

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

No. T 216-0574

REPORT ON OPERATIONS

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

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

Ventura, California
December 13, 2016

Your operations at well "**Porter**" **42C**, A.P.I. No. **037-21878**, Sec. **28**, T. **03N**, R. **16W**, **SB B.&M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **11/15/2016**, by **Randall Morlan**, 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.

RM/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By 

Patricia A. Abel, District Deputy

KG1128.

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

No. T 216-0574
II 16,3

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

Ps 1 of 2

Operator: Southern California Gas Co.				Well: "Porter" 42C	
Sec. 28	T. 03N	R. 16W	B.&M. SB	API No.: 037-21878	Field: Aliso Canyon
County: Los Angeles				Witnessed/Reviewed on: 11/15/2016	

Randall Morlan, representative of the supervisor, was present from 1430 to 1600
 Also present were: Darrel Latrel

Casing record of the well:

The Internal MIT was performed for the purpose of pressure testing the 7-5/8" casing above 7450'.

The Internal MIT is approved since it indicates that the 7-5/8" casing has mechanical integrity above 7450' at this time.

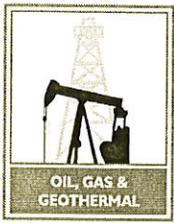
The Internal MIT is not approved due to the following reasons: (specify)

INDICATE WHERE PACKER WAS SET AND HOW LONG PRESSURE WAS HELD ALONG WITH ANY BLEEDOFF DATA.
 Block testing
 BP: 7450'
 Packer: 6870'
 start time: 14:48
 start pressure: 1411
 end time: 15:48
 end pressure: 1410

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

pg 2 of 2

Operator: Southern California Gas Co.				Well: "Porter" 42C	
Sec. 28	T. 03N	R. 16W	B.&M. SB	API No.: 037-21878	Field: Aliso Canyon
County: Los Angeles				Witnessed/Reviewed on: 11/16/2016	
Randall Morlan, representative of the supervisor, was present from 1330 to 1700					
Also present were: Darrel Latrel					
Casing record of the well:					
The Internal MIT was performed for the purpose of pressure testing the 9-5/8" casing above 7450'.					
<input type="checkbox"/> The Internal MIT is approved since it indicates that the 9-5/8" casing has mechanical integrity above 7450' at this time.					
<input type="checkbox"/> The Internal MIT is not approved due to the following reasons: (specify)					
INDICATE WHERE PACKER WAS SET AND HOW LONG PRESSURE WAS HELD ALONG WITH ANY BLEEDOFF DATA.					
Block testing Packer: 5445' Start time: 13:56 Start pressure: 2660 psi End time: 14:56 End pressure: 2651 psi Test interval: 0' – 5445'			Packer: 6753' Start time: 15:50 Start pressure: 1701 psi End time: 16:50 End pressure: 1690 psi Test interval: 0' – 6753'		



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No. T 216-0587

REPORT ON OPERATIONS

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

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

Ventura, California
December 15, 2016

Your operations at well "**Porter**" **42C**, A.P.I. No. **037-21878**, Sec. **28**, T. **03N**, R. **16W**, **SB B.&M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **11/10/2016**, by **Clifford R. Knight**, a representative of the supervisor.

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

DECISION:

NOT APPROVED

NOTES: Operator will remediate well.

CRK/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By



Patricia A. Abel, District Deputy

No. T 216-0581
16, 2

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

Operator: <u>Socal Gas</u>					Well: <u>Porter 42C</u>				
Sec. <u>28</u>	T. <u>3N</u>	R. <u>16W</u>	B.&M. <u>S13</u>	API No.: <u>037-21878</u>	Field: <u>Aliso Canyon</u>				
County: <u>Aliso Canyon</u>					Witnessed/Reviewed on: <u>C. Knight 11-10-16</u>				

Also present were: C. Knight, representative of the supervisor, was present from 1030 to 1500
Darrel Lottrell, Cam (PROs)

Casing record of the well:

$\text{press} + \text{hydro} = \text{Total}$

① $2350 + 3288 = 5638$

Incomplete

② $3625 + 1341 = 4966 \text{ psi}$

Tested (See below)

8.5 ppv 3% KCl = fluid 0.492 Fluid Gradient

The Internal MIT was performed for the purpose of pressure testing the 9 5/8" casing above 3035 (2) (prior to injecting fluid)

The Internal MIT is approved since it indicates that the 9 5/8" casing has mechanical integrity above 3035 at this time..

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

Can't hold pressure below 3035' with demonstrated pressure test. * See note below

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

Test ② <u>4966 psi @ 3035</u> psi Time <u>3731</u> <u>12:04</u> <u>3716</u> <u>13:04</u> <u>15 psi drop</u>	Test ① <u>3292</u> <u>5642</u> (Total) Test 1 below Packer at <u>3035'</u> did not stabilize - <u>No Test possible</u> Air in casing	* <u>Note!</u> lower portion of well cemented and whip stack set. Planned plug back/suspend.
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Gustafson, Kris@DOC

From: Beenham, Ewan@DOC
Sent: Wednesday, November 30, 2016 11:20 AM
To: Vlasko, Brian C; Gustafson, Kris@DOC
Cc: McMahon, Thomas D.
Subject: RE: Porter 42C cement top variance

Hello Brian,

After reviewing the program and the Permit it is quite clear that the cementers did what was requested of them. Your program reads:-

Step 7 – RIH to 7250', pump 19 bbls (400 linear feet) balanced plug with 14.8 ppg PlugChem cement. Pull tubing to **6700'** and attempt squeeze cement into perforations (1300psi max surface pressure). Reverse circulate until returns are clear of cement. Pull tubing to safe depth and allow cement to setup.

Step 8 – RIH and tag top of cement.

Step 9 – Pump final balanced plug with 14.8ppg PlugChem cement bringing the final top of cement to **6650'**. Pull tubing to 6400' and reverse circulate until returns are clear of cement. POOH.

And it looks like everything was done as per your program to step 7. **The permit stands and NO variation will be given.** If you had asked to combine steps 7 & 9 to lay a longer plug that would have been approved. However that was not the case. DOGGR would like to see 100' of cement isolation above the damaged casing at 6753'
Please follow the permit and call for a tag witness at 6650'

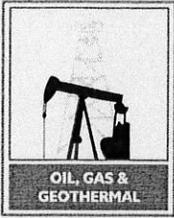
Thanks
Ewan

From: Vlasko, Brian C [mailto:BVlasko@semprautilities.com]
Sent: Wednesday, November 30, 2016 10:15 AM
To: Gustafson, Kris@DOC; Beenham, Ewan@DOC
Subject: Porter 42C cement top variance

Kris / Ewan,

I am asking for a variance on the cement plug top on the Porter 42C. The NOI stated to leave the final cement plug top at 6650' however the intended cement volume was miscalculated in the field which resulted in leaving the cement top at 6711'. I am attempting to make the best of our current situation and avoid spending an extra \$30k (2 days rig time + cementing cost) by asking for a variance to leave the current cement top at 6711'. The depth of 6711' is actually preferred as an ideal milling depth for the future window when accounting for casing collar location and cement bond quality behind casing. We will pressure test the wellbore to 1000psi for 1hr in accordance with the "well isolation" regulation. If we are able to demonstrate a successful pressure test of the wellbore then I believe the well will be isolated and idled in a safe condition. I do not believe pumping an additional cement plug to 6650' will add any additional safety to this isolation. Thank you for your consideration and I apologize for the inconvenience in our error.

Thank You,
Brian Vlasko
Sr. Storage Engineer
SoCal Gas Company
Office : 818-700-3897
Mobile : 714-655-9506



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 216-0293

PERMIT TO CONDUCT WELL OPERATIONS

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

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

Ventura, California
November 29, 2016

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

Your proposal to **Rework** well "**Porter**" **42C**, A.P.I. No. **037-21878**, Section **28**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **11/21/2016**, received **11/22/2016** has been examined in conjunction with records filed in this office. (Lat: **34.310308** Long: **-118.554631** Datum: **83**)

THE PROPOSAL IS APPROVED PROVIDED:

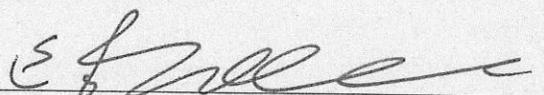
1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
 - a. Class **III 5M** on the **9 5/8"** casing.
2. Hole fluid of a quality and in sufficient quantity to control all 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. The well is plugged with cement from **7657'** to **6650'**.
5. Prior to suspending the well a pressure test is conducted to demonstrate the mechanical integrity of the **9 5/8"** casing.
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. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
8. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
 - b. Witness the location and hardness of the cement plug at **6650' or higher**.
 - c. Witness a pressure test of the **9 5/8"** casing.

Continued on Next Page

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

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

Engineer Kris Gustafson
Office (805) 654-4761

By 
Patricia A. Abel, District Deputy

KG/kg

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

Page 2
Well #: "Porter" 42C
API #: 037-21878
Permit : P 216-0293
Date: November 29, 2016

NOTE:

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

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

**ATTACHMENT 1
TO DOGGR ORDER 1109**

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

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

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

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

REQUIRED TESTS FOR EACH WELL IN THE FACILITY

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

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

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

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

REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

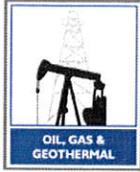
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;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

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

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

REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON

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



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

Rec'd 11-22-16 DOGGR Ventura.

FOR DIVISION USE ONLY		
Forms		
Bond	000114	000121
	CAL V WIMS	115V

P216-0293

NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: 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 42C, API No. 037-21878,
 (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: 7763' feet. The effective depth is: 7741' feet.
 Present completion zone(s): Sesnon Anticipated completion zone(s): Same
 (Name) (Name)
 Present zone pressure: storage psi. Anticipated/existing new zone pressure: storage psi.

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

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

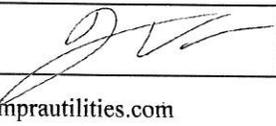
The proposed work is as follows: (A complete program is preferred and may be attached.)

See attached program

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

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

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

Name of Operator Southern California Gas Company		
Address P. O. Box 2300	City/State Chatsworth	Zip Code 91313-2300
Name of Person Filing Notice Brian Vlasko	Telephone Number: 714-655-9506	Signature 
Individual to contact for technical questions: Brian Vlasko	Telephone Number: 714-655-9506	Date 11/21/16
		E-Mail Address: bvlasko@scmprautilities.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.

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, redrilling, 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/

SoCal Gas Company



Well Operations Procedure

Porter 42C Aliso Canyon Abandon for Re-drill 11/21/2016

Well Site Supervisor: Darryl Luttrell 661-714-2397 (mobile)
Primary Engineer: Brian Vlasko 818 700-3897 (ofc)/714 655-9506 (mobile)
Alternate Engineer: Ella Lein 818 700-3676 (ofc)/661 340-4250 (mobile)
Engineering Supervisor: Jose Iguaz 818 700-3889 (ofc)/661 384-5337 (mobile)
Well Work Superintendent: Mike Volkmar 562 685-3810 (mobile)

History:

Date	Summary
1979	Spud well
1990	Replace 5-1/2" completion liner. Set Otis packer @ 6,811'
2002	Gas from annulus. Attempt to repair wellhead, packed seals still leaking. Packed on top of 9-5/8" slips (held OK)
2003	Unsuccessfully fish bottom hole choke.
2004	Unsuccessfully fish bottom hole choke with coil.
2004	Pull completion assembly. Tagged fill @ 7610'. Clean out to 7650', fell through to 7693'. Clean out fill to 7711'. RIH with scraper to 6811'. USIT from 6775' to surface. Re-energized wellhead seals.
2007	Pull completion assembly, left 1-1/4" tubing in well. Could not pass packer at 6,811 with 4.5" shoe, passed through with 4" shoe. RIH to 7508' (tagged) believe to be alongside of fish. RIH with new completion.
2016	Pulled completion assembly. Fished all but 1 joint of 1-1/4" tubing. SIMP test wellbore found bad casing from 6753' to 6877'.

Objective:

The intent of this program is to abandon the production interval and plug back the 9-5/8" casing to 6650'. The well will then be idled and used a re-drill candidate in the future.

Well Data:

API #: 037-21878
Datum: 1970'
KB to GL: 22'
MD: 7,763'
TVD: 7,357'
PBMD: 7,741'

Nature of Plug Back: Bottom of Liner

SoCal Gas Company



Well Operations Procedure

Geologic Markers:

LP: 5760' MD / 5519' TVD	S1: 7500' MD / 7116' TVD
UDA1: 6169' MD / 5897' TVD	S4: 7588' MD / 7196' TVD
LDA: 6889' MD / 6555' TVD	S8: 7665' MD / 7296' TVD
MP: 7283' MD / 6917' TVD	

Casing Data:

Surface Casing:	13-3/8", 54.4#, K55 Cem @ 1022'
Intermediate Casing:	9-5/8", 40#, N80, 0 – 287'
	43.5#, N80, 287' – 3,028'
	47#, N80, 3,028' – 5,636'
	53.5#, N80, 5,636' – 6,955'
	ETOC @ 6,343'
Intermediate Liner:	7-5/8", 29.4#, C75, Cem @ 6,867'-7,590'
Production Liner:	5-1/2", 17#, Wire Wrap Screen @ 7,488'-7,741'

Tubing Data: See attached

Wellhead: See attached

Perforations: Open Hole with 0.010" Wire Wrap Screen 7,657'-7,741'
Completed in S8

SoCal Gas Company



Well Operations Procedure

PROJECT NOTES

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

WELLWORK PROGRAM

1. +++Install Class III 5M BOPE per Gas Company Standard 224.05 and in accordance with the DOGGR permit. All connections and valves must be flanged and at least 5000 psig rated. (*Confirm BOPE rating*)
 - All tests are to be charted and witnessed by a DOGGR representative.
 - Perform a 300 psig low pressure test on the annular preventer, blind rams and pipe rams for 20 minutes. Test all lines and connections to 300 psig.
 - Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
 - Remove BPV.
2. RIH with 7-5/8" injection packer to 7450'. Injection was established at 2.5BPM at 150psi and 3PM at 250psi.
3. RIH with cement retainer on tubing and set at 7450'. Verify injection rate from previous step. Pump 22bbls of 14.8ppg PlugChem cement, 12bbls to be squeezed below the cement retainer. Max surface squeeze pressure is 500psi.
4. Un-sting from cement retainer and pump 200' balanced plug above cement retainer. Pull tubing to 7100' and reverse circulate until returns are clear of cement. Pull tubing to safe depth and allow cement to setup.
5. RIH and tag top of cement at 7250'. **DOGGR to witness tag.**
6. Pressure test well bore to 1300psi for 15 mins. RIH and perforate on wireline from 7208' to 7218' (4spf). Perform injection test on perforations not to exceed 1300psi.
7. RIH to 7250'. Pump 19bbls (400 linear feet) balanced plug with 14.8ppg PlugChem cement. Pull tubing to 6700' and attempt squeeze cement into perforations (1300psi max surface pressure). Reverse circulate until returns are clear of cement. Pull tubing to safe depth and allow cement to setup.

SoCal Gas Company



Well Operations Procedure

8. RIH and tag top of cement.
9. Pump final balanced plug with 14.8ppg PlugChem cement bringing the final top of cement to 6650'. Pull tubing to 6400' and reverse circulate until returns are clear of cement. POOH.
10. RIH with 9-5/8" all weight scraper and tag top of cement at 6650'. **DOGGR to witness tag.**
11. Pressure test well bore from 6650' to surface to 1000psi for 1 hour. Digitally record, DOGGR to witness pressure test.
12. RIH with kill string.
13. Install BPV in tubing hanger. Nipple down BOPE, install production tree and test to 5,000 psig. Remove BPV.
14. RDMO.

**Well
Porter 42C**

API #: 04-037-21878-00
Sec 28, T3N, R16W

Current

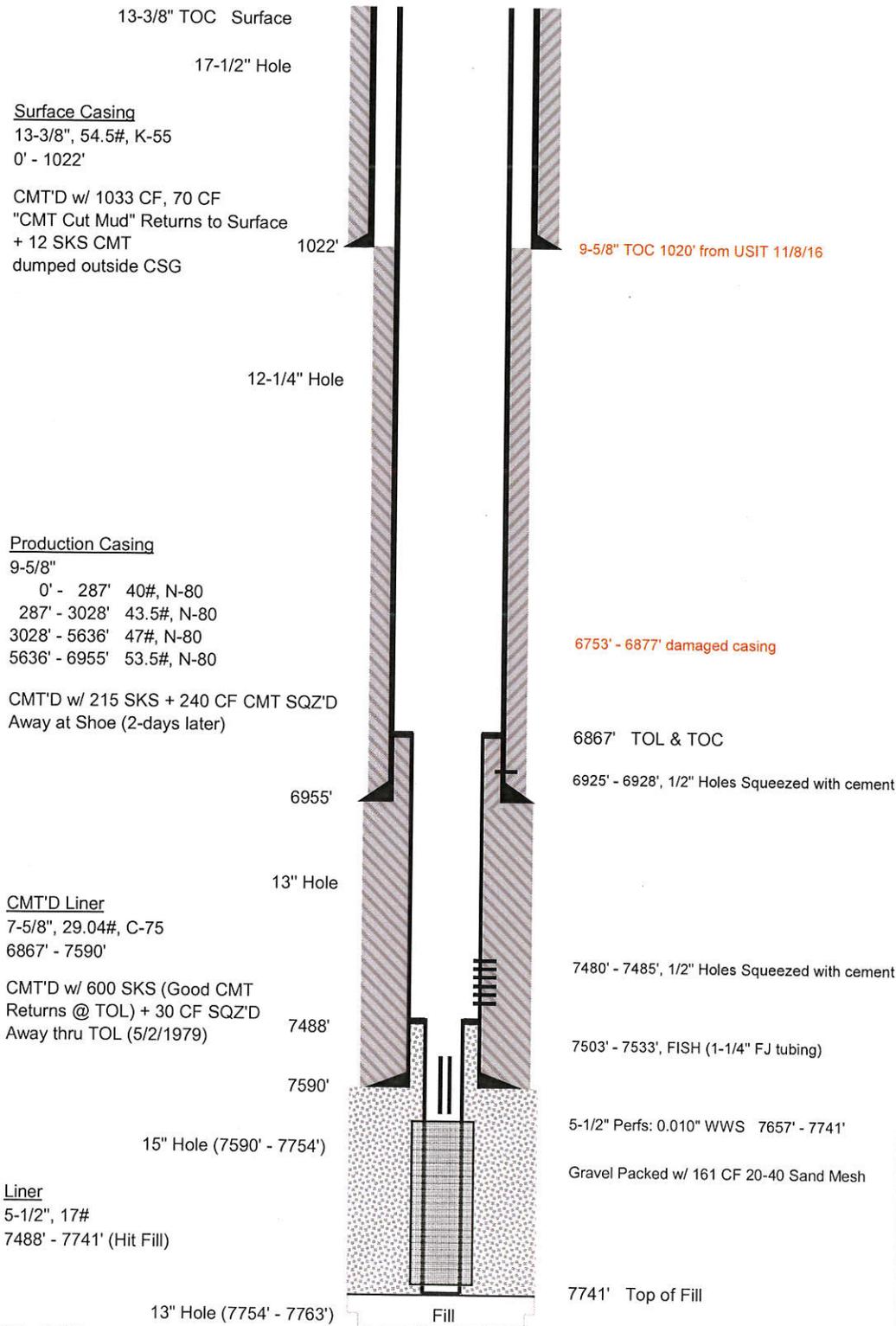
Operator: So. California Gas Co.

Lease: Porter
Field: Aliso Canyon
Status: Active Gas Storage
BFW: 800'
USDW:

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: 1 jts 1-1/4" IJ TBG
@ 7503' - 7533'



Top of Zone Markers md (tvd)		
A1	4075'	(3940')
UP	5261'	(5047')
LP	5760'	(5519')
UDA1	6169'	(5897')
LDA	6889'	(6555')
MP	7283'	(6917')
S1	7500'	(7116')
S4	7588'	(7196')
S8	7665'	(7267')

TD 7763'
TVD (7357')
Directionally Drilled: Yes (TD is 1951' E, 667' N of Surf)

Prepared by: MAM (5/31/2016)
Updated by: BV (11/21/2016)

**Well
Porter 42C**

API #: 04-037-21878-00
Sec 28, T3N, R16W

Proposed

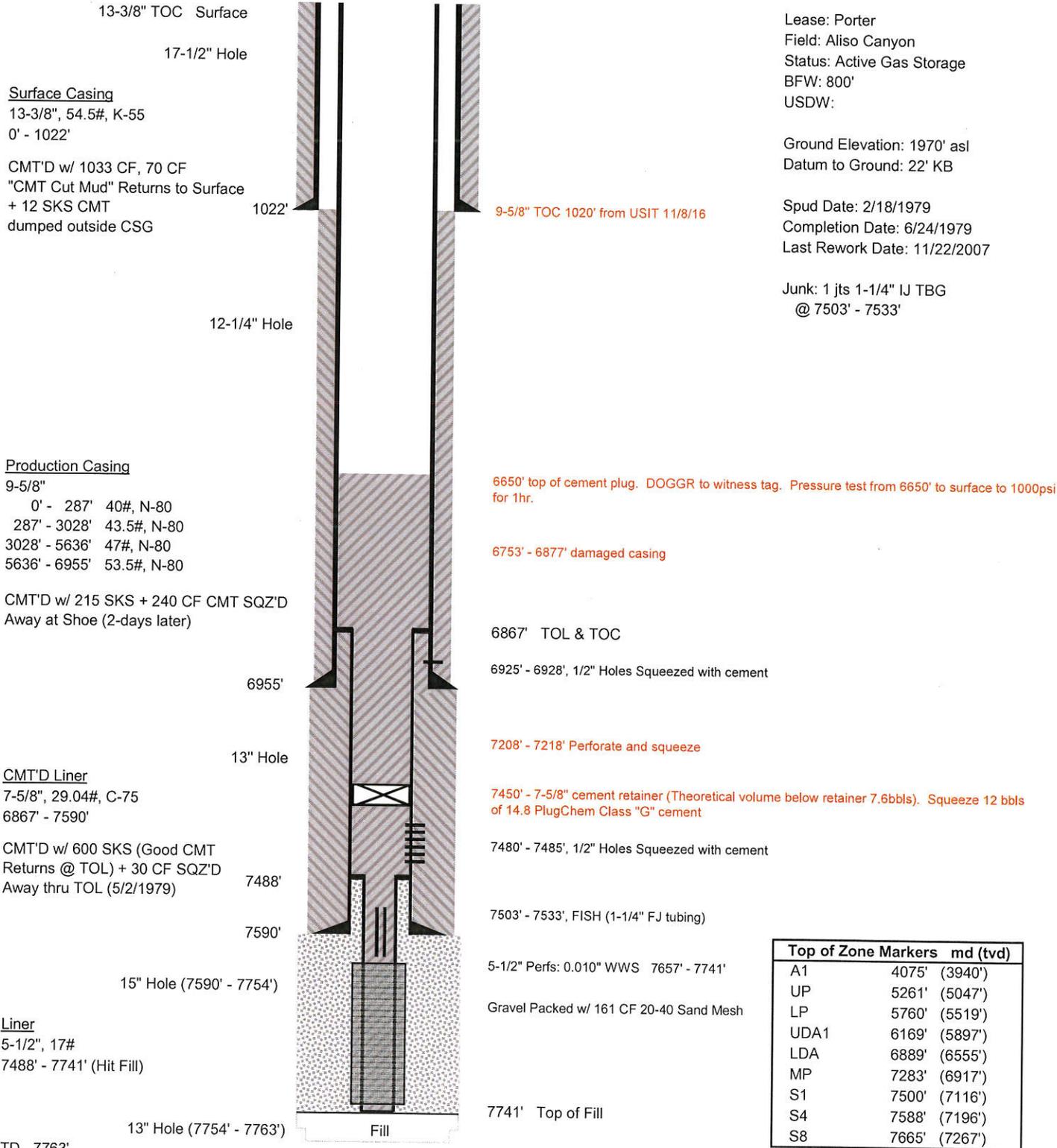
Operator: So. California Gas Co.

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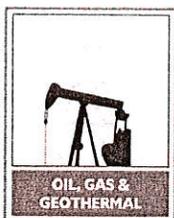
Prepared by: MAM (5/31/2016)
Updated by: BV (11/21/2016)

DOGGR Dist2@DOC

From: Vlasko, Brian C <BVlasko@semprautilities.com>
Sent: Wednesday, October 19, 2016 11:11 AM
To: DOGGR Dist2@DOC
Cc: Iguaz, Jose; McMahon, Thomas D.; Kroh, Jovy E
Subject: 03721878, REWORK Porter 42C
Attachments: 03721878_REWORK_101916.pdf

Please see attached NOI for the Porter 42C. We are currently working on the well under permit # P 216-0174. We have encountered sanding issues from the production liner and have elect to recomplete the production interval with a new gravel packed liner following our SIMP testing program. Please let me know if you need any additional information for your review.

Thank You,
Brian Vlasko
Sr. Storage Engineer
SoCal Gas Company
Office : 818-700-3897
Mobile : 714-655-9506



MINERAL 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 216-0267

PERMIT TO CONDUCT WELL OPERATIONS

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

Gas Storage
 Gravel Pack

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

Ventura, California
 November 02, 2016

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

Your proposal to **Rework** well "Porter" 42C, A.P.I. No. 037-21878, Section 28, T. 03N, R. 16W, SB B. & M., Aliso Canyon field, Any area, Sesnon-Frew pool, Los Angeles County, dated 10/19/2016, received 10/19/2016 has been examined in conjunction with records filed in this office. (Lat: 34.310308 Long: -118.554631 Datum:83)

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
 - a. Class III 5M on the 9 5/8" casing and a 5M lubricator for wireline operations.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. A Casing Wall Thickness Inspection, Cement Bond Log, and a Multi-Arm Caliper Inspection shall be performed to demonstrate that the 9 5/8" casing has integrity.
5. Prior to commencing injection, a pressure test is conducted to demonstrate the mechanical integrity of the 9 5/8" casing.
6. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
7. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
8. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the installed blowout prevention equipment prior to commencing downhole operations.
 - b. Witness a pressure test of the 9 5/8" casing prior to commencing injection.
 - c. Witness a mechanical integrity test within three months of injection commencing.

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
 Patricia A. Abel, District Deputy

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

Page 2
Well #: "Porter" 42C
API #: 037-21878
Permit : P 216-0267
Date: November 02, 2016

NOTE:

1. The base of the freshwater zone is at **800'±**.
2. The Division recommends, as a minimum, that carbon monoxide monitoring equipment and a vent line be installed and maintained in operating condition during all extensive perforating operations.
3. No operation shall be undertaken or continued that will contaminate or otherwise damage the environment.
4. 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.
5. All gravel packing operations shall be performed below the fracture gradient. Any chemical treatments must not exceed the acid volume threshold as specified in section 1761 of the California Code of Regulations.
6. 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.**
7. **A Well Summary Report (Form OG 100)** and **Well History (Form OG 103)** shall to be submitted to the Division within 60 days after the well is drilled, reworked, plugged and abandoned, or if the work is suspended. Any additional well work will require an additional notice to be submitted to this office prior to resuming well operations.

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

cc:

**ATTACHMENT 1
TO DOGGR ORDER 1109**

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

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

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

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

REQUIRED TESTS FOR EACH WELL IN THE FACILITY

Step 1: The Operator shall perform an initial casing assessment on the well consisting of temperature and noise logs.

a. **Temperature Log:**

A temperature survey shall be run from the surface to the packer to measure the temperature within the wellbore. A temperature survey that demonstrates no unexplained anomalous temperature changes in the well is one indication of casing integrity.

b. **Noise Log:**

An acoustic sensor survey capable of detecting the sound of fluid flow will be conducted the length of the well above the packer to the surface. The survey will include stops at least every 250 feet and at the midpoint of any anomaly detected by the temperature survey. The absence of anomalous sound above the packer is an indication of well integrity

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

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

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

REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

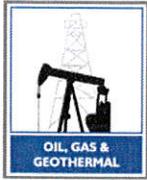
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;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

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

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

REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON

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



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

Rec'd 10-19-16 DOGGR Ventura.
FOR DIVISION USE ONLY

Bond	Forms	
	OGD114	OGD121
	CAL WIMS	115V

P216-0267

NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: 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 42C, API No. 037-21878,
 (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: 7763' feet.

The effective depth is: 7741' feet.

Present completion zone(s): Seson
 (Name)

Anticipated completion zone(s): Same
 (Name)

Present zone pressure: storage psi.

Anticipated/existing new zone pressure: storage psi.

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

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

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

See attached program

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

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

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

Name of Operator Southern California Gas Company			
Address P. O. Box 2300		City/State Chatsworth	Zip Code 91313-2300
Name of Person Filing Notice Brian Vlasko	Telephone Number: 714-655-9506	Signature 	Date 10/19/16
Individual to contact for technical questions: Brian Vlasko	Telephone Number: 714-655-9506	E-Mail Address: bvlasko@semprautilities.com	

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

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, redrilling, 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/

SoCal Gas Company



Well Operations Procedure

Porter 42C Aliso Canyon Storage Integrity Management Program 10/19/2016 Version 1

Well Site Supervisor: Darryl Luttrell 661-714-2397 (mobile)
Primary Engineer: Brian Vlasko 818 700-3897 (ofc)/714 655-9506 (mobile)
Alternate Engineer: Ella Lein 818 700-3676 (ofc)/661 340-4250 (mobile)
Engineering Supervisor: Jose Iguaz 818 700-3889 (ofc)/661 384-5337 (mobile)
Well Work Superintendent: Mike Volkmar 562 685-3810 (mobile)

History:

Date	Summary
1979	Spud well
1990	Replace 5-1/2" completion liner. Set Otis packer @ 6,811'
2002	Gas from annulus. Attempt to repair wellhead, packed seals still leaking. Packed on top of 9-5/8" slips (held OK)
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2007	Pull completion assembly, left 1-1/4" tubing in well. Could not pass packer at 6,811 with 4.5" shoe, passed through with 4" shoe. RIH to 7508' (tagged) believe to be alongside of fish. RIH with new completion.

Objective:

The intent of this program is to complete the well integrity inspection and remediate identified conditions as part of the Storage Integrity Management Program (SIMP). The completion interval from 7657' to 7741' will be perforated and new gravel packed liner will be installed. A new completion string and pressure monitors will be installed, converting well to tubing flow.

NOTE: Notify Erika Calzadias at minimum 48 hours prior to pumping chemical treatment. Erika will notify AQMD. Keep Erika informed throughout duration of the chemical treatment. Submit WST maintenance form to DOGGR WST team drop box within 1 week following the chemical treatment.

Well Data:

API #: 037-21878
Datum: 1970'
KB to GL: 22'
MD: 7,763'
TVD: 7,357'
PBMD: 7,741'

Nature of Plug Back: Bottom of Liner

SoCal Gas Company



Well Operations Procedure

Geologic Markers:

LP: 5760' MD / 5519' TVD	S1: 7500' MD / 7116' TVD
UDA1: 6169' MD / 5897" TVD	S4: 7588' MD / 7196' TVD
LDA: 6889' MD / 6555' TVD	S8: 7665' MD / 7296' TVD
MP: 7283' MD / 6917'TVD	

Casing Data:

Surface Casing:	13-3/8", 54.4#, K55 Cem @ 1022'
Intermediate Casing:	9-5/8", 40#, N80, 0 – 287'
	43.5#, N80, 287' – 3,028'
	47#, N80, 3,028' – 5,636'
	53.5#, N80, 5,636' – 6,955'
	ETOC @ 6,343'
Intermediate Liner:	7-5/8", 29.4#, C75, Cem @ 6,867'-7,590'
Production Liner:	5-1/2", 17#, Wire Wrap Screen @ 7,488'-7,741'

Tubing Data:

See attached

Wellhead:

See attached

Perforations:

Open Hole with 0.010" Wire Wrap Screen 7,657'-7,741'
Completed in S8

SoCal Gas Company



Well Operations Procedure

PROJECT NOTES

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

PRE-RIG WORK

1. De-energize and remove all laterals. Install companion flanges for circulating the well.
2. Complete slick line work as required to set-up well for circulation.
3. Ensure correlation log on file or plan for CCL.

WELLWORK PROGRAM

1. Move in production rig and rig pump with tank, shaker, and mixer.
2. Spot 500 bbl Baker tanks and load with 8.5 ppg KCl brine.
 - Connect pump to the tubing and vent the casing through the choke manifold to the SoCalGas withdrawal system.
 - Treat all brine with Biocide, 5 gals/100 bbls
3. Verify the well is dead. If needed, circulate well with 8.5 ppg KCL brine.
 - i. The tubing volume is ~ 58 bbls and
 - ii. The tubing/casing annulus is ~ 422 bbls.
 - iii. Use HEC polymer as required to minimize lost circulation.
4. Install BPV in tubing hanger. ND tree.

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

SoCal Gas Company



Well Operations Procedure

5. +++Install Class III 5M BOPE per Gas Company Standard 224.05 and in accordance with the DOGGR permit. All connections and valves must be flanged and at least 5000 psig rated. (Confirm BOPE rating)
 - All tests are to be charted and witnessed by a DOGGR representative.
 - Perform a 300 psig low pressure test on the annular preventer, blind rams and pipe rams for 20 minutes. Test all lines and connections to 300 psig.
 - Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
 - Remove BPV.
6. POOH with production equipment and LD production tubing.
 - a.) Attempt to release seal assembly from packer. If not successful plan for a cut @ 6,790'.
 - b.) Fish remainder of production string.
 - c.) Mill Baker "Retrieva-D" production packer @ 6,811'.
7. RIH with 9-5/8", all weight casing scraper to top of liner @ 6867'. Circulate well clean. POOH. (Estimated top of fish at 6846', may be pushed downhole from previous fishing attempts)
8. Fish 1-1/4" IJ tubing string from ~866'.
9. RIH with ~300' clean out string to PBMD @ 7,741' and clean out if necessary. POOH. Monitor returns and collect samples. Samples are to be sent to Halliburton (Norman Jones) for testing. Asphaltene's are thought to be present in the completion liner and need to be treated prior to recompletion.
10. MIRU WL unit to run Gyro / Multi-Arm Caliper combo from PBMD to surface. Contact engineer for QC before RDMO WL. Send a copy of the survey file to BVLasko@semprautilities.com.
11. Rig-up wireline unit(s) and run:
 - a.) Magnetic flux leakage from top of production liner @7,488' to surfaceNotify engineer prior to logging. Do not RDMO WL without engineer's approval.
12. RIH with RBP to ~7,475', pressure test to 500 psi for 10 minutes and sand off.
13. Nipple down BOPE, crossover spool, and primary pack-off.
 - a.) Send DSA and tubing spool to Vendor for refurbishment.
 - b.) Install auxiliary spacer spool and NU BOPE

SoCal Gas Company



Well Operations Procedure

14. Rig-up wireline unit, install lubricator and run:

- b.) Ultrasonic from RBP to surface
- c.) CBL from RBP to surface

Notify engineer prior to logging. Do not RDMO WL without engineer's approval.

15. Ensure equipment integrity (tree, spool, tubing hanger, master valve, wing valves) have been refurbished before proceeding to the next step.

16. ND BOPE, install tubing spool, reinstall BOPE and test (*Casing head is rated to 5000 psi*).

17. RIH with test packer on work string and conduct a Pressure Integrity Test ("Block"). Follow test schedule attached to this program. POOH with test packer(s).

- a.) Pressure test to 115% of the wells maximum allowable operating pressure (3625 psi) as per attached Pressure Test Schedule.
- b.) Engineering team to analyze log and pressure test results and recommend any additional remediation.

Test	Packer Depth	BP Depth	Test Pressure
1	3,028'	N/A	3,625 PSI (Casing)
2	5,635'	N/A	3,000 PSI (Casing)
Final	7,470'	N/A	1,750 PSI (Casing)

18. RIH with retrieving tool on work string circulating while engaging RBP retrieval neck. Open bypass and allow RBP to equalize for 30 mins. Release RBP and allow elastomers to relax for 1 hr. Circulate as required to control well. POOH slowly to minimize swabbing and lay down work string.

19. RIH with ~300' clean out string to PBMD @ 7,741' and clean out if necessary. POOH.

20. RIH with 5-1/2" scraper to PBMD @ 7,741' and clean out if necessary. POOH.

21. Wireline perforate the interval from 7657' to 7741' (84') with 12spf alternating deep penetrating and big hole charges. Tag bottom of 5-1/2" liner at 7741' for reference.

22. RIH with squeeze packer on work string to 7475'. Set and test squeeze packer to 1000psi for 5 mins. Open unloader valve and spot chemical treatment down tubing. Close unloader valve and bullhead chemical treatment into production liner as per Halliburton's recommendation. **Remain below frac pressure. Bottom hole frac pressure is 5037psi based off 0.70 FG.**

23. RIH with ~300' clean out string to PBMD @ 7,741' and clean out if necessary. POOH.

24. RIH with 5-1/2" scraper to PBMD @ 7,741' and clean out if necessary. Spot 50cp (funnel viscosity) pill if fill is encounter in 5-1/2" liner.

SoCal Gas Company



Well Operations Procedure

25. RIH with new 2-7/8" screen liner as follows:

- a.) 2-7/8" Bull Plug
- b.) 150ft – 2-7/8" 6.4# L80 Blank Pipe w/ 10RD NU connections and 4.5" lugs (center & pin end)
- c.) 150ft – 2-7/8" 6.4# L80 DeltaExtreme Screen w/ 10RD NU connections and 4.5" lugs (center & pin end). **0.010" inner wrap, 300 micron middle wrap, 0.012" outer wrap**
- d.) 7-5/8" SC Packer w/ gravel pack assembly

Note:

- Apply pipe dope to pin end only on all connections. Service Tech to visually inspect screen condition while running in hole
- Record pick up and slack off weights prior to entering the liner top at 7488'.

26. Once the assembly is positioned, RU pumping equipment with BDAQ pressure monitoring system and test lines. Return line to have flow meter. Establish circulation and drop setting ball.

27. Set the 7-5/8" by 2-7/8" liner packer (+/- 7410') by slowly pressuring tubing to setting pressure.

28. Verify slip anchoring of the packer by alternately setting down and picking up 10k. Slack off to neutral position and test packer by pressuring liner to 1000 psi for 5mins.

29. Gravel pack 3-1/2" WWS production liner as follows: **Remain below frac pressure. Bottom hole frac pressure is 5037psi based off 0.70 FG.**

- a.) Conduct a pre-job safety meeting with service hands and rig crew. Pressure test surface lines to 4500 psi. Release crossover tool from packer. Locate circulating and reversing positions. Establish and record circulating pressures at 2, 3, and 4 bpm in each position.
- b.) Place the crossover tool in the lower circulating position. Displace the viscous pill out of the open hole and into the work string/liner annulus. If there is no viscous pill establish circulation and begin gravel packing.
- c.) Without stopping circulation, immediately start gravel packing using Baker's infuser, pump truck and filtered brine to carry the sand. Gravel to be 20-40 mesh Ottawa infused at a rate of 0.5-1.0 ppg. Shut down once screen-out occurs. Theoretical gravel pack volume for the +/- 150' completion interval is 30 cuft, (500 bbls of 8.5ppg KCl needed on location for gravel packing only).
- d.) Do not re-stress pack at this time. Close annular preventer and reverse out excess gravel plus a minimum of two tubing volumes, or until returns are clean.
- e.) Lower crossover tool to the circulating position and re-stress pack by circulating down the drill pipe and attempt to reach pressure and rate achieved at initial sand-out. Record rates and pressures. Repeat steps "c" and "d" if necessary to obtain sand-out.
- f.) Pull crossover tool out of packer and monitor well for fluid loss or adverse well control conditions.

30. Once stabilized, pull out of hole and lay down gravel packing tools and work string.

SoCal Gas Company



Well Operations Procedure

31. RIH with new tubing as follows:

Run items 1) - 11). Install XN plug. Make up testing sub and test BHA to 4000 psi for 5 mins. Remove test sub and pull XN plug. Continue running 3-1/2" tubing hydro-testing each connection to 4000psi. Pickup item 13), Install XN plug, make up testing sub and test BHA to 4000 psi for 5 mins. Remove test sub and pull XN plug. Continue running 4-1/2" tubing hydro-testing each connection to 4000psi.

1. Shear-able Anchor Latch **set at 7,410ft**
2. +/- 10ft - Pup joint 3-1/2" 9.3# L-80 Hydril 513
3. +/- 2ft - 3-1/2" 9.3# L-80 Hydril 513 XN Nipple (2.75" w/2.635" no-go)
4. +/- 31ft - Full joint 3-1/2" 9.3# L-80 Hydril 513 tubing
5. +/- 4ft - Pup 3-1/2" 9.3# L-80 Hydril 513
6. +/- 2ft - 3-1/2" 9.3# L-80 Hydril 513 (2.81" Open Down) sliding sleeve
7. +/- 4ft - Pup 3-1/2" 9.3# L-80 Hydril 513
8. +/- 31ft - Full joint 3-1/2" 9.3# L-80 Hydril 513 tubing
9. +/- 2ft - 3-1/2" 9.3# L-80 Hydril 513 X Nipple (2.81")
10. +/- **550ft** - 3-1/2" 9.3# L-80 Hydril 513 tubing
11. +/- 2ft - Crossover Sub 3-1/2" 9.3# x 4-1/2" 12.6# L-80 Hydril 513 tubing
12. +/- **6800ft** - 4-1/2" 12.6# L-80 Hydril 513 tubing to surface
13. Pup joints 4-1/2" 12.6# L-80 Hydril 513 for space-out
14. +/- 10ft - Pup 4-1/2" 12.6# L-80 Hydril 513
15. +/- 4ft - 4-1/2" 12.6# L-80 Hydril 513 fatigue nipple (pin x pin)
16. Tubing hanger with 4-1/2" EUE top box / 4" BPV / 4-1/2" 12.6# L-80 Hydril 513 bottom box

Notes : Prior to sending completion equipment to well site

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

32. Land tubing as per vendor specifications.

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

33. Rig-up slickline unit and lubricator. Set a plug in the 2.635" XN profile.

34. Notify DOGGR to witness tubing tests to 3700 psi, hold for 1 hour. Perform annular test to 1000

SoCal Gas Company



Well Operations Procedure

psi, hold for 1 hour. Record tests digitally.

35. RIH with WL and recover XN plug. RIH with WL and shift the sliding sleeve open. RDMO WL.
36. Install BPV in tubing hanger. Nipple down BOPE, install production tree and test to 5,000 psig. Remove BPV.
37. RDMO.

UNLOAD WELL

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

WELL LATERAL HYDROTESTING

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

EXTERNAL CORROSION PROTECTION

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

Well Porter 42C

API #: 04-037-21878-00
Sec 28, T3N, R16W

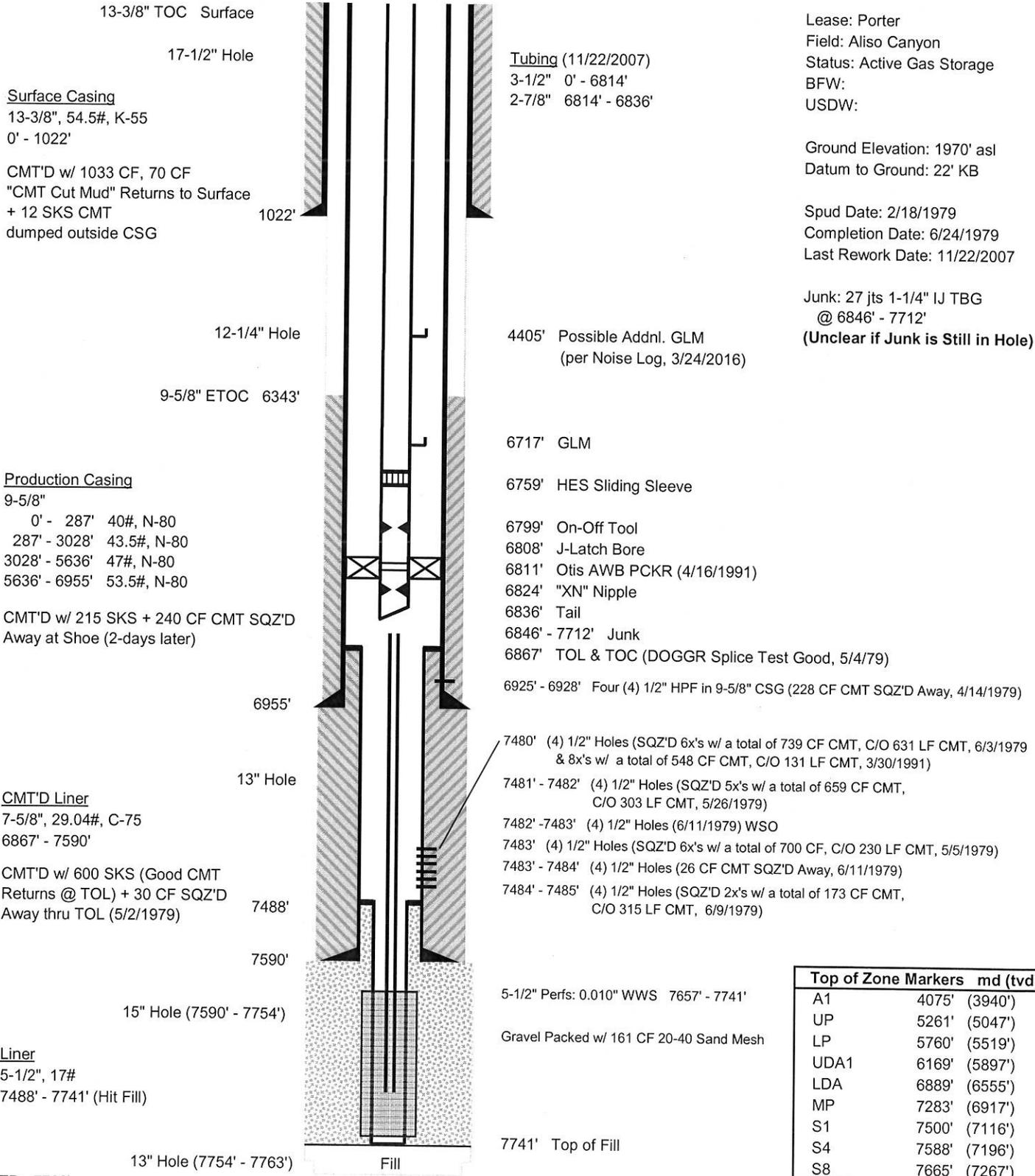
Operator: So. California Gas Co.

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

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: 27 jts 1-1/4" IJ TBG
@ 6846' - 7712'
(Unclear if Junk is Still in Hole)



Top of Zone Markers md (tvd)		
A1	4075'	(3940')
UP	5261'	(5047')
LP	5760'	(5519')
UDA1	6169'	(5897')
LDA	6889'	(6555')
MP	7283'	(6917')
S1	7500'	(7116')
S4	7588'	(7196')
S8	7665'	(7267')

TD 7763'
TVD (7357')
Directionally Drilled: Yes (TD is 1951' E, 667' N of Surf)

Prepared by: MAM (5/31/2016)
Updated by: LD (9/3/2016)

Well Porter 42C

API #: 04-037-21878-00
Sec 28, T3N, R16W

Production Casing Pressure Test - Program

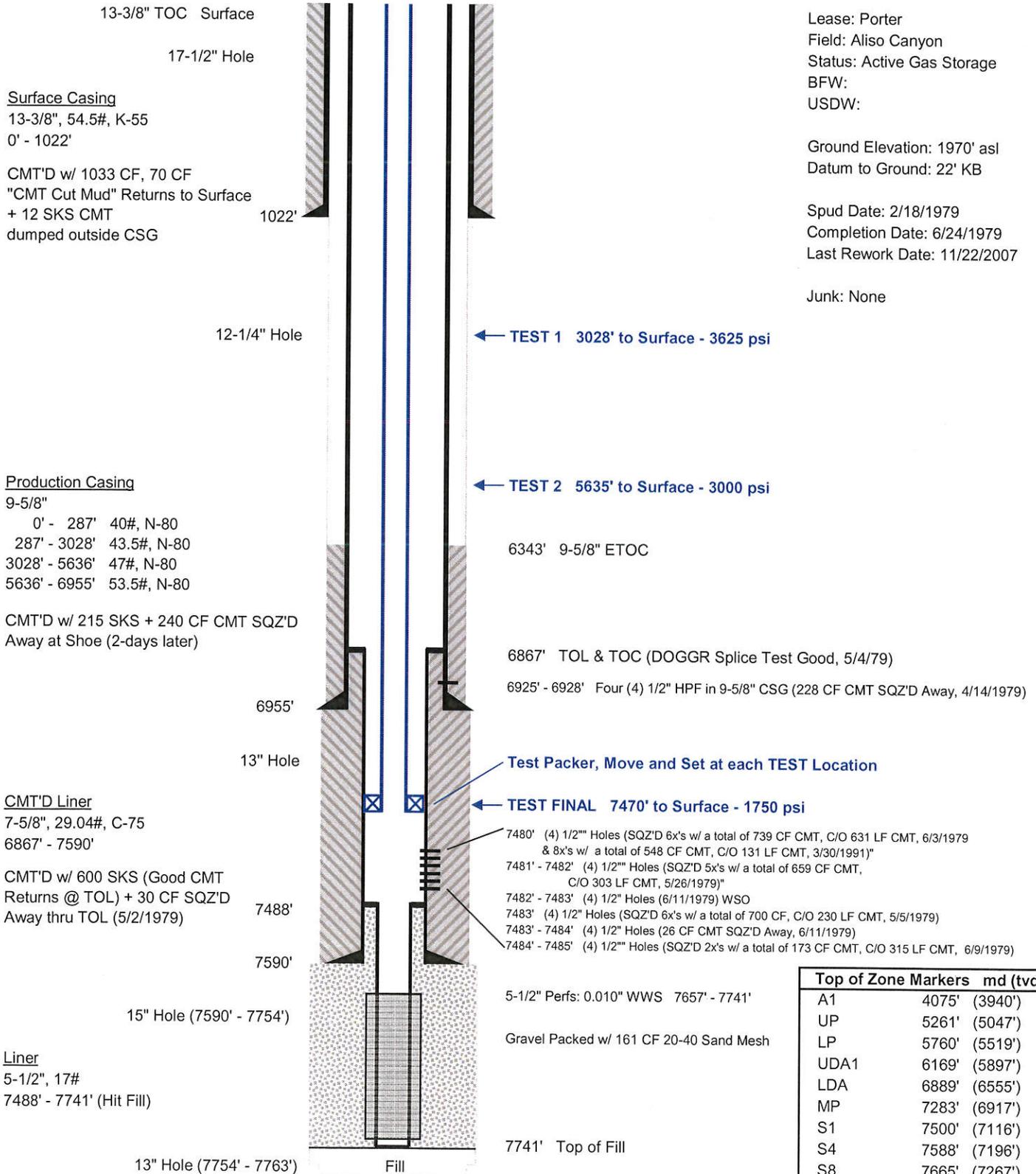
Operator: So. California Gas Co.

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

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: None



TD 7763'
TVD (7357')
Directionally Drilled: Yes (TD is 1951' E, 667' N of Surf)

Prepared by: MAM (5/31/2016)
Updated by: LD (9/3/2016)

Well Porter 42C

API #: 04-037-21878-00
Sec 28, T3N, R16W

Proposed

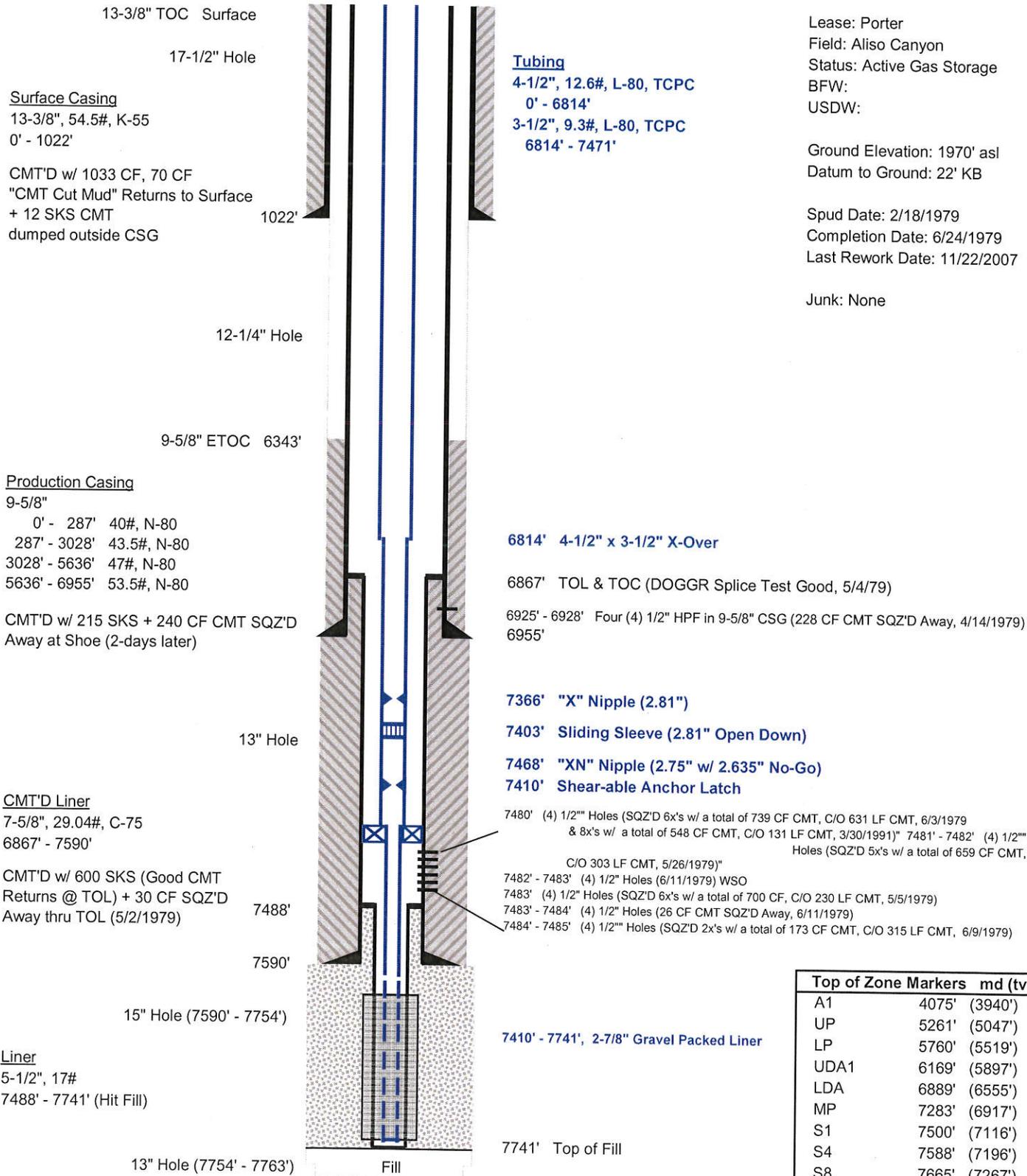
Operator: So. California Gas Co.

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

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

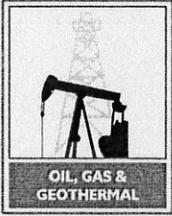
Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: None



TD 7763'
TVD (7357')
Directionally Drilled: Yes (TD is 1951' E, 667' N of Surf)

Prepared by: MAM (5/31/2016)
Updated by: LD (9/3/2016)



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 216-0174

PERMIT TO CONDUCT WELL OPERATIONS

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

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

Ventura, California
 September 06, 2016

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

Your proposal to **Rework** well "**Porter**" **42C**, A.P.I. No. **037-21878**, Section **28**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **9/2/2016**, received **9/6/2016** has been examined in conjunction with records filed in this office. (Lat: **34.310308** Long: **-118.554631** Datum:**83**)

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
 - a. Class **III 5M** on the **9 5/8"** casing.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. **A Casing Wall Thickness Inspection, Cement Bond Log, and a Multi-Arm Caliper Inspection** shall be performed to demonstrate that the **9 5/8"** casing has integrity.
5. Prior to commencing injection, a pressure test is conducted to demonstrate the mechanical integrity of the **9 5/8"** casing.
6. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
7. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
8. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
 - b. Witness pressure testing (block) of the **9 5/8"** casing
 - c. Witness a pressure test of the **9 5/8"** casing and production tubing prior to commencing injection.

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

Kenneth A. Harris Jr.
 State Oil and Gas Supervisor

Engineer Kris Gustafson
 Office (805) 654-4761

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

KG/kg

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.

Well #: "Porter" 42C

API #: 037-21878

Permit : P 216-0174

Date: September 06, 2016

NOTE:

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

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

**ATTACHMENT 1
TO DOGGR ORDER 1109**

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

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

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

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

REQUIRED TESTS FOR EACH WELL IN THE FACILITY

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

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

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

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

REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON

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



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

Rec'd 09-06-16 DOGGR Ventura

FOR DIVISION USE ONLY		
Bond	Forms	
	OGD114	OGD121
	CALV W/CAS	115V

P216-0174

NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: 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 42C, API No. 037-21878,
(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: 7763' feet. The effective depth is: 7741' feet.
 Present completion zone(s): Seson. Anticipated completion zone(s): Same.
(Name) (Name)
 Present zone pressure: storage psi. Anticipated/existing new zone pressure: storage psi.

Is this a critical well as defined in the California Code of Regulations, Title 14, Section 1720(a) (see next page)? Yes No
 For redrilling or deepening only, is a California Environmental Quality Act (CEQA) document required by a local agency?
 Yes No If yes, see next page.

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

See attached program

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

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

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

Name of Operator Southern California Gas Company		
Address P. O. Box 2300	City/State Chatsworth	Zip Code 91313-2300
Name of Person Filing Notice Brian Vlasko	Telephone Number: 714-655-9506	Signature 
Individual to contact for technical questions: Brian Vlasko	Telephone Number: 714-655-9506	Date 09/2/16
		E-Mail Address: bvlasko@semprautilities.com

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

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/

SoCal Gas Company



Well Operations Procedure

Porter 42C Aliso Canyon Storage Integrity Management Program 9/1/2016 Version 1

Well Site Supervisor: Darryl Luttrell 661-714-2397 (mobile)
Primary Engineer: Brian Vlasko 818 700-3897 (ofc)/714 655-9506 (mobile)
Alternate Engineer: Ella Lein 818 700-3676 (ofc)/661 340-4250 (mobile)
Engineering Supervisor: Jose Iguaz 818 700-3889 (ofc)/661 384-5337 (mobile)
Well Work Superintendent: Mike Volkmar 562 685-3810 (mobile)

History:

Date	Summary
1979	Spud well
1990	Replace 5-1/2" completion liner. Set Otis packer @ 6,811'
2002	Gas from annulus. Attempt to repair wellhead, packed seals still leaking. Packed on top of 9-5/8" slips (held OK)
2003	Unsuccessfully fish bottom hole choke.
2004	Unsuccessfully fish bottom hole choke with coil.
2004	Pull completion assembly. Tagged fill @ 7610'. Clean out to 7650', fell through to 7693'. Clean out fill to 7711'. RIH with scraper to 6811'. USIT from 6775' to surface. Re-energized wellhead seals.
2007	Pull completion assembly, left 1-1/4" tubing in well. Could not pass packer at 6,811 with 4.5" shoe, passed through with 4" shoe. RIH to 7508' (tagged) believe to be alongside of fish. RIH with new completion.

Objective:

The intent of this program is to complete the well integrity inspection and remediate identified conditions as part of the Storage Integrity Management Program (SIMP). A new completion string and pressure monitors will be installed, converting well to tubing flow.

Well Data:

API #: 037-21878
Datum: 1970'
KB to GL: 22'
MD: 7,763'
TVD: 7,357'
PBMD: 7,741'

Nature of Plug Back: Bottom of Liner

SoCal Gas Company



Well Operations Procedure

Geologic Markers:

LP: 5760' MD / 5519' TVD	S1: 7500' MD / 7116' TVD
UDA1: 6169' MD / 5897" TVD	S4: 7588' MD / 7196' TVD
LDA: 6889' MD / 6555' TVD	S8: 7665' MD / 7296' TVD
MP: 7283' MD / 6917'TVD	

Casing Data:

Surface Casing:	13-3/8", 54.4#, K55 Cem @ 1022'
Intermediate Casing:	9-5/8", 40#, N80, 0 – 287' 43.5#, N80, 287' – 3,028' 47#, N80, 3,028' – 5,636' 53.5#, N80, 5,636' – 6,955' ETOC @ 6,343'
Intermediate Liner:	7-5/8", 29.4#, C75, Cem @ 6,867'-7,590'
Production Liner:	5-1/2", 17#, Wire Wrap Screen @ 7,488'-7,741'

Tubing Data: See attached

Wellhead: See attached

Perforations: Open Hole with 0.010" Wire Wrap Screen 7,657'-7,741'
Completed in S8

Current Status: Idle for inspection

SoCal Gas Company



Well Operations Procedure

PROJECT NOTES

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

PRE-RIG WORK

1. De-energize and remove all laterals. Install companion flanges for circulating the well.
2. Complete slick line work as required to set-up well for circulation.
3. Ensure correlation log on file or plan for CCL.

WELLWORK PROGRAM

1. Move in production rig and rig pump with tank, shaker, and mixer.
2. Spot 500 bbl Baker tanks and load with 8.5 ppg KCl brine.
 - Connect pump to the tubing and vent the casing through the choke manifold to the SoCalGas withdrawal system.
 - Treat all brine with Biocide, 5 gals/100 bbls
3. Verify the well is dead. If needed, circulate well with 8.5 ppg KCL brine.
 - i. The tubing volume is ~ 58 bbls and
 - ii. The tubing/casing annulus is ~ 422 bbls.
 - iii. Use HEC polymer as required to minimize lost circulation.
4. Install BPV in tubing hanger. ND tree.

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

SoCal Gas Company



Well Operations Procedure

5. +++Install Class III 5M BOPE per Gas Company Standard 224.05 and in accordance with the DOGGR permit. All connections and valves must be flanged and at least 5000 psig rated. (Confirm BOPE rating)
 - All tests are to be charted and witnessed by a DOGGR representative.
 - Perform a 300 psig low pressure test on the annular preventer, blind rams and pipe rams for 20 minutes. Test all lines and connections to 300 psig.
 - Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
 - Remove BPV.
6. POOH with production equipment and LD production tubing.
 - a.) Attempt to release seal assembly from packer. If not successful plan for a cut @ 6,790'.
 - b.) Fish remainder of production string.
 - c.) Mill Otis production packer @ 6,811'.
7. RIH with 9-5/8", all weight casing scraper to top of liner @ 6867'. Circulate well clean. POOH. (Estimated top of fish at 6846', may be pushed downhole from previous fishing attempts)
8. Fish 1-1/4" IJ tubing string from ~866'.
9. RIH with ~300' clean out string to PBMD @ 7,741' and clean out if necessary. POOH.
10. MIRU WL unit to run Gyro / Multi-Arm Caliper combo from PBMD to surface. Contact engineer for QC before RDMO WL. Send a copy of the survey file to Bvlasko@semprautilities.com.
11. Rig-up wireline unit(s) and run:
 - a.) Magnetic flux leakage from top of production liner @7,488' to surface

Notify engineer prior to logging. Do not RDMO WL without engineer's approval.
12. RIH with RBP to ~7,475', pressure test to 500 psi for 10 minutes and sand off.
13. Nipple down BOPE, crossover spool, and primary pack-off.
 - a.) Send DSA and tubing spool to Vendor for refurbishment.
 - b.) Install auxiliary spacer spool and NU BOPE
14. Rig-up wireline unit, install lubricator and run:
 - b.) Ultrasonic from RBP to surface
 - c.) CBL from RBP to surface

Notify engineer prior to logging. Do not RDMO WL without engineer's approval.

SoCal Gas Company



A Semptra Energy utility

Well Operations Procedure

15. Ensure equipment integrity (tree, spool, tubing hanger, master valve, wing valves) have been refurbished before proceeding to the next step.
16. ND BOPE, install tubing spool, reinstall BOPE and test (*Casing head is rated to 5000 psi*).
17. RIH with test packer on work string and conduct a Pressure Integrity Test ("Block"). Follow test schedule attached to this program. POOH with test packer(s).
 - a.) Pressure test to 115% of the wells maximum allowable operating pressure (3625 psi) as per attached Pressure Test Schedule.
 - b.) Engineering team to analyze log and pressure test results and recommend any additional remediation.

Test	Packer Depth	BP Depth	Test Pressure
1	3,028'	N/A	3,625 PSI (Casing)
2	5,635'	N/A	3,000 PSI (Casing)
Final	7,470'	N/A	1,750 PSI (Casing)

18. RIH with retrieving tool on work string circulating while engaging RBP retrieval neck. Open bypass and allow RBP to equalize for 30 mins. Release RBP and allow elastomers to relax for 1 hr. Circulate as required to control well. POOH slowly to minimize swabbing and lay down work string.

SoCal Gas Company



Well Operations Procedure

19. RIH with new tubing as follows:

Run items 1) - 11). Install XN plug. Make up testing sub and test BHA to 4000 psi for 5 mins. Remove test sub and pull XN plug. Continue running 3-1/2" tubing hydro-testing each connection to 4000psi. Pickup item 13), Install XN plug, make up testing sub and test BHA to 4000 psi for 5 mins. Remove test sub and pull XN plug. Continue running 4-1/2" tubing hydro-testing each connection to 4000psi.

1. 3-1/2" Wireline re-entry guide
2. +/- 2ft - 3-1/2" 9.3# L-80 TCPC XN Nipple (2.75" w/2.635" no-go)
3. +/- 10ft - Pup joint 3-1/2" 9.3# L-80 TCPC
4. +/- 8ft - 3-1/2" 9.3# L-80 x 7-5/8" 29.7# TCPC production packer **set at 7,450ft**
5. +/- 10ft - Pup joint 3-1/2" 9.3# L-80 TCPC
6. +/- 31ft - Full joint 3-1/2" 9.3# L-80 TCPC tubing
7. +/- 4ft - Pup 3-1/2" 9.3# L-80 TCPC
8. +/- 2ft - 3-1/2" 9.3# L-80 TCPC (2.81" Open Down) sliding sleeve
9. +/- 4ft - Pup 3-1/2" 9.3# L-80 TCPC
10. +/- 31ft - Full joint 3-1/2" 9.3# L-80 TCPC tubing
11. +/- 2ft - 3-1/2" 9.3# L-80 TCPC X Nipple (2.81")
12. +/- **550ft** - 3-1/2" 9.3# L-80 TCPC tubing
13. +/- 2ft - Crossover Sub 3-1/2" 9.3# x 4-1/2" 12.6# L-80 TCPC tubing
14. +/- **6800ft** - 4-1/2" 12.6# L-80 TCPC tubing to surface
15. Pup joints 4-1/2" 12.6# L-80 TCPC for space-out
16. +/- 10ft - Pup 4-1/2" 12.6# L-80 TCPC
17. +/- 4ft - 4-1/2" 12.6# L-80 TCPC fatigue nipple (pin x pin)
18. Tubing hanger with 4-1/2" EUE top box / 4" BPV / 4-1/2" 12.6# L-80 TCPC bottom box

Notes : Prior to sending completion equipment to well site

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

20. Land tubing as per vendor specifications.

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

21. Rig-up slickline unit and lubricator. Set a plug in the 2.635" XN profile.

22. Notify DOGGR to witness tubing tests to 3700 psi, hold for 1 hour. Perform annular test to 1000 psi, hold for 1 hour. Record tests digitally.

SoCal Gas Company



Well Operations Procedure

23. RIH with WL and recover XN plug. RIH with WL and shift the sliding sleeve open. RDMO WL.
24. Install BPV in tubing hanger. Nipple down BOPE, install production tree and test to 5,000 psig. Remove BPV.
25. RDMO.

UNLOAD WELL

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

WELL LATERAL HYDROTESTING

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

EXTERNAL CORROSION PROTECTION

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

Well Porter 42C

API #: 04-037-21878-00
Sec 28, T3N, R16W

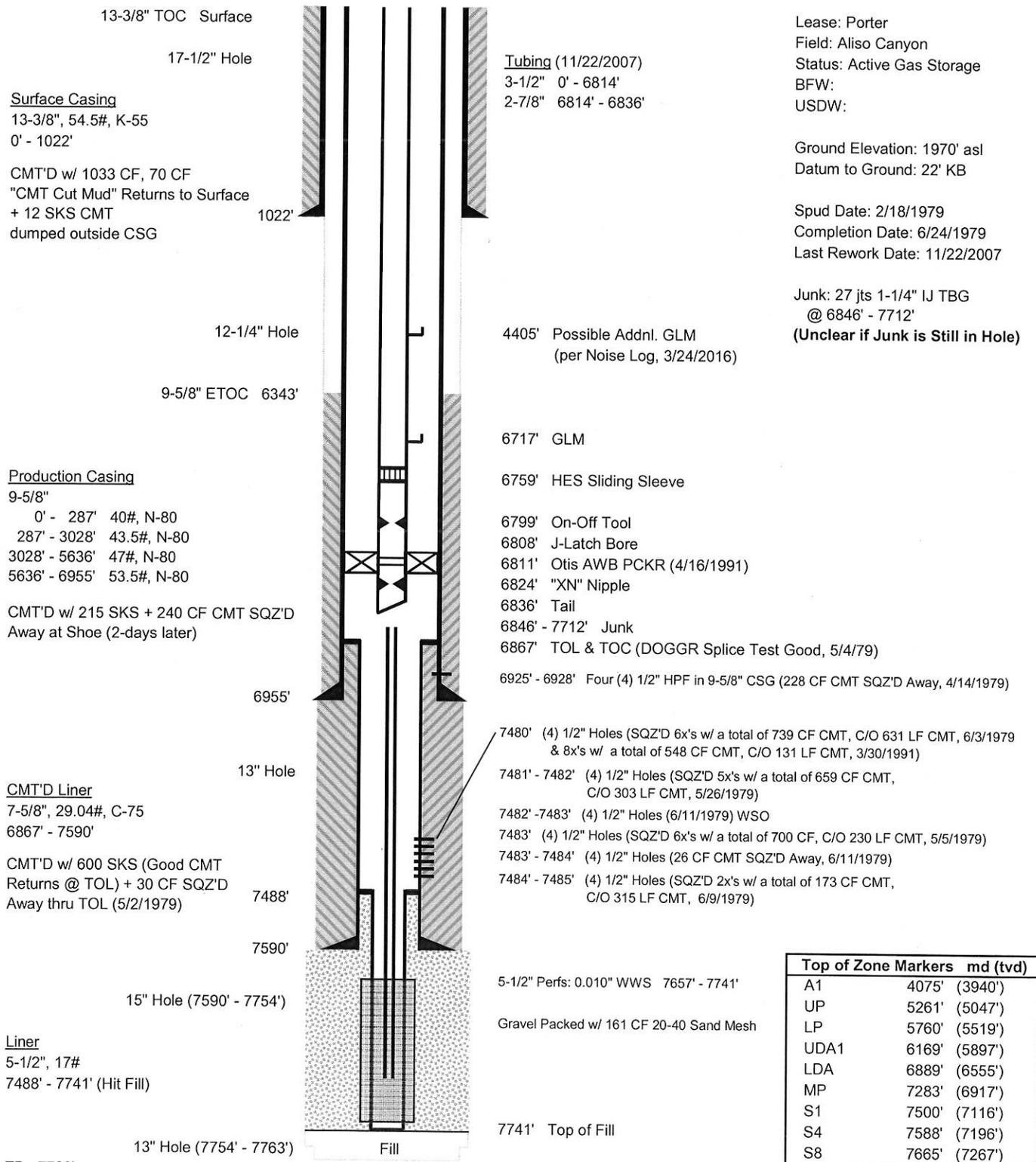
Operator: So. California Gas Co.

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

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: 27 jts 1-1/4" IJ TBG
@ 6846' - 7712'
(Unclear if Junk is Still in Hole)



Top of Zone Markers md (tvd)	
A1	4075' (3940')
UP	5261' (5047')
LP	5760' (5519')
UDA1	6169' (5897')
LDA	6889' (6555')
MP	7283' (6917')
S1	7500' (7116')
S4	7588' (7196')
S8	7665' (7267')

Prepared by: MAM (5/31/2016)
Updated by: LD (9/3/2016)

Well Porter 42C

API #: 04-037-21878-00
Sec 28, T3N, R16W

Production Casing Pressure Test - Program

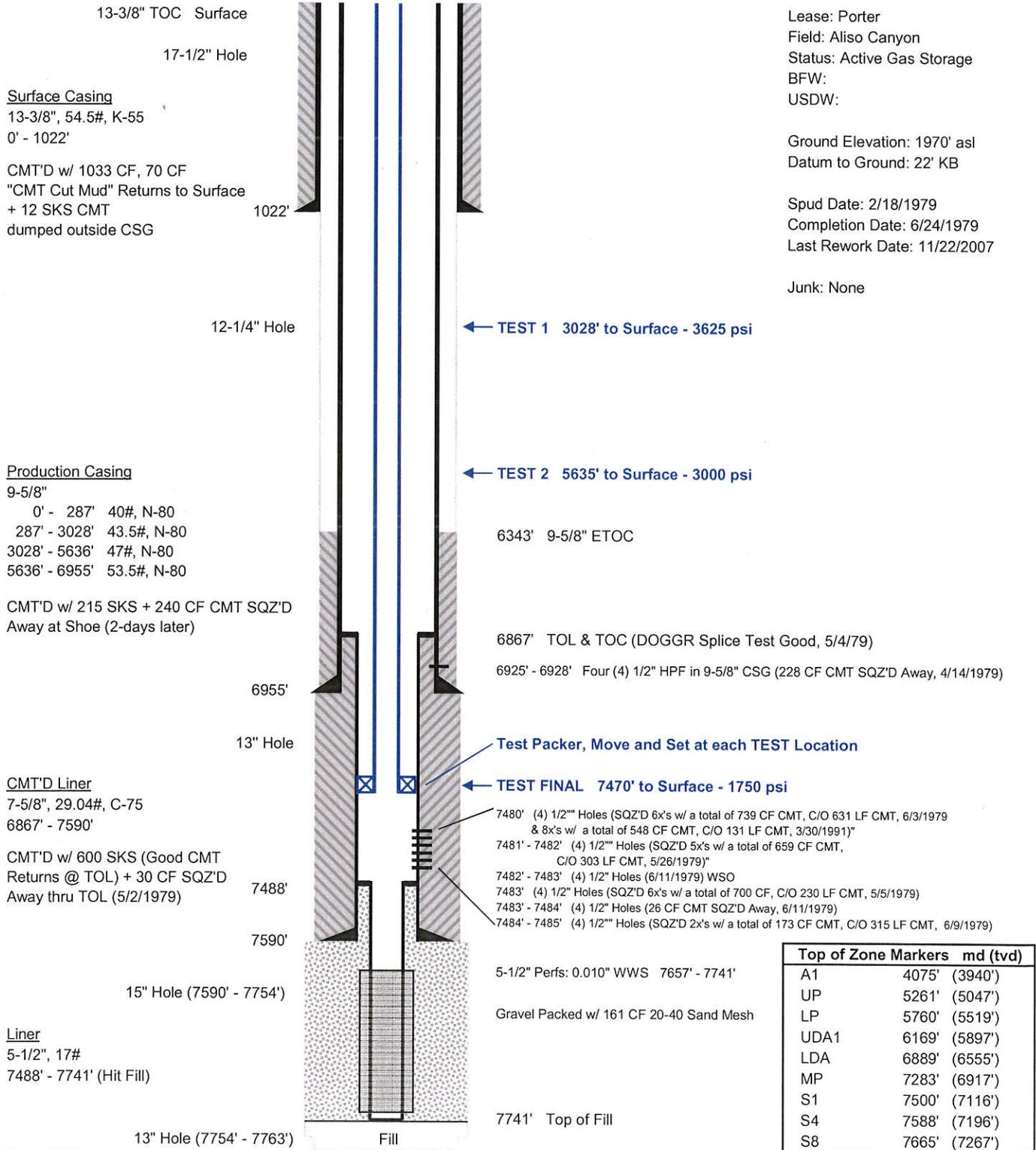
Operator: So. California Gas Co.

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

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: None



Prepared by: MAM (5/31/2016)

Updated by: LD (9/3/2016)

**Well
Porter 42C**

API #: 04-037-21878-00
Sec 28, T3N, R16W

Proposed

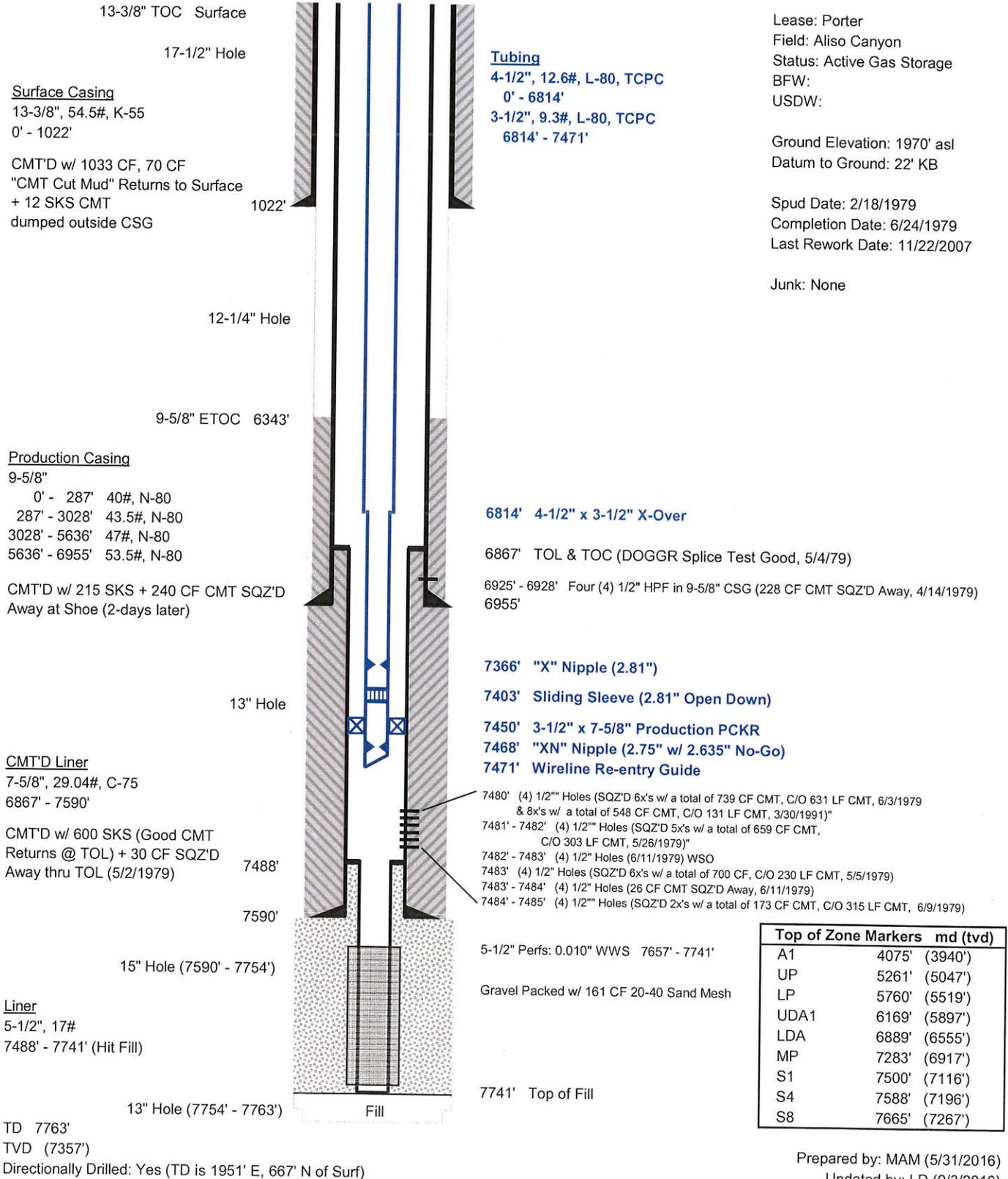
Operator: So. California Gas Co.

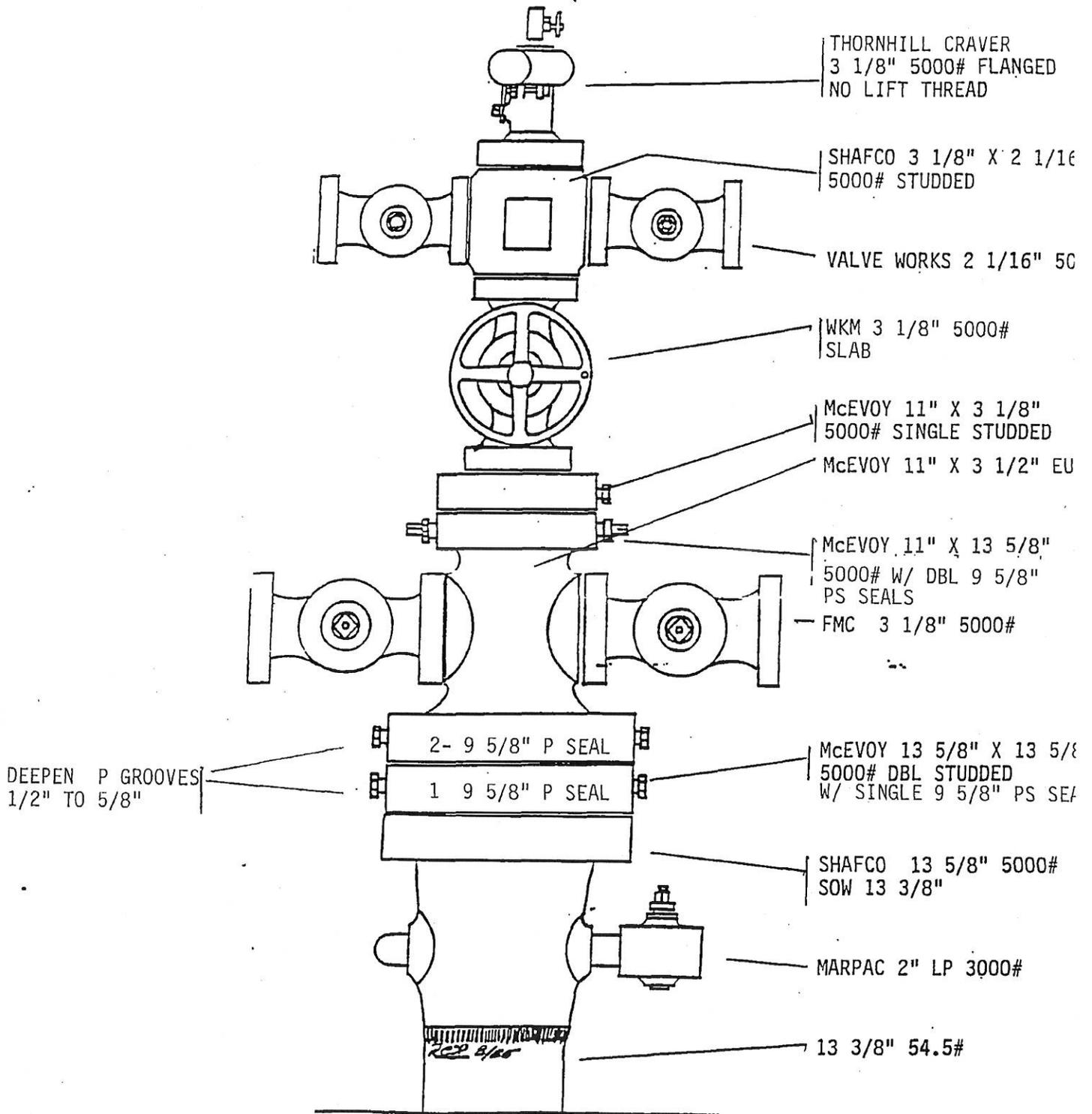
Lease: Porter
Field: Aliso Canyon
Status: Active Gas Storage
BFW:
USDW:

Ground Elevation: 1970' asl
Datum to Ground: 22' KB

Spud Date: 2/18/1979
Completion Date: 6/24/1979
Last Rework Date: 11/22/2007

Junk: None





WELL NAME PORTER 42-C

MFGR: McEVOY & SHAFCO

DATE PREPARED: 11/16/07

WELLHEAD DESCRIPTION
(TYPE IV & VI)

Rec'd 09-06-16 DOGGR Ventura.

Well No. PORTER 42-C Date Prepared 11/16/07
Field ALISO CANYON Prepared By _____
Wellhead Mfr. McEVOY & SHAFCO

1. Casing Head SHAFCO Size 13 5/8" 5000# Type "SD"
SOW 13 3/8"
Slips & Pack-off 13 5/8" X 9 5/8" TYPE "SD"

A. Surface Csg. Size 13 3/8" Wt 54.5 # Grade K-55
B. Casing Head Valve MARPAC Size 2" 3000# LP Fig No. CSB-790-JN

2. Seal Flange McEVOY Size 13 5/8" X 13 5/8" 5000# DBL STUDDED
A. Type Seal 9 5/8" "PS" SINGLE Ring TOP BX-160 & BOTTOM BX-160

3. Tubing Head McEVOY Size 11" X 13 5/8" 5000# Type _____
Ring TOP RX-54 & BOTTOM BX-160
Outlets 3 1/8" 5000# Sec. Seal 9 5/8" "PS" (2) EACH
Valve Removal Thrd _____

A. Tubing Hanger McEVOY Size 11" X 3 1/2" EUE Type _____
B.P.V. Size GIW 3 1/2"

B. Tubing Head Valves FMC Size 3 1/8" 5000# Fig.No. _____
C. Automatic Csg. Valve _____ Size _____ Fig.No. _____

4. Adapter Seal Flange McEVOY Size 11" X 3 1/8" 5000# Type _____
A. Ring Size TOP RX-35 & BOTTOM RX-54

5. Master Valve WKM Size 3 1/8" 5000# SLAB Fig.No. _____

6. Xmas Tree Cross SHAFCO Size 3 1/8" X 2 1/16" 5000# STUDED
Bore: Thru 3 1/8" Across 2 1/16"

7. Tubing Wing Valves VALVEWORKS Size 2 1/16" 5000# Fig.No. _____
A. Automatic Tbg. Valve _____ Size _____ Fig.No. _____

8. Unibolt Size 3" X 3 1/8" 5000# FLANGE Inside Thrds NO

9. Size Landed in Csg. Head 9 5/8" Wt 40 # Grade N-80

10. Size Landed on Doughnut 3 1/2" EUE Wt _____ Grade _____

11. Tubing Head to Ground Level 18" ABOVE GROUND LEVEL

LINER DETAIL

WELL: Porter #42 C
 FIELD: Aliso Canyon

STATUS: Injection/Withdrawal
 DATE: April 12, 1991

DIAGRAM		LINER		LINER	
	SIZE	5-1/2"	SIZE	5-1/2"	
	WEIGHT	17#	ID	4.892"	
	GRADE	K-55	DRIFT ID	4.767"	
	THREAD	LT&C	OD	6.063"	
	DEPTH	7488'-7741'			
	ITEM	LINER DETAIL		LENGTH	DEPTH
1	A.	7-5/8" casing 6.875" I. D.		723'	7590'
2	1.	Lead seal drive over adapter set at: 7-5/8" x 5-1/2"		2.54	7488.00
3	2.	Landing nipple		1.28	7491.82
4	3.	Blank joint		41.79	7533.61
	4.	Blank joint		41.89	7575.50
	5.	Wire wrapped joint		41.51	7617.01
	6.	Wire wrapped joint		41.24	7658.25
	7.	Wire wrapped joint		40.88	7699.13
	8.	Wire wrapped joint		40.23	7739.36
	9.	Bull nose plug		1.60	7740.96
		Wire wrapped liner detail			
		-304 stainless steel .010 gauge screen jacket			
		-centralizers across connections (5-6, 6-7, 7-8)			

SOUTHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB--JUN 1979
PORTER NO: 42-C ELEV: 1992.3 DECL: 16 0 E
ALISO CANYON FIELD, CA. EASTMAN SINGLE SHOT HARDLY 132/11

VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL
DIRECTION: N 71 DEG. 0 MIN. 15

RECORD OF SURVEY

ANGLE AVERAGING METHOD

THORN CALIF. GAS CO., SEC BEAR: N 71 E FEB-JUN 1979
 TFR NO: 42-C ELEV: 1992.3 DECL: 16 0 E
 CO CANYON FIELD, CA, EASTMAN SINGLE SHOT HANDLY 132/11

COMPUTATION PAGE NO. 1
 TIME DATE
 00:05:54 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SURSEA TYD FEET	R E C Y A N G U L A R C O O R D I N A T E S FEET	DOGLED SEVERITY DG/100FT
0.	0 0	0	0.	0.00	0.00	-1992.30	0.00	0.00
193.	0 15	S 61 W	193.	193.00	-0.41	-1799.30	0.07 S	0.42 W
410.	3 0	S 19 W	217.	409.91	-6.16	-1582.37	4.02 S	5.13 W
503.	3 30	S 14 W	93.	502.76	-9.22	-1489.54	9.08 S	6.63 W
596.	4 0	S 17 W	93.	595.56	-12.67	-1396.74	14.94 S	8.25 W
707.	4 15	S 17 W	111.	706.28	-17.36	-1286.02	22.57 S	10.59 W
837.	3 30	S 19 W	130.	835.98	-22.65	-1156.32	30.93 S	13.30 W
1022.	2 30	S 8 W	185.	1020.73	-27.85	-971.57	40.34 S	15.56 W
1155.	4 15	S 8 E	133.	1153.49	-30.40	-838.81	48.17 S	15.56 W
1278.	4 15	S 8 E	123.	1276.16	-32.14	-716.14	57.20 S	14.29 W
1432.	5 30	S 6 E	154.	1429.60	-34.86	-562.70	70.19 S	12.70 W
1558.	4 30	S 0 E	126.	1555.12	-37.89	-437.18	81.13 S	12.12 W
1642.	5 0	S 12 E	84.	1638.83	-39.45	-353.47	88.07 S	11.40 W
1705.	5 45	S 36 E	63.	1701.55	-39.94	-290.75	93.47 S	9.00 W
1765.	6 45	S 59 E	60.	1761.20	-35.82	-231.10	97.88 S	4.18 W
1796.	7 45	S 68 E	31.	1791.95	-33.08	-200.35	99.62 S	0.68 W
1859.	8 0	S 88 E	63.	1854.36	-25.68	-137.94	101.42 S	7.76 E
1891.	7 45	N 82 E	32.	1886.05	-21.46	-106.25	101.19 S	12.14 E
1921.	7 45	N 70 E	30.	1915.78	-17.43	-76.52	100.21 S	16.07 E
1946.	6 45	N 58 E	27.	1942.50	-13.59	-49.80	98.51 S	19.55 E
2037.	11 0	N 57 E	89.	2030.18	1.25	37.88	90.31 S	32.42 E
2129.	13 15	N 58 E	92.	2120.13	20.04	127.83	79.93 S	48.72 E
2223.	16 15	N 58 E	94.	2211.03	43.36	218.73	67.20 S	69.02 E
2318.	19 15	N 58 E	95.	2301.51	71.58	309.21	51.90 S	93.58 E
2412.	22 30	N 59 E	94.	2389.34	104.28	397.04	34.40 S	122.14 E
2508.	22 30	N 56 E	96.	2478.03	140.01	485.73	14.66 S	153.12 E
2600.	22 45	N 55 E	92.	2562.95	174.11	570.65	5.39 N	182.29 E
2694.	22 0	N 56 E	94.	2649.87	208.59	657.57	25.66 N	211.78 E
2817.	22 0	N 57 E	123.	2763.92	253.20	771.62	51.09 N	250.20 E
2942.	22 0	N 57 E	125.	2879.82	298.64	887.52	76.59 N	289.47 E

PHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979
 PER NO: 42-C ELEV: 1992.3 DECL: 16 0 E
 30 CANYON FIELD, CA. EASTMAN SINGLE SHOT HANDLY 132/11

COMPUTATION PAGE NO. 2
 TIME DATE
 00:05:54 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M.	DRIFT DIRECTION	COURSE LENGTH FEET	TRUC VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SUBSEA TVD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOGLEG SEVERITY DG/100FT
3097.	21 15	N 56 E	155.	3023.91	353.94	1031.61	108.12 N 337.11 E	0.54
3250.	21 30	N 57 E	153.	3166.30	407.93	1174.08	138.90 N 383.61 E	0.29
3380.	21 15	N 56 E	130.	3287.44	453.80	1295.14	165.05 N 423.12 E	0.34
3526.	20 45	N 57 E	146.	3423.74	504.45	1431.44	193.93 N 466.75 E	0.42
3683.	20 30	N 58 E	157.	3570.68	558.23	1578.38	223.64 N 513.39 E	0.28
3837.	19 30	N 59 E	154.	3715.39	609.65	1723.09	251.16 N 558.30 E	0.69
3997.	19 15	N 60 E	160.	3866.33	661.67	1874.03	278.10 N 604.03 E	0.26
4153.	19 0	N 61 E	156.	4013.72	711.92	2021.42	303.27 N 648.52 E	0.26
4245.	19 0	N 61 E	92.	4100.71	741.42	2108.41	317.79 N 674.72 E	0.00
4339.	19 30	N 71 E	94.	4169.45	772.29	2197.15	330.40 N 703.03 E	3.54
4432.	22 0	N 74 E	93.	4276.42	805.23	2284.12	340.30 N 734.45 E	2.92
4524.	22 45	N 76 E	92.	4361.50	840.17	2369.20	349.37 N 768.28 E	1.16
4620.	22 30	N 75 E	96.	4450.11	876.98	2457.81	358.61 N 804.03 E	0.48
4773.	22 15	N 76 E	153.	4591.59	935.04	2599.29	373.20 N 860.42 E	0.30
4930.	21 30	N 77 E	157.	4737.28	993.27	2744.98	386.85 N 917.30 E	0.53
5082.	20 30	N 77 E	152.	4879.19	1047.44	2886.89	399.11 N 970.38 E	0.66
5144.	20 15	N 77 E	62.	4937.31	1068.91	2945.01	403.96 N 991.41 E	0.40
5235.	19 45	N 76 E	91.	5022.82	1099.89	3030.52	411.23 N 1021.67 E	0.67
5394.	19 0	N 79 E	159.	5172.82	1152.30	3180.52	422.64 N 1073.17 E	0.78
5547.	18 30	N 79 E	153.	5317.70	1201.00	3325.40	432.03 N 1121.45 E	0.33
5638.	18 15	N 80 E	91.	5404.06	1229.38	3411.76	437.26 N 1149.65 E	0.44
5726.	19 15	N 80 E	88.	5487.39	1257.31	3495.09	442.17 N 1177.51 E	1.14
5850.	21 15	N 81 E	124.	5603.72	1299.64	3611.42	449.25 N 1219.84 E	1.64
5945.	23 0	N 80 E	95.	5691.73	1334.93	3699.43	455.16 N 1255.13 E	1.88
6074.	24 0	N 83 E	129.	5810.03	1385.51	3817.73	462.75 N 1306.00 E	1.21
6232.	24 45	N 83 E	158.	5953.95	1449.29	3961.65	470.71 N 1370.72 E	0.47
6258.	23 30	N 80 E	26.	5977.67	1459.74	3985.37	472.28 N 1381.23 E	6.73
6354.	24 0	N 74 E	96.	6065.54	1498.19	4073.24	480.98 N 1418.91 E	2.57
6417.	24 0	N 73 E	63.	6123.10	1523.79	4130.80	480.25 N 1443.48 E	0.65
6511.	24 15	N 74 E	94.	6208.89	1562.18	4216.59	499.16 N 1480.31 E	0.51

TERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979
 TERN NO: 42-C ELEV: 1992.3 DECL: 16 0 E
 SO CANYON FIELD, CA. FASTMAN SINGLE SHOT HANDLY 132/11

COMPUTATION PAGE NO. 3
 TIME DATE
 00:05:54 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SURSEA TYD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOGLEG SEVERITY OS/100FT
6636.	24 15	N 74 E	125.	6322.86	1613.45	4330.56	513.32 N 1529.67 E	0.00
6734.	24 15	N 75 E	98.	6412.21	1653.62	4419.91	524.07 N 1568.45 E	0.42
6853.	22 45	N 69 E	119.	6521.34	1701.07	4529.04	538.74 N 1613.58 E	2.37
7006.	23 0	N 69 E	153.	6662.31	1760.50	4670.01	560.05 N 1669.11 E	0.16
7162.	23 15	N 71 E	156.	6805.77	1821.76	4813.47	581.00 N 1726.68 E	0.53
7233.	23 30	N 70 E	71.	6670.95	1849.93	4678.65	590.41 N 1753.23 E	0.66
7280.	24 0	N 70 E	47.	6913.97	1868.65	4921.67	596.88 N 1771.02 E	1.06
7613.	23 0	N 67 E	333.	7219.35	2001.51	5227.05	645.55 N 1894.56 E	0.47
7760.	23 0	N 67 E	147.	7354.66	2053.81	5362.36	667.99 N 1947.43 E	0.00

STATION AT 7760' IS PROJECTED.

FINAL CLOSURE - DIRECTION: N 71 DEGS 4 MINUS E
 DISTANCE: 2058.61 FEET

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:

FROM

TO

"SFZU" P-42A (037-21876)	"Porter" 42A (037-21876)
"SFZU" P-42B (037-21877)	"Porter" 42B (037-21877)
"SFZU" P-42C (037-21878)	✓ "Porter" 42C (037-21878)
"SFZU" P-69A (037-22051)	"Porter" 69A (037-22051)
"SFZU" PS-42 (037-00753)	"Porter Sesnon" 42 (037-00753)
"SFZU" SS-1 (037-00754)	"Standard Sesnon" 1 (037-00754)
"SFZU" SS-2 (037-00755)	"Standard Sesnon" 2 (037-00755)
"SFZU" SS-3 (037-00756)	"Standard Sesnon" 3 (037-00756)
"SFZU" SS-5 (037-00758)	"Standard Sesnon" 5 (037-00758)
"SFZU" SS-6 (037-00759)	"Standard Sesnon" 6 (037-00759)
"SFZU" SS-7 (037-00760)	"Standard Sesnon" 7 (037-00760)
"SFZU" SS-8 (037-00761)	"Standard Sesnon" 8 (037-00761)
"SFZU" SS-9 (037-00762)	"Standard Sesnon" 9 (037-00762)

M. G. MEFFERD, State Oil and Gas Supervisor

By

Patrick J. Kinneer
Deputy Supervisor

PATRICK J. KINNEAR

OPERATOR Lo Cal. Hwls.
 LSE & NO SEZU P-42C
 MAP 254

(1) () () () () ()

INTENTION	Drill	Supp to Drill	Rework			
NOTICE DATED	9-1-78	4-5-79	6-19-90			
P-REPORT NUMBER	278-246	279-123	290-276			
CHECKED BY/DATE						
MAP LETTER DATED	9-15-79	←				
SYMBOL		←	N/C			
	REC'D NEED	REC'D NEED	REC'D NEED	REC'D NEED	REC'D NEED	REC'D NEED
NOTICE	9-5-78	4-11-79	6-21-90			
HISTORY		10-22-79	6-27-91			
SUMMARY		10-22-79				
IEL						
IES/ELECTRIC LOG	→	8-3-79				
DIRECTIONAL SURV	→	6-26-79				
CORE/SWS DESCRIP						
Mudis Suis LCH	4-24-79	8-3-79	PIPE ANALYSIS LOG			
OTHER Caliper Log } Phantom } Comp. Density }		6-28-79	6-18-91			
RECORDS COMPLETE	→	8-3-79	Cal 7-7-93			
		JR	7-2-91 SPM			

ENGINEERING CHECK

T-REPORTS _____

OPERATOR'S NAME _____

WELL DESIGNATION _____

LOC & ELEV _____

SIGNATURE _____

SURFACE INSPECTION _____

FINAL LETTER OK _____

CLERICAL CHECK

POSTED TO 121 _____ 170 MAILED _____

FINAL LETTER MAILED _____

RELEASED BOND _____

REMARKS: _____

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

DIVISION OF OIL AND GAS
RECEIVED
JUN 27 1991
VENTURA, CALIFORNIA

History of Oil or Gas Well

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Porter #42C SFZU P-42C, Sec. 27, T. 2S, R. 15W, SB. B. & M.
A.P.I. No. 037-22674 21878 Name R. D. Phillips Title Agent
Date June 24, 1991 (Person submitting report) (President, Secretary or Agent)

Signature J. B. Lane

J. B. Lane for R. D. Phillips

P. O. Box 3249 Terminal Annex, Los Angeles, CA 90051 (213) 689-3925
(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

1990

- 12-03 Move in. Rigged up.
- 12-04 Well had 3300 psi tubing pressure. Re-killed well.
- 12-05 Well had 1800 psi on tubing. Re-killed well.
- 12-06 Removed xmas tree. Installed BOPE. Pressure tested blind rams, pipe rams and choke manifold to 4000 psi, Hydril bag to 2800 psi. D.O.G. waived witnessing test. Released from packer.
- 12-07 Pulled and laid down 3-1/2" tubing and production equipment. Made up and ran bit and scraper below 4-3/4" drill collars and drill pipe to kill string.
- 12-08 Finished running to top of packer. Backscuttled well clean. Pulled out of well.
- 12-10 Finished pulling out of well with bit and casing scraper. Ran in well with Baker packer retrieving tool to 6837'. Unable to latch into packer mandrel. Chained out of well with retrieving tool. Ran in well with 3-11/16" junk mill to 6795'.
- 12-11 Milled hard fill (scale) from 6834' - 6862'. Pulled out of well. Made up Baker packer retrieving tool. Ran in well and jarred on packer. Secured well.
- 12-12 Pulled out of well with packer retrieving assembly. Tool indicated junk inside packer mandrel. Ran in well with 4-5/8" junk mill. Cleaned out junk in mandrel to 6866'. Pulled junk mill. Ran in well with Baker packer retrieving tool to 2400'. Secured well.

Mailed to DOC 6/26

1990

- 12-13 Finished running in well with Baker packer retrieving tool. Attached retrieving tool to packer. Pulled 30,000# over. Pulled out of well. Left 8' of pulling tool in well. Ran kill string.
- 12-14 Made up Tri-state 3" grapple on BHA. Ran in well with grapple to packer. Cleaned out and pulled out of well with Tri-State taper tap (no recovery). Ran in well to 6796'.
- 12-15 Worked taper tap into fish. Pulled 20,000# over string weight. Chained out of well (no recovery). Re-ran taper tap. Worked into fish. Chained out of well to kill string.
- 12-17 Finished chaining out of well (no recovery). Cut 14" off of taper tap. Ran in well to fish. Pulled 2000# over hook weight. Chained out of well (no recovery). Made up 3" grapple on BHA and ran in well to 5046'.
- 12-18 Finished running in well with 3" grapple to fish. Pulled out of well (no recovery). Ran 8" Tri-state impression block on wireline. Showed metal mark 3-1/2" from center of tool. Ran 8" magnet on wireline (no recovery). Ran kill string.
- 12-19 Pulled kill string. Ran in well with RTC 5-3/4" overshot 3" grapple and 7-3/8" oversize guide on BHA to fish. Chained out, (no recovery). Ran 8-1/4" x 5-7/8" mill shoe on 8-1/8" washpipe to 6299'.
- 12-20 Milled from 6334' - 6335'. Circulated cuttings out of well and lowered weight of fluid to 74 pcf. Pulled mill #1. Ran in well with mill #2 to 5310'.
- 12-21 Milled from 6335' - 6336'. Pulled out of well. Recovered large pieces of metal from junk basket. Made up Cavins surge tool and ran in well to 6334'.
- 12-22 Water supply to rig was frozen. Unable to resume rig operations due to weather conditions.
- 12-26 Chained out of well. Recovered one quart of fine metal from junk basket. Ran in well to fish at 6834' with 5-3/4" grapple on BHA. Chained out of well to 3050'.
- 12-27 Finished pulling out of well. Recovered top part of retrieving tool, (latch locator nut and top clutch assembly). Left 2 slip segments 6" x 3-1/4" in hole. Made up 4.805" grapple on BHA. Ran in well to 6834'. Jarred on packer for 3 hours. Released spear. Pulled to 2386'.

1990

- 12-28 Pulled out with spear. Made up Baker retrieving tool on bottom of Tri-State spear and ran in well to 6534'. Jarred to 40,000 lbs with Baker retrieving tool. Jarred 100,000 lbs over hook weight with spear (no success). Chained out of well. Left Baker retrieving tool in well (10', 10"). Made up mill shoe. Ran in well to 2328'.
- 12-29 Finished running in well with Tri-State 8-1/4" x 5-7/8" mill. Milled from 6835.5' to 6837'.
- 1991
- 1-2 Pulled out of well. Mill shoe was only slightly worn. Ran in well with mill shoe #2. Milled on packer from 6837'-6837.5'.
- 1-3 Continued milling from 6837.5' to 6838'.
- 1-4 Pulled out of well. Changed out mill shoe, and ran in well with mill shoe #3 to packer at 6838'. Milled 5".
- 1-5 Milled on packer to 6839'. Circulated rubber out of well.
- 1-7 Pulled out of well. Changed out mill shoe. Ran in well with 8-1/4" x 6-3/8" millshoe #4. Milled packer from 6839'-6840'. Packer fell. Pushed packer to top of liner adapter at 6867'. Pulled out of well. Made up 4-3/4" spear, bumper sub, jars and 122' of 4-3/4" drill collars. Ran kill string.
- 1-8 Finished running in well with 4-3/4" grapple to packer at 6840'. Pulled packer to 6809'. Hung the slips of packer in casing collar. Jarred 2 hours. Released spear. Pulled out of well. Recovered latch and top of packer. Made up 8-1/4" x 6-3/8" mill. Ran in well to 4658'.
- 1-9 Finished running in well to packer at 6809'. Milled on packer and followed down to 6867'. Backscuttled well. Pulled out of well. Made up 4-3/4" grapple. Ran in well and jarred on packer at 6860', chained out of well to 6625'.
- 1-10 Chained out of well. 4-3/4" grapple left in well. Ran kill string.
- 1-11 Rig down for repair.
- 1-12 Pulled kill string. Made up 4-3/4" spear assembly. Ran in well to packer. Jarred on packer at 50,000 lbs over hook weight. Grapple pulled out of fish. Pulled out of well. Spear had unscrewed below stop sub. Ran in well with 3-1/2" pin on bottom hole assembly to 4234'.

JUN 21 1990

Notice of Intention to Rework Well

VENTURA, 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	
	OGD 114	OGD 121
<i>[Signature]</i>	✓	✓

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 "SF20" ~~Porter~~ 42C, API No. 037-21878
(Well designation)

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

The present condition of the well is as follows:

- Total depth 7613'
- Complete casing record, including plugs and perforations (present hole)
 - 13-3/8" cemented 1022'
 - 9-5/8" cemented 6955'
 - 723' 7-5/8" landed at 7590', top 6867' w/ WSO 7480'-7485'
 - 250' 5-1/2" liner landed at 7758' and top at 7508'

3. Present producing zone name Sesnon; Zone in which well is to be recompleted _____

4. Present zone pressure 2600 psig; New zone pressure _____

5. Last produced Gas Storage Well
(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:

- Move in rig and kill well. Install and pressure test BOPE.
- Pull tubing. Retrieve packer.
- Recover liner, run new liner and gravel pack.
- Cement squeeze casing leak.
- Install new packer and 3-1/2" tubing.
- Complete well and return to service.

Note: If well is to be redrilled, show proposed new bottom-hole coordinates and true vertical depth.

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

Address Box 3249, Terminal Annex
(Street)

Los Angeles, CA 90051
(City) (State) (Zip)

Telephone Number (213) 689-3925

Southern California Gas Company
(Name of Operator)

By J.B. Lane for R.D. Phillips, Agent
(Name - Printed)

[Signature] 6/19/90
(Name - Signature) (Date)

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

1991

- 1-14 Ran in well. Attempted to screw into spear. Chained out of well with no recovery. Made up Bowen short catch overshot with a 4-1/4" grapple and ran in well to 6849'. Attached grapple to fish. Showed 8000 lb pick up. Chained out. Recovered spear. Left 4-3/4" grapple in well. Made up 8-1/4" x 6-3/8" mill shoe on bottom hole assembly and ran in to 3130'.
- 1-15 Finished running in well with mill shoe. Milled packer from 6858' to 6860'. Pulled out of well with mill shoe. Made up 4-5/8" junk mill and ran in well to 2394'.
- 1-16 Finished running in well. Milled inside packer mandrel from 6853' to 6855'.
- 1-17 Pulled out of well with 4-5/8" mill. Ran in well with 4-5/8" mill #2. Milled from 6855' to 6857'. Circulated well clean.
- 1-18 No fill. Pulled out of well. Made up 4-7/8" full circle grapple on bottom hole assembly. Ran in well to fish at 6852'. Chained out of well. No recovery. Made up 5-7/8" grapple in close catch overshot. Ran in well to 2030'.
- 1-19 Finished running in well to 6852'. Pulled 10,000 lb over hook weight on packer. Grapple slipped off. Pulled out of well. Changed out drill collars. Ran in well with 8-3/8" x 6" mill shoe to 6837'.
- 1-21 Milled over packer with 8-3/8" x 6" sizing mill from 6854' to 6857'. Pulled mill #1. 100% worn out I.D. Ran in well with 8-3/8" X 6" mill #2 to 6836'.
- 1-22 Milled over packer from 6857' - 6858'. Pulled mill. Made up 8-1/8" x 6" mill #3. Ran in well to 6836'.
- 1-23 Milled from 6858' - 6858-1/2'. Pulled out of well. Mill 100% worn out. Made up 5-7/8" grapple in short catch overshot. Ran in well. Attached grapple to fish. Chained out of well to 5260'.
- 1-24 Chained out of well. Recovered packer mandrel (64"). Made up full circle 4.78" grapple. Ran in well. Attached grapple to fish at 6858'. Chained out of well to 2382'.
- 1-25 Finished chaining out of well. Recovered remaining part of Baker 9-5/8" retrieva-D packer. Made up 6-1/8" OD millshoe with 4-7/8" x 4" outside cutter catchers, 26' washpipe, crossover to bottom hole assembly. Ran in well to 7508'. Chained out of well. Recovered one Baker packer retrieving tool. Ran kill string.

1991

- 1-26 Pulled kill string. Made up 1-3/4" x 3-1/4" x 1.95" taper tap on 2-3/8" drill pipe (9 joints, 281.26') xover to bottom hole assembly. Ran in well to fish at 7501'. Pulled 40,000 lbs over hook weight. Chained out of well. No recovery. Ran kill string.
- 1-28 Pulled kill string. Made up 1-3/4" x 3-1/4" taper tap. Ran in well, circulated, and attempted to latch into fish at 7505'. Pulled out of well. Recovered clutch from retrieving tool. Made up 3" I.D. mill shoe. Ran kill string.
- 1-29 Finished running in. Milled over and worked fish down from 7504'-7529'. Circulated and worked mill shoe out of liner. Circulated bottom up. Pulled out of well. Made up 3" overshot and ran to top of fish (7529'). Circulated and worked fish down to 7583'.
- 1-30 Attempted to work over fish to 7600'. Circulated clean. Pulled out with no recovery. Made up 4" x 3" ID mill shoe. Ran in to 7500'.
- 1-31 Milled over fish at 7600'. Backscuttled to 7607'. Pulled out of well. Made up overshot and ran in to top of liner.
- 2-1 Latched overshot on fish at 7605'. Jarred on fish to top of liner. Pulled out of well. Recovered and laid down Baker retrieving tool. Broke out overshot. Ran kill string.
- 2-2 Pulled kill string. Made up 4-1/6" x 3-3/4" mill shoe. Ran in and milled through tight spot at 7518'. Milled on junk at 7610' to 7614'. Backscuttled well clean. Pulled 20 stands.
- 2-4 Chained out of well with mill shoe - 100% worn out. Made up 4-5/8" junk mill. Ran in well and milled from 7613' to 7614'. Pulled 36 stands.
- 2-5 Finished pulling junk mill (100% worn out). Made up 4-5/8" junk mill. Ran in and located fill at 7610'. Milled to 7612'. Pulled out of well. Mill worn out 100%. Made up 4" x 2-7/8" surge tool xover to 6 joints of 2-7/8" tubing xover 3-1/2" drill pipe. Ran kill string.
- 2-6 Continued running in well. Surged well at 7610'. Chained out of well. Recovered three cutters from junk mill. Re-ran surge tool and surged well at 7610'. Chained out of well to 6221'.
- 2-7 Chained out with 4" x 2-7/8" surge tool. Recovered one slip from packer and one foot of fill. Re-ran surge tool to 7611'. Chained out of well. Recovered one cutter from junk mill. Made up 4-5/8" junk mill. Ran kill string.

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- 2-8 Ran in well. Located junk at 7613' and milled to 7614'. Pulled out of well. Recovered cuttings in junk subs. Mill worn out. Made up 4" x 2-7/8" surge tool. Ran 94 stands.
- 2-9 Ran in well. Surged at 7614'. Chained out. Small hand full of cuttings. Made up 4" mill shoe on bottom hole assembly. Ran in well to 7645'.
- 2-11 Milled from 7614'-7615'. Pulled out of well. Changed mills and ran in to 5716'.
- 2-12 Finished running in well. Milled from 7615' - 7616'. Pulled out of well. Mill worn out. Made up 4-3/8" mill shoe and ran in to 2070'.
- 2-13 Ran in well. Milled on restriction at 7610'-7611'. Pulled out of well. Made up Tri-state 4-5/8" section mill on bottom hole assembly and ran in well to 2568'. Secured well.
- 2-14 Finished running in well. Cut 5-1/2" liner at 7565'. Pulled out of well. Laid down section mill. Made up 4-1/2" full circle spear with a 4-7/8" grapple on bottom hole assembly. Ran in well to 2680'.
- 2-15 Finished running in well to 7508'. Jarred on fish to 58,000 lb over hook wt. Chained out of well. Recovered Burns liner hanger; one joint of 5-1/2" 20# wire wrap liner (41.86') and 10' cutoff of 5-1/2" 20# blank pipe. Ran in well with Tri-state wash tool to 5430'.
- 2-16 Finished running in well. Washed 5-1/2" liner from 7610' to 7590'. No pressure build up. Pulled out of well with wash tool. Made up 4-1/2" full circle spear with 4-7/8" grapple on bottom hole assembly. Ran in well to fish at 7565'. Jarred to 60,000 lb over hook wt. Released spear. Pulled 11 stands.
- 2-18 Ran in well to 7565'. Jarred on 5-1/2" liner to 70,000 lb over hook wt. Released spear. Pulled out of well. Made up 4-5/8" junk mill on 59' of 4" OD drill collars, 4-3/4" jars, 122' of 4-3/4" drill collars. Ran in well.
- 2-19 Milled inside 5-1/2" liner from 7614' to 7617' for 4-1/4 hours. Pulled out of well. Made up new 4-5/8" junk mill. Ran in well.
- 2-20 Milled junk inside 5-1/2" liner from 7617' to 7631'. Circulated well clean. Pulled out of well. Made up new 4-5/8" mill on 281' of 2-3/8" drill pipe. Ran in well. Cleaned out 5-1/2" liner from 7631' to 7690'. Cleaned out a total of 73' inside 5-1/2" liner.

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- 2-21 Pulled out of well. Made up new 4-5/8" mill. Ran in well and milled on junk from 7690' to 7757'. Circulated well clean. Pulled to top of liner.
- 2-22 Ran in well. Tagged fill inside 5-1/2" liner at 7590'. Cleaned out to 7758' (167' fill). Circulated well clean. Spotted high vis pill in 5-1/2" liner. Pulled out of well. Ran 5-1/2" wash tool. Washed from 7590' to 7630' (hit fill). Pulled out of well. Ran sawtooth clean out assembly.
- 2-23 Tagged fill at 7606'. Backscuttled out fill to 7757'. Pulled to liner top. Ran in liner. Tagged fill at 7727' (30' fill). Backscuttled liner clean. Ran in liner. Tagged fill at 7746' (11' fill). Backscuttled liner clean. Pulled to liner top. Shut well in.
- 2-25 Ran in well and tagged fill at 7743' (14' fill). Backscuttled well clean. Pulled out of well. Ran in well with wash tool and washed liner from 7590' to 7750'. Circulated well clean. Pulled out of well. Made up 5-1/2" spear. Ran in well.
- 2-26 Jarred on liner (100,000# over string wt.). Liner would not move. Released spear. Pulled out of well. Made up 5-1/2" spear with 1-15/16" ID. Ran in well with spear. Using Dialog, ran free-point tool. Found 5-1/2" liner partially free at 7715'. Pulled to kill string. Shut in well.
- 2-27 Pulled out of well. Made up sawtooth collar on drill pipe. Ran in well. Cleaned out fill from 7699' to 7757'. Pulled out of well. Rigged up Dialog. Ran in well with 4-7/16" OD jet cutter. Made cut at 7713.5'. Ran 5-1/2" spear. Ran in with kill string.
- 2-28 Continued in well with 5-1/2" spear to 7566'. Jarred on liner 80,000# over string wt. Jarred 7 hours. Released spear. Pulled to kill string. Shut in well.
- 3-01 Pulled out of well. Rigged up Dialog and ran 4-7/16" OD jet cutter. Cut 5-1/2" liner at 7670-1/2'. Ran in well with 5-1/2" spear to 7566'. Jarred on liner to 80,000 lb over string wt. Moved liner up well to 4' in 3-1/2 hours. Jars failed. Released spear. Pulled up to 6867' and shut in well.
- 3-02 Rig down for repairs.
to
- 3-13
- 3-14 Pulled out of well. Changed out jars. Ran in well to 7562'. Jarred on liner 1/2 hours. Weight indicator failed. Released spear and pulled up to 6867'. Closed in well.

1991

- 3-15 Ran in well to 7562'. Jarred on 5-1/2" liner 80,000# over string weight four hours. Liner would not move. Released spear and pulled out of well. Made up 2-7/8" OD sawtooth collar on 125' of 2-3/8" drill pipe. Ran in well to top of 5-1/2" liner. Cleaned out inside 5-1/2" liner.
- 3-16 Ran in well to 7587'. No fill. Backscuttled well. No sand returns. Pulled out of well. Made up Tristate 4 cup wash tool. Ran in well and washed liner from 7582' to 7660'. Pulled to liner top at 7562'. Backscuttled well clean. No sand returns. Began pulling out of well.
- 3-18 Pulled out of well. Made up 4.805" grapple on spear. Ran in well to 7562'. Ran Dia-Log free point tool in 5-1/2" liner. Free point showed 5-1/2" liner stuck 8' below liner top. Released spear. Pulled to kill string.
- 3-19 Pulled out of well. Made up 5-1/2" spear and stop sub with up and down jars. Ran in to 7562' (top of 5-1/2" liner). Jarred 80,000 lb over string wt. for 5-1/2 hours. Liner would not move. Released spear. Pulled out of well.
- 3-20 Pulled out of well. Made up Tri-state 5-1/2" section mill. Ran in well to 7586' and cut 5-1/2" liner at 7586'. Liner fell 4'. Top of fish below at 7590'. Pulled out of well.
- 3-21 Pulled out of well. Made up 5-1/2" spear bumper sub and down jars with (8) 4-3/4" drill collars and accelerator. Ran in well to 7562'. Jarred on 5-1/2" liner 5 hours (would not pull free).
- 3-22 Jarred on 5-1/2" 20# top liner fish for 1-1/2 hours. Would not move up or down. Released spear. Pulled out of well. Made up 6-1/8" x 4-11/16" OD pilot mill on 120' of 4-3/4" OD drill collars. Ran in well to 7562'. Milled 5-1/2" 20# liner from 7562' to 7582'. Dropped down to 7586'. Circulated well clean. Pulled up to 6867'.
- 3-23 Ran in to 7586' - no fill. Pulled out of well. Made up 5-1/2" spear with bumper sub, jars and 120' of 4-3/4" OD drill collars. Ran in well with spear in to fish at 7586'. Pulled free 16,000 lb over string weight. Pulled out of well. Recovered 87' of 5-1/2" liner. Ran in well with 5-1/2" spear to 6800'.
- 3-25 Ran in to 7674' and speared liner. Jarred on 5-1/2" 20# liner 80,000 lbs over string weight for 4 hours. Pulled free and pulled out of well. Recovered 40.65' of 20# 5-1/2" liner. Made up 2-7/8" OD sawtooth collar on 30' of 2-3/8" drill pipe. Ran in with 3-1/2" drill pipe to 6043'.

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- 3-26 Ran in well. Cleaned out inside 5-1/2" liner from 7715' to 7736'. Circulated well clean. Pulled out of well. Made up 5-1/2" spear with stop sub, bumper sub jars and 120' of 4-3/4" OD drill collars. Ran in well to 6860'.
- 3-27 Ran in to 7715' and speared 5-1/2" liner. Jarred on liner. Pulled free. Pulled out of well. Recovered remaining 45.45' of 5-1/2" liner (Total recovery = 250' (100%)). Made up Halliburton RTTS tool. Ran in well to 6847'.
- 3-28 Ran in to 6902' and set Halliburton RTTS packer. Pressured tested from 6902' to surface with 2500 psi for 30 minutes (tested o.k.). Ran in well and set packer at 7490'. Pressure tested casing from 7490' to surface with 2600 psi (held o.k.). Ran in to 7544'. Pressure tested 7-5/8" and 9-5/8" to surface 2600 psi (held). Pulled out of well. Rigged up Dia-log. Ran Halliburton EZ drill bridge plug on Dia-log wireline to 7557'. Packer would not set. Pulled out of well. Found top slips gone off bridge plug. Ran #2 EZ drill bridge plug to 7557'. Dia-log unable to set packer. Pulled out with top slips of bridge plug gone. Ran kill string.
- 3-29 Pulled out of well with kill string. Rigged up Dialog and ran and set EZ drill bridge plug at 7557'. Closed blind rams and pressure tested bridge plug to 2600 psi for 20 minutes (test o.k.). Ran in well with 30' of 2-7/8" tubing below RTTS packer. Ran in to 7490'. Changed well over to 2% KCL water.
- 3-30 With tubing tail at 7490', pumped 50 cu.ft. of 3% HF/ 12% HCl acid. Displaced with 311 cu.ft. of water. Set RTTS packer, established injection rate of 8-1/2 cu.ft. per min. at 1450 psi. Pressure bled down to 600 psi in 20 minutes. Released tool. Pulled up and set RTTS packer with tubing tail at 7363'. Pumped 50 cu.ft. of 3% HF/ 12% HCl, followed by 5 cu.ft. of water, then 57 cu.ft. of 15.8 ppg Class "G" cement with 0.5% CFR2 and 0.6% Halad 9 with 5 cu.ft. of water behind. Displaced with 363 cu.ft. of KCl water. Cleared hole at 7480' with 30 cu.ft. of KCl water. (Final pressure: 1500 psi.). Shut valve on drill pipe. Waited on cement for 4 hours. With 2-7/8" tubing tail at 7363', mixed and pumped 5 cu.ft. of water ahead of 57 cu.ft. of Class "G" cement with 0.5% CFR2, 0.6% Halad 9. Displaced with 368 cu.ft. KCl water. Cleared hole at 7480' with 30 cu.ft. of KCl water. (Final pressure: 1600 psi.). Backscuttled 616 cu.ft., no cement returns. With tubing at 7363' mixed and pumped 5 cu.ft. of acid 3% HF/ 12% HCl, followed by 5 cu.ft. of water, then 114 cu.ft. of Class "G" cement with 0.5% CFR2 0.6% Halad 9. Displaced with 363 cu.ft. KCl water. Cleared hole at 7480' with 30 cu.ft. of KCl water. (Final pressure: 1800 psi.). Backscuttled 616 cu.ft. Pulled up drill pipe to 7243'.

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- 4-1 Ran in well to 7363'. Set RTTS packer. Attempted to break down holes at 7480'. Held 2600 psi. Ran in well and found cement at 7470' (10' above holes). Pulled out of well. Made up 6-5/8" bit on 60' of 4-3/4" OD drill collars. Ran in well. Drilled out cement from 7470' to 7518'. Pulled out of well. Made up Halliburton RTTS tool with 30' of 2-7/8" tail to 6800'. Shut in well.
- 4-02 Ran in well. Set packer and pumped 30 cu.ft. of acid out holes at 7480' (Rate: 7 cu.ft. min. at 1600 psi.). With tubing tail at 7363' pumped 57 cu.ft. Class "G" cement with 0.5% CFR2, 0.6% Halad 9. No pressure buildup evident. Cleared holes with 30 cu.ft. of KCl water. Waited 2 hours on cement. With tubing tail at 7363', pumped 30 cu.ft. of 12% HCl, 3% HF, and 115 cu.ft. of class "G" cement with 0.5% CFR2, 0.6%, Halad 9. No pressure buildup evident. Cleared holes with 30 cu.ft. of KCl water (Final rate: 5.6 cu.ft. min. at 1500 psi.). Waited on cement 2 hours. With tubing tail at 7363', pumped 39 cu.ft. "G" cement with 0.5% CFR2, 0.6% Halad 9 (Final build-up pressure: 2000 psi.). Shut valve on cement head.
- 4-03 Obtained break down rate of 5.6 cu.ft./min. at 2000 psi. Mixed and pumped 5 cu.ft. of water ahead of 57 cu.ft. "G" cement with 0.5% Halad 327. Displaced with 368 cu.ft. lease water. Cleared holes at 7480' with 30 cu.ft. of KCl water. Final build-up pressure: 1700 psi. Close in at cement head. Waited 2 hours on cement. Obtained break down of 5.6 cu.ft./min. at 2000 psi. Mixed and pumped 5 cu.ft. of water ahead and behind of 57 cu.ft. "G" cement with 0.5% Halad 332. Displaced with 335 cu.ft. KCl water. Final build-up pressure: 2600 psi. Held squeeze for 20 min. Shut well in at cement head. Waited on cement for 4 hours. Bled pressure off drill pipe. Pulled out of well laying down RTTS packer. Made up 6-5/8" bit on 120' of 4-3/4" OD drill collars. Ran in well to 2555'.
- 4-04 Ran in well and tagged cement at 7404'. Drilled out cement from 7404' to 7487'. Circulated well clean. Pressure tested holes at 7480' to 2600 psi for 37 minutes (test o.k.). 548 cu.ft. total cement squeezed. Pulled out of well. Made up bit and 9-5/8" casing scraper. Ran in well to 6867'. Pulled out of well to kill string.
- 4-05 Pulled out of well. Rigged up Schlumberger. Ran pipe analysis log in 9-5/8" from 6867' to surface. Made up 6-5/8" junk mill on 123' of 4-3/4" OD drill collars. Ran in well to 7485'. Changed over to 64 pcf polymer.
- 4-06 Ran in well to 7557'. Milled up Halliburton bridge plug. Cleaned out from 7590' to 7755'. Pulled out of well and made up Tri-State 13' hole opener. Ran in well to 5726'.

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- 4-08 Ran in well to 7590'. Reamed from 7590' to 7754' with Tri-State 6-1/4" x 13" hole opener. Circulated well clean. Pulled out of well. Made up Tri-State 6-1/4" x 15" hole opener. Ran in well to 5727'.
- 4-09 Ran in well to 7590' with 6-5/8" bit. Opened hole from 13" to 15" from 7590' to 7754'. Circulated well clean. Pulled to kill string.
- 4-10 Pulled out of well with kill string. Rigged up Atlas wireline. Ran 4-arm Caliper log from 7752' to 7590'. Made up 6-5/8" bit on 123' of 4-3/4" drill collars. Ran in well to 7590'. Mixed 650 bbls. polymer with 2% KCL. Changed well over to clean polymer at 7755'. Pulled up to 7590'.
- 4-11 Ran in to 7755'. No fill. Pulled out of well. Made up and ran 5-1/2" bull plug on 163.86' of 5-1/2" 17# .010 mesh screen with 83.68 of 5-1/2" 17# blank pipe and landing nipple. Ran in to 7741' (hit fill). Slurry packed liner with 107 cu.ft. of 20-40 mesh sand. Packed off (2000 psi). Waited 2 hrs. Pumped 30 cf of sand, then 10 cf of sand. Packed off (2000 psi). Waited 2 hours. Pumped 8 cf of sand. Packed off (2000 psi). Total sand in place: 155 cu.ft.
- 4-12 Pumped 20 cu.ft. of 20-40 sand. Packed off 2400 psi. Backscuttled out 14 cf. - 161 cf in place behind liner. Waited 2 hours. Pumped down drill pipe 2 Bbls min. Circulated free past lap. Released from liner. Pulled out of well. Made up Halliburton lead seal drive over adapter. Ran in well and set drive on lead seal adapter at 7488'. Pulled up to 7400'.
- 4-13 Pulled out of well. Laid down 3-1/2" drill pipe. Made up 2-3/8" tubing tail on 3-1/2" tubing. Picked up 3-1/2" tubing. Ran in well to 2212'.
- 4-15 Ran in well picking up 3-1/2" tubing to 7741'. Backscuttled well clean. Pulled out of well. Laid down 26 joints of 2-3/8" tubing. Installed shooting flange. Ran in well with kill string.
- 4-16 Pulled out of well with kill string. Rigged up Dia-Log. Ran 8.250" gauge ring. Stopped at 6839' (28' above 7-5/8" casing top). Ran Otis 9-5/8" AWB packer on wireline and set at 6811'. Ran in well with test seals. Latched into packer and pulled 20,000 lbs over wt. Tested packer to 1500 psi for 1/2 hour. Tested o.k. Pulled out of well.

1991

- 4-17 Pulled out with test seals. Ran Otis guide shoe, 2 seals, Otis "J" latch, 1 joint of 3-1/2" tubing, Otis 2.635" No-Go, 1 joint 3-1/2" tubing, Otis XO sliding sleeve, 1 joint 3-1/2" tubing and BST MMG mandrel. Hydrotested tubing to 4000 psi while running in well. Spaced out tubing string. Changed over to 2% KCL water. Latched into Otis packer. Pulled 20,000 lbs over wt. to check latch. Landed with 15,000 lb on packer. Tested to 1500 psi (test o.k.).
- 4-18 Installed back pressure plug in tubing hanger. Removed BOPE. Installed xmas tree and tested to 5000 psi. Released rig. (Total fluid lost in well: 1918 Bbls.)

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

No. P290- 276
Field Code 10
Area Code 00
New Pool Code 30
Old Pool Code 30

PERMIT TO CONDUCT WELL OPERATIONS
GAS STORAGE

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

Ventura, California
July 5, 1990

Your _____ proposal to rework well "SFZU" P-42C _____,
A.P.I. No. 037-21878, Section 28, T. 3 N, R. 16W, S.B. B.&M.,
Aliso Canyon field, Main area, Sesnon pool,
Los Angeles County, dated 6/19/90, received 6/21/90, has been
examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

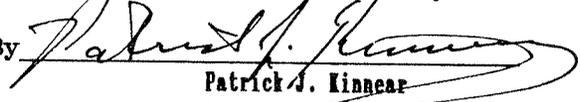
1. Blowout prevention equipment conforming to DOG Class III 3M requirements shall be installed and maintained in operating condition at all times.
2. Hole fluid of a quality and in sufficient quantity is used to control all subsurface conditions in order to prevent blowouts.
3. Wire line operations are conducted through at least a 3M lubricator.
4. This office shall be consulted before initiating any changes or additions to this proposed operation, or if operations are to be suspended.
5. THIS DIVISION SHALL BE NOTIFIED:
 - a. To inspect the installed blowout prevention equipment before commencing downhole operations.

Blanket Bond
SF:ljg

Engineer Steve Fields

Phone (805) 654-4761

M.G. MEFFERD, State Oil and Gas Supervisor

By 

Patrick J. Kinnear
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.

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
RECEIVED
MAY 22 1979
SANTA PAULA, CALIFORNIA

WELL SUMMARY REPORT
SUBMIT IN DUPLICATE

Operator So. Calif. Gas Co., Well No. Porter 42-C, API No. 037-21878

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

Location 2557.36' south and 2514.58' west from station 84
(Give surface location from property or section corner, or street center line and/or Lambert coordinates)

Elevation of ground above sea level 1970 feet.

All depth measurements taken from top of Kelly Bushing which is 22 feet above ground.
(Derrick Floor, Rotary Table or Kelly Bushing)

In compliance with Sec. 3215, Division 3 of the Public Resources Code, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date August 1, 1979

Signed [Signature]
P. S. Magruder, Jr.
Title Agent

D.S. Smiley
(Engineer or Geologist)

	GEOLOGICAL MARKERS	DEPTH
Commenced drilling <u>February 18, 1979</u>		
Completed drilling <u>June 24, 1979</u>	<u>S-4</u>	<u>7,590'</u>
Total depth (1st hole) <u>7763'</u> (2nd) <u>-</u> (3rd) <u>-</u>	<u>S-8</u>	<u>7,670'</u>
Present effective depth <u>7763'</u>		
Junk <u>None</u>		

Formation and age at total depth Miocene
Commenced producing - (Date) Flowing/gas lift/pumping Sesnon Name of producing zone
(Cross out unnecessary words)

Initial production
Production after 30 days

Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Gas Storage Well					

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	Grade and Type of Casing	New or Second Hand	Size of Hole Drilled	Numbers of Sacks or Cubic Feet of Cement	Depth of Cementing if through perforations
13-3/8"	1,022'	Surf.	54.5	K-55 Buttress	New	17-1/2"	1033 cf	-
9-5/8"	6,955'	Surf.	40, 43.5, 47, 53.5	N-80 Butt. & LT&C	New	12-1/4"	535 cf	-
7-5/8"	7,590'	6,867'	29.04	C-75 Hydril SFJ	New	12-1/4"	690 cf 58 cf	Shoe Splice
5-1/2"	7,758'	7,508'	20	K-55 LT&C Screen liner	New	6-5/8" opened to 13"	Gravel packed	-

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

9-5/8" - Jet perforated four 1/2" HPF 6925'-28', cp'd
7-5/8" - Jet perforated four 1/2" HPF 7480'-85' cp'd, reperf. four 1/2" HPF 7482'-85'
5-1/2" -.010" wire wrapped screen 7520'-58' and 7592'-7755'

Was the well directionally drilled? Yes If yes, show coordinates at total depth 668' north and 1947' east
Electrical log depths 7613' and 7750' Other surveys Density and Neutron Logs

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

History of Oil or Gas Well

Operator Southern California Gas Company Field or County Aliso Canyon
 Well Porter #42-C, Sec. 28, T. 3N, R. 16W, SB. B. & M.
 A.P.I. No. 037-21878 Name P.S. Magruder Jr. Title Agent
(Person submitting report) (President, Secretary or Agent)
 Date July 6, 1979, 19

PSM
 Signature P.S. Magruder Jr.

P.O. Box 3249 Terminal Annex, Los Angeles, Ca. 90051 (213) 689-3561
(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	<u>GWO #98477</u>
1979	Program: 1. Cement 13 3/8" 54.5# K-55 Buttress at 1,024'. 2. Drill 12 1/4" hole to 7,613'. Cement 9 5/8" casing at 6,955'. 3. Cement 723' of 7 5/8" 29.04# Hydril Super Flsh joint at 7,590'. 4. Pressure test and test WSO through holes at 7,482'. 5. Land 250' 5 1/2" 10 mesh wire wrapped liner at 7,758' in 13" hole and gravel flow pack with 138 sacks of 20 - 40 gravel. 6. Set packer and complete with 3 1/2" tubing and annular flow safety system.
2-12	to 2-18-79, Moved Kenai-Camrich Drilling Co. rig #9 onto wellsite and rigged up.
2-18	0 Day. Completed rig up. Spudded in at 5:00 p.m., 2-18-79. Drilled 17 1/2" hole from 0' to 163' with bit #1.
2-19	1st Day. Drilled 17 1/2" hole from 163' to 285' with bit #1 and to 555' with bit #2.
2-20	2nd Day. Drilled 17 1/2" hole from 555' to 568' with bit #2 and to 799' with bit #3.
2-21	3rd Day. Drilled 17 1/2" hole from 799' to 803' with bit #3, to 1,009' with bit #4 and to 1,022' with rerun bit #1.
2-22	4th Day. Circulated hole clean and pulled out. Ran 26 joints of 13 3/8", 54.5# buttress casing, total of 1,024.10'. Casing equipped with a 13 3/8" x 17 1/2" centralizer on the first joint and on top collar of 2nd joint and 3 scratchers with Baker line float guide shoe of 2.00' and a Baker line stop plug collar of 1.80' on top of first joint for a total of 1,027.90' on hook. With the shoe set at 1,022', Dowell pumped 100 cu.ft. of water ahead of 803 cu.ft. of class "G" cement with 8% gel and 3% calcium chloride, followed by 230 cu.ft. of class "G" cement with 3% calcium chloride and displaced with 870 cu.ft. of mud. Approximately 70 cu.ft. of cement cut mud returned to surface. Bumped plug with 700 psi. Cement in place at 10:20 a.m., 2-22-79.

1979

History of Well Report for Porter #42-C, Aliso Canyon

2-22 Continued

Welded on 13 5/8" casing head and tested to 2,500 psi for 15 minutes. X-rayed weld with Valley X-Ray.

2-23 5th Day. Completed wellhead x-ray and dumped 12 sacks of cement around outside of 13 3/8" casing. Installed BOPE and pressure tested blind rams and choke manifold to 3,000 psi and held for 30 minutes with water and nitrogen. Pressure tested pipe rams to 3,000 psi with water and nitrogen for 30 minutes each. Tested up to 3,000 psi on upper Kelly cock. Lower Kelly cock leaked.

2-24 6th Day. Completed BOPE tests. Drilled out shoe and drilled 12 1/4" hole from 1,022' to 1,339' with bit #5.

2-25 7th Day. Drilled 12 1/4" hole from 1,339' to 1,630' with bit #6. Ran in hole with Dyna-Drill #1 and directionally drilled 12 1/4" hole from 1,630' to 1,739' with Dyna-Drill #1 with bit #7.

2-26 8th Day. Dyna-drilled 12 1/4" hole from 1,739' to 1,745' with Dyna-drill #1-A and bit #7 and to 1,836' with Dyna-drill #1-B and bit #8 and to 1,938' with Dyna-drill #1-C and bit #9.

2-27 9th Day. Directionally drilled 12 1/4" hole from 1,988' to 2,412' with bit #10.

2-28 10th Day. Directionally Drilled 12 1/4" hole from 2,412' to 2,942' with bit #11 and to 3,035' with bit #12.

3-1 11th Day. Directionally drilled 12 1/4" hole from 3,035' to 3,380' with bit #12 and to 3,594' with bit #13.

3-2 12th Day. Directionally drilled 12 1/4" hole from 3,594' to 3,837' with bit #13 and to 4,101' with bit #14.

3-3 13th Day. Directionally drilled 12 1/4" hole from 4,101' to 4,245' with bit #14. Dyna-drilled 12 1/4" hole from 4,245' to 4,271' with Dyna-drill #2 and bit #15 guided by Eastman "D.O.T."

3-4 14th Day. Dyna-drilled 12 1/4" hole from 4,271' to 4,309' with Dyna-drill #2-B and bit #16. Directionally drilled 12 1/4" hole from 4,309' to 4,451' with bit #17 and to 4,524' with bit #18.

3-5 15th Day. Directionally drilled 12 1/4" hole from 4,524' to 4,639' with bit #18 and to 5,112' with bit #19.

3-6 16th Day. Directionally drilled 12 1/4" hole from 5,112' to 5,151' with bit #19 and to 5,638' with bit #20.

1979 History of Well Report for Porter #42-C, Aliso Canyon

- 3-7 17th Day. Directionally drilled 12 1/4" hole from 5,638' to 5,768' with bit #20 and to 5,976' with bit #21.
- 3-8 18th Day. Directionally drilled 12 1/4" hole from 5,976' to 6,232' with bit #22.
- 3-9 19th Day. Dyna-drilled 12 1/4" hole from 6,232' to 6,267' with Dyna-drill #3 and bit #23 and to 6,290' with Dyna-drill #3-B and bit #24.
- 3-10 20th Day. Directionally drilled 12 1/4" hole from 6,290' to 6,734' with bit #25.
- 3-11 21st Day. Dyna-drilled 12 1/4" hole from 6,734' to 6,771' with Dyna-drill #4 and bit #26.
- 3-12 22nd Day. Directionally drilled 12 1/4" hole from 6,771' to 7,025' with bit #27 and to 7,162' with bit #28.
- 3-13 23rd Day. Directionally drilled 12 1/4" hole from 7,162' to 7,233' with bit #28. Using bit #29, reamed 12 1/4" hole from 5,623' to 5,800'.
- 3-14 24th Day. Reamed 12 1/4" hole from 5,800' to 7,233' with bit #29. Directionally drilled 12 1/4" hole from 7,233' to 7,282' with bit #29.
- 3-15 25th Day. Directionally drilled 12 1/4" hole from 7,282' to 7,613' with bit #30.
- 3-16 26th Day. Ran Induction Electric log with Caliper from 7,613' to 1,000'.
- 3-17 27th Day. Strung up ten lines. Rigged up and ran 9 5/8" casing.
- 3-18 28th Day. Ran 170 joints of 9 5/8" N-80 buttress and LT&C casing consisting of 1,319' of 53.5# LT&C from 6,955' to 5,636', 2,608' of 47# LT&C from 5,636' to 3,028', 2,741' of 43.5# buttress from 3,028' to 287' and 287' of 40# buttress from 287' to the surface. There was a Baker float shoe on the bottom, a Baker float collar above the third joint from the bottom, all treated with thread lock compound.

History of Well Report for Porter #42-C, Aliso Canyon

- 3-18 continued
- There were two centralizers and three scratcher clusters on each of the bottom three joints and one centralizer latched over every other casing collar below 342'. Derrick fell at 6:45 a.m., March 18, 1979. Rigged up Dowell and attempted to circulate. (No returns).
- 3-19 29th Day. Mixed and pumped 215 sacks of class "G" cement into 9 5/8" casing and displaced with 3,022 cu.ft. of water. Cement in Place at 3:00 a.m.. Casing shoe at 6,955' and float collar at 6,830'.
- 3-20 30th Day through 49th Day (4-8-79). Operations suspended for rig repair.
- 4-9 50th Day. Passed O.S.H.A. inspection. Started work at 4:00 p.m., 4-9-79. Ran Welex Cement Bond log from 6,815' to 1,000'. Landed 9 5/8" casing.
- 4-10 51st Day. Landed 9 5/8" casing with 250,000# on casing slips. Installed BOPE.
- 4-11 52nd Day. Set a Baker model "C" bridge plug at 530' and tested blank rams to 3,000 psi with water and nitrogen for 20 minutes. Tested pipe rams to 3,000 psi with water and nitrogen. Tested Hydril to 2,000 psi with water and nitrogen for 20 minutes. Tested choke manifold and Kelly cock to 3,000 psi for 20 minutes with water and nitrogen. D.O.G. did not witness tests.
- 4-12 53rd Day. Located float collar at 6,815', drill pipe measurements. Ran a Baker model "C" bridge plug and set at 6,800'. Tested 9 5/8" casing to 3,000 psi for 20 minutes. Pulled bridge plug.
- 4-13 54th Day. Ran RTTS tool to 3,000' and pressure tested 9 5/8" casing to 3,500 psi for 20 minutes. Set Halliburton RTTS tool at 6,786' and Dowell pumped 100 bbls. of fresh water ahead of 250 sacks of class "G" cement with 0.75% "D-65" and displaced with 540 cu.ft. of drilling fluid. Cement in Place at 2:50 p.m., 4-13-79. Final pressure 1,400 psi.
- 4-14 55th Day. Drilled out cement from 6,820' to 6,940' with bit #30. Shot four 1/2" holes per foot for 3' 6,925' to 6,928'.

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History of Well Report for Porter #42-C, Aliso Canyon

- 4-15 56th Day. Set a Halliburton "E-Z" drill retainer at 6,912' and Dowell cementers pumped 50 cu.ft. of water through 4 1/2" drill pipe and obtained a break down of 1 cu.ft. per minute at 2,400 psi. Squeezed out 40 cu.ft. of 12% HCL and 3% HF acid, at 6 cu.ft. per minute and 2,200 psi. Squeezed 50 sacks of class "G" cement with 0.75% "D-65" through drill pipe and "E-Z" drill retainer. Cement in Place at 1:10 p.m.. Stage #2: Squeezed 75 sacks of class "G" cement at 10 cu.ft. per minute at 2,500 psi. Cleared holes by 20 cu.ft. at 2:00 p.m. Stage #3: Squeezed 75 sacks of class "G" cement and 0.75% "D-65" at 6 cu.ft. per minute and left 2 cu.ft. inside of 9 5/8" casing. Final squeeze pressure was 2,500 psi with no pressure loss. Cement in place at 4:20 p.m..
- 4-16 57th Day. Drilled out Halliburton "E-Z" drill retainer at 6,912' and cement to 6,940'. Ran a Welex Cement bond log from 6,930' to 3,000'. Drilled out cement shoe guide at 6,955' with bit #31.
- 4-17 58th Day. Cleaned out from 6,855' to 7,595' with 8 3/8" bit #31. Opened 12 1/4" hole to 13" from 6,955' to 7,090 with hole opener #1.
- 4-18 59th Day. Opened 12 1/4" hole to 13" from 7,090' to 7,219' with hole opener #2. Stuck hole opener at 7,150'. Ran free point and backed off at 6,928'.
- 4-19 60th Day. Picked up fishing tools and ran in to top of fish at 6,928'. Dowell pumped in 65 barrels of lease crude oil and displaced with 420 cu.ft. of drilling fluid. Oil in place around fish at 8:55 a.m.. Fish came free at 11:00 a.m. Ran in hole with hole opener #3.
- 4-20 61st Day. Opened 12 1/4" hole to 13" from 7,219' to 7,357' with hole opener #3 and to 7,512' with hole opener #4.
- 4-21 62nd Day. Made a clean out run from 7,512' to 7,595' with rerun 8 3/8" bit #30. Opened 12 1/4" hole to 13" from 7,512' to 7,595' with hole opener #5.
- 4-22 63rd Day. Ran 17 joints of 7 5/8" 29.04# C-75 Hydril super flush joint casing equipped with Halliburton float guide shoe and float collar on top of first joint and Burns liner hanger with B&W scratchers on first three joints and B&W centralizers over each collar and first three joints had 2 centralizers. Liner stopped at 1,300' and at 6,323'.
- 4-23 64th Day. Worked 7 5/8" liner from 6,323' to 6,340'. Pulled 7 5/8" liner and laid down same. Left 14 B&W centralizers and 9 scratchers in hole.
- 4-24 65th Day. Ran in with fishing spear and retrieved no fish. Ran in with a wire rope fishing spear and retrieved half of one centralizer. Made two more runs and retrieved two stop rings and three centralizers.
- 4-25 66th Day. Fished for centralizer at 5,629' to 5,660'. Recovered three. Fished from 5,660' to 5,696'. No recovery. Ran in with a flat bottom junk mill and milled from 5,657' to 5,777'.

- 4-26 67th Day. Milled on junk from 5,777' to 5,932'. No junk from 5,932' to 6,935'. Retrieved 3 gallons of junk inside of junk subs. Ran mill #2 to 6,935'
- 4-27 68th Day. Milled from 6,935' to 6,955'. Cleaned out to 7,592' and milled to 7,614' with mill #2. Ran a positive casing scraper but could not work below 6,828' (top of float collar).
- 4-28 69th Day. Ran a spring loaded 8 3/8" scraper. Scraped float collar at 6,828'. Ran a 7" x 13" hole opener and reopened hole from 6,955' to 7,175' with hole opener #6.
- 4-29 70th Day. Reopened hole to 13" from 7,175' with hole opener #6. Ran 17 joints of 7 5/8" 29.04# C-75 Hydril super flush joint casing. Casing equipped with a Halliburton cement float guide shoe and float collar one joint above shoe joint with 9 centralizers on numbers; 1, 2, 3, 4, 5, 7, 9, 11, and 13 joints and Burns plain liner hanger. Total on hook 722.95' with casing shoe at 7,590', float collar at 7,553' and Burns liner at 6,867', Dowell pumped 200 cu.ft. of "CWT" wash ahead of 600 sacks of class "G" cement with 0.75% "D-65" and 0.5% "D-60" and displaced with 678 cu.ft. of drilling fluid. Calculated to displace cement to 7,400'. Did not bump plug. Cement in Place at 11:00 p.m., 4-29-79.
- 4-30 71st Day. Backscuttled 588 cu.ft. of mud and 112 cu.ft. of cement. Ran in well with 8 3/8" bit, 9 5/8" casing scraper, eight 6" drill collars. Located top of cement at 6,547'. Drilled out to 6,855'. Ran in with 6 5/8" bit, 7 5/8" casing scraper and twelve 4 3/4" drill collars. Drilled out cement from 6,855' to 7,278'.
- 5-1 72nd Day. Continued drilling cement from 7,278' to 7,545' with 6 5/8" bit. Pulled up into 9 5/8" casing and cleaned pits. Ran back to 7,545' and displaced clay base mud with lease salt water.
- 5-2 73rd Day. Closed 4 1/2" pipe rams. Pressured annulus with 3,000 psi to check splice between 9 5/8" and 7 5/8" casings. Pumped away 31 cu.ft. in one hour at 3,000 psi. Ran a 9 5/8" Baker "Fullbore" retainer with 180' of 2 3/8" tail. Set "Fullbore" at 6,695' with tail at 6,875'. Pumped away 30 cu.ft. of 63# lease salt water. Released "Fullbore". Spotted 58 cu.ft. of class "G" cement with 1% "D-65". Pulled up 368' and backscuttled. Set "Fullbore" at 6,514' and pumped away 30 cu.ft. of cement with 3,500 psi. Shut in with 900 psi. Held pressure for four hours.
- 5-3 74th Day. Ran in well with 8 3/8" bit and casing scraper and located top of cement at 6,821'. Drilled out cement from 6,821' to 6,865'. Ran in with 6 5/8" bit and casing scraper and twelve 4 3/4" drill collars. Located fill at 6,861'. Cleaned out to 6,875'. Tested splice at 6,867' with 3,000 psi for one hour. Drilled out cement stringers from 6,875' to 7,545'. Tested with 3,000 psi. Held pressure for 20 minutes. Pulled out and made up Baker 7 5/8" model "B" bridge plug.

- 5-4 75th Day. Ran retrievable bridge plug which was set at 6,950'. Ran Lynes W.S.O. tester. With packer at 6,795' and tail to 6,814', opened tool for one hour test of 9 5/8" x 7 5/8" splice which was witnessed and approved by the D.O.G.. Recovered bridge plug from 6,950'. Ran Cement Bond log with Neutron and recorded from 7,550' to 1,000'.
- | | | |
|--------------------------|----|-----------|
| Test Recorder Pressures: | IH | 2,800 psi |
| | FH | 2,790 psi |
| | IF | 5 psi |
| | FF | 5 psi |
- 10' rise, 2 minutes faint blow then dead.
- 5-5 76th Day. Shot four 1/2" holes at 7,483'. Closed CSO rams and pumped away 30 cu.ft. per minute through holes at 7,483'. Ran in well with 7 5/8" Baker model "K" retainer. Set retainer at 7,398'. Mixed and squeezed 115 cu.ft. of class "G" cement with 0.75% "D-65" at a rate of 30 cu.ft. per minute. Cleared holes with 50 cu.ft. of 63# lease salt water. Second mix: 115 cu.ft. of class "G" cement with 0.75% "D-65". Stinger failed to stab into retainer properly. Pulled up and backscuttled 800 cu.ft. of cement and lease water. Unable to move pipe. Ran free point indicator which stopped at 7,087'. Found pipe free at 6,944'.
- 5-6 77th Day. Made manual back off at 6,786'. Two joints of 4 1/2" drill pipe plugged with cement from 6,593' to 6,656'. Ran in with nine 6" drill collars, jars and bumper sub. Screwed into fish. Unable to move fish up or down. Ran Free Point indicator which stopped at 7,087'. Found pipe free at 6,944'.
- 5-7 78th Day. Ran string shot and backed off 3 1/2" drill pipe at 6,932'. Picked up and ran 6" O.D. washover pipe. Washed over 3 1/2" drill pipe from 6,932' to 7,053'. Ran free point. Free point stopped at 6,969'. Ran spud bar and jars and spudded to 7,044'. Ran Free Point and backed off 3 1/2" drill pipe.
- 5-8 79th Day. Backed off fish. Top of fish now at 6,999'. Left wireline jars in 3 1/2" drill pipe.
- 5-9 80th Day. Ran wireline fishing tools and cleaned out to 7,019'. Left tools in 3 1/2" drill pipe.
- 5-10 81st Day. Pulled 4 1/2" drill pipe and found pack off from clean out tool inside 4 1/2" drill pipe.
- 5-11 82nd Day. Ran an overshot skirt over top of fish now at 6,986'. Ran an overshot and clean out tools and cleaned out inside of drill pipe from 7,015' to 7,070'.
- 5-12 83rd Day. Cleaned out inside of 3 1/2" drill pipe to 7,170'. Ran a Free Point and backed off at 7,047'. Ran clean out tool and cleaned out 3 1/2" drill pipe from 7,046' to 7,224'.
- 5-13 84th Day. Washed over fish from 7,046' to 7,156'. Screwed into fish and ran free point.
- 5-14 85th Day. Backed off, top of fish now at 7,170'. Recovered 123' of 3 1/2" drill pipe. Attempted to back off at 7,296' without success.

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History of Well Report for Porter #42-C, Aliso Canyon

- 5-15 86th Day. Ran a free point and backed off 3 1/2" drill pipe. Top of fish now at 7,202'. Recovered one joint of 3 1/2" drill pipe.
- 5-16 87th Day. Ran in with 6 5/8" bit and drilled out cement from 7,109' to 7,204' with re-run bit #32. Lost cone in hole.
- 5-17 88th Day. Ran in with wash pipe and washed over 3 1/2" drill pipe from 7,204' to 7,299'.
- 5-18 89th Day. Ran overshot and latched onto fish at 7,204'. Made mechanical backoff. Pulled out of hole and recovered 3 joints of 3 1/2" drill pipe and cone from bit #32. Top of drill pipe fish now at 7,296' and bottom at 7,394'. Ran a 6 5/8" bit and casing scraper and drilled out cement from 7,175' to 7,291' with bit #33.
- 5-19 90th Day. Washed over fish from 7,296' to 7,328'.
- 5-20 91st Day. Washed over 3 1/2" drill pipe from 7,328' to 7,393'.
- 5-21 92nd Day. Ran in with screw in sub. Pulled out and recovered 3 joints of 3 1/2" drill pipe and Baker Oil Tool squeeze tool.
- 5-22 93rd Day. Milled from 7,398' to 7,408'. Mill fell free to 7,484'. Milled from 7,484' to 7,490'. Circulated and pressure tested shot holes with Dowell. Had a break down of 12 cu.ft. per minute at 1,500 psi. Ran Halliburton "E-Z" drill cement retainer and set at 7,368' on open end drill pipe. Closed pipe rams and pressure tested liner lap with 3,000 psi for 20 minutes.
- 5-23 94th Day. Cement squeeze #2 stage #1 with Halliburton "E-Z" drill cement retainer set at 7,368' on 775' of 3 1/2" drill pipe and 6,593' of 4 1/2" drill pipe. Dowell cementers pumped 50 cu.ft. of water ahead of 115 cu.ft. of class "G" cement with 0.75% "D-65" followed by 50 cu.ft. of water and displaced with 558 cu.ft. of drilling fluid. Maximum pressure 2,000 psi and 12 cu.ft. per minute. Cement in Place at 2:00 a.m. Stage #2: 50 cu.ft. of water ahead of 115 cu.ft. of class "G" cement followed by 50 cu.ft. of water. Squeeze pressure 2,400 psi and 15 cu.ft. per minute. Cement in Place at 5:00 a.m.. Stage #3 and Stage #4 same as stage #2. Stage #5: Dowell pumped 50 cu.ft. of water ahead of 125 cu.ft. of "Self-Stress" cement with 0.75% "D-65" followed by 50 cu.ft. of water and 516 cu.ft. of drilling fluid. Cement in Place at 8:00 p.m.. Final squeeze pressure was 2,500 psi and held for 15 minutes.
- 5-24 95th Day. Ran a 6 5/8" Servco mill and drilled out cement from 7,310' to 7,368'. Milled to 7,370'. Ran a 6 5/8" bit and drilled out remaining retainer and cement from 7,370' to 7,372' with bit #34.
- 5-25 96th Day. Drilled out cement retainer and cement from 7,372' to 7,540' with 6 5/8" bit #34. Shot four 1/2" holes from 7,481' to 7,482'. Pressure tested shot holes with Dowell cement truck to 2,200 psi and had breakdown of 20 cu.ft. per minute. Ran an "E-Z" drill cement retainer and set at 7,340'.

- 5-26 97th Day. Squeezed cement through holes at 7,481' - 7,482'. Stage #1: With a Halliburton "E-Z" drill cement retainer at 7,341', Dowell pumped 50 cu.ft. of water ahead of 160 cu.ft. of "Self-Stress" cement followed by 50 cu.ft. of water and 547 cu.ft. of drilling fluid. Cement in Place at 1:00 a.m.. Final squeeze pressure was 2,000 psi at 3 cu.ft. per minute. Stage #2: 10 cu.ft. of water ahead of 40 cu.ft. of 12% HCl and 3% HF, followed by 50 cu.ft. of water ahead of 160 cu.ft. of "Self-Stress" cement followed by 50 cu.ft. of water and 557 cu.ft. of drilling fluid. Squeezed away at 2,000 psi and 20 cu.ft. per minute. Cement in Place at 10:00 a.m.. Stage #3: 50 cu.ft. of water ahead of 160 cu.ft. of "Self-Stress" cement followed by 50 cu.ft. of water and 556 cu.ft. of drilling fluid. Had a slow build up to 2,500 psi and locked at 12:00 noon and held for 20 minutes..
- 5-27 98th Day. Drilled out retainer and cement from 7,338' to 7,344' with a 6 5/8" bit #36, and to 7,364' with bit #37 and to 7,369' with bit #38.
- 5-28 99th Day. Drilled out cement from 7,369' to 7,408' with bit #38, and to 7,450' with bit #39.
- 5-29 100th Day. Drilled out cement from 7,450' to 7,471' with bit #39, and to 7,493' with bit #40, and to 7,500' with OMT 6 5/8" concave mill.
- 5-30 101st Day. Milled on junk and cement from 7,500' to 7,540'. Pressured up to 2,500 psi. Bled off 600 psi in 10 minutes. Equalized and displaced 34 cu.ft. of acid through holes at 7,482' at a rate of 16 cu.ft. per minute at 2,000 psi. Made up and ran Howco "E-Z" drill retainer to 7,481'. Equalized 11 cu.ft. of acid at 7,481', pulled up to 7,416' and set retainer. Pumped 40 cu.ft. of acid and 5 cu.ft. of water through holes at a rate of 30 cu.ft. per minute at 2,000 psi. Mixed and pumped away 115 cu.ft. of class "G" cement mixed with latex. Over displaced cement through holes by 23 cu.ft.. Final pressure to 800 psi. Pulled out of retainer. Reverse circulated out 40 cu.ft. of cement. Pulled up to 6,660' and pressured casing to 2,500 psi for 20 minutes.
- 5-31 102nd Day. Ran in with 6 5/8" Servco mill. Drilled out cement from 7,415' to 7,416'. Milled out retainer at 7,416'. Located cement at 7,491' and drilled out to 7,492'. Dowell spotted 25 cu.ft. of water in annulus, Pumped additional 40 cu.ft. of water through holes at 7,482'. Break down rate 20 cu.ft. per minute at 2,000 psi. Made up and ran Howco "E-Z" drill retainer to 7,481'. Equalized 20 cu.ft. of acid. Pulled to 7,413' and set retainer.
- 6-1 103rd Day. Squeezed away 104 cu.ft. of latex-cement through holes at 7,482', with a final pressure of 2,650 psi. Ran 6 5/8" Servco mill, milled out retainer at 7,413', located cement at 7,441'. Drilled out cement to 7,492'. Pressure tested holes with 2,500 psi for 20 minutes.
- 6-2 104th Day. Drilled out cement from 7,515' to 7,540'. Ran Welex Cement Bond log and recorded from 7,526' to 6,870'. Shot four 1/2" holes at 7,480'. Dowell pressure tested holes at 7,480' which broke down at 2,000 psi - rate 20 cu.ft. per minute.

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History of Well Report for Porter #42-C, All Canyon

- 6-3 105th Day. Ran in with Howco "E-Z" drill cement retainer to 7,485' and equalized 25 cu.ft. of water. Pulled up and set retainer at 7,414'. Obtained break down of 20 cu.ft. at 2,000 psi. Squeezed away 49 cu.ft. of latex-cement with final pressure of 2,600 psi. Cement in Place at 5:30 a.m.. Ran Servco 6 5/8" mill, junk sub and stabilizer. Milled on retainer from 7,414' to 7,418'.
- 6-4 106th Day. Drilled out Halliburton "E-Z" drill cement retainer at 7,418' and cement to 7,485' with bit #41. Pressure tested shot holes at 7,480' to 2,500 psi for 20 minutes. Ran Welex perforator and collar locator which stopped at 7,477'. Drilled out cement from 7,485' to 7,500' and pressure tested shot holes at 7,480'. Had a breakdown at 2,300 psi at 10 cu.ft. per minute.
- 6-5 107th Day. Ran a Johnston "Hornet II" cement retainer to 7,492' and equalized 30 cu.ft. of 12% HCL and 3% HF acid. Pulled up and set retainer at 7,400'. Squeezed additional 40 cu.ft. of 12% HCL and 3% HF acid through holes at 7,480'. Squeezed cement in four stages. Stage #1, #2 and #3, 115 cu.ft. of class "G" cement and 0.75% "D-65". Stage #4 was 50 cu.ft. of water ahead of 230 cu.ft. of class "G" cement and 0.75% "D-65", followed by 50 cu.ft. of water. Squeezed away at 1,400 psi and 15 cu.ft. per minute for 180 cu.ft.. Then had a gradual build up. Cement locked up at 2,500 psi after squeezing away 216 cu.ft. left approximately 14 cu.ft. inside of 7 5/8" casing. Cement in Place at 3:30 p.m..
- 6-6 108th Day. Drilled on "Hornet II" cement retainer from 7,400' to 7,403' with 6 5/8" bit #43. No cement from 7,403' to 7,448'.
- 6-7 109th Day. Drilled out cement to 7,540' and pressure tested shot holes at 7,480' to 2,500 psi. Holes broke down at 1 cu.ft. per minute at 2,500 psi. Spotted 100 cu.ft. of water across holes. Pulled out and ran in open ended drill pipe to 7,121'. Pumped 100 cu.ft. of water ahead of 448 cu. ft. of drilling fluid and obtained a break down of 3 cu.ft. per minute at 2,250 psi. With open end drill pipe at 7,486', Dowell pumped 25 cu.ft. of water ahead of 115 cu.ft. of class "G" cement with 0.75% "D-65" followed by 8 cu.ft. of water and equalized with 548 cu.ft. of drilling fluid. Pulled up 7 stands and closed 4 1/2" pipe rams. Reverse circulated 620 cu.ft. of drilling fluid and Braden Head squeezed away 10 cu.ft. of cement. Cement in Place at 8:00 p.m.. Held 2,500 psi on Braden Head for 4 hours.
- 6-8 110th Day. Drilled out cement that was firm but not hard from 7,073' to 7,530' with bit #45. Dowell pressure tested shot holes at 7,480' with 2,500 psi for 20 minutes and had no breakdown. Welex shot four 1/2" holes at 7,484' to 7,485' and pressure tested to 2,000 psi. Obtained breakdown of 10 cu.ft. per minute at 2,000 psi.

- 6-9 111th Day. Ran a Johnston "Hornet II" cement retainer to 7,494' and spotted 100 cu.ft. of water and obtained a breakdown of 10 cu.ft. per minute with 2,300 psi. Pulled up to 7,400' and set "Hornet II" retainer. Pumped 50 cu.ft. of water ahead of 115 cu.ft. of class "G" cement followed by 50 cu.ft. of water. Stabbed into retainer at 346 cu.ft. of drilling fluid. Squeezed away cement at 1,600 psi and 10 cu.ft. per minute, final squeeze pressure 2,500 psi at 2:20 a.m.. Left approximately 20 lineal feet of cement inside of 7 5/8" liner. Drilled out retainer at 7,400'. No cement from 7,405' to 7,430'. Drilled out cement from 7,430' to 7,500'. Pressure tested shot holes at 2,500 psi for 22 minutes. Spotted 100 cu.ft. of water at 7,500'. Retested shot holes and unable to achieve satisfactory test.
- 6-10 112th Day. With open end drill pipe at 7,486', pumped 25 cu.ft. of water ahead of 58 cu.ft. of class "G" cement with 0.75% "D-65" followed by 25 cu.ft. of water and equalized with 545 cu.ft. of drilling fluid. Pulled 7 stands and reverse circulated 600 cu.ft. of drilling fluid. "Braden Head" squeezed 25 cu.ft. of cement at 2,500 psi. Cement in Place at 2:15 a.m.. Drilled out cement from 7,250' to 7,495'. No cement from 7,495' to 7,502'. With bit #47 cleaned out to 7,540'. Pressure tested to 2,500 psi for 22 minutes. Welex shot four 1/2" holes from 7,483' to 7,484'. Pressure tested to 2,300 psi and obtained a breakdown of 5 cu.ft. per minute.
- 6-11 113th Day. Ran in hole open ended to 7,500'. Pressured up and got break down of 6 cu.ft. per minute at 2,400 psi. Dowell equalized 58 cu.ft. of class "G" cement blended with "D-65". Pulled 5 stands, reverse circulated with 650 cu.ft. of drilling fluid. "Braden Head" squeezed away 26 cu.ft. of cement. Cement in Place at 4:00 a.m.. Drilled out cement from 7,280' to 7,540' with bit #48. Pressure tested shot holes at 7,483' to 7,484', to 2,200 psi for 21 minutes. Welex shot four 1/2" holes at 7,482' to 7,483'. Dowell pressure tested to 2,200 psi for 22 minutes.
- 6-12 114th Day. Ran in with Lynes test tools for WSO. Set packer at 7,415' with tail to 7,433'. Opened tool with faint blow for 1 minute then dead for remainder of test. WSO witnessed and approved by the D.O.G.
- | <u>Inside pressure (7,396')</u> | | <u>Outside pressure (7,426')</u> | | <u>Outside pressure (7,431')</u> | |
|---------------------------------|---|----------------------------------|-----------|----------------------------------|-----------|
| IH | 0 | IH | 3,100 psi | IH | 3,075 psi |
| FH | 0 | FH | 3,100 psi | FH | 3,075 psi |
| IF-1 | 0 | IF-1 | 25 psi | IF-1 | 0 psi |
| FF-1 | 0 | FF-1 | 25 psi | FF-1 | 0 psi |
- 6-13 115th Day. Drilled out cement from 7,540' to 7,614'. Drilled 6 5/8" hole from 7,614' to 7,750' (T.D.), with bit #49. Ran Welex Induction Electric log from T.D. to 7,590'. Ran Density and Neutron logs from T.D. to 7,590'.
- 6-14 116th Day. Ran in hole with hole opener #1, (6 5/8" x 13"). Cut shoulder and opened hole from 6 5/8" to 13" from 7,592' to 7,600'.

1979

History of well report for Porter #42-C, Alliso Canyon

- 6-15 117th Day. Opened 6 5/8" hole to 13" from 7,600' to 7,619' with hole opener #1.
- 6-16 118th Day. Opened 6 5/8" hole to 13" from 7,619' to 7,676' with hole opener #1. Ran in with rerun 6 5/8" bit #45 and cleaned out fill from 7,722' to 7,750'. Drilled 6 5/8" hole from 7,750' to 7,763'. Ran 6 5/8" x 13" hole opener #2 and opened 6 5/8" hole to 13" from 7,676' to 7,684'.
- 6-17 119th Day. Opened 6 5/8" hole to 13" from 7,684' to 7,752' with hole opener #2. Ran gauge hole opener #3 from 7,590' to 7,762'. Ran Dresser Atlas Caliper log from 7,763' to 7,590'.
- 6-18 120th Day. Changed over to "HEC" polymer filtered through 5 micron filters. Ran 5 joints of 5 1/2" wire wrapped 20# K-55 LT&C 10 mesh liner equipped with a closed shoe and 4 gravel pack centralizers with 8 stop rings and a Burns Port collar and liner hanger with lead seal. Total on hook 249.90'. Top of liner hung at 7,508' and bottom at 7,758'. Tested liner seal to 500 psi.
- 6-19 121st Day. Ran in and closed port collar and tested to 1,000 psi. Opened port collar and gravel packed with 141 sacks of 20 x 40 gravel, filtering fluid through 20 micron filters using B&W gravel packing unit. Reverse circulated out 5 sacks excess gravel leaving 136 sacks in place at 4:00 p.m. Closed port collar and tested to 1,000 psi.
- 6-20 122nd Day. Washed liner from 7,519' to 7,559' and from 7,589' to 7,757'. Ran gravel pack tool and tested port collar to 1,000 psi. Opened port collar and gravel packed liner with 4 sacks of 20 - 40 gravel. Had a blank off with 800 psi. Reverse circulated out 2 sacks of gravel. Total gravel pack now 138 sacks. Ran Dresser-Atlas Photon log and recorded from 7,754' to 7,508'. Ran a Baker "Retrieva-D" packer which was set at 6,840'.
- 6-21 123rd Day. Picked up locator sub and seals on 3 1/2" tubing. Changed 4 1/2" pipe rams to 3 1/2" pipe rams in BOPE.
- 6-22 124th Day. Stabbed into "Retrieva-D" packer at 6,840' and closed rams and tested to 1,500 psi for 15 minutes and observed for returns through tubing.
- 6-23 125th Day. Picked up blast joint and rest of safety equipment. Hydro-tested. Picked up 3 1/2" N-80 and 3 1/2" K-55 tubing, hydrotested. Tubing detail as follows: Baker production tube, Baker 6 seal assembly, and Baker locator sub, total 12.45'. Followed by Otis safety equipment consisting of a blast joint, a No-Go nipple, a blast joint. Otis annular flow safety system, and Otis X-nipple, 1 Otis pup joint, total 45.85'. Followed by 34 joints of 3 1/2" EUE 8rd N-80 tubing for 1,024.53' and 191 joints of 3 1/2" EUE 8rd K-55 tubing for 5,735.46', followed by two 3 1/2" EUE 8rd K-55 pup joints, 20.23' and tubing hanger of .75'. Set 20,000# on Baker production packer at 6,847.45', drillers depth.
- 6-24 126th Day. Installed safety plug in tubing hanger. Removed BOPE and installed xmas tree and removed safety plug from tubing hanger. Pressure tested xmas tree to 5,000 psi in two places. Circulated out "HEC" polymer with lease water. Released rig at 12:00 noon, 6/24/79.

SOUTHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979
FOREFR NO: 42-C ELEV: 1992.3 DECL: 16 0 E
ALISO CANYON FIELD, CA. EASTMAN SINGLE SHOT HARDLY 132/11

VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL
DIRECTION: N 71 DEG. 0 MIN. E

RECORD OF SURVEY

ANGLE AVERAGING METHOD

SOUTHERN CALIF. GAS CO., SEC BEAR: N 71 E FEB-JUN 1979
 CENTER NO: 42-C ELEV: 1992.3 DECL: 16 0 E
 1000 CANYON FIELD, CA. EASTMAN SINGLE SHOT HANDLY 132/11

TIME DATE
 00:05:54 00--00

TRUE

MEASURED DEPTH FEET	DRIFT ANGLE D N	DRIFT DIRECTION	COURSE LENGTH FEET	VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SURSEA TVD FEET	RECORD IN A T E S FEET	LOGGED SEVERITY DG/100FT
0.	0 0	0	0.	0.00	0.00	-1992.30	0.00	0.00
193.	0 15	S 81 W	193.	193.00	-0.41	-1799.30	0.07 S	0.42 W
410.	3 0	S 19 W	217.	409.91	-6.16	-1582.39	4.02 S	5.13 W
503.	3 30	S 14 W	93.	502.76	-9.22	-1489.54	9.08 S	6.63 W
596.	4 0	S 17 W	93.	595.56	-12.67	-1396.74	14.94 S	8.25 W
707.	4 15	S 17 W	111.	706.28	-17.36	-1286.02	22.57 S	10.59 W
837.	3 30	S 19 W	130.	935.98	-22.65	-1156.32	30.93 S	13.30 W
1022.	2 30	S 8 W	185.	1020.73	-27.85	-971.57	40.34 S	15.56 W
1155.	4 15	S 8 E	133.	1153.49	-30.40	-838.81	48.17 S	15.56 W
1276.	4 15	S 8 E	123.	1276.16	-32.14	-716.14	57.20 S	14.29 W
1432.	5 30	S 6 E	154.	1429.60	-34.86	-562.70	70.19 S	12.70 W
1558.	4 30	S 0 E	126.	1555.12	-37.89	-437.18	81.16 S	12.12 W
1642.	5 0	S 12 E	84.	1638.83	-39.45	-353.47	88.07 S	11.40 W
1705.	5 45	S 36 E	63.	1701.55	-38.94	-290.75	93.47 S	9.00 W
1765.	6 45	S 59 E	60.	1761.20	-35.82	-231.10	97.88 S	4.18 W
1796.	7 45	S 68 E	31.	1791.95	-33.08	-200.35	99.62 S	0.68 W
1859.	8 0	S 88 E	63.	1854.36	-25.68	-137.94	101.42 S	7.76 E
1891.	7 45	N 82 E	32.	1886.05	-21.46	-106.25	101.19 S	12.14 E
1921.	7 45	N 70 E	30.	1915.78	-17.43	-76.52	100.21 S	16.07 E
1943.	6 45	N 58 E	27.	1942.50	-13.59	-49.80	98.51 S	19.55 E
2037.	11 0	N 57 E	89.	2030.18	1.25	37.88	90.31 S	32.42 E
2129.	13 15	N 58 E	92.	2120.13	20.04	127.83	79.93 S	48.72 E
2223.	16 15	N 58 E	94.	2211.03	43.36	218.73	67.26 S	69.02 E
2318.	19 15	N 58 E	95.	2301.51	71.58	309.21	51.90 S	93.58 E
2412.	22 30	N 59 E	94.	2389.34	104.28	397.04	34.40 S	122.14 E
2508.	22 30	N 56 E	96.	2478.03	140.01	485.73	14.66 S	153.12 E
2600.	22 45	N 55 E	92.	2562.95	174.11	570.65	5.39 N	182.29 E
2694.	22 0	N 56 E	94.	2649.87	208.59	657.57	25.66 N	211.78 E
2817.	22 0	N 57 E	123.	2763.92	253.20	771.62	51.09 N	250.20 E
2942.	22 0	N 57 E	125.	2879.82	298.64	887.52	76.59 N	289.47 E

SOUTHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979
 WELDER NO: 42-C ELEV: 1992.3 DECL: 16 0 E
 1550 CANYON FIELD, CA. EASTMAN SINGLE SHOT HANDLY 132/11

COMPUTATION PAGE NO. 2
 TIME DATE
 00:05:54 00--00

MEASURED DEPTH FEET	DRIFT ANGLE 0 M.	DRIFT DIRECTION	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SUBSEA TVD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOGLEG SEVERITY D5/100FT
3097.	21 15	N 56 E	155.	3023.91	353.94	1031.61	108.12 N 337.11 E	0.54
3250.	21 30	N 57 E	153.	3166.38	407.93	1174.08	138.90 N 383.61 E	0.29
3380.	21 15	N 56 E	130.	3287.44	453.80	1295.14	165.05 N 423.12 E	0.34
3526.	20 45	N 57 E	146.	3423.74	504.45	1431.44	193.93 N 466.75 E	0.42
3683.	20 30	N 58 E	157.	3570.69	558.23	1578.38	223.64 N 513.39 E	0.28
3837.	19 30	N 59 E	154.	3715.39	609.65	1723.09	251.16 N 558.30 E	0.69
3997.	19 15	N 60 E	160.	3866.33	661.67	1874.03	278.10 N 604.03 E	0.26
4153.	19 0	N 61 E	156.	4013.72	711.92	2021.42	303.27 N 648.52 E	0.26
4245.	19 0	N 61 E	92.	4100.71	741.42	2108.41	317.79 N 674.72 E	0.00
4339.	19 30	N 71 E	94.	4189.45	772.29	2197.15	330.40 N 703.03 E	3.54
4432.	22 0	N 74 E	93.	4276.42	805.23	2284.12	340.30 N 734.45 E	2.92
4524.	22 45	N 76 E	92.	4361.50	840.17	2369.20	349.37 N 768.28 E	1.16
4620.	22 30	N 75 E	96.	4450.11	876.98	2457.81	358.61 N 804.03 E	0.48
4773.	22 15	N 76 E	153.	4591.59	935.04	2599.29	373.20 N 860.42 E	0.30
4930.	21 30	N 77 E	157.	4737.28	993.27	2744.98	386.85 N 917.30 E	0.53
5082.	20 30	N 77 E	152.	4879.19	1047.44	2886.89	399.11 N 970.38 E	0.66
5144.	20 15	N 77 E	62.	4937.31	1068.91	2945.01	403.96 N 991.41 E	0.40
5235.	19 45	N 76 E	91.	5022.82	1099.89	3030.52	411.23 N 1021.67 E	0.67
5394.	19 0	N 79 E	159.	5172.82	1152.30	3180.52	422.64 N 1073.17 E	0.78
5547.	18 30	N 79 E	153.	5317.70	1201.00	3325.40	432.03 N 1121.45 E	0.33
5638.	18 15	N 80 E	91.	5404.04	1229.38	3411.76	437.26 N 1149.65 E	0.44
5726.	19 15	N 80 E	88.	5487.39	1257.31	3495.09	442.17 N 1177.51 E	1.14
5850.	21 15	N 81 E	124.	5603.72	1299.64	3611.42	449.25 N 1219.84 E	1.64
5945.	23 0	N 80 E	95.	5691.73	1334.93	3699.43	455.16 N 1255.13 E	1.88
6074.	24 0	N 83 E	129.	5810.03	1385.51	3817.73	462.76 N 1306.00 E	1.21
6232.	24 45	N 83 E	158.	5953.95	1449.29	3961.65	470.71 N 1370.72 E	0.47
6258.	23 30	N 80 E	26.	5977.67	1459.74	3985.37	472.28 N 1381.23 E	6.73
6354.	24 0	N 74 E	96.	6065.54	1498.19	4073.24	480.98 N 1418.91 E	2.57
6417.	24 0	N 73 E	63.	6123.10	1523.79	4130.80	488.25 N 1443.40 E	0.65
6511.	24 15	N 74 E	94.	6208.89	1562.18	4216.59	499.16 N 1480.31 E	0.51

SOUTHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979
 WELP: 1992.3 DECL: 16 0 E
 EASTMAN SINGLE SHOT HANDELY 132/11

COMPUTATION PAGE NO. 3
 TIME DATE
 00:05:54 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SURSEA TVD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	SEVERITY 00/100FT
6536.	24 15	N 74 E	125.	6322.86	1613.45	4330.56	513.32 N 1529.67 E	0.00
6734.	24 15	N 75 E	90.	6412.21	1653.62	4419.91	524.07 N 1568.45 E	0.42
6853.	22 45	N 69 E	119.	6521.34	1701.07	4529.04	538.74 N 1613.58 E	2.37
7006.	23 0	N 69 E	153.	6662.31	1760.50	4670.01	560.05 N 1669.11 E	0.16
7162.	23 15	N 71 E	156.	6805.77	1821.76	4813.47	581.00 N 1726.68 E	0.53
7233.	23 30	N 70 E	71.	6870.95	1849.93	4878.65	590.41 N 1753.23 E	0.66
7280.	24 0	N 70 E	47.	6913.97	1868.86	4921.67	596.88 N 1771.02 E	1.06
7613.	23 0	N 67 E	333.	7219.35	2001.51	5227.05	645.55 N 1894.56 E	0.47
7760.	23 0	N 67 E	147.	7354.66	2050.81	5362.36	667.99 N 1947.43 E	0.00

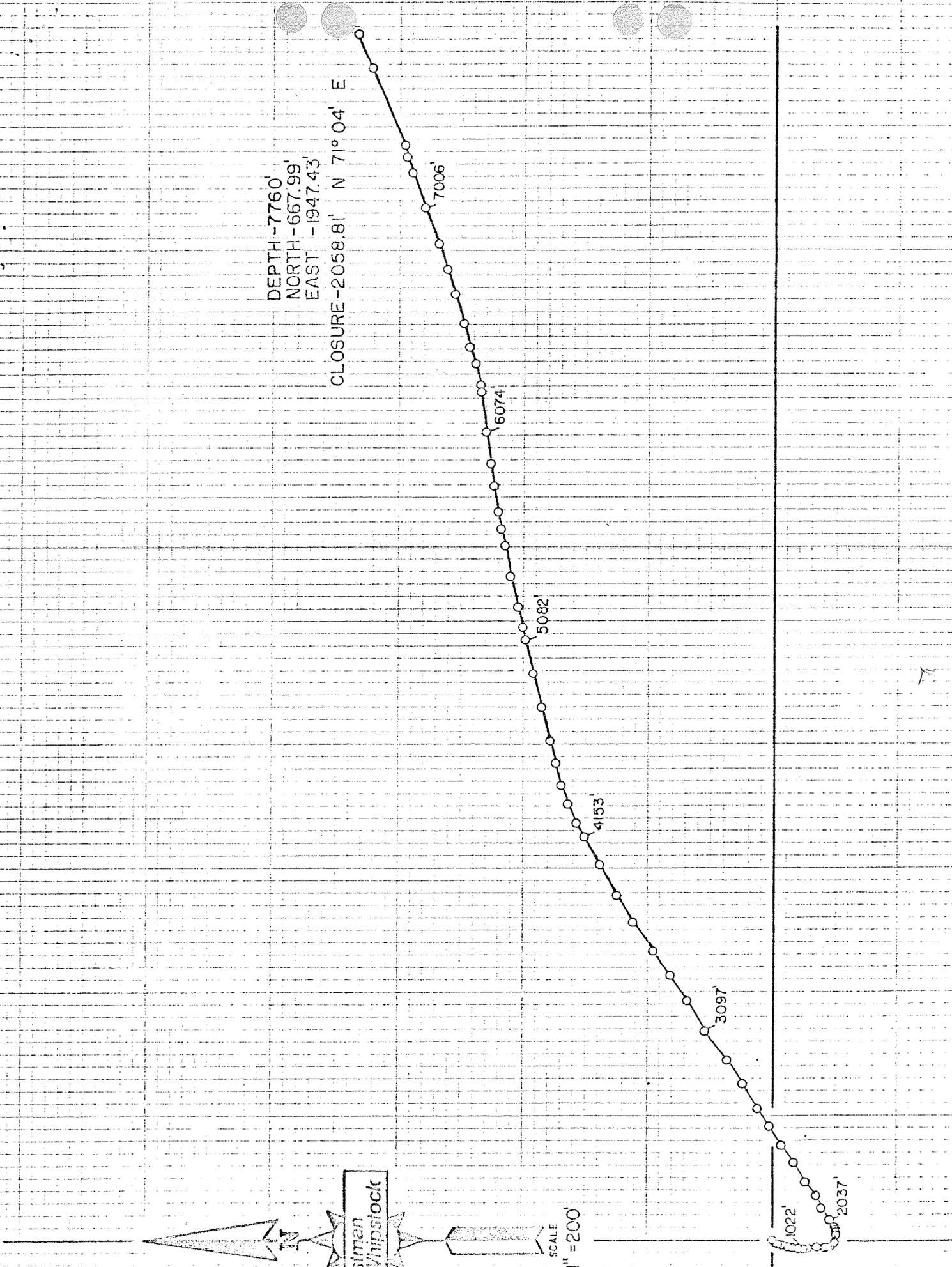
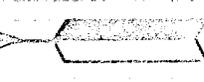
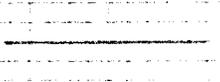
STATION AT 7760' IS PROJECTED.
 FINAL CLOSURE - DIRECTION: N 71 DEGS 4 MINUS E
 DISTANCE: 2050.81 FEET

DEPTH - 7760'
NORTH - 667.99'
EAST - 1947.43'

CLOSURE - 2058.81' N 71° 04' E

Fishermen
Whipstock

SCALE
1" = 200'



SOUTHERN CALIF. GAS CO.
PORTER NO: 42-C
ALISO CANYON FIELD, CA.

SEC BEAR: N 71 E
ELEV: 1992.3
EASTMAN SINGLE SHOT

FEB-JUN 1979
DECL: 16 0 E
HANDLY 132/11

VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL
DIRECTION: N 71 DEG. 0 MIN. E

A PETROLIANE COMPANY



RECORD OF SURVEY

ANGLE AVERAGING METHOD

DIVISION OF OIL AND GAS
RECEIVED

JUN 26 1979

SANTA PAULA, CALIFORNIA

TRUE

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SUBSEA TVD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	D O G L E G S SEVERITY DG/100FT
0.	0 0	0	0.	0.00	0.00	-1992.30	0.00	0.00
193.	0 15	S 81 W	193.	193.00	-0.41	-1799.30	0.07 S	0.42 W
410.	3 0	S 19 W	217.	409.91	-6.16	-1582.39	4.02 S	5.13 W
503.	3 30	S 14 W	93.	502.76	-9.22	-1489.54	9.08 S	6.63 W
596.	4 0	S 17 W	93.	595.56	-12.67	-1396.74	14.94 S	8.25 W
707.	4 15	S 17 W	111.	706.28	-17.36	-1286.02	22.57 S	10.59 W
837.	3 30	S 19 W	130.	835.98	-22.65	-1156.32	30.93 S	13.30 W
1022.	2 30	S 8 W	185.	1020.73	-27.85	-971.57	40.34 S	15.56 W
1155.	4 15	S 8 E	133.	1153.49	-30.40	-838.81	48.17 S	15.56 W
1278.	4 15	S 8 E	123.	1276.16	-32.14	-716.14	57.20 S	14.29 W
1432.	5 30	S 6 E	154.	1429.60	-34.86	-562.70	70.19 S	12.70 W
1558.	4 30	S 0 E	126.	1555.12	-37.89	-437.18	81.16 S	12.12 W
1642.	5 0	S 12 E	84.	1638.83	-39.45	-355.47	88.07 S	11.40 W
1705.	5 45	S 36 E	63.	1701.55	-45.88	-290.75	93.47 S	9.00 W
1765.	6 45	S 59 E	60.	1761.20	-35.82	-231.10	97.88 S	4.18 W
1796.	7 45	S 68 E	31.	1791.95	-33.08	-200.35	99.62 S	0.68 W
1859.	8 0	S 88 E	63.	1854.36	-25.68	-137.94	101.42 S	7.76 E
1891.	7 45	N 82 E	32.	1886.05	-21.46	-106.25	101.19 S	12.14 E
1921.	7 45	N 70 E	30.	1915.78	-17.43	-76.52	100.21 S	16.07 E
1948.	8 45	N 58 E	27.	1942.50	-13.59	-49.80	98.51 S	19.55 E
2037.	11 0	N 57 E	89.	2030.18	1.25	37.88	90.31 S	32.42 E
2129.	13 15	N 58 E	92.	2120.13	20.04	127.83	79.93 S	48.72 E
2223.	16 15	N 58 E	94.	2211.03	43.36	218.73	67.25 S	69.02 E
2318.	19 15	N 58 E	95.	2301.51	71.58	309.21	51.90 S	93.58 E
2412.	22 30	N 59 E	94.	2389.34	104.28	397.04	34.40 S	122.14 E
2508.	22 30	N 56 E	96.	2478.03	140.01	485.73	14.66 S	153.12 E
2600.	22 45	N 55 E	92.	2562.95	174.11	570.65	5.39 N	182.29 E
2694.	22 0	N 56 E	94.	2649.87	208.59	657.57	25.66 N	211.78 E
2817.	22 0	N 57 E	123.	2763.92	253.20	771.62	51.09 N	250.20 E
2942.	22 0	N 57 E	125.	2879.82	298.64	887.52	76.59 N	289.47 E

TRUE

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	VERTICAL DEPTH FEET	VERTICAL SECTION FEET	SUBSEA TVD FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	D O U B L E S S SEVERITY DG/100FT	
3097.	21 15	N 56 E	155.	3023.91	353.94	1031.61	108.12 N	337.11 E	0.54
3250.	21 30	N 57 E	153.	3166.38	407.93	1174.08	138.90 N	383.61 E	0.29
3380.	21 15	N 56 E	130.	3287.44	453.80	1295.14	165.05 N	423.12 E	0.34
3526.	20 45	N 57 E	146.	3423.74	504.45	1431.44	193.93 N	466.75 E	0.42
3683.	20 30	N 58 E	157.	3570.68	558.23	1578.38	223.64 N	513.39 E	0.28
3837.	19 30	N 59 E	154.	3715.39	609.65	1723.09	251.16 N	558.30 E	0.69
3997.	19 15	N 60 E	160.	3866.33	661.67	1874.03	278.10 N	604.03 E	0.26
4153.	19 0	N 61 E	156.	4013.72	711.92	2021.42	303.27 N	648.52 E	0.26
4245.	19 0	N 61 E	92.	4100.71	741.42	2108.41	317.79 N	674.72 E	0.00
4339.	19 30	N 71 E	94.	4189.45	772.29	2197.15	330.40 N	703.03 E	3.54
4432.	22 0	N 74 E	93.	4276.42	805.23	2284.12	340.30 N	734.45 E	2.92
4524.	22 45	N 76 E	92.	4361.50	840.17	2369.20	349.37 N	768.28 E	1.16
4620.	22 30	N 75 E	96.	4450.11	876.98	2457.81	358.61 N	804.03 E	0.48
4773.	22 15	N 76 E	153.	4591.59	935.04	2599.29	373.20 N	860.42 E	0.30
4930.	21 30	N 77 E	157.	4737.28	993.27	2744.98	386.85 N	917.30 E	0.53
5082.	20 30	N 77 E	152.	4879.19	1047.44	2886.89	399.11 N	970.38 E	0.66
5144.	20 15	N 77 E	62.	4937.31	1068.91	2945.01	403.96 N	991.41 E	0.40
5235.	19 45	N 76 E	91.	5022.82	1099.89	3030.52	411.23 N	1021.67 E	0.67
5394.	19 0	N 79 E	159.	5172.82	1152.30	3180.52	422.64 N	1073.17 E	0.78
5547.	18 30	N 79 E	153.	5317.70	1201.00	3325.40	432.03 N	1121.45 E	0.33
5638.	18 15	N 80 E	91.	5404.06	1229.38	3411.76	437.26 N	1149.65 E	0.44
5726.	19 15	N 80 E	88.	5487.39	1257.31	3495.09	442.17 N	1177.51 E	1.14
5850.	21 15	N 81 E	124.	5603.72	1299.64	3611.42	449.25 N	1219.84 E	1.64
5945.	23 0	N 80 E	95.	5691.73	1334.93	3699.43	455.16 N	1255.13 E	1.88
6074.	24 0	N 83 E	129.	5810.03	1385.51	3817.73	462.76 N	1306.00 E	1.21
6232.	24 45	N 83 E	158.	5953.95	1449.29	3961.65	470.71 N	1370.72 E	0.47
6258.	23 30	N 80 E	26.	5977.67	1459.74	3985.37	472.28 N	1381.23 E	6.73
6354.	24 0	N 74 E	96.	6065.54	1498.19	4073.24	480.98 N	1418.91 E	2.57
6417.	24 0	N 73 E	63.	6123.10	1523.79	4130.80	488.25 N	1443.48 E	0.65
6511.	24 15	N 74 E	94.	6208.89	1562.18	4216.59	499.16 N	1480.31 E	0.51

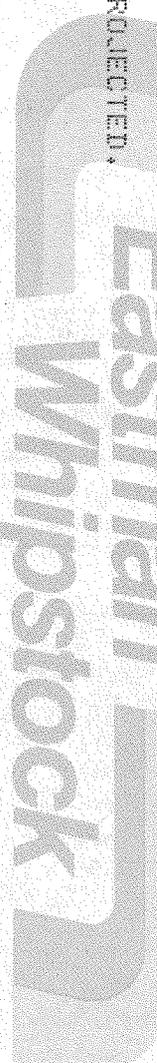
SOUTHERN CALIF. GAS CO. SEC BEAR: N 71 E FEB-JUN 1979 COMPUTATION PAGE NO.
 PORTER NO: 42-C ELEV: 1992.3 DECL: 16 0 E TIME DATE
 ALISO CANYON FIELD, CA. EASTMAN SINGLE SHOT HANDLY 132/11 00:05:54 00--00

MEASURED DEPTH FEET DRIFT ANGLE DIRECTION DRIFT DIRECTION COURSE LENGTH FEET TRUE VERTICAL DEPTH FEET VERTICAL SECTION FEET SUBSEA TVD FEET R E C T A N G U L A R C O O R D I N A T E S FEET DOGLEG SEVERITY DG/100FT

6636.	24 15	N 74 E	125.	6322.86	1613.45	4330.56	513.32	N	1529.67	E	0.00
6734.	24 15	N 75 E	98.	6412.21	1653.62	4419.91	524.07	N	1568.45	E	0.42
6853.	22 45	N 69 E	119.	6521.34	1701.07	4529.04	538.74	N	1613.58	E	2.37
7006.	23 0	N 69 E	153.	6662.31	1760.50	4670.01	560.05	N	1669.11	E	0.16
7162.	23 15	N 71 E	156.	6805.77	1821.76	4813.47	581.00	N	1726.68	E	0.53
7233.	23 30	N 70 E	71.	6870.95	1849.93	4878.65	590.41	N	1753.23	E	0.66
7280.	24 0	N 70 E	47.	6913.97	1868.86	4921.67	596.88	N	1771.02	E	1.06
7613.	23 0	N 67 E	333.	7219.35	2001.51	5227.05	645.55	N	1894.56	E	0.47
7760.	23 0	N 67 E	147.	7354.66	2058.81	5362.36	667.99	N	1947.43	E	0.00

STATION AT 7760' IS PROJECTED.

FINAL CLOSURE - DIRECTION: N 71 DEGS 4 MINS E PETROLANE COMPANY DISTANCE: 2058.81 FEET



DIVISION OF OIL AND GAS RECEIVED

JUN 26 1979

SANTA PAULA, CALIFORNIA

Eastman
Whipstock

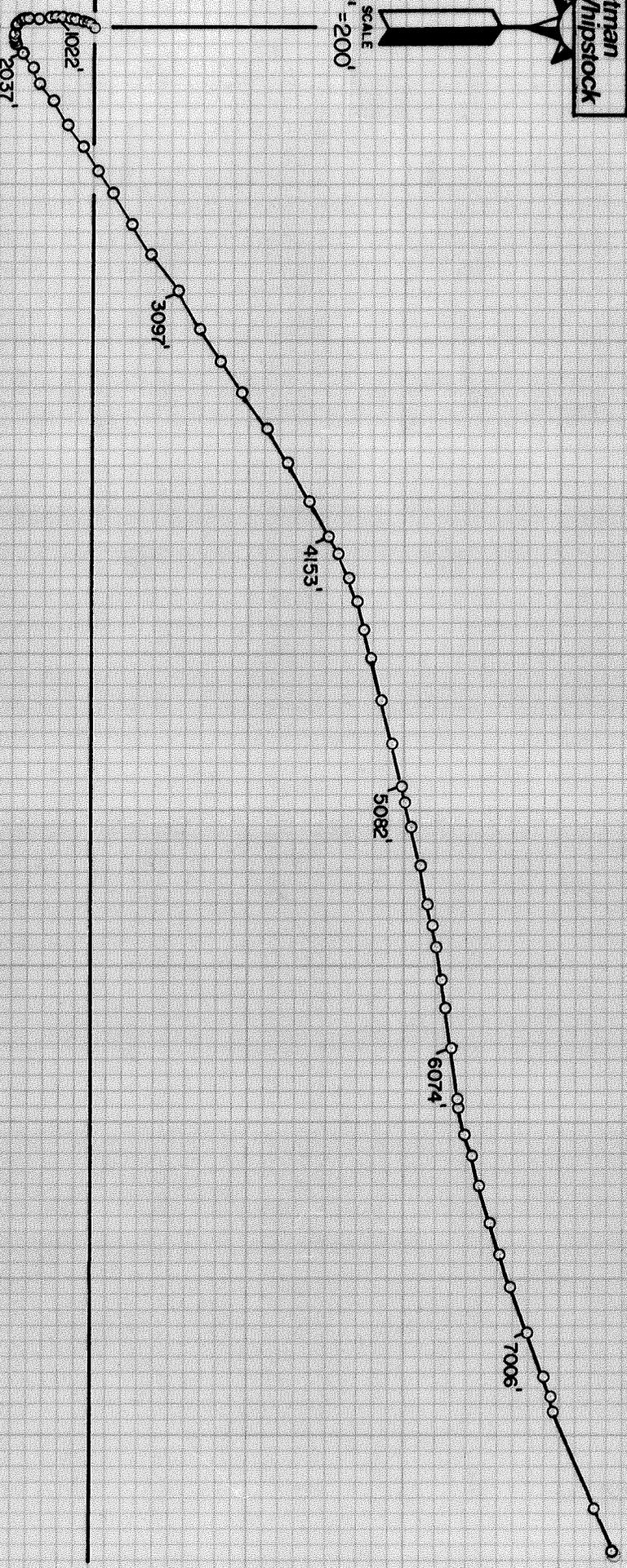
DEPTH - 7760'
NORTH - 667.99'
EAST - 1947.43'

CLOSURE - 2058.8' N 71° 04' E

SCALE
1" = 200'

WELL № PORTER № 42-C

JOB № P-0279-D0464



DIVISION OF OIL AND GAS

Report on Operations

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

Santa Paula, Calif.
June 13, 1979

Your operations at well "SEZIU" P-420, API No. 037-21878, Sec. 28, T. 3N, R. 16W,
S.B., B. & M. Aliso Canyon Field, in Los Angeles County, were witnessed
on 6/12/79 by T. E. Adams, representative of the supervisor, was
present from 1000 to 1200. There were also present A.E. Clark, contract foreman

Present condition of well: 13 3/8" cas 1022', 9 5/8" cas 6995', 7 5/8" 1d 6865-7590', perf.
7482' WSO. T.D. 7595'.

The operations were performed for the purpose of demonstrating a water shut-off on the 7 5/8"
casing by means of a production test.

DECISION:

THE 7 5/8" SHUT-OFF AT 7482' IS APPROVED.

b

M. G. NEFFERD
State Oil and Gas Supervisor
By John L. Hardoin
Deputy Supervisor
John L. Hardoin

DIVISION OF OIL AND GAS

Report on Operations

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

Santa Paula, Calif.
May 17, 1979

Your operations at well "SFZU" P-42C, API No. 037-21878, Sec. 28, T. 3N, R. 16W,
SB, B. & M. Aliso Canyon Field, in Los Angeles County, were witnessed
on 5/4/79 by S. Curran, representative of the supervisor, was
present from 1100 to 1430. There were also present E. Lancaster, production
foreman

Present condition of well: No additions to the casing record since Report No. T279-48.

The operations were performed for the purpose of demonstrating that the seal between the 7 5/8"
and 9 5/8" casings will withstand the proposed injection pressure.

DECISION:

THE SEAL BETWEEN THE 7 5/8" AND 9 5/8" CASINGS IS APPROVED.

b

M. G. MOFFERD
State Oil and Gas Supervisor
By [Signature]
Deputy Supervisor

John L. Hardoin

REPORT ON PROPOSED OPERATIONS

010
field code
03
area code
30
pool code

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

Santa Paula, California
April 16, 1979

Your supplementary proposal to drill well "SFZU" P-42C
A.P.I. No. 037-21878, Section 28, T. 3N, R. 16W, S.B. B. & M.,
Aliso Canyon field, Main area, Sesnon-Frew pool,
Los Angeles County, dated 4/5/79, received 4/11/79 has been examined in conjunction with records
filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT THIS DIVISION SHALL BE NOTIFIED TO WITNESS:

- a. Testing the effectiveness of the seal between the 9 5/8" and 7 5/8" casings.
- b. In all other respects the provisions set forth in our report No. 278-246 dated September 6, 1978 shall apply.

Blanket Bond
MD:b

A copy of this report must be posted at the well site prior to commencing operations.

M. G. MEFFERD, State Oil and Gas Supervisor

By John L. Hardoin
John L. Hardoin, Deputy Supervisor

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

VISION OF OIL AND GAS
RECEIVED

APR 11 1979

SUPPLEMENTARY NOTICE

SANTA PAULA, CALIFORNIA

FOR DIVISION USE ONLY		
BOND	FORMS	
	114	121
BB	-	✓

DIVISION OF OIL AND GAS

Santa Paula Calif.

A notice to you dated September 1, 1978, stating the intention to

Drill, Well No. Porter 42-C, API No. 037-21878,

(Drill, rework, abandon)

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

Los Angeles County, should be amended because of changed conditions.

The present condition of the well is as follows:

Total depth 7613'

Complete casing record including plugs and perforations:

13-3/8" cemented 1022'
9-5/8" cemented 6955'
T.D. 7613'

We now propose

1. Cement 700' of 7-5/8", 29.70#, C-75, Hydril SFJ at 7613'
2. Drill out cement to 7550'. Pressure test and test WSO on 7" x 9-5/8" lap.
3. Shoot four 1/2" holes at 7483'. Pressure test and test WSO on holes at 7483'.
4. Core 6-1/8" hole to 7750' and run logs.
5. Open hole to 13" and run approximately 280' of 5 1/2", 20#, K-55, LT&C screen liner to 7745'. Gravel pack.
6. Set production packer at 6900' and run 3 1/2" tubing with down-hole safety system.

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

Address P. O. Box 3249, Terminal Annex Southern California Gas Company
(Street) (Name of Operator)

Los Angeles CA 90051 By P.S. Magruder, Jr. 4/5/79
(City) (State) (Zip) (Name) (Date)

Telephone Number (213) 689-3561 Type of Organization Corporation
(Corporation, Partnership, Individual, etc.)

DIVISION OF OIL AND GAS

Report on Operations

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

Santa Paula, Calif.
March 1, 1979

Your operations at well "SF2U" P-42C, API No. 037-21878, Sec. 28, T3N, R16W
S.B., B. & M. Aliso Canyon Field, in Los Angeles County, were witnessed
on 2/23/79 by T. E. Adams, representative of the supervisor, was
present from 1300 to 1700. There were also present Henry Murphy, contract
foreman

Present condition of well: 13 3/8" cem 1022', T.D. 1022'.

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

DECISION:

THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

b

M. G. MEYERD
State Oil and Gas Supervisor
By John L. Hardoin
Deputy Supervisor
John L. Hardoin

REPORT ON PROPOSED OPERATIONS

Santa Paula, California

Sept. 6, 1978

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

Your proposal to drill well "SFZU" P-42C
(Name and number)
A.P.I. No. 037-21878, Section 28, T. 3N, R. 16W
S.B. B. & M., Aliso Canyon field, Los Angeles County,
dated 9-1-78, received 9-5-78, has been examined in conjunction

with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Sufficient cement shall be pumped back of the 13 3/8" casing to fill to the surface.
2. Hole fluid of sufficient quality and quantity shall be maintained in the hole to control any subsurface condition, and a reserve supply shall be on hand for emergency.
3. Unlined sumps, if they contain harmful waters, shall not be located over fresh water bearing aquifers.
4. Any sump used during these operations shall be thoroughly cleaned and filled with earth as soon as operations are completed.
5. Blowout prevention equipment of at least DOG Class III 5-5M shall be installed on the 13 3/8" casing and maintained in operating condition at all times.
6. Blowout prevention practice drills shall be conducted at least weekly for each crew, and recorded in the log book.
7. This office shall be consulted before initiating any changes or additions to this proposed operation, or if operations are to be suspended.
8. The spacing provisions of Section 3606 shall be followed, and a directional survey shall be made.
9. THIS DIVISION SHALL BE NOTIFIED:
 - a. TO INSPECT the installed blowout prevention equipment before drilling below 1000'.
 - b. TO WITNESS a test of the 8 5/8" shut-off above the Seamon zone.

NOTE: A COPY OF THIS APPROVAL SHALL BE AVAILABLE AT THE WELL SITE DURING THE PROPOSED OPERATIONS.

Blanket Bond 3/19/79 Abrahamson/JH Rig accident on 3/18/79 occurred while running 9 7/8" csg
JLH:b Csg was 700' from TD when Derrick collapsed. Csg was caught in slips, collar locator run and csg cemented with 200 SY. Propose to cement 700'± of 7" at 7613'; C.O. below top, press. test if necessary; F.T. Log DOG witness and WSO test 7" DOG to witness. Will file notice.

Injuries: 3 men severely hurt but in good condition
G. MEFFORD
State Oil and Gas Supervisor

By John L. Hardoin
Deputy Supervisor

John L. Hardoin

DIVISION OF OIL AND GAS
Notice of Intention to Drill New Well

SEP 5 1978

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

FOR DIVISION USE ONLY					
MAP	MAP BOOK	CARDS	BOND	FORMS	
				114	121
254	9-9-78	✓	BB	✓	✓

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to commence drilling well No. "SFZL" P-42C ~~Porter 42-C~~, API No. 037-21878, (Assigned by Division) Sec. 28, T. 3N, R. 16W, S.B.B. & M., Aliso Canyon Field, Los Angeles County.

Legal description of mineral-right lease, consisting of _____ acres, is as follows: Previously submitted (Attach map or plat to scale)

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

Location of well _____ feet _____ property along section line and _____ feet _____ property at right angles to said line from the _____ corner of section _____ or 2565' south and 2542' west from station 84

If well is to be directionally drilled, show proposed coordinates at total depth 291' east & 859' north from surface location
Elevation of ground above sea level 1980 feet.

All depth measurements taken from top of Kelly Bushing which is 21 feet above ground. (Derrick Floor, Rotary Table or Kelly Bushing)

GAS STORAGE WELL

PROPOSED CASING PROGRAM

SIZE OF CASING INCHES A.P.I.	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING
<u>13-3/8"</u>	<u>54.5</u>	<u>K-55, Butt.</u>	<u>Surf.</u>	<u>1000'</u>	<u>1000'</u>	<u>Surface</u>
<u>9-5/8"</u>	<u>53.47, 43</u> <u>36.40</u>	<u>K-55, LT&C</u> <u>N-80, Butt.</u>	<u>Surf.</u>	<u>7591'</u>	<u>7591'</u>	<u>1000'</u>
<u>5-1/2"</u>	<u>20</u>	<u>K-55, LT&C</u>	<u>7465'</u>	<u>7790'</u>	<u>Gravel pack screen liner</u>	<u>-</u>

Abrahamson/JH 3/11/79 (A complete drilling program is preferred and may be submitted in lieu of the above program)

Intended zone(s) of completion Sesnon (S-4 and S-8) 3120 psi Estimated total depth 7790'
(Name, depth and expected pressure)

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

Address P.O. Box 3249 Term 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. 9/1/78
(Date)
P. S. Magruder, Jr.
Type of Organization Corporation
(Corporation, Partnership, Individual, etc.)