

JRAL 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 216-0252

## 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  
July 13, 2016

Your operations at well "**Porter**" 46, A.P.I. No. 037-00733, Sec. 28, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 7/1/2016, **Mike Woods**, a representative of the supervisor.

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

DECISION:

**DEFERRED PENDING REVIEW BY THE DIVISION'S SAFETY TEAM.**

MW/TKC

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

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

EB76.

State of California  
Department of Conservation  
Division of Oil, Gas, and Geothermal Resources

216-0252  
#16,3  
No. T \_\_\_\_\_

### MECHANICAL INTEGRITY TEST (MIT)

Operator: <b>Southern California Gas Company</b>				Well: <b>"Porter" 46</b>	
Sec. <b>28</b>	T. <b>3N</b>	R. <b>16W</b>	<b>SB B.&amp;M.</b>	API No.: <b>037-00733</b>	Field: <b>Aliso Canyon</b>
County: <b>Los Angeles</b>				<input checked="" type="checkbox"/> Witnessed <input type="checkbox"/> Reviewed on: <b>7/01/2016</b> <i>1500 As per M. Woods 7-14-16.</i>	
<b>M. Woods</b>				, representative of the supervisor, was present from <b>1530</b> to <b>1600</b> .	
Also present were: <b>Mike Giuliani, Consultant</b>					
Casing record of the well: <b>2 7/8" landed on packer @ 7660', tubing plug @ 7628', sliding sleeve open @ 7594'.</b>					
The MIT was performed for the purpose of demonstrating the mechanical integrity of the <b>7"</b> casing.					
<input type="checkbox"/> The MIT is approved since the R/A tracer survey indicates that all of the injection fluid is confined to formations below _____ at this time.					
<input checked="" type="checkbox"/> The MIT is approved because the <b>7"</b> casing held a pressure of <b>1100 psi</b> for <b>60</b> minutes.					
<input type="checkbox"/> The MIT is approved since the temperature survey indicates no fluid migration between _____ and the surface.					
<input type="checkbox"/> The MIT is not approved due to the following reasons:					
Comments:					
Deficiencies Corrected:					
Deficiencies to be Corrected:					
Uncorrectable Deficiencies:					
Contractor: <b>Premier Oilfield Service and Oryx Oil Service</b>					

**DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES**

**CHECK LIST-RECORDS RECEIVED AND WELL STATUS**

Operator: Southern California Gas Company WELL DESIGNATION "Porter" 46

API No. 03700733 SE 28 T: 3N R.: 16W , SB B. and M.

County: Los Angeles FIELD: Aliso Canyon

Type of Notice: Rework Date 6/16/2016 Report Number: P216-0090

**RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)**

**NEW STATUS**

	Date	OK	NEED	Remarks
Well Summary (OG100)				
History (OG103)				
E-Log				
Mud Log				
Dipmeter				
Directional				
Core and/or SWS				
<i>Press Test</i>	<i>7/1/16</i>	<input checked="" type="checkbox"/>		<i>Digital Data Rec.</i>

DATE: \_\_\_\_\_

**NOTICE OF RECORDS DUE**

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

**WELL STATUS INQUIRY**

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

**Well Stat**

Change Required: \_\_\_\_\_

Change Done: \_\_\_\_\_

**ABANDONMENTS/REABANDONMENTS/DRILLS/REDRILLS**

CalWims Abandonment Form: \_\_\_\_\_ SURFACE INSPECTION NEEDED \_\_\_\_\_ COMPLETED \_\_\_\_\_  
Date and Inspector

FINAL LETTER NEEDED \_\_\_\_\_ COMPLETED \_\_\_\_\_ Calwims DRILL/REDRILL Form \_\_\_\_\_  
(Date)

**ENGINEER'S CHECK LIST**

T-REPORT(S)  OPERATOR'S NAME  WELL DESIGNATION  SIGNATURE

Calwims Location \_\_\_\_\_ Calwims ELEVATION: \_\_\_\_\_ CONFIDENTIAL RELEASE DATE: \_\_\_\_\_ PERMIT REQUIREMENTS MET \_\_\_\_\_

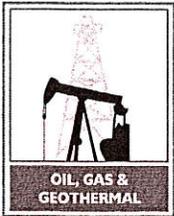
**CLERICAL CHECK LIST**

LOCATION CHANGE (OG165) \_\_\_\_\_ ELEVATION CHANGE (OG165) \_\_\_\_\_ RELEASE OF BOND (OG150) \_\_\_\_\_

**REMARKS**

RECORDS SCANNED: \_\_\_\_\_  
(Date)

RECORDS APPROVED: P.O. 8-16-16  
(Date and Engineer)



N JRAL 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 216-0090

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

**PERMIT TO CONDUCT WELL OPERATIONS**

Corrected Copy

Gas Storage

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

Ventura, California  
 June 30, 2016

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

Your proposal to **Rework** well "Porter" 46, A.P.I. No. 037-00733, Section 28, T. 03N, R. 16W, SB B. & M., Aliso Canyon field, Any area, Sesnon-Frew pool, Los Angeles County, dated 6/16/2016, received 6/17/2016 has been examined in conjunction with records filed in this office. (Lat: 34.313420 Long: -118.556990 Datum:83)

**THE PROPOSAL, WORK ALREADY COMPLETED WITH AUTHORIZATION, 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:
2. a. Class I **Note: work to be completed without the removal of the injection assembly.**
3. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
4. Prior to commencing downhole operations, a pressure test is conducted to demonstrate the mechanical integrity of the 7" casing.
5. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
6. 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.
7. In all other respects, the provisions of Division Order #1109 shall remain in effect.
8. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
9. **THIS DIVISION SHALL BE NOTIFIED TO:**
  - a. Witness a pressure test on the 7" casing and tubing plug.

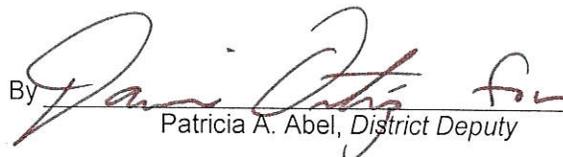
Continued on Next Page

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   
 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.

**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.

**Ortiz, David@DOC**

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**From:** Michael Giuliani <mike.giuliani@interactprojects.com>  
**Sent:** Friday, June 17, 2016 4:56 PM  
**To:** Ortiz, David@DOC  
**Cc:** Neville, Dan; McMahon, Thomas D.; McGurk, Scott@DOC  
**Subject:** Casing Pressure Test Spreadsheet  
**Attachments:** Test Pressure Safety Check Spreadsheet.xlsx

David,

SCGC submitted NOI's on seven wells today: FF-33, Frew 5, P-38, P-46, SS-04, SS-11 and SS-24. The attached spreadsheet demonstrates bottom-hole pressure based on the proposed 1000 psi test pressure for each well is uniformly below 85% of the burst pressure as taken from the Haliburton Red Book. In fact, pressures at the deepest point of each casing grade range from 669 psi to 3687 psi below the 85% of burst limit.

Although the analysis assumes the pipe is new, at a 1000 psi test pressure, there is a fairly large safety factor even beyond the 85% burst limit assumption in that it is also assumed the pipe is hanging in air (zero formation pressure). As you go deeper into the well, and the external casing pressure increases, so does the "hanging in air" safety factor.

Let me know if you have any questions or concerns.

Regards,

**Mike Giuliani**  
Sr. Petroleum Engineer

**We plan. We engineer. We Deliver. *You succeed.***

**InterAct**  
an **ACTEON** company

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

FOR DIVISION USE ONLY		
Bond	Forms	
		<del>OGD114</del>
	CALY WIMS	1154

P216-0090

## 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 Porter 46, API No. 037-00733  
 (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: 7963 feet. The effective depth is: 7929 feet.  
 Present completion zone(s): Sesonon (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.)

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. Note: Well was filled with 278 Bbls. 8.5 ppg kill fluid on 1/30/16.

4b - Theo. TOC at 6537' as per attached wellbore mechanical.

5b - Packer set at 7660' and plug set in XN nipple at 7628'.

6b - Well was circulated full with 278 Bbls. 8.5 ppg kill fluid on 1/30/16.

7b - With tubing valve closed, pressure test anulus to 1000 psi. for 1 hour.

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
Name of Person Filing Notice Mike Giuliani		Zip Code 91313-2300
Telephone Number: (805) 290-2074	Signature	Date 6/16/16
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 06-20-16 DOGGR Ventura.

## INFORMATION FOR COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT OF 1970 (CEQA)

If an environmental document has been prepared by the lead agency, submit a copy of the *Notice of Determination* or *Notice of Exemption* with this notice. Please note that a CEQA determination by a local jurisdiction, if required, must be complete, or the Division may not issue a permit.

### CRITICAL WELL DEFINITION

As defined in the California Code of Regulations, Title 14, Section 1720 (a), "Critical well" means a well within:

- (1) 300 feet of the following:
  - (A) Any building intended for human occupancy that is not necessary to the operation of the well; or
  - (B) Any airport runway.
- (2) 100 feet of the following:
  - (A) Any dedicated public street, highway or the nearest rail of an operating railway that is in general use;
  - (B) Any navigable body of water or watercourse perennially covered by water;
  - (C) Any public recreational facility such as a golf course, amusement park, picnic ground, campground or any other area of periodic high-density population; or
  - (D) Any officially recognized wildlife preserve.

### WELL OPERATIONS REQUIRING BONDING

1. Drilling, re-drilling, or deepening any well.
2. Milling out or removing a casing or liner.
3. Running and cementing casing or tubing.
4. Running and cementing liners and inner liners.
5. Perforating casing in a previously unperforated interval for production, injection, testing, observation, or cementing purposes.
6. Drilling out any type of permanent plug.
7. Reentering an abandoned well having no bond.

This form may be printed from the DOGGR website at [www.conservation.ca.gov/dog/](http://www.conservation.ca.gov/dog/)

# Well Porter 46

API #: 04-037-00733-00  
Sec 28, T3N, R16W

Operator: So. California Gas Co.

Lease: Porter  
Field: Aliso Canyon  
Status: Active Gas Storage  
BFW:  
USDW:

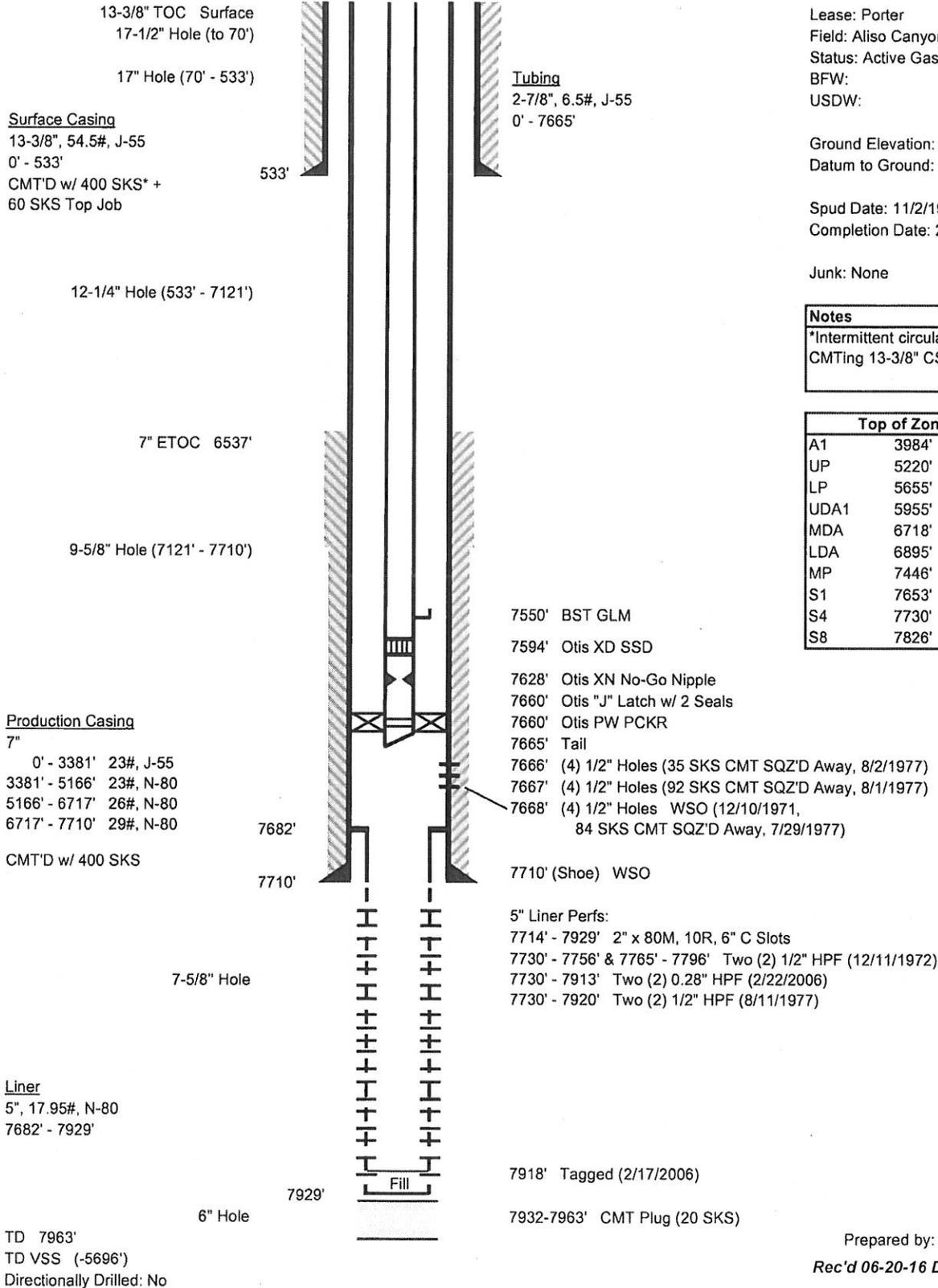
Ground Elevation: 2254.85' asl  
Datum to Ground: 6.92' DF

Spud Date: 11/2/1943  
Completion Date: 2/27/1944

Junk: None

Notes	
*Intermittent circulation while CMT'ing 13-3/8" CSG	

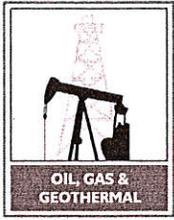
Top of Zone Markers	
A1	3984' (-1718')
UP	5220' (-2954')
LP	5655' (-3389')
UDA1	5955' (-3689')
MDA	6718' (-4452')
LDA	6895' (-4629')
MP	7446' (-5180')
S1	7653' (-5387')
S4	7730' (-5464')
S8	7826' (-5560')



Prepared by: MAM (2/23/2016)  
Rec'd 06-20-16 DOGGR Ventura.  
**InterAct**

**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
Fernando Fee 33	7485'/7484'	7", 23#, J-55	4122	4360	3706	2822	Yes
		7", 23#, N-80	5913	6340	5389	3614	Yes
		7", 26#, N-80	7630	7240	6154	4372	Yes
Frew 5	8270'/8270'	7", 23#, N-80	1589	6340	5389	1702	Yes
		7", 23#, J-55	4609	4360	3706	3037	Yes
		7", 23#, N-80	6676	6340	5389	3951	Yes
Porter 38	8257'/8257'	7", 26#, N-80	8360	7240	6154	4695	Yes
		7", 23#, J-55	3383	4360	3706	2495	Yes
		7", 23#, N-80	5059	6340	5389	3236	Yes
Porter 46	7660'/7660'	7", 26#, N-80	6692	7240	6154	3958	Yes
		7", 29#, N-80	8465	8160	6936	4742	Yes
		7", 23#, J-55	3381	4360	3706	2494	Yes
Standard Sesnon 04	8471'/8470'	7", 23#, N-80	5166	6340	5389	3283	Yes
		7", 26#, N-80	6717	7240	6154	3969	Yes
		7", 29#, N-80	7710	8160	6936	4408	Yes
Standard Sesnon 11	8640'/8639'	7", 23#, J-55	3463	4360	3706	2531	Yes
		7", 23#, N-80	5161	6340	5389	3281	Yes
		7", 26#, N-80	6847	7240	6154	4026	Yes
Standard Sesnon 24	8690'/8690'	7", 29#, N-80	8498	8160	6936	4756	Yes
		7", 23#, J-55	3723	4360	3706	2646	Yes
		7", 23#, N-80	5397	6340	5389	3385	Yes
Standard Sesnon 24	8690'/8690'	7", 26#, N-80	7019	7240	6154	4102	Yes
		7", 29#, N-80	8767	8160	6936	4875	Yes
		7", 23#, N-80	1807	6340	5389	1799	Yes
Standard Sesnon 24	8690'/8690'	7", 23#, J-55	4346	4360	3706	2921	Yes
		7", 23#, N-80	6479	6340	5389	3864	Yes
		7", 26#, N-80	8414	7240	6154	4719	Yes
Standard Sesnon 24	8690'/8690'	7", 29#, N-80	8920	8160	6936	4943	Yes



NATURAL 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 216-0090**

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

**PERMIT TO CONDUCT WELL OPERATIONS**

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

Ventura, California  
 June 20, 2016

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

Your proposal to **Rework** well "**Porter**" **46**, A.P.I. No. **037-00733**, Section **28**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **6/16/2016**, received **6/17/2016** has been examined in conjunction with records filed in this office. (Lat: **34.313420** Long: **-118.556990** 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**
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. Prior to commencing downhole operations, a pressure test is conducted to demonstrate the mechanical integrity of the **7"** casing.
5. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
6. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
7. This well is taken out of service and isolated from the storage reservoir and is to be re-evaluated or abandoned within 1 year of the installation of a tubing plug and filling of the annular space with liquid above the packer pursuant to Order #1109 and its amendments.
8. **THIS DIVISION SHALL BE NOTIFIED TO:**
  - a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
  - b. Witness a pressure test on both the **7"** casing and tubing plug after the installation of the liquid in the annular space.

Continued on Next Page

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

Engineer David Ortiz  
 Office (805) 654-4761

DO/do

Kenneth A. Harris Jr.  
 State Oil and Gas Supervisor

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By   
 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.

**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.

OPERATOR So. Calif. Gas Co  
 LSE & NO. SP 20 R46  
 MAP NO. 150

INTENTION	<u>M.H. Log</u>	<u>REWORK GAS STORE</u>		<u>REPERFORATE</u>	
NOTICE DATED		<u>7-11-77</u>		<u>02/09/2006</u>	
P-REPORT DATED	<u>172-1108</u>	<u>277-236</u>		<u>P206-48</u>	
CHECKED BY/DATE	<u>3-12-73</u>		<u>No Notice to inspect 7-29</u>		
MAP LETTER DATED		<u>4/6</u>			
SYMBOL	<u>MC</u>			<u>PC</u>	

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

NOTICE		<u>7-11-77</u>		<u>02/07/06</u>	
HISTORY	<u>2-25-73</u>	<u>9-3-77</u>	<u>1-13-89</u>	<u>3/6/06</u>	
SUMMARY	<u>2-25-73</u>				
IES/ELECTRIC LOG					
DIRECTIONAL SURV.		<u>VERT LOG 11-188</u>			
CORE/SWS DESCRIPT.					
DIPMETER RESULTS					
OTHER	<u>TDT? CRA?</u>	<u>10-278</u>			
	<u>Therm. heat Decay Sme</u>	<u>12-24-79</u>			
RECORDS COMPLETE	<u>2-25-73</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	

**ENGINEERING CHECK**

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

**CLERICAL CHECK**

POSTED TO 121 \_\_\_\_\_ 170 MAILED \_\_\_\_\_ FINAL LETTER MAILED \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
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REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company  
 Well: Porter 46  
 A.P.I. No. 037-00733

Field: Aliso Canyon County: Los Angeles  
 Surface Location: Sec 28 3N 16W S.B.B.M.  
 Mark Kuncir Title: Storage Field Engineer  
(President, Secretary, or Agent)

Date: 03/03/2006

Signature: *MTK*  
(Person Submitting Report)

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300

Telephone Number: 818-700-3810

**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.**

Start Date	Ops. DOGGR Rpt
01/20/2006	RU Spicer W/L. RIH w/ 1-3/4" x 30' drift tool to clear tbg. Tagged fill @ 7954'. RD W/L.
02/17/2006	MIRU Schlumberger W/L. RIH w/ PDC GR-NL tool and tagged @ 7918'. Secured well.
02/21/2006	RIH w/ 1-11/16" strip gun and perforated the 5" liner w/ 2 SPF (Enjet-DP 1.69", EJ3, RDX, ~0.28" hole) from 7913-7891', 7891-7869', 7869-7847', 7847-7825', 7825-7803', 7803-7781' and 7781-7759' (Runs 1 - 7, 154'). Closed well in overnight.
02/22/2006	RIH w/ 1-11/16" strip gun and perforated the 5" liner w/ 2 SPF from 7759-7740' and 7740-7730' (Runs 8 & 9, 29'). RD W/L.

RECEIVED  
 MAR 06 2006  
 By \_\_\_\_\_

# PERMIT TO CONDUCT WELL OPERATIONS

010  
(field code)  
00  
(area code)  
30  
(new pool code)  
30  
(old pool code)

## Gas Storage

James D. Mansdorfer, Agent  
Southern California Gas Company  
9400 Oakdale Ave  
Chatsworth CA 91313

Ventura, California  
February 15, 2006

Your \_\_\_\_\_ proposal to \_\_\_\_\_ reperfurate \_\_\_\_\_ well "Porter" 46  
A.P.I. No. 037-00733 \_\_\_\_\_ Sec. 28, T. 3N, R. 16W, SB B.&M.,  
Aliso Canyon \_\_\_\_\_ field, \_\_\_\_\_ area, \_\_\_\_\_ Sesnon-Frew \_\_\_\_\_ pool  
Los Angeles \_\_\_\_\_ County, dated 02/9/2006 received 2/7/2006 has been examined in conjunction  
with records filed in this office.

### THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Wire line operations are conducted through at least a 5M lubricator.
2. This office shall be consulted before initiating any changes or additions to this proposed operation or if operations are to be suspended.

The Division recommends, as a minimum, that carbon monoxide monitoring equipment and a vent line be installed and maintained operational during all extensive perforating operations.

SAF:sf

Engineer Steven A. Fields  
Phone (805) 654-4761

Hal Bopp, State Oil and Gas Supervisor  
By  Deputy Supervisor

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.**

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

NOTICE OF INTENTION TO REWORK / REDRILL WELL

206-48

C.E.Q.A. INFORMATION (when redrilling or deepening only)			
Exempt <input type="checkbox"/>	Neg. Dec. <input type="checkbox"/>	E.I.R. <input type="checkbox"/>	Document not required by local jurisdiction <input type="checkbox"/>
Class _____	S.C.H. No. _____	S.C.H. No. _____	
See Reverse Side			

FOR DIVISION USE ONLY		
	Forms	EDP Well File
Bond	OGD114 <input checked="" type="checkbox"/>	OGD121 <input checked="" type="checkbox"/>
1000 000	111 <input checked="" type="checkbox"/>	115 <input checked="" type="checkbox"/>

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

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

rework/redrill well Porter 46 API No. 03700733

*(Circle one)* *(Well designation)*

Sec. 28 T. 3N R. 16W S.B.B.&M. Aliso Canyon Gas Storage Field

Los Angeles County.

1. The complete casing record of the well (present hole), including plugs and perforations, is as follows:

0-533' 13-3/8" 55# J55 Surface csg;  
 0-7710' 7" 23, 26 & 29# K55 & N80 Prod. csg;  
 7662-7929' 5" 18# N80 liner;  
 2-7/8" 6.5# J55 EUE 8rd tbg landed on 7" Otis 'PW' pkr @ 7660';  
 5" liner slotted from 7714-7929' and perforated w/ two 1/2" HPF from 7730-7756', 7765-7796' and 7730-7920'.

GS

2. The total depth is: 7963 feet. The effective depth is: 7929 feet.

3. Present completion zone (s): Sesnon Anticipated completion zone (s): Sesnon  
*(Name)* *(Name)*

4. Present zone pressure: 2740 psi. Anticipated/existing new zone pressure: 2740 psi.

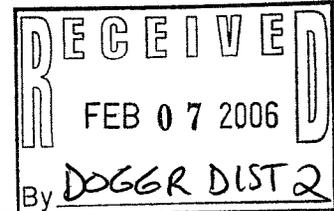
5. Last produced: 1/2005 1.0 0 5.461  
*(Date)* *(Oil, B/D)* *(Water, B/D)* *(Gas, Mcf/D)*

(or)  
 Last injected: - - - -  
*(Date)* *(Water, B/D)* *(Gas, Mcf/D)* *(Surface pressure, psig)*

6. Is this a critical well according to the definition on the reverse side of this form? Yes  No

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

Re-perforate storage-zone (Sesnon) w/ 2 SPF (1-11/16" strip gun loaded w/ Enjet-DP 1.69", RDX, -0.28" hole) from 7730-7859' (129' total).



For redrilling or deepening: NA NA  
*(Proposed bottom-hole coordinates)* *(Estimated true vertical depth)*

The division must be notified if changes to this plan become necessary.

Name of Operator Southern California Gas Company	Telephone Number 818.700.3810
Address 12801 Tampa Avenue	City Northridge
Name of Person Filing Notice Mark T. Kuncir	Signature <i>Mark T. Kuncir</i>
	Zip Code 91326
	Date 2/9/06

File In Duplicate

STATE OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

Ventura, California

November 6, 1991

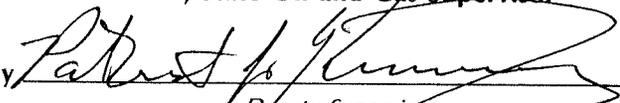
R. D. Phillips, Agent  
SOUTHERN CALIFORNIA GAS COMPANY  
P.O. Drawer 3249 Mail Location 22GO  
Los Angeles, CA 90051-1249

Your request, dated July 24, 1991, proposing to change the designation of well(s) in Sec. 28, T. 3N, R. 16W, S.B. 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:

<u>FROM</u>	<u>TO</u>
"SFZU" P-4 (037-00699)	"Porter" 4 (037-00699)
"SFZU" P-25 (037-00712)	"Porter" 25 (037-00712)
"SFZU" P-26 (037-00713)	"Porter" 26 (037-00713)
"SFZU" P-34 (037-00721)	"Porter" 34 (037-00721)
"SFZU" P-35 (037-00722)	"Porter" 35 (037-00722)
"SFZU" P-38 (037-00725)	"Porter" 38 (037-00725)
"SFZU" P-39 (037-00726)	"Porter" 39 (037-00726)
"SFZU" P-40 (037-00727)	"Porter" 40 (037-00727)
"SFZU" P-41 (037-00728)	"Porter" 41 (037-00728)
"SFZU" P-42 (037-00729)	"Porter" 42 (037-00739)
"SFZU" P-43 (037-00730)	"Porter" 43 (037-00730)
"SFZU" P-44 (037-00731)	"Porter" 44 (037-00731)
✓ "SFZU" P-46 (037-00733)	"Porter" 46 (037-00733)
"SFZU" P-47 (037-00734)	"Porter" 47 (037-00734)

M. G. MEFFERD, State Oil and Gas Supervisor

By   
Deputy Supervisor  
PATRICK J. KINNEAR

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

**History of Oil or Gas Well**

Operator ..... Southern Calif. Gas Co. .... Field ..... Aliso Canyon County ..... Los Angeles  
 Well ..... ~~Porter 46~~ "SF2U" P-46 ..... , Sec. .... 28, T. .... 3N., R. .... 16W. SBB& M.  
 A.P.I. No. .... #037-00733 ..... Name ..... R. W. Weibel ..... Title ..... Agent .....  
 Date ..... October 21 1988 ..... (Person submitting report) (President, Secretary or Agent)

Signature *R. W. Weibel* 11/1/89  
 N. W. Buss for R. W. Weibel  
 P.O. Box 3249 Terminal Annex, Los Angeles, CA 90051 (213) 689-3952  
 (Address) (Telephone Number)

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

MWO No. 99933: was issued to inspect 7" casing

DIVISION OF OIL AND GAS  
 RECEIVED  
 JAN 13 1989  
 VENTURA, CALIFORNIA

1988

10-15

Removed xmas tree. Installed 9" BOPE. Tested blind rams, pipe rams and choke manifold to 4000 psi, Hydril bag to 2200 psi. Mr. Steve Mulqueen of the DOG declined to witness test.

10-17

Attempted to unlatch from packer. Made backoff shot at 7650'. Laid down safety system and one 20' blast joint. Made up millover shoe. Ran in well to 7650'.

10-18

Cleaned over fish to top of packer. Ran in well with overshot and latched onto fish. Jarred and worked pipe to release from packer. Laid down blast joint and J latch with seals. Ran in well with bit and casing scraper.

10-19

Ran in well to 7660' and backscuttled clean. Ran vertilog from 7650' to surface. Made up production equipment, hydrotesting in well to 4000 psi. Spaced out tubing, pulled 20,000# over weight on packer, and set 12,000# weight on packer. Tested annulus to 1700 psi.

10-20

Removed BOPE. Installed xmas tree. Opened sliding sleeve. Circulated polymer completion fluid out of well with 2% KCl water. Tested xmas tree to 5000 psi. Released rig at 4:00 P.M.

Well No. P- 46 WELLHEAD DESCRIPTION

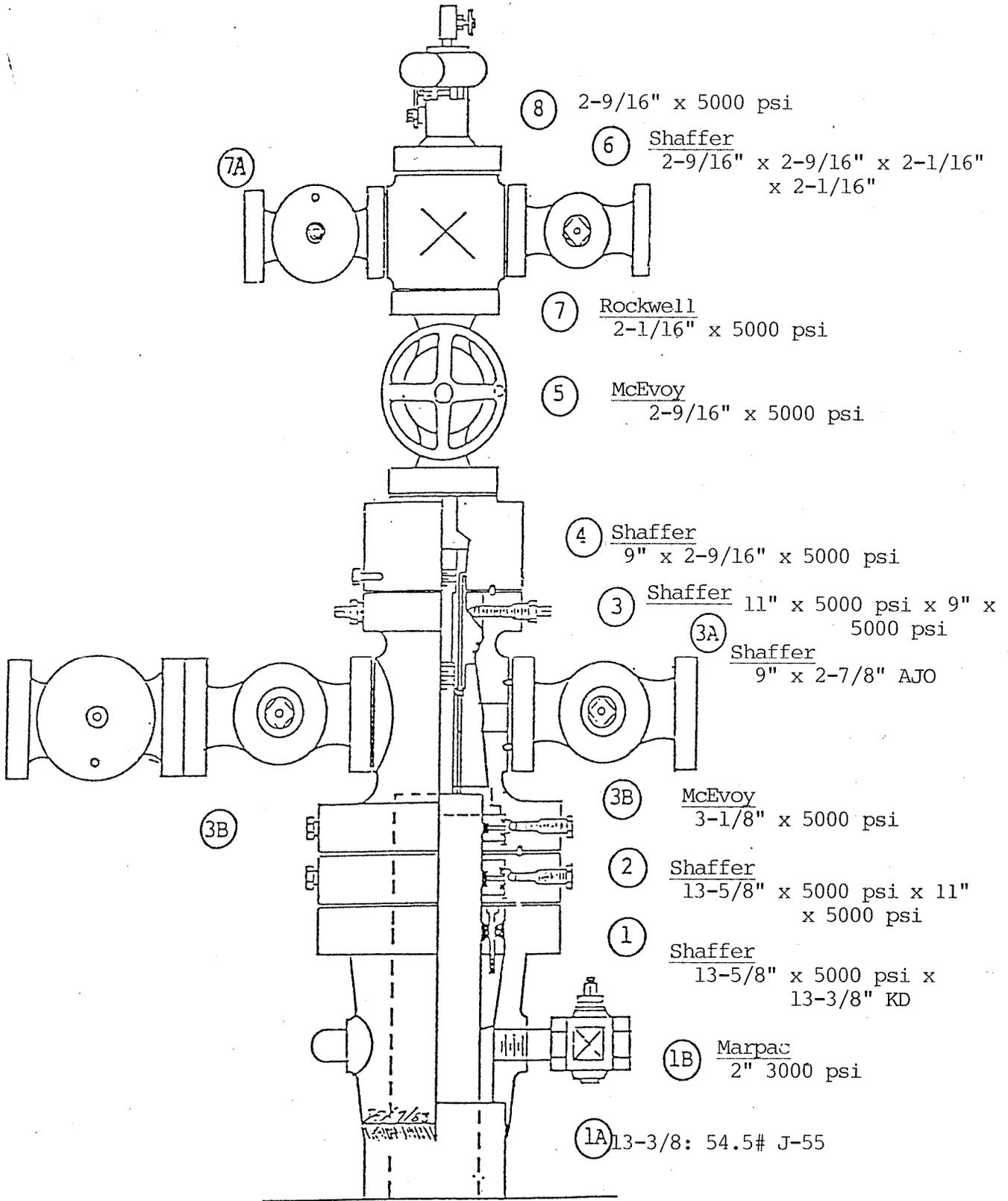
Field Aliso

Date Prepared 12-20-88

Wellhead Mfgr Shaffer

1. Casing Head Shaffer Size 13-5/8" 5000 psi x 13-3/8" Type KD  
 Slips & Pack-off 13-5/8" x 7"
- 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 Shaffer Size 13-5/8" 5000 psi x 11" 5000 psi
- A. Type Seal Lockscrew Ring BX-160 & R-54
3. Tubing Head Shaffer Size 11" 5000 psi x 9" 5000 psi Type 63-T-1  
 Ring R-54 & Ring Rx-50  
 Outlets 2-3-1/8" Sec. Seal Lockscrew  
 Valve Removal Thrd 2-1/2" 8V LP
- A. Tubing Hanger Shaffer Size 9" x 2-7/8" Type AJO  
 B.P.V. Size 2-7/8" Thrd \_\_\_\_\_
- B. Tubing Head Valves Mc Evoy Size 3-1/8" 5000 psi Fig.No. 129
- C. Automatic Csg. Valve WKM Size 3-1/8" 5000 psi Fig.No. 114522
4. Adapter Seal Flange Shaffer Size 9"x2-9/16" 5000 psi Type AJO
- A. Ring Size Rx50 & Rx-27
5. Master Valve Mc Evoy Size 2-9/16" 5000 psi Fig.No. 129
6. Xmas Tree Cross Shaffer Size 2-9/16"x2-9/16"x2-1/16" Bore 2-1/16" Thru 2-9/16"  
 Across 2-1/16"
7. Tubing Wing Valves Rockwell Size 2-1/16" 5000 psi Fig.No. 21055  
 (1)  
 A. Automatic Tbg. Valve WKM Size 2-1/16" 5000 psi Fig. No. \_\_\_\_\_
8. Unibolt Size 2-9/16" 5000 psi Inside Thrds \_\_\_\_\_
9. Wt. Landed in Csg. Head NA Casing: 7" 23# Grade J-55
10. Wt. Landed on Doughnut 37,000 lb Tubing: 2-7/8" 6.5# Grade J-55
11. Tubing Head to Ground Level 4.30' Below GL

TYPE IV



Well Name: P-46

Mfgr: Shaffer

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

DIVISION OF OIL AND GAS  
 RECEIVED  
 SEP - 3 1977  
 SANTA PAULA, CALIFORNIA

**History of Oil or Gas Well**

Operator Southern California Gas Company Field or County Aliso Canyon  
 Well name and No. PORTER #46, Sec. 28, T. 3N, R. 16W, S.B.B. & M.  
 A.P.I. well No. 037-00733 Name P.S. Magruder, Jr. Title Agent  
 Date August 27, 1977 (Person submitting report) (President, Secretary or Agent)

Signature P.S. Magruder Jr.

P.O. Box 3249 Terminal Annex, Los Angeles, CA., 90051 (Address) (213) 689-3561 (Telephone Number)

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	
7-19-77	Killed well with 1670 cu.ft. of 78# cu. ft. polymer drilling fluid.
7-21-77	Tested seals on casing to 4000 psi for one hour.....test O.K.
7-22-77	Moved California Production Rig #M-19 from Porter #44 to Porter #46.
7-23-77	Installed Class III B.O.P.E. Pressure tested complete shut-off rams and pipe rams to 4000 psi with water and nitrogen.. Pressure tested Hydril bag to 3000 psi with water and nitrogen. Unseated packer and pulled tubing, measuring out to 2000'.
7-24-77	Rig and crew idle.
7-25-77	Laid down 7" packer and 2 3/8" security flush slotted tubing (9 joints). Ran in with 6" bit and 7" 29# casing scraper to 7682'. Ran in with 4 1/8" bit and 5" 18# casing scraper.
7-26-77	Cleaned out 10' of fill (sand) from 7919' to 7929'. Circulated hole clean. Set Johnston retrievable bridge plug at 7672' and pressure tested with 1000 psi using rig pump. Circulated polymer drilling fluid out of well with fresh water treated with surface tension agent. Ran in with Johnston cement squeeze tool.
7-27-77	Set cement squeeze tool at 3300'. Pressure tested from 3300' to 7672' with 2800 psi - leaked. Pressure tested from 3300' to Surface with 3000 psi for one hour - O.K. Set squeeze tool at 7670' - broke down old WSO holes with 3800 psi at a rate of 12 cu.ft./minute. Pressure tested as follows:
	2600' to Surface with 3200 psi
	2200' " " " 3400 psi
	1800' " " " 3600 psi
	1500' " " " 3800 psi
	800' " " " 4000 psi
	Ran in with retrieving tool.

- 7-28-77 Latched on and released bridge plug at 7672'. Changed over to 79#/cu.ft. polymer drilling fluid. Pulled and laid down bridge plug. Ran drillable bridge plug on wireline and set at 7682'. Ran in with cement squeeze tool to 7600'.
- 7-29-77 Broke down old WSO holes at 7668' with 3500 psi at 14 cu.ft. per minute. Mixed and pumped 100 sacks class "G" cement and squeezed 84 sacks out holes at 7668' final pressure 3800 psi. Ran in with 6" bit, 2 - 4 3/4 drill collars on 2 7/8" tubing and located top of cement at 7664'. Drilled out hard cement to 7672' and circulated hole clean. Pulled out to 3000'.
- 7-30-77 Shot four 1/2" holes at 7667' with GO-International wireline. Using collar locator, ran Johnston WSO tools on 2 7/8" tubing and set packer at 7588' - tail at 7604'. Opened tool at 2:00 P.M. - light blow through-out test. Pulled packer loose at 3:00 P.M. Recovered 100' rise (drilling fluid). WSO by Company. Pressure tested annulus with 2500 psi and broke down under 12 cu.ft./minute. Ran in with Johnston cement squeeze tool.
- 7-31-77 Rig and crew idle.
- 8-1-77 Ran squeeze tool and set tool in 7" - 29# casing at 7484'. Pumped and WSO holes at 7667'-7668' - took fluid at 12 cu.ft./minute under 2250 psi. Mixed and squeezed holes with 100 sacks of Class "G" cement with 92 sacks through holes at 2000 psi to 4000 psi - final pressure. Cement in place at 9:30 A.M. Back scuttled and pulled squeeze tool. Ran in with 6 1/8" bit and drilled out cement and cement stringers from 7531' to 7668'. Circulated hole clean.
- 8-2-77 Pulled out 6 1/8" bit. Rigged up lubricator. Ran GO-International jet gun to 7672' - weight indicator and collar locator not working on unit. Pulled out and changed GO-International wireline unit. Re-ran jet gun, shot four 1/2" holes at 7666'. Pressure tested WSO holes using Halliburton pump truck. Pressure dropped from 2800 psi in 45 minutes. Ran and set Johnston 7" Hornet II squeeze retainer on 2 7/8" tubing at 7656'. Pumped and WSO holes at 766'-7668' - broke down at 4000 psi and took fluid rate at 4 cu.ft./minute at 4600 psi. Mixed and pumped 35 sacks of Class G cement - squeezed away 35 cu.ft. of cement through retainer with 3600 psi to 5000 psi final pressure with 1500 psi on annulus. Closed retainer and backscuttled out 4 cu.ft. cement.... leaving 36 cu. ft. behind retainer. Cement in place at 9:15 A.M.
- 8-3-77 Pulled out of hole and laid down running tool Ran in with 6" bit and drilled out cement and retainer from 7658' to 7672'.

- 8-4-77 Pulled 6" bit. Pressure tested WSO holes at 7665'-7668'. 2500 psi for one hour - O.K. Made up and ran in with tester on 2 7/8" tubing. Set packer at 7635' - opened tool to surface at 4:00P.M. - had faint puff, then dead remainder of the one hour test. Pulled out and recovered approximately 5' of polymer drilling fluid in 2 7/8" tubing. Charts
- |                |          |          |
|----------------|----------|----------|
| O.K. Int. Hyd. | 4059 psi | 4946 psi |
| Int. Flow      | 7.6      | 11.9     |
| Final Flow     | 17.3     | 21.5     |
| Final Hyd.     | 4059 psi | 4042 psi |
- 8-5-77 Ran in hole with 6" bit. Drilled on Johnston retainer at 7682'. Believed to have retainer drilled up. Circulated and pulled out. Ran in with 4 1/8" bit and drilled on retainer, unable to enter in 5" liner, pulling out. Secured well.  
(Prepared to run back 6" bit, 4 1/4" drill collars and redrill on top of 5" liner).
- 8-6-77 Pulled out 4 1/8" bit. Ran in with 6" bit on 4 1/4" drill collars and drilled on Johnston drillable bridge plug and on top of hanger at 7682'. Circulated and pulled out. Ran in 4 1/8" bit on 2 3/8" and 2 7/8" tubing. Drilled on retainer and junk on top of 5" liner - unable to get in 5" liner.
- 8-7-77 Rig and crew idle.
- 8-8-77 Pulled out with 4 1/8". Ran in with 4 1/8" tapered mill and milled on junk at 7682'.
- 8-9-77 Ran in with 4 1/8" junk mill, four drill collars and junk sub. Milled on junk at 7682'. Drilled out cement from 7685' to 7770' (85'). Pulled out and recovered iron junk in junk sub. Ran in with 4 1/8" bit and 5" 18# casing scraper.
- 8-10-77 Drilled out cement from 7770' to 7901'. Ran in to 7932'. Circulated well clean. Wiped hole from 7600' to 7932'. Circulated well clean. Pulled out to 2000'.
- 8-11-77 Rigged up and perforated 5" liner at intervals from 7730' to 7920' with two 1/2" holes per foot with 3 1/8" Golden jet gun. Ran in with 4 1/8" bit and 5" casing scraper.
- 8-12-77 Ran in to 7932 with 4 1/2" bit and 5" - 18# casing scraper. Circulated hole clean. Ran Otis Production packer on Dresser Wire Line and set at 7660'.

- 8-13-77 Ran in well with 2 7/8" tubing, cleaning pins, changing collars, applying Baker Seal and hydrotesting to 5000 psi.
- 8-14-77 Rig and crew idle.
- 8-15-77 Landed tubing on packer with 10,000# on packer. Pulled 25,000# over weight of tubing to check latch. Installed back pressure valve in doughnut. Removed B.O.P.E. and installed Xmas tree. Pressure tested to 5000 psi. Circulated drilling fluid out of well with waste salt water. Set tubing plug in NO GO nipple @ 7649'. Pressure tested seals and packer with 2000 psi. Removed tubing plug. Released rig @ 10:00 P.M.

REPORT ON PROPOSED OPERATIONS

Santa Paula, California

July 15, 1977

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

Your proposal to rework gas storage well "SFZU" <sup>P. 16</sup>  
(Name and number)  
A.P.I. No. 037-00733, Section 28, T. 3N, R. 16W  
S.B. B. & M., Aliso Canyon field, Los Angeles County,  
dated 7-11-77, received 7-14-77, has been examined in conjunction

with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The drilling fluid used shall be of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts; and a reserve supply of this material shall be kept on hand to meet any emergency.
2. Blowout prevention equipment, at least of the Division of Oil and Gas Class III, 3M 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 DOWNHOLE OPERATIONS.

NOTE: A COPY OF THIS APPROVAL SHALL BE POSTED AT THE WELL SITE PRIOR TO COMMENCING OPERATIONS.

Blanket Bond  
MD:b

M. G. MEFFERD (acting)  
State Oil and Gas Supervisor  
By *John L. Hardoin*  
Deputy Supervisor

John L. Hardoin

DIVISION OF OIL AND GAS  
Notice of Intention to Rework Well

JUL 14 1977

SANTA PAULA, CALIFORNIA

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.

FOR DIVISION USE ONLY		
BOND	FORMS	
	114	121
BB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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. PORTER #46, 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:

- Total depth. 7963' Cement plug at 7932'
- Complete casing record, including plugs and perforations:
  - 13 3/8" cemented 533'
  - 7" cemented 7710', WSO on shoe, WSO - four 1/2" holes at 7768'
  - 24' 5" landed 7929', top 7682', slotted 7714'-7929' shot two 1/2" holes per foot 7796'-7765' and 7756'-7730'
- Present producing zone name Sesnon Zone in which well is to be recompleted -
- Present zone pressure 3200 psi New zone pressure -
- Last produced Gas Storage Well  
(Date) (Oil, B/D) (Water, B/D) (Gas, Mcf/D)  
or
- Last injected \_\_\_\_\_  
(Date) (Water, B/D) (Gas, Mcf) (Surface pressure, psig.)

The proposed work is as follows:

- Move in and rig up. Kill well. Install B.O.P.E. and test.
- Pull tubing and packer. Pressure test 7" casing. Perform any remedial work indicated by pressure testing.
- Set packer. Run tubing with down-hole safety system.
- Return well to gas storage.

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.  
(Name) P. S. Magruder, Jr. (Date) 7-11-77  
Type of Organization \_\_\_\_\_  
(Corporation, Partnership, Individual, etc.)

PORTER #46 - ALISO CANYON

Program to change packer, pressure test 7" casing and install down hole safety system.

CASING WITHDRAWAL ONLY

Take all measurements from original derrick floor 6.9 above ground.

PRESENT CONDITIONS:

13 3/8" cemented 533', 54.5# J-55  
7" cemented 7710', WSO on shoe  
WSO through 4 1/2" holes at 7668'  
247' 5" 18# N-80 Hydril landed 7929'  
slotted 7714' - 7929'. Top 7682'  
shot 2 1/2" jet holes per foot  
7730' - 7756' and 7765' - 7796'

<u>7" CASING DETAIL</u>			<u>No Safety Factor</u>	
			<u>Burst</u>	<u>Collapse</u>
0' - 3381'	23#	J-55	4360	3290
3381' - 5166'	23#	N-80	6340	4300
5166' - 6717'	26#	N-80	7240	5320
6717' - 7710'	29#	N-80	8160	6370

TUBING DETAIL:

2 7/8" 8RD EUE J-55  
and 2 3/8" security flush joint  
slotted 7670' - 7921'  
Baker "R" nipple 7656'  
Baker Hydrostatic packer 7655'  
Baker "F" nipple 7617'  
Baker sliding sleeve 7586' (open)

PROGRAM:

1. Move in and rig up. Pressure test well head seals.
2. Kill well with 75#/cu.ft. brine polymer drilling fluid. Check bottom hole pressure before moving in rig. Volume of well 320 barrels.
3. Set back pressure valve in doughnut. Remove Christmas tree and install Class III 5000 psi BOPE. Pressure test complete shut-off rams and pipe rams to 4000 psi with water and nitrogen. Also pressure test Hydril bag to 3000 psi with water and nitrogen.

4. Unseat packer and pull tubing. Lay down 2 3/8" security flush slotted. Run 6" bit and casing scraper. Clean out to top of 5" liner 7682'. Run 4 1/8" bit and casing scraper. Clean out to 7929'.
5. Set bridge plug at 7675'. Pressure test plug with rig pump. Circulate polymer drilling fluid out of well with fresh water treated with surface tension agent. Pressure test casing using cement retainer and cement pump truck equipped with calibrated pressure chart and pressure gauge, as follows:

3300'-7675'	with	2800	psi	for	60	minutes
3300'	to	Surface	with	3000	psi	for 60 minutes
2600'	"	"	"	3200	psi	" 60 "
2200'	"	"	"	3400	psi	" 60 "
1800'	"	"	"	3600	psi	" 60 "
1500'	"	"	"	3800	psi	" 60 "
800'	"	"	"	4000	psi	" 60 "

Change to polymer drilling fluid.

6. Perform any remedial work as indicated by pressure testing. Pull bridge plug from 7675'.
7. Using wire line and reference collars set Otis Permatrieve packer near 7660'. DO NOT set packer in a collar.
8. Run 2 7/8" tubing, change collars, clean pins, apply Baker seal and hydrotest to 5000 psi holding each test for one minute.  
Tubing to include:
  - Otis Production tube
  - Otis four seals
  - Otis Latch-in locator
  - Otis 10' heavy wall tube
  - Otis 1.79" "No-Go" nipple
  - Otis 20' heavy wall tube
  - Otis annular flow safety system

PROGRAM: (Concluded)

9. Land tubing on packer with up to a maximum of 10,000# on packer. Pull up 25,000# over weight of tubing to check latch.
10. Install back pressure valve in doughnut. Remove BOPE and reinstall Xmas tree. Pressure test Xmas tree to 5000 psi. Also retest well head seals to 3000 psi.
11. Circulate drilling fluid out of well with waste salt water. Set tubing plug in "NO GO" nipple. Pressure test seals packer to 2000 psi. Remove plug and release rig.

G. C. ABRAHAMSON

July 9, 1977

cc: Rig Supervisor  
Contract pusher (2)  
Relief Supervisor  
Division of Oil and Gas (S.P.) ✓  
B. Jones  
D. Smiley  
J. Melton  
D. Justice )  
M. Grijalva )

Well File  
Spare Copy

GCA/jp

## DIVISION OF OIL AND GAS

FEB 23 1973

## History of Oil or Gas Well

LONG BEACH, CALIFORNIA

OPERATOR Pacific Lighting Service Co FIELD Aliso CanyonWell No. SFZU P-46, Sec. 28, T. 3N, R. 16W, SB B. & M.Date 2-21-73, 19\_\_\_\_ Signed P. S. Magruder Jr.P. O. Box 54790, Terminal Annex  
Los Angeles, CA 90054 (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.

1972

- | Date  |  |
|-------|--|
| 11-27 | Moved in CPS and rigged up.  |
| 11-28 | Rigged up Archer-Reed wireline to clean out tubing and pull Otis blank choke from 7581'. Could not get below 120' due to asphaltene plug. Using wireline bailer and hot oil cleaned out tubing to 297'.  |
| 11-29 | Picked up rods and wax scraper. With hot oil and Di-Chem wax solvent cleaned out to 510'.  |
| 11-30 | Cleaned out tubing to 660'. Picked up hollow rods and circulated hot oil to 1060'.   |
| 12-1  | Circulated hot oil to 1100'. Broke through plug. Pumped 50 barrels hot oil. Rigged up Archer-Reed and pulled blank choke at 7581'. Displaced oil and salt water with workover fluid.   |
| 12-2  | Dismantled production head. Installed Class 3 BOPE. Tested pipe rams with 2800 psi for 15 minutes, OK. Tested hydril bag with 2950 psi for 15 minutes, OK. Pulled tubing and packer.   |
| 12-3  | Crew off.  |
| 12-4  | Ran 7" casing scraper and tagged top of liner at 7686'. Ran 5" casing scraper and tagged bottom at 7931'. No fill. Backscuttled for 2-1/2 hours.   |
| 12-5  | Rigged up Dresser-Atlas. Ran Cement Bond log 6500-7914' and Neutron Lifetime log 7300-7911'. Taped in with bridge plug on fullbore packer. Tagged top of liner at 7682'. Set bridge plug at 7675'. Set fullbore at 7668' and tested bridge plug with 1500 psi for 15 minutes, OK. Set fullbore at 3522'. Tested 7" casing 3522-7675' with 1600 psi for 15 minutes, OK. Closed pipe rams and attempted to test 7" casing from surface to 3522'. Pipe rams failed. Attempted to repair rams. Could not make field repairs. Disconnected pipe rams. |

FEB 23 1973

1972

- 12-6 Tested 7" casing from surface to 3522' against hydril bag with 2100 psi for 25 minutes, OK. Set fullbore at 2291'. Tested 7" casing from surface to 2291' with 2500 psi for 15 minutes, OK. Set fullbore at 1177'. Tested 7" casing from surface to 1177' with 3050 psi for 15 minutes, OK. Dismantled BOPE and tubing head. Rigged up casing jacks. Could not unland 7" casing. Cut off casing head.
- 12-7 Welded 18" extension on 7" casing. X-rayed weld ok. Welded new casing head on 13-3/8" casing.
- 12-8 X-rayed 13-3/8" weld, no good. Repaired weld. X-rayed, no good. Cut off new casing head and rewelded same.
- 12-9 X-rayed 13-3/8" weld, no good. Cut off head and rewelded. X-rayed OK. Made up spear and casing jacks. Relanded 7" casing at 212,500#.
- 12-10 Installed new tubing head. Tested primary packing with 3200 psi for 15 minutes, OK. Tested secondary packing with 3225 psi for 15 minutes, OK. Installed BOPE. Tested pipe rams and bag with rig pump to 2000 psi OK. Closed blind rams and tested from surface to 7675' with 1850 psi for 10 minutes, OK. Rigged up Dresser-Atlas. Jet perforated four 1/2" holes at 7668'. Ran in with Johnston tester and set at 7626', tail to 7641'. Opened tool. Strong blow diminishing to weak blow at end of one hour test. No gas to surface.
- 12-11 Pulled tester. Recovered 74' rise workover fluid. Charts OK. WSO approved by Company. No D.O.G. witness required. Ran in with retrieving tool and pulled bridge plug. Rigged up Dresser-Atlas. Using 3-1/2" carrier and 11 gram jet charges reperforated two 1/2" holes per foot 7730-7756' and 7765-7796'. Ran Baker production packer on wireline and set at 7644'.
- 12-12 Rigged up to run tubing in Page safety valve and 1/4" control line. Tested control line and safety valve with 4925 psi for 15 minutes, OK. Ran tubing and control line. Tested control line and valve through donut with 5000+ psi for 30 minutes, OK. Landed tubing.
- 12-13 Dismantled BOPE. Installed new production head. Tested control line and safety valve through tree with 5000+ psi for 30 minutes, OK. Tested donut seals with 3975 psi for 15 minutes, OK. Tested tree with 4025 psi for 15 minutes, OK. Using nitrogen truck unloaded 182 barrels workover fluid. Blew down tubing and casing. Released CPS.

1972

TUBING DETAIL

		<u>Depth</u>
Tubing landed below KB	11.45	11.45
Fatigue nipple, 2-7/8" EUE 8rd N-80	1.00	12.45
Pup Jt., 2-7/8" EUE 8rd N-80	6.00	18.45
Pup Jt., 2-7/8" EUE 8rd n-80	10.00	28.45
141 Jts., 2-7/8" EUE 8rd J-55	4300.58	4329.03
Pup Jt., 2-7/8" EUE 8rd N-80	4.00	4333.03
Camco gas lift valve #1	5.44	4338.47
Pup Jt., 2-7/8" EUE 8rd N-80	2.00	4340.47
39 Jts., 2-7/8" EUE 8rd J-55	1198.48	5538.95
Pup Jt., 2-7/8" EUE 8rd N-80	4.00	5542.95
Camco gas lift valve #2	5.37	5548.32
Pup Jt., 2-7/8" EUE 8rd N-80	2.00	5550.32
36 Jts., 2-7/8" EUE 8rd J-55	1098.44	6648.76
Pup Jt., 2-7/8" EUE 8rd N-80	4.00	6652.76
Camco gas lift valve #3	5.47	6658.23
Pup Jt., 2-7/8" EUE 8rd N-80	2.00	6660.23
32 Jts., 2-7/8" EUE 8rd J-55	976.27	7636.50
Page safety valve w/2-7/8" x 3-1/2" Ported nipple up	5.40	7641.90
X-over 3-1/2" x 2-7/8" EUE 8rd	1.10	7643.00
Baker seal assembly	5.98	7648.98

DIVISION OF OIL AND GAS  
RECEIVED

FEB 23 1973

LONG BEACH, CALIFORNIA

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 172-1408

GAS STORAGE WELL

Mr. P. S. Magruder, Jr., Agent  
PACIFIC LIGHTING SERVICE CO.  
P.O. Box 54790, Terminal Annex  
Los Angeles, CA 90054

Long Beach, Calif.  
Dec. 8, 1972

DEAR SIR:

to gas storage

Your proposal to alter casing & convert/ Well No. "SFZU" P-46 (037-00733)  
Section 28 T 3N, R. 16W S.B.B. & M., Aliso Canyon Field, Los Angeles County,  
dated 11/16/72, received 12/1/72, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED BLOWOUT PREVENTION EQUIPMENT WITH A MINIMUM 2000 PSI WORKING PRESSURE SHALL BE INSTALLED AND MAINTAINED IN OPERATING CONDITION DURING ALL STAGES OF PERFORATING.

ADS:dr

cc Company

Blanket Bond

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

By *W.L. Ingram*, Deputy

DIVISION OF OIL AND GAS

DEC 1 1972

Notice of Intention to Deepen, Redrill, Plug or Alter Casing in Well

This notice must be given before work begins; one copy only

LONG BEACH, CALIFORNIA

Los Angeles Calif. November 16, 19 72

DIVISION OF OIL AND GAS

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of deepening, redrilling, plugging or altering casing at Well No. "SFZU P-46" (Cross out unnecessary words) (037-00133)

Sec. 28, T. 3N, R. 16W, B. & M.

Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth. 7963' plug 7932'.

2. Complete casing record, including plugs:

- 13-3/8" 54.5# C 533'
- 7" 23, 26, 29# C 7710'
- WSO 7710'
- 5" 18# combination liner 7929'
- Perforated 7714' - 7929', 2" x 80 Mesh Slots, 10 rows on 6" centers.
- Top liner hanger 7682'

3. Last produced. (Date) (Oil, B/D) (Water, B/D) (Gas, Mcf/D)

The proposed work is as follows:

Re-perforate two 1/2" jets per foot 7733' - 7929' as required to convert well to a gas storage well.

*active casing*  
*Convert to Gas Storage*

MAP	MAP BOOK	CARDS	BOUND	FORMS	
				114	121
		ARG	B	ARG	ARG

P.O. Box 54790, Term. Annex  
Los Angeles, CA 90054

(Address)

(213) 689-3561

(Telephone No.)

Pacific Lighting Service Company

(Name of Operator)

By *P. B. Maguder Jr.*

STATE OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

830 North La Brea Avenue  
Inglewood, California

September 26, 1968

Mr. Mr. C. G. Nelson, Agent  
Getty Oil Co., Operator  
P. O. Box 811  
Ventura, California 93001

DEAR SIR:

Your request dated letter dated August 26, 1968, relative to change in designation of well(s) in Sec. 27, 28, 34, T.3 N., R.16 W., S.B. B. & M., Aliso Canyon field, Los Angeles County, District No. 1, has been received;

and in accordance with Section 3203, Public Resources Code, reading in part as follows:

“\* \* \* The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by Section 3203, shall not be changed without first obtaining a written consent of the Supervisor.”

the proposed change in designation is hereby authorized as follows: (formerly owned by Getty Oil Co.)

See attached list.

ag  
cc: F. E. Kasline  
Production Dept.  
Conservation Committee

F. E. KASLINE

~~E. R. MURRAY-AARON~~  
State Oil and Gas Supervisor

By Wm. C. Bailey  
Deputy Supervisor

Proposed Changes of Well Designation

Old Designation:

New Designation:

Sec. 27:

"Fernando Fee" 32  
"Porter" 12  
" " 30  
" " 31  
" " 32  
" " 36  
" " 37  
" " 45

"SFZU" FF-32 (037-00686)  
" " P-12 (037-00701)  
" " P-30 (037-00717)  
" " P-31 (037-00718)  
" " P-32 (037-00719)  
" " P-36 (037-00723)  
" " P-37 (037-00724)  
" " P-45 (037-00732)

Sec. 28:

"Porter" 4  
" " 25  
" " 26  
" " 34  
" " 35  
" " 38  
" " 39  
" " 40  
" " 41  
" " 42  
" " 43  
" " 44  
" " 46  
" " 47  
"Porter-Sesnon" 42

"SFZU" P-4 (037-00699)  
" " P-25 (037-00712)  
" " P-26 (037-00713)  
" " P-34 (037-00721)  
" " P-35 (037-00722)  
" " P-38 (037-00725)  
" " P-39 (037-00726)  
" " P-40 (037-00727)  
" " P-41 (037-00728)  
" " P-42 (037-00729)  
" " P-43 (037-00730)  
" " P-44 (037-00731)  
" " P-46 (037-00733)  
" " P-47 (037-00734)  
" " PS-42 (037-00753)

Sec. 34:

"Fernando Fee" 31  
" " 33  
" " 34  
" " 35  
"Mission-Adrian Fee" 3  
" " 4  
" " 5

"SFZU" FF-31 (037-00685)  
" " FF-33 (037-00687)  
" " FF-34 (037-00688)  
" " FF-35 (037-00689)  
" " MA-3 (037-00693)  
" " MA-4 (037-00694)  
" " MA-5 (037-00695)



**SUBMIT LOG IN DUPLICATE**  
FILL IN WITH TYPEWRITER. WRITE ON ONE SIDE OF PAGE ONLY

**DIVISION OF OIL & GAS**  
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APR 19 1944  
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STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

**DIVISION OF OIL AND GAS**

**WELL SUMMARY REPORT**

*P-46*

Operator TIDE WATER ASSOCIATED OIL COMPANY Field Aliso Canyon  
Well No. Porter 448 Sec. 29, T. 2-N, R. 14-W, S. B. B. & M.  
1425.00' south and 3225.00'  
Location west from Station 484 Elevation of derrick floor 31 above sea level 2261.77 feet.  
ground

In compliance with the provisions of Chapter 93, Statutes of 1939, 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 31, 1944 Signed [Signature]  
G. O. Pfeiffer R. S. Gurel Title Agent  
(Engineer or Geologist) (Superintendent) (President, Secretary or Agent)

Commenced drilling November 2, 1943 Completed drilling February 25, 1944 Drilling tools  Cable Rotary

Total depth	Plugged depth	GEOLOGICAL MARKERS	DEPTH
<u>7952'</u>	<u>7922'</u>		
Junk			

Commenced producing February 27, 1944 (date) Flowing/gas lift/pumping (cross out unnecessary words)

Initial production (15 hours)  
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
<u>1483 (2573 rate)</u>	<u>24.1</u>	<u>4.5%</u>	<u>1267 rate</u>	<u>740#</u>	<u>0# - 400#</u>
<u>568</u>	<u>23.4</u>	<u>0.2%</u>	<u>950</u>	<u>1075#</u>	<u>2800#</u>

**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 Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforation
<u>13-3/8"</u>	<u>523'</u>	<u>0'</u>	<u>34.5#</u>	<u>New</u>	<u>Seamless &amp; Lapweld</u>	<u>J-55 &amp; High Yield</u>	<u>17"</u>	<u>480</u>	
<u>"</u>	<u>7710'</u>	<u>0'</u>	<u>24, 26, 28#</u>	<u>New</u>	<u>Seamless</u>	<u>J-55 &amp; N-80</u>	<u>9-5/8"</u>	<u>400</u>	
<u>8"</u>	<u>7929'</u>	<u>7682'</u>	<u>17.93#</u>	<u>New</u>	<u>Seamless</u>	<u>N-80</u>	<u>7-5/8"</u>		

**PERFORATIONS**

Size of Casing	From	To	Size of Perforations	Number of Rows	Distance Between Centers	Method of Perforations
<u>8"</u>	<u>7714</u> ft.	<u>7722</u> ft.	<u>80 Mesh x 2"</u>	<u>10</u>	<u>6"</u>	<u>Kobe</u>
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				

MAP | MAP BOOK | CARDS | BOND | FORMS  
114 | 121

Electrical Log Depths 5231 - 7929' (Attach Copy of Log)

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**DIVISION OF OIL AND GAS**

LOS ANGELES, CALIFORNIA

**History of Oil or Gas Well**

OPERATOR WIDE WATER ASSOCIATED OIL COMPANY FIELD Aliso Canyon

Well No. Porter #45, Sec. 26, T. S-N, R. 15-W, S. B. B. & M.

Signed [Signature]

Date March 30, 1944 Title Agent  
(President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, re-drilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, re-drilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

LOCATION: 1435.00' south and 3225.00' west  
from station #84.  
ELEVATION: 3261.77'

A. PREPARING TO DRILL

<u>1943</u>	<u>Depth</u>	
9/27 - 10/3		Graded road and rig site.
10/7 - 10/8		Drained spring in rig site.
10/9		Dug cellar.
10/10		Idle.
10/11		Built forms.
10/12 - 10/13		Poured concrete
10/14 - 10/15		Idle.
10/16 - 10/21		Built rig and pipe racks; moved in and rigged up equipment.
10/22 - 11/1		Wired rig and rigged up rotary.

B. DRILLING TO 533'

11/2 - 11/3	85'	Spudded 12 1/2" hole at 8:00 P.M. (11/2). Drilled 12 1/2" hole from 0' to 85'. Opened 12 1/2" hole to 17 1/2" hole from surface to 70'.
11/4 - 11/19	1556'	Drilled 12 1/2" hole from 85' to 1556'.
11/20		Opened 18 1/2" hole to 17" hole from 70' to 533'.

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**DIVISION OF OIL AND GAS**

**History of Oil or Gas Well**

DIVISION OF OIL & GAS  
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 LOS ANGELES, CALIFORNIA

Sheet 3

OPERATOR THE WATER ASSOCIATED OIL COMPANY FIELD 1100 Canyon

Well No. Porter 48, Sec. 25, T. 34N, R. 10E, S. B. & M.

Signed R. J. [Signature]

Date March 30, 1944 Title Agent  
 (President, Secretary or Agent)

**Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance.** Such operations include drilling, re-drilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, re-drilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date	Depth	Description
11/21		Cemented 13-3/8", 54.5' casing at 533' with 400 sacks Colton construction cement; last 100 sacks treated. Had only intermittent circulation while cementing. No cement returns to surface. Pressure jumped from 300 to 450 when plugs bumped. Time 3:18 P.M. Calculated displacing mud 465 cu.ft. actual displacing mud 480 cu.ft. Mixing time 17 minutes. Displacing time 21 minutes. International Cementers Inc. Cemented around top of casing with 80 sacks Blue Diamond construction cement. Detail of casing as follows: 0' - 514.0' is Youngstown Grade J-55 320. 514.0' - 533.0' is A.C. Smith High Field slip joint.
11/22		Landed 13-3/8" casing and installed cellar connections. Cleaned out plugs and cement from 531' to 538'.
11/23	1602'	Cleaned out to 1556' and resumed drilling 12 1/2" hole. Drilled 12 1/2" hole from 1556' to 1602'.
11/24	1703'	Drilled 12" hole from 1602' to 1703'. Laid down 6-5/8" drill pipe. Made up 5-8/16" drill pipe.
11/25 - 12/31	5335'	Drilled 12" hole from 1703' to 5335'.
1944		
1/1 - 1/17	7121'	Drilled 12" hole from 5335' to 7121'. Laid down 5-9/16" drill pipe. Made up 4 1/2" drill pipe.
1/18 - 1/26	7670'	Reduced size of hole from 12" to 9-5/8" at 7121' and resumed drilling. Drilled 9-5/8" hole from 7121' to 7670'.
1/27 - 1/30	7782'	Reduced size of hole from 9-5/8" to 7-5/8" at 7670' and began coring. Cored 7-5/8" hole from 7670' to 7782'. Ran Schlumberger electric log at 7782'.

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**History of Oil or Gas Well**

**LOS ANGELES, CALIFORNIA**

OPERATOR VICTOR HIGH TEMPERATURE ASSOCIATED OIL COMPANY FIELD Aliso Canyon

Well No. Victor 46, Sec. 22, T. 2-N, R. 12-W, B. & M.

Signed [Signature]

Date March 30, 1944 Title Agent  
 (President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, redrilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, redrilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date	Depth	Description
1/30		Rung 4 3/8" drill pipe at 7779'. Pumped in 35 sacks Victor High Temperature cement. Displaced with 610 cu.ft. mud. Time 8:28 A.M. Mixing time 5 minutes. Displacing time 27 minutes. International Cementers Inc.
1/31		Reamed 3-5/8" hole from 7121' to 7670' and opened 7-5/8" hole to 3-5/8" from 7670' to 7710'. Top of cement 7684'.
2/1		Cemented 7" Youngtown Speedrite casing at 7710' with 400 sacks Colton High Temperature cement in bulk. Pressure jumped from 2100' to 2200' when plugs dumped. Time 8:35 P.M. Calculated displacing mud 1673 cu.ft. Actual displacing mud 1686 cu.ft. Mixing time 20 minutes. Displacing time 1 hour 24 minutes. International Cementers Inc. Detail of casing as follows: 0' - 5381.0' is 23 1/2" Grade J-55 5381.0' - 5166.4' is 25" Grade N-80 5166.4' - 6716.9' is 26" Grade N-80 6716.9' - 7710.0' is 29" Grade N-80
2/3-2/4		Standing cemented.
2/5		Made up 3 1/2" drill pipe. Located top of cement at 7608'. Cleaned out to 7698'.
2/5		Made casing test O.K. with 1250' for 50 minutes. Cleaned out to 7715'. San Johnston tester. Wiper. Valve opened but tool plugged immediately.
2/7		Cleaned out to 7715'. San Johnston tester on 3 1/2" drill pipe. Set pecker at 7675'; bottom of tail pipe 7697'. Opened 3/8" bean at 3:30 P.M. Had moderate, steady blow of air for 17 minutes and fairly strong to weak heads of air of from 2 to 5 minutes duration for balance of test. Closed valve at 4:32 P.M. after being open 1 hour 2 minutes. Recovered 860' (5.6 barrels) gas out drilling fluid grading downward from heavy to light. Top 180' (1.2 barrels) blew from drill pipe as case was pulled. Unable to filter any water from samples taken in interval 860' to 420' above tester. Salinity of filtrate from remaining samples as follows:

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**DIVISION OF OIL AND GAS**

**History of Oil or Gas Well**

LOS ANGELES, CALIFORNIA

OPERATOR THE WATER ASSOCIATED OIL COMPANY FIELD Allen Canyon

Well No. Porter 246, Sec. 23, T. 5-N, R. 16-W, S. 2 B. & M.

Signed P. J. [Signature]

Date March 30, 1944 Title Agent  
(President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, redrilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, redrilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date 1944 Depth

2/7 (cont'd)

Ht. Sample Above Tester (Feet)	Salinity of Filtrate (g/g)
420	89
340	82
30	88
0	82

Had two pressure recorders below tester. Both pressure recorder showed valve open with one indicating 3500' flow pressure and the other indicating 2800' flow pressure. The pressure recorder showing 2800' flow pressure is believed inaccurate as same was dropped from truck prior to being run in hole. W.S.C. approved by D.O.G.

2/8 Sized and conditioned mud.

2/8-2/16 7963' CORRECTED MEASUREMENT 7762' - 7765'. Cleaned out from 7715' to 7765' and resumed coring making 6" hole. Cored 6" hole from 7735' to 7963'. Ran Schlumberger electric log at 7963'.

2/16 Ran Lane-Wells directional survey to 7963'. Made up Johnston tester.

2/17 Ran Johnston tester on 3 1/2" drill pipe. Set casing packer at 7679'; side wall packer at 7822'. Had 3 1/2" perforated tail pipe to bottom. Opened 3/8" bean at 4:55 A.M. Had moderate steady blow of air for 15 1/2 minutes. Moderate flow of gas for 1/2 minute. Fluid to surface at 5:11 A.M. 16 minutes after valve was opened. Closed valve 1 minute after fluid reached surface after being open 17 minutes. Well continued flowing by heads to sump for about 1 hour after valve was closed. Fluid was initially mud grading to muddy oil. While pulling drill pipe most of remaining fluid blow from pipe. Had first blow with 6765' of pipe above valve. Data on fluid samples as follows:

Sample Taken	Net Grav.	Total Gals	Water	Mud	Sol.	Salinity
From blow box	17.8	35.0	—	7.0	27.0	—
During blow 6765' above tester	—	20.0	14.5	5.5	—	55 g/g
During blow 4125' above tester	21.1	16.0	4.0	9.0	3.0	—
During blow 605' above tester	21.3	10.0	8.0	2.0	—	109 g/g
During blow 215' above tester	21.2	12.0	9.5	2.0	0.5	82 g/g
From tester.	22.2	11.0	9.0	2.0	—	89 g/g

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**DIVISION OF OIL AND GAS**

**History of Oil or Gas Well**

LOS ANGELES, CALIFORNIA

Sheet 11

OPERATOR California Petroleum Co. Inc. FIELD Aliso Canyon

Well No. 10000, Sec. 20, T. 24N, R. 12E, S. 36 B. & M.

Signed [Signature]

Date March 20, 1944 Title Agent (President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, re-drilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, re-drilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date	Depth	Description
3/17 (cont'd)		Pressure recorder indicated bottom hole flow pressure of 3320# initially increasing to 3360#. Ran 6" bit and reamer and cleaned out to bottom. Found no bridgework.
3/18		Ran 3 1/2" drill pipe at 7935' and pumped in 12 sacks Victor High Temperature cement. Displaced with 250 cu.ft. mud. Preceded cement with 20 cu.ft. of water and followed cement with 5 cu.ft. of water. Time 3:57 P.M. Mixing time 2 minutes. Displacing time 21 minutes. International Cementers Inc.
3/18		Well scraped 1-5/8" hole from 7720' to 7700' and ground 6" hole to 7-5/8" from 7725' to 7930'. Found top of cement at 7930'; bottom of cement at 7920'.
3/18		Ran 6 1/2" drill pipe at 7935' and pumped in 20 sacks Victor High Temperature cement. Displaced with 5 cu.ft. water and 250 cu.ft. mud. Preceded cement with 25 cu.ft. of water. Time 10:00 A.M. Mixing time 2 minutes. Displacing time 20 minutes. International Cementers Inc.
3/21		Located top of cement at 7918'. Cleaned out to 7932'.
3/22		Idle for 24 hours on account of storm.
3/23-3/24		Well scraped hole from 7720' to 7918'. Conditioned mud.
3/25		Landed 247.0' of 5", 17.05#, Grade H-30, Rydral inserted Youngstown casing at 7935' including 215.4' perforated. Perforations are 30 mesh Sobe, 10 mesh, 2" slots, 6" centers, 6" undercut. Top of 1-1/2" Burns liner hanger 7882'.
3/26		Ran 2-5/8", 4.7#, and 2-7/8", 6.5# range 2, Grade H-10, Youngstown, round thread, upset tubing at 7924'. Bottom 224' is 2-5/8". Installed man trees.
3/27		Circulated and cleaned mud with water and oil. Well began flowing to pump at 12:15 A.M. Started well to pump at 8:00 P.M. In 15 hours well cleaned 1000 barrels gas; 1425 barrels approximately wet oil (23% 1/2 net water); 2400 dry gas; 60% average water including 60% water and 60% mud; 32/36" casing; 700' tubing; pressure 0 - 600' casing pressure; 1207 1/2 gas rate.

U.S. PATENT OFFICE

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DEPARTMENT OF NATURAL RESOURCES  
**DIVISION OF OIL AND GAS**

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**History of Oil or Gas Well**

LOS ANGELES, CALIFORNIA

OPERATOR \_\_\_\_\_ FIELD \_\_\_\_\_

Well No. \_\_\_\_\_, Sec. \_\_\_\_\_, T. \_\_\_\_\_, R. \_\_\_\_\_, S. \_\_\_\_\_ B. & M.

Signed \_\_\_\_\_

Date \_\_\_\_\_ Title \_\_\_\_\_

(President, Secretary or Agent)

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Date

2/28 Well flowed 2506 barrels gross fluid; 2168 barrels approximate net oil; 24.1 dry gravity; 4.0 average cut; 32/64" to 24/64" bean; 740#-1125# tubing pressure; 400#-1650# casing pressure; 1419 MCF gas. Started bearing well back at 4:00 P.M. During 24 hour period from 5:00 P.M. 2/27 to 5:00 P.M. 2/28 well flowed 2542 barrels gross fluid; 2440 barrels approximate net oil; 24.1 dry gravity; 4.0 average cut; 32/64" bean; 740# tubing pressure; 0# - 550# casing pressure; 1250 MCF gas.

2/29 Well flowed 1517 barrels gross fluid; 1491 barrels approximate net oil; 24.1 dry gravity; 1.8% cut; 24/64" bean; 1400# tubing pressure; 2575# casing pressure; 1502 MCF gas. Shut well in at 6:00 A.M. March 1, 1944.

Date	Gross Fluid	Approximate Net Oil	Gravity	Cut	Bean	Tubing Pressure	Casing Pressure	Gas MCF	Hours On
5/1	Shut-in					1740	2700		
5/2	Shut-in					1775	2700		
5/3	Shut-in					1775	2700		
5/4	Shut-in					1775	2700		
5/5	Shut-in					1775	2700		
5/6	Shut-in					1775	2700		
5/7	Shut-in					1775	2700		
5/8	Shut-in					1775	2700		
5/9	221	219	25.4	1.0	8/64	100	2700	126	24
5/10	200	198	25.4	4.0	8/64	975	2700	108	24
5/11	285	210	25.4	3.0	8/64	975	2700	110	24
5/12	310	207	25.4	1.5	8/64	975	2725	118	24
5/13	315	214	25.4	0.5	8/64	975	2700	107	24
5/14	217	215	25.4	0.7	8/64	980	2700	97	24
5/15	217	215	25.4	0.5	8/64	990	2700	91	24
5/16	210	208	25.4	0.2	8/64	1000	2700	100	24
5/17	417	416	25.4	0.1	12/64	1000	2700	214	24
5/18	429	428	25.4	0.2	12/64	1000	2700	210	24
5/19	430	440	25.4	0.2	12/64	1000	2700	195	24

\* Gauge under water.

SUBMIT IN DUPLICATE  
STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL & GAS  
**RECEIVED**  
APR 19 1944  
LOS ANGELES, CALIFORNIA

**DIVISION OF OIL AND GAS**

**History of Oil or Gas Well**

OPERATOR \_\_\_\_\_ FIELD \_\_\_\_\_

Well No. \_\_\_\_\_, Sec. \_\_\_\_\_, T. \_\_\_\_\_, R. \_\_\_\_\_, B. & M. \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_ Title \_\_\_\_\_

(President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, re-drilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, re-drilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date

Date	Cross Field	Approximate Net Oil	Gravity	Gas	Water	Tubing	Casing	Cas	Thrust
5/30	490	599	25.4	0.2	12/64	1800	2700	193	24
5/31	557	565	25.4	0.5	12/64	1150	2800	194	24
5/32	545	541	25.4	0.2	12/64	1150	2800	185	24
5/33	593	590	25.4	0.5	12/64	1250	2850	604	24
5/34	776	773	25.4	0.1	12/64	1050	2850	559	24
5/25	540	545	25.4	0.3	12/64	1700	2450	549	24
5/26	525	525	25.4	0.5	12/64	1700	2550	563	24
5/27	500	507	25.4	0.5	12/64	1800	2750	551	24
5/28	557	555	25.4	0.2	12/64	1575	2800	510	24

Size of Holes:  
 0' - 555' is 1 1/2"  
 555' - 712 1/2' is 1 1/2"  
 712 1/2' - 7710' is 2-3/8"  
 7710' - 7820' is 2-7/8"  
 7820' - 7925' is 2"

Using 2 1/2" drill pipe.

CASING RECORD

T.D. 7963'; Pg. 7932'

12-3/8", 22.34  
 7", 225', 255', 280'  
 2 1/2" - 0", 17,000'  
 0' - 555', 555' - 712 1/2', 712 1/2' - 7710', 7710' is 2-3/8"  
 1 Yard'. Top 7925', 2c. 7714' - 7925'

TUBING RECORD

Using 2-3/8", 4.7' and 2-7/8", 5.54' round thread upset tubing at 7820'. Bottom 284' is 2-3/8".

MAP	MAP BOOK	CARDS	BOND	FORMS	
				114	121

*[Signature]*

**DIVISION OF OIL AND GAS**

**LOG AND CORE RECORD OF OIL OR GAS WELL** Sheet 1

Operator TIDE WATER ASSOCIATED OIL COMPANY Field Liso Canyon

Well No. Porter 46 Sec. 30, T. 3-N, R. 16-W, S. E. B. & M.

**FORMATIONS PENETRATED BY WELL**

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
0'	24'		Drilled		Surface sand and boulders.
24'	42'		"		Sand and boulders.
42'	54'		"		Sand.
54'	424'		"		Sand and shale.
424'	466'		"		Sand.
466'	669'		"		Sand and shale.
669'	680'		"		Shale.
680'	885'		"		Sand and shale.
885'	897'		"		Shale.
897'	1668'		"		Sand and shale.
1668'	1703'		"		Hard shale.
1703'	1859'		"		Sand and shale.
1859'	1942'		"		Sand and hard shale.
1942'	1975'		"		Sand and shale; streaks hard shale.
1975'	2025'		"		Sand and shell.
2025'	2061'		"		Sand and hard shale.
2061'	2386'		"		Sand and shale.
2386'	2409'		"		Hard shale.
2409'	2953'		"		Sand and shale.
2953'	2974'		"		Hard shale.
2974'	3369'		"		Sand and shale.
3369'	3395'		"		Sand and hard shale.
3395'	3421'		"		Sand and shale.
3421'	3443'		"		Hard sand.
3443'	3486'		"		Sand and shale.
3486'	3505'		"		Hard sand.
3505'	3521'		"		Sand and shale.
3521'	3645'		"		Hard sand.
3645'	3845'		"		Sand and shale.
3845'	3891'		"		Sandy shale.
3891'	3939'		"		Sand and hard shale.
3939'	4051'		"		Sand and shale.
4051'	4078'		"		Hard shale.
4078'	4101'		"		Sand and shale.
4101'	4136'		"		Sand and shale; streaks hard shale.
4136'	4139'		"		Hard sand and shale.
4139'	4586'		"		Sand and shale.
4586'	4588'		"		Hard sand and shale.
4588'	4723'		"		Sand and shale.
4723'	4775'		"		Sandy shale.
4775'	4840'		"		Sand and shale.
4840'	5027'		"		Sandy shale.
5027'	5086'		"		Sand and shale.
5086'	5333'		"		Sandy shale.

**DIVISION OF OIL AND GAS**

**LOG AND CORE RECORD OF OIL OR GAS WELL**

Sheet 2

Operator THE WATER ASSOCIATED OIL COMPANY Field Aliso Canyon

Well No. 7612 Sec. 28, T. 3-S, R. 16-N, S. 1 B. & M.

**FORMATIONS PENETRATED BY WELL**

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
5282'	5635'		Drilled		Sand and shale.
5635'	5648'		"		Hard sand and shale.
5648'	5708'		"		Sand and shale.
5708'	5725'		"		Sandy shale.
5725'	6013'		"		Sand and shale.
6013'	6089'		"		Sandy shale.
6089'	6114'		"		Sand and shale.
6114'	6319'		"		Sandy shale.
6319'	6428'		"		Sand and shale.
6428'	6492'		"		Sandy shale.
6492'	6688'		"		Sand and shale.
6688'	6705'		"		Sand; hard shale.
6705'	6791'		"		Sand and shale.
6791'	6802'		"		shale.
6802'	6953'		"		Sand and shale.
6953'	6978'		"		shale.
6978'	7264'		"		Sand and shale.
7264'	7278'		"		Hard shale.
7278'	7428'		"		Sand and shale.
7428'	7438'		"		Hard shale.
7438'	7455'		"		Sand and shale.
7455'	7459'		"		Hard shale.
7459'	7598'		"		Sand and shale.
7598'	7612'		"		shale.
7612'	7670'		"		Sand and shale.
<u>7-5/8" Globe line cores</u>					
7670'	7690'		Cored	9' 0"	Sandy siltstone. Firm to fairly hard, gray, massive. More sandy portions oil stained. Bottom 1'-0" approaches a fine silty oil sand. Occasional fish scales and small megafossils. No to fair cut and odor.
7690'	7690'		"	10' 0"	0'6" Shell. 9'0" Sandy siltstone. Firm to fairly hard, gray, massive. More sandy portions oil stained. Occasional fish scales and small megafossils. Upper 6'-0" approaches fine, silty oil sand. No to good cut and odor. 0'6" Shell.

DIVISION OF OIL AND GAS

LOS ANGELES, CALIFORNIA

LOG AND CORE RECORD OF OIL OR GAS WELL Sheet 3

Operator IDEA OIL ASSOCIATED OIL COMPANY Field Aliso Canyon

Well No. Porter 446 Sec. 28, T. 3-N, R. 16-W, S. 3 B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
7690'	7700'		Cored	10' 0"	Sandy siltstone as above. Streaks to 1'-0" approach a fine, silty oil sand. Fair to good cut and odor.
7700'	7710'		"	9' 0"	Sandy siltstone as above. No to slight cut and odor.
7710'	7720'		"	8' 0"	Sandy siltstone as above. No to slight cut and odor.
7720'	7730'		"	9' 0"	Sandy siltstone as above. Bottom 2'-0" approaches a fine silty oil sand. Fair to good cut and odor.
7730'	7740'		"	0' 2"	Fragments to 0'-1" shale. Hard, dark brown. Minor slickensiding. This material is probably savings from higher up hole.
7740'	7750'		"	0' 1"	Fragments sandy siltstone. Firm, oil stained. Good cut and odor.
7750'	7760'		"	7' 8"	7'0" Sandy siltstone. Firm to fairly hard, gray, massive. More sandy portions oil stained. Streaks to 1'-0" approach fine, silty oil sand. Good cut and odor.
				0' 8"	Oil sand. Firm, fine to medium, somewhat silty. Good cut and odor.
7760'	7770'		"	7' 8"	Oil sand. Loosely consolidated. Fine to medium. Well sorted. Good cut and odor.
7770'	7780'		"	0' 8"	Oil sand. As above.
7780'	7782'				CONNECTED MEASUREMENT.
					<u>6" Well Conventional Cored</u>
7782'	7785'				CONNECTED MEASUREMENT.

**DIVISION OF OIL AND GAS**

**LOG AND CORE RECORD OF OIL OR GAS WELL** Sheet 4

Operator WIDE WATER ASSOCIATED OIL COMPANY Field Aliso Canyon

Well No. Porter #46 Sec. 28, T. S-4, R. 16-W, S. B. B. & M.

**FORMATIONS PENETRATED BY WELL**

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
7855'	7855'		Cored	15' 6"	9' 0" Oil sand. Well consolidated, fine to medium, generally well sorted but somewhat silty. Good cut and odor. 1' 0" Sandy siltstone. Firm to fairly hard, bluish-gray, massive. Generally oil stained. More sandy portions approach a fine, silty oil sand. No to good cut and odor. 2' 0" Shell. Limey siltstone. 3' 0" Sandy siltstone. As above. 0' 6" Shell. Limey siltstone.
7856'	7834'		"	10' 6"	Sandy siltstone. Fairly hard, bluish-gray, massive. Streaks to 0'-6" limey siltstone shell. Occasional small megafossil. More sandy portions oil stained. No to fair cut and odor.
7834'	7834'		"	1' 6"	0' 9" Shell. Limey siltstone. 0' 9" Oil sand. Firm, fine to medium, silty. Good cut and odor.
7834'	7841'		"	5' 6"	0' 6" Mottled oil sand and gray sand. Firm, fine to medium, silty. Fair cut and odor. Grading to 5' 6" Dark gray sand. Well consolidated, fine to medium, very silty. Occasional small pebble. No cut. Burnt odor. 1' 6" Sand, shale, and siltstone. Fragments badly burned and contaminated with drilling fluid.
7841'	7852'		"	4' 6"	Mottled oil sand and gray sand. Well consolidated, fine to medium, silty. Occasional small pebble. Bottom 1'-0" approaches sandstone shell. No to fair cut and odor.
7852'	7852'		"	9' 0"	5' 0" Mottled oil sand and gray sand. As above. Portions of core grade to sandstone shell. Oil sand has good cut and odor. 2' 0" Mottled silty oil sand. Loosely consolidated to firm, fine, very silty. Generally with good cut and odor.

DIVISION OF OIL AND GAS

LOG AND CORE RECORD OF OIL OR GAS WELL Sheet 5

Operator ..... Field .....

Well No. .... Sec. ...., T. ...., R. ...., B. & M. ....

FORMATIONS PENETRATED BY WELL

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
7882'	7882' (0' 0")		Cored		4' 0" Sandy siltstone, firm, bluish-gray, massive, oil stained. Sometimes approaches a fine silty oil sand. One 0'-4" streak limy siltstone shell 2'-0" from bottom. Good cut and odor.
7882'	7882'		"	12' 0"	2' 0" Sandy siltstone, as above. Good cut and odor. 6' 0" Sandy siltstone, firm to fairly hard bluish-gray, massive. More sandy portions oil stained. No to good cut and odor. Several streaks 0'-2" to 0'-4" in thickness of limy siltstone shell in bottom 6'-0" of core.
7882'	7894'		"	11' 0"	Sandy siltstone, as above. No to fair cut and odor. Occasional streak to 0'-4" limy siltstone shell.
7894'	7906'		"	9' 0"	2' 0" Mottled silty oil sand and gray sand, firm to loosely consolidated, fine to medium, very silty. Occasional small pebbles. Slight to good cut and odor. 4' 0" Sandy siltstone and dark gray silty sand. Bodily broken, burnt and contaminated with drilling mud. Sand has no cut and burned odor.
7906'	7918'		"	6' 0"	Oil sand, firm, fine to medium, generally well sorted, but somewhat silty. More silty portions have grayish cast. Good cut and odor.
7918'	7918'		"	6' 0"	3' 0" Shell. Limy siltstone. 1' 0" Oil sand, firm to fairly hard, fine to medium, silty. Has grayish cast. Fair to good cut and odor. Grades to 1' 0" Sandy siltstone, firm, bluish-gray, massive, heavily oil stained and approaching a fine, silty oil sand. Good cut and odor. 1' 0" Shell. Limy siltstone to sandstone. Dip 45°. 0' 6" Mottled silty oil sand and gray sand, firm, fine to medium, very silty. Fair to good cut and odor.

DIVISION OF OIL AND GAS LOS ANGELES, CALIFORNIA

LOG AND CORE RECORD OF OIL OR GAS WELL Sheet 6

Operator THE WATER RESOURCES COMPANY Field Aliso Canyon  
Well No. 246 Sec. 22, T. 23N, R. 10E, S. 3 B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				
7919'	7939'		Cored	8' 0"	3' 0" streaks to 0'-2" mottled oil sand and gray sand, sandy siltstone, and sandstone shell. Sand is firm to hard, fine to medium, silty. Occasional small pebble. Hardest portions grade into sandstone shell. Siltstone oil stained and approaching a fine, silty oil sand. Fair to good out and odor. 1' 0" Shell. Sandstone. Hard, gray, fine to coarse, biotitic. Sometimes limy. Occasionally oil stained. 1' 0" Mottled silty oil sand and gray sand. Firm to loosely consolidated, fine to medium, very silty. No to fair out and odor.
7939'	7959'		"	12' 0"	3' 0" Sandstone shell. Sometimes limy. 3' 0" Gray sand. Unconsolidated to firm, fine to medium, very silty. No to slight out and odor.
7959'	7962'		"	0' 6"	Shell. Sandstone. Hard, limy.
7962'	7963'		"	0' 1"	Fragments sandstone shell. Very hard, fine, bluish-gray, limy.

MAP	MAP BOOK	CARDS	BOND	FORMS	
				114	121

*of*

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off  
(FORMATION TESTER)

No. T. 1-42579

Mr. R. S. Curl, Los Nietos, Calif. February 9, 19 44  
Los Nietos, Calif. 121  
Agent for TIDE WATER ASSOCIATED OIL COMPANY

DEAR SIR:

Your well No. "Porter" 46, Sec. 28, T. 3 N., R. 16 W., S. B. B. & M.  
Aliso Canyon Field, in Los Angeles County, was tested for water shut-off  
on February 7, 1944. Mr. J. L. White, Inspector, designated by the supervisor,  
was present as prescribed in Sec. 3222 and 3223, Ch. 93, Stat. 1939; there were also present  
John Sinclair, Engineer, and  
R. W. Roberts, Drilling Foreman  
Shut-off data: 7 in 23, 26, lb. casing was cemented at 7710 ft. on February 1, 1944  
in 10-5/8" hole with 400 sacks of cement of which 10 sacks were left in casing.  
Casing record of well: 13-3/8" cem. 533', 7" cem. 7710', W.S.O.

Reported total depth 7782 ft. Bridged with cement from 7779 ft. to 7715 ft. Cleaned out to 7715 ft. for this test.  
A pressure of 1250 lb. was applied to the inside of casing for 30 min. without loss after cleaning out to 7698 ft.  
A Johnston tester was run into the hole on 3-1/2 in. drill pipe, with        ft. of water cushion,  
and packer set at 7675 ft. with tailpiece to 7697 ft. Tester valve, with 3/8" bean, was opened at 3:30 p.m.  
and remained open for 1 hr. and 2 min. During this interval ~~there was a moderate steady~~  
~~blow for 17 minutes and fairly strong to weak heads of from 2 to 5 minutes duration~~  
for the balance of the test.

INSPECTOR J. H. SHOW VISITED THE WELL FROM 9:00 TO 11:30 P.M. ON FEBRUARY 6, 1944, AND MR. G. C. PFEFFER REPORTED:

1. A 17-1/2" rotary hole was drilled from the surface to 533', a 12-1/2" rotary hole from 533' to 7121', a 9-5/8" rotary hole from 7121' to 7710', and a 7-5/8" rotary hole from 7710' to 7782'.
2. Electrical core readings showed the top of the Sesnon oil sand at 7730'.
3. On January 30, 1944, 35 sacks of cement was pumped in through 3-1/2" drill pipe hanging at 7779'. The top of the cement was located at 7684' and was cleaned out to 7710'.

INSPECTOR SHOW NOTED THAT the Johnston tester plugged.

INSPECTOR WHITE ARRIVED AT THE WELL AT 6:20 P.M. ON FEBRUARY 7, 1944, AND NOTED:

1. When the drill pipe was removed 860' of heavy, grading to light, gassy drilling fluid was found in the drill pipe above the tester, equivalent to 5.6 bbls.
2. Water filtered from fluid samples taken from 420', 240', and 60' above bottom of drill pipe tested 88.9, 61.6, and 61.6 grains of salt per gallon, respectively.

The test was completed at 9:30 p.m.

THE SHUT-OFF IS APPROVED.

cc- L. C. Decius  
Jos. Jensen  
G. C. Pfeffer (2)  
JLW:chh

*Pfeffer. e. J. 2/21/44*  
*T.D. now. 7963'. core 7941-7950 shows fine silty grey sand - no cut - slight color. looks wet in core but does not show wet in C. - Will p w/c to 7935± before landing a liner. ok - no test required*

R. D. BUSH, State Oil and Gas Supervisor

By E. H. Musser, Deputy

STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 1-38952

Los Angeles 14, Calif. October 21, 19 43.

Mr. R. S. Curl,

Los Nietos, Calif.

Agent for TIDE WATER ASSOCIATED OIL COMPANY

DEAR SIR:

Your proposal to drill Well No. "PORTER" 46, Section 28, T. 3 N., R. 16 W., S. B. B. & M., Aliso Canyon Field, Los Angeles County, dated Oct. 15, 1943, received Oct. 18, 1943, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The well is 1425 feet S. and 3225 feet W. from Station #84 (Approx)  
The elevation of the derrick floor above sea level is 2275 feet (Approx) 2261.77 (F. 100) Erma  
We estimate that the first productive oil or gas sand should be encountered at a depth of about 7825 feet."

PROPOSAL:

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing	Weight	Grade and Type	Depth	Landed or Cemented
13-3/8	54.5	J-55	500	Cemented
7	23 to 29	J-55 & N-80	7810	Cemented
5	18	N-80	8175	Landed (Pf. Inr.)

Well is to be drilled with rotary tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Mud fluid consistent with good drilling practice shall be used and the column of mud fluid maintained at all times to the surface, particularly while pulling the drill pipe.
2. Blowout prevention equipment, sufficient to provide a complete close-in of the well under pressure at any time, shall be installed.
3. Any hole to be sidetracked in any oil zone shall be filled with cement, if possible.
4. This division shall be consulted before running the 7" casing.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS a test of the effectiveness of the 7" shut-off.

cc- P. A. W.  
L. C. Decius  
Jos. Jensen  
G. C. Pfeffer

ERMA:OH *[Signature]*

R. D. BUSH  
State Oil and Gas Supervisor

By *[Signature]* Deputy

STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

037-00783

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

9

Los Nietos Calif. October 15 19 43

DIVISION OF OIL AND GAS

Los Angeles Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. "Porter" #46, Sec. 28, T. 3 N., R. 16 W., S. B. B. & M., Aliso Canyon Field, Los Angeles County. Lease consists of Porter lease

The well is 1425 feet ~~N~~ of S., and 3225 feet ~~E~~ of W. from Station #84 (Approx)  
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the derrick floor above sea level is 2275 feet. (Approx) 2261.77 (F. 100) Erma  
~~ground~~

We estimate that the first productive oil or gas sand should be encountered at a depth of about 7825 feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
13-3/8	54.5	J-55	500	Cemented
7	23 to 29	J-55 & N-80	7810	Cemented
5	18	N-80	8175	Landed (Pf. lnr.)

Well is to be drilled with rotary cable tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address Box "Y", Los Nietos, Calif.

TIDE WATER ASSOCIATED OIL COMPANY  
(Name of Operator)

Telephone number Whittier 42-043

By *R. S. [Signature]*  
Agent

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

18-A  
5812 10-18-43  
JLW.

Check at [unclear] [unclear] [unclear]