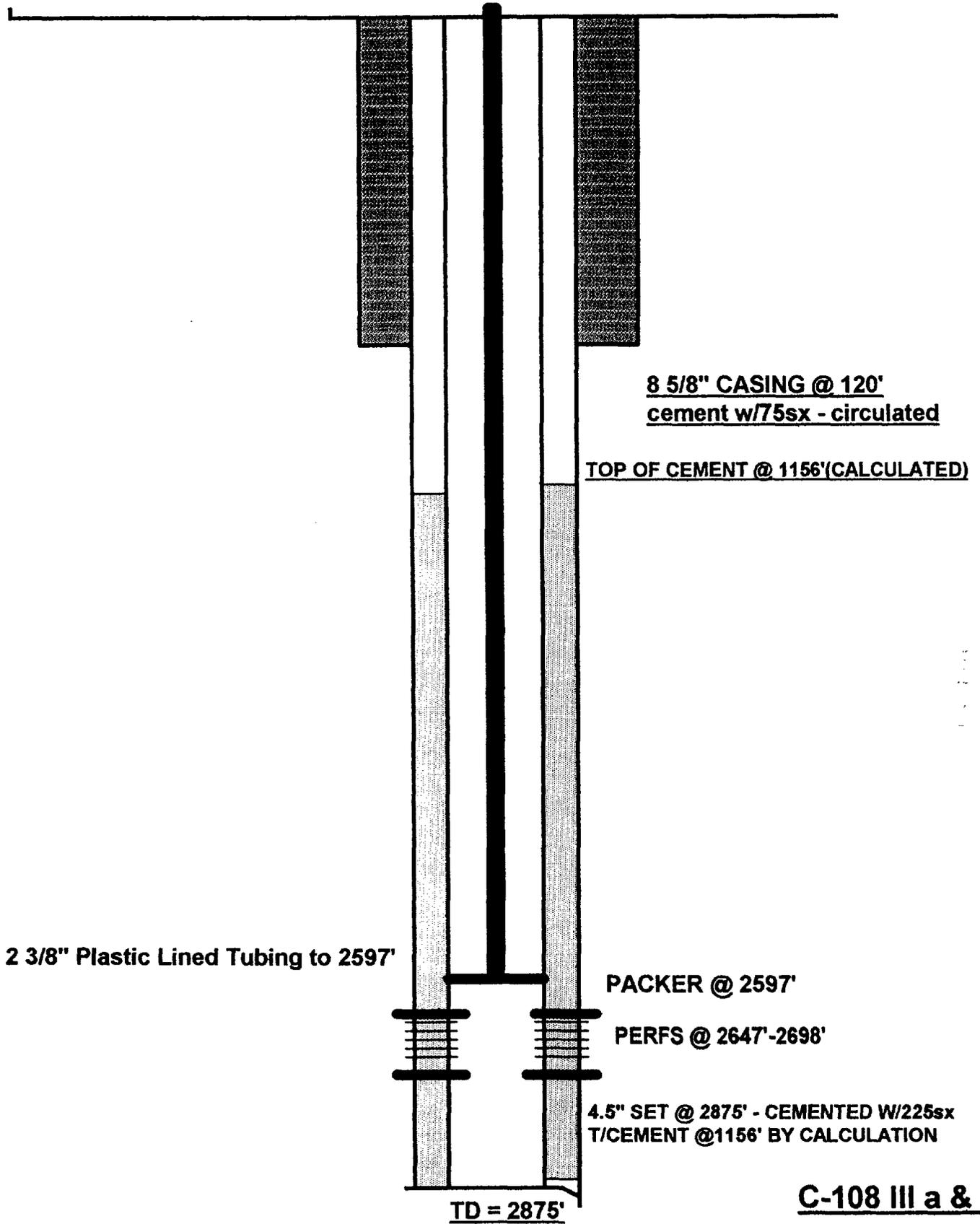
<b>A2</b>	<b>HOLE SIZE:</b>	12.5"	7.5"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	120'	2875'
<b>A2</b>	<b>CEMENT:</b>	75sx	225sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	surface	1156'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2597' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2647'-2698'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1491'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #14  
Well Schematic (Proposed)  
C-108-III a & b



30-T8S-R29E, 330 FSI & 1650 FWT  
N  
ORRIFEN, J #1  
T.L.SAU #14  
30-005-60597

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 18  
 A1 **FOOTAGE:** 990'FNL & 2310' FEL  
 A1 **SECTION:** 36-T8S-R28E  
 A1 **COUNTY:** Chaves

**EXISTING CASING PROGRAM**

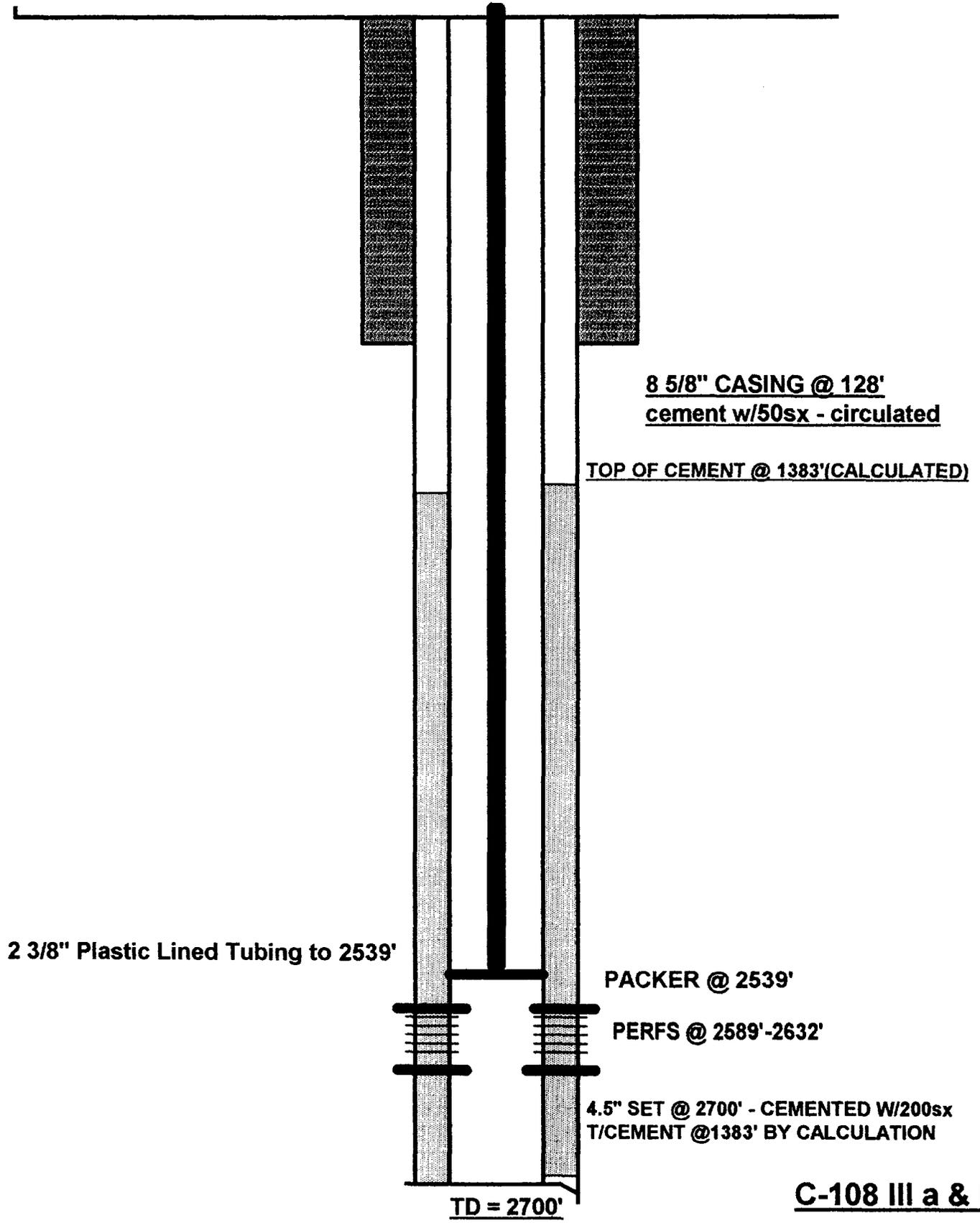
A2	<b>HOLE SIZE:</b>	12.5"	7.875"
A2	<b>CASING SIZE:</b>	8.625	4.5"
A2	<b>CASING WEIGHT:</b>	28#/ft	9.5#/ft
A2	<b>CASING DEPTH:</b>	128'	2700'
A2	<b>CEMENT:</b>	50sx	200sx
A2	<b>TOP OF CEMENT:</b>	surface	1383'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
 A3 **PACKER DEPTH:** 2539' +/- 25'  
 A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1 **PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
 B2 **PROPOSED INJECTION INTERVAL:** Perforations from: 2589'-2632'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1206'  
 B3 **ORIGINAL WELL PURPOSE:** Oil Well  
 B4 **OTHER PERFORATED INTERVALS:** None  
 B5 **NEXT PAY ZONE - ABOVE:** None  
 B5 **NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #18  
Well Schematic (Proposed)  
C-108-III a & b



36-T8S-R28E, 990 FNL & 2310 FEL

B

CITGO A #6

TLSAU #18

30-005-60536

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 20  
**A1 FOOTAGE:** 990' FNL & 330' FWL  
**A1 SECTION:** 31- T8S-29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

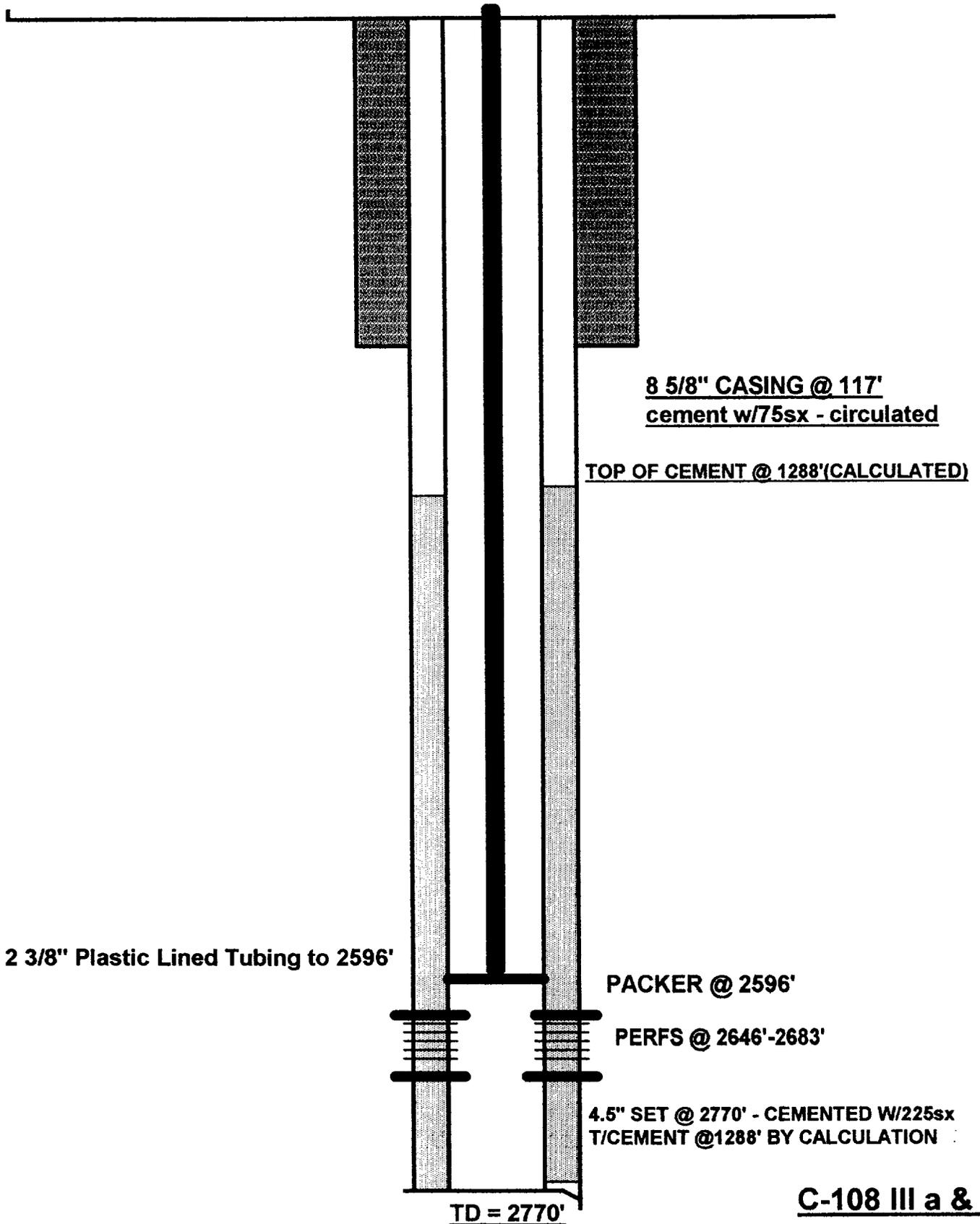
<b>A2</b>	<b>HOLE SIZE:</b>	12.5"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	28#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	117'	2770"
<b>A2</b>	<b>CEMENT:</b>	75sx	225sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	surface	1288"
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2596' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2645.5-2683.5  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1358'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #20  
Well Schematic (Proposed)  
C-108-III a & b



31-T8S-R29E, 990 FNL. & 330 FWL

D

O'BRIEN I #1

TLSAU #20

30-005-60570

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

C-108-III

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 22  
 A1 **FOOTAGE:** 990' FNL & 2310' FEL  
 A1 **SECTION:** 31-T8S- 29E  
 A1 **COUNTY:** Chaves

**EXISTING CASING PROGRAM**

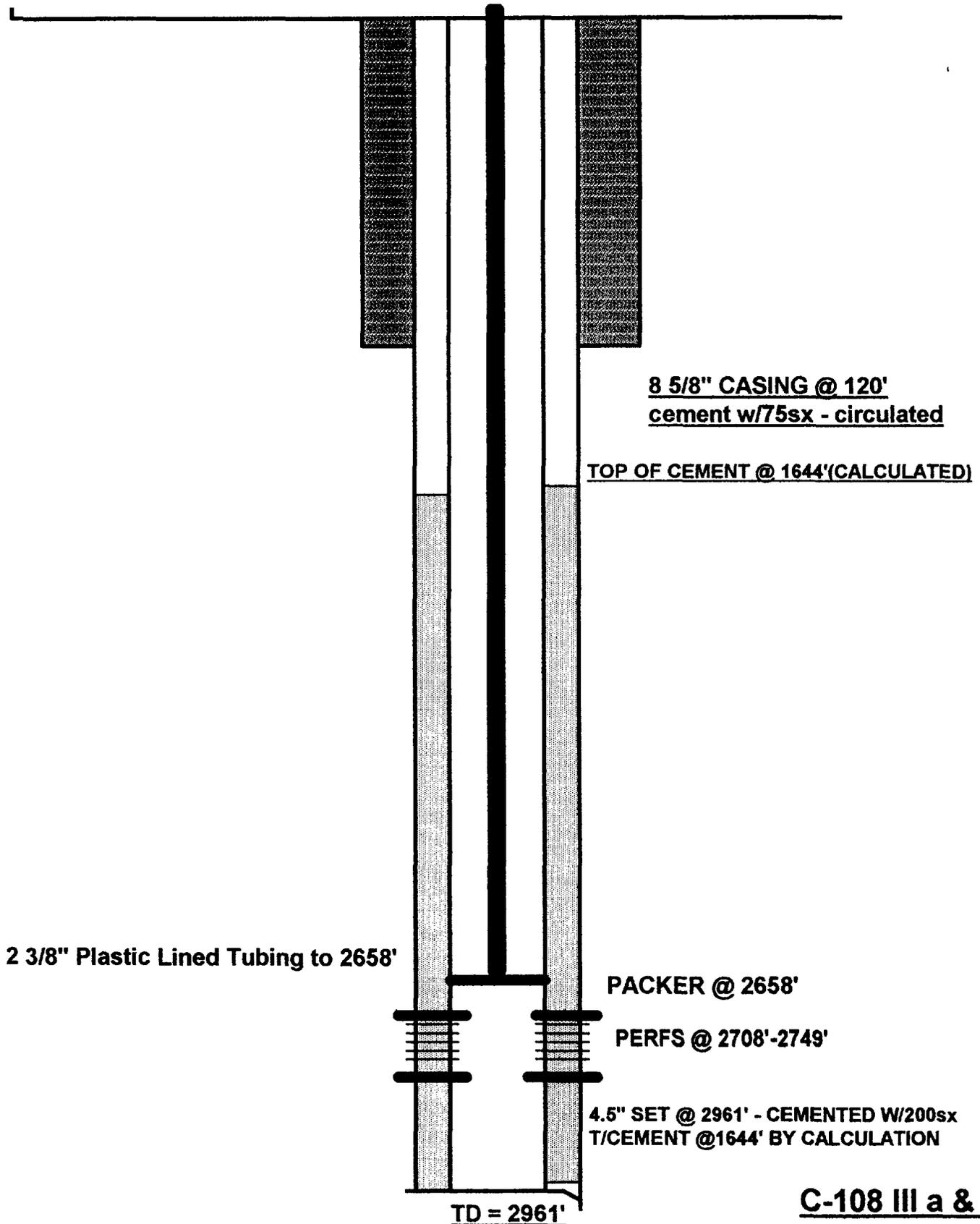
A2	<b>HOLE SIZE:</b>	12.5"	7.875"
A2	<b>CASING SIZE:</b>	8.625"	4.5"
A2	<b>CASING WEIGHT:</b>	20#/ft	9.5#/ft
A2	<b>CASING DEPTH:</b>	120'	2961'
A2	<b>CEMENT:</b>	75sx	200sx
A2	<b>TOP OF CEMENT:</b>	surface	1644'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
 A3 **PACKER DEPTH:** 2658' +/- 25'  
 A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1 **PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
 B2 **PROPOSED INJECTION INTERVAL:** Perforations from: 2708.5'-2749'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1391'  
 B3 **ORIGINAL WELL PURPOSE:** Oil Well  
 B4 **OTHER PERFORATED INTERVALS:** None  
 B5 **NEXT PAY ZONE - ABOVE:** None  
 B5 **NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #22  
Well Schematic (Proposed)  
C-108-III a & b



**C-108 III a & b**

31-T&S-R29E, 990 FNL & 2310 FEL  
B  
OBRIEN J #8  
TLSAU #22  
30-005-60823

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 26  
**A1 FOOTAGE:** 1980' FNL & 1980' FWL  
**A1 SECTION:** 36-8S-28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

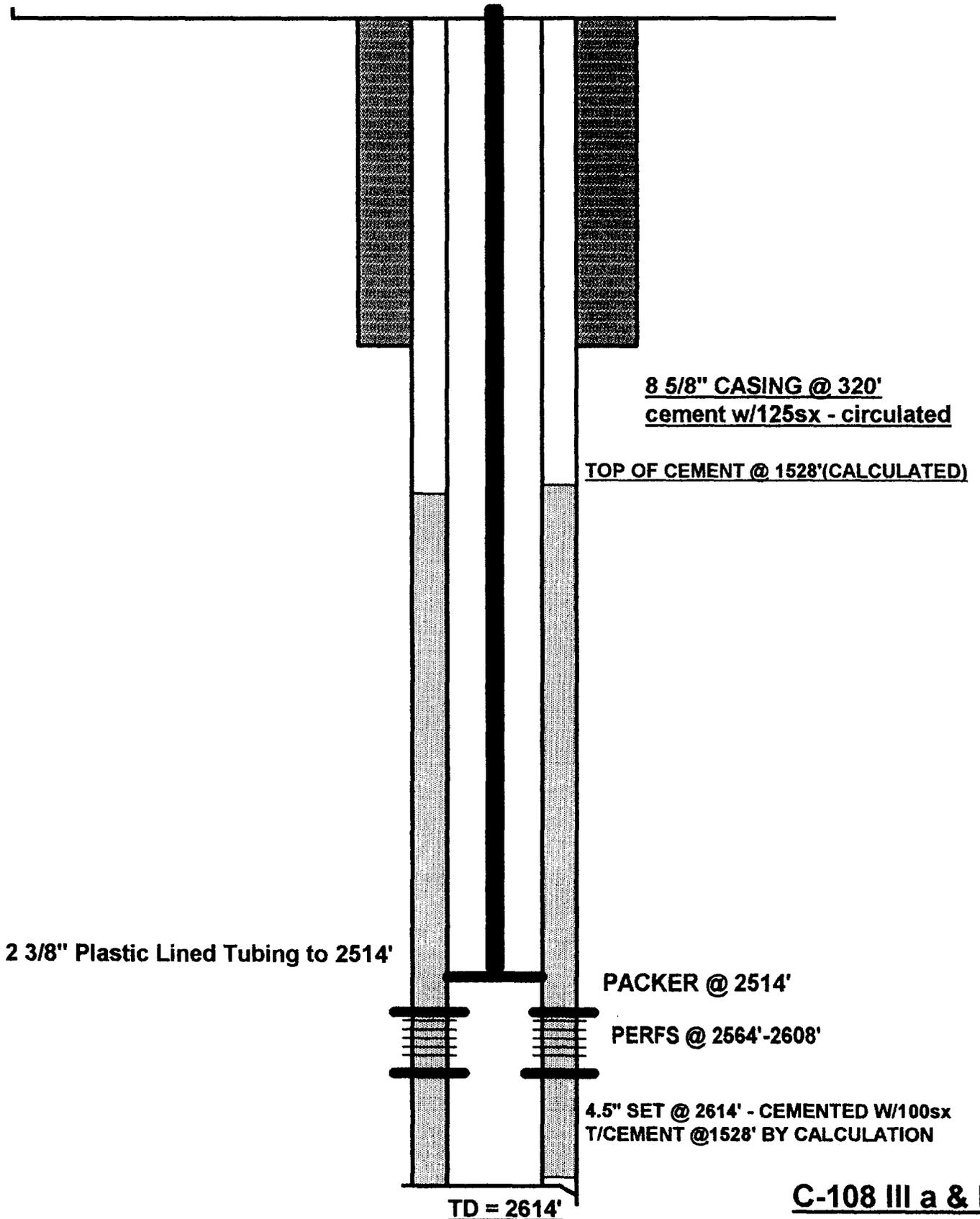
**A2 HOLE SIZE:** 11" 6.75  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 20#/ft 9.5#/ft  
**A2 CASING DEPTH:** 320' 2614'  
**A2 CEMENT:** 125sx 100sx  
**A2 TOP OF CEMENT:** circulated 1528'  
(CALCULATED)

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2514' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2564'-2608'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1478'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #26  
Well Schematic (Proposed)  
C-108-III a & b



36-T8S-R28E, 1980 FNL & 1980 FWL

F

CITGO STATE #1

TLSAU #26

30-005-60031

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 29  
**A1 FOOTAGE:** 2310' FNL & 990' FEL  
**A1 SECTION:** 36-T8S-R28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

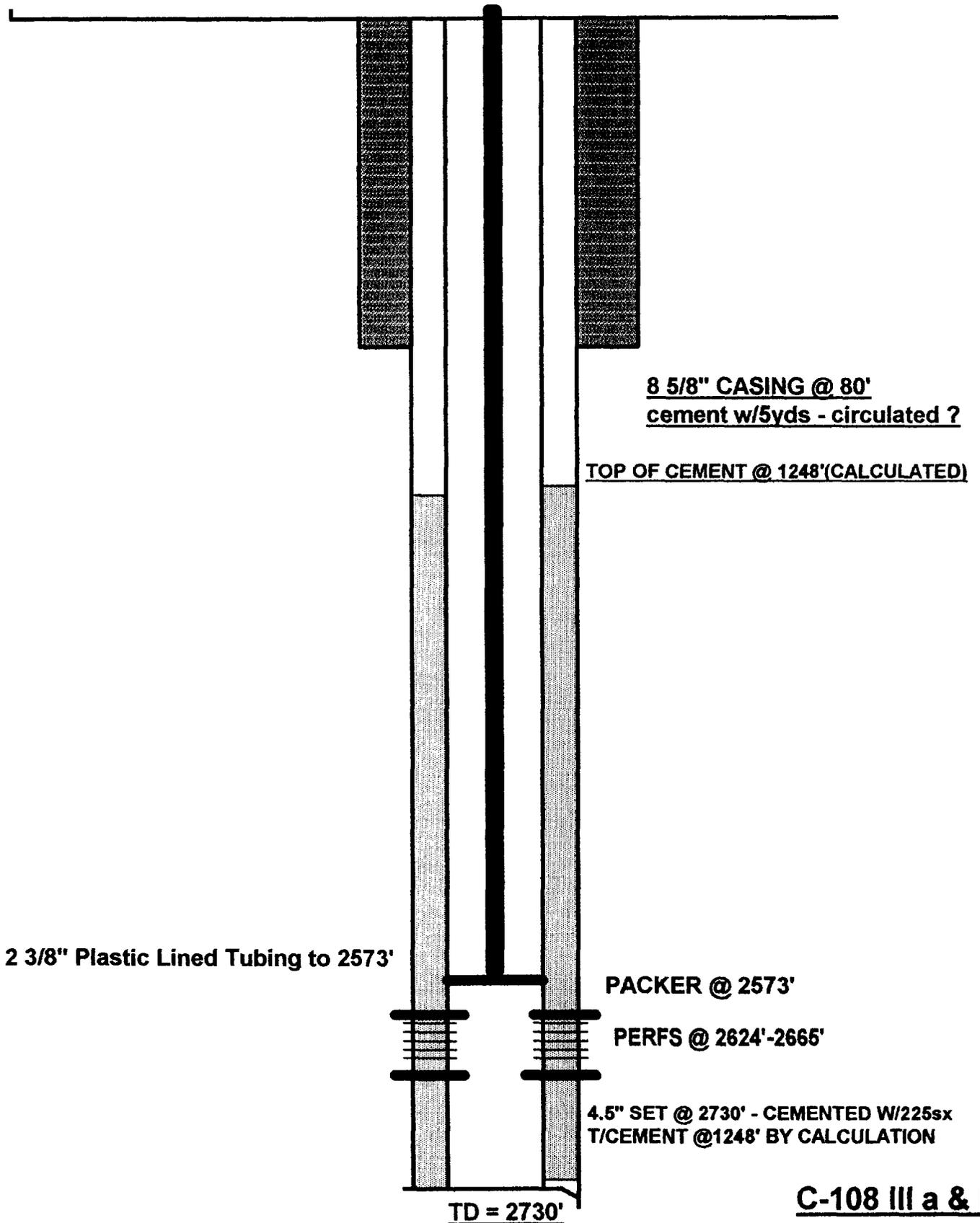
<b>A2</b>	<b>HOLE SIZE:</b>	12.5"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	28#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	80'	2730'
<b>A2</b>	<b>CEMENT:</b>	5 yds.	225sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE ?	1248' calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2573' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2623.5'-2664.5'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1141'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #29  
Well Schematic (Proposed)  
C-108-III a & b



36-T8S-R28E. 2310 FNL & 990 FEL

H

CITGO STATE A #8

TLSAU #29

30-005-60569

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

C-108-III

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 36  
 A1 **FOOTAGE:** 1650 FSL & 2310 FEL  
 A1 **SECTION:** 36-T8S-28E  
 A1 **COUNTY:** Chaves

**EXISTING CASING PROGRAM**

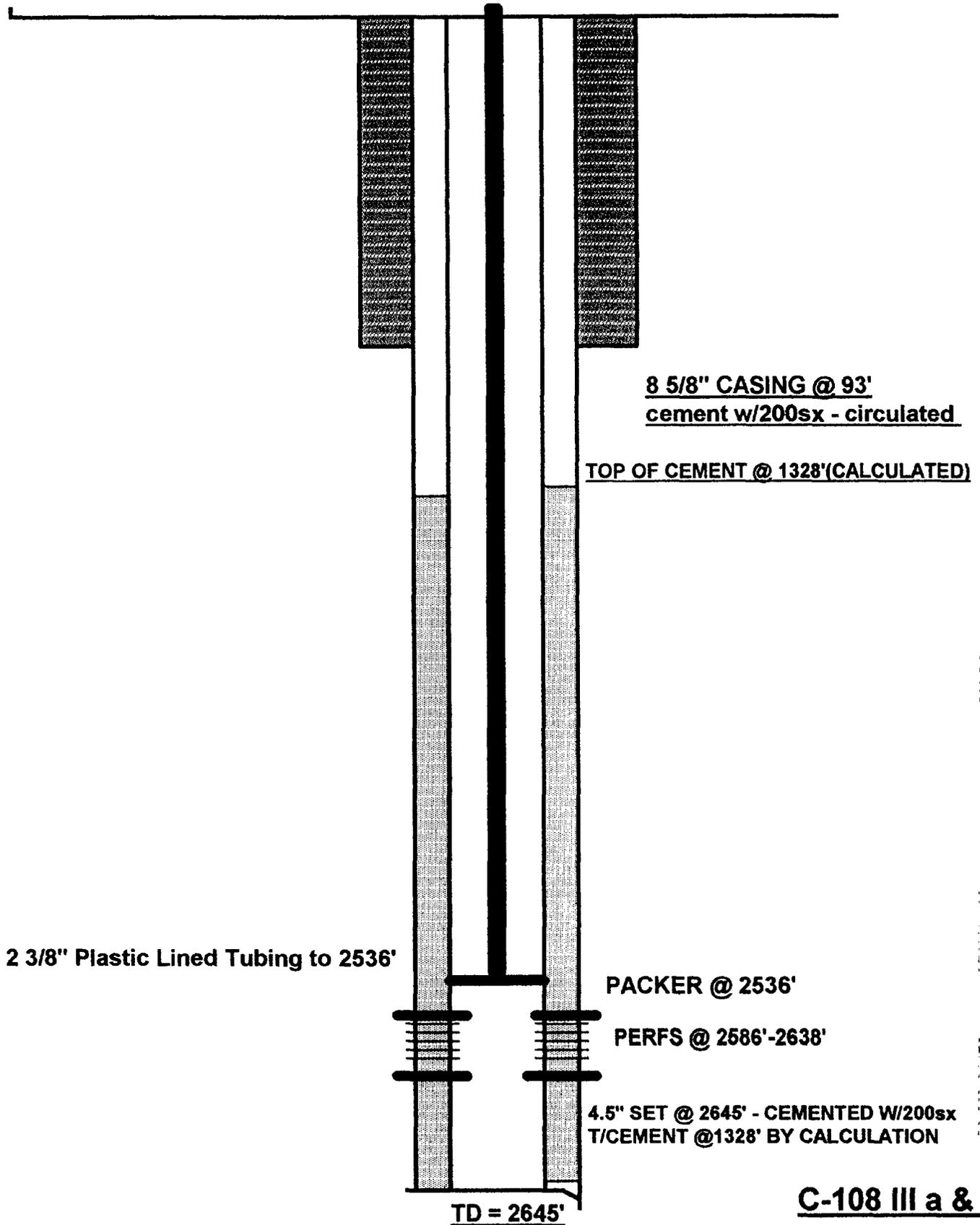
A2	<b>HOLE SIZE:</b>	11"	7.875"
A2	<b>CASING SIZE:</b>	8.625"	4.5"
A2	<b>CASING WEIGHT:</b>	24#/ft	11.6#/ft
A2	<b>CASING DEPTH:</b>	93'	2645'
A2	<b>CEMENT:</b>	200sx	200sx
A2	<b>TOP OF CEMENT:</b>	surface	1328'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
 A3 **PACKER DEPTH:** 2536' +/- 25'  
 A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1 **PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
 B2 **PROPOSED INJECTION INTERVAL:** Perforations from: 2586'-2638'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1258'  
 B3 **ORIGINAL WELL PURPOSE:** Oil Well  
 B4 **OTHER PERFORATED INTERVALS:** None  
 B5 **NEXT PAY ZONE - ABOVE:** None  
 B5 **NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #36  
Well Schematic (Proposed)  
C-108-III a & b



**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

C-108-III

**ITEM #**

A1 **WELL NAME:** Twin Lakes San Andres Unit # 39  
 A1 **FOOTAGE:** 1650 FSL & 330 FWL  
 A1 **SECTION:** 31-T8S-R29E  
 A1 **COUNTY:** Chaves

06-7

**EXISTING CASING PROGRAM**

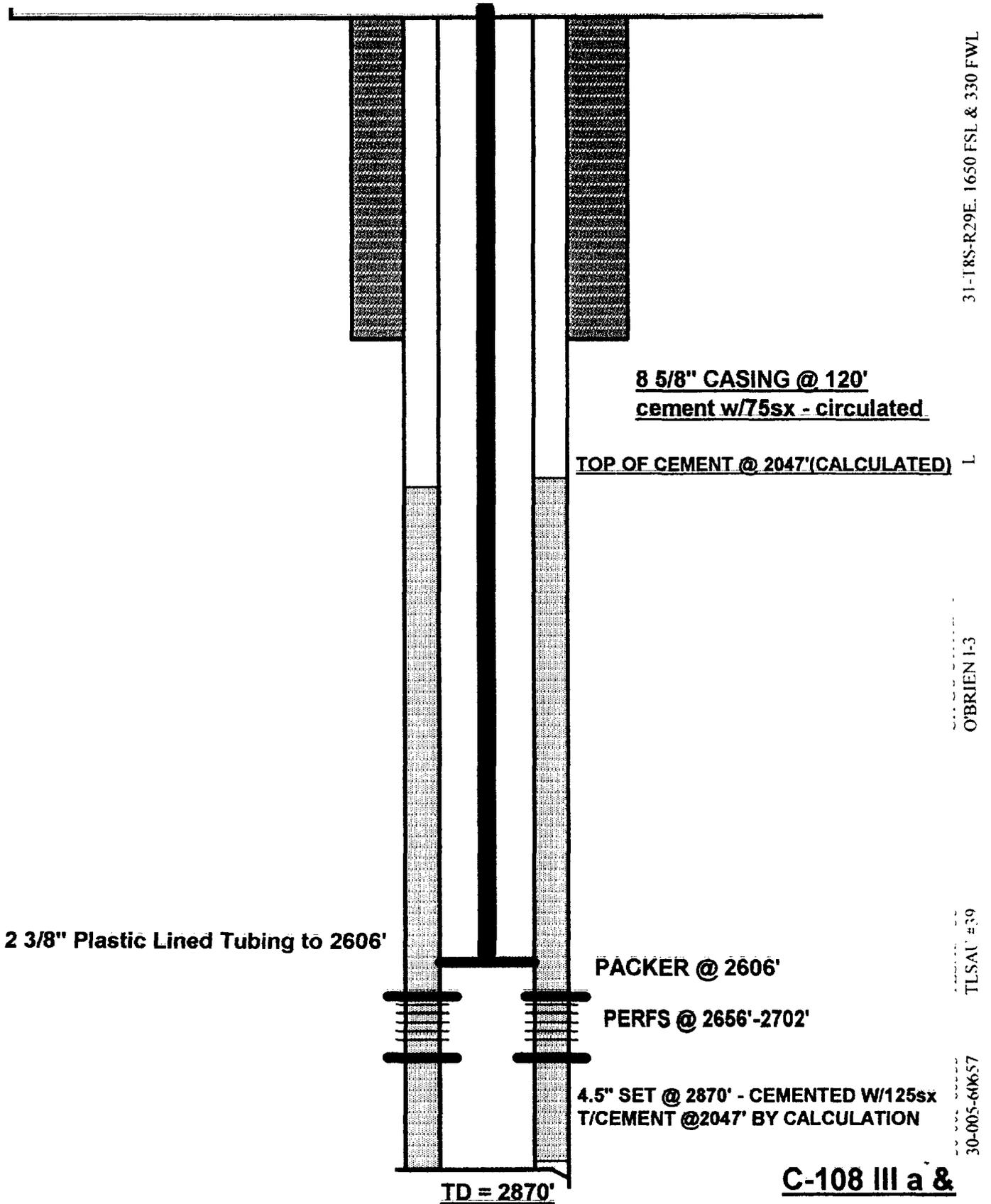
A2	<b>HOLE SIZE:</b>	12.5"	7.875"
A2	<b>CASING SIZE:</b>	8.625"	4.5"
A2	<b>CASING WEIGHT:</b>	20#/ft	9.5#/ft
A2	<b>CASING DEPTH:</b>	120'	2870'
A2	<b>CEMENT:</b>	75sx	125sx
A2	<b>TOP OF CEMENT:</b>	surface	2047'
		circulated	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

A3 **TUBING:** 2.375" EUE, J-55, 4.7#/ft. 8rt. internally plastic coated or fiberglass lined  
 A3 **PACKER DEPTH:** 2606' +/- 25'  
 A4 **PACKER TYPE:** Halliburton R4 internally coated tension packer

B1 **PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
 B2 **PROPOSED INJECTION INTERVAL:** Perforations from: 2656'-2702.5'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 609'  
 B3 **ORIGINAL WELL PURPOSE:** Oil Well  
 B4 **OTHER PERFORATED INTERVALS:** None  
 B5 **NEXT PAY ZONE - ABOVE:** None  
 B5 **NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #39  
Well Schematic (Proposed)  
C-108-III a & b



**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 41  
**A1 FOOTAGE:** 1650' FSL & 2310' FEL  
**A1 SECTION:** 31-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

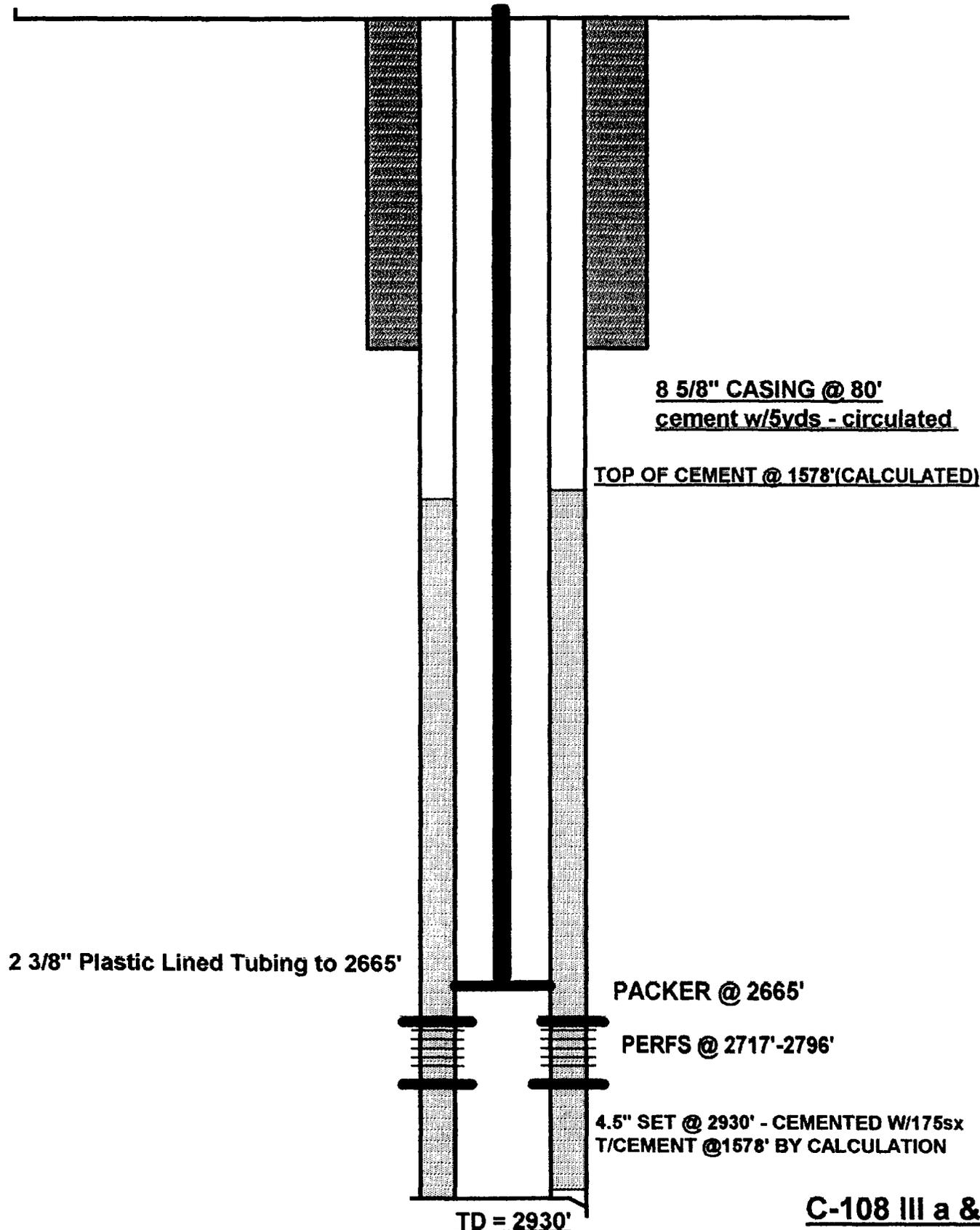
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 20#/ft 9.5#/ft  
**A2 CASING DEPTH:** 80' 2930'  
**A2 CEMENT:** 5yds 175sx  
**A2 TOP OF CEMENT:** SURFACE? 1578'  
Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2665' +/-25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2717'-2796'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1139'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #41  
Well Schematic (Proposed)  
C-108-III a & b



**C-108 III a & b**

31-T8S-R29E, 1650 FSL & 2310 FEL

O'BRIEN J-2

T.L.SAU #41

30-005-60768

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 42  
**A1 FOOTAGE:** 1650' FSL & 990' FEL  
**A1 SECTION:** 31-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

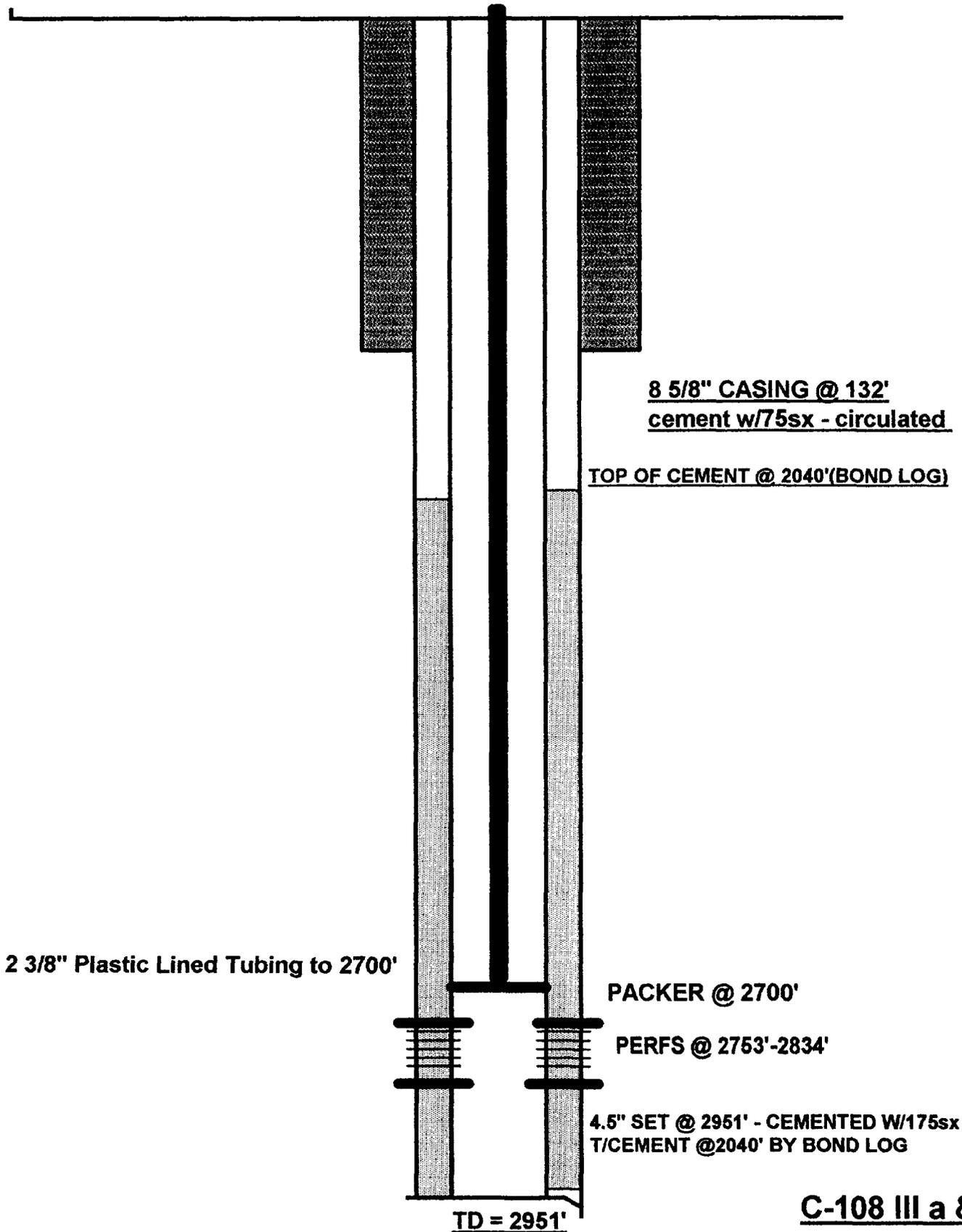
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	132'	2951'
<b>A2</b>	<b>CEMENT:</b>	75sx	175sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	2040'
		Circ. 10sx	BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2700' +/-25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2753'-2834'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	713'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #42  
Well Schematic (Proposed)  
C-108-III a & b



31-T8S-R29E. 1650 FSL & 990 FEL.

I

O'BRIEN J-5

TLSAU #42

30-005-60802

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 45  
**A1 FOOTAGE:** 660' FSL & 1980' FWL  
**A1 SECTION:** 36-T8S-R28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

<b>A2</b>	<b>HOLE SIZE:</b>	17.5"	12.25"	9.625"
<b>A2</b>	<b>CASING SIZE:</b>	13.375"	9.625"	5.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	48#/ft	36#/ft	15.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	665'	3415'	1001'
<b>A2</b>	<b>CEMENT:</b>	800sx	2455'	100sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	770'	815'

TEMP SURV

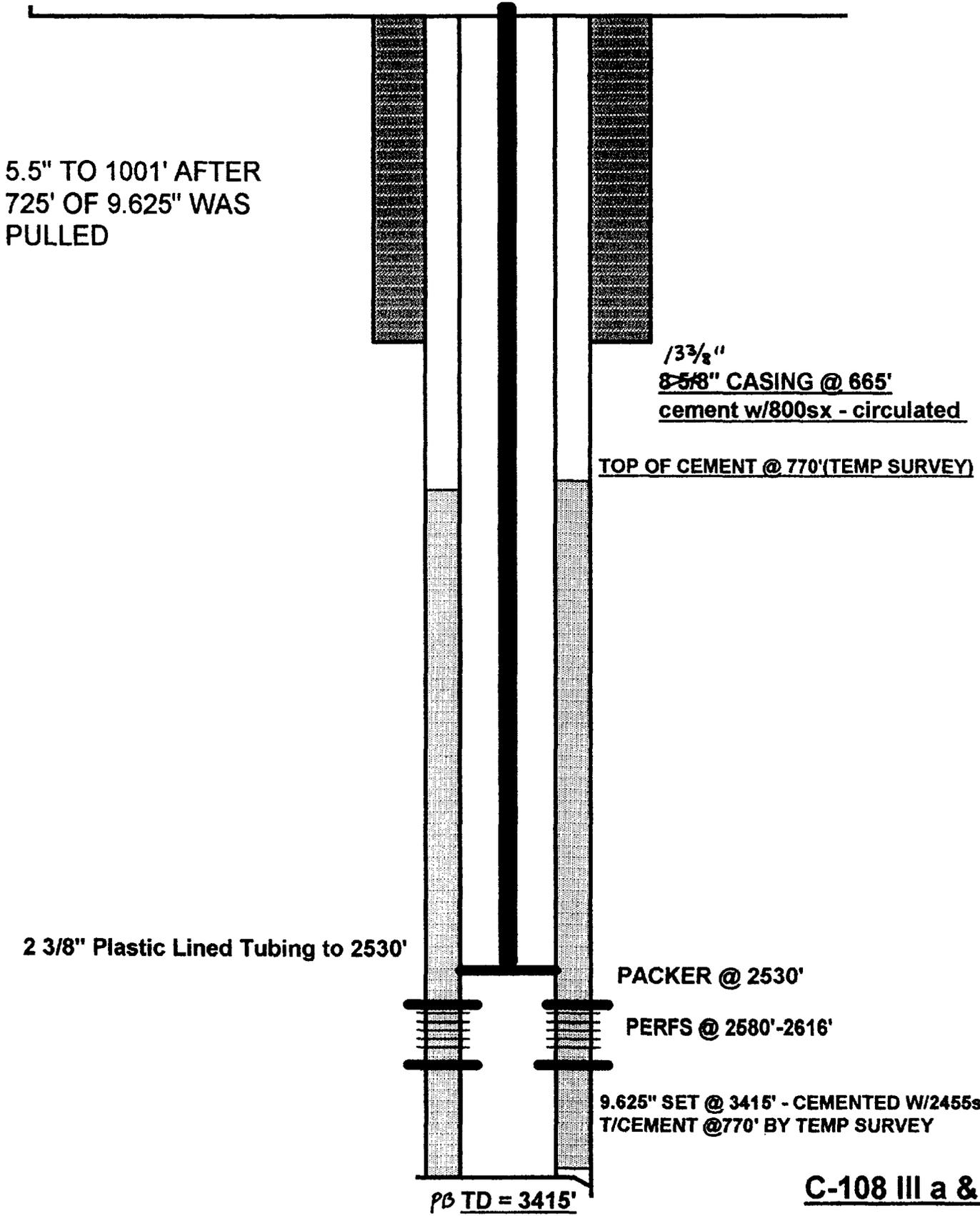
**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2530' +/-25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2580'-2616'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1810'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

**COMMENTS:** 725' OF 9.625" CASING PULLED BY MAGNOLIA  
 SWEENEY RAN 1001' OF 5.5" & CEMENTED W/100sx

Hanagan Petroleum Corporation  
 Twin Lakes San Andres Unit Well #45  
 Well Schematic (Proposed)  
 C-108-III a & b



**C-108 III a & b**

36-T8S-R.28E. 660 FSL. & 1980 FWL  
 N  
 CITGO ST. A-2  
 T.L.SAU #45  
 30-005-00342

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #47  
**A1 FOOTAGE:** 660' FSL & 660' FE;  
**A1 SECTION:** 36-T8S-R28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

<b>A2</b>	<b>HOLE SIZE:</b>	11"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	28#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	955'	2660'
<b>A2</b>	<b>CEMENT:</b>	200sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE?	1308'
			Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2575' +/-25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2623'-2660'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1315'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #47  
Well Schematic (Proposed)  
C-108-III a & b

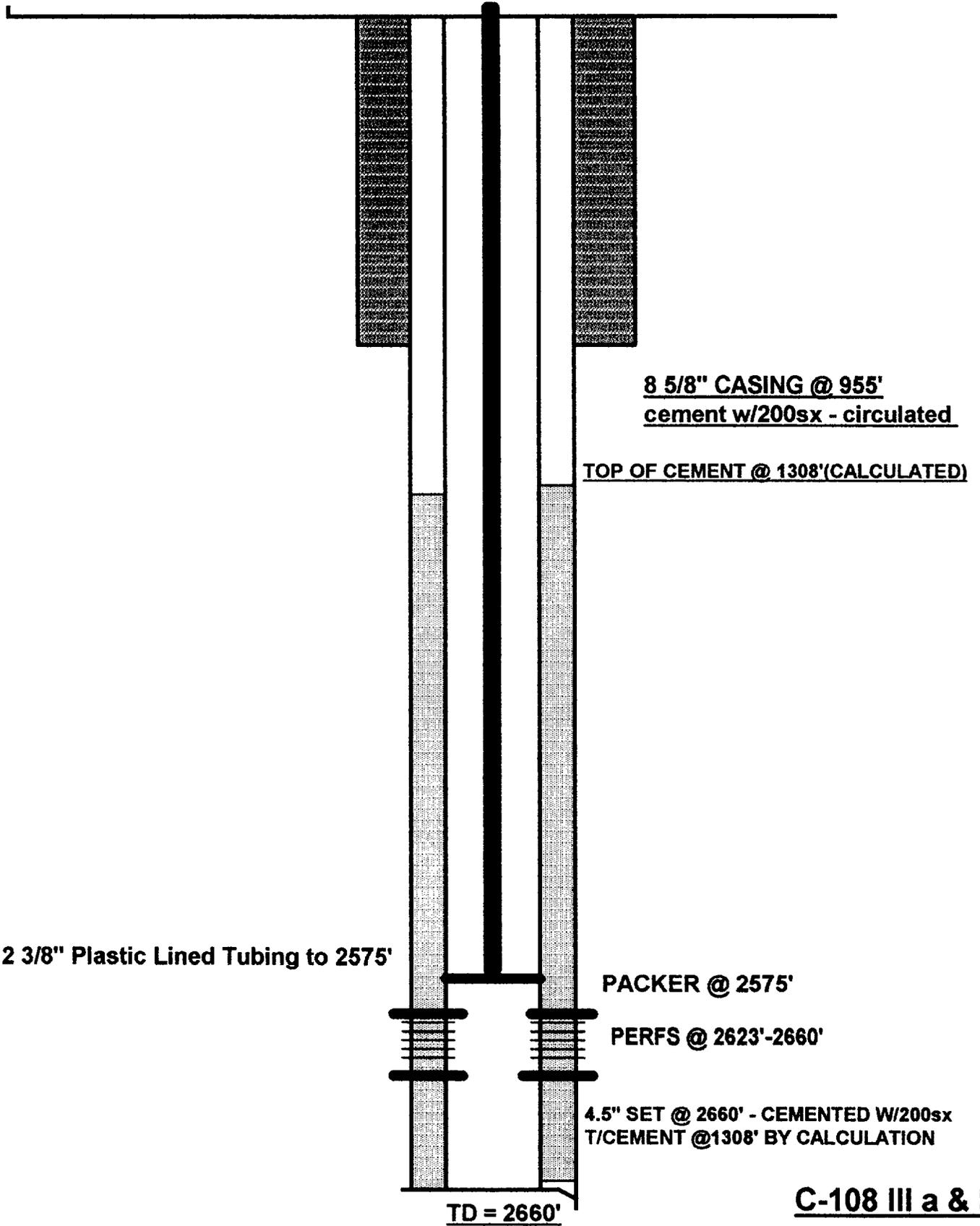
36-T85-R28E, 660 FSL & 660 FEL

P

CITGO ST. #3

TLSAU #47

30-005-60010



**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 49  
**A1 FOOTAGE:** 560' FSL & 1650' FWL  
**A1 SECTION:** 31-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

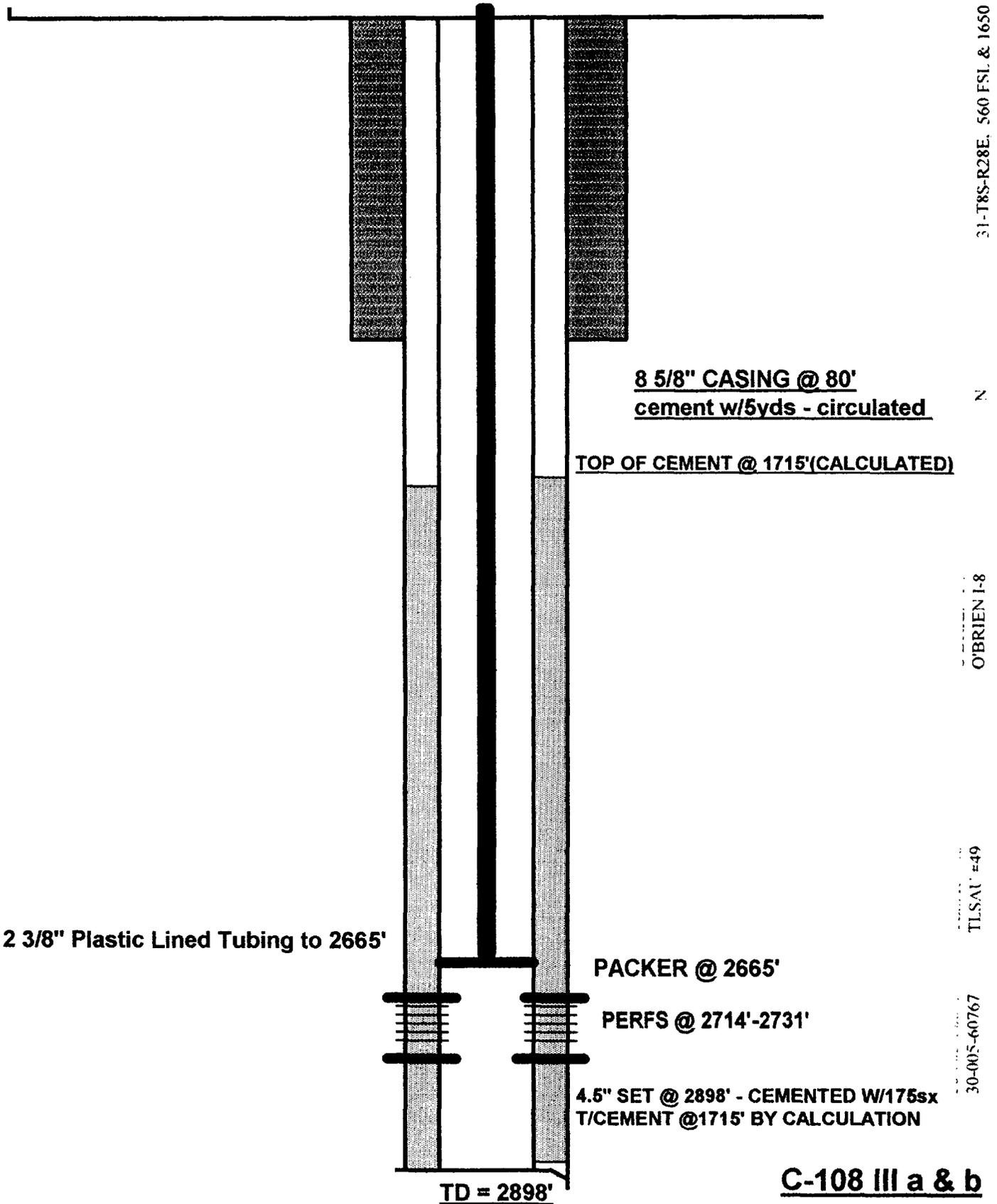
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 20#/ft 9.5#/ft  
**A2 CASING DEPTH:** 80' 2898'  
**A2 CEMENT:** 5yds 175sx  
**A2 TOP OF CEMENT:** SURFACE 1715'  
Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2665' +/-25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2714'-2731'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1000'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #49  
Well Schematic (Proposed)  
C-108-III a & b



# HANAGAN PETROLEUM CORPORATION TWIN LAKES SAN ANDRES WATERFLOOD UNIT

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

<b>A1</b>	<b>WELL NAME:</b>	Twin Lakes San Andres Unit # 51
<b>A1</b>	<b>FOOTAGE:</b>	560' FSL & 990' FEL
<b>A1</b>	<b>SECTION:</b>	31-T8S-R29E
<b>A1</b>	<b>COUNTY:</b>	Chaves

**EXISTING CASING PROGRAM**

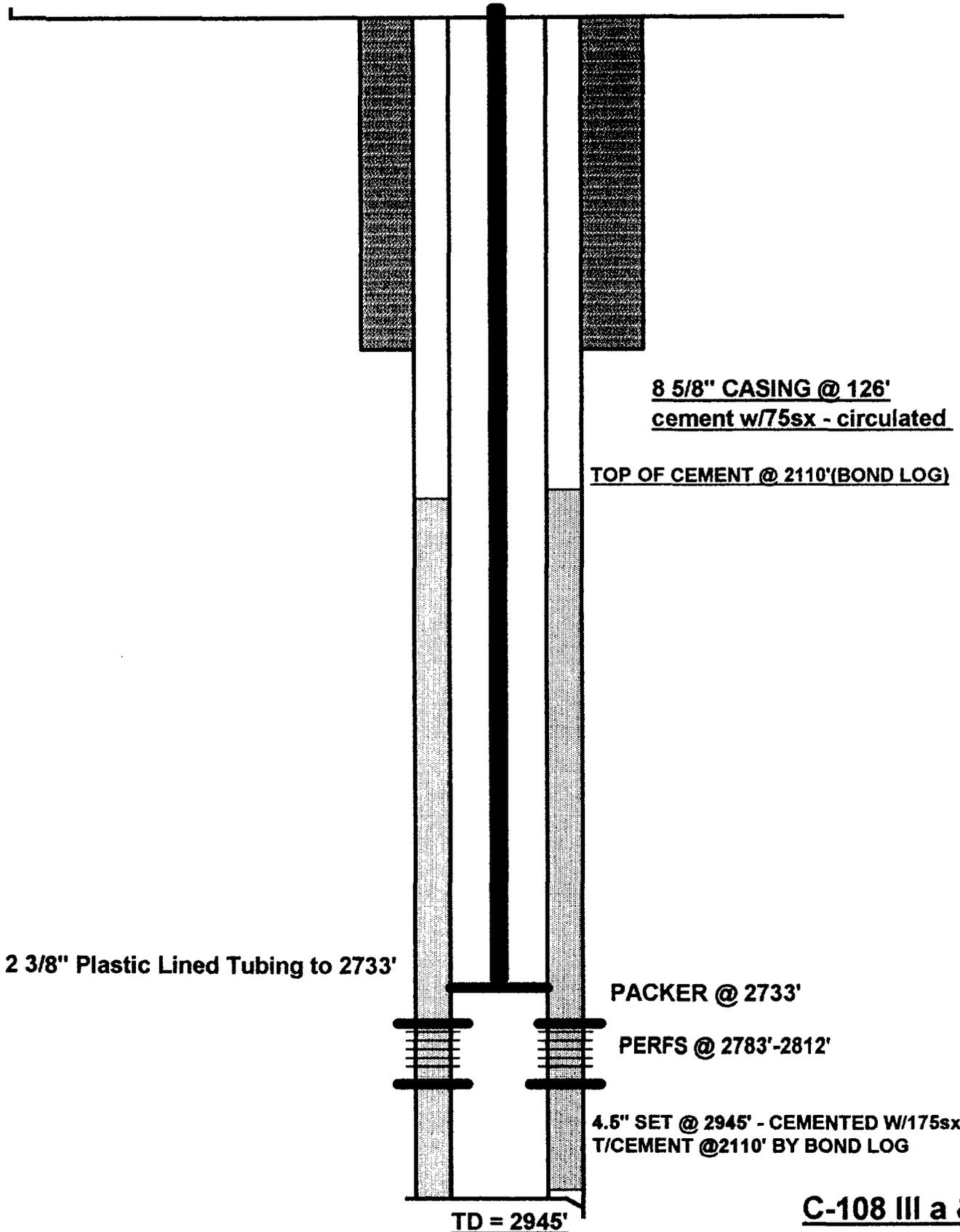
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20#/ft	9.5#/ft
<b>A2</b>	<b>CASING DEPTH:</b>	126'	<del>2405'</del> 2945'
<b>A2</b>	<b>CEMENT:</b>	75sx	175sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	2110'
		Circ 20sx	BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

<b>A3</b>	<b>TUBING:</b>	2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined
<b>A3</b>	<b>PACKER DEPTH:</b>	2733' +/-25'
<b>A4</b>	<b>PACKER TYPE:</b>	Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2783'-2812'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	673'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #51  
Well Schematic (Proposed)  
C-108-III a & b



31-T8S-R29E. 560 FSL & 990 FEL  
P  
O'BRIEN J-6  
TL5AU = 51  
30-005-60810

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 58  
**A1 FOOTAGE:** 330 FNL & 330' FWL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20 #/ft	9.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	133'	2823'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1471'
		Circ. 10sx	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2615' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2665'-2743'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1194'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

6-T9S-R29E, 330 FNL & 330 FWL

D

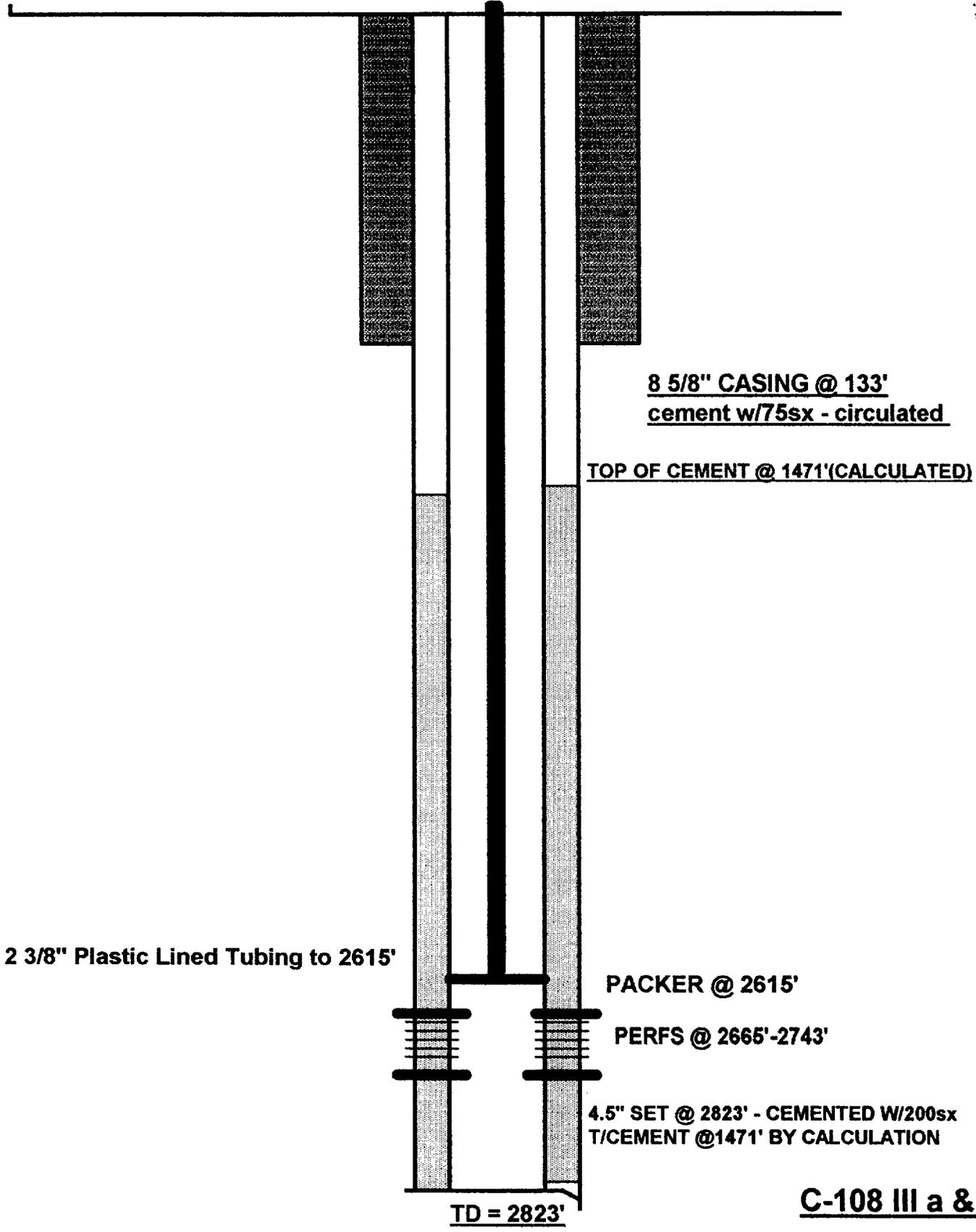
O'BRIEN L-12

TL5A1 #58

30-005-61031

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #58  
Well Schematic (Proposed)  
C-108-III a & b

6-T9S-R29E. 330 FNL & 330 FWL  
D  
O'BRIEN L-12  
TLSAU #58  
30-005-61031



**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #60  
**A1 FOOTAGE:** 330' FNL & 2310' FEL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

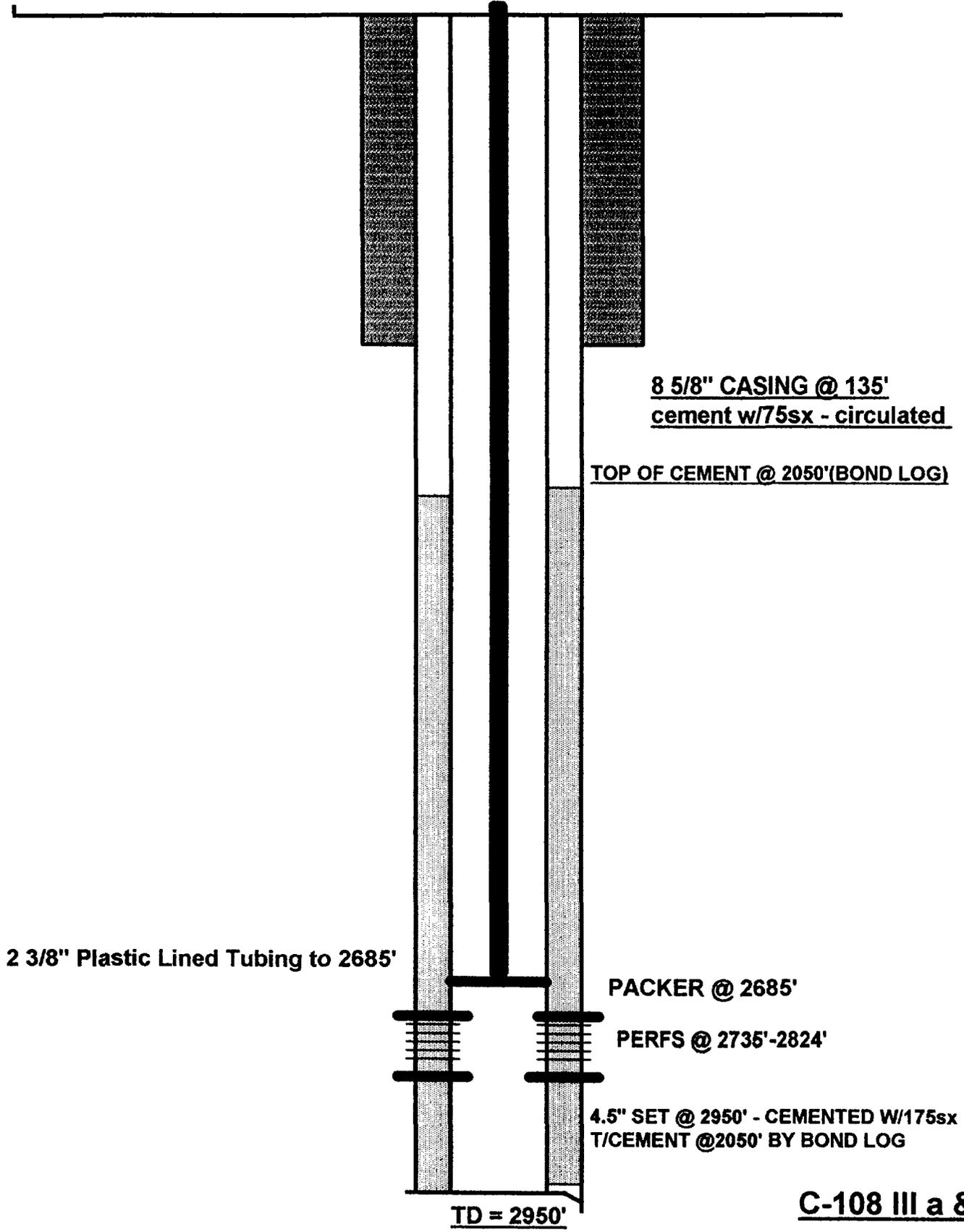
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 20 #/ft 9.5#/ft  
**A2 CASING DEPTH:** 135' 2950'  
**A2 CEMENT:** 75sx 175sx  
**A2 TOP OF CEMENT:** SURFACE 2050'  
BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2685' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2735'-2824'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 685'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #60  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S-R29E. 330 FNL & 2310 FEL

B

O'BRIEN L-2

TLSAU #60

30-005-60824

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #69  
**A1 FOOTAGE:** 1650' FNL & 1650' FWL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

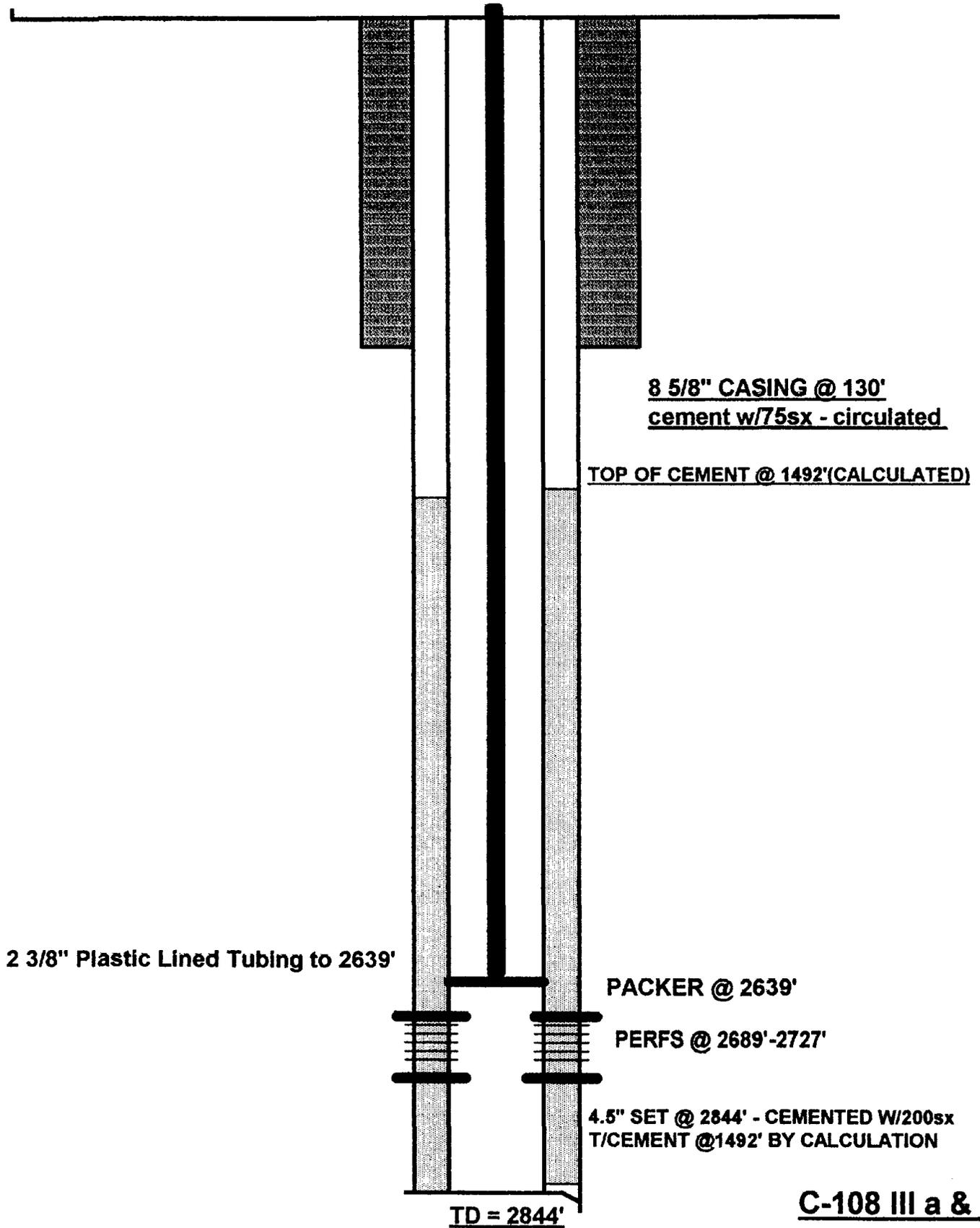
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20 #/ft	9.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	130'	2844'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1492'
		Circ. 20sx	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2639' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2689'-2727'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	1197'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #69  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S-R29E. 1650 FNL & 1650 FWL

F

O'BRIEN L-8

TLSAU #69

30-005-60984

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

<b>A1</b>	<b>WELL NAME:</b>	Twin Lakes San Andres Unit #72
<b>A1</b>	<b>FOOTAGE:</b>	1650' FNL & 990' FEL
<b>A1</b>	<b>SECTION:</b>	6-T9S-R29E
<b>A1</b>	<b>COUNTY:</b>	Chaves

**EXISTING CASING PROGRAM**

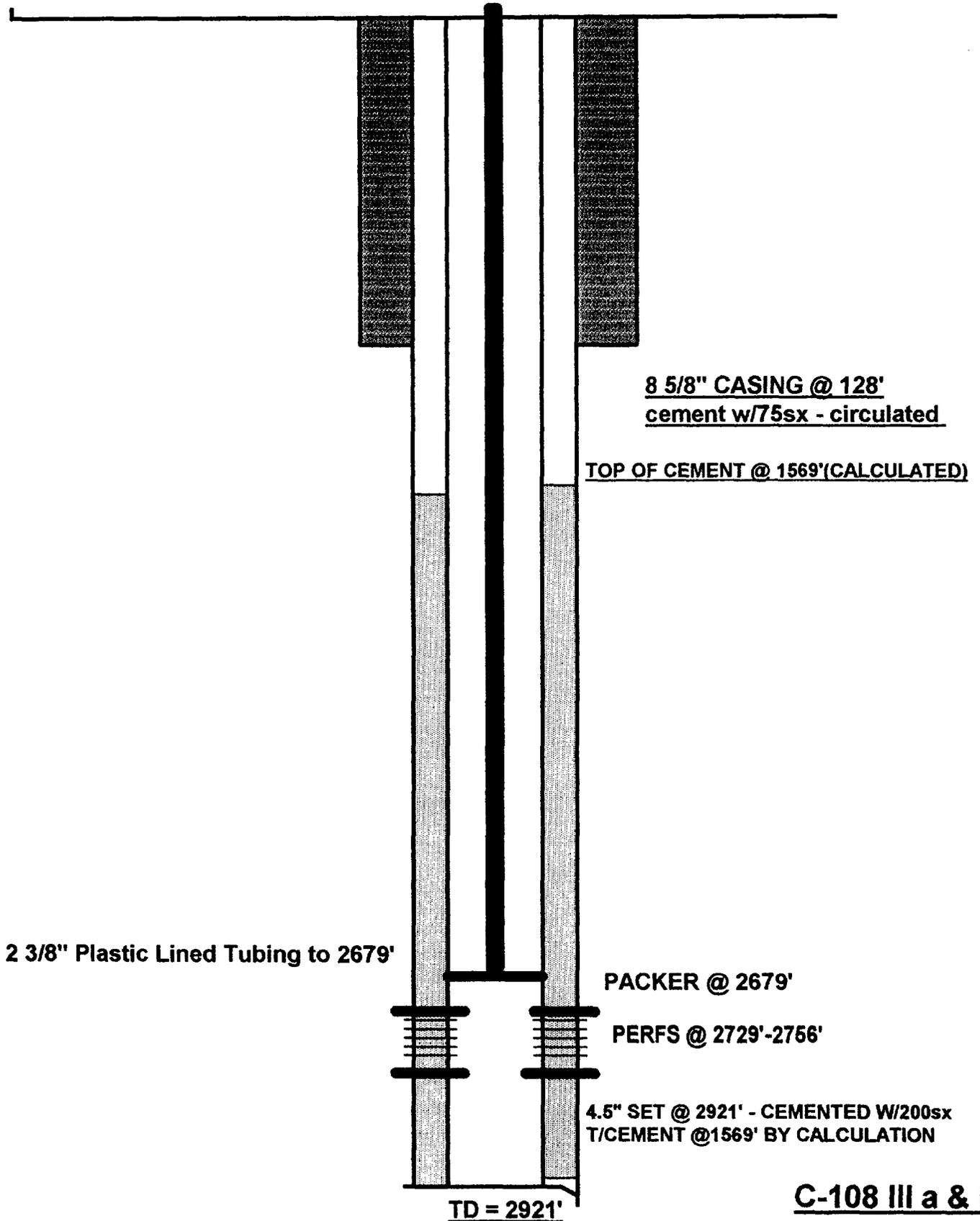
<b>A2</b>	<b>HOLE SIZE:</b>	11"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20 #/ft	9.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	128'	2921'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1569'
			Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

<b>A3</b>	<b>TUBING:</b>	2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined
<b>A3</b>	<b>PACKER DEPTH:</b>	2679' +/- 25'
<b>A4</b>	<b>PACKER TYPE:</b>	Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2729'-2756'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	1160'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #72  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S-R29E, 16S0 FNI, & 990 FEL

H

O'BRIEN I.-5

TLSAU #72

30-005-60886

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #77  
**A1 FOOTAGE:** 2310' FSL & 330' FWL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

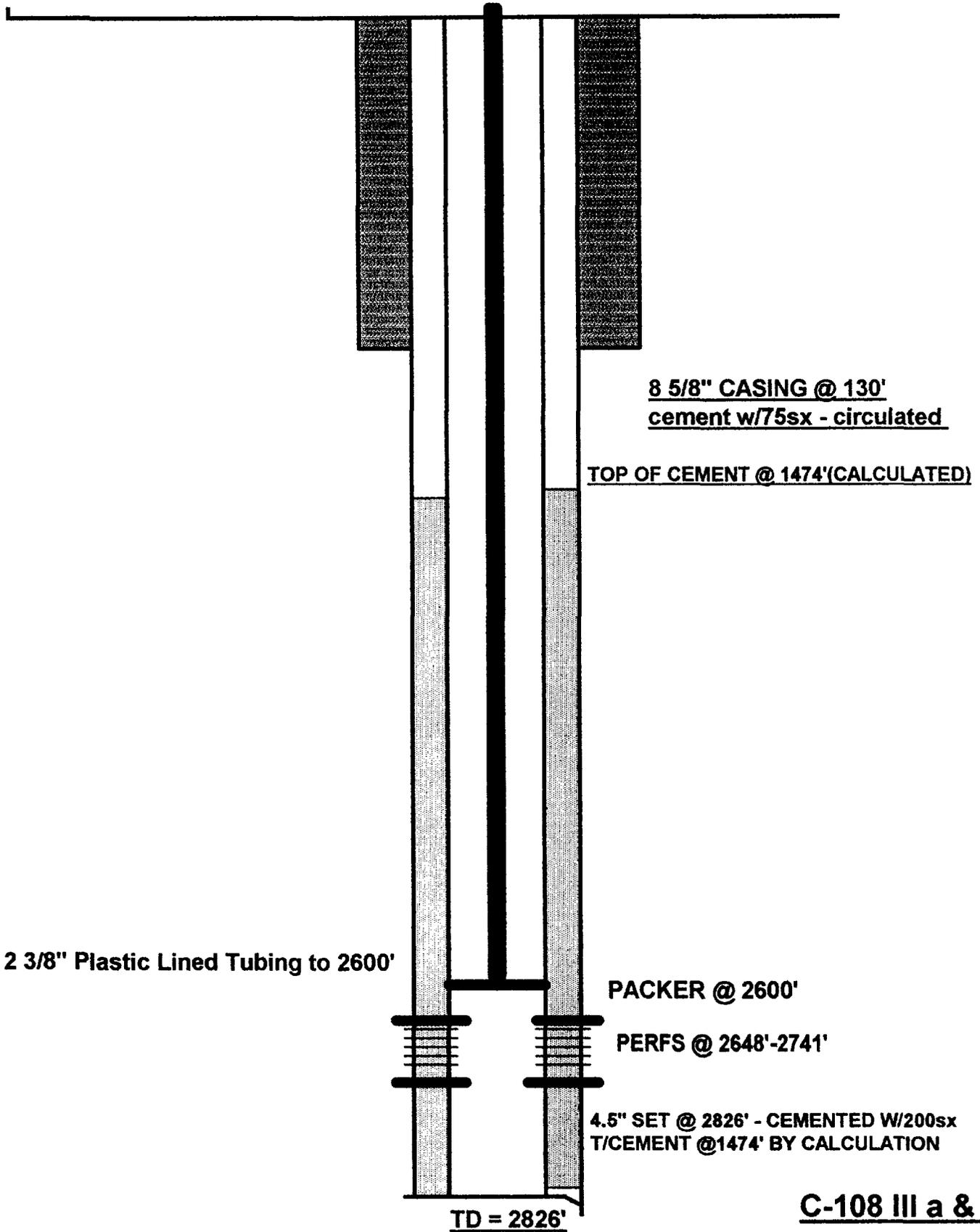
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 20 #/ft 9.5 #/ft  
**A2 CASING DEPTH:** 130' 2826'  
**A2 CEMENT:** 75sx 200sx  
**A2 TOP OF CEMENT:** SURFACE 1474'  
Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2600' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2648'-2741'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1174'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #77  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S-R29E. 2310 FSL & 330 FWL

L

O'BRIEN L-13

TLSAU #77

30-005-61032

**C-108 III a & b**

# HANAGAN PETROLEUM CORPORATION

## TWIN LAKES SAN ANDRES WATERFLOOD UNIT

### TABLE C-108 III-A & B

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 79  
**A1 FOOTAGE:** 2310 FSL & 2310 FEL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

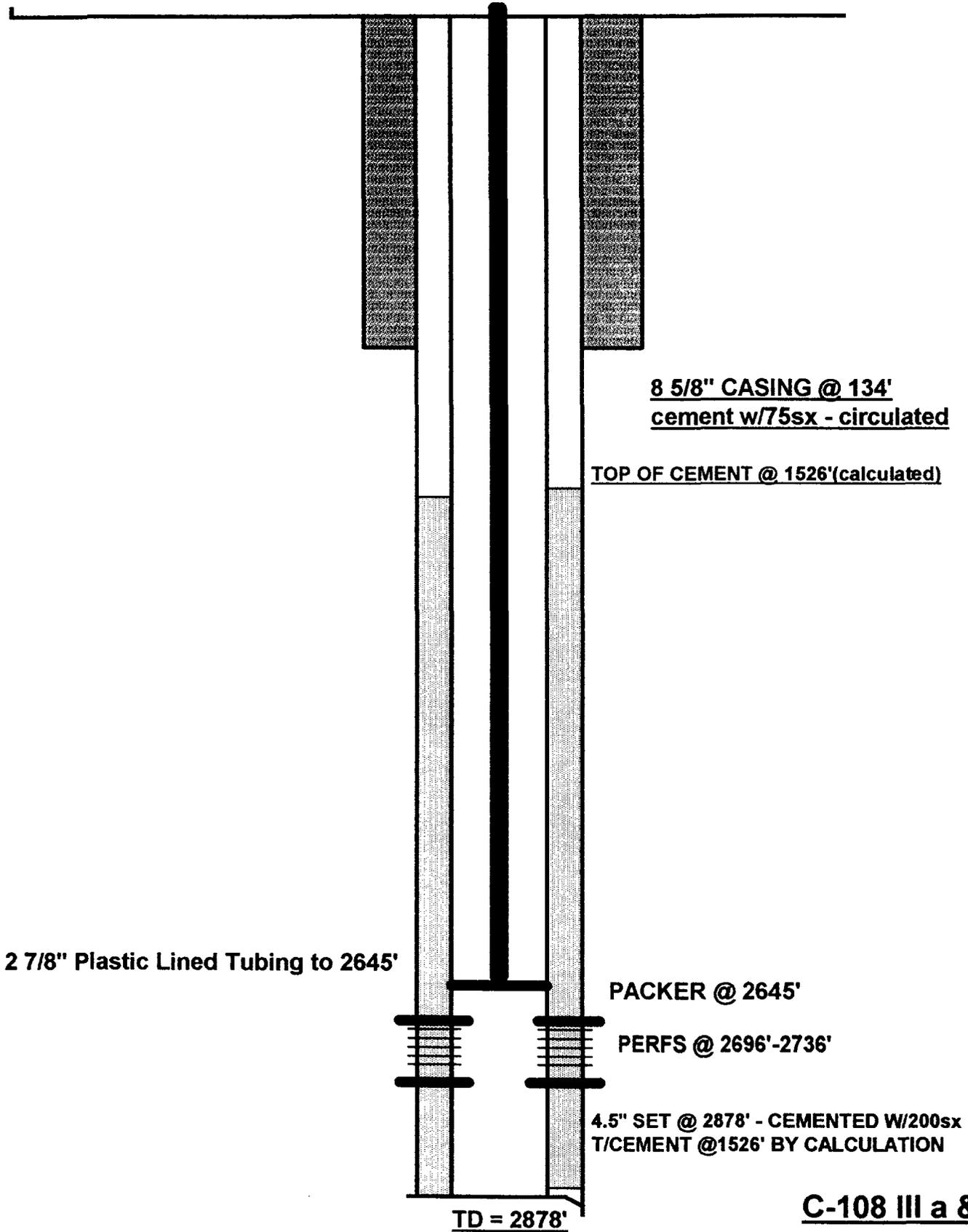
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20.5 #/ft	9.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	134'	2878'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	surface	1526'
		circ. 20sx	calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2645' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2696'-2736'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1170'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #79  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S-R29E. 2310 FSL & 2310 FEL

N

O'BRIEN FF-1

TLSAU #79

30-005-60982

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #87  
**A1 FOOTAGE:** 1650' FWL & 990' FSL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

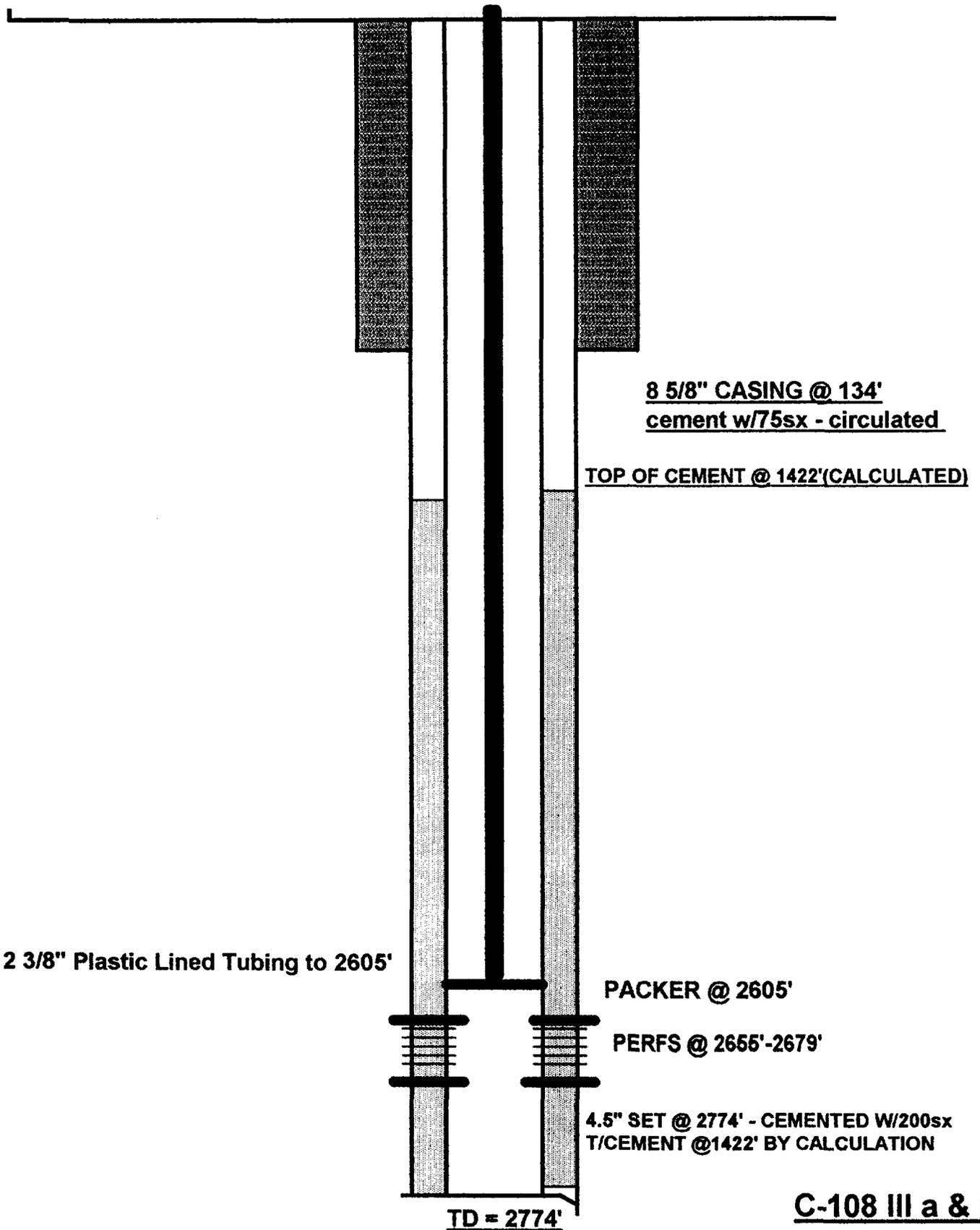
<b>A2 HOLE SIZE:</b>	12.25"	7.875"
<b>A2 CASING SIZE:</b>	8.625"	4.5"
<b>A2 CASING WEIGHT:</b>	20 #/ft	9.5 #/ft
<b>A2 CASING DEPTH:</b>	134'	2774'
<b>A2 CEMENT:</b>	75sx	200sx
<b>A2 TOP OF CEMENT:</b>	SURFACE	1422'
	Circ. 5sx	Calculated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2605' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1 PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2 PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2655'-2679'
<b>EXISTING PERFORATIONS:</b>	Same
<b>CEMENT ABOVE TOP PERFORATION:</b>	1233'
<b>B3 ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4 OTHER PERFORATED INTERVALS:</b>	None
<b>B5 NEXT PAY ZONE - ABOVE:</b>	None
<b>B5 NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #87  
Well Schematic (Proposed)  
C-108-III a & b



6-T9S.R29E. 990 FNL & 1650 FWL

N

O'BRIEN L-11

TLSAU #87

30-005-61030

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 89  
**A1 FOOTAGE:** 990' FSL & 990' FEL  
**A1 SECTION:** 6-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

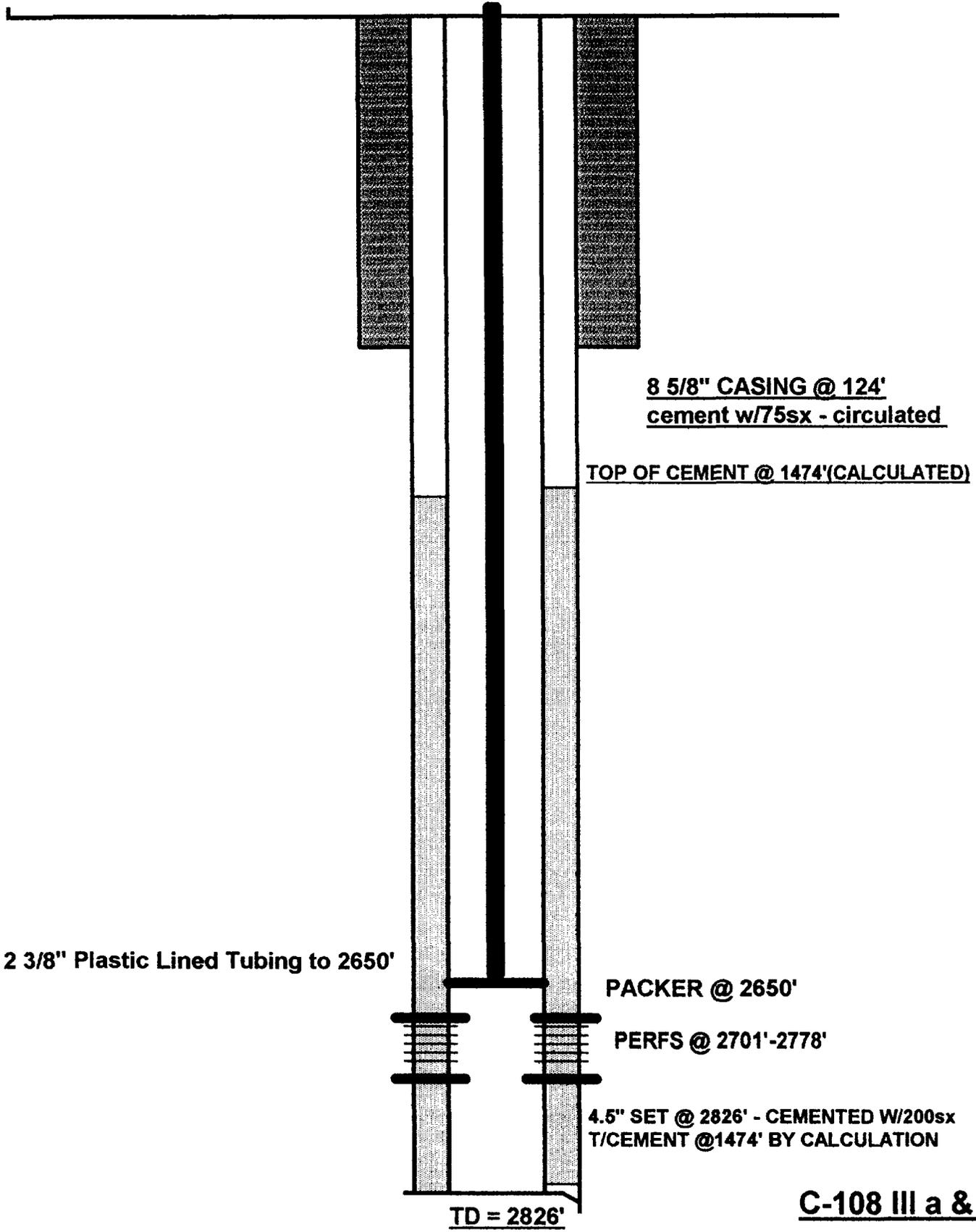
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20 #/FT	9.5 #/FT
<b>A2</b>	<b>CASING DEPTH:</b>	124'	2826'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1474'
		Circulated	CALCULATED

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2650' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2701'-2778'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	1227'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #89  
Well Schematic (Proposed)  
C-108-III a & b



8 5/8" CASING @ 124'  
cement w/75sx - circulated

TOP OF CEMENT @ 1474'(CALCULATED)

2 3/8" Plastic Lined Tubing to 2650'

PACKER @ 2650'

PERFS @ 2701'-2778'

4.5" SET @ 2826' - CEMENTED W/200sx  
T/CEMENT @1474' BY CALCULATION

TD = 2826'

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 94  
**A1 FOOTAGE:** 330' FNL & 2310' FEL  
**A1 SECTION:** 7-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

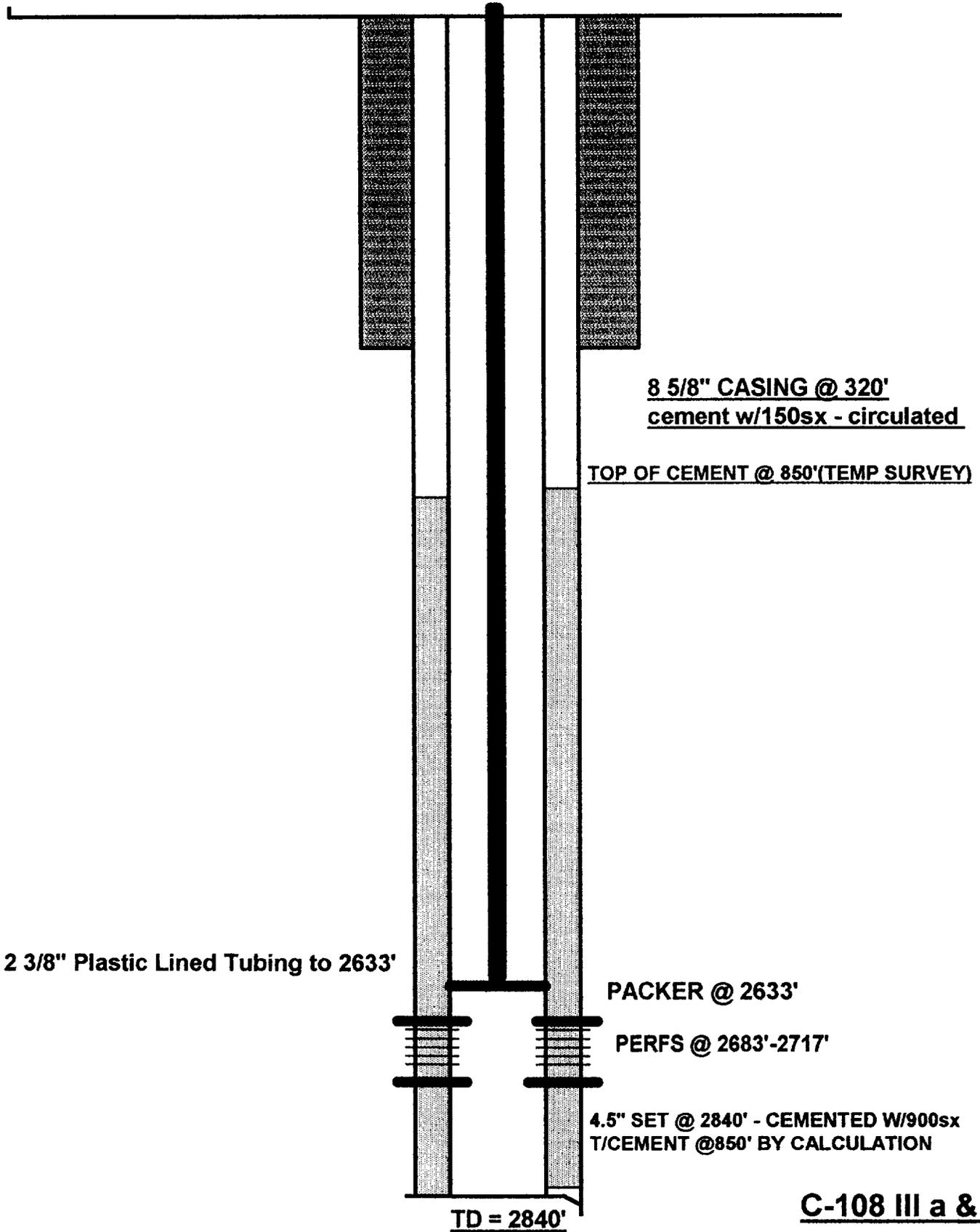
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 24 #/ft 10.5 #/FT  
**A2 CASING DEPTH:** 320' 2840'  
**A2 CEMENT:** 150sx 900sx  
**A2 TOP OF CEMENT:** SURFACE 850'  
                                    Circ. 25sx           TEMP SURVEY

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2633' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2683'-2717'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1833'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #94  
Well Schematic (Proposed)  
C-108-III a & b



7-T9S-R29E. 330 FNL & 2310 FEL

B

MOONSHINE 7-5

TLSAU #94

30-005-61106

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 102  
**A1 FOOTAGE:** 1980' FNL & 1980' FWL  
**A1 SECTION:** 7-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

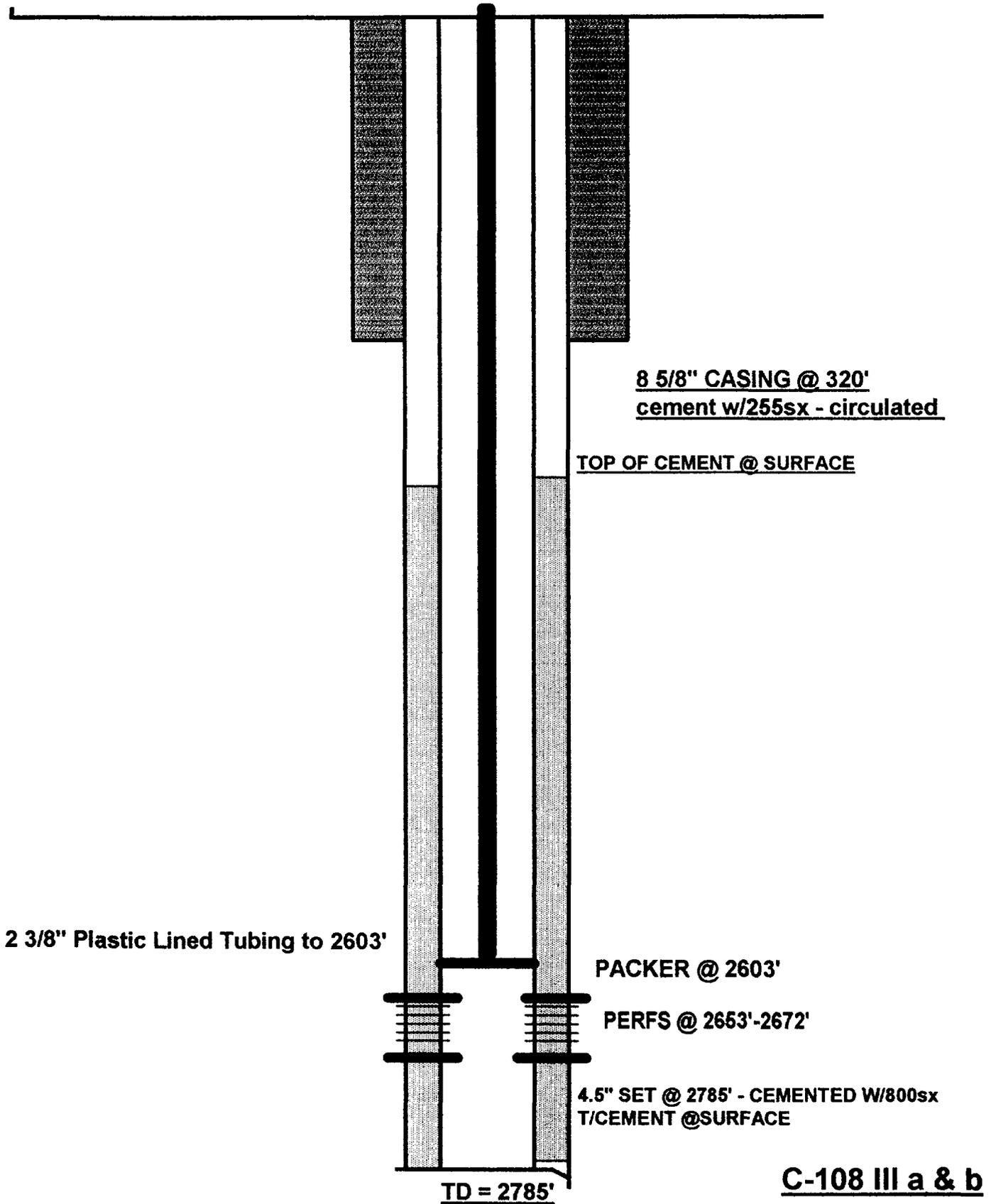
<b>A2</b>	<b>HOLE SIZE:</b>	10.75"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	24 #/ft	10.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	320'	2785"
<b>A2</b>	<b>CEMENT:</b>	255sx	800sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	SURFACE
		Circ. 65sx	Circulated

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2603' +/- 25"  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2653'-2672"  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 2653'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #102  
Well Schematic (Proposed)  
C-108-III a & b



**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

<b>A1</b>	<b>WELL NAME:</b>	Twin Lakes San Andres Unit # 106
<b>A1</b>	<b>FOOTAGE:</b>	2310' FSL & 330' FWL
<b>A1</b>	<b>SECTION:</b>	7-T9S-R29E
<b>A1</b>	<b>COUNTY:</b>	Chaves

**EXISTING CASING PROGRAM**

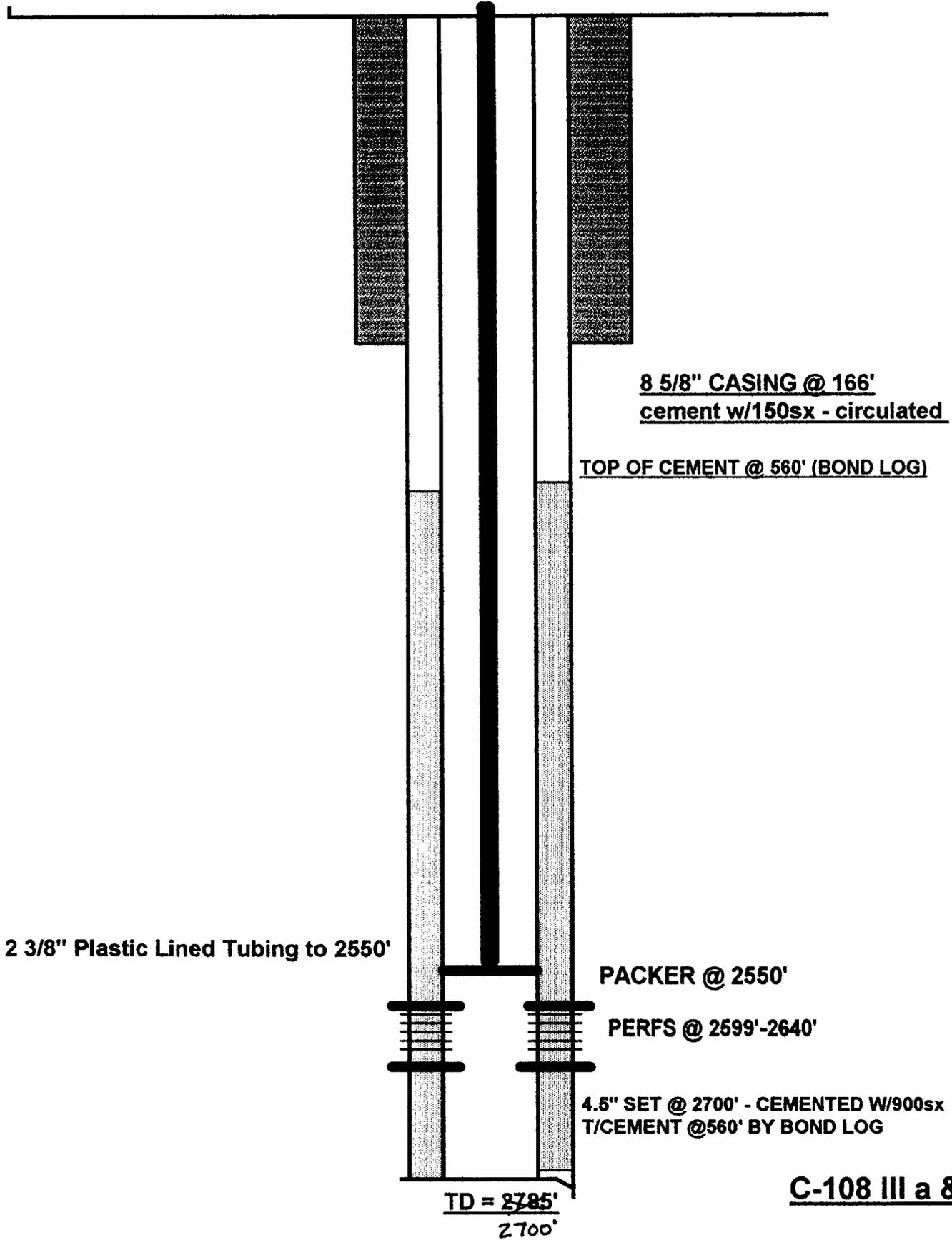
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	24 #/ft	10.5 #/FT
<b>A2</b>	<b>CASING DEPTH:</b>	166'	2700'
<b>A2</b>	<b>CEMENT:</b>	150sx	900sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	560'
		Circ. 25sx	BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

<b>A3</b>	<b>TUBING:</b>	2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined
<b>A3</b>	<b>PACKER DEPTH:</b>	2550' +/- 25'
<b>A4</b>	<b>PACKER TYPE:</b>	Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2599'-2640'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	2039'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #106  
Well Schematic (Proposed)  
C-108-III a & b



7-T9S-R29E. 2310 FSL & 330 FWL  
L  
MOONSHINE 7-7  
TILSAU #106  
30-005-61332

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 110  
**A1 FOOTAGE:** 1650' FSL & 330' FEL  
**A1 SECTION:** 12-T9S-R28E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

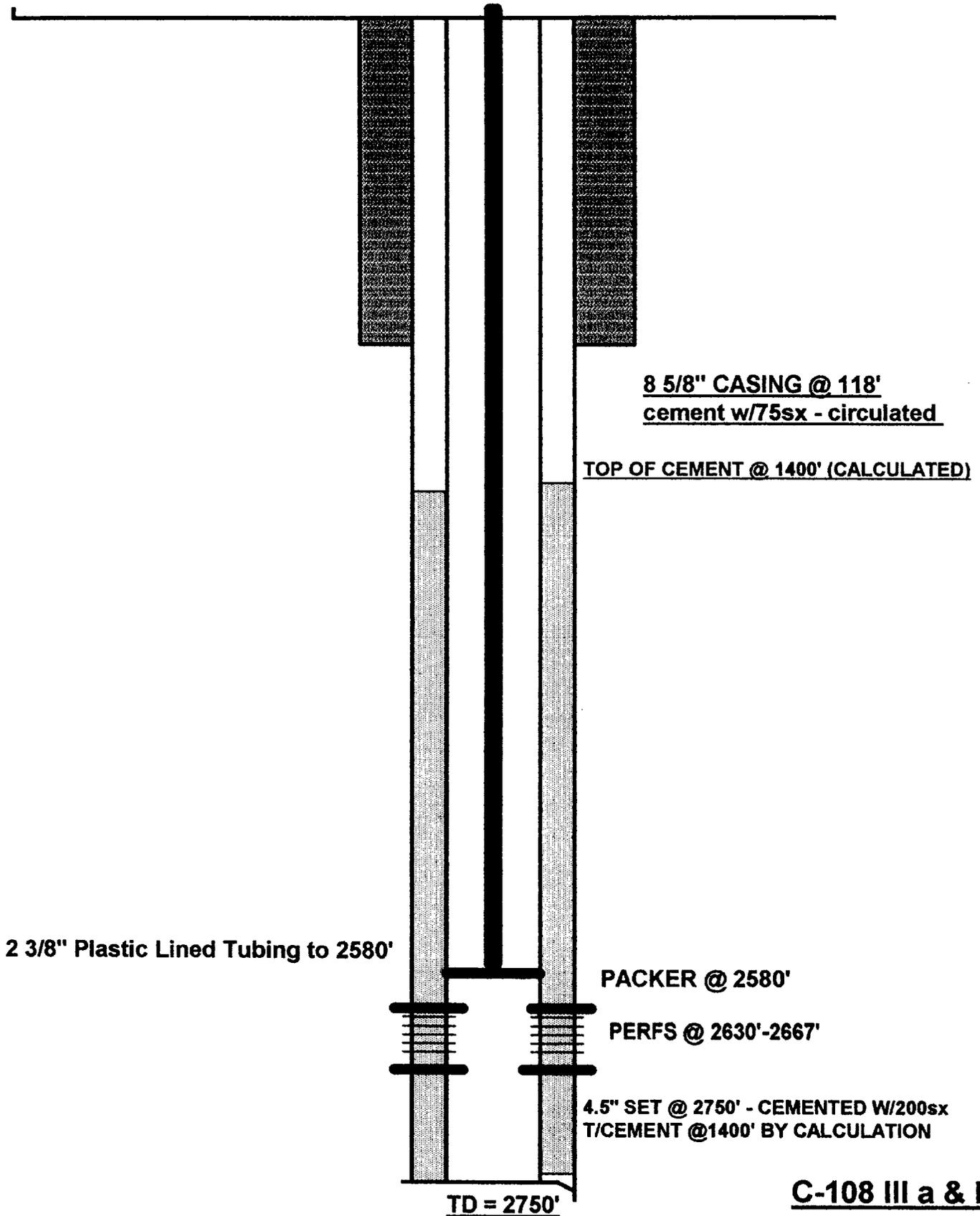
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	23 #/ft	10.5 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	118'	2750'
<b>A2</b>	<b>CEMENT:</b>	75sx	200sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1400'
		Circ. 15sx	CALCULATED

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2580' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2630'-2667'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	1230'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #110  
Well Schematic (Proposed)  
C-108-III a & b



12-T9S-R28E. 1650 FSL & 330 FEL

I

O'BRIEN DB-1

TLSAU #110

30-005-61556

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit #112  
**A1 FOOTAGE:** 990' FSL & 1650' FWL  
**A1 SECTION:** 7-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

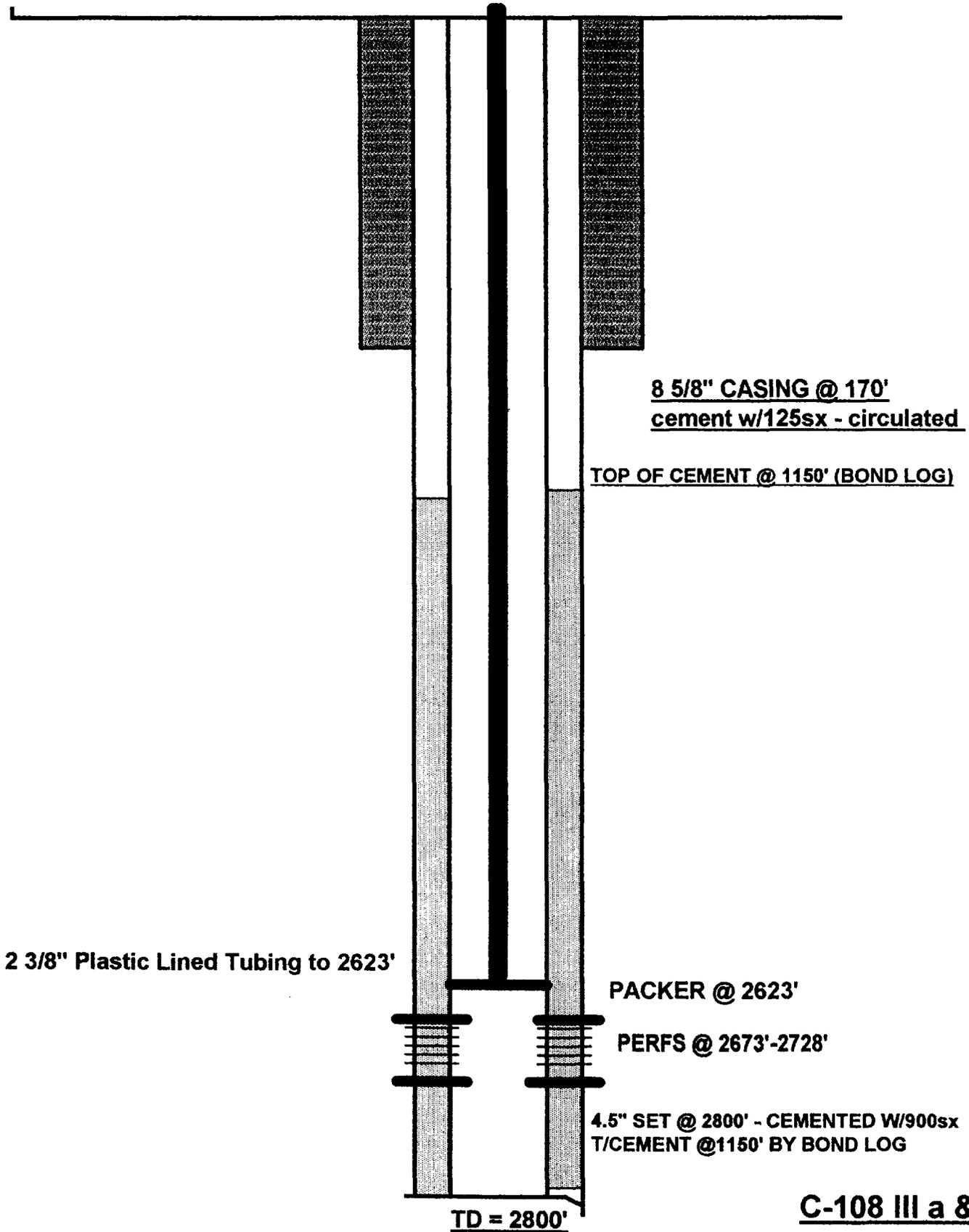
<b>A2</b>	<b>HOLE SIZE:</b>	12.25"	7.875"
<b>A2</b>	<b>CASING SIZE:</b>	8.625"	4.5"
<b>A2</b>	<b>CASING WEIGHT:</b>	20 #/ft	11 #/ft
<b>A2</b>	<b>CASING DEPTH:</b>	170'	2800'
<b>A2</b>	<b>CEMENT:</b>	125sx	900sx
<b>A2</b>	<b>TOP OF CEMENT:</b>	SURFACE	1150'
		Circ. 35sx	BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2623' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1</b>	<b>PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2</b>	<b>PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2673'-2728'
	<b>EXISTING PERFORATIONS:</b>	Same
	<b>CEMENT ABOVE TOP PERFORATION:</b>	1523'
<b>B3</b>	<b>ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4</b>	<b>OTHER PERFORATED INTERVALS:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - ABOVE:</b>	None
<b>B5</b>	<b>NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #112  
Well Schematic (Proposed)  
C-108-III a & b



7-T9S-R29E. 990 FSL & 1650 FWL

N

MOONSHINE 7-8

TLSAU #112

30-005-61333

**C-108 III a & b**

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 117  
**A1 FOOTAGE:** 330' FNL & 1650' FWL  
**A1 SECTION:** 18-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 168' 4.5"  
**A2 CASING WEIGHT:** 24 #/ft 10.5 #/ft  
**A2 CASING DEPTH:** 168' 2780'  
**A2 CEMENT:** 150sx 900sx  
**A2 TOP OF CEMENT:** SURFACE 430'  
Circ 20sx BOND LOG

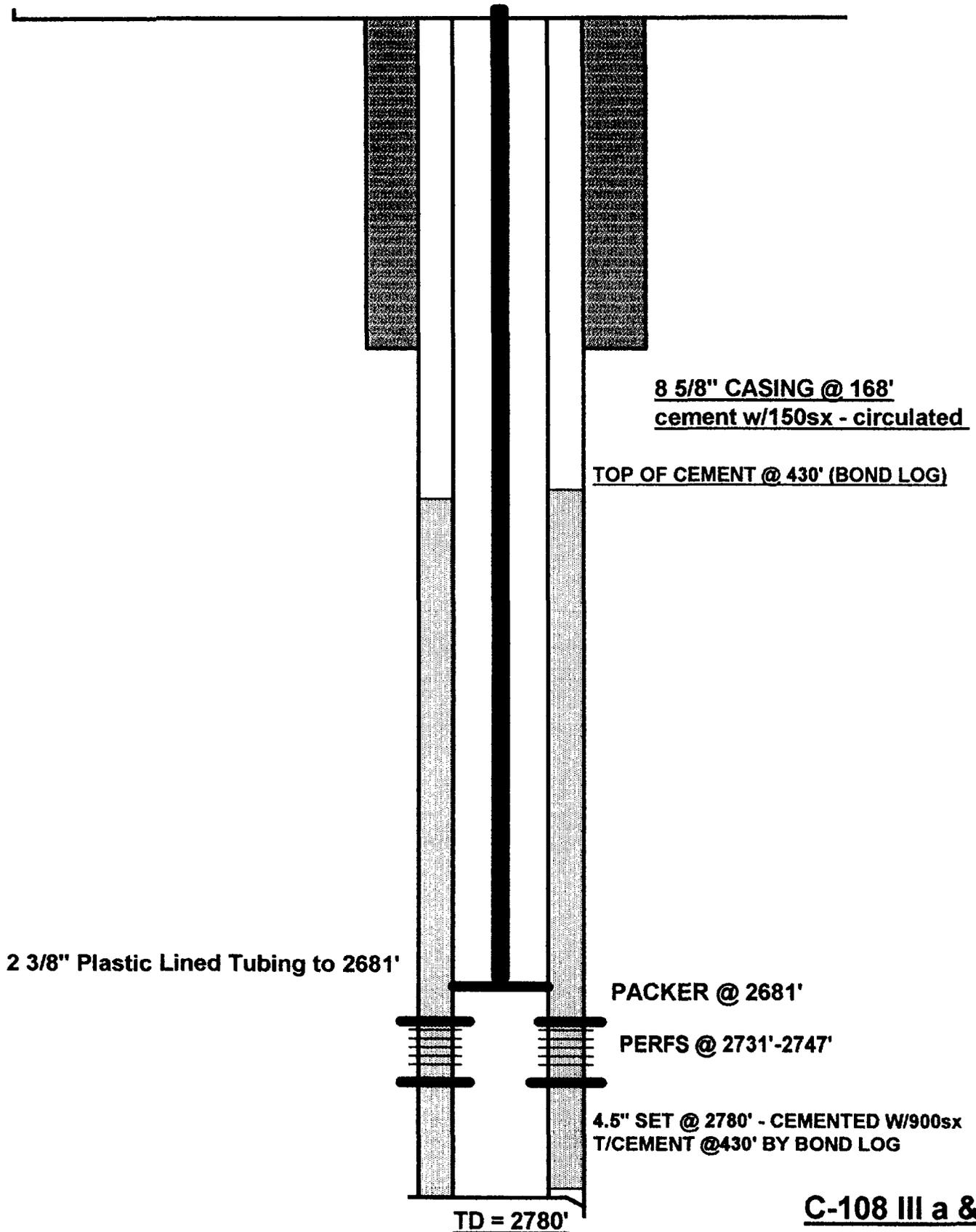
**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2681' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2731'-2747'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 2301'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

**COMMENTS:** 8/13/93 SET CIBP @ 2681' (50" above u/perf) W/35sx Class "H"  
Found hole in 4.5" casing between 405' & 375'  
Hole has apparently not been repaired

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #117  
Well Schematic (Proposed)  
C-108-III a & b



18-T9S-R29E, 330 FNL & 1650 FWL

C

MOONSHINE 18-1

TLSAU #117

30-005-61454

C-108 III a & b

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 120  
**A1 FOOTAGE:** 1650' FNL & 2310' FEL  
**A1 SECTION:** 18-T9S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

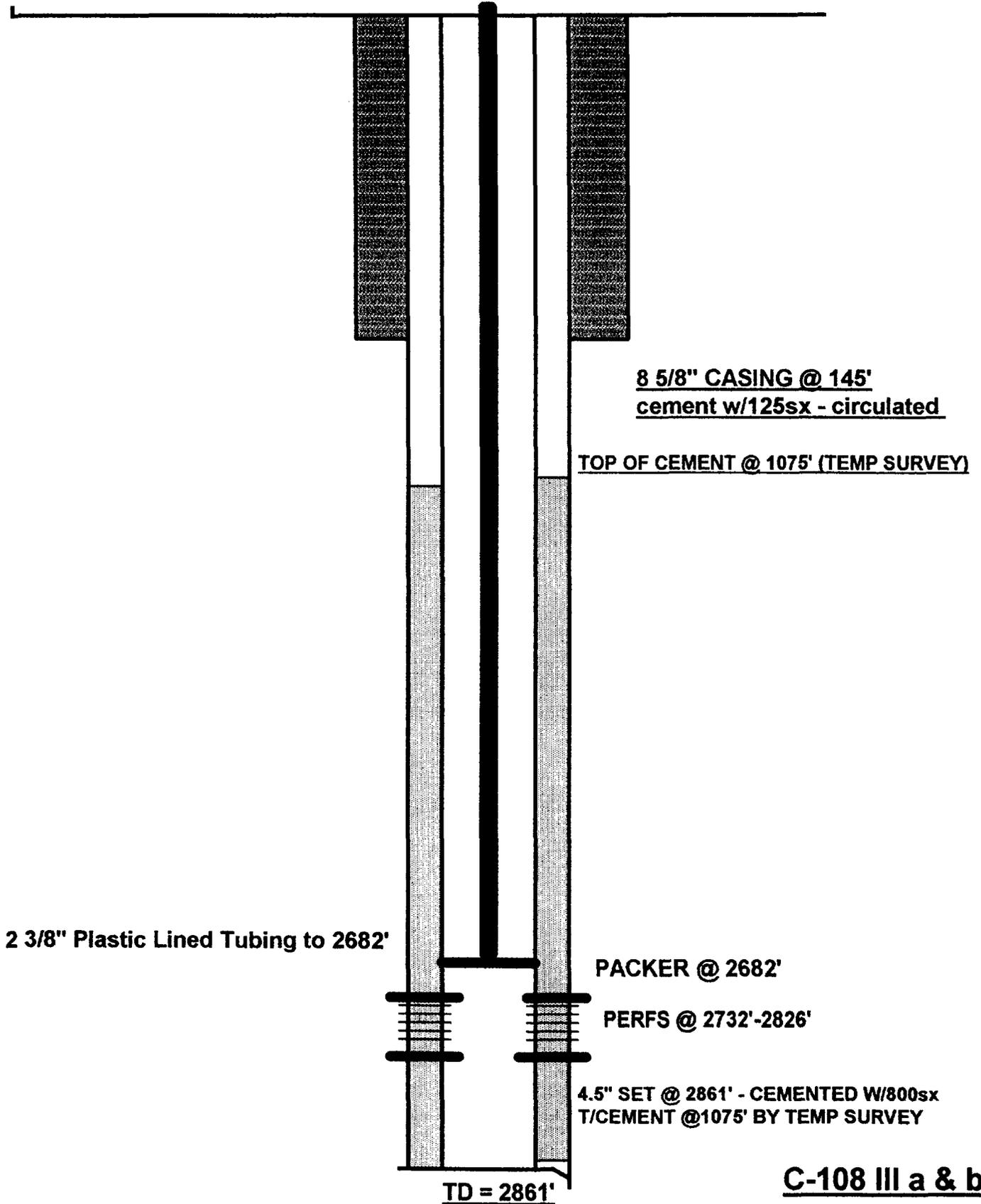
**A2 HOLE SIZE:** 12.25" 7.875"  
**A2 CASING SIZE:** 8.625" 4.5"  
**A2 CASING WEIGHT:** 24 #/ft 10.5 #/ft  
**A2 CASING DEPTH:** 145' 2861'  
**A2 CEMENT:** 125sx 800sx  
**A2 TOP OF CEMENT:** SURFACE 1075'  
Circulated 25sx Temp Survey

**PROPOSED TUBULAR & PACKER INFORMATION**

**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2682' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

**B1 PROPOSED INJECTION FORMATION:** San Andres / Twin Lakes, San Andres  
**B2 PROPOSED INJECTION INTERVAL:** Perforations from: 2732' - 2826'  
**EXISTING PERFORATIONS:** Same  
**CEMENT ABOVE TOP PERFORATION:** 1657'  
**B3 ORIGINAL WELL PURPOSE:** Oil Well  
**B4 OTHER PERFORATED INTERVALS:** None  
**B5 NEXT PAY ZONE - ABOVE:** None  
**B5 NEXT PAY ZONE - BELOW:** Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #120  
Well Schematic (Proposed)  
C-108-III a & b



18-T9S-R29E. 1650 FNL & 2310 FEL

G

MOONSHINE 18-3

TLSAU #120

30-005-61624

**HANAGAN PETROLEUM CORPORATION  
TWIN LAKES SAN ANDRES WATERFLOOD UNIT**

**TABLE C-108 III-A & B**

**C-108-III**

**ITEM #**

**A1 WELL NAME:** Twin Lakes San Andres Unit # 123  
**A1 FOOTAGE:** 2237' FNL & 1679' FWL  
**A1 SECTION:** 31-T8S-R29E  
**A1 COUNTY:** Chaves

**EXISTING CASING PROGRAM**

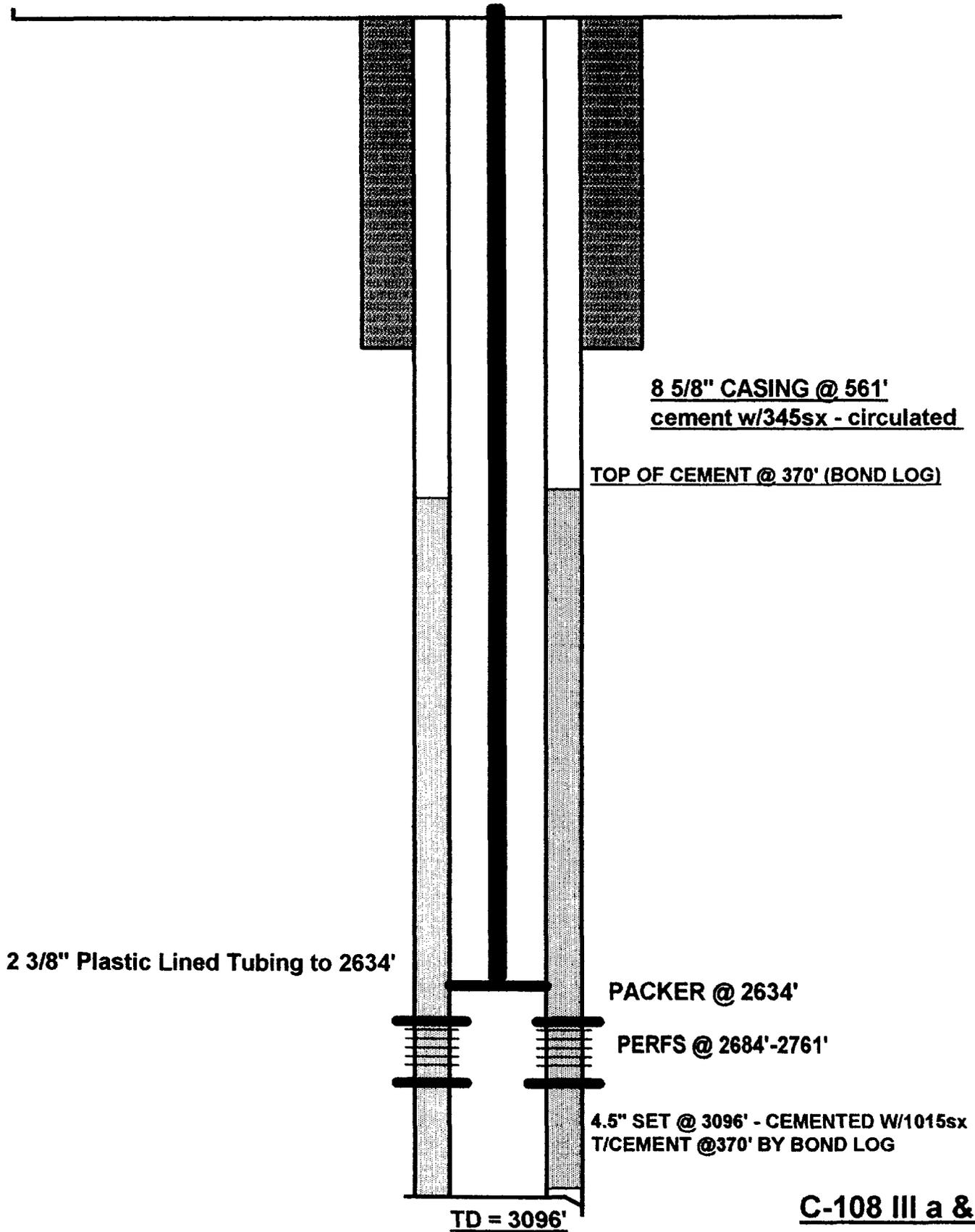
<b>A2 HOLE SIZE:</b>	12.25"	7.875"
<b>A2 CASING SIZE:</b>	8.625"	5.5"
<b>A2 CASING WEIGHT:</b>	24 #/FT	15.5 #/FT
<b>A2 CASING DEPTH:</b>	561'	3096'
<b>A2 CEMENT:</b>	345SX	1015SX
<b>A2 TOP OF CEMENT:</b>	SURFACE	370'
	CIRC-60sx	BOND LOG

**PROPOSED TUBULAR & PACKER INFORMATION**

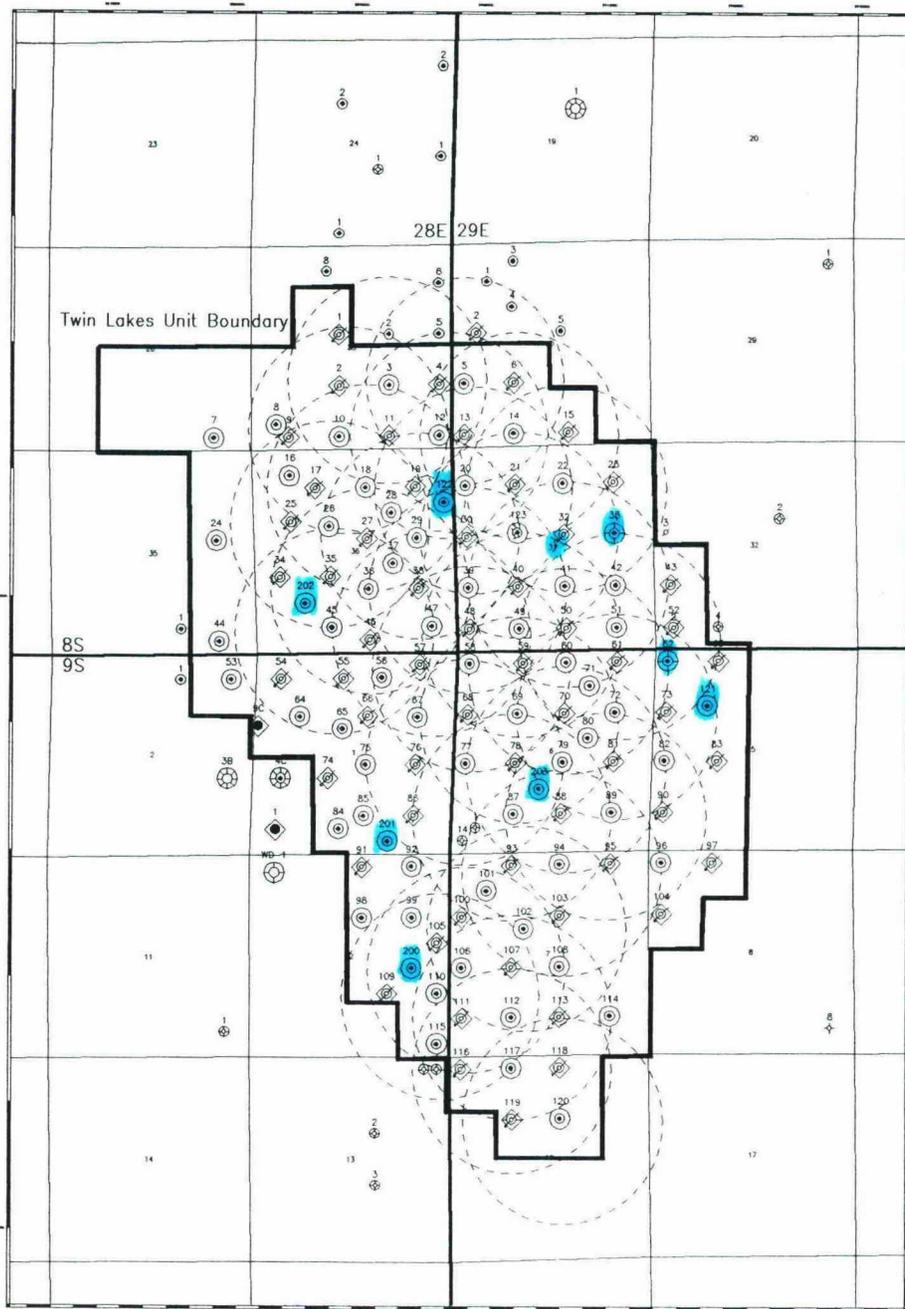
**A3 TUBING:** 2.375" 4.7#/ft J55 internally plastic coated or fiberglass lined  
**A3 PACKER DEPTH:** 2634' +/- 25'  
**A4 PACKER TYPE:** Halliburton R4 internally coated tension packer

<b>B1 PROPOSED INJECTION FORMATION:</b>	San Andres / Twin Lakes, San Andres
<b>B2 PROPOSED INJECTION INTERVAL:</b>	Perforations from: 2684' - 2761'
<b>EXISTING PERFORATIONS:</b>	Same
<b>CEMENT ABOVE TOP PERFORATION:</b>	2314'
<b>B3 ORIGINAL WELL PURPOSE:</b>	Oil Well
<b>B4 OTHER PERFORATED INTERVALS:</b>	None
<b>B5 NEXT PAY ZONE - ABOVE:</b>	None
<b>B5 NEXT PAY ZONE - BELOW:</b>	Devonian @ 7200' (+/- 100')

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #123  
Well Schematic (Proposed)  
C-108-III a & b



**C-108 III a & b**



**LEGEND**

- Unit Producer
- ⊗ Injector
- Non-Unit Producer

**ADDITIONAL SINCE 9-9-87**

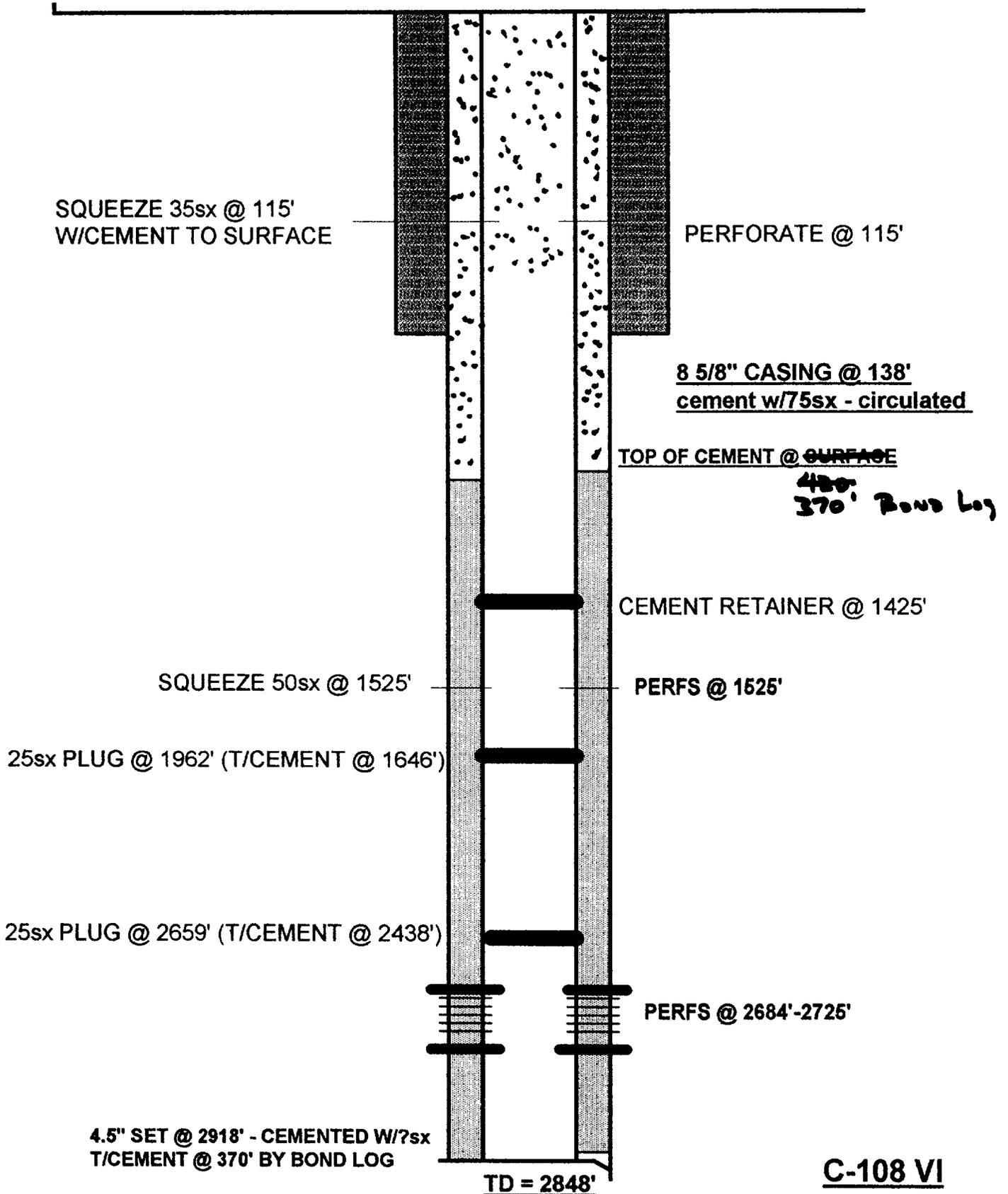


Hanagan Petroleum Corporation		
TWIN LAKES SAN ANDRES UNIT #79 Application for Injection (C-108) Area of Review		
Chaves Co., NM		C-108 Item V
1"=5000'		Hanagan

**TABULATION OF WELL RECORDS WITHIN AREA OF REVIEW  
(FOR ACTIVITY SUBSEQUENT TO SEPTEMBER 9, 1987)**

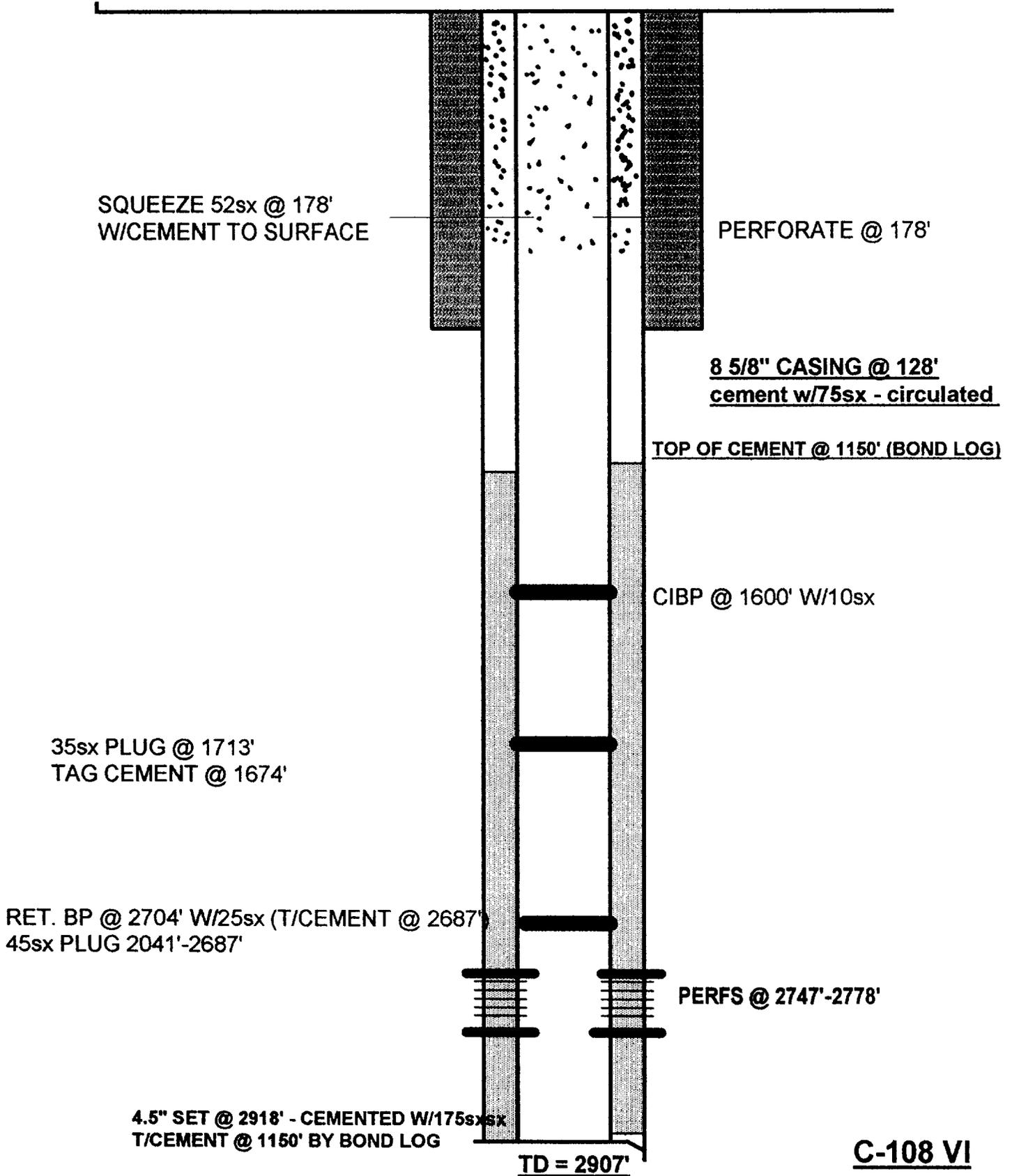
<u>WELL NAME &amp; LOCATION</u>	<u>DATE COMPL</u>	<u>CASING RECORD</u>	<u>T.O.C</u>	<u>PROD PERFS</u>	<u>WELL TYPE</u>	<u>STATUS</u>
TLSAU #31, UT. F-31-T8S-R29E	1980	8.625" @ 138', CEMENT W/75sx 4.5" @ 2918', CEMENT W/? sx	SURFACE 370' (BOND LOG)	2684'-2725'	OIL	P & A
TLSAU #33, UT. G-31-T8S-R29E	1981	8.625" @ 128', CEMENT W/75sx 4.5" @ 2918', CEMENT W/175sx	SURFACE 1150' (BOND LOG)	2747'-2778'	OIL	P & A
TLSAU #62, UT. D-5-T9S-R29E	1981	8.625" @ 130', CEMENT W/75sx 4.5" @ 2930', CEMENT W/200sx	SURFACE 2054' (BOND LOG)	2780'-2823'	OIL	P & A
TLSAU #121, UT. F-5-T9S-R29E	1991	8.625" @ 556', CEMENT W/345sx 5.5" @ 3100', CEMENT W/1105sx	SURFACE SURFACE	2839'-2892'	OIL	ACTIVE
TLSAU #122, UT. H-36-T8S-R28E	4/91	8.625" @ 566', CEMENT W/345sx 5.5" @ 3100', CEMENT W/825sx	SURFACE 550' (BOND LOG)	2642'-2706'	OIL	ACTIVE
TLSAU #200, UT. I-12-T9S-R28E	1997	8.625" @ 168', CEMENT W/1108sx 5.5" @ 2781', CEMENT W/1050sx	SURFACE SURFACE	2616'-2681'	OIL	ACTIVE
TLSAU #201, UT. O-1-T9S-R28E	1997	8.625" @ 180', CEMENT W/1108sx 5.5" @ 2821', CEMENT W/1100sx	SURFACE SURFACE	2626'-2649'	OIL	ACTIVE
TLSAU #202, UT. M-36-T8S-R28E	1997	8.625" @ 187', CEMENT W/1108sx 5.5" @ 2750', CEMENT W/1050sx	SURFACE SURFACE	2615'-2626'	OIL	ACTIVE
TLSAU #203, UT. K-6-T9S-R29E	1997	8.625" @ 177', CEMENT W/1108sx 5.5" @ 2848', CEMENT W/1100sx	SURFACE SURFACE	2642'-2706'	OIL	ACTIVE

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #31  
Well Schematic  
C-108-VI



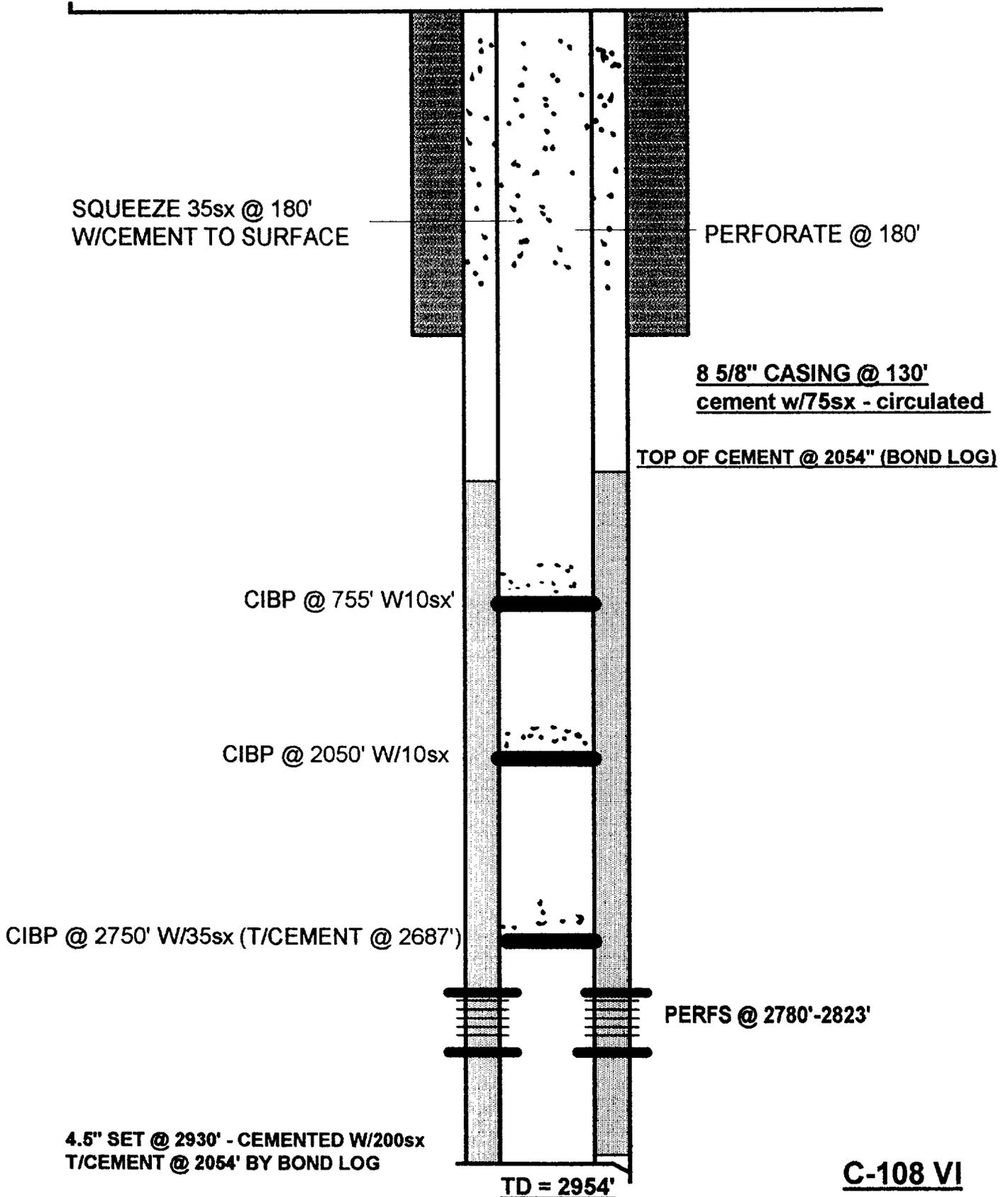
C-108 VI

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #33  
Well Schematic  
C-108-VI



C-108 VI

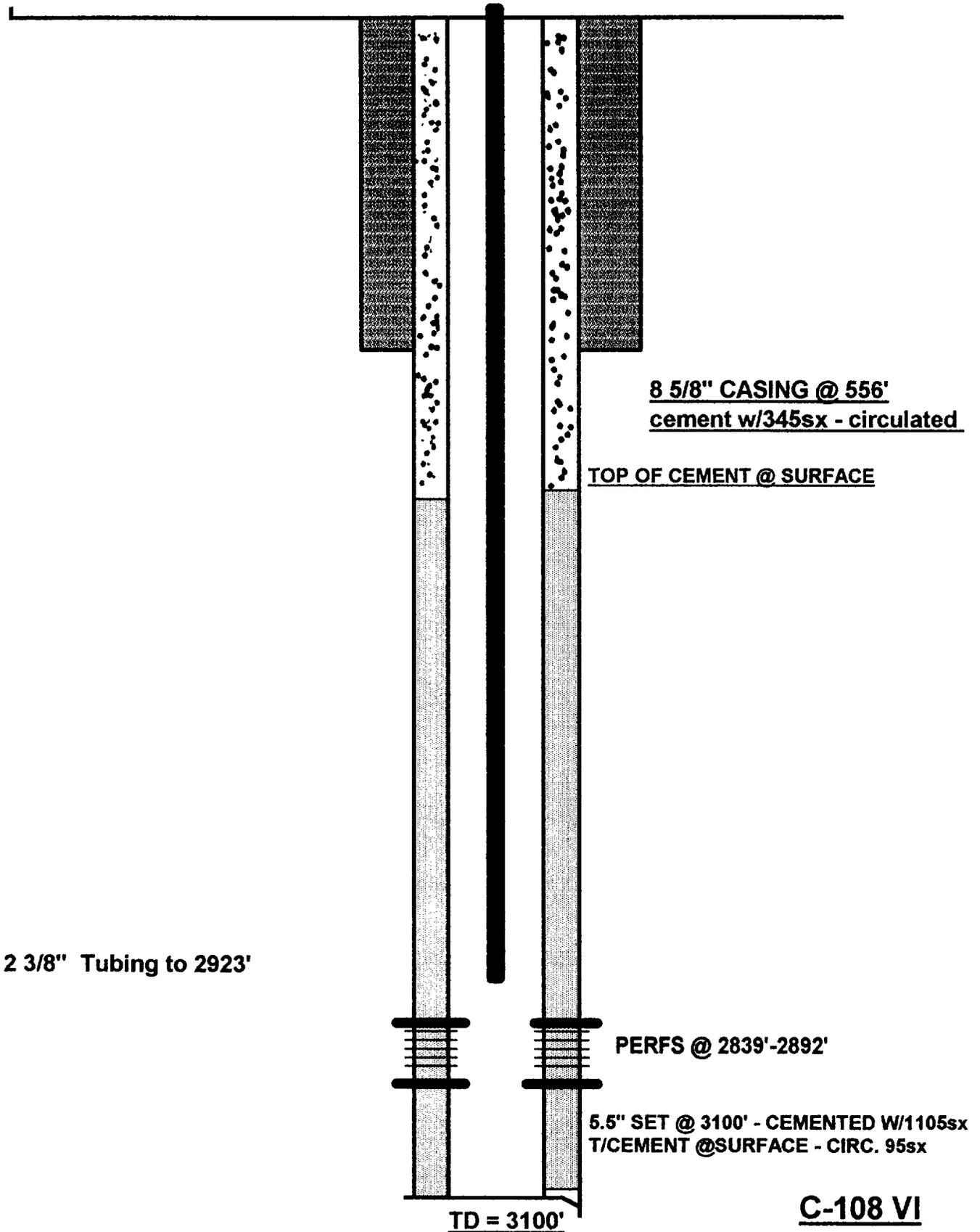
Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #62  
Well Schematic  
C-108-VI



**C-108 VI**

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #121

Well Schematic  
C-108-VI



5-T9S-R29E, 1500 FNI. & 1405 F.W.L.

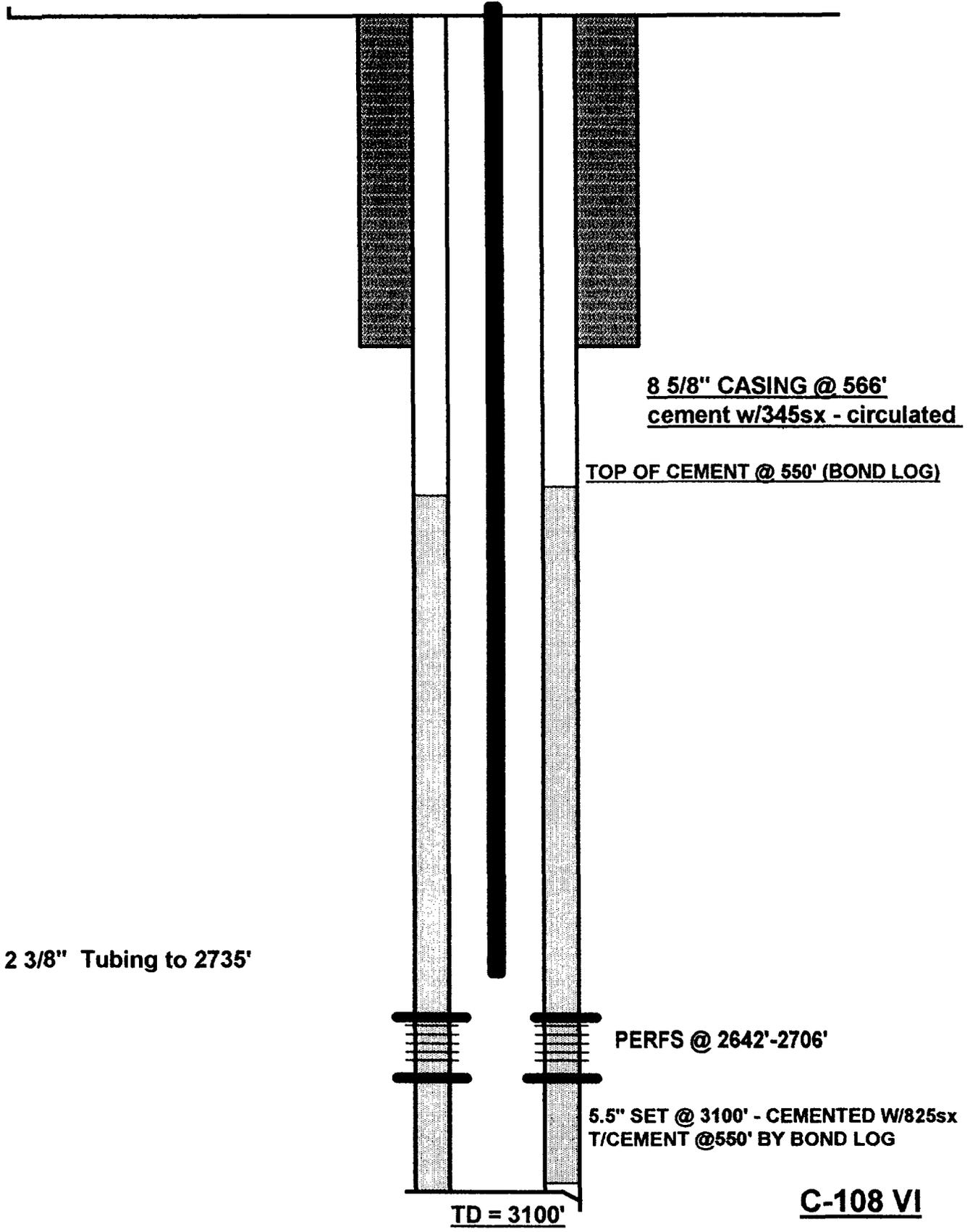
F

TLSAU #121

TLSAU #121

30-005-62819

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #122  
Well Schematic  
C-108-VI



2 3/8" Tubing to 2735'

8 5/8" CASING @ 566'  
cement w/345sx - circulated

TOP OF CEMENT @ 550' (BOND LOG)

PERFS @ 2642'-2706'

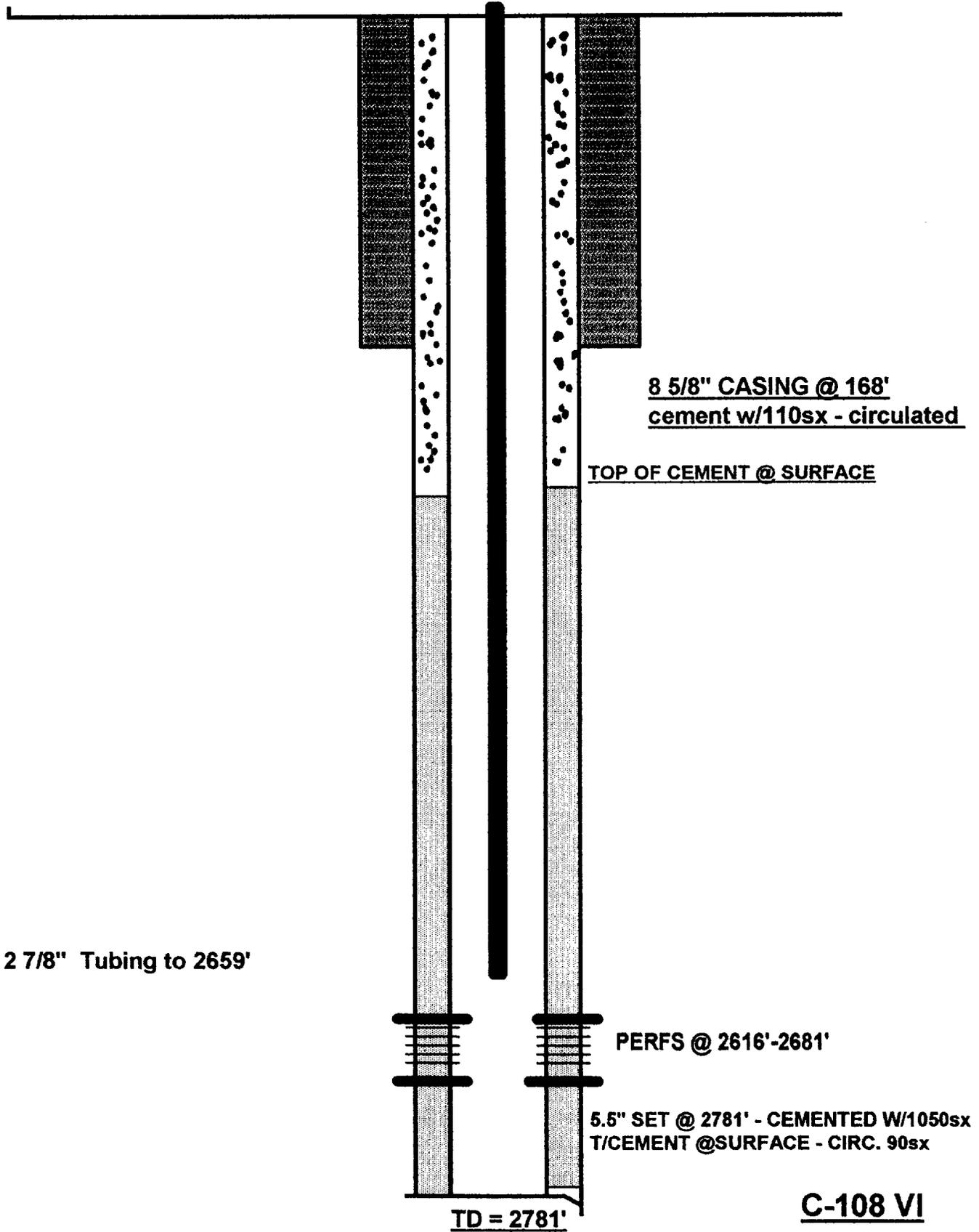
5.5" SET @ 3100' - CEMENTED W/825sx  
T/CEMENT @550' BY BOND LOG

TD = 3100'

C-108 VI

36-T8S-R28E, 1400 FNL & 250 F.E.L.  
H  
T.L.SAU #122  
T.L.SAU #122  
30-005-62818

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #200  
Well Schematic  
C-108-VI



2 7/8" Tubing to 2659'

8 5/8" CASING @ 168'  
cement w/110sx - circulated

TOP OF CEMENT @ SURFACE

PERFS @ 2616'-2681'

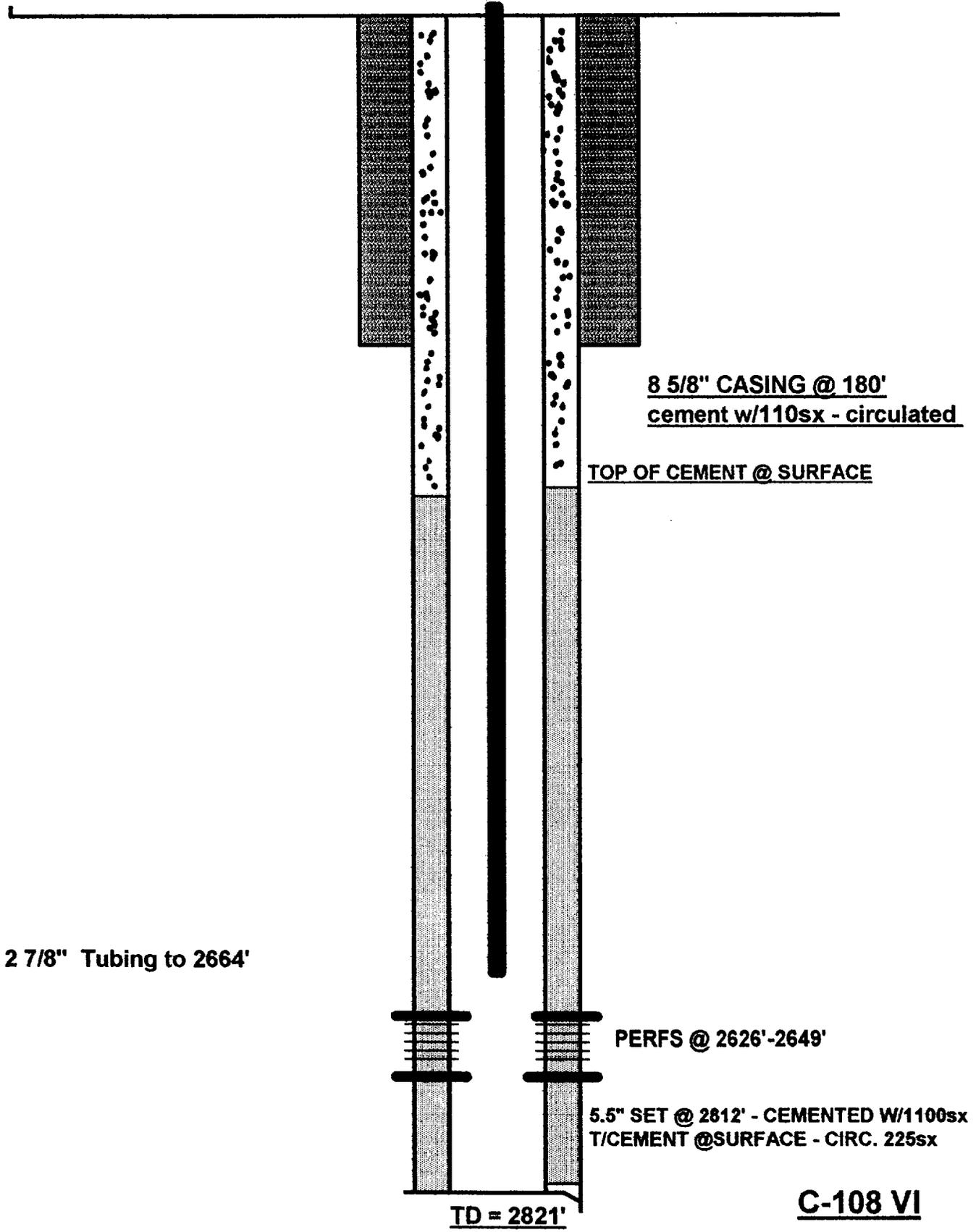
5.5" SET @ 2781' - CEMENTED W/1050sx  
T/CEMENT @SURFACE - CIRC. 90sx

TD = 2781'

C-108 VI

12-T9S-R2&E. 2310 FSL & 990 FEL.  
I  
T.L.SAU #200  
T.L.SAU #200  
30-005-6138

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #201  
Well Schematic  
C-108-VI



2 7/8" Tubing to 2664'

8 5/8" CASING @ 180'  
cement w/110sx - circulated

TOP OF CEMENT @ SURFACE

PERFS @ 2626'-2649'

5.5" SET @ 2812' - CEMENTED W/1100sx  
T/CEMENT @ SURFACE - CIRC. 225sx

TD = 2821'

C-108 VI

1-T9S-R28E. 330 FSL & 1650 FEL

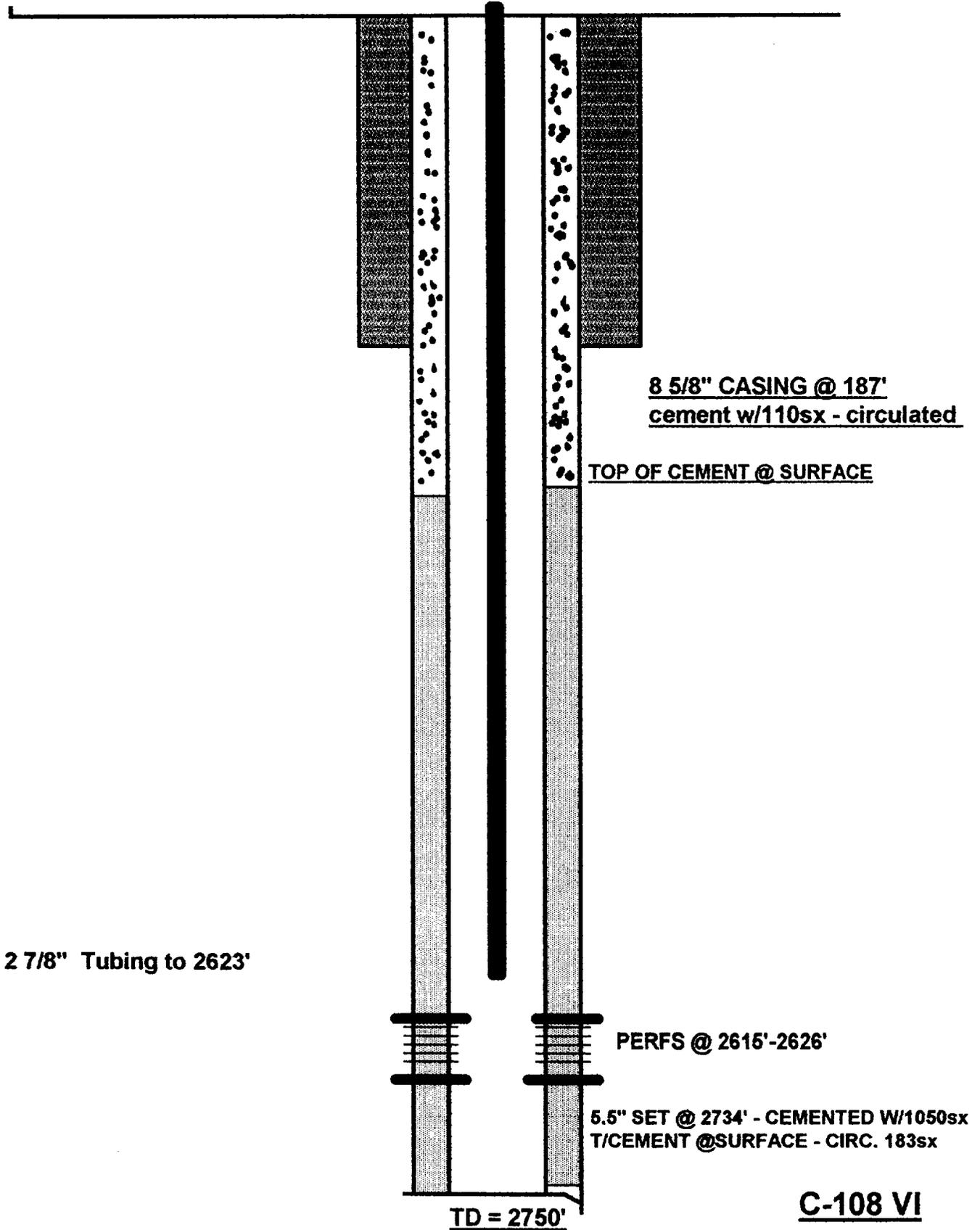
O

TLSAU #201

TLSAU #201

30-005-63139

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #202  
Well Schematic  
C-108-VI



36-T8S-R28E. 1300 FSL & 1300 FWL

M

TL.SAU #202

TL.SAU #202

30-005-63147

Hanagan Petroleum Corporation  
Twin Lakes San Andres Unit Well #203  
Well Schematic  
C-108-VI

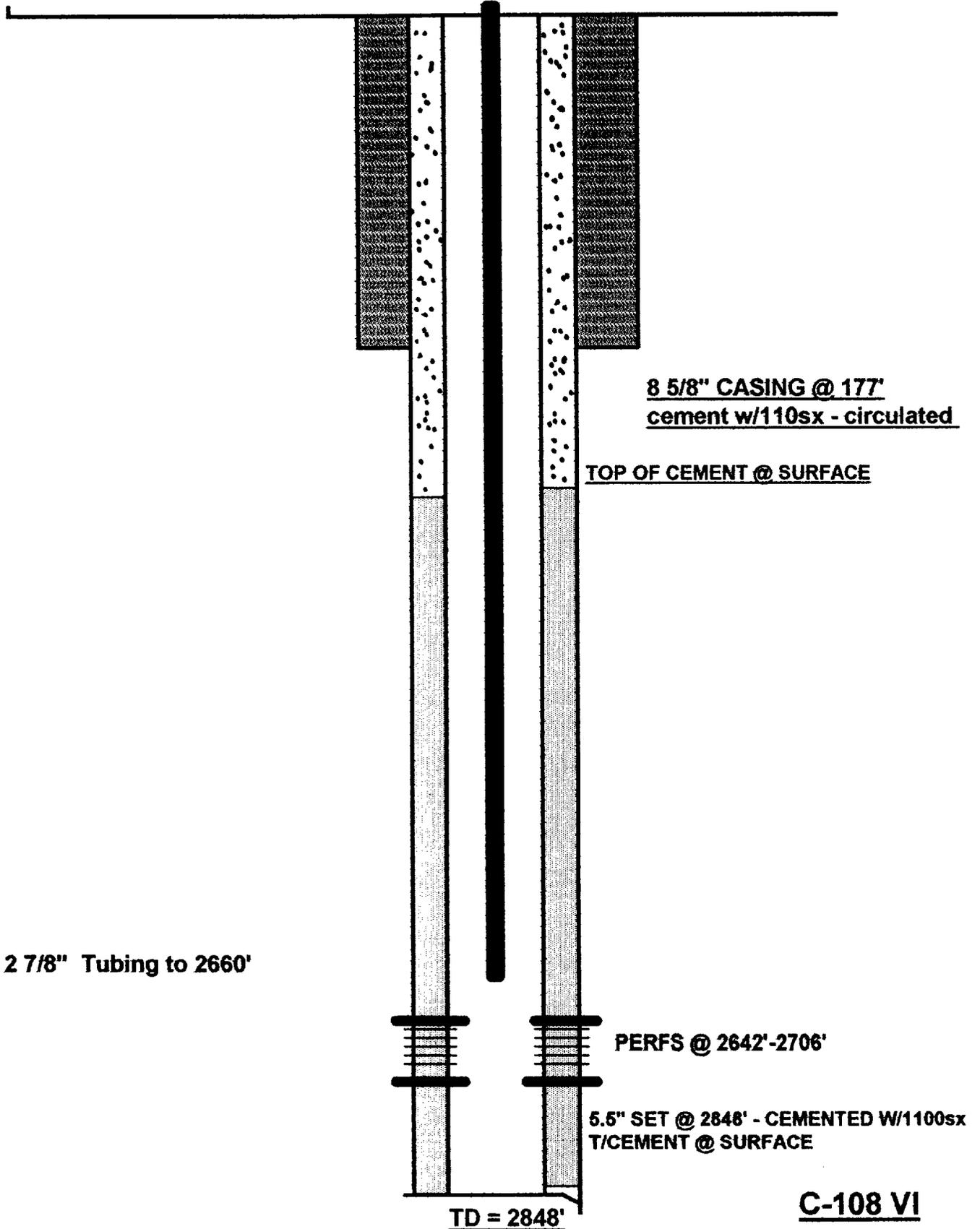
6-T9S-R29E. 1650 FSL & 2310 FWL

K

TLSAU #203

TLSAU #203

30-005-63140



8 5/8" CASING @ 177'  
cement w/110sx - circulated

TOP OF CEMENT @ SURFACE

2 7/8" Tubing to 2660'

PERFS @ 2642'-2706'

5.5" SET @ 2848' - CEMENTED W/1100sx  
T/CEMENT @ SURFACE

TD = 2848'

C-108 VI