

State of California • Natural Resources Agency  
Department of Conservation  
**Division of Oil, Gas, and Geothermal Resources**  
801 K Street • MS 18-05  
Sacramento, CA 95814  
(916) 445-9686 • FAX (916) 319-9533

Edmund G. Brown Jr., Governor  
Kenneth A. Harris Jr., State Oil and Gas Supervisor

January 3, 2017

**SENT VIA EMAIL**

Mr. Rodger Schwecke  
Vice President  
Transmission and Storage  
Southern California Gas Company  
[RSchwecke@semprautilities.com](mailto:RSchwecke@semprautilities.com)

FINDING THAT WELL STANDARD SESNON 44B (API NO. 03721361) HAS PASSED THE FIRST BATTERY OF TESTS AND WAS TAKEN OUT OF SERVICE AND ISOLATED FROM THE UNDERGROUND GAS STORAGE RESERVOIR

Dear Mr. Schwecke:

I am writing regarding the safety review results of one of the 114 wells at the Aliso Canyon gas storage facility (Facility). Each of the wells are subject to the comprehensive safety review that State Oil and Gas Supervisor Order 1109 and SB 380<sup>1</sup> require to be completed before the Division of Oil, Gas, and Geothermal Resources (Division) may authorize resumption of injection operations at the Facility. Order 1109 describes two batteries of well tests. To complete the review, each well must (1) pass both batteries of tests, (2) pass the first battery of tests and be taken out of service and isolated from the underground gas storage reservoir, or (3) be properly plugged and abandoned.

The first battery of tests assesses the casing using temperature and noise logs to ensure that there is no migration of fluids near the wellbore. If a well passes those tests, it may (1) undergo the second battery of tests for potential approval to use for injection if and when injections may resume, or (2) be taken out of service and isolated from the underground gas storage reservoir as specified in Steps 4b through 7b of the Safety Review Testing Regime of Order 1109 (Testing Regime). The Division posts the current status and testing results for each of the 114 wells on its website at <http://www.conservation.ca.gov/dog/AlisoCanyon/Pages/Well-Detail.aspx>.

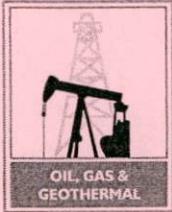
After receiving and evaluating all test results and other data concerning the well, I find for purposes of Order 1109 and SB 380, that well Standard Sesnon 44B (API No. 03721361) has completed the first battery of the Testing Regime and was taken out of service and, on September 23, 2016, the well was isolated from the underground gas storage reservoir as specified in Step 6b of the Testing Regime. Monitoring and testing of the well must continue as required by Order 1109 and any applicable law. If the well does not pass the second battery of tests within one year of being isolated from the reservoir, then the well must be plugged and abandoned in accordance with Public Resources Code section 3208.

Sincerely,

Kenneth A. Harris Jr.,  
State Oil and Gas Supervisor

<sup>1</sup> Senate Bill 380 (Pavley, Chapter 14, Statutes of 2016) codified in part at Public Resources Code section 3217.





TURAL RESOURCES AGENCY OF CALIFOI  
 DEPARTMENT OF CONSERVATION  
 DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES  
 1000 S. Hill Rd, Suite 116 Ventura, CA 93003 - 4458

No. P 216-0311

**PERMIT TO CONDUCT WELL OPERATIONS**

Bring Back to Production/Injection  
 Gas Storage

"Sesnon-Frew" - Modelo (Miocene-Eocene) Formation

Old	New
010	010
FIELD CODE	
00	00
AREA CODE	
30	30
POOL CODE	

Ventura, California  
 December 29, 2016

Roberto (Bob) Dentici, Agent  
 Southern California Gas Company (S4700)  
 555 West 5th Street, ML 17G4  
 Los Angeles, CA 90013

Your proposal to **Rework** well "**Standard Sesnon**" **44B**, A.P.I. No. **037-21361**, Section **28**, T. **03N**, R. **16W**, **SB B**. & M., **Aliso Canyon** field, **Any** area, "**Sesnon-Frew**" pool, **Los Angeles** County, dated **12/29/2016**, received **12/28/2016** has been examined in conjunction with records filed in this office. (Lat: **34.312438** Long: **-118.565468** Datum: **83**)

**THE PROPOSAL IS APPROVED PROVIDED:**

1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements: Class **III 5M** on the **8 5/8"** casing or lubricator for wireline work.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. A **Gyro Survey Log** shall be run from **±8960'** or deeper.
5. Pressure testing shall be conducted to demonstrate the mechanical integrity of the **8 5/8"** casing.
6. A **Casing Wall Thickness Inspection, Ultrasonic Imaging Tool, Cement Bond Log, Magnetic Flux log and a Multi-Arm Caliper Inspection** shall be performed from the Removable Bridge Plug to surface to demonstrate that the **8 5/8"** casing has integrity before the installation of the completion string.
7. After the logs on the **8 5/8"** casing are performed and evaluated, additional cement squeezes may be necessary to cover all formation tops of hydrocarbon bearing zones and base of fresh water. Perforating and cement placement may be conducted, if necessary, before the installation of the completion string.
8. Pressure testing shall be conducted to demonstrate the mechanical integrity of the **2 7/8"** bottom hole assembly.
9. A Temperature and Noise log are run on the well from the packer to surface.
10. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
11. In all other respects, the provisions of Division Order #1109 and its amendments shall remain in effect.
12. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.

Continued on Next Page

Blanket Bond Dated: 7/6/1999  
 UIC Project No. 0100006  
 cc:

Kenneth A. Harris Jr.  
 State Oil and Gas Supervisor

Engineer David Ortiz  
 Office (805) 654-4761

By   
 Patricia A. Abel, District Deputy

DO/do

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended. Issuance of this permit does not affect the Operator's responsibility to comply with other applicable state, federal, and local laws, regulations, and ordinances.

13. **THIS DIVISION SHALL BE NOTIFIED TO:**

- a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
- b. Witness a pressure test of the **8 5/8"** casing above the retrievable bridge plug at **8360'**.
- c. Witness the perforating operations determined to be necessary after log evaluation.
- d. Witness any remedial cement squeezes thru perforations, if necessary, as a result of the casing log evaluation.
- e. Witness a pressure test of the **8 5/8"** casing to **3625 psig** for 60 min.
- f. Witness a pressure test of the **8 5/8"** casing to **1,000 psig** and the tubing to **3,700 psig**.

**NOTE:**

1. The base of the freshwater zone is at **800'±**.
2. No operation shall be undertaken or continued that will contaminate or otherwise damage the environment.
3. This permit is being issued as part of Division Order No. 1109 dated March 4, 2016. Any well that fails any of the testing must be taken out of service and isolated from the storage reservoir pursuant to the Safety Review Testing Regime.
4. The required History of Oil or Gas Well (OG103) shall include a complete description of the required pressure testing. **An updated casing and tubing diagram shall be included with the well history.**
5. **A Well Summary Report (Form OG 100)** and **Well History (Form OG 103)** shall to be submitted to the Division within 60 days after the well is drilled, reworked, plugged and abandoned, or if the work is suspended. Any additional well work will require an additional notice to be submitted to this office prior to resuming well operations.

Enclosure: **Attachment 1 to DOGGR Order 1109. Safety Review Testing Regime for the Aliso Canyon Natural Gas Storage Facility**

cc:

**ATTACHMENT 1  
TO DOGGR ORDER 1109**

**SAFETY REVIEW TESTING REGIME  
FOR THE ALISO CANYON NATURAL GAS STORAGE FACILITY**

This document identifies the requirements of this comprehensive safety review that shall be completed by the Southern California Gas Company (Operator) and verified by the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division). The Operator shall use accepted industry practices and procedures.

The Division has consulted with independent technical experts from the Lawrence Berkeley, Lawrence Livermore, and Sandia National Laboratories ("National Laboratories") to develop the requirements of this facility safety review. The National Laboratories experts independently reviewed and concurred with the testing requirements for the safety review detailed below.

This comprehensive safety review requires that each of the active injection wells in the Aliso Canyon Storage facility either pass a thorough battery of tests in order to resume gas injection or be taken out of operation and isolated from the underground gas storage reservoir. Several steps, detailed below, are required in this safety review. Documentation of all testing required under this comprehensive safety review shall be provided electronically to the Division within 72 hours of completion of a test in digital (i.e. LAS) and printed (i.e. pdf) form. All pressure tests required under this comprehensive safety review shall be witnessed by Division staff. A well that is properly plugged and abandoned in accordance with Public Resources Code section 3208 is not subject to testing under this comprehensive safety review. A well that does not pass all tests must be repaired, retested, and pass all tests, or be plug and abandoned.

**REQUIRED TESTS FOR EACH WELL IN THE FACILITY**

- Step 1:** The Operator shall perform an initial casing assessment on the well consisting of temperature and noise logs.
- a. Temperature Log:  
A temperature survey shall be run from the surface to the packer to measure the temperature within the wellbore. A temperature survey that demonstrates no unexplained anomalous temperature changes in the well is one indication of casing integrity.
  - b. Noise Log:  
An acoustic sensor survey capable of detecting the sound of fluid flow will be conducted the length of the well above the packer to the surface. The survey will include stops at least every 250 feet and at the midpoint of any anomaly detected by the temperature survey. The absence of anomalous sound above the packer is an indication of well integrity

- Step 2:** The results of the Temperature Logs and Noise Logs will be independently reviewed by Division engineers. Any unexplained abnormal findings in this set of tests shall be addressed by the Operator in one of the following ways:
- a. Conduct further investigation and demonstrate to the Division's satisfaction that the abnormal finding is not an indicator of a lack mechanical integrity;
  - b. Remediate the well to the Division's satisfaction; or
  - c. With Division review and approval, remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

Necessary actions to remediate any abnormalities revealed by these tests will be reviewed by Division engineers. Once repairs or mitigations are completed, the Temperature Log and Noise Log must then be repeated on the well and reviewed by Division engineers to ensure that there are no additional abnormal test results and to confirm the issue was repaired.

- Step 3:** After these tests are completed on the well, and all required action has been completed, the operator shall either:
- a. Conduct the additional tests and evaluations on the well, outlined in Steps 4a through 7a below, in order to gain approval for injecting gas through that well; or
  - b. Remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

#### **REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS**

If Temperature and Noise Logs have been completed on a well and they indicate well integrity, and the Operator designates the well to return to injection operations, then the Operator shall perform the additional testing outlined in Steps 4a through 7a. The results of these tests will be independently reviewed by Division engineers and posted publicly. Each of the following tests requires that the production tubing be removed from the well.

**Step 4a:** The Operator shall conduct a **Casing Inspection log**.

The Operator shall conduct a Casing Inspection log of the well that measures the thickness of the production casing, from the surface to the bottom of the gas storage reservoir cap rock. If the inspection reveals a reduction in wall thickness, the current minimum strength of the casing will be calculated. If the current minimum strength of the casing has diminished to the point that it cannot withstand authorized operating pressures for the well plus a built-in additional safety factor of pressure, the well has failed this test. *A passing test for a casing inspection log would show no thinning of the casing that diminishes the casing's ability to contain at least 115% of the well's maximum allowable operating pressure as authorized in the current Project Approval Letter.*

**Step 5a:** The Operator shall conduct a **Cement Bond Log** for the well.

The Operator shall conduct a Cement Bond Log (CBL) that measures the bonding between cement and the production casing of the well, and also the bonding between the annular cement and the formation. Cement should be solidly bonded to both the well's production casing and the geologic formation to ensure a seal that prevents fluids from migrating up or down the outside of the well. *A passing test for a cement bond log shows definitive bond, as demonstrated by sonic waveform,*

*between cement and casing and between cement and the gas storage formation and/or cap rock for at least 100 feet above the top of the gas storage reservoir.*

**Step 6a:** The Operator shall conduct a **Multi-Arm Caliper Inspection** of the well.

The operator shall conduct an inspection that measures any internal degradation or significant changes to the well's geometry from the surface to the top of the gas storage reservoir, using a minimum 32-arm caliper tool. If the inspection reveals a thinning or deformity of the casing, the current strength of the casing will be calculated. If the current strength of the casing has diminished, such that it cannot withstand authorized operating pressures plus a built-in safety factor of additional pressure, the well fails this inspection. *A passing test for a Multi-Arm Caliper Inspection would show no deformation or thinning of the casing that diminishes the casing from being able to properly contain at least 115% of each well's maximum operating pressure.*

**Step 7a:** The Operator will conduct a **Pressure Test** of the production casing and of the well once the production tubing has been reinstalled. The Operator may conduct the casing pressure test prior to reinstalling the production tubing. Using a digital recorder, the operator will conduct a liquid-filled positive pressure test within the production tubing of the well, and in the annular space between the production tubing and the casing, to determine the well's ability to withstand normal operating pressures. The production tubing will be isolated and then pressure tested. The annular space between tubing and casing will be pressure tested. This testing also evaluates the integrity of any packers, which seal the annular space between the tubing and casing. The pressure test will be one hour and begin at a pressure of 115% of the maximum operating pressure or the minimum yield strength of the casing and tubing, whichever is less. *A passing pressure test is a pressure loss not exceeding 10% for any 30 minute period during the hour long test.*

After conducting the above tests, the Operator will conduct any indicated remediation so that the well can pass these tests. All remediation will be subject to the review of Division engineers. The well would then be required to undergo the tests once again to demonstrate well integrity.

If the well passes the Casing Wall Thickness Inspection, the Cement Bond Log, the Multi-Arm Caliper inspection and the Pressure Test to the Division's satisfaction, then the Division may clear the well for use for gas injections and withdrawal, once the Division has authorized resumption of injection into the gas storage reservoir. As noted below, wells approved for operation will only be permitted to inject or withdraw gas through the production tubing.

**REQUIRED ACTIONS IF THE WELL IS TO BE TAKEN OUT OF OPERATION AND ISOLATED FROM THE GAS STORAGE RESERVOIR:**

If the operator elects to take a well out of service, then the following steps shall be taken to isolate the well from the gas storage reservoir:

**Step 4b:** The Operator shall confirm the presence of cement outside the well's external casing in the section of the well that prevents the movement of gas from the underground gas storage reservoir to shallower geologic zones above the gas storage reservoir. Existing cement bond logs and well construction

records may be used to make this confirmation. This confirmation requires concurrence from Division engineers.

**Step 5b:** The Operator shall install a mechanical seal or "packer" within the well's production casing and install a mechanical plug within the well's production tubing, if applicable. These seals shall be set in place near the bottom of the well, within the portion of the well surrounded by cement. This kind of seal is an industry standard practice for isolating a well from reservoir gases or fluids and will further protect the casing from internal gas pressure.

**Step 6b:** The Operator shall fill the well with fluid to the well's surface in order to create appropriate downward hydrostatic pressure in the well that further contributes to the integrity of the well seal.

These measures will isolate a well from the underground gas reservoir, as confirmed by National Laboratory experts. Each of the above actions is subject to review and approval by Division Engineers.

**Step 7b:** Once the Operator has completed steps 4b, 5b, and 6b, and the seal is in place at the bottom of the well and the well is filled with fluid above the seal, the operator shall:

- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;
- c. Conduct weekly monitoring of fluid levels in the well or, install and operate real-time pressure monitors that provide immediate notification to the operator when pressures deviate from normal in the well's interior tubing and its annular space.

The above monitoring shall be reported to Division engineers and maintained as a part of the well file. Division engineers will review all submitted information for evaluation on a regular basis to ensure that the well taken out of service has maintained safety, and the operator shall take all necessary steps maintain the safety of the well.

Any well taken out of operation cannot be approved to resume operations and gas injection until the successful completion of the battery of tests outlined above in Steps 4a through 7a (Casing Wall Thickness Inspection, the Cement Bond Log, the Multi-Arm Caliper Extension and the Pressure Test) is completed. Those tests must be successfully completed within one year of completing step 6b. If a well cannot successfully complete all necessary steps required in this safety review after one year of completing step 6b, then the well shall be properly plugged and abandoned in accordance with Public Resources Code section 3208.

#### **REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON**

The Division's authorization to resume injection in the Aliso Canyon Storage Facility will be contingent on the successful completion of this comprehensive safety review. The State Oil and Gas Supervisor must confirm in writing that all wells in the facility have either completed and passed the full battery of tests required in the safety review, been taken out of service and isolated from the underground gas storage reservoir, or been properly plugged and abandoned in accordance with Public Resources Code Section 3208.



NATURAL RESOURCES AGENCY OF CALIFORNIA  
 DEPARTMENT OF CONSERVATION  
 DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

**Rec'd 12-28-16 DOGGR Ventura**

FOR DIVISION USE ONLY		
Bond	Forms	
	<del>OGD 11</del>	OGD 21
CALV WIMS	115V	

P216-0311

## NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: [www.conservacion.ca.gov/dog/](http://www.conservacion.ca.gov/dog/)

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework  / redrill  well Standard Sesnon 44B, API No. 037-21361,  
 (Check one)

Sec. 28, T. 3N, R. 16W, S.B. B.&M., Aliso Canyon Field, Los Angeles County.

**The complete casing record of the well (present hole), including plugs and perforations, is as follows:** (Attach wellbore schematics diagram also.)

See attached wellbore schematic

The total depth is: 8,987' feet. The effective depth is: 8,980' feet.  
 Present completion zone(s): Sesnon (Name) Anticipated completion zone(s): Same (Name)  
 Present zone pressure: storage psi. Anticipated/existing new zone pressure: storage psi.

Is this a critical well as defined in the California Code of Regulations, Title 14, Section 1720(a) (see next page)? Yes  No

For redrilling or deepening only, is a California Environmental Quality Act (CEQA) document required by a local agency?  
 Yes  No  If yes, see next page.

**The proposed work is as follows: (A complete program is preferred and may be attached.)**

See attached program

If well is to be redrilled or deepened, show proposed coordinates (from surface location) and true vertical depth at total depth: \_\_\_\_\_ feet \_\_\_\_\_ and \_\_\_\_\_ feet \_\_\_\_\_ Estimated true vertical depth: \_\_\_\_\_  
 (Direction) (Direction)

Will the Field and/or Area change? Yes  No  If yes, specify New Field: \_\_\_\_\_ New Area: \_\_\_\_\_

**The Division must be notified immediately of changes to the proposed operations. Failure to provide a true and accurate representation of the well and proposed operations may cause rescission of the permit.**

Name of Operator Southern California Gas Company		
Address P. O. Box 2300	City/State Chatsworth	Zip Code 91313-2300
Name of Person Filing Notice A.J. Alshammasi	Telephone Number: 818-700-3887	Signature <i>A.J. Alshammasi</i> Date 12/29/2016
Individual to contact for technical questions: A.J. Alshammasi	Telephone Number: 818-700-3887	E-Mail Address: AAlshammasi@semprautilities.com

This notice and an indemnity or cash bond must be filed, and approval given, before the workover begins. (See the reverse side for bonding information.) If operations have not commenced within one year of the Division's receipt of the notice, this notice will be considered cancelled.

# SoCal Gas Company



## Well Operations Procedure

### Standard Sesnon 44B Aliso Canyon Storage Integrity Management Program 12/29/2016 Version 1 - 0

<b>Primary Engineer:</b>	A.J. Alshammasi	818 700-3887 (ofc)/818 269-6083 (mobile)
<b>Alternate Engineer:</b>	Jovy Kroh	818 725-1119 (ofc)/937-239-0279 (mobile)
<b>Engineering Supervisor:</b>	Jose Iguaz	818 700-3889 (ofc)/661 384-5337 (mobile)
<b>Well Site Supervisor:</b>	Donald Baldwin	805 434-7529 (mobile)
<b>Well Work Superintendent:</b>	Mike Volkmar	562 685-3810 (mobile)

#### Objective:

The intent of this program is to inspect the well integrity and remediate identified conditions as part of the Storage Integrity Management Program (SIMP). This project will include pulling the completion string, running casing inspection logs, pressure testing casing and well laterals, installing a new completion string, converting well to tubing flow, and installing pressure monitors. Baseline assessment data will be gathered on vertical casing pipe and other well components.

#### Well Data:

<b>API #:</b>	037-21361		
<b>Datum:</b>	2674'		
<b>KB to GL:</b>	17'		
<b>MD:</b>	8,987'		
<b>TVD:</b>	8,688'		
<b>PBMD:</b>	8,980'	<b>Nature of Plug Back:</b>	Slotted Liner Shoe

#### Geologic Markers:

MDA: 7359' MD / 7153' TVD	<b>S1: 8301' MD / 8031' TVD</b>
LDA: 7559' MD / 7342' TVD	S4: 8400' MD / 8123' TVD
<b>MP: 8086' MD / 7833' TVD</b>	S8: 8495' MD / 8213' TVD

#### Casing Data:

Surface Casing:	13-3/8", 54.5#, K-55, 0 – 803' Cem w/ 674 CF to Surface
Production Casing:	8-5/8", 36#, K-55, 0 – 5471' 36#, N-80, 5471 – 8404' Cem w/ 2350 CF to 850'
Production Liner:	6-5/8", 24#, K-55, 8371' – 8980'

# SoCal Gas Company



## Well Operations Procedure

- Tubing Data:** Please see the attached Tubing Details
- Wellhead:** Please see the attached Wellhead Details
- Perforations:** 8377 – 8661, 0.018" ga WWS (24 Grooves, (72) 1/4" Slot/ft)  
8683 – 8980, 2-1/2" x 30 Mesh, 32R, 6" C Slot  
Gravel Packed with 160 CF
- Current Status:** Idle for inspection
- Permit Status:** Pending

# SoCal Gas Company



## Well Operations Procedure

### PROJECT NOTES

1. BOPE requirements in Gas Company Standard 224.05 shall be fully implemented at all times.
2. The storage reservoir pressures shall be monitored during the workover with a minimum of 300 psig overbalance for well control fluids.
3. Prepare the location by removing all relevant landscaping/lighting fixtures as well as surface piping and electrical components as needed. Locate rig anchors, reinstall if necessary.
4. DOGGR permit must be posted on site. Notify the DOGGR as required for BOPE testing prior to commencing downhole operations as stated on permit. DOGGR Ventura District office (805)-654-4761. If a permit has not been issued contact DOGGR 24 hours prior to rigging up on the well for verbal approval to rig up.

### PRE-RIG WORK

1. De-energize and remove all laterals. Install companion flanges for circulating the well.

### WELLWORK PROGRAM

1. Move in production rig and rig pump with tank, shaker, and mixer.
2. Spot 500 bbl Baker tanks and load with 8.5 ppg KCl brine.
  - Connect pump to the tubing and vent the casing through the choke manifold to the SoCalGas withdrawal system.
  - Treat all brine with Biocide, 5 gals/100 bbls
3. Fill the well with 8.5 ppg KCL brine. Monitor wellhead pressure to ensure well is dead.

*Note: Use HEC polymer as required to minimize lost circulation.*

4. Install BPV in tubing hanger. ND tree.

**NOTE:** Send-in wellhead and tree components for inspection.

5. +++Install Class III 5M BOPE per Gas Company Standard 224.05 and in accordance with the DOGGR permit. All connections and valves must be flanged and at least 5000 psig rated. (*Confirm BOPE rating*)
  - All tests are to be charted and witnessed by a DOGGR representative.
  - Perform a 300 psig low pressure test on the annular preventer, blind rams and pipe rams for 20 minutes. Test all lines and connections to 300 psig.
  - Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
  - Remove BPV.

# SoCal Gas Company



## Well Operations Procedure

6. POOH with production equipment and L/D production tubing.
  - a.) Attempt to release seal assembly from packer.
  - b.) Fish remainder of production string. (if needed)
  - c.) Fish / Mill packer. (if needed)
7. RIH with positive ID casing scraper to top of liner @ 8,371' Circulate well clean, POOH.
8. RIH with **clean out string to 8960'**. If safe continue to tag for fill at slow speed contact Engineer if fill found and prepare to clean out if necessary and POOH.
9. MIRU WL unit to run **Gyro / Multi-Arm Caliper combo from PBMD to surface**. Contact engineer for QC before RDMO WL. Send a copy of the survey file to [AAIshammasi@semprautilities.com](mailto:AAIshammasi@semprautilities.com)
10. Set **8-5/8" RBP at 8360'** and sand back.
11. RIH with test packer(s) on work string and conduct a Pressure Integrity Test ("Block"). Follow test schedule below. POOH with test packer(s).
  - a.) Pressure test to 115% of the wells maximum allowable operating pressure (3625 psi) as per attached Pressure Test Schedule.
  - b.) Engineering team to analyze log and pressure test results and recommend any additional remediation. (**Notify DOGGR to witness Pressure Integrity Test "Block"**)

Test	Packer Depth	BP Depth	Test Pressure
1	±8,360	N/A	1,800 PSI (Casing)
2	5,000	N/A	1,930 PSI (Casing)
3	4,000	N/A	2,360 PSI (Casing)
4	3,000	N/A	2,800 PSI (Casing)
5	2,000	N/A	3,240 PSI (Casing)
Final	1,000	N/A	3,625 PSI (Casing)

12. Nipple down BOPE, crossover spool, and primary pack-off.
  - a.) Send DSA (If available) and tubing spool to Vendor for refurbishment.
  - b.) Install auxiliary spacer spool and NU BOPE
13. Rig-up wireline unit(s) and run:
  - a) Magnetic flux leakage from **RBP to surface**  
**Notify engineer prior to logging. Do not RDMO WL without engineer's approval.**
14. Rig-up wireline unit, install lubricator and run:
  - b) Ultrasonic from **RBP to surface**
  - c) CBL from **RBP to surface**  
**Notify engineer prior to logging. Do not RDMO WL without engineer's approval.**

# SoCal Gas Company



## Well Operations Procedure

15. Ensure equipment integrity (tree, spool, tubing hanger, master valve, wing valves) have been refurbished before proceeding to the next step.
16. ND BOPE, install tubing spool, reinstall BOPE and test (*Casing head is rated to 5000 psi*).
17. Clean out sand plug to top of RBP **8,360'**.
18. RIH with retrieving tool on work string circulating while engaging RBP retrieval neck. Open bypass and **allow RBP to equalize for 30 mins**. Release RBP and allow elastomers to relax for 1 hr. Circulate as required to control well. POOH slowly to minimize swabbing and lay down work string.
19. RIH with new tubing as follows:

RIH with packer assembly (items 1 - 9). RIH with XN plug, set and bundle test packer BHA to 4000 psi for 5 mins. Pull XN plug. Continue running 2-7/8" tubing hydro-testing each connection to 4000psi.

1. ~ 1ft - 2-7/8" 6.4# L80 EUE 8RD Wireline re-entry guide, set at ~ **8,144 ft**
2. ~ 2ft - 2-7/8" 6.4# L80 EUE 8RD XN Nipple (2.313" Bore w/ 2.205" NoGo)
3. ~ 10ft - Pup joint 2-7/8" 6.4# L80 EUE 8RD
4. ~ 8ft - 2-7/8" 6.4# L80 EUE 8RD x 8-5/8" 36# *Mechanical Production Packer*
5. ~ 10ft - Pup joint 2-7/8" 6.4# L80 EUE 8RD
6. ~ 30ft - 1 Joint 2-7/8" 6.4# L80 EUE 8RD tubing
7. ~ 2ft - Pup 2-7/8" 6.4# L80 EUE 8RD
8. ~ 4ft - 2-7/8" 6.4# L80 EUE 8RD (2.313" Open Down) sliding sleeve with **X profile**
9. ~ 4ft - Pup 2-7/8" 6.4# L80 EUE 8RD
10. ~ **8069 ft** - 2-7/8" 6.4# L80 EUE 8RD tubing to surface
11. Pup joints 2-7/8" 6.4# L80 EUE 8RD for space-out
12. ~ 4ft - 2-7/8" 6.4# L80 EUE 8RD fatigue nipple (pin x pin)
13. Tubing hanger with 2-7/8" EUE top box / 2-1/2" BPV / 2-7/8" 6.4# EUE 8RD bottom box

### Notes : Prior to sending completion equipment to well site

- Make up items 1) through 5) under the supervision of Quality Tubulars. Pressure test assembly to 4000 psi for 1hr, chart test. Test caps to be installed and removed by Quality Tubulars.
- Make up items 7) through 9) under the supervision of Quality Tubulars. Pressure test assembly to 4000 psi for 1hr, chart test. Test caps to be installed and removed by Quality Tubulars.
- Shift sliding sleeve and drift with XN plug prior to shipping tools to location.
- Seal lube top sub on packer, to be witnessed by Quality Tubulars.
- Packer vendor to provide **Force Analysis / Tube Move Calculations** prior to sending equipment to well site.

20. Land tubing as per vendor specifications.

**Note:** Amount of compression to set on packer will be determined by **Force Analysis / Tube Move Calculations**.

# SoCal Gas Company



## Well Operations Procedure

21. Rig-up slickline unit and lubricator. Set a plug in the 2.313" XN profile.
22. **Notify DOGGR** to witness tubing tests to **3700 psi, hold for 1 hour**. Perform annular test to **1000 psi, hold for 1 hour**. **Chart/Record tests digitally**.
23. RIH with WL and recover XN plug. Shift the sliding sleeve open. RDMO WL.
24. Install BPV in tubing hanger. Nipple down BOPE, install production tree and test to 5,000 psig. Remove BPV.
25. RDMO.

### **UNLOAD WELL**

26. Rig-up nitrogen unit. Recover workover fluid by pumping down annulus taking returns up tubing.
27. MIRU WL unit. RIH with slickline and shift sliding sleeve closed. POOH and rig down slickline unit.

### **WELL LATERAL HYDROTESTING**

28. Per Gas Company Standard 182.0170, pressure test the tubing and casing kill laterals from the wellhead to the remote tie in to 3625 psig. Pressure test the tubing and casing withdrawal/injection laterals from wellhead to operating valves to 3625 psig.
29. Reinstall the hydro-tested laterals.
30. Install the well safety systems and instrumentation. Install pressure transmitters on tubing, casing, and surface casing.
31. Release well to operations.

### **EXTERNAL CORROSION PROTECTION**

Per Gas Company Standard 167.30, remove any lead based paint and recoat wellhead, production tree, and laterals.

Well: SS 44B

Depth (MD)	Depth (TVD)	85% of Burst Strength	Fluid / Formation Pressure Gradient	External Casing Backup Pressure	External Casing Backup Pressure	Internal Water Hydrostatic Pressure	Pressure Test						Tubing Leak Net Burst Pressure @ Depth	Gas-Filled Annulus	Test Pressuree > 85% of Burst	Test Pressure < Tubing Leak - Net Burst (Gas-filled annulus)	
							Test 1	Test 2	Test 3	Test 4	Test 5	Final Test					
							Surface Test Pressure										
							Test Packer Depth										
							Test Down Casing or Tubing										
							Bridge Plug Depth										
0	0	3791	0.00	0	0	0	1800	1930	2360	2800	3240	3625	0	0	3625		
1000	998	3791	0.00	0	441	2241	2371	2801	3241	3681	4066	0	0	3715		91%	
2000	1998	3791	0.00	0	883	2683	2813	3243	3683	4123	-	-	-	3806		92%	
3000	2997	3791	0.00	0	1325	3125	3255	3685	4125	-	-	-	-	3897		92%	
4000	3977	3791	0.00	0	1758	3558	3688	4118	-	-	-	-	-	3985		92%	
5000	4940	3791	0.00	0	2183	3983	4113	-	-	-	-	-	-	4073		92%	
5471	5381	5517	0.00	0	2378	4178	-	-	-	-	-	-	-	4113			
6000	5877	5517	0.00	0	2598	4398	-	-	-	-	-	-	-	4158			
7000	6813	5517	0.00	0	3011	4811	-	-	-	-	-	-	-	4242			
8360	8087	5517	0.00	0	3574	5374	-	-	-	-	-	-	-	4358			

0.442  
psi/ft  
Int. grad.

0.091  
psi/ft  
Int. grad.

## Well Standard Sesnon 44B

API #: 04-037-21361-00  
Sec 28, T3N, R16W

Operator: So. California Gas Co.

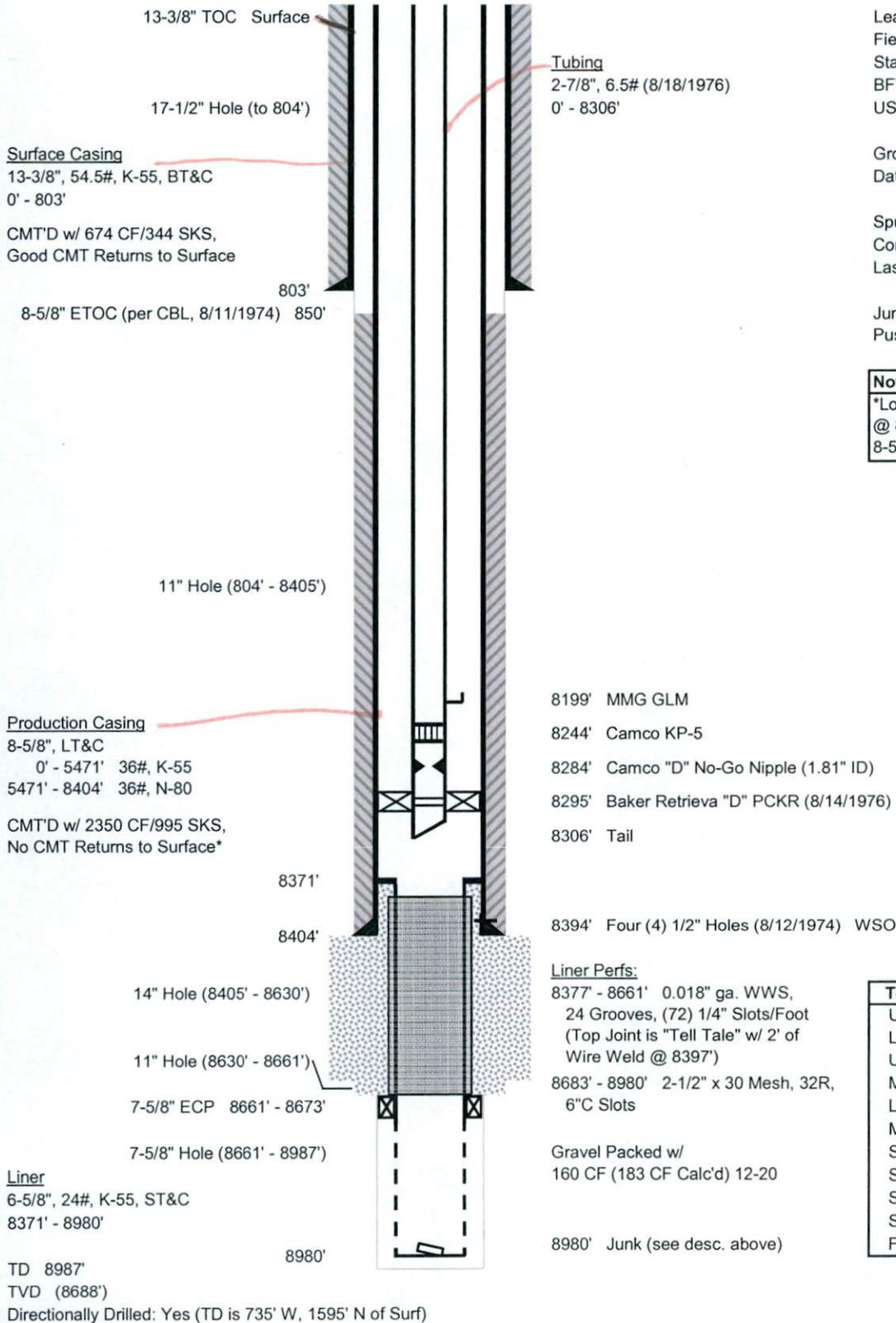
Lease: Standard Sesnon  
Field: Aliso Canyon  
Status: Active Gas Storage  
BFW:  
USDW:

Ground Elevation: 2674' asl  
Datum to Ground: 17' KB

Spud Date: 7/5/1974  
Completion Date: 8/31/1974  
Last Rework Date: 8/18/1976

Junk: Bottom Safety Sub Milled and Pushed to 8980' (8/9/1976)

**Notes**  
\*Lost circ. when running 8-5/8" CSG @ 8400'; No circ. while CMTing 8-5/8" CSG.



Top of Zone Markers md (tvd)	
UP	5798' (5688')
LP	6272' (6131')
UDA1	6597' (6435')
MDA	7359' (7153')
LDA	7559' (7342')
MP	8086' (7833')
S1	8301' (8031')
S4	8400' (8123')
S8	8495' (8213')
S14	8660' (8372')
FREW	8900' (8604')

Prepared by: CAM (12/14/2016)

## Well Standard Sesnon 44B

API #: 04-037-21361-00  
Sec 28, T3N, R16W

### Production Casing Pressure Test Program

Operator: So. California Gas Co.

Lease: Standard Sesnon  
Field: Aliso Canyon  
Status: Active Gas Storage  
BFW:  
USDW:

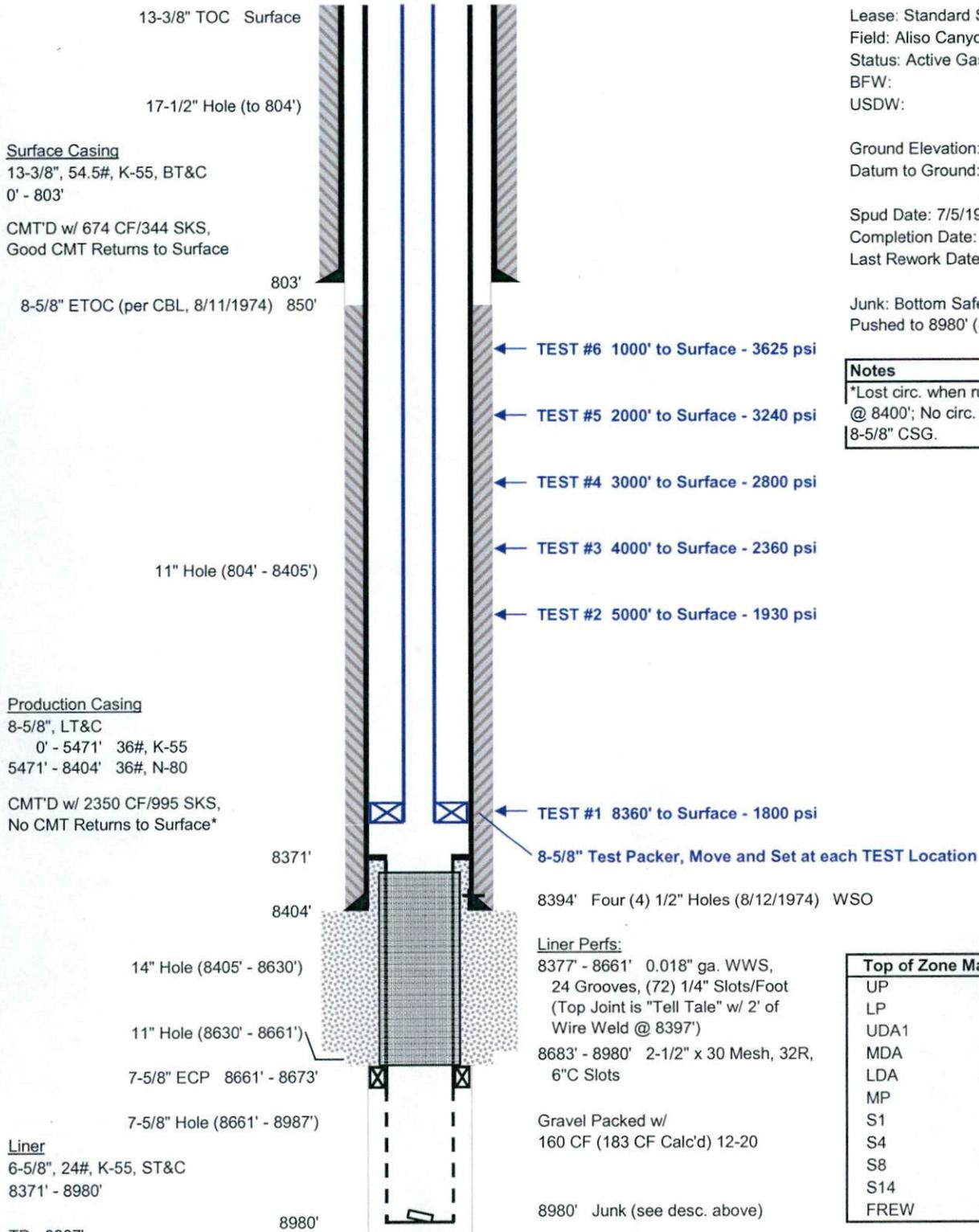
Ground Elevation: 2674' asl  
Datum to Ground: 17' KB

Spud Date: 7/5/1974  
Completion Date: 8/31/1974  
Last Rework Date: 8/18/1976

Junk: Bottom Safety Sub Milled and Pushed to 8980' (8/9/1976)

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FREW	8900'	(8604')

Prepared by: CAM (12/14/2016)  
Updated by: LD (12/21/2016)

**Liner**  
6-5/8", 24#, K-55, ST&C  
8371' - 8980'

TD 8987'  
TVD (8688')  
Directionally Drilled: Yes (TD is 735' W, 1595' N of Surf)

## Well Standard Sesnon 44B

API #: 04-037-21361-00  
Sec 28, T3N, R16W

### Proposed

Operator: So. California Gas Co.

Lease: Standard Sesnon  
Field: Aliso Canyon  
Status: Active Gas Storage  
BFW:  
USDW:

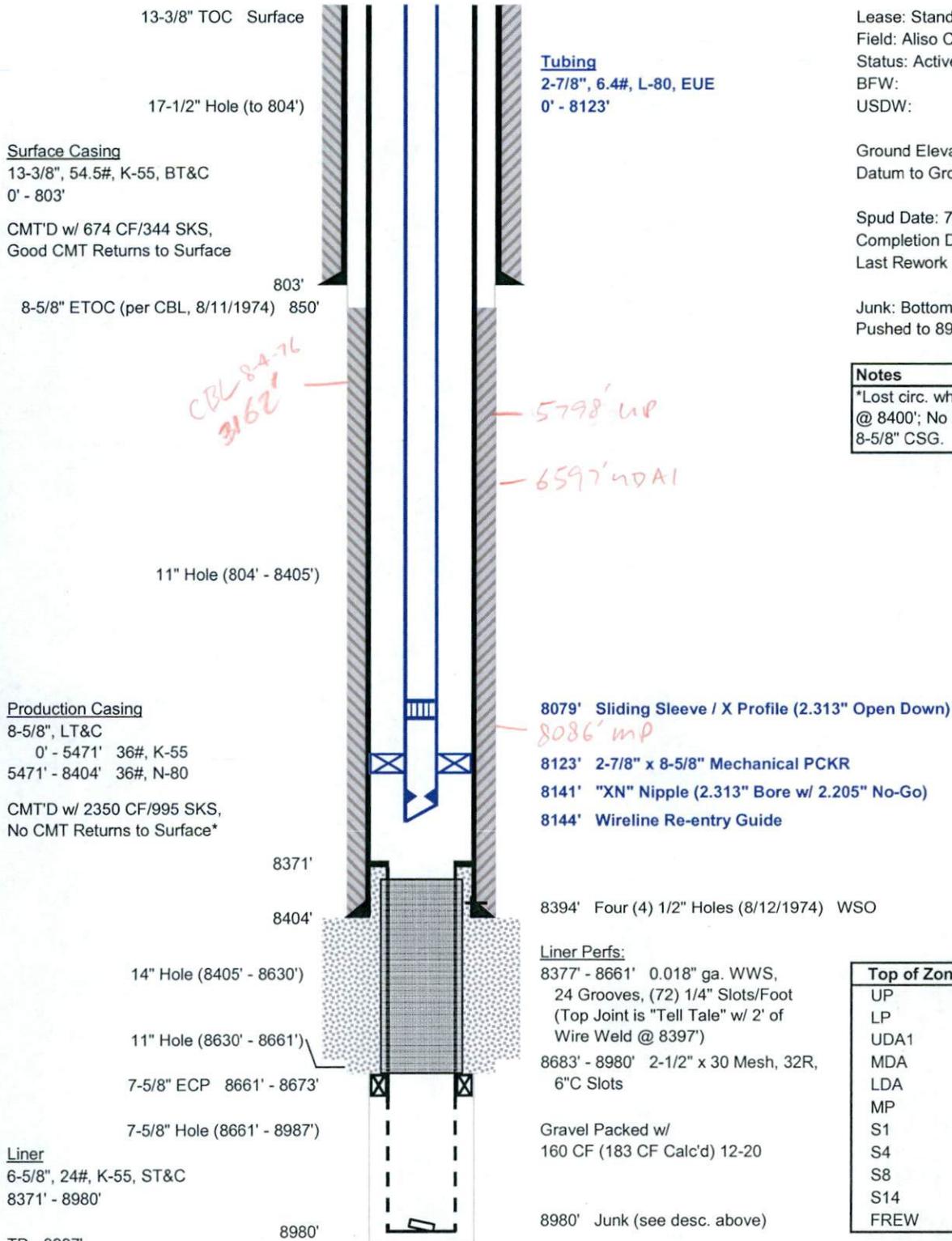
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Prepared by: CAM (12/14/2016)  
Updated by: LD (12/21/2016)

TD 8987'  
TVD (8688')  
Directionally Drilled: Yes (TD is 735' W, 1595' N of Surf)



Well Name: SS 44B		API Number:		Calculation Method		Minimum Curvature											
Rig Name:		Magnetic Decl.:		Vertical Sec. Azimuth		340											
County, State:		Grid Corr:		Target Angle =		Target TVD =											
Objective Formation:		Tot. Survey Corr:															
Surface Legal Location:		Depth Reference:															
No.	Tool Type	Survey Depth	Incl (°)	Azi (°)	CL (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS	Mtr Yld	Wik Rate	BRN		
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)	("/100)	("/100)	("/100)	("/100)		
Tie-In	Surface	25	0	0		25.00	0.00	0.00	N	0.00	E						
1		208	1.25	226.00	183	207.99	-0.81	-1.39	S	-1.44	W	2.00	226.00	0.68	0.68	123.5	0.60
2		389	1.25	208.00	181	388.94	-2.94	-4.50	S	-3.78	W	5.88	220.04	0.22	0.00	-9.9	0.32
3		573	1.50	177.00	184	572.89	-6.58	-8.68	S	-4.60	W	9.82	207.92	0.42	0.14	-16.8	0.26
4		664	1.50	182.00	91	663.86	-8.83	-11.06	S	-4.58	W	11.97	202.49	0.14	0.00	5.5	0.23
5		908	1.25	192.00	244	907.79	-14.04	-16.85	S	-5.24	W	17.65	197.28	0.14	-0.10	4.1	0.14
6		1122	2.25	203.00	214	1121.69	-19.10	-23.00	S	-7.37	W	24.15	197.76	0.49	0.47	5.1	0.20
7		1350	2.50	225.00	228	1349.50	-24.47	-30.64	S	-12.63	W	33.14	202.41	0.41	0.11	9.6	0.19
8		1568	2.75	245.00	218	1567.27	-26.94	-36.21	S	-20.74	W	41.73	209.80	0.43	0.11	9.2	0.18
9		1672	3.00	249.00	104	1671.14	-27.20	-38.24	S	-25.54	W	45.98	213.74	0.31	0.24	3.8	0.18
10		1885	2.75	246.00	213	1883.87	-27.65	-42.32	S	-35.41	W	55.18	219.92	0.14	-0.12	-1.4	0.15
11		2073	2.75	251.00	188	2071.66	-27.89	-45.62	S	-43.79	W	63.24	223.83	0.13	0.00	2.7	0.13
12		2324	2.50	264.00	251	2322.40	-26.46	-48.15	S	-54.93	W	73.05	228.76	0.26	-0.10	5.2	0.11
13		2543	2.00	259.00	219	2541.23	-24.71	-49.38	S	-63.43	W	80.39	232.10	0.25	-0.23	-2.3	0.08
14		2763	1.50	246.00	220	2761.12	-24.31	-51.28	S	-69.83	W	86.64	233.71	0.29	-0.23	-5.9	0.05
15		2988	2.50	207.00	225	2985.99	-27.86	-56.85	S	-74.75	W	93.92	232.74	0.73	0.44	-17.3	0.08
16		3054	3.25	236.00	66	3051.91	-29.29	-59.18	S	-76.96	W	97.08	232.44	2.44	1.14	43.9	0.11
17		3124	3.25	275.00	70	3121.81	-28.94	-60.12	S	-80.58	W	100.53	233.27	3.10	0.00	55.7	0.10
18		3188	4.50	289.00	64	3185.66	-26.59	-59.14	S	-84.76	W	103.35	235.09	2.44	1.95	21.9	0.14
19		3251	4.00	305.00	63	3248.49	-23.23	-57.08	S	-88.90	W	105.64	237.30	2.03	-0.79	25.4	0.12
20		3314	4.75	331.00	63	3311.31	-18.86	-53.54	S	-91.96	W	106.41	239.79	3.33	1.19	41.3	0.14
21		3500	8.50	348.00	186	3496.06	2.37	-33.35	S	-98.56	W	104.04	251.31	2.25	2.02	9.1	0.24
22		3626	11.50	346.00	126	3620.13	24.09	-12.05	S	-103.53	W	104.23	263.36	2.40	2.38	-1.6	0.32
23		3813	15.50	345.00	187	3801.92	67.54	30.19	N	-114.51	W	118.43	284.77	2.14	2.14	-0.5	0.40
24		3939	17.50	344.00	126	3922.73	103.21	64.67	N	-124.09	W	139.93	297.53	1.60	1.59	-0.8	0.44
25		4107	17.75	348.00	168	4082.85	153.77	114.00	N	-136.38	W	177.75	309.89	0.74	0.15	2.4	0.43
26		4371	17.75	348.00	264	4334.28	233.47	192.73	N	-153.11	W	246.14	321.53	0.00	0.00	0.0	0.40
27		4671	15.50	354.00	300	4621.74	317.67	277.34	N	-166.81	W	323.64	328.97	0.94	-0.75	2.0	0.33
28		4807	15.00	355.00	136	4752.96	352.30	312.95	N	-170.25	W	356.26	331.45	0.42	-0.37	0.7	0.31
29		4846	13.75	350.00	39	4790.74	361.74	322.54	N	-171.49	W	365.30	332.00	4.51	-3.21	-12.8	0.28
30		4881	15.50	348.00	35	4824.60	370.47	331.21	N	-173.19	W	373.76	332.40	5.20	5.00	-5.7	0.32
31		4911	16.00	346.00	30	4853.47	378.55	339.14	N	-175.02	W	381.64	332.70	2.46	1.67	-6.7	0.33
32		5003	16.75	335.00	92	4941.76	404.37	363.47	N	-183.69	W	407.25	333.19	3.46	0.82	-12.0	0.33
33		5067	18.50	332.00	64	5002.76	423.62	380.79	N	-192.36	W	426.62	333.20	3.08	2.73	-4.7	0.36
34		5235	19.50	331.00	168	5161.60	477.71	428.85	N	-218.47	W	481.29	333.00	0.63	0.60	-0.6	0.37
35		5392	19.50	331.00	157	5309.60	529.47	474.69	N	-243.87	W	533.67	332.81	0.00	0.00	0.0	0.36
36		5480	19.50	332.00	88	5392.55	558.52	500.50	N	-257.89	W	563.04	332.74	0.38	0.00	1.1	0.35
37		5630	20.00	332.00	150	5533.73	608.72	545.26	N	-281.69	W	613.72	332.68	0.33	0.33	0.0	0.35
38		5871	20.00	332.00	241	5760.19	690.34	618.04	N	-320.38	W	696.14	332.60	0.00	0.00	0.0	0.34
39		6083	20.50	333.00	212	5959.09	763.09	683.12	N	-354.26	W	769.52	332.59	0.29	0.24	0.5	0.34
40		6457	21.25	336.00	374	6308.55	895.71	803.40	N	-411.56	W	902.68	332.88	0.35	0.20	0.8	0.33
41		6773	21.00	336.00	316	6603.31	1009.32	907.44	N	-457.88	W	1016.41	333.23	0.08	-0.08	0.0	0.31
42		7088	19.00	336.00	315	6899.30	1116.78	1005.85	N	-501.70	W	1124.03	333.49	0.63	-0.63	0.0	0.27
43		7307	18.75	336.00	219	7106.52	1187.46	1070.58	N	-530.51	W	1194.81	333.64	0.11	-0.11	0.0	0.26
44		7490	19.00	336.00	183	7279.68	1246.52	1124.66	N	-554.59	W	1253.97	333.75	0.14	0.14	0.0	0.26
45		7711	20.00	336.00	221	7488.00	1320.11	1192.05	N	-584.60	W	1327.68	333.88	0.45	0.45	0.0	0.26
46		7852	20.50	337.00	141	7620.29	1368.82	1236.81	N	-604.05	W	1376.43	333.97	0.43	0.35	0.7	0.26
47		8009	22.25	336.00	157	7766.48	1425.93	1289.27	N	-626.89	W	1433.60	334.07	1.14	1.11	-0.6	0.28
48		8190	23.25	337.00	181	7933.40	1495.79	1353.46	N	-654.78	W	1503.53	334.18	0.59	0.55	0.6	0.29
49		8400	23.00	340.00	210	8126.53	1578.21	1430.17	N	-685.01	W	1585.76	334.41	0.57	-0.12	1.4	0.28
50		8495	15.50	340.00	95	8216.16	1609.51	1459.58	N	-695.72	W	1616.91	334.51	7.89	-7.89	0.0	0.19
51		8600	15.50	340.00	105	8317.34	1637.57	1485.95	N	-705.31	W	1644.84	334.61	0.00	0.00	0.0	0.18
52		8851	15.50	340.00	251	8559.21	1704.64	1548.98	N	-728.26	W	1711.64	334.82	0.00	0.00	0.0	0.18
53		8890	14.00	342.00	39	8596.92	1714.57	1558.36	N	-731.50	W	1721.51	334.85	4.06	-3.85	5.1	0.16
54		8930	14.00	342.00	40	8635.74	1724.24	1567.57	N	-734.49	W	1731.11	334.89	0.00	0.00	0.0	0.16
55		8987	13.50	343.00	57	8691.10	1737.78	1580.49	N	-738.56	W	1744.54	334.95	0.97	-0.88	1.8	0.15
56																	



Well No. IW 79

Rec'd 12-28-16 DOGGR Ventura.

Field Aliso

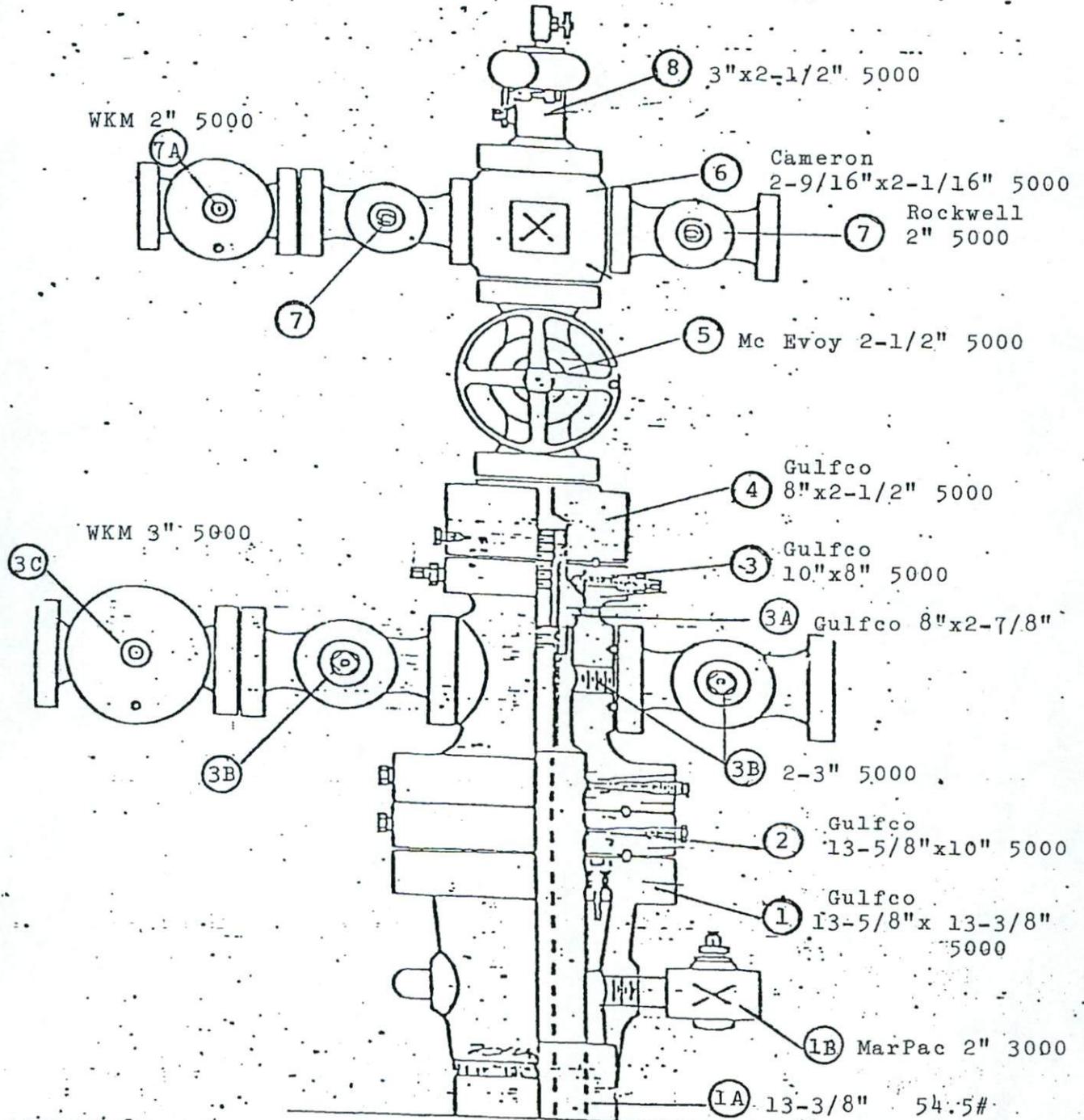
Date Prepared 5-22-81

allhead Mfgr Gulfco

1. Casing Head Gulfco Size 13-5/8" x 13-3/8" <sup>psi</sup> 5000 Type R-S  
Slips & Pack-off RS 13-5/8" x 8-5/8"
  - A. Surface Csg. Size 13-3/8" Wt. 54.5# Grade J-55
  - B. Casing Head Valve Marpac Size 2" 3000 psi Fig.No. CSB 790-JN
2. Seal Flange Gulfco Size 13-5/8" x 10" 5000 psi
  - A. Type Seal Lockscrew Ring BX-160 & R-54
3. Tubing Head Gulfco Size 10" x 8" 5000 psi Type \_\_\_\_\_  
Ring R-54 & Ring R-50  
Outlets 2-3" 5000 psi Sec. Seal Lockscrew  
Valve Removal Thrd 2-1/2" Line Pipe \_\_\_\_\_
  - A. Tubing Hanger Gulfco Size 8" x 2-7/8" Type \_\_\_\_\_  
B.P.V. Size 2-1/2" Thrd 4 left hand
  - B. Tubing Head Valves 2-Mc Evoy Size 3" 5000 psi Fig.No. 129
  - C. Automatic Csg. Valve WKM Size 3" 5000 psi Fig.No. 114561
4. Adapter Seal Flange Gulfco Size 8" x 2-1/2" <sup>5000 psi</sup> Type \_\_\_\_\_
  - A. Ring Size R-50 & R-27
5. Master Valve Mc Evoy Size 2-1/2" 5000 psi Fig.No. 129
6. Xmas Tree Cross Cameron Size 2-1/2" x 2" 5000 psi Bore Thru 2-9/16"  
Across 2-1/16"
7. Tubing Wing Valves Rockwell Size 2" 5000 psi Fig.No. 110522
  - A. Automatic Tbg. Valve WKM Size 2" 5000 Fig. No. \_\_\_\_\_
8. Unibolt Size 3" x 2-1/2" 5000 psi Inside Thrds 2-7/8" EUE
9. Wt. Landed in Csg. Head \_\_\_\_\_ Wt. 36# 8-5/8" Grade K-55
10. Wt. Landed on Doughnut \_\_\_\_\_ Wt. \_\_\_\_\_ Grade \_\_\_\_\_
11. Tubing Head to Ground Level 1.46 Below

TYPE IV

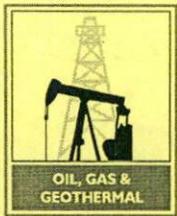
Réc'd 12-28-16 DOGGR Ventura.



Well Name: IW 79 - Aliso Canyon

Mfgr.: Gulfcoc

Date Prepared: 12-2-82



NATURAL RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES  
1000 S. Hill Rd, Suite 116 Ventura, CA 93003-4458  
Phone:(805) 654-4761 Fax:(805) 654-4765

No. T 216-0394

## REPORT ON OPERATIONS

GAS STORAGE PROJECT  
"Sesnon-Frew" - Modelo (Miocene-Eocene) Formation

Amy Kitson  
Southern California Gas Company (S4700)  
12801 Tampa Ave., SC9382  
Northridge, CA 91326

Ventura, California  
September 09, 2016

Your operations at well "**Standard Sesnon**" 44B, A.P.I. No. 037-21361, Sec. 28, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 9/7/2016, by **Clifford R. Knight**, a representative of the supervisor.

The operations were performed for the purpose of **determining casing integrity**.

DECISION:

**APPROVED**

CRK/TKC

Kenneth A. Harris Jr.  
\_\_\_\_\_  
State Oil and Gas Supervisor

By *Patricia A. Abel*  
\_\_\_\_\_  
Patricia A. Abel, District Deputy

No. T 216-0394  
16,1

**INTERNAL MECHANICAL INTEGRITY TEST (MIT)**  
**Suspend (Standard Annulus Pressure Test-SAPT)**

Operator: Socal Gas Well: Standard Section 44B

Sec. <u>28</u>	T. <u>3N</u>	R. <u>16W</u>	B.&M. <u>5B</u>	API No.: <u>037-21361</u>	Field: <u>Aliso Lagoon</u>
-------------------	-----------------	------------------	--------------------	------------------------------	-------------------------------

County: Los Angeles Witnessed/Reviewed on:  
C. Knight / 9-9-16

C. Knight, representative of the supervisor, was present from 1400 to 1545.

Also present were: Paul Brogdon, Tom Fox (Onyx Oil Service)

Casing record of the well: Suspend Pressure Test  
 Tubing plug @ 8284' The well prior to testing was degassed and filled  
 with 8.5 ppg poly fluid to kill well  
 Annulus sleeve open @ 8244'  
 Packer @ 8295'  
8.5 ppg Polymer fluid

The Internal MIT was performed for the purpose of pressure testing the 8 5/8" casing above 8295  
 (2) (prior to injecting fluid)

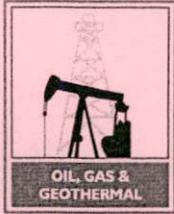
The Internal MIT is approved since it indicates that the 8 5/8" casing has mechanical integrity above 8295' at this time..

The Internal MIT is not approved due to the following reasons: (specify)

INDICATE WHERE PACKER WAS SET AND HOW LONG PRESSURE WAS HELD ALONG WITH ANY BLEEDOFF DATA.

<u>14:29</u>	<u>1019 psi</u>	<u>The tubing plug at 8284' and packer at 8295' and 8 5/8" casing held 1,000+psi for 60 minutes</u>
<u>15:29</u>	<u>1089 psi</u>	





STATE RESOURCES AGENCY OF CALIFORNIA  
 DEPARTMENT OF CONSERVATION  
 DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES  
 1000 S. Hill Rd, Suite 116 Ventura, CA 93003 - 4458

No. P 216-0189

**PERMIT TO CONDUCT WELL OPERATIONS**

<u>Old</u>	<u>New</u>
010	010
FIELD CODE	
00	00
AREA CODE	
30	30
POOL CODE	

Gas Storage  
 Plugback and Suspend for One Year  
 "Sesnon-Frew" - Modelo (Miocene-Eocene) Formation

Ventura, California  
 August 12, 2016

Amy Kitson, Agent  
 Southern California Gas Company (S4700)  
 12801 Tampa Ave., SC9382  
 Northridge, CA 91326

Your proposal to **Rework** well "**Standard Sesnon**" 44B, A.P.I. No. **037-21361**, Section **28**, T. **03N**, R. **16W**, **SB B** & **M**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **8/5/2016**, received **8/5/2016** has been examined in conjunction with records filed in this office. (Lat: **34.312438** Long: **-118.565468** Datum:**83**)

**THE PROPOSAL IS APPROVED PROVIDED:**

1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
  - a. **Class I Note: work to be completed without the removal of the injection assembly.**
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. A pressure test is conducted to demonstrate the mechanical integrity of the **8 5/8"** casing.
4. This well is to be taken out of service and isolated from the storage reservoir. The well shall be re-evaluated or abandoned within 1 year of the completion of the pressure testing pursuant to Order #1109 and its amendments.
5. In all other respects, the provisions of Division Order #1109 and its amendments shall remain in effect.
6. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
7. **THIS DIVISION SHALL BE NOTIFIED TO:**
  - a. Witness a pressure test of the **8 5/8"** casing.

Continued on Next Page

Blanket Bond Dated: 7/6/1999  
 UIC Project No. 0100006

Engineer Kris Gustafson  
 Office (805) 654-4761

KG/kg

Kenneth A. Harris Jr.  
 State Oil and Gas Supervisor

By Clifford Knight for  
 Patricia A. Abel, District Deputy

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended. Issuance of this permit does not affect the Operator's responsibility to comply with other applicable state, federal, and local laws, regulations, and ordinances.

Page 2

Well #: "Standard Sesnon" 44B

API #: 037-21361

Permit : P 216-0189

Date: August 12, 2016

**NOTE:**

1. The base of the freshwater zone is at 800'±.
2. No operation shall be undertaken or continued that will contaminate or otherwise damage the environment.
3. This permit is being issued as part of Division Order No. 1109 dated March 4, 2016. Any well that fails any of the testing must be taken out of service and isolated from the storage reservoir pursuant to the Safety Review Testing Regime.
4. The required History of Oil or Gas Well (OG103) shall include a complete description of the required pressure testing. **An updated casing and tubing diagram shall be included with the well history.**
5. **A Well Summary Report (Form OG 100)** and **Well History (Form OG 103)** shall to be submitted to the Division within 60 days after the well is drilled, reworked, plugged and abandoned, or if the work is suspended. Any additional well work will require an additional notice to be submitted to this office prior to resuming well operations.

Enclosure: Attachment 1 to DOGGR Order 1109. Safety Review Testing Regime for the Aliso Canyon Natural Gas Storage Facility

**ATTACHMENT 1  
TO DOGGR ORDER 1109**

**SAFETY REVIEW TESTING REGIME  
FOR THE ALISO CANYON NATURAL GAS STORAGE FACILITY**

This document identifies the requirements of this comprehensive safety review that shall be completed by the Southern California Gas Company (Operator) and verified by the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division). The Operator shall use accepted industry practices and procedures.

The Division has consulted with independent technical experts from the Lawrence Berkeley, Lawrence Livermore, and Sandia National Laboratories ("National Laboratories") to develop the requirements of this facility safety review. The National Laboratories experts independently reviewed and concurred with the testing requirements for the safety review detailed below.

This comprehensive safety review requires that each of the active injection wells in the Aliso Canyon Storage facility either pass a thorough battery of tests in order to resume gas injection or be taken out of operation and isolated from the underground gas storage reservoir. Several steps, detailed below, are required in this safety review. Documentation of all testing required under this comprehensive safety review shall be provided electronically to the Division within 72 hours of completion of a test in digital (i.e. LAS) and printed (i.e. pdf) form. All pressure tests required under this comprehensive safety review shall be witnessed by Division staff. A well that is properly plugged and abandoned in accordance with Public Resources Code section 3208 is not subject to testing under this comprehensive safety review. A well that does not pass all tests must be repaired, retested, and pass all tests, or be plug and abandoned.

**REQUIRED TESTS FOR EACH WELL IN THE FACILITY**

- Step 1:** The Operator shall perform an initial casing assessment on the well consisting of temperature and noise logs.
- a. **Temperature Log:**  
A temperature survey shall be run from the surface to the packer to measure the temperature within the wellbore. A temperature survey that demonstrates no unexplained anomalous temperature changes in the well is one indication of casing integrity.
  - b. **Noise Log:**  
An acoustic sensor survey capable of detecting the sound of fluid flow will be conducted the length of the well above the packer to the surface. The survey will include stops at least every 250 feet and at the midpoint of any anomaly detected by the temperature survey. The absence of anomalous sound above the packer is an indication of well integrity

- Step 2:** The results of the Temperature Logs and Noise Logs will be independently reviewed by Division engineers. Any unexplained abnormal findings in this set of tests shall be addressed by the Operator in one of the following ways:
- a. Conduct further investigation and demonstrate to the Division's satisfaction that the abnormal finding is not an indicator of a lack mechanical integrity;
  - b. Remediate the well to the Division's satisfaction; or
  - c. With Division review and approval, remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

Necessary actions to remediate any abnormalities revealed by these tests will be reviewed by Division engineers. Once repairs or mitigations are completed, the Temperature Log and Noise Log must then be repeated on the well and reviewed by Division engineers to ensure that there are no additional abnormal test results and to confirm the issue was repaired.

- Step 3:** After these tests are completed on the well, and all required action has been completed, the operator shall either:
- a. Conduct the additional tests and evaluations on the well, outlined in Steps 4a through 7a below, in order to gain approval for injecting gas through that well; or
  - b. Remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

#### **REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS**

If Temperature and Noise Logs have been completed on a well and they indicate well integrity, and the Operator designates the well to return to injection operations, then the Operator shall perform the additional testing outlined in Steps 4a through 7a. The results of these tests will be independently reviewed by Division engineers and posted publicly. Each of the following tests requires that the production tubing be removed from the well.

**Step 4a:** The Operator shall conduct a **Casing Inspection log**.

The Operator shall conduct a Casing Inspection log of the well that measures the thickness of the production casing, from the surface to the bottom of the gas storage reservoir cap rock. If the inspection reveals a reduction in wall thickness, the current minimum strength of the casing will be calculated. If the current minimum strength of the casing has diminished to the point that it cannot withstand authorized operating pressures for the well plus a built-in additional safety factor of pressure, the well has failed this test. *A passing test for a casing inspection log would show no thinning of the casing that diminishes the casing's ability to contain at least 115% of the well's maximum allowable operating pressure as authorized in the current Project Approval Letter.*

**Step 5a:** The Operator shall conduct a **Cement Bond Log** for the well.

The Operator shall conduct a Cement Bond Log (CBL) that measures the bonding between cement and the production casing of the well, and also the bonding between the annular cement and the formation. Cement should be solidly bonded to both the well's production casing and the geologic formation to ensure a seal that prevents fluids from migrating up or down the outside of the well. *A passing test for a cement bond log shows definitive bond, as demonstrated by sonic waveform,*

*between cement and casing and between cement and the gas storage formation and/or cap rock for at least 100 feet above the top of the gas storage reservoir.*

**Step 6a:** The Operator shall conduct a **Multi-Arm Caliper Inspection** of the well.

The operator shall conduct an inspection that measures any internal degradation or significant changes to the well's geometry from the surface to the top of the gas storage reservoir, using a minimum 32-arm caliper tool. If the inspection reveals a thinning or deformity of the casing, the current strength of the casing will be calculated. If the current strength of the casing has diminished, such that it cannot withstand authorized operating pressures plus a built-in safety factor of additional pressure, the well fails this inspection. *A passing test for a Multi-Arm Caliper Inspection would show no deformation or thinning of the casing that diminishes the casing from being able to properly contain at least 115% of each well's maximum operating pressure.*

**Step 7a:** The Operator will conduct a **Pressure Test** of the production casing and of the well once the production tubing has been reinstalled. The Operator may conduct the casing pressure test prior to reinstalling the production tubing. Using a digital recorder, the operator will conduct a liquid-filled positive pressure test within the production tubing of the well, and in the annular space between the production tubing and the casing, to determine the well's ability to withstand normal operating pressures. The production tubing will be isolated and then pressure tested. The annular space between tubing and casing will be pressure tested. This testing also evaluates the integrity of any packers, which seal the annular space between the tubing and casing. The pressure test will be one hour and begin at a pressure of 115% of the maximum operating pressure or the minimum yield strength of the casing and tubing, whichever is less. *A passing pressure test is a pressure loss not exceeding 10% for any 30 minute period during the hour long test.*

After conducting the above tests, the Operator will conduct any indicated remediation so that the well can pass these tests. All remediation will be subject to the review of Division engineers. The well would then be required to undergo the tests once again to demonstrate well integrity.

If the well passes the Casing Wall Thickness Inspection, the Cement Bond Log, the Multi-Arm Caliper inspection and the Pressure Test to the Division's satisfaction, then the Division may clear the well for use for gas injections and withdrawal, once the Division has authorized resumption of injection into the gas storage reservoir. As noted below, wells approved for operation will only be permitted to inject or withdraw gas through the production tubing.

**REQUIRED ACTIONS IF THE WELL IS TO BE TAKEN OUT OF OPERATION AND ISOLATED FROM THE GAS STORAGE RESERVOIR:**

If the operator elects to take a well out of service, then the following steps shall be taken to isolate the well from the gas storage reservoir:

**Step 4b:** The Operator shall confirm the presence of cement outside the well's external casing in the section of the well that prevents the movement of gas from the underground gas storage reservoir to shallower geologic zones above the gas storage reservoir. Existing cement bond logs and well construction

records may be used to make this confirmation. This confirmation requires concurrence from Division engineers.

**Step 5b:** The Operator shall install a mechanical seal or "packer" within the well's production casing and install a mechanical plug within the well's production tubing, if applicable. These seals shall be set in place near the bottom of the well, within the portion of the well surrounded by cement. This kind of seal is an industry standard practice for isolating a well from reservoir gases or fluids and will further protect the casing from internal gas pressure.

**Step 6b:** The Operator shall fill the well with fluid to the well's surface in order to create appropriate downward hydrostatic pressure in the well that further contributes to the integrity of the well seal.

These measures will isolate a well from the underground gas reservoir, as confirmed by National Laboratory experts. Each of the above actions is subject to review and approval by Division Engineers.

**Step 7b:** Once the Operator has completed steps 4b, 5b, and 6b, and the seal is in place at the bottom of the well and the well is filled with fluid above the seal, the operator shall:

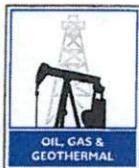
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;
- c. Conduct weekly monitoring of fluid levels in the well or, install and operate real-time pressure monitors that provide immediate notification to the operator when pressures deviate from normal in the well's interior tubing and its annular space.

The above monitoring shall be reported to Division engineers and maintained as a part of the well file. Division engineers will review all submitted information for evaluation on a regular basis to ensure that the well taken out of service has maintained safety, and the operator shall take all necessary steps maintain the safety of the well.

Any well taken out of operation cannot be approved to resume operations and gas injection until the successful completion of the battery of tests outlined above in Steps 4a through 7a (Casing Wall Thickness Inspection, the Cement Bond Log, the Multi-Arm Caliper Extension and the Pressure Test) is completed. Those tests must be successfully completed within one year of completing step 6b. If a well cannot successfully complete all necessary steps required in this safety review after one year of completing step 6b, then the well shall be properly plugged and abandoned in accordance with Public Resources Code section 3208.

#### **REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON**

The Division's authorization to resume injection in the Aliso Canyon Storage Facility will be contingent on the successful completion of this comprehensive safety review. The State Oil and Gas Supervisor must confirm in writing that all wells in the facility have either completed and passed the full battery of tests required in the safety review, been taken out of service and isolated from the underground gas storage reservoir, or been properly plugged and abandoned in accordance with Public Resources Code Section 3208.



NATURAL RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

FOR DIVISION USE ONLY					
Bond	Forms				
		<table border="1"> <tr> <td><del>000114</del></td> <td>000121</td> </tr> <tr> <td>CAL WMS</td> <td>1154</td> </tr> </table>	<del>000114</del>	000121	CAL WMS
<del>000114</del>	000121				
CAL WMS	1154				

P216-0189

## NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: [www.conservation.ca.gov/dog/](http://www.conservation.ca.gov/dog/)

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to

rework  / redrill  well \_\_\_\_\_ Standard Sesnon 44B \_\_\_\_\_, API No. 037-21361 \_\_\_\_\_  
(Check one)

Sec. 28, T. 3N, R. 16W, S.B. B.&M., Aliso Canyon Field, Los Angeles County.

The complete casing record of the well (present hole), including plugs and perforations, is as follows: (Attach wellbore schematics diagram also.)

See attached wellbore schematic and completed work summary.

The total depth is: 8997 feet.

The effective depth is: 8980 feet.

Present completion zone(s): Sesnon \_\_\_\_\_ Anticipated completion zone(s): Same \_\_\_\_\_  
(Name) (Name)

Present zone pressure: storage psi. Anticipated/existing new zone pressure: storage psi.

Is this a critical well as defined in the California Code of Regulations, Title 14, Section 1720(a) (see next page)? Yes  No

For redrilling or deepening only, is a California Environmental Quality Act (CEQA) document required by a local agency?

Yes  No  If yes, see next page.

The proposed work is as follows: (A complete program is preferred and may be attached.)

The SCGC plans to take this well out of operation and isolate from the gas storage reservoir as per the First Amended Safety Review Testing Regime: Steps 4b-7b.

5b - Set plug set in No-Go nipple at 8284' and pull valve from GLM at 8199'.

6b - Circulate well with 8.5 ppg KCL brine down tbg. through GLM at 8199' and back to surface to completely fill well.

7b - With casing valve closed, pressure-up on tubing to 1000 psi. for 1 hour (will test csg., packer and tubing plug all at same time).

If well is to be redrilled or deepened, show proposed coordinates (from surface location) and true vertical depth

at total depth: \_\_\_\_\_ feet \_\_\_\_\_ and \_\_\_\_\_ feet \_\_\_\_\_ Estimated true vertical depth: \_\_\_\_\_  
(Direction) (Direction)

Will the Field and/or Area change? Yes  No  If yes, specify New Field: \_\_\_\_\_ New Area: \_\_\_\_\_

The Division must be notified immediately of changes to the proposed operations. Failure to provide a true and accurate representation of the well and proposed operations may cause rescission of the permit.

Name of Operator

Southern California Gas Company

Address

P. O. Box 2300

City/State

Chatsworth

Zip Code

91313-2300

Name of Person Filing Notice

A.J. Alshammasi

Telephone Number:

(818) 700-3887

Signature

Date

8/5/16

Individual to contact for technical questions:

Mike Giuliani

Telephone Number:

(805) 290-2074

E-Mail Address:

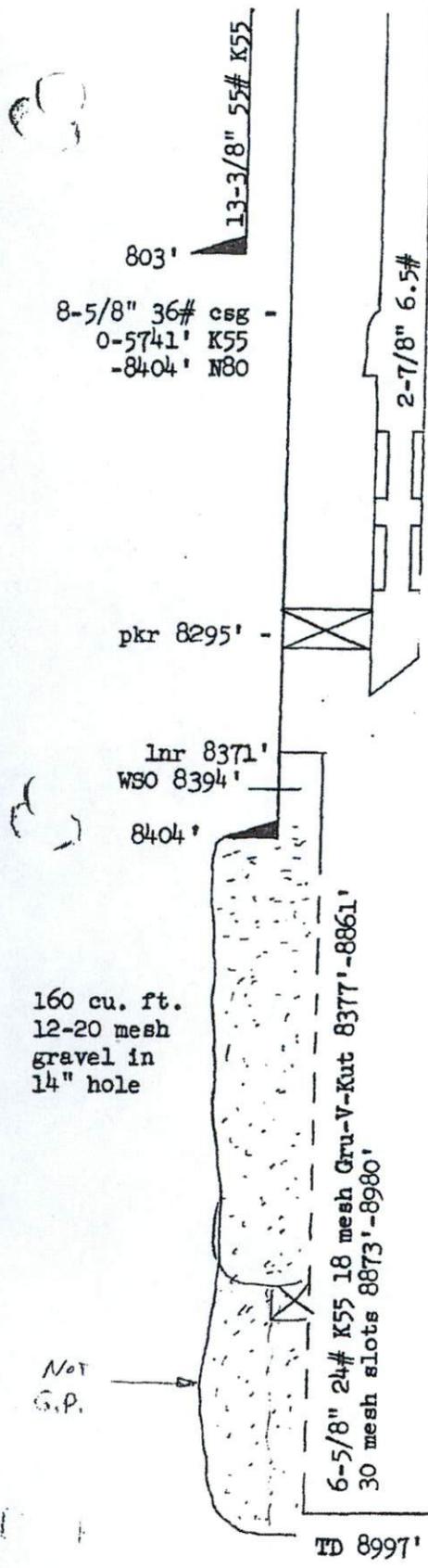
mike.giuliani@interactprojects.com

This notice and an indemnity or cash bond must be filed, and approval given, before the workover begins. (See the reverse side for bonding information.) If operations have not commenced within one year of the Division's receipt of the notice, this notice will be considered cancelled.

Rec'd 08-05-16 DOGGR Ventura.

Elevation: 2674' G.L. MV: 17' 1/8  
 KB: 17'

55-44B(IW-79)



Surface choke: \_\_\_\_\_  
 Casing flow string

7/5/74 - Well spud  
 8/31/74 - Well completed  
 7/24/76 - 8/18/76 - Cleaned out to 8949', pressure tested casing & ran tbg with SSSV.

MP-8087'

--8199' MMG  
 --8244' Camco 2-1/2" SSSV (7978') 2.312" ID  
 --8284' Camco "D" No-Go 1.81" ID (8015')

51-±8305'

--8306'  
 --8367' (8091') (-5400')  
 --S4 8400' (8122')

--S8 8495' (8213')

--HZ 8633'

8/25/92: PU@ 8880

--Frew 8893' (8597')

WELL VOLUME

	Cu.Ft.	Bbl.
Tubing	270	48
Csg/Lnr	141	25
Annulus	2396	427

Completed Work Summary - Standard Sesnon 44B		
Step	Work Completed	Date
4b	CBL shows good bond from 7900'-8350' across MP, packer and S-1	8/4/1976
5b	Packer set at 8295'	8/14/1976

**Casing Pressure Test Safety Check (1000 psi)**

Well	Packer Depth MD/TVD	Casing Size/Grade/Weight	Depth MD	Burst PSI	85% of Burst PSI	Pressure at Depth w/1000 psi Surface Pressure	Press < 85% of Burst
Porter 32F	6980' / 6857'	8-5/8", 36#, K-55	5678	4460	3791	3510	Yes
		8-5/8", 36#, N-80	6980	6490	5517	4085	Yes
Standard Sesnon 44B	8295' / 8019'	8-5/8", 36#, K-55	5741	4460	3791	3538	Yes
		8-5/8", 36#, N-80	8295	6490	5517	4666	Yes

OPERATOR SOUTHERN CALIF GAS  
 LSE & NO LVV 79  
 MAP 250

(1) (2) (3) ( ) ( ) ( )

INTENTION  
 NOTICE DATED  
 P-REPORT NUMBER  
 CHECKED BY/DATE  
 MAP LETTER DATED  
 SYMBOL

DRILL	DRILL	TEST & REPAIR CSG			
2-13-73	5-23-74	7-16-76			
273-106	274-226	276-248			
3-3-73	6-8-74	N/C			
⊙	⊙				

REC'D NEED REC'D NEED REC'D NEED REC'D NEED REC'D NEED REC'D NEED

NOTICE  
 HISTORY  
 SUMMARY  
 TBS/ELECTRIC LOG  
 DIRECTIONAL SURV  
 CORE/SWS DESCRIP  
 OTHER  
 RECORDS COMPLETE

2-27-73		5-31-74		7-19-76					
→		3-11-75		9-1-74					
→		3-11-75							
→		11-1-74							
→		10-22-74							
		Change Bond log		8-20-74					

ENGINEERING CHECK

T-REPORTS \_\_\_\_\_  
 OPERATOR'S NAME \_\_\_\_\_  
 WELL DESIGNATION \_\_\_\_\_  
 LOC & ELEV \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 SURFACE INSPECTION \_\_\_\_\_  
 FINAL LETTER OK \_\_\_\_\_

CLERICAL CHECK

POSTED TO 121 \_\_\_\_\_ 170 MAILED \_\_\_\_\_ FINAL LETTER \_\_\_\_\_  
 \_\_\_\_\_ MAILED \_\_\_\_\_  
 \_\_\_\_\_ RELEASED BOND \_\_\_\_\_  
 \_\_\_\_\_

REMARKS:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

STATE OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

R.D. Phillips, Agent  
Southern Calif. Gas Company  
810 S. Flower St.  
Los Angeles, CA. 90017

Ventura, California  
February 23, 1990

Your request, dated February 13, 1990, proposing to change the designation of well in Sec. 28, T. 3N, R. 16W, SB B.&M., Aliso Canyon field Los Angeles County, District No. 2, has been received.

The proposed change in designation, in accordance with Section 3203, Public Resources Code, is authorized as follows:

From:	To:
IW 54 (037-21319)	"Porter" 26E (037-21319)
IW 55 (037-21353)	"Porter" 26C (037-21353)
IW 65 (037-21320)	"Porter" 26D (037-21320)
IW 69 (037-21322)	"Standard Sesnon" 25A (037-21322)
IW 74 (037-21357)	"Porter" 26B (037-21357)
IW 79 (037-21361)	"Standard Sesnon" 44B (037-21361)
IW 80 (037-21362)	"Porter" 26A (037-21362)
IW 83 (037-21455)	"Standard Sesnon" 44A (037-21455)

bb

M.G. MEFFERD, State Oil and Gas Supervisor

By Patrick J. Kinnear  
Patrick J. Kinnear, Deputy Supervisor

SUBMIT IN DUPLICATE  
RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
**DIVISION OF OIL AND GAS**

DIVISION OF OIL AND GAS  
RECEIVED  
SEP 1 1976

**History of Oil or Gas Well**

SANTA PAULA, CALIFORNIA

OPERATOR SOUTHERN CALIFORNIA GAS COMPANY FIELD Aliso Canyon

Well No. I.W. #79, Sec. 28, T. 3N, R. 16W, S.B. B. & M.

Date August 19, 1976

Signed

*P. S. Magruder, Jr.*

P. O. Box 3249, Terminal Annex  
Los Angeles, California 90051

P. S. Magruder, Jr.

(Address)

(213) 689-3561

(Telephone Number)

Title Agent

(President, Secretary or Agent)

History must be complete in all detail. Use this form to report all operations during drilling and testing of the well or during redrilling or altering the casing, plugging, or abandonment with the dates thereof. Include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests and initial production data.

Date

- 7-24-76 Rigged down on I. W. #54. Moved to I. W. #79. Rigging up.
- 7-25-76 Idle.
- 7-26-76 Mixed 60 barrel pill - 72#/cu. ft., 70 viscosity, and pumped down tubing. Waited three hours. Circulated and conditioned mud to 72#, 48 viscosity, 6 water loss. Removed Christmas tree and installed B.O.P.E. Tested blind rams with water for 20 minutes at 4000 psi. Tested pipe rams with water for 20 minutes at 4000 psi. Tested Hydril with 3000 psi for 20 minutes. Tested Hydril at 3000 psi and pipe rams at 4000 psi for 20 minutes with nitrogen.
- 7-27-76 Tested blind rams with nitrogen at 4000 psi for 20 minutes. Unseated packer. Laid down all seal lock tubing.
- 7-28-76 Finished laying down tubing and packer. Picked up Kelly and installed flow line. Going in hole with 7 5/8" bit and casing scraper, picking up drill pipe.
- 7-29-76 Picked up drill pipe. Circulated two hours at top of liner at 8341'.
- 7-30-76 Top of liner 8341'. Pulled out of hole. Ran 5 5/8" bit and scraper - Cleaned out from 8929' to 8949'. Bottom of liner at 8949'. Circulated hole clean and started out of hole.
- 7-31-76 Finished pulling 6 5/8" scraper and 5 5/8" bit out of hole. Started in hole with Burns liner washer - 21 joints of tubing - washer - 53 1/2 doubles 2 7/8" drill pipe in hole.
- 8-1-76 Idle.
- 8-2-76 Ran in hole with Burns wash tool. Washed liner from 8949' to 8341'. Circulated clean. Pulled out of hole.

- 8-3-76 Finished pulling out of hole. Ran in hole with B & W combination straddle tool. Attempted to open port collar at 8346' - drill pipe backed off. Screwed back into drill pipe and pulled out of hole. Failed to open port collars.
- 8-4-76 Finished pulling out of hole. Ran Schlumberger Cement Bond Log and recorded from 8350' to 2644'. Ran in hole with Baker fullbore. Tool set at 4114' going in hole - unable to go on down. Pulling out of hole.
- 8-5-76 Finished pulling out of hole. Left Baker fullbore in hole, crossover sub. (Backed out of tool.) Put three centralizers on drill pipe. Ran in hole, screwed back into fullbore. Pulled out of hole. Left pack-off assembly in hole.
- 8-6-76 Ran in hole with Brown Oil Tool spear. Worked into pack-off assembly. Pulled out of hole. Did not recover pack-off assembly. Re-ran spear. Worked into pack-off assembly. Pulled out of hole. Recovered pack-off assembly.
- 8-7-76 Ran in hole with taper tap for Baker bottom safety sub at 8341' - top of liner. Pulled out of hole - no recovery. Ran in hole with impression block. Pulling out of hole.
- 8-8-76 Idle.
- 8-9-76 Finished pulling out of hole with impression block - showed sat down on top of liner. Ran in hole with 5 5/8" Economill and milled on bottom safety sub - pushed same to bottom. Circulated and pulled out of liner. Circulated bottoms up.
- 8-10-76 Pulled out of hole. Ran in hole with 7 5/8" Servco tapered mill. Found tight casing at 4114' - milled from 4114' to 4118'. Ran in hole to top of liner.
- 8-11-76 Pulled out of hole with tapered mill. Ran in hole with Baker fullbore retrievable retainer. Set tool at 8337' and tested casing from surface under 1300 psi for 20 minutes. Bled off to 1000 psi. Pulled up to 7760' and tested under 1300 psi - bled off to 1100 psi in 12 minutes. Pulled up to 4750'. Appears retainer is leaking.
- 8-12-76 Tested casing at 4750' - under 1600 psi. Bled off to 1500 psi in 7 minutes, Pulled up to 4000' test with 2000 psi for 20 minutes,  
Pulled up to 3000' test with 2500 psi for 20 minutes,  
Pulled up to 2500' test with 2800 psi for 20 minutes,  
Pulled up to 2000' test with 3100 psi for 20 minutes,  
Pulled up to 1550' test with 3500 psi for 20 minutes,  
Pulled up to 500' test with 4000 psi for 20 minutes.  
Ran in hole to 4750', tested with 1600 psi for 20 minutes. Ran in hole testing drill pipe. Tested casing at 8330' with 1300 psi for 20 minutes. Found leak in drill pipe at 4700' and 7730'.

- 8-13-76 Pulled out of hole with Baker fullbore retrievable retainer. Ran drill pipe in hole, to lay down. Laying down 2 7/8" drill pipe.
- 8-14-76 Finished laying down 2 7/8" drill pipe and 4 3/4" drill collars with McCullough Services. Ran junk catcher to 8344' - wire line measurement. Ran and set Baker Retrieva "D" packer - top of packer at 8295'. Picked up 2 7/8" tubing.
- 8-15-76 Idle.
- 8-16-76 Picked up production equipment and 2 7/8" tubing plug. Tested Baker seal assembly to 5000 psi. Tested tubing to 5000 psi. Each test for one minute. Removed collars and installed new collars with Baker seal.
- 8-17-76 Finished picking up 2 7/8" tubing and tested tubing to 5000 psi for one minute each test. Changed out collars with new collars using Baker seal. Located Baker Retrieva "D" packer at 8295' and spaced out tubing to land.
- 8-18-76 Dressed tubing hanger, latched into Baker Retrieva "D" packer at 8295'; Pulled 25,000# over weight of tubing to check latch. Landed tubing with 8,000#, installed tubing hanger plug. Removed B.O.P.E. Installed Christmas tree and tested to 5000 psi - O.K. Changed well fluid to waste lease salt water. Using Archer-Reed Wireline Services, ran and set Camco A-2 blanking plug in No-Go nipple. Tested packer and seals with 1800 psi for 20 minutes. Rig released at 4:00 p.m. Blanking plug left in No-Go nipple.

**DIVISION OF OIL AND GAS  
BLOWOUT PREVENTION EQUIPMENT MEMO**

T 271

Operator So Calif Gas Co Well "IW" 79 Field Aliso CA County LA

VISITS: Date 7-26-76 Engineer P.R. Wygle Time 1900 to 2100 Operator's Rep. A. Smith Title foreman  
 2nd \_\_\_\_\_ to \_\_\_\_\_

Casing record of well: C ( )<sup>3</sup> (7-16-76)

OPERATION: Testing (inspecting) the blowout prevention equipment and installation.  
 DECISION: The blowout prevention equipment and installation are approved.

Proposed Well Opns: Gvl park & check use cont. MPSP: \_\_\_\_\_ psi  
 Hole size: \_\_\_\_\_ " fr. \_\_\_\_\_ " to \_\_\_\_\_ " to \_\_\_\_\_ " & \_\_\_\_\_ " to \_\_\_\_\_ "

**REQUIRED  
BOPE CLASS: III SM**

CASING RECORD (BOPE ANCHOR STRING ONLY)					Cement Details		Top of Cement	
Size	Weight(s)	Grade (s)	Shoe at	CP at			Casing	Annulus
8 5/8			B4M					

BOP STACK							a	b	a/b	TEST DATA				
API Symb.	Ram Sz.	Mfr.	Model or Type	Size In.	Oper. Press	Date Last Overhaul	Gal. to Close	Rec. Time Min.	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press	
A	-	Wyg	GK	B	5M	-	4.5	1:33	7.5	-	-	7-25-76	500	
RAS	7 1/2	Wyg	✓	✓	✓	-	2.6	1	2.0	-	-	✓	✓	
			✓	✓	✓	-	✓	1	2.0	-	-	✓	✓	
S														

ACTUATING SYSTEM			
Accum. Unit(s)	Wkg. Press.	3000 psi	
Total Rated Pump Output	_____ gpm		
Distance From Well Bore	60 ft.		
Mfr.	Accum. Cap.	Precharge	
1	Wagner	60 gal.	1000 psi
2		gal.	psi
CONTROL STATIONS		Elec.	Hyd.
✓	Manif. at accum. unit		✓
✓	Remote at Drlr's stn.	Wyg	
Other: _____			
EMERG. BACKUP SYST.		Press.	Wkg. Fl.
✓	N2 Cyl	No: 3	Tpe: C
	1	2000	5.0 gal
	2	2000	1.2 gal
	3	2000	7.2 gal
	4		gal
	5		gal
	6		gal
Other: _____			

AUXILIARY EQUIPMENT						
	No.	Sz. (in)	Rated Press.	Connections		
				Weld	Flan.	Thrd.
✓	Fill-Up Line					
✓	Kill Line	2	5M			✓
✓	Control Valve(s)	1		✓		
✓	Check Valve(s)					
✓	Auxil. Pump Connec.					
✓	Choke Line	3	5M			✓
✓	Control Valve(s)	1		✓		
✓	Pressure Gauge					
✓	Adjustable Choke(s)	2	3	✓		
✓	Bleed Line	3				
✓	Upper Kelly Cock					
✓	Lower Kelly Cock					
✓	Standpipe Valve					
✓	Standpipe Pressure Ga.					
✓	Pipe Safety Valve	2 1/2	5M			✓
✓	Internal Preventer					

HOLE FLUID MONITORING EQUIPMENT			Alarm	Class
Calibrated Mud Pit	Aud.	Vis.		A
Pit Level Indicator				B
Pump Stroke Counter				C
Pit Level Recorder				
Flow Sensor				
Mud Totalizer				
Calibrated Trip Tank				
Other:				

REMARKS: \_\_\_\_\_

Hole Fluid Type	Weight	Storage-Pits

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

Report on Operations

No. T. 276-271

Mr. P. S. Magruder, Jr., Agent  
Southern Calif. Gas Co.  
P.O. Box 54790 Terminal Annex  
Los Angeles, Calif. 90054

Santa Paula, Calif.  
Sept. 21, 1976

DEAR SIR:

Operations at well No. TU 79, API No. 037-21361, Sec. 28, T. 3N, R. 16W,  
S.B., B & M. Aliso Canyon Field, in Los Angeles County, were witnessed  
on 7/26/76. Mr. P. R. Wyle, representative of the supervisor was  
present from 1900 to 2100. There were also present A. Smith, foreman

Present condition of well: No additions to casing record since proposal dated 7/16/76.

The operations were performed for the purpose of testing the blowout prevention equipment and  
installation.

DECISION:

THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

b

HAROLD W. BERTHOLF

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

JOHN F. MATTHEWS, JR.

State Oil and Gas Supervisor

By John L. Gordon Deputy

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 276-248

Mr. P. S. Magruder, Jr., Agent  
Southern California Gas Co.  
P.O. Box 54790 Terminal Annex  
Los Angeles, Calif. 90054

Santa Paula, Calif.  
July 21, 1976

DEAR SIR:

(037-21361)

Your proposal to test and repair casing Well No. IW 79  
Section 28, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County,  
dated 7/16/76, received 7/19/76, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. A COPY OF THIS APPROVAL SHALL BE POSTED AT THE WELL SITE PRIOR TO COMMENCING OPERATIONS.
2. Blowout prevention equipment, at least of the Division of Oil and Gas Class III rating, shall be installed and maintained in operating condition at all times.
3. THIS DIVISION SHALL BE NOTIFIED TO WITNESS A PRESSURE TEST OF THE BLOWOUT PREVENTION EQUIPMENT BEFORE COMMENCING OPERATIONS.

Blanket Bond  
JHVB

HAROLD W. BERTHOLF  
JOHN F. MATTHEWS, Jr., State Oil and Gas Supervisor  
By *John L. [Signature]* Deputy

JUL 19 1976

DIVISION OF OIL AND GAS  
Notice of Intention to Rework Well

This notice and indemnity or cash bond shall be filed, and approval given, before rework begins. If operations have not commenced within one year of receipt of the notice, this notice will be considered cancelled. SANTA PAULA, CALIFORNIA

FOR DIVISION USE ONLY		
BOND	FORMS	
	114	121
BB	✓	✓

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well No. I.W. #79, API No. \_\_\_\_\_, Sec. 28, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County. The present condition of the well is as follows:

1. Total depth. 8987'

2. Complete casing record, including plugs and perforations:

13 3/8" cemented 803'  
8 5/8" cemented 8404', WSO 8394'  
609' 6 5/8" landed 8980', top of liner 8371'  
30-mesh slots 8980'-8673', blank and Lynes packer  
8673'-8661', 18-mesh wire wrapped 8661'-8397'  
Gravel packed with 160 cu.ft. 12-20 gravel

3. Present producing zone name SESNON and FREW Zone in which well is to be recompleted -

4. Present zone pressure 3400 psi New zone pressure -

5. Last produced Gas Storage Well  
(Date) (Oil, B/D) (Water, B/D) (Gas, Mcf/D)

6. Last injected \_\_\_\_\_  
(Date) (Water, B/D) (Gas, Mcf) (Surface pressure, psig.)

The proposed work is as follows:

1. Move in rig, kill well, install B.O.P.E. and pressure test.
2. Pull tubing. Clean out to 8980'. Wash and re-gravel pack.
3. Pressure test 8 5/8" casing. Perform any remedial work indicated by pressure testing.
4. Run packer, tubing and safety valve.
5. Return well to gas storage service.

It is understood that if changes in this plan become necessary we are to notify you immediately.

Address P.O. Box 3249, Terminal Annex  
(Street)

Los Angeles California 90051  
(City) (State) (Zip)

Telephone Number (213) 689-3561

SOUTHERN CALIFORNIA GAS COMPANY

(Name of Operator)

By P.S. Magruder, Jr. 7-16-76  
(Name) (Date)

Type of Organization Corporation  
(Corporation, Partnership, Individual, etc.)

DIVISION OF OIL AND GAS

WELL SUMMARY REPORT

SUBMIT IN DUPLICATE

DIVISION OF OIL AND GAS  
RECEIVED

MAR 11 1975

Operator Pacific Lighting Service Co. Well No. IW 79

Sec. 28, T. 3N, R. 16W, S.B. B. & M. Aliso Canyon Field Los Angeles County.

Location From Station 84 1755.4' South and 5820.5' West at 90°  
(Give location from property or section corner, or street center lines)

Elevation of ground above sea level 2674 feet. USGS

All depth measurements taken from top of kelly bushing which is 17 feet above ground.  
(Derrick Floor, Rotary Table or Kelly Bushing)

In compliance with Sec. 3215, of the Public Resources Code, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date March 3, 1975

Signed P. S. Magruder, Jr.  
P. S. Magruder, Jr.  
Title Agent  
(President, Secretary or Agent)

E. A. Olson  
(Engineer or Geologist)

B. F. Jones  
(Superintendent)

Commenced drilling July 5, 1974

Completed drilling August 18, 1974

Total depth 8987 Plugged depth None

Junk None

GEOLOGICAL MARKERS	DEPTH
<u>Top Sesnon S-4</u>	<u>8400</u>
<u>Top Frew</u>	<u>8890</u>

Geologic age at total depth: Eocene

Commenced producing \_\_\_\_\_ (Date) \_\_\_\_\_ Flowing/gas lift/pumping  
(Cross out unnecessary words)

Name of producing zone Sesnon & Frew

Initial production  
Production after 30 days

Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
	<b>GAS</b>	<b>STORAGE</b>	<b>WELL</b>		

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Drilled	Number of Sacks of Cement	Depth of Cementing if through perforation
<u>13-3/8"</u>	<u>803</u>	<u>sfc</u>	<u>54.5#</u>	<u>N</u>	<u>S</u>	<u>K</u>	<u>17-1/2"</u>	<u>344</u>	
<u>8-5/8"</u>	<u>8404</u>	<u>sfc</u>	<u>36#</u>	<u>N</u>	<u>S</u>	<u>K &amp; N</u>	<u>11"</u>	<u>995</u>	
<u>6-5/8"</u>	<u>8980</u>	<u>8371</u>	<u>24#</u>	<u>N</u>	<u>S</u>	<u>K</u>	<u>14"</u>		<u>Gravel packer liner</u>

PERFORATED CASING  
(Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

8-5/8" - Four 1/2" jet holes at 8394'-WSO  
6-5/8" - Perforated liner 8371-8980.

Was the well directionally drilled? Yes Electrical Log Depths 8426' & 8970' (Attach Copy of Log)

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION

## DIVISION OF OIL AND GAS

### History of Oil or Gas Well

OPERATOR Pacific Lighting Service Co. FIELD Aliso Canyon  
Well No. IW 79, Sec. 28, T. 3N, R. 16W, S.B. & M. S.B. & M.  
Date March 3, 19 75 Signed P. S. Magruder, Jr.  
P. O. Box 54790, Terminal Annex P. S. Magruder, Jr.  
L. A. Calif. 90051, (213) 689-3561 Title Agent  
(Address) (Telephone Number) (President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting and initial production data.

Date	
1974	
7-5	Peter Bawden Drilling, Inc., Contractor, using rig #10, spudded 17-1/2" hole at 8:30 PM and drilled to 139'.
7-6	Drilled 17-1/2" hole to 511'. Mud: 69#, 43 sec.
7-7	Drilled 17-1/2" hole to 804'. Mud: 69#, 40 sec.
	<u>TO CEMENT 13-3/8" SURFACE CASING:</u> Ran 20 joints or 806.16' of 13-3/8", 54.5#, K-55 new seamless buttress casing and cemented same at 803' with 560 cu. ft. of 2% Lodense A, followed by 114 cu. ft. of class "G" (20% excess) cement. Preceded cement with 100 cu. ft. of water and displaced with 662 cu. ft. of mud. Good circulation throughout job. Moved casing 5' while displacing. Cement returns to surface on last 20 cu. ft. of displacement. Cement in place at 7:55 PM. Used Byron Jackson bulk cement and power. Casing filled on bottom with TIW float shoe with one centralizer 10' up from shoe. Shoe and bottom 3 joints made up with thread locking compound. Cut and recovered 13-3/8" casing.
7-8 thru 7-9	Welded on 13-3/8"-5000# Gulfco casing head and tested Ok with 3500 psi. Installed double Shaffer and Hydril B.O.P. and tested Ok with 2000 psi water pressure. Repaired leaks. Tested B.O.P. with 2500 psi nitrogen repairing leaks in Shaffer, mud cross and Hydril. All retested Ok with 2500 psi nitrogen. Approved by Larry Bright of the Division of Oil and Gas. Drilled out shoe and drilled 11" hole to 934'.
7-10	Drilled 11" hole to 1672'. Mud: 69#, 40 sec., 18.8 cc., 7% solids.

IW 79 History (Cont'd.)

Page 2

1974

- 7-11 Drilled 11" hole to 2195'.  
Mud: 73#, 40 sec., 14.6 cc., 9% solids.
- 7-12 Drilled 11" hole to 2863'. Tight hole at 2155'. Worked pipe free.  
Mud: 71#, 50 sec., 8.9 cc., 8% solids.
- 7-13 Drilled 11" hole to 2988' and Dyna-Dril #1, 11" hole to 3178'.  
Mud: 75#, 47 sec., 9.6 cc., 12% solids.
- 7-14 Dyna-Dril #1 & #1A, 11" hole to 3354'. Reamed 2230-2270', 2360-2390', 2860-2930', 2952-3069'.  
Mud: 72#, 38 sec., 10.2 cc., 9% solids.
- 7-15 Reamed 3069-3354' and directionally drilled 11" hole to 3791'.  
Mud: 72#, 38 sec., 9.6 cc., 9% solids.
- 7-16 Directionally drilled 11" hole to 4161'.  
Mud: 72#, 38 sec., 9.0 cc., 9% solids.
- 7-17 Directionally drilled 11" hole to 4379'.  
Mud: 73#, 38 sec., 8.6 cc., 11% solids.
- 7-18 Directionally drilled 11" hole to 4702'.  
Mud: 72#, 38 sec., 8.2 cc., 10% solids.
- 7-19 Directionally drilled 11" hole to 4815' and Dyna-Dril #2 to 4863'.  
Mud: 72#, 40 sec., 8.0 cc., 10% solids.
- 7-20 Dyna-Dril #2 & 2-A, 11" hole to 4929'.  
Mud: 73#, 40 sec., 8.2 cc., 12% solids.
- 7-21 Dyna-Dril #2A, 11" hole to 4946'. Reamed 4815' to 4946' and directionally drilled 11" hole to 5072'.  
Mud: 74#, 38 sec., 5.4 cc., 12% solids.
- 7-22 Directionally drilled 11" hole to 5242'.  
Mud: 73#, 40 sec., 5.8 cc., 11% solids.
- 7-23 Directionally drilled 11" hole to 5480'. Reamed 5420-5480'.  
Mud: 74#, 48 sec., 6.6 cc., 13% solids.
- 7-24 Directionally drilled 11" hole to 5630'.  
Mud: 73#, 36 sec., 7.2 cc., 12% solids.

IW 79 History (Cont'd.)

Page 3

- 7-25 Directionally drilled 11" hole to 6020'.  
Mud: 74#, 48 sec., 6.6 cc., 13% solids.
- 7-26 Directionally drilled 11" hole to 6431'.  
Mud: 73#, 36 sec., 7.2 cc., 12% solids.
- 7-27 Directionally drilled 11" hole to 6764'.  
Mud: 74#, 41 sec., 7.8 cc., 13% solids.
- 7-28 Directionally drilled 11" hole to 7193'.  
Mud: 72#, 40 sec., 8.2 cc., 9% solids.
- 7-29 Directionally drilled 11" hole to 7383'. Work pipe free in tight hole 6008-6098'. Reamed 6008-6168' and 7245-7275'.  
Mud: 70#, 38 sec., 8.4 cc., 8% solids.
- 7-30 Directionally drilled 11" hole to 7539'. Tight hole at 3366'. Measured in and corrected depth for 3' deeper.  
Mud: 70#, 38 sec., 8.4 cc., 8% solids.
- 7-31 Directionally drilled 11" hole to 7713'.  
Mud: 70#, 44 sec., 7.8 cc., 9% solids.
- 8-1 Directionally drilled 11" hole to 7852'.  
Mud: 70#, 42 sec., 7.2 cc., 7% solids.
- 8-2 Directionally drilled 11" hole to 8009'.  
Mud: 70#, 42 sec., 7.4 cc., 8% solids.
- 8-3 Directionally drilled 11" hole to 8190'.  
Mud: 70#, 40 sec., 7.8 cc., 8% solids.
- 8-4 Directionally drilled 11" hole to 8398'.  
Mud: 71#, 40 sec., 8 cc., 8% solids.
- 8-5 Directionally drilled 11" hole to 8490'. and conditioned hole for logs. Mud: 70#, 39 sec., 8.2 cc., 7% solids.
- 8-6 Ran Welex Induction electric log 8426' to 800'.  
Directionally drilled 11" hole to 8551'.  
Mud: 70#, 38 sec., 8.1 cc., 7% solids.
- 8-7 Directionally drilled 11" hole to 8661'.  
Ran Welex Induction electric log and hole caliper.  
Mud: 70#, 38 sec., 8.1 cc., 7% solids.

- 8-8 Conditioned hole for casing. Commenced running 8-5/8" casing. Lost circulation at 8400'.
- 8-9 Ran 203 joints or 8423' of 8-5/8" 36#, K & N, 8rd. LT&C new seamless casing and cemented same at 8404' with 2150 cu. ft. of 1-1 Pozmix, 2% gel, followed by 200 cu. ft. of class "G" mixed with 2% calcium chloride. Start mixing at 9:40 AM. Finish mixing at 10:55. Preceded cement with 200 cu. ft. of water and displaced one top rubber plug with 2900 cu. ft. of mud to bump plug under 3500 psi final pressure at 12:40 PM. No cement to surface, no circulation. Used Byron Jackson.

CASING DETAIL:

Bottom 71 joints or 2932.73' (8404-5471) 8-5/8" 36#, N-80, 8rd. LT&C fitted on bottom with Halliburton fill-up shoe, on top of 2nd joint with Halliburton float collar. Metal petal cement basket 10' above shoe with turbolizer 2' above shoe, 2 cement seal units immediately above basket, 2 cement seal units 20' above lower seal unit, turbolizer at top of joint and above upper seal unit. Centralizers across collars of 2nd., 3rd., 7th., 11, 15, 19, 23, 24th. with metal petal basket. Centralizers on 30, 36, 42, 48 joint.

Next 132 joints 5490.28 (5471-sfc) 8-5/8" 36#, K-55, 8rd., LT&C fitted with centralizers on 83, 84, 85, 103, 104, 105, 107, 109, 111, 113, 115, & 117. Metal petal cement basket on 84 & 104.

Total 203 joints or 8423.01' (8404-sfc)

- 8-10 Cut and recovered 8-5/8" casing. Installed slips and packing and installed Gulfco 10"-5000# tubing head and tested Ok with 3000 psi for 15 minutes. Reinstalled B.O.P. and tested CSO with 2000 psi water pressure.
- 8-11 Tested pipe rams, CSO Hydril and mud cross with 3000 psi nitrogen for 30 minutes each. Measured in hole and located cement at 8303'. Drilled out cement to 8400'.

1974

- 8-12 Ran Welex Microseismogram log with collar locator. Ran 4-1/2" O.D. jet gun and shot four 1/2" jet holes at 8394', IEL depth. Closed rams and holes held 1800 psi for 10 minutes Ok.
- TO TEST WATER SHUT-OFF ON HOLES AT 8394' IN 8-5/8" CASING: Ran Johnston tester on 4-1/2" drill pipe and set packer at 8351' with tail to 8348'. Opened tester at 3:20 PM. Faint blow then dead. One hour test. Recovered 95' rise in 4-1/2" drill pipe. Charts Ok. Water shut-off witnessed and approved by Engineer for Division of Oil & Gas.
- 8-13 Drilled out cement and shoe and drilled 7-5/8" hole to 8729'. Three hours rig repair.  
Mud: 68#, 33 sec., 12.6 cc., 7% solids.
- 8-14 Down 7 hours rig repair.  
Drilled 7-5/8" hole to 8751' where hole commenced sloughing. Pulled to shoe and increased viscosity. Reamed from 8719' to 8736' while conditioning mud.
- 8-15 Reamed to 8751 and drilled 7-5/8" hole to 8789'.  
Mud: 68#, 54 sec., 6.4 cc., 8% solids.
- 8-16 Drilled 7-5/8" hole to 8890'.  
Mud: 70#, 55 sec., 6.6 cc., 10% solids.
- 8-17 Drilled 7-5/8" hole to 8954'.  
Mud: 70#, 53 sec., 6.6 cc., 10% solids.
- 8-18 Reamed 8930-8954 and drilled 7-5/8" hole to 8987' TOTAL DEPTH. Commenced logging.
- 8-19 Completed logging Welex I.E., A.V., S.W.N. & C.D. logs.  
Ran Grant Oil Tool hole opener #1 and opened 7-5/8" hole to 14" from 8405' to 8451'.
- 8-20 Ran Hole opener #2 and opened hole to 14" to 8473'. Lost driver sub off hole opener. Ran Brown Oil Tool overshot and recovered all of fish.
- 8-21 Ran flat bottom mill and cleaned out to 8987'. Ran Hole opener #3 and opened hole to 14" to 8506'.
- 8-22 Ran hole opener #4 & #5 and opened hole to 14" to 8598'. Gauge hole 8405-8598'.

1974

8-23 Ran H.O. #5 and opened hole to 14" to 8630'. Cleaned out to 8983' with 7-5/8" bit, pulled to shoe and change over drilling fluid to lease salt water treated with poly carb R.  
Mud: 65#, 35 sec., 7.7 cc., 1% solids.

8-24 Complete change over and circulated hole clean from 8983'.

8-25 Ran Welex caliper log 8404'-8979'. Made up and ran 6-5/8" liner with gravel packing tools. Set Burns lead seal hanger at 8371' and inflated Lynes external casing packer rubbers at 8670'. Tested lead seal Ok with 1000 psi and Lynes packer seal Ok with 500 psi.

8-26 LINER DETAIL:

Bottom 11 joints or 307.56' (8980-8673) 6-5/8", 24#, K-55, 8rd. ST&C with couplings turned to 7.092" O.D. Perforated with 32 rows, 30 mesh slots 2-1/2" & 6" centers. Top 10' blank. Bull nose on bottom.

Next 11.40' (8673-8661) 7-5/8" Lynes external casing packer.

Next 10 joints or 283.84' (8661-8377) 6-5/8", 24#, K-55, 8rd. ST&C with couplings turned to 7.092" O.D. Layne & Bowler Gru-V-Kut wire weld 0.018" gauge stainless steel screen, 24 grooves, 72 1/4" slots per foot. Top joint is "Tell Tale" with 2' of wire weld at 8397.

Next 1.87' (8377-8375) B & W port collar

Next 4.0" (8357-8371) Burns 8-5/8" 36# x 6-5/8" 24# lead seal liner hanger with hold down slips.

Total 21 joints or 608.67' (8980-8371)

Commenced gravel packing with B & W equipment at 8:00 AM and pumped in 155 cu. ft. of 12-20 mesh (.030" - .060") Layne and Bowler washed gravel in 7-3/4 hours. Backscuttled 3 cu. ft.

Five hours rig repair.

1974

- 8-27 Ran B & W washer and washed wire weld liner. Pumped in 5 cu. ft. of gravel and backscuttled 1 cubic foot. Rewashed liner and  
 &  
 8-28 pumped in 6 cu. ft. of gravel and backscuttled 2 cu. ft. Total gravel in place is 160 cu. ft. Theoretical fill from hole caliper is 183 cu. ft. Tested port collar closed with 1000 psi. Tested Lynes external casing packer holding with 400 psi.
- 8-29 Ran Johnston tester on 4-1/2" drill pipe and 10 joints of 2-7/8" tubing. Set packer at 8645' in blank section of liner below Lynes external casing packer. Used 500' of water cushion. Fluid dropped in annulus. Pulled up and reset packer 2' higher. Fluid again dropped in annulus indicating Lynes packer not holding.
- 8-30 Layed down drill pipe. Measured and picked up tubing.
- 8-31 Ran 2-7/8" 6.5# mixed K-55 & N-80, 8rd. EUE and seal lock used tubing. Tubing Hydro tested to 5000 psi and broached with 2.347 O.D. broach. Landed tubing in doughnut with 12,000# set on packer at 8308'. Tested packer and doughnut Ok with 1200 psi for 15 minutes.

TUBING DETAIL

Bottom	0.44'	2-7/8" bell collar	8344.64 - 8344.20
Next	31.40	2-7/8" 8rd. EUE	8312.80
Next	1.12	2-7/8" x 3-1/2" crossover	8311.68
Next	5.38	8-5/8" 36# Brown Oil Tool Husky M-1 packer	8306.30
Next	1.08	3-1/2" x 2-7/8" crossover	8305.22
Next	0.80	2-7/8" Baker "R" No-Go nipple	8304.42
Next	31.58	2-7/8" 8rd. EUE	8272.84
Next	2.33	2-7/8" Udell landing nipple	8270.51
Next	31.00	2-7/8" 8rd. EUE	8239.51
Next	2.33	2-7/8" Udell landing nipple	8237.18
Next	31.59	2-7/8" 8rd. EUE	8205.59
Next	2.30	2-7/8" Macco sliding sleeve with shield (shift up to open)	8203.29
Next	0.55	2-7/8" 8rd. to seal lock crossover	8202.74
Next	6214.94	202 jts. of 2-7/8" seal lock	1987.80
Next	0.82	2-7/8" seal lock to 8rd. crossover	1986.98
Next	1969.98	63 jts. of 2-7/8" 8rd. with doughnut on top	17.00
Next	17.00	Kelly bushing to doughnut datum	

Removed BOP and installed Gulfco 8"-5000# Xmas tree and tested same Ok with 3500 psi. RIG RELEASED at 11:00 PM, 8-31-74.

28-3-16

DIVISION OF OIL AND GAS  
RECEIVED

OCT 22 1974

# DIRECTIONAL DRILLING REPORT

SANTA PAULA, CALIFORNIA

PACIFIC LIGHTING SERVICE COMPANY

ALISO CANYON

WELL NO. IW-79

JOB NO \_\_\_\_\_

DATE 7-5-74

## U.S.

DIRECTIONAL DRILLING SYSTEMS

LONG BEACH, CALIFORNIA

# SURVEY RECORD

5788-WEST & 1769-SOUTH FROM STA. #94

GIRD.....2674  
K.B.....17  
ELEV.....2691

JOB NO IM-79 ONE DATE 7-5-74

MEASURED DEPTH	DRIFT ANGLE	TRUE VERTICAL DEPTH	COURSE DEVIATION	DRIFT DIRECTION	RECTANGULAR COORDINATES				REMARKS	
					NORTH	SOUTH	EAST	WEST		
1	208	207	95	S 46 W		3	15	3	27	
2	389	388	91	S 28 W		6	64	5	12	
3	573	572	85	S 03 E		11	45	4	87	
4	664	663	82	S 02 W		13	85	4	95	
5	908	907	76	S 12 W		19	03	6	06	
6	1122	1121	60	S 23 W		26	76	9	34	
7	1350	1349	38	S 45 W		33	80	16	38	
8	1568	1567	13	S 65 W		38	22	25	86	
9	1672	1670	99	S 69 W		40	17	30	94	
10	1885	1883	75	S 66 W		44	33	40	28	
11	2073	2071	53	S 71 W		47	27	48	81	
12	2324	2322	29	S 84 W		48	41	59	70	
13	2543	2541	16	S 79 W		49	87	67	20	
14	2763	2761	09	S 66 W		52	21	72	46	
15	2988	2985	88	S 27 W		60	95	76	91	
16	3054	3051	79	S 56 W		62	88	79	77	
17	3124	3121	68	N 85 W		62	54	83	73	
18	3188	3185	48	N 71 W		60	90	83	48	
19	3251	3248	53	N 55 W		58	38	92	08	
20	3314	3311	11	N 29 W		53	82	94	61	
21	3500	3495	07	N 12 W		26	93	100	33	
22	3626	3618	54	N 14 W			56	106	41	
23	3813	3798	74	N 15 W	45	71		119	34	
24	3939	3918	91	N 16 W	82	13		129	78	
25	4107	4078	91	N 12 W	132	23		140	43	
26	4371	4330	34	N 12 W	210	95		157	16	
27	4671	4619	43	N 6 W	290	68		165	54	
28	4807	4750	80	N 5 W	325	75		168	61	
29	4846	4788	68	N 10 W	344	88		170	22	
30	4881	4822	41	N 12 W	344	02		172	16	
31	4911	4851	25	N 14 W	352	04		174	17	
32	5003	4939	35	N 25 W	376	07		185	37	

D.D.

# SURVEY RECORD

JOB NO. 14-79 TWO DATE 7-5-74

	MEASURED DEPTH	DRIFT ANGLE	TRUE VERTICAL DEPTH	COURSE DEVIATION	DRIFT DIRECTION	RECTANGULAR COORDINATES				REMARKS	
						NORTH	SOUTH	EAST	WEST		
33	5067	18.30	5000	04	N 28 W	394	00		194	90	
34	5235	19.30	5158	40	N 29 W	443	05		222	09	
35	5392	19.30	5306	39	N 29 W	488	89		247	50	
36	5480	19.30	5389	34	N 28 W	514	83		261	29	
37	5630	20.0	5530	29	N 28 W	560	13		285	37	
38	5871	20.0	5756	76	N 28 W	632	91		324	07	
39	6063	20.30	5955	35	N 27 W	699	06		397	77	
40	6457	21.15	6303	90	N 24 W	822	89		412	90	
41	6773	21.0	6598	92	N 24 W	926	35		498	96	
42	7088	19.0	6866	76	N 24 W	1020	04		500	67	
43	7307	18.45	7104	13	N 24 W	1084	35		529	30	
44	7490	19.0	7277	16	N 24 W	1138	78		553	54	
45	7711	20.0	7484	83	N 24 W	1207	84		584	29	
46	7852	20.30	7616	90	N 23 W	1253	29		603	58	
47	8009	22.15	7762	21	N 24 W	1307	59		627	76	
48	8190	23.15	7928	51	N 23 W	1373	36		655	68	
49	8400	23.0	8121	82	N 20 W	1450	46		685	74	
50	8495	15.30	8213	36	N 20 W	1474	32		692	42	
51	8600	15.30	8314	54	N 20 W	1500	69		702	02	
52	8851	15.30	8556	41	N 20 W	1563	72		724	96	
53	8890	14.0	8594	25	N 18 W	1572	69		727	87	
54	8930	14.0	8633	06	N 18 W	1561	96		736	86	
55	8987	13.30	8688	49	N 17 W	1594	62		734	75	
HORIZONTAL DEPARTURE 1735.76° N 24.44° W											

S-4  
S-8  
E2  
T.D.

8987 MD  
8688 VD  
5977 VSS

1500N

7490'

1000N



6457'

500N

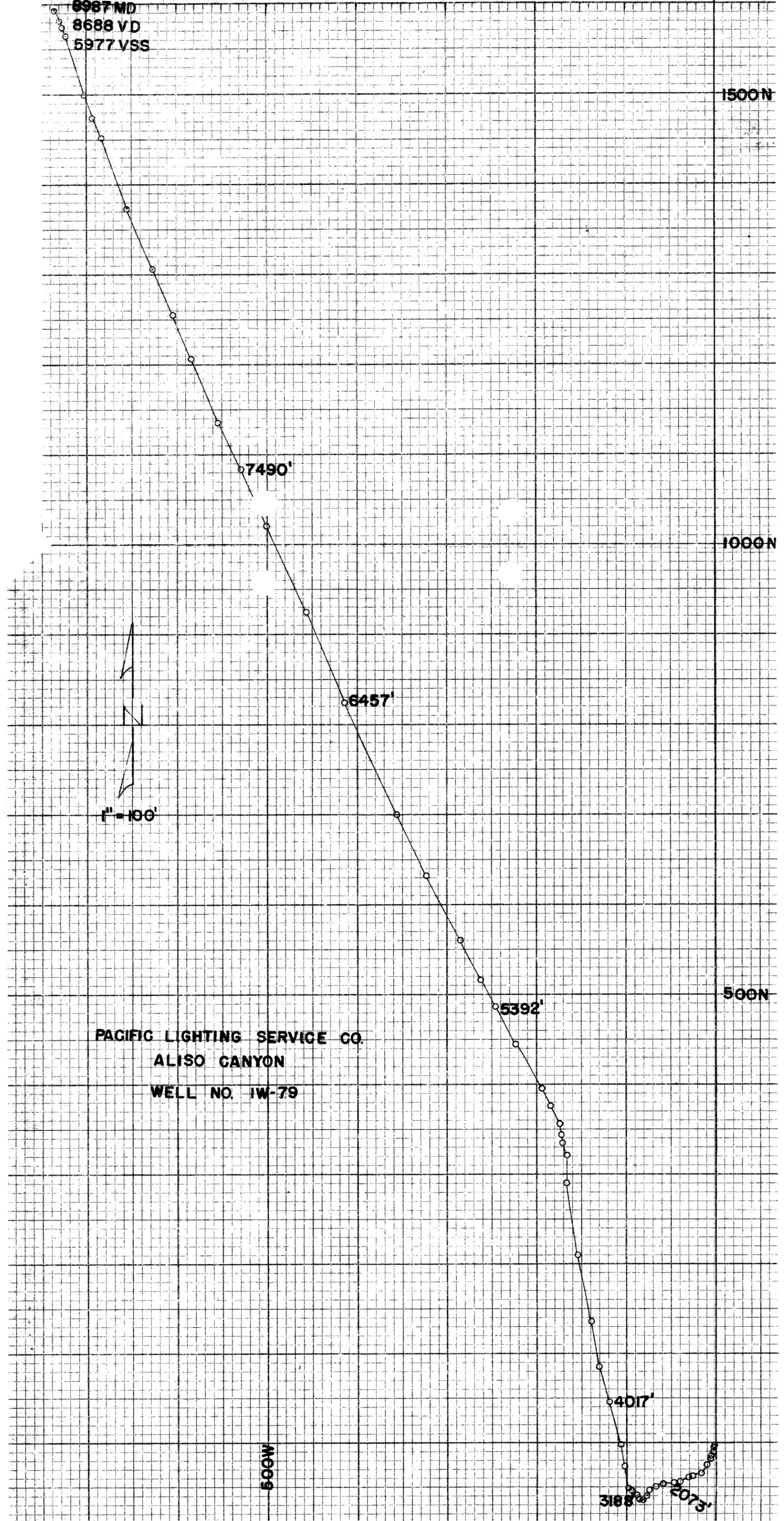
PACIFIC LIGHTING SERVICE CO.  
ALISO CANYON  
WELL NO. IW-79

5392'

500W

4017'

3188'  
2073'



RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Report on Operations

No. T 274-307

Mr. P. S. Magruder, Jr.  
Pacific Lighting Service Co.  
P. O. Box 54790, Terminal Annex  
Los Angeles, California 90054

Santa Paula, Calif.  
September 11, 1974

DEAR SIR:

(037-21361)

Operations at well No. IV 79, Sec. 28, T. 3N, R. 16W, S.B. B & M.  
Aliso Canyon Field, in Los Angeles County, were witnessed  
on August 12, 1974. Mr. P. R. Wylie, representative of the supervisor was  
present from 1830 to 2030. There were also present Mr. J. Vandagriff, contract  
foreman

Present condition of well: 13 3/8" cen. 8034', 8 5/8" cen. 8404', perf. 8394' WSO T.D. 8661'

The operations were performed for the purpose of testing the 8 5/8" shut-off by means of a  
formation tester.  
Mr. \_\_\_\_\_ reported:

**THE 8 5/8" SHUT-OFF AT 8394' IS APPROVED.**

b  
cc: Operator

JOHN F. MATTHEWS, JR.  
State Oil and Gas Supervisor

By LOCP Ritzius Deputy

FORMATION TESTER WSO MEMO

T 307

Co. Pac Lighting Svc Co Well IW 79 Field Aliso CR County LA

VISITS:	Date	Engineer	Time	Operator's Rep	Title
1.	<u>Aug 12, 1974</u>	<u>P.R. Wygle</u>	<u>1830-2030</u>	<u>J. Vandagriff</u>	<u>contract foreman</u>
2.					
3.					

PRESENT MECHANICAL CONDITION 13 3/8" cem 803'; 8 5/8" cem 8404'; perf 8394' WSO.  
ID 8661'.

OPERATION: Testing the 8 5/8" shut-off by means of a formation tester.

DECISION: The 8 5/8" shut-off at 8394' is (not) approved.

SHUT-OFF DATA: 8 5/8" 36 lb csg was cem around the shoe at 8404' on Aug 8, 1974, in a 11" hole with 2150 sx/cf of cem mixed with pp2mix (1:1) 52% followed by 200 cf of cem w/ 2% CaCl2 calc to fill the annulus to       ' below the surf.

Cem bridge 8390 to/at 8404'. Cleaned out to 8390' for this test.

A Johnston tester was run into the hole on 4 1/2" dp/tbg with        of        cushion. Packer(s) set at 8351'. Tailpiece to 8344'. Tester valve, with 1/2 bean, was open for 1 hr. During this interval there was a faint blow thruout the test

THE OPERATOR'S REP REPORTED:

1. Drilled 9 7/8" hole 804-8661 & opened hole to 11" to 8400'.
2. On 8 Aug 74 cement 8 5/8" csg as noted above.
3. CO cem 8303-8313, drilled out the float collar, & drilled out cem 8313-8390

4. The 8 5/8" csg was perf'd with 4, 1/2" holes at 8394'.
5. The tester was run as noted above.

THE ENGINEER NOTED:

HOLE FLUID WT.  
 CHART PRESSURES  
 TOP BTM OUTSIDE (CALC)

IH  
 IF  
 FF  
 FH

1. When the pipe was removed, a net rise of 130' of drilling fluid was found above the tester.
2. The pressure recorder charts indicated that the tester had functioned properly.

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
**DIVISION OF OIL AND GAS**

**Report on Operations**

No. T. 274-253

Mr. F. S. Magruder, Jr., Agent  
Pacific Lighting Service Co.  
P. O. Box 64790, Terminal Annex  
Los Angeles, California 90054

Santa Paula Calif.  
July 19, 1974

DEAR SIR: (037-21361)

Operations at well No. IN 79, Sec. 28, T. 3N, R. 16W, S.D. B & M.  
Aliso Canyon Field, in Los Angeles County, were witnessed  
on July 2, 1974. Mr. L. Bright, engineer, representative of the supervisor was  
present from 0730 to 0930. There were also present Mr. V. L. Howell, driller

Present condition of well: 13 3/8" com. 803'. T.D. 804'.

The operations were performed for the purpose of inspecting and testing the blowout  
prevention equipment and installation.  
Mr. \_\_\_\_\_ reported:

**THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.**

**F**  
**cc: Operator**

JOHN F. MATTHEWS, JR.  
State Oil and Gas Supervisor  
By LOD Pitman Deputy

BOPE MEMO

T 253

Co. W. J. ... Well W. J. ... Field ... County ...

VISITS:	Date	Engineer	Time	Operator's Rep	Title
1.	<u>4/2/77</u>	<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>
2.	<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>
3.	<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>

PRESENT MECHANICAL CONDITION ...

OPERATION: Inspecting (and testing) the blowout prevention equipment and installation.  
 DECISION: The blowout prevention equipment and installation are (not) approved.

HOLE SIZES ...

CASING RECORD (BOPE ANCHOR STRING ONLY)

Date	Size	Weight	Shoe at	CP at	Cement Details	Cement Tops	
						Inside	Annulus

BOPE STACK (D. O. G. CLASS ...)

API Symb	Ram Size	Mfr	Model	Nom Size	Wkg Press	Flange Sz & Type		Date Last Overhaul	TESTING DATA				
						Top	Bottom		Accum Rec Time	Press	Min	Date	

PRIMARY CLOSING EQUIPMENT (Distance From Well Bore ...)

	Mfr	Model	Accum Cap
Accum			
Accum			
Manif			

AUXILIARY EQUIPMENT

Item	Size	Rated Press
<input checked="" type="checkbox"/> Choke Line	4"	1500
<input checked="" type="checkbox"/> Kill Line	2"	1500
<input checked="" type="checkbox"/> Control Hydraulic Lines	1"	1500
<input checked="" type="checkbox"/> Pressure Relief Valve		
<input checked="" type="checkbox"/> Kelly Cock Above Kelly		
<input checked="" type="checkbox"/> Kelly Cock Below Kelly		
<input checked="" type="checkbox"/> Inside Preventer		
<input checked="" type="checkbox"/> ...	2"	

BACK-UP CLOSING EQPMT Pressures

<input checked="" type="checkbox"/> N2 Bottles No.:	
<input type="checkbox"/> Other:	

MONITORING DEVICES Alarm

	Yes	No
Calibrated Mud Pit		
Pit Level Indicator		
Gas Detector		
Mud Densimeter		
Mud Temp Recorder		

REMARKS:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

REMOTE CONTROL STATION Elec/Hyd

<input checked="" type="checkbox"/> Driller's Station	
<input checked="" type="checkbox"/> Other:	

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 274-226

Mr. P. B. Magruder, Jr.  
Pacific Lighting Service Co.  
P.O. Box 64790, Terminal Annex  
Los Angeles, California 90054

Santa Paula, Calif.  
June 6, 1974

DEAR SIR:

Your supplementary proposal to drill Well No. IV 79 (037-21361),  
Section 28, T. 3N, R. 16W, S. E. B. & M., Aliso Canyon Field, Los Angeles County,  
dated 5/23/74, received 5/31/74, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT IN ALL OTHER RESPECTS THE WELL SHALL BE  
DRILLED IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN OUR REPORT NO. P273-106 DATED  
MARCH 5, 1973.

Blanket Bond  
ALL:b  
cc: Operator

JOHN F. MATTHEWS, JR., State Oil and Gas Supervisor

By W. P. R. Jones, Deputy

**DIVISION OF OIL AND GAS**

**Notice of Intention to Drill New Well**

This notice and surety bond must be filed before drilling begins

*Supplemental*  
*(Washington changes)* Los Angeles Calif. May 23, 1974

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division III, Article 4, Public Resources Code, notice is hereby given that it is our intention to commence drilling well No. IW 79, Sec. 28, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

Legal description of mineral-right lease, consisting of 431.5 acres, is as follows: \_\_\_\_\_  
(Attach map or plat to scale)  
As previously filed

Do mineral and surface leases coincide? Yes X No \_\_\_\_\_ If answer is no, attach legal description of both surface and mineral leases, and map or plat to scale.

Location of Well: \_\_\_\_\_ feet \_\_\_\_\_ along section line and \_\_\_\_\_ feet \_\_\_\_\_  
(Direction) (Direction)  
at right angles to said line from the \_\_\_\_\_ property corner of section \_\_\_\_\_  
From station 84 1770' Southerly and 3795 Westerly at right angles

Elevation of ground above sea level 2682 feet USGS datum.

All depth measurements taken from top of Kelly bushing which is 15 feet above ground.  
(Derrick Floor, Rotary Table or Kelly Bushing)

**PROPOSED CASING PROGRAM**

SIZE OF CASING INCHES A.P.I.	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS
13-3/8"	48#	H-40 Smls	Stc	850'	850'
8-5/8"	36#	K-55 & N-80	Stc	8300+-	8300' and 3300'
6-5/8"	24#	K-55	8250'	8800+-	Perforated liner

Intended zone(s) of completion: Seson & Frew 8300 - 8800 Estimated total depth 8800  
(Name) (Depth, top and bottom)

Gas Storage Well

MAP	DATE	OPER	DATE	FORMED	DATE
250	6-8-74		BB	✓	✓

It is understood that if changes in this plan become necessary we are to notify you immediately.

Address P. O. Box 54790 Terminal Annex Pacific Lighting Service Co.  
(Name of Operator)

Los Angeles, California 90054 By P.B. Magruder Jr.

Telephone Number (213) 723-7312 Type of Organization Corp.  
(Corporation, Partnership, Individual, etc.)

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 273-106

Mr. P. S. Magruder, Jr., Agent  
Pacific Lighting Service Co.  
P. O. Box 54790, Terminal Annex  
Los Angeles, California 90054

Santa Paula Calif.  
March 5, 1973

DEAR SIR:

(037-21361)

Your proposal to drill Well No. IW 79,  
Section 28, T. 3N, R. 16W, S.B. & M., Aliso Canyon Field, Los Angeles County,  
dated 2/13/73, received 2/27/73, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Sufficient cement shall be pumped back of the 13 3/8" casing to fill from the shoe to the surface.
2. Drilling fluid of proper weight and consistency shall be used to keep the well under control at all times; and a reserve supply of this material shall be kept on hand to meet any emergency. NO CONTAMINATES OR TOXIC MATERIAL SHALL BE USED IN ANY DRILLING FLUID THAT IS TO BE PLACED IN AN UNLINED SUMP.
3. Blowout prevention equipment, at least of the Division of Oil and Gas Class III rating, shall be installed and maintained in operating condition at all times.
4. Fresh waters and oil or gas zones back of the 8 5/8" casing shall be protected with cement.
5. A directional survey shall be filed with this Division, if one is made.
6. THIS DIVISION SHALL BE NOTIFIED TO WITNESS:
  - a. A pressure test of the blowout prevention equipment before drilling out of the shoe of the 13 3/8" casing.
  - b. A test of the 8 5/8" water shut-off above the Sesnon zone.

Blanket Bond  
ALL:r

cc: Operator

JOHN F. MATTHEWS, JR., State Oil and Gas Supervisor

By W. P. Pitzius, Deputy

(037-21361)

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION

10

Standard-Seson  
No. 25 site

# DIVISION OF OIL AND GAS

## Notice of Intention to Drill New Well

This notice and surety bond must be filed before drilling begins

037-21361

Los Angeles Calif. February 13, 19 73

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division III, Article 4, Public Resources Code, notice is hereby given that it is our intention to commence drilling well No. IW79, Sec. 28, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

Legal description of mineral-right lease, consisting of 316.4 acres, is as follows: \_\_\_\_\_  
(Attach map or plat to scale)  
(as per plat previously filed)

Do mineral and surface leases coincide? Yes  No \_\_\_\_\_ If answer is no, attach legal description of both surface and mineral leases, and map or plat to scale.

Location of Well: 848.53 feet South ~~along section line and~~ 5380.01 feet West  
(Direction) (Direction)

at right angles to said line from ~~the~~ Station No. 84 ~~corner of section~~

(reference: Metrex Aerial Surveys Company drawing no. L.D. 11728 - sheet 3 of 4)

Elevation of ground above sea level 2927 feet U.S.G.S. datum.

All depth measurements taken from top of kelly bushing which is 15 feet above ground.  
(Derrick Floor, Rotary Table or Kelly Bushing)

### PROPOSED CASING PROGRAM

SIZE OF CASING INCHES A.P.I.	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS
13-3/8	48#	H-40 smls.	0'	900'	900'
8-5/8	36#	K-55 & N-80 smls.	0'	8400'	8400' & 3000'
6-5/8	27.65#	K-55 smls.	8300'	8750'	8750'

Intended zone(s) of completion: Seson 8500', 8750' Estimated total depth 8750'  
(Name) (Depth, top and bottom)

Gas Storage Well

DATE	MAP	CASING	OTHER	114	121
1/50	✓	PPB		✓	✓

It is understood that if changes in this plan become necessary we are to notify you immediately.

Address P.O. Box 54790 T.A.  
Los Angeles, California 90054  
(213) 689-3621 or  
Telephone Number (213) 689-3561

Pacific Lighting Service Company  
(Name of Operator)  
By PPB Magruder Jr.  
Type of Organization Corporation  
(Corporation, Partnership, Individual, etc.)

NAME CHANGE: FROM: PACIFIC LIGHTING SERVICE CO.

TO: SOUTHERN CALIFORNIA GAS COMPANY 4/1/75