



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

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

January 3, 2017

SENT VIA EMAIL

Mr. Rodger Schwecke
Vice President
Transmission and Storage
Southern California Gas Company
RSchwecke@semprautilities.com

FINDING THAT WELL FERNANDO FEE 35A (API NO. 03721457) PASSED TESTS REQUIRED TO ENSURE MECHANICAL INTEGRITY

Dear Mr. Schwecke:

I am writing in regard to the safety review test results for one of the 114 wells at the Aliso Canyon gas storage facility (Facility). Each of these wells are subject to the comprehensive safety review that State Oil and Gas Supervisor Order 1109 and SB 380¹ require to be completed before the Division of Oil, Gas, and Geothermal Resources (Division) may authorize resumption of injection operations at the Facility. Order 1109 describes two batteries of well tests. To complete the review, each well must (1) pass both batteries of tests, (2) pass the first battery of tests and be taken out of service and isolated from the underground gas storage reservoir, or (3) be properly plugged and abandoned.

The first battery of tests is an initial casing assessment that uses temperature and noise logs to ensure that there is no migration of fluids near the wellbore. The second battery of tests consists of a casing inspection using electromagnetic and ultra-sonic technologies, a multi-arm caliper inspection, a cement bond log, and a positive pressure test to ensure well integrity and the prevention of fluid and gas migration. The Division posts the current status and testing results for each of the 114 wells on its website at <http://www.conservation.ca.gov/dog/AlisoCanyon/Pages/Well-Detail.aspx>.

After receiving and evaluating all test results for the well, I find for purposes of Order 1109 and SB 380, that well Fernando Fee 35A (API No. 03721457) passed the first and second batteries of the comprehensive safety review testing regime and, as of September 13, 2016, the mechanical integrity of the well has been ensured. Accordingly, this well may be used for injection if and when I authorize injection operations to resume at the Facility, and if the well is in compliance with all other applicable requirements. I make this finding as of the date of this letter, and underscore that ongoing monitoring and testing are necessary to ensure the continued integrity of the well.

Sincerely,

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

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

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
Date 10/3/2016 (Person submitting report) (President, Secretary, or Agent)
(Month, day, year)
Signature Thomas D McMahon
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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.

Daily Operation Period: 8/2/2016 - 8/2/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
RMOV	Rig Move	Moved rig and equipment from FF35B to FF35A.
RURD	Rig Up/Down	Spot rig, equipment and containments. Rigged up rig and guy out.
WKLL	Kill Well	Rigged up Onxy and (Pacific Petroleum). Check pressures. SITP = 1,150 psi, SICP = 550 psi. Pumped 60 bbls of 8.5 ppg, 130 vis polymer pill down tubing. Displaced with 40 bbls of 8.5 ppg, 65 vis polymer. Opened casing to Onyx and canisters. Pumped a total of 391 bbls of 8.5 ppg, 6.5 vis polymer. Well dead. Rigged down (Onyx) and (Pacific Petroleum). Secured well till the AM.

Daily Operation Period: 8/3/2016 - 8/3/2016

Operations this Report Period (DOGGR)

Cameron set BPV in hanger. Nipped down 2-9/16" 5M tree. Nuts on the tree rusted. Difficult to break out. Nipped up 11" 5M Annular, 11" 5M Double gate BOP. Rigged up choke manifold and lines. Function test BOP. Rigged up (Weatherford) testers and rigged up BOP testing equipment. Pressure tested BOP as per Gas Company Standard 224.05: Pressure tested blind rams, pipe rams, choke manifold and all lines at 300 psi low / 5000 psi high for 20 min. each test. Annular preventer at 300 psi low / 3500 psi high for 20 min each test. Good test. Rigged down (Weatherford) tester.

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Check well pressures. Opened well.
WHDR	Remove Wellhead	Cameron set BPV in hanger. Nipped down 2-9/16" 5M tree. Nuts on the tree rusted. Difficult to break out.
BOPI	Install BOP's	Nipped up 11" 5M Annular, 11" 5M Double gate BOP. Rigged up choke manifold and lines. Function test BOP.
BOPPT	Pressure Test BOP's	Rigged up (Weatherford) testers and rigged up BOP testing equipment. Pressure tested BOP as per Gas Company Standard 224.05: Pressure tested blind rams, pipe rams, choke manifold and all lines at 300 psi low / 5000 psi high for 20 min. each test. Annular preventer at 300 psi low / 3500 psi high for 20 min each test. Good test. Rigged down (Weatherford) tester.
GOP	General Operations	Rigged up tubing equipment. Secured well till the AM.

Daily Operation Period: 8/4/2016 - 8/4/2016

Operations this Report Period (DOGGR)

Tried to release seal assembly from (Otis) 8-5/8", 36# Permatrieve packer. Working right hand torque down to packer. Pulling 35K over string weight. Held safety meeting with (Tiger) wireline. Rigged up (tiger) wireline unit, swivel and packoff. Ran in the hole with RTC cutter. Pulled 20K over string weight. Cut 20' blast joint at 6,954'. Pulled out of the hole. Could not pull free. Ran in the hole with free point tool. Found tubing free at 6,925'. Pulled out of the hole. Ran in the hole with chemical cutter. Pulled 15K over. Cut tubing at 6,910'. Pulled out of the hole. Rigged down (Tiger) wireline. Laid down hanger.

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Pumped 50 bbls of 8.5ppg, 65 vis polymer down the tubing.

RESOURCES AGENCY OF CALIFORNIA
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HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
Date 10/3/2016
(Month, day, year) Signature _____
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Time Log

Code 1	Code 2	Com
PACRE	Release packer	Tried to release seal assembly from (Otis) 8-5/8", 36# Permatrrieve packer. Working right hand torque down to packer. Pulling 35K over string weight.
WIRL	Wireline	Held safety meeting with (Tiger) wireline. Rigged up (tiger) wireline unit, swivel and packoff. Ran in the hole with RTC cutter. Pulled 20K over string weight. Cut 20' blast joint at 6,954'. Pulled out of the hole. Could not pull free. Ran in the hole with free point tool. Found tubing free at 6,925'. Pulled out of the hole. Ran in the hole with chemical cutter. Pulled 15K over. Cut tubing at 6,910'. Pulled out of the hole. Rigged down (Tiger) wireline.
TBPUL	Pull Tubing	Laid down hanger. Secure well till the AM.

Daily Operation Period: 8/5/2016 - 8/5/2016

Operations this Report Period (DOGGR)

Continued pulling out of the hole and laying down (221) joints of 2-7/8", 6.5#, J-55, 8rd tubing. Laid down (1) cut joint (12'). The estimated top of fish at 6,907'.

Moved full trailer of tubing off location and backed in trailer with workstring.

Tallied and picked up (Weatherford) 8-5/8", 36# positive scraper and bumper sub. Picked up (44) joints of 2-7/8", 6.5#, P-110, CTR workstring.

Moved off empty trailer and backed in full trailer with workstring.

Continued picking up (36) joints of 2-7/8", 6.5#, P-110, CTR workstring.

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TBPUL	Pull Tubing	Continued pulling out of the hole and laying down (221) joints of 2-7/8", 6.5#, J-55, 8rd tubing. Laid down (1) cut joint (12'). The estimated top of fish at 6,907'.
GOP	General Operations	Moved full trailer of tubing off location and backed in trailer with workstring.
TRIP	Tripping	Tallied and picked up (Weatherford) 8-5/8", 36# positive scraper and bumper sub. Picked up (44) joints of 2-7/8", 6.5#, P-110, CTR workstring.
GOP	General Operations	Moved off empty trailer and backed in full trailer with workstring.
TRIP	Tripping	Continued picking up (36) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/6/2016 - 8/6/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Continued picking up (139) joints of 2-7/8", 6.5#, P-110, CTR tubing. Tagged top of fish at 6,913'.
TRIP	Tripping	Laid down (1) joint. Pulled out of the hole and stood back (218) of 2-7/8", 6.5#, P-110, CTR tubing. Laid down scraper and bumper sub.
TRIP	Tripping	Ran in the hole with (60) joints of 2-7/8", 6.5#, P-110, CTR kill string. Secured well till Monday.

Daily Operation Period: 8/8/2016 - 8/8/2016

Operations this Report Period (DOGGR)

Rec'd 10-26-16 DOGGR Ventura.

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

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
Date 10/3/2016 (Person submitting report) (President, Secretary, or Agent)
(Month, day, year)
Signature _____
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Pulled out of the hole and stood back (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Pumping pipe displacement every 10 stands.
BHAP	Pick up BHA	Tallied and picked up 5-3/4" Overshot with 7-1/4" guide loaded with 2-7/8" RHW grapple, 5-3/4" extension, 4-3/4", Bumper sub, 4-3/4" Jars, (2) 4-3/4" Drill collars, 4-3/4" Slinger and 3-1/2" IF X 2-7/8" CTR Crossover.
TRIP	Tripping	Ran in the hole on (214) joints of 27/8", 6.5#, P-110, CTR workstring.
FISH	Fishing	Tagged fish at 6,913'. Tried to work seals out of packer. Jarring at 70K. Jarred at 100K and sheared lugs to release from packer.
TRIP	Tripping	Pulled out of the hole and stood back (214) joints of 2-7/8", 6.5#, P-110, CTR workstring. Pumping displacement every 10 stands.
BHAL	Lay down BHA	Laid down slinger, Stood back drill collars. Laid down Jars, Bumper sub and over shot. Laid down 17' cut joint of 2-7/8" tubing, 10' 2-7/8" pup joint, "X" nipple, (Otis) safety system and 20' cut blast joint. (Left .32" of 2-7/8" blast joint, "XN" nipple, 10' 2-7/8" blast joint, crossover and seals.)
BHAP	Pick up BHA	Tallied and picked up 7-3/8" Cut lip shoe, 7-3/8" extension, 7-3/8" drive sub, 4-1/2" FH X 3-1/2" IF Crossover and 3-1/2" IF X 2-7/8" CTR Crossover.
TRIP	Tripping	Ran in the hole on (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secure well till the AM.

Daily Operation Period: 8/9/2016 - 8/9/2016

Operations this Report Period (DOGGR)

Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Srviced rig. Check well pressures. Opened well.
TRIP	Tripping	Continued running in the hole with (158) joints of 2-7/8", 6.5#, P-110, CTR workstring. Picked up (3) joints.
FISH	Fishing	Rigged up circulating equipment. Made up kelly stand. Wash over fish to top of packer at 6,975'. Pumping at 2.5 bpm at 0 psi. Getting scale and formation back. Lost circulation when getting to top of packer. Pumped 40 bbls of 8.5 ppg, 65 vis polymer. Shutdown pump. Rigged down circulating equipment.
TRIP	Tripping	Laid down (3) joints. Pulled out fo the hole and stood back (218) joints of 2-7/8", 6.5#, P-110, CTR workstring.
BHAL	Lay down BHA	Laid down wash shoe, extension and drive sub.
BHAP	Pick up BHA	Tallied and picked up 5-3/4" Overshot with 7-1/4" guide loaded with 3-21/32" grapple, 5-3/4" extension, 4-3/4", Bumper sub, 4-3/4" Jars, (2) 4-3/4" Drill collars, 4-3/4" Slinger and 3-1/2" IF X 2-7/8" CTR Crossover.
TRIP	Tripping	Ran in the hole with (144) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/10/2016 - 8/10/2016

Operations this Report Period (DOGGR)

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
Date 10/3/2016 (Person submitting report) (President, Secretary, or Agent)
(Month, day, year)
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020
Signature _____

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Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Continued running in the hole with (74) joints of 2-7/8", 6.5#, P-110, CTR workstring. Made up FOSV on last joint.
FISH	Fishing	Tagged fish at 6,968. Latched onto fish and jarred at 70K, 80K, 100K, 3 times at 110K, 120K and pulled free. Dragged about 5K over pulling seals out of packer. Broke out FOSV.
TRIP	Tripping	Pulled out of the hole and stood back (218) joints of 2-7/8", 6.5#, P-110, CTR workstring.
BHAL	Lay down BHA	Laid down Slinger. Stood back drill collars. Laid down overshot and seal assembly, crossover, 10' blast joint, "XN" nipple, and cut blast joint.
BHAP	Pick up BHA	Tallied and picked up 3-3/4" Spear with 4" grapple, 6-3/4" Stop, 2-7/8" Reg X 3-1/2" IF Crossover, 4-3/4" Bumper sub, 4-3/4" Jar, (2) 4-3/4" drill collars, 4-3/4" Slinger, 3-1/2" IF X 2-7/8" CTR Crossover.
TRIP	Tripping	Ran in the hole on (218) joints of 2-7/8", 6.5#, P-110, CTR workstring. Made up FOSV on top joint.
FISH	Fishing	Tagged (Otis) 8-5/8", 36# Permatrieve packer at 6,980'. Latched into packer. Jarred on packer at 25K over string weight. Pulled free. Wait 30 minutes for elements to relax. Went down to 6,989'. Removed FOSV.
TRIP	Tripping	Pulled out of the hole and stood back (158) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/11/2016 - 8/11/2016

Operations this Report Period (DOGGR)

Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Continued pulling out of the hole and stood back (60) joints of 2-7/8", 6.5#, P-110, CTR workstring.
BHAL	Lay down BHA	Laid down Slinger, Stood back drill collars. Laid down Jars, Bumper sub and spear. Laid down (Otis) 8-5/8", 36#, Permatrieve packer. Laid down drill collars.
BHAP	Pick up BHA	Tallied and picked up (Weatherford) 8-5/8", 36# positive scraper.
TRIP	Tripping	Ran in the hole on (218) joints of 2-7/8", 6.5#, P-110, CTR workstring. Picked up (3) joints of 2-7/8", 6.5#, P-110, CTR workstring. Tagged liner top at 7,000'.
TRIP	Tripping	Laid down (1) joint of 2-7/8", 6.5#, P-110, CTR workstring. Pulled out of the hole and stood back (220) joints of 2-7/8", 6.5#, P-110, CTR workstring.
BHAL	Lay down BHA	Broke out (Weatherford) 8-5/8", 36# positive scraper and bumper sub.
BHAP	Pick up BHA	Tallied and picked up (Weatherford) 6-5/8", 42# positive scraper and bumper sub.
TRIP	Tripping	Ran in the hole on (216) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/12/2016 - 8/12/2016

Operations this Report Period (DOGGR)

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
 Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
 A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
 Date 10/3/2016
(Month, day, year)
 Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020
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Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Check well pressure. Pumped 50 bbls of 3% KCL down casing. Opened well.
TRIP	Tripping	Continued running in the hole with (4) of 2-7/8", 6.5#, P-110, CTR workstring. Picked up (8) joints off the trailer. Tagged at 7,216'. (Bottom of liner at 7,223')
TRIP	Tripping	Pulled out of the hole laying down (8) joints of 2-7/8", 6.5#, P-110, CTR workstring. Pulled out of the hole and stood back (220) joints of 2-7/8", 6.5#, P-110, CTR workstring.
BHAL	Lay down BHA	Broke out and laid down (Weatherford) 6-5/8", 24# positive scraper and bumper sub.
LOGG	Logging	Held safety meeting with (Baker) wireline. Rigged up (Baker) wireline unit. Run Vertilog from 7,000' to surface. Rigged down (Baker) wireline unit.
TRIP	Tripping	Ran in the hole with (60) joints of 2-7/8", 6.5#, P-110, CTR tubing. Secured well till the AM.

Daily Operation Period: 8/13/2016 - 8/13/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Pulled out of the hole and stood back (60) joints of 2-7/8", 6.5#, P-110, CTR workstring.
LOGG	Logging	Held safety meeting with (Baker and GyroData). Rigged up (Baker) wireline unit and lubricator. Ran in the hole with caliper / gyro combo. Tagged at 7,207' (wireline depth). Logged caliper/gyro from 7,207' to surface. Laid down GyroData tools. Ran back in the well to run caliper repeats. Rigged down (Baker) wireline unit and lubricator.
TRIP	Tripping	Ran in the hole with (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well for the weekend.

Daily Operation Period: 8/15/2016 - 8/15/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Pulled out of the hole with (60) joints of 2-7/8", 6.5#, P-110, CTR workstring.
RBPRU	Run Retrievable Bridge Plug	Tallied and picked up (Weatherford) 8-5/8", 36# bridge plug and 4' 2-7/8", 6.5#, N-80, 8rd pup joint and 2-7/8" 8rd X 2-7/8" CTR Crossover. Ran in the hole on (60) joints of 2-7/8". 6.5#, P-110, CTR workstring. SET BP at 1,910'. Test BP to 500 psi for 10 minutes. Good test. Could not release BP. Looks like it sheared out the "J" lugs while trying to release. Ran in with (2) more stands. Try to set BP. No good.
RBPPUL	Pull RBP	Pulled out of the hole with (64) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down BP. Sheared out "J" lugs.
RBPRU	Run Retrievable Bridge Plug	Picked up new (Weatherford) 8-5/8", 36# bridge plug. Ran in the hole on (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Set BP at 1,914'. Tested to 500 psi for 5 minutes. Good test. Could not release BP. Worked to release BP. Rigged up pour boy swivel. Pumping 3 bpm of 3% KCL. Worked to release BP. Sheared out BP. Pulled up (1) joints and try to set BP. No good.

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Time Log

Code 1	Code 2	Com
RBPPUL	Pull RBP	Pulled out of the hole and stood back (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down BP. "J" lugs sheared on BP.
TRIP	Tripping	Tallied and picked up (Weatherford) 8-5/8", 36# positive scraper and bumper sub, 2-7/8" CTR X 2-7/8" 8rd Crossover. Ran in the hole on (184) joints of 2-7/8", 6.5#, P-110, CTR workstring. Tubing tail at 5,837'. Secured well till the AM.

Daily Operation Period: 8/16/2016 - 8/16/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Ran in the hole with (39) joints of 2-7/8", 6.5#, P-110, CTR workstring. Tagged liner top at 7,000'.
TRIP	Tripping	Pulled out of the hole and stood back (220) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down scraper.
BHAP	Pick up BHA	Tallied and picked up (Weatherford) 8-5/8", 36# bridge plug.
RBPRU	Run Retrievable Bridge Plug	Ran in the hole with (40) joints of 2-7/8", 6.5#, P-110, CTR workstring. Set BP at 1,270' to function test. Could not release BP. Tried multiple times with right hand torque. Released from BP.
TRIP	Tripping	Pulled out of the hole with retrieving head.
TRIP	Tripping	Ran in the hole with retrieving head and bumper sub. Ran in the hole on (40) joints of 2-7/8", 6.5#, P-110, CTR workstring. Engaged BP. Worked BP hitting down and pulling up with right hand torque. Pulled free.
RBPPUL	Pull RBP	Pulled out of the hole and stood back (40) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down BP.
TRIP	Tripping	Ran in the hole with (60) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/17/2016 - 8/17/2016

Operations this Report Period (DOGGR)

Time Log

Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Check well pressures. Opened well.
TRIP	Tripping	Pulled out of the hole and stood back (60) joints of 2-7/8", 6.5#, P-110, CTR workstring.
RBPRU	Run Retrievable Bridge Plug	Tallied and picked up (Weatherford) 8-5/8", 36# Arrowset bridge plug. Ran in the hole on (80) joints of 2-7/8", 6.5#, P-110, CTR workstring. Set BP at 2,540'. Filled well with 133 bbls of 3% KCL and tested to 500 psi for 10 minutes. Good test. Let BP equalize for 15 minutes. Released BP. Ran in the hole on (140) joints of 2-7/8", 6.5#, P-110, CTR workstring.
RBPS	Set RBP	Set bridge plug at 6,988' (COE). Filled well with 49 bbls of 3% KCL. Tested to 1150 psi for 10 minutes. Good test. Dumped 10' sand. Rigged up circulating equipment. Displaced with 39 bbls of 3% KCL. Rigged down circulating equipment. Top of sand at 6,971'.

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
Date 10/3/2016
(Month, day, year) Signature _____
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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.

Time Log		
Code 1	Code 2	Com
TRIP	Tripping	Pulled out of the hole and stood back (170) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/18/2016 - 8/18/2016

Operations this Report Period (DOGGR)

Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
TRIP	Tripping	Pulled out of the hole and stood back (50) joints of 2-7/8", 6.5#, P-110, CTR workstring.
LOGG	Logging	Held safety meeting with (Schlumberger) and Ensign. Rigged up (Schlumberger) wireline unit. Ran in the with USIT, CBL. Logged from 6,975' to surface. Rigged down (Schlumberger) wireline unit.
BHAP	Pick up BHA	Tallied and picked up 8-5/8", 36# Arrowset packer.
PACRU	Run packer	Ran in the hole on (32) joints of 2-7/8", 6.5#, P-110, CTR workstring.
PACS	Set packer	Set packer at 1,000 (COE). filled casing and pressure test to 3,000 psi for 20 minutes. Good test. Secured well till the AM.

Daily Operation Period: 8/19/2016 - 8/19/2016

Operations this Report Period (DOGGR)

Rigged up (PROS) testers. Pressure tested annulus from 1,000' to surface to 3,716 psi for 1 hour. Lost 23 psi in 1 hour. Bled off pressure. Released packer. Set packer at 2,500' (COE). Pressure tested annulus from 2,500' to surface to 3,302 psi for 1 hour. Lost 15 psi in 1 hour. Bled off pressure. Released packer. Set packer at 3,500' (COE). Pressure tested annulus from 3,500' to surface to 2,656 psi for 1 hour. Lost 16 psi in 1 hour. Bled off pressure. Released packer. Set packer at 4,500' (COE). Pressure tested annulus from 4,500' to surface to 2,284 psi for 1 hour. Lost 17 psi in 1 hour. Bled off pressure. Released packer. Set packer at 5,745' (COE). Pressure tested annulus from 5,745' to surface to 1,965 psi for 1 hour. Lost 16 psi in 1 hour. Bled off pressure. Pressure tested down the tubing from 5,745' to BP at 6,988' to 1,579 psi for 1 hour. Lost 42 psi in 1 hour. Bled off pressure. All tested witnessed by Curtis Welty (DOGGR).

Time Log		
Code 1	Code 2	Com
WKLL	Kill Well	Held safety meeting. Serviced rig. Checked well pressures. Opened well.
PTST	Pressure Test	Rigged up (PROS) testers. Pressure tested annulus from 1,000' to surface to 3,716 psi for 1 hour. Lost 23 psi in 1 hour. Bled off pressure. Released packer. Set packer at 2,500' (COE). Pressure tested annulus from 2,500' to surface to 3,302 psi for 1 hour. Lost 15 psi in 1 hour. Bled off pressure. Released packer. Set packer at 3,500' (COE). Pressure tested annulus from 3,500' to surface to 2,656 psi for 1 hour. Lost 16 psi in 1 hour. Bled off pressure. Released packer. Set packer at 4,500' (COE). Pressure tested annulus from 4,500' to surface to 2,284 psi for 1 hour. Lost 17 psi in 1 hour. Bled off pressure. Released packer. Set packer at 5,745' (COE). Pressure tested annulus from 5,745' to surface to 1,965 psi for 1 hour. Lost 16 psi in 1 hour. Bled off pressure. Pressure tested down the tubing from 5,745' to BP at 6,988' to 1,579 psi for 1 hour. Lost 42 psi in 1 hour. Bled off pressure. All tested witnessed by Curtis Welty (DOGGR).
PACRE	Release packer	Released packer. Rigged down (PROS) testers. Secure well till the AM.

Daily Operation Period: 8/20/2016 - 8/20/2016

Operations this Report Period (DOGGR)

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

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
Date 10/3/2016
(Month, day, year) Signature _____
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Code 1	Code 2	Com
WKLL	Kill Well	Serviced rig. Checked well pressures. Opened well.
PACP	Pull packer	Pulled out of the hole and stood back (182) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down packer.
BOPR	Remove BOP's	Rigged down rig floor. Disconnect lines. Nipped down 11", 5K annular. Nipped down 11" double gate.
WHDR	Remove Wellhead	Nipped down tubing spool. Nuts rusted. Worked to unscrewed rusted nuts. Tried to pull tubing spool. Work tubing spool. Welder cut bolts. Remove tubing spool. Load out tubing spool. Cameron inspected casing stub and seals.
BOPI	Install BOP's	Nipped up 13-5/8" 5K X 11" 5K spools. Nipped up double gate BOP. Secured well for the weekend.

Daily Operation Period: 8/27/2016 - 8/27/2016

Operations this Report Period (DOGGR)

Nipped down double gate BOP and crossover spools.
Cameron nipped up 13-5/8" 5K X 10" 5K DSA, Had issues installing DSA. Seals are very tight. Took several hours to get DSA installed. Nipped up 10" 5K X 8" 5K. Energized compression seals. Tested bottom seal to 300 psi low and 2,760 psi high for 20 minutes. Good test. Tested upper seal and could not get a test. Several compression rams leaking. Could not get a test 3 rams leaking.
Nipped up 11" 5M double gate BOP.

Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Check well pressures. Opened well.
BOPR	Remove BOP's	Nipped down double gate BOP and crossover spools.
WHDI	Install Wellhead	Cameron nipped up 13-5/8" 5K X 10" 5K DSA, Had issues installing DSA. Seals are very tight. Took several hours to get DSA installed. Nipped up 10" 5K X 8" 5K. Energized compression seals. Tested bottom seal to 300 psi low and 2,760 psi high for 20 minutes. Good test. Tested upper seal and could not get a test. Several compression rams leaking. Could not get a test 3 rams leaking.
BOPI	Install BOP's	Nipped up 11" 5M double gate BOP. Secured well for the weekend.

Daily Operation Period: 8/29/2016 - 8/29/2016

Operations this Report Period (DOGGR)

Nipped down 11" 5M double gate BOP.
Nipped up 13-5/8" 5M X 11" 5M DSA. Energized compression seal. Tested DSA to 300 psi low / 2,760 psi high for 20 minutes each. Good test.
Nipped up 11" 5M X 9" 5M tubing spool. Energized compression seal. Tested tubing spool to 300 psi low / 2,760 psi high for 20 minutes each. Could not get a solid test. Re-energized the seals and tighten packing nuts. Still no test. Tested test unit. Would not test. Changed out Cameron test unit. Still could not get a solid test.
Nipped up 11" 5M double gate BOP.

Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Checked well pressures. Opened well.
BOPR	Remove BOP's	Nipped down 11" 5M double gate BOP.
WHDR	Remove Wellhead	Cameron nipped down tubing spool and DSA. Changed all seals in DSA.

Rec'd 10-26-16 DOGGR Ventura.

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
Date 10/3/2016
(Month, day, year) Signature _____
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Time Log		
Code 1	Code 2	Com
WHDI	Install Wellhead	Nipped up 13-5/8" 5M X 11" 5M DSA. Energized compression seal. Tested DSA to 300 psi low / 2,760 psi high for 20 minutes each. Good test. Nipped up 11" 5M X 9" 5M tubing spool. Energized compression seal. Tested tubing spool to 300 psi low / 2,760 psi high for 20 minutes each. Could not get a solid test. Re-energized the seals and tighten packing nuts. Still no test. Tested test unit. Would not test. Changed out Cameron test unit. Still could not get a solid test.
BOPI	Install BOP's	Nipped up 11" 5M double gate BOP. Secured well till the AM.

Daily Operation Period: 8/30/2016 - 8/30/2016

Operations this Report Period (DOGGR)

Rigged up Cameron hand pump and test tubing spool seal. Work air out several times. Tested to 2760 psi for 20 minutes. Rigged out Cameron. Nipped up 11" 5M annular and lines. Function test. Rigged up workfloor.
Rigged up (Weatherford) tester. Tested connection Annular and connections to 300 psi low / 3500 psi high for 20 minutes. Good test. Tested Pipe ram, lines, choke manifold and connections to 300 psi low / 5000 psi high for 20 minutes. No good. Leaking valve on choke manifold, (Weatherford) rebuilt valve. Retested and valve still leaking. Change out choke manifolds. Retest 300 psi low / 5000 psi high for 20 minutes. Good test. Rigged down (Weatherford) testers. (BOP inspection done by Bryan Norman of the DOGGR)
Ran in the hole with (Weatherford) retrieving head. Ran in the hole on (200) joints of 2-7/8", 6.5#, P-110, CTR workstring.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
PTST	Pressure Test	Rigged up Cameron hand pump and test tubing spool seal. Work air out several times. Tested to 2760 psi for 20 minutes. Rigged out Cameron.
BOPI	Install BOP's	Nipped up 11" 5M annular and lines. Function test. Rigged up workfloor.
BOPPT	Pressure Test BOP's	Rigged up (Weatherford) tester. Tested connection Annular and connections to 300 psi low / 3500 psi high for 20 minutes. Good test. Tested Pipe ram, lines, choke manifold and connections to 300 psi low / 5000 psi high for 20 minutes. No good. Leaking valve on choke manifold, (Weatherford) rebuilt valve. Retested and valve still leaking. Change out choke manifolds. Retest 300 psi low / 5000 psi high for 20 minutes. Good test. Rigged down (Weatherford) testers. (BOP inspection done by Bryan Norman of the DOGGR)
TRIP	Tripping	Ran in the hole with (Weatherford) retrieving head. Ran in the hole on (200) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 8/31/2016 - 8/31/2016

Operations this Report Period (DOGGR)

Ran in the hole with (20) joints of 2-7/8", 6.5#, P-110, CTR workstring. Rigged up circulating equipment.
Picked up (1) joints of 2-7/8", 6.5#, P-100, CTR workstring and made up kelly hose. Tagged sand at 6,979'. Broke circulation with 3% KCL. Circulated sand of BP and circulated clean. Latched on to BP and released. Let equalize 30 minutes. Had work BP free. Pulled out of the hole and laid down (1) joints of 2-7/8", 6.5#, P-100, CTR workstring.
Pulled out of the hole with (218) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down (Weatherford) 8-5/8", 36#, Arrow-Set BP.
Ran in the hole with (112) joints of 2-7/8", 6.5#, P-110, CTR workstring.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Checked well pressures. Opened well.

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
 Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
 A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
 Date 10/3/2016
(Month, day, year)
 Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020
 Signature _____

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Time Log		
Code 1	Code 2	Com
TRIP	Tripping	Ran in the hole with (20) joints of 2-7/8", 6.5#, P-110, CTR workstring. Rigged up circulating equipment.
RBP	Release RBP	Picked up (1) joints of 2-7/8", 6.5#, P-100, CTR workstring and made up kelly hose. Tagged sand at 6,979'. Broke circulation with 3% KCL. Circulated sand of BP and circulated clean. Latched on to BP and released. Let equalize 30 minutes. Had work BP free. Pulled out of the hole and laid down (1) joints of 2-7/8", 6.5#, P-100, CTR workstring.
RBPPUL	Pull RBP	Pulled out of the hole with (218) joints of 2-7/8", 6.5#, P-110, CTR workstring. Laid down (Weatherford) 8-5/8", 36#, Arrow-Set BP.
TRIP	Tripping	Ran in the hole with (112) joints of 2-7/8", 6.5#, P-110, CTR workstring. Secured well till the AM.

Daily Operation Period: 9/1/2016 - 9/1/2016

Operations this Report Period (DOGGR)

Check well pressures. Pumped 50 bbls of 3% KCL down the casing.
 Ran in the hole with (106) joints of 2-7/8", 6.5#, P-110, CTR workstring.
 Pulled out of the hole laying down (69) joints of 2-7/8", 6.5#, P-110, CTR workstring on the trailer.
 Pulled out of the hole laying down (89) joints of 2-7/8", 6.5#, P-110, CTR workstring on trailer. (Left (61) joint kill string in the hole). Made up hanger and crossovers and 10' 4-1/2", 12.6#, L-80, 8rd pup joint. Land hanger.
 (Weatherford) change pipe rams to 4-1/2" pipe rams. Test pipe ram to 300 psi low / 5000 psi high for 20 minutes each. Good test.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Check well pressures. Pumped 50 bbls of 3% KCL down the casing.
TRIP	Tripping	Ran in the hole with (106) joints of 2-7/8", 6.5#, P-110, CTR workstring.
TRIP	Tripping	Pulled out of the hole laying down (69) joints of 2-7/8", 6.5#, P-110, CTR workstring on the trailer.
GOP	General Operations	Removed catwalk from trailer. Moved out trailer and moved in empty trailer. Install catwalk on trailer.
TRIP	Tripping	Pulled out of the hole laying down (89) joints of 2-7/8", 6.5#, P-110, CTR workstring on trailer. (Left (60) joint kill string in the hole). Made up hanger and crossovers and 10' 4-1/2", 12.6#, L-80, 8rd pup joint. Land hanger.
BOPPT	Pressure Test BOP's	(Weatherford) change pipe rams to 4-1/2" pipe rams. Test pipe ram to 300 psi low / 5000 psi high for 20 minutes each. Good test.
GOP	General Operations	Removed catwalk from trailer and move trailer out. Prep location for completion. Secured well till the AM.

Daily Operation Period: 9/2/2016 - 9/2/2016

Operations this Report Period (DOGGR)

Slip and cut drilling line.
 Moved in and setup Pipe Wrangler. Spot tubing racks. Offload pup joints and basket of crossovers. Offload (240) joints 4-1/2" TCPC on to racks. Tallied first row.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
Date 10/3/2016
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Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Time Log		
Code 1	Code 2	Com
GOP	General Operations	Slip and cut drilling line.
GOP	General Operations	Moved in and setup Pipe Wrangler. Spot tubing racks. Offload pup joints and basket of crossovers. Offload (240) joints 4-1/2" TCPC on to racks. Tallied first row.
SWLL	Secure Well	Secured well for the weekend

Daily Operation Period: 9/6/2016 - 9/6/2016

Operations this Report Period (DOGGR)

Serviced rig. Check well pressures. Pumped 50 bbls of 3% KCL down the casing.
Unlanded hanger. Pulled out of the hole laying down (61) joints of 2-7/8", 6.5#, P-110, CTR workstring.
Rigged up (Weatherford) casing tongs. Tallied and picked up 4.5" wireline re-entry guide. 4.5" 8rd X 4.5 TCPC crossover, (Baker) "XN" nipple (3.813", NoGo 3.75"), 10' 4.5", 12.6#, L-80 TCPC pup joint, (Baker) 8-5/8", 36# ArrowSet packer, 10' 4.5", 12.6#, L-80 TCPC pup joint, (1) joint of 4.5", 12.6#, L-80 TCPC tubing, (Weatherford) "X" nipple (3.81"), (1) joint of 4.5", 12.6#, L-80 TCPC tubing, 2' 4.5", 12.6#, L-80 TCPC pup joint, (Baker) sliding sleeve (3.813"), 4' 4.5", 12.6#, L-80 TCPC pup joint, (1) joint of 4.5", 12.6#, L-80 TCPC.
Rigged up (Western) wireline. Ran in the hole with an "X" test tool and set in "XN" nipple.
Rigged up (PROS) testers. Bundle tested packer assembly to 4000 psi for 20 minutes. Good test. Rigged down (PROS).
(Western) ran in with retrieving tool and pulled "X" test tool. Ran in the hole and set Pump thru plug in the "XN" nipple. Rigged down (Western) wireline.
Picked up (2) joints of 4.5", 12.6#, L-80, TCPC tubing. Rigged up (Weatherford) hydrotesters. Hydrotesting at 4000 psi holding for 30 seconds. Continue testing and picking up (48) joints of 4.5", 12.6#, L-80, TCPC tubing.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Check well pressures. Pumped 50 bbls of 3% KCL down the casing.
TRIP	Tripping	Unlanded hanger. Pulled out of the hole laying down (61) joints of 2-7/8", 6.5#, P-110, CTR workstring.
GOP	General Operations	Doby Hagar loaded packer assembly on to Pipe wrangler. Unload (Weatherford) tongs and handling equipment. Change over tubing equipment to 4.5".
SMTG	Safety Meeting	Held safety meeting with Weatherford, Quality tubular's, Ensign, Western wireline, Pros testers, Baker and KEC.
BHAP	Pick up BHA	Rigged up (Weatherford) casing tongs. Tallied and picked up 4.5" wireline re-entry guide. 4.5" 8rd X 4.5 TCPC crossover, (Baker) "XN" nipple (3.813", NoGo 3.75"), 10' 4.5", 12.6#, L-80 TCPC pup joint, (Baker) 8-5/8", 36# ArrowSet packer, 10' 4.5", 12.6#, L-80 TCPC pup joint, (1) joint of 4.5", 12.6#, L-80 TCPC tubing, (Weatherford) "X" nipple (3.81"), (1) joint of 4.5", 12.6#, L-80 TCPC tubing, 2' 4.5", 12.6#, L-80 TCPC pup joint, (Baker) sliding sleeve (3.813"), 4' 4.5", 12.6#, L-80 TCPC pup joint, (1) joint of 4.5", 12.6#, L-80 TCPC.
WIRL	Wireline	Rigged up (Western) wireline. Ran in the hole with an "X" test tool and set in "XN" nipple.
PTST	Pressure Test	Rigged up (PROS) testers. Bundle tested packer assembly to 4000 psi for 20 minutes. Good test. Rigged down (PROS).
WIRL	Wireline	(Western) ran in with retrieving tool and pulled "X" test tool. Ran in the hole and set Pump thru plug in the "XN" nipple. Rigged down (Western) wireline.
PACRU	Run packer	Picked up (2) joints of 4.5", 12.6#, L-80, TCPC tubing. Rigged up (Weatherford) hydrotesters. Hydrotesting at 4000 psi holding for 30 seconds. Continue testing and picking up (48) joints of 4.5", 12.6#, L-80, TCPC tubing. Secured well till the AM.

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HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
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Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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Daily Operation Period: 9/7/2016 - 9/7/2016

Operations this Report Period (DOGGR)

Serviced rig. Checked well pressures. Pumped 50 bbls of 3% KCL down the casing. Pumped 15 bbls of 3% KCL down the tubing. Opened well. Continued hydrotesting (47) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi. Pulled out test tools and filled the tubing with 15 bbls of 3% KCL. Make up test tools. Continued hydrotesting (40) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi. Pulled out test tools and filled the tubing with 20 bbls of 3% KCL. Make up test tools. Continued hydrotesting (10) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi. Started getting a little gas from tubing. Pulled out test tools and filled the tubing with 50 bbls of 3% KCL. Make up test tools. Continued hydrotesting (24) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi.

Time Log

Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
SMTG	Safety Meeting	Held safety meeting with Ensign, Baker, Weatherford and Quality tubular's.
WKLL	Kill Well	Serviced rig. Checked well pressures. Pumped 50 bbls of 3% KCL down the casing. Pumped 15 bbls of 3% KCL down the tubing. Opened well.
PACRU	Run packer	Continued hydrotesting (47) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi.
WKLL	Kill Well	Pulled out test tools and filled the tubing with 15 bbls of 3% KCL. Make up test tools.
PACRU	Run packer	Continued hydrotesting (40) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi.
WKLL	Kill Well	Pulled out test tools and filled the tubing with 20 bbls of 3% KCL. Make up test tools.
PACRU	Run packer	Continued hydrotesting (10) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi. Started getting a little gas from tubing.
WKLL	Kill Well	Pulled out test tools and filled the tubing with 50 bbls of 3% KCL. Make up test tools.
PACRU	Run packer	Continued hydrotesting (24) joints of 4.5", 12.6#, L-80 TCPC tubing. Testing to 4000 psi.
SWLL	Secure Well	Secured well till the AM.

Daily Operation Period: 9/8/2016 - 9/8/2016

Operations this Report Period (DOGGR)

Serviced rig. Check well pressures. Pumped 50 bbls of 3% KCL down the tubing. Opened well. Continued running in the hole with (10) joints of 4.5", 12.6#, L-80, TCPC tubing. Hydro testing to 4000 psi. Changed cups on hydrotest tools. Continued running in the hole with (32) joints of 4.5", 12.6#, L-80, TCPC tubing. Quality Tubular's cleaned, inspected and doped every connection. Tallied and picked up (10', 4', 3') 4.5", 12.6#, L-80, TCPC pup joints. Made up hanger. Landed hanger and hydrotested to 4000 psi. Rigged up circulating equipment. Pumped 108 bbls of packer fluid followed by 42 bbls of 3% KCL. Rigged down circulating equipment. Set 8-5/8", 36# D&L packer at 6,920' (COE) with 13K compression. Rigged up (Western) wireline unit. Ran in the hole with retrieving tool and pulled "XD" pump thru plug from "XN" nipple at 6.874'. Pulled out of the hole. Ran in the hole and set "PX" pull in the "XN" nipple. Pulled out of the hole. Secure well till the AM.

Time Log

Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting
SMTG	Safety Meeting	Held safety meeting with Ensign, Baker, Weatherford and Quality Tubular's.
WKLL	Kill Well	Serviced rig. Check well pressures. Pumped 50 bbls of 3% KCL down the tubing. Opened well.

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
 Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
 A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
 Date 10/3/2016
(Month, day, year)
 Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020
 Signature _____

History must be complete in all detail. Use this form to report all operations during drilling and testing of the well or during re-drilling 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.

Time Log		
Code 1	Code 2	Com
PACRU	Run packer	Continued running in the hole with (10) joints of 4.5", 12.6#, L-80, TCPC tubing. Hydro testing to 4000 psi. Changed cups on hydrotest tools. Continued running in the hole with (32) joints of 4.5", 12.6#, L-80, TCPC tubing. Quality Tubular's cleaned, inspected and doped every connection. Tallied and picked up (10', 4', 3') 4.5", 12.6#, L-80, TCPC pup joints. Made up hanger. Landed hanger and hydrotested to 4000 psi.
GOP	General Operations	Rigged down (Weatherford) hydrotester.
WKLL	Kill Well	Rigged up circulating equipment. Pumped 108 bbls of packer fluid followed by 42 bbls of 3% KCL. Rigged down circulating equipment.
GOP	General Operations	Rigged down (Weatherford) casing tongs and tubing equipment.
PACS	Set packer	Set 8-5/8", 36# D&L packer at 6,920' (COE) with 13K compression.
WIRL	Wireline	Rigged up (Western) wireline unit. Ran in the hole with retrieving tool and pulled "XD" pump thru plug from "XN" nipple at 6,874'. Pulled out of the hole. Ran in the hole and set "PX" pull in the "XN" nipple. Pulled out of the hole. Secure well till the AM.

Daily Operation Period: 9/9/2016 - 9/9/2016

Operations this Report Period (DOGGR)

(Western) ran in the hole with prong and set in PX plug at 6,874'. Pulled out of the hole. Ran in the hole with shifting tool and opened sleeve at 6,833'. Pulled out of the hole.

Rigged up circulating equipment. Filled well with 88 bbls of 3% KCL and circulated for 45 minutes. Rigged down circulating equipment.

(Western) wireline ran in the hole with shifting tool to close the sleeve at 6,833'. Could not close the sleeve or shear off. Worked wireline. Made up wireline cutter and dropped. Cut wireline and pulled out of the hole. Retrieved cutter. Rigged down (Western) wireline.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
SMTG	Safety Meeting	Held pre job safety meeting with Ensign, Western and Baker.
WKLL	Kill Well	Serviced rig. Check well pressures. Opened well.
WIRL	Wireline	(Western) ran in the hole with prong and set in PX plug at 6,874'. Pulled out of the hole. Ran in the hole with shifting tool and opened sleeve at 6,833'. Pulled out of the hole.
GOP	General Operations	Rigged up circulating equipment. Filled well with 88 bbls of 3% KCL and circulated for 45 minutes. Rigged down circulating equipment.
WIRL	Wireline	(Western) wireline ran in the hole with shifting tool to close the sleeve at 6,833'. Could not close the sleeve or shear off. Worked wireline. Made up wireline cutter and dropped. Cut wireline and pulled out of the hole. Retrieved cutter. Rigged down (Western) wireline. Secured well till the AM.

Daily Operation Period: 9/10/2016 - 9/10/2016

Operations this Report Period (DOGGR)

Serviced rig. Checked well pressures. Opened well.

Rigged (Western) wireline. Made up (Western) wireline fishing tools. Decision was made to use different fishing tools. Made up (Weatherford) 3-5/8", Overshot with 1-3/4" grapple and extension. Ran in the hole to and fish Shifting tool. Latched on to fish. Pulled out of the hole with fish.

Inspected shifting tool. Reran shifting tool and shifted sleeve close. Pressured up on the annulus to verify the sleeve was closed. Held 1000 psi for 20 minutes. Bled off casing. Pressured up on tubing to verify plug was set. Held 3500 psi for 20 minutes. Bled off tubing. Rigged down

(Western) wireline unit.

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

Rec'd 10-26-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator Southern California Gas Company Field Aliso Canyon County Los Angeles
 Well Fernando Fee 35 A Sec. 34, T03N, R16W, S.B.B.&M.
 A.P.I. No. 03721457 Name Tom McMahon Title SIMP Project Manager
(Person submitting report) (President, Secretary, or Agent)
 Date 10/3/2016
(Month, day, year)
 Signature _____
 Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number 714-398-5020

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.

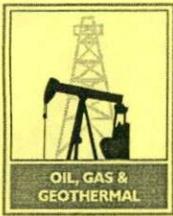
Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Checked well pressures. Opened well.
WIRL	Wireline	Rigged (Western) wireline. Made up (Western) wireline fishing tools. Decision was made to use different fishing tools. Made up (Weatherford) 3-5/8", Overshot with 1-3/4" grapple and extension. Ran in the hole to and fish Shifting tool. Latched on to fish. Pulled out of the hole with fish. Inspected shifting tool. Reran shifting tool and shifted sleeve close. Pressured up on the annulus to verify the sleeve was closed. Held 1000 psi for 20 minutes. Bled off casing. Pressured up on tubing to verify plug was set. Held 3500 psi for 20 minutes. Bled off tubing. Rigged down (Western) wireline unit. Secured well for the weekend.

Daily Operation Period: 9/12/2016 - 9/12/2016

Operations this Report Period (DOGGR)

Rigged up (PROS) tester. Tested casing annulus to 1000 psi for one hour. Lost 7 psi in one hour. Bled off casing. Tested tubing to 3,700 psi for one hour. Lost 16 psi in one hour. Bled off tubing. Rigged down (PROS) testers. Test was witnessed by Chris Phillips (DOGGR).
 Installed BPV. Loaded out tubing equipment. Rigged out workflow.
 Nipped down 11" Annular and double gate.
 (Cameron) nipped up 4-1/16" 5M production tree. Tested void 300 psi low / 5000 psi high for 20 minutes each.. Shell tested tree to 5000 psi for 20 minutes. Rigged out (Cameron)
 Load out equipment with crane on to trailers. Rig down rig.

Time Log		
Code 1	Code 2	Com
SMTG	Safety Meeting	Held safety meeting.
WKLL	Kill Well	Serviced rig. Checked well pressures. Opened well.
PTST	Pressure Test	Rigged up (PROS) tester. Tested casing annulus to 1000 psi for one hour. Lost 7 psi in one hour. Bled off casing. Tested tubing to 3,700 psi for one hour. Lost 16 psi in one hour. Bled off tubing. Rigged down (PROS) testers. Test was witnessed by Chris Phillips (DOGGR).
RURD	Rig Up/Down	Installed BPV. Loaded out tubing equipment. Rigged out workflow.
BOPR	Remove BOP's	Nipped down 11" Annular and double gate.
WHDI	Install Wellhead	(Cameron) nipped up 4-1/16" 5M production tree. Tested void 300 psi low / 5000 psi high for 20 minutes each.. Shell tested tree to 5000 psi for 20 minutes. Rigged out (Cameron)
RURD	Rig Up/Down	Load out equipment with crane on to trailers. Rig down rig.



CENTRAL 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 216-0539

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
November 07, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 11/2/2016, by **Mark Davis**, a representative of the supervisor.

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

DECISION:

APPROVED

MD/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By

Patricia A. Abel, District Deputy

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

Operator: <u>SO. CAL GAS COMPANY</u>				Well: <u>"FERNANDO FEE" 35A</u>	
Sec: <u>34</u>	T: <u>3MIG</u>	R: <u>SB</u>	B&M: <u>SB</u>	API No.: <u>037-21457</u>	Field: <u>ALISO CANYON</u>
County: <u>LOS ANGELES</u>				Witnessed/Reviewed on: <u>11-2-16</u>	

MARK DALIC, representative of the supervisor, was present from 1420 to 1720.
 Also present were: RICH DUDLEY-RIVAL

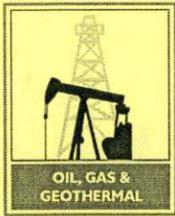
Casing record of the well:

The Internal MIT was performed for the purpose of pressure testing the 8 5/8" casing above 6906'
 (2) (prior to injecting fluid) 4 1/2" TUBING ABOVE 6922'

The Internal MIT is approved since it indicates that the 8 5/8" casing has mechanical integrity above 4 1/2" TUBING 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. START PRESSURE, 1107 PSI 8 PSI
8 5/8" ANNULUS; END PRESSURE, 1101 PSI LOSS
4 1/2 TUBING PLUG @ 6922', START: 3784
PACKER @ 6906', END



FEDERAL 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 216-0528

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
November 03, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **10/31/2016**, by **Clifford R. Knight**, a representative of the supervisor.

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

DECISION:

APPROVED

CRK/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By 

Patricia A. Abel, District Deputy

API No. 037-21457

ION OF OIL, GAS, AND GEOTHERMAL RESOURCES

T 216-0528

BLOWOUT PREVENTION EQUIPMENT MEMO

12,1

Operator SoCal Gas Well Fernando Fee 35A Sec 34 T. 3N R. 16W
 Field Aliso Canyon County Los Angeles Spud Date _____
 VISITS: Date 10-31-16 Engineer C. Knight Time (1030 to 1130) Operator's Rep. Gregg Ross Title RSS
 1st _____
 2nd _____
 Contractor Rival Rig # 9 Contractor's Rep. & Title Lupe Reyes (Derrick Man)
 Casing record of well: _____

OPERATION: Testing (inspecting) the blowout prevention equipment and installation. Critical well? Y N
 DECISION: The blowout prevention equipment and its installation on the 8 5/8 " casing are approved.

Proposed Well Opns: Rework MACP: _____ psi
 Hole size: _____ " fr. _____ ' to _____ ' & _____ " to _____ ' & _____ " to _____ '
 REQUIRED BOPE CLASS: Class III SM

CASING RECORD OF BOPE ANCHOR STRING					Cement Details		Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at			Casing	Annulus
<u>8 5/8</u>	<u>35 #</u>	<u>N80/K-55</u>						

BOP STACK						TEST DATA							
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
<u>A</u>	<u>CSO</u>	<u>Schaffer</u>	<u>GK</u>	<u>11</u>	<u>5M</u>		<u>9.86</u>						
<u>Rd</u>	<u>1 1/2</u>	<u>Schaffer</u>	<u>LXT</u>	<u>11</u>	<u>5M</u>		<u>2.8</u>						
<u>Rd</u>	<u>CSO</u>	<u>Schaffer</u>	<u>LXT</u>	<u>11</u>	<u>5M</u>		<u>2.8</u>						

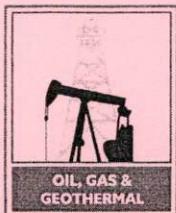
ACTUATING SYSTEM				TOTAL:	AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>3,000</u> psi				<u>16.4</u>	Connections						
Total Rated Pump Output _____ gpm Fluid Level _____					No.	Size (in.)	Rated Press	Weld	Flange	Thread	Test Press.
Distance from Well Bore <u>50</u> ft. <u>50%</u>											
Accum. Manufacturer		Capacity	Precharge	Fill-up Line							
1 <u>Koomey Type</u>		<u>80</u> gal.	<u>1,000</u> psi	1 Kill Line		<u>2</u>	<u>5M</u>				<u>X</u>
2		gal.	psi	2 Control Valve(s)		<u>3</u>	<u>5M</u>		<u>X</u>		

CONTROL STATIONS				Elec.	Hyd.	Pneu.	1	3	3	3
1 Manifold at accumulator unit					<u>X</u>		<u>1*</u>	Aux. Pump Cnct.	<u>5M</u>	<u>X</u>
1 Remote at Driller's station						<u>X</u>	1 Choke Line	<u>5M</u>	<u>X</u>	
Other:							2 Control Valve(s)	<u>5M</u>	<u>X</u>	

EMERG. BACKUP SYSTEM				Press.	Wkg. Fluid	1	3	3	3	3
6 N ₂ Cylinders							1 Pressure Gauge			<u>X</u>
Other:							2 Adjstble Choke(s)	<u>5M</u>	<u>X</u>	
1	L=	<u>55</u>	"	<u>2,100</u>	<u>6.43</u>	gal.	2 Bleed Line			
2	L=	"	"	<u>2,550</u>	<u>9.34</u>	gal.	Upper Kelly Cock			
3	L=	"	"	<u>2,600</u>	<u>9.65</u>	gal.	Lower Kelly Cock			
4	L=	"	"	<u>2,550</u>	<u>9.34</u>	gal.	Standpipe Valve			
5	L=	"	"	<u>2,550</u>	<u>9.34</u>	gal.	Stndpipe Pres. Gau.			
6	L=	<u>4</u>	"	<u>2,700</u>	<u>10.27</u>	gal.	2 Pipe Safety Valve	<u>1 1/2 2 1/8</u>	<u>5M</u>	
TOTAL:				<u>54.37</u>	gal.		1 Internal Preventer	<u>2 1/8</u>	<u>5M</u>	

HOLE FLUID MONITORING EQUIPMENT			Alarm Type		Class	Hole Fluid Type	Weight	Storage Pits (Type & Size)
	Audible	Visual						
Calibrated Mud Pit					<u>A</u>	<u>Polymer</u>	<u>8.5</u>	<u>830 bbl tanker Tank</u>
Pit Level Indicator					<u>B</u>			
Pump Stroke Counter					<u>C</u>			
Pit Level Recorder								
Flow Sensor								
Mud Totalizer								
Calibrated Trip Tank								
Other:								

REMARKS AND DEFICIENCIES:
X 1 Rated 5M w/ Flanged connections



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

No. P 216-0270

PERMIT TO CONDUCT WELL OPERATIONS

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

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

Ventura, California
 October 26, 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 "**Fernando Fee**" **35A**, A.P.I. No. **037-21457**, Section **34**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **10/25/2016**, received **10/26/2016** has been examined in conjunction with records filed in this office. (Lat: **34.308737** Long: **-118.544116** 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 **8 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. A pressure test is conducted to demonstrate the mechanical integrity of the **8 5/8"** casing and injection assembly.
4. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
5. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
6. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
 - b. Witness a pressure test of the **8 5/8"** casing and the injection assembly.

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.

Well #: "Fernando Fee" 35A

API #: 037-21457

Permit : P 216-0270

Date: October 26, 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:
- Conduct further investigation and demonstrate to the Division's satisfaction that the abnormal finding is not an indicator of a lack mechanical integrity;
 - Remediate the well to the Division's satisfaction; or
 - 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:
- 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
 - 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:

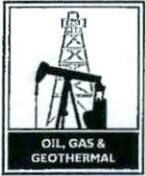
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;
- 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 10-26-16 DOGGR Ventura.

FOR DIVISION USE ONLY		
Bond	Forms	
	OGD114	OGD121
	CAL V	115 V
	WIMS	

Pa16-0270

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 Fernando Fee 35A, API No. 037-21457
 (Check one)

Sec. 34, 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: 7232 feet.

The effective depth is: 7223 feet.

Present completion zone(s): Sesnon
 (Name)

Anticipated completion zone(s): Same
 (Name)

Present zone pressure: storage psi.

Anticipated/existing new zone pressure: storage psi.

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

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

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

- 1) MIRU, Top fill annulus with 8.5ppg completion fluid.
- 2) Unland tubing and pull tubing in slight tension.
- 3) Open sliding sleeve, circulate tubing and annulus.
- 4) Release completion packer, reset packer and land tubing.
- 5) Install tubing plug and test tubing to 3700psi for 1 hour. Test annulus to 1000psi for 1 hour.
- 6) RDMO

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 Mark Ghann-Amoah	Telephone Number: (806) 401-2979	Signature 	Date 10/25/16
Individual to contact for technical questions: Mark Ghann-Amoah	Telephone Number: (806) 401-2979	E-Mail Address: mghann-amoah@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.

**Well
Fernando Fee 35A**

API #: 04-037-21457-00
Sec 34, T3N, R16W

Proposed (No Inner String Needed)

Operator: So. California Gas Co.

13-3/8" TOC Surface

17-1/2" Hole (0' - 812')

Surface Casing
13-3/8", 64.5#, K-55
0' - 790'

CMT'D w/ 560 CF + 100 SKS,
Good CMT Returns to Surface

Tubing
4-1/2", 12.6#, L-80
0' - 6900'
3-1/2", 9.3#, L-80
6900' - 6970'

Lease: Fernando Fee
Field: Aliso Canyon
Status: Active Gas Storage
BFW:
USDW:

Ground Elevation: 1674' asl
Datum to Ground: 15' KB

Spud Date: 7/16/1974
Completion Date: 8/18/1974

790'

8-5/8" ETOC 879'

11" Hole (812' - 7039')

786' Four (4) 1/2" Holes
(Test, 7/22/1974)

Junk: Cone & nose fl hole
opener @ 7232' (8/13/74).
(1) 3/4" x 3-1/4" slips section,
3" of TBG seal divider (gulde
ring 5-1/2" OD), & 2" of X-
locking mandrel fishing neck
@ 7223' (8/4/78)

Production Casing
8-5/8"
0' - 5741' 36#, K-55
5741' - 7039' 36#, N-80

CMT'D w/ 1595 CF

6900' 4-1/2" x 3-1/2" X-Over
6905' Sliding Sleeve (2.812" seal bore)
6950' 8-5/8" Arrow Set PCKR
6968' "XN" No-Go Nipple (2.75" seal-bore w/ 2.635" No-Go)
6970' Wire-line Re-entry Guide

Four (4) 1/2" Holes 6938'
(2 CF CMT SQZ'D Away, 7/29/1978)

7027' Four (4) 1/2" Holes (190 SKS CMT SQZ'D Away, 8/9/1974)
7029' Four (4) HPF (8/10/1974) WSO

14" Hole (7039' - 7189')

*mp e,
6725'*

Liner Perfs:
7014' - 7016' Tell Tale WWS
7028' - 7223' 0.018" Gru-V-Kut WWS

Gravel Packed w/ 122 CF

Liner
6-5/8", 24#, K-55
6990' - 7223'

7-5/8" Hole (7189' - 7232')

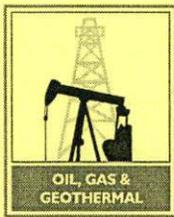
7223' Junk lost in hole (8/4/78)
7232' Junk pushed to TD (8/13/74)

TD 7232'
TVD (7015')
Directionally Drilled: Yes (TD is 407' W, 1075' N of Surf)

Top of Zone Markers md (tvd)		
A1	3847'	(3835')
UP	4902'	(4820')
LP	5304'	(5192')
UDA1	5724'	(5584')
LDA	6416'	(6234')
MP	6725'	(6528')
S1	6963'	(6756')
S4	7040'	(6830')
S8	7108'	(6895')
S12	7190'	(6974')

Prepared by: MAM (4/5/2016)
Updated by: LD (7/12/2016)

InteAct



URAL RESOURCES AGENCY OF CALIFORNI
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 216-0372

REPORT ON OPERATIONS

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

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

Ventura, California
October 12, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 8/19/2016, by **Curtis M. Welty**, a representative of the supervisor.

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

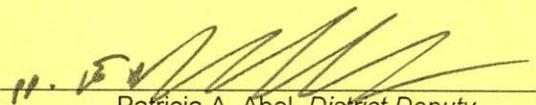
DECISION:

APPROVED

CMW/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By 

Patricia A. Abel, District Deputy

MD826.

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

16, 1

Operator: Southern California Gas Company					Well: "Fernando Fee" 35A				
Sec. 34	T. 3N	R. 16W	B.&M. SB	API No.: 037-21457			Field: Aliso Canyon		
County: Los Angeles					Witnessed/Reviewed on: August 19, 2016				

Curtis Welty
, representative of the supervisor, was present from 0630 to 1730.

Also present were:

Casing record of the well:

The Internal MIT was performed for the purpose of Block Testing per Order 1109, as detailed below.

The Internal MIT is approved, indicating acceptable integrity of the 8-5/8" casing.

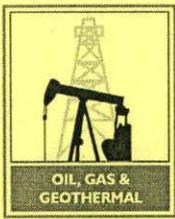
The Internal MIT is not approved due to the following reasons: (specify)

INDICATE WHERE PACKER WAS SET AND HOW LONG PRESSURE WAS HELD ALONG WITH ANY BLEED-OFF DATA.

Block Testing per Order 1109. These are Tests 1-6 of 6 tests:

START	END	Packer Depth
07:18 3,716 psi	08:18 3,693 psi	1,000'
09:13 3,302 psi	10:13 3,287 psi	2,500'
10:55 2,656 psi	11:55 2,640 psi	3,500'
12:41 2,284 psi	13:41 2,267 psi	4,500'
14:40 1,965 psi	15:40 1,949 psi	5,745'
16:20 1,579 psi	17:20 1,537 psi	5,745' to bridge plug at 6,988'

Each test was for 60 minutes and held 115% of reservoir pressure against the packer at the associated depth and the 8 5/8" casing.



STATE OIL AND GAS SUPERVISOR
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 216-0481

REPORT ON OPERATIONS

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

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

Ventura, California
October 12, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 8/30/2016, by **Bryan Norman**, a representative of the supervisor.

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

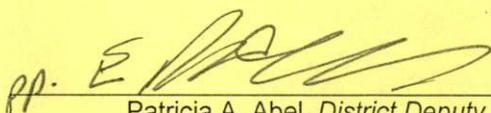
DECISION:

APPROVED

BWN/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By *PA* 

Patricia A. Abel, District Deputy

MD106.

BLOWOUT PREVENTION EQUIPMENT TEST MEMO

12, 1

Operator Sothern California Gas Co. Well Fernando Fee 35A Sec. 34 T. 03N R. 16W
 Field Aliso Canyon County Los Angeles Spud Date _____

VISITS: Date Engineer Time Operator's Rep. Title
 1st 08/30/2016 Bryan Norman (1000 to 1100) Jeff Sandaval WSM
 2nd _____ (_____ to _____) _____ _____
 Contractor Ensign Rig # 341 Contractor's Rep. & Title _____
 Casing record of well: _____

OPERATION: Testing (inspecting) the blowout prevention equipment and installation. Critical well? Y N
 DECISION: The blowout prevention equipment and its installation on the 8-5/8 " casing are approved.

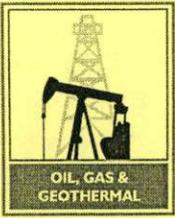
Proposed Well Opns: Rework . MACP: _____ psi **REQUIRED BOPE CLASS: III 5M**
 Hole size: _____ " fr. _____ ' to _____ ' , _____ " to _____ ' & _____ " to _____ ' .

CASING RECORD OF BOPE ANCHOR STRING					Cement Details		Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at			Casing	Annulus

BOP STACK							TEST DATA						
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	CSO	Shaffer	Spherica	11"	5M		18.67						
PR	2-7/8	Shaffer	LXT	11"	5M		2.8						
BR	CSO	Shaffer	LXT	11"	5M		2.8						

ACTUATING SYSTEM				TOTAL: 24.27		AUXILIARY EQUIPMENT				
Accumulator Unit(s) Working Pressure <u>2900</u> psi						Connections				
Total Rated Pump Output _____ gpm Fluid Level _____						Weld Flange Thread				
Distance from Well Bore <u>60</u> ft. OK										
Accum. Manufacturer		Capacity	Precharge	Fill-up Line						
1	Koomey	80gal.	1000psi	Kill Line						
2		gal.	psi	Control Valve(s)		2	2"	5M	X	
CONTROL STATIONS				Check Valve(s)		1		5M	X	
Manifold at accumulator unit				Aux. Pump Connect.				5M	X	
Remote at Driller's station				Choke Line			3"	5M	X	
Other:				Control Valve(s)		11		5M	X	
EMERG. BACKUP SYSTEM				Pressure Gauge					X	
N ₂ Cylinders		1 L= 55 "	2800	Adjustable Choke(s)		2	3"	5M	X	
Other:		2 L= 55 "	2800	Bleed Line			3"		X	
		3 L= 55 "	2700	Upper Kelly Cock						
		4 L= 55 "	2850	Lower Kelly Cock						
		5 L= "		Standpipe Valve						
		6 L= "		Standpipe Press. Gau.						
TOTAL: 43 ga				Pipe Safety Valve			2.87	5M		
				Internal Preventer			2.87	5M		

HOLE FLUID MONITORING			Alarm Type		Class	Storage Pits (Type & Size)		
	Audible	Visual				Hole Fluid Type	Weight	
Calibrated Mud Pit					A	3% KCl	8.5	Two 400 bbl frac tanks, 100 bbl mud pump
Pit Level Indicator					B			900 bbl total fluid.
Pump Stroke Counter						REMARKS AND DEFICIENCIES: Inpection only. Test pressures 300 low 5000 high Anular preventor tested to 3500. 20 min tests		
Pit Level Recorder					C	Violation Corrected: Valve on choke manifold leaking		
Flow Sensor								
Mud Totalizer								
Calibrated Trip Tank								
Other:								



CENTRAL 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 216-0407

REPORT ON OPERATIONS

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

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

Ventura, California
September 14, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 9/12/2016, by **Chris Phillips**, a representative of the supervisor.

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

DECISION:

APPROVED

CPH/TKC

Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By Patricia A. Abel

Patricia A. Abel, District Deputy

CK912.

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

T 216-0407
16,1

Casing and Tubing Pressure Test

Operator: So. Cal. Gas Co. Well Designation: Fernando Fee 35A

Sec. 34, T. 03N, R. 16W, S. B. B.M. API No. 037-21457 Field: Aliso Canyon

County: Los Angeles Witnessed on: 12-Sep-2016 Chris Phillips, representative

of the supervisor, was present from 0700 to 0955.

Also Present were Jeff Sandoval - WSM, Art Elvira - rig foreman

Casing Record of the Well:

See NOI

The operations were performed for the purpose of Pressure testing 8-5/8" casing, 4-1/2" tubing

Pressure Test of the Casing

Packer/ Bridge Plug at packer at 6920'
Casing Pressured with 3% KCl, 8.5 #/gal
Casing Pressure Start PSI: 1102
Casing Pressure End PSI: 1095
Pressure Held 60 Min. Total drop in Pressure

Well Type Gas Storage
Volume _____
Start Time: 0846
End Time: 0946
_____ psi _____ %.

Test Result: Good Not Good

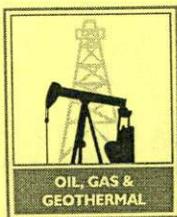
Pressure Test of the Tubing

Packer/ Bridge Plug at Tubing plug at 6874'
Tubing Pressured with 3% KCl, 8.5 #/gal
Tubing Pressure Start PSI: 3813
Tubing Pressure End PSI: 3797
Pressure Held 60 Min. Total drop in Pressure

Well Type Gas Storage
Volume _____
Start Time: 0721
End Time: 0821
_____ psi _____ %.

Test Result: Good Not Good

Remarks: All 4-1/2" tubing.



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 216-0325

REPORT ON OPERATIONS

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

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

Ventura, California
August 24, 2016

Your operations at well "**Fernando Fee**" 35A, A.P.I. No. 037-21457, Sec. 34, T. 03N, R. 16W, SB B.&M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 8/3/2016, by **Randall Morlan**, a representative of the supervisor.

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

DECISION:

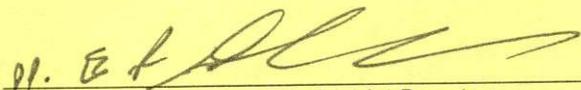
DEFERRED PENDING REVIEW BY THE DIVISION'S SAFETY TEAM.

RM/TKC

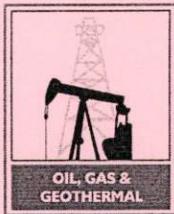
Kenneth A. Harris Jr.

State Oil and Gas Supervisor

By



Patricia A. Abel, District Deputy



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
 July 20, 2016

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

Your proposal to **Rework** well "**Fernando Fee**" **35A**, A.P.I. No. **037-21457**, Section **34**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **7/12/2016**, received **7/14/2016** has been examined in conjunction with records filed in this office. (Lat: **34.308737** Long: **-118.544116** Datum:**83**)

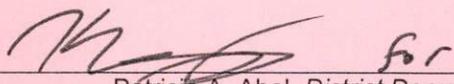
THE PROPOSAL IS APPROVED PROVIDED:

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 **8 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 Temperature and Noise log are run on the well from the packer to surface.
5. **A Casing Wall Thickness Inspection, Cement Bond Log, and a Multi-Arm Caliper Inspection** shall be performed to demonstrate that the **8 5/8"** and **6 5/8"** (if installed) casing has integrity.
6. Prior to commencing injection, a pressure test is conducted to demonstrate the mechanical integrity of the **8 5/8"** or **6 5/8"** casing.
7. Injection shall be through tubing and packer only. Injection or withdrawal through the casing is not permitted.
8. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
9. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the installed blowout prevention equipment prior to commencing **downhole** operations.
 - b. Witness a pressure test of the tubing and **8 5/8"** or **6 5/8"** casing prior to commencing injection.

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

Kenneth A. Harris Jr.
 State Oil and Gas Supervisor

Engineer Clifford R. Knight
 Office (805) 654-4761

By 
 Patricia A. Abel, District Deputy

CRK/crk

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

NOTE:

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

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

**ATTACHMENT 1
TO DOGGR ORDER 1109**

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

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

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

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

REQUIRED TESTS FOR EACH WELL IN THE FACILITY

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

a. Temperature Log:

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

b. Noise Log:

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

Step 2: The results of the Temperature Logs and Noise Logs will be independently reviewed by Division engineers. Any unexplained abnormal findings in this set of tests shall be addressed by the Operator in one of the following ways:

- a. Conduct further investigation and demonstrate to the Division's satisfaction that the abnormal finding is not an indicator of a lack mechanical integrity;
- b. Remediate the well to the Division's satisfaction; or
- c. With Division review and approval, remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

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

Step 3: After these tests are completed on the well, and all required action has been completed, the operator shall either:

- a. Conduct the additional tests and evaluations on the well, outlined in Steps 4a through 7a below, in order to gain approval for injecting gas through that well; or
- b. Remove the well from operation and isolate the well from the underground gas storage reservoir in accordance with Steps 4b through 7b below.

REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

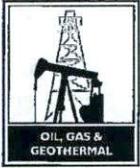
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;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

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

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

REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON

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



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

Rec'd 07-14-16 DOGGR Ventura.

FOR DIVISION USE ONLY	
Bond	Forms
	OGD114 / OGD121
	CAZV WIMS 115V

P216-0138

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 Fernando Fee 35A, API No. 037-21457
(Check one)

Sec. 34, 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: 7232 feet. The effective depth is: 7223 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

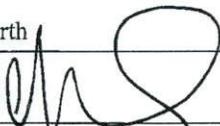
If well is to be redrilled or deepened, show proposed coordinates (from surface location) and true vertical depth at total depth: _____ feet and _____ feet Estimated true vertical depth: _____
(Direction) (Direction)

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

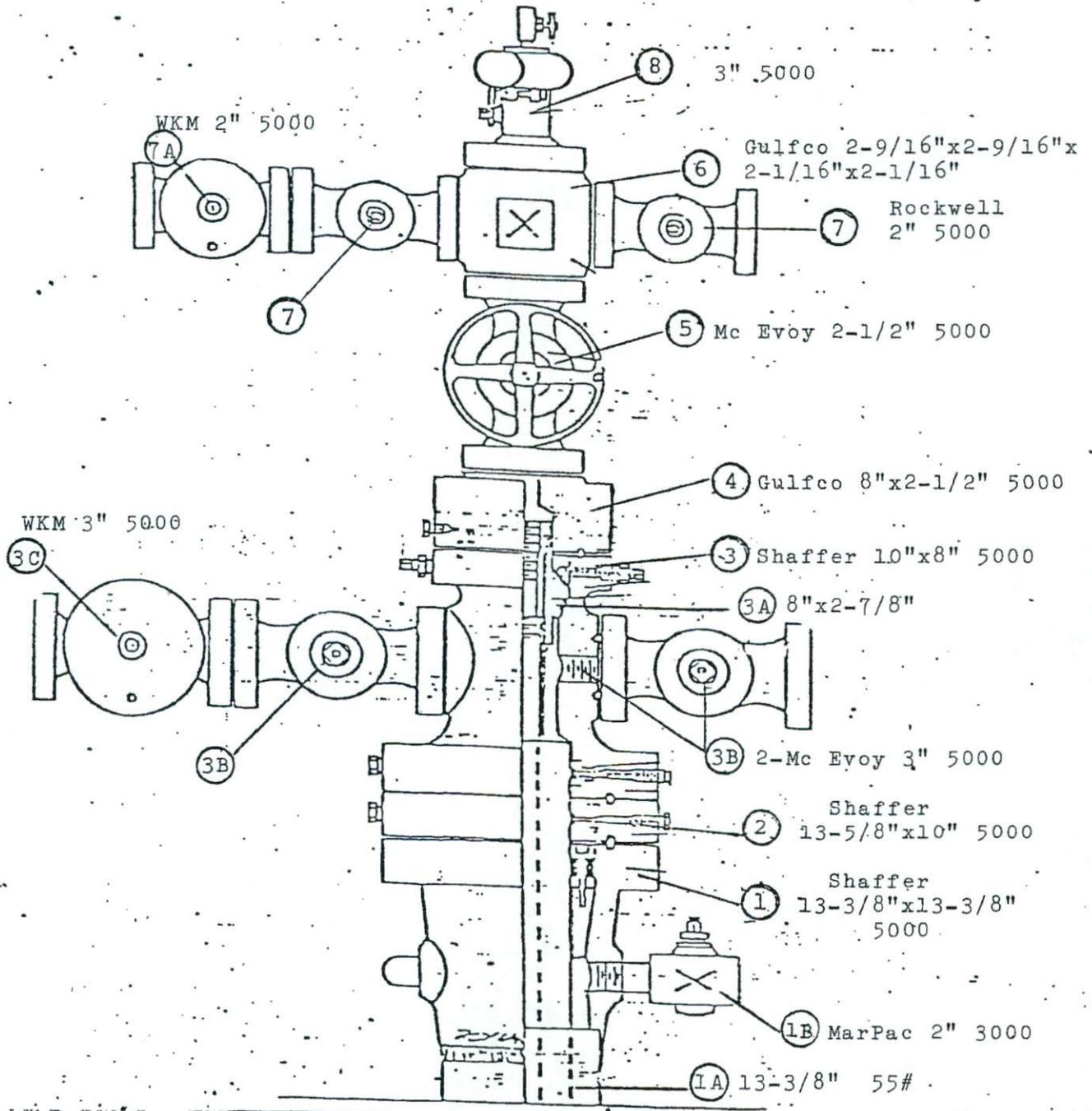
Address P. O. Box 2300	City/State Chatsworth	Zip Code 91313-2300	
Name of Person Filing Notice Mark Ghann-Amoah	Telephone Number: (806) 401-2979	Signature 	Date 07/12/16
Individual to contact for technical questions: Mark Ghann-Amoah	Telephone Number: (806) 401-2979	E-Mail Address: mghann-amoah@semprautilities.com	

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.

CURRENT WELL AD SCHEMATIC

Rec'd 07-14-16 DOGGR Ventura.

TYPE IV



Well Name: IW 66 - Aliso Canyon

Mfgr.: Shaffer & Gulfco

Date Prepared: 11-30-82

WELLHEAD DESCRIPTION

Rec'd 07-14-16 DOGGR Ventura.

Well No. IW-66

Field Aliso

Date Prepared 3-23-81

Wellhead Mfgr. Shaffer

- 1. Casing Head. Shaffer. Size. 13-5/8" x 13-3/8". 5000^{Psi}. Type. RS
 - Slips & Pack-off. 13-5/8" x 8-5/8"
 - A. Surface Csg. Size. 13-3/8". Wt. 55#. Grade. K-55
 - B. Casing Head Valve. Maypac. Size. 2". 3000^{Psi}. Fig. No. CSB-790-JN
- 2. Seal Flange. Shaffer. Size. 13-5/8" x 10". 5000 psi
 - A. Type Seal. Lock screw. Ring. BX160 & R-54
- 3. Tubing Head. Shaffer. Size. 10" x 8". 5000 psi. Type. NA
 - Ring. R-54 & Ring. R-50
 - Outlets. 2"-3-1/8". Sec. Seal. Lock screw
 - Valve Removal Thrd. 3". 8 API
 - A. Tubing Hanger Shaffer. Size. 8" x 2-7/8". Type. AJO
 - B.P.V. Size. 2-7/8". Thrd. 4 LH
 - B. Tubing Head Valves. Mc Evoy. Size. 3". 5000^{Psi}. Fig. No. 129
 - C. Automatic Csg. Valve. WKM. Size. 3". 5000^{Psi}. Fig. No. 115922
- 4. Adapter Seal Flange. Gulfco. Size. 8" x 2-1/2". 5000 psi. Type. AJO
 - A. Ring Size. R-50 & R-27
- 5. Master Valve. Mc Evoy. Size. 2-1/2". 5000. Fig. No. 129
 - 2-1/2" x 2-1/2" x Thru. 2-1/2"
- 6. Xmas Tree Cross. Gulfco. Size. 2-1/16" x 2-1/16" Bore
 - Across. 2-1/16"
- 7. Tubing Wing Valves. 1 Rockwell. Size. 2". 5000^{Psi}. Fig. No. 21055
 - A. Automatic Tbg. Valve. WKM. Size. 2". 5000^{Psi}. Fig. No. 455921
- 8. Unibolt Size. 3" x 3-1/8". 5000^{Psi}. Inside Thrds. NA
- 9. Wt. Landed in Csg. Head. 260,000. Wt. 36#. 8-5/8". Grade. K-55
- 10. Wt. Landed on Doughnut. 35,000. Wt. 2-7/8". 6.5. Grade. J-55
- 11. Tubing Head to Ground Level. 1' Above

CURRENT WELL SCHEMATICS

Rec'd 07-14-16 DOGGR Ventura.

Well Fernando Fee 35A

API #: 04-037-21457-00
Sec 34, T3N, R16W

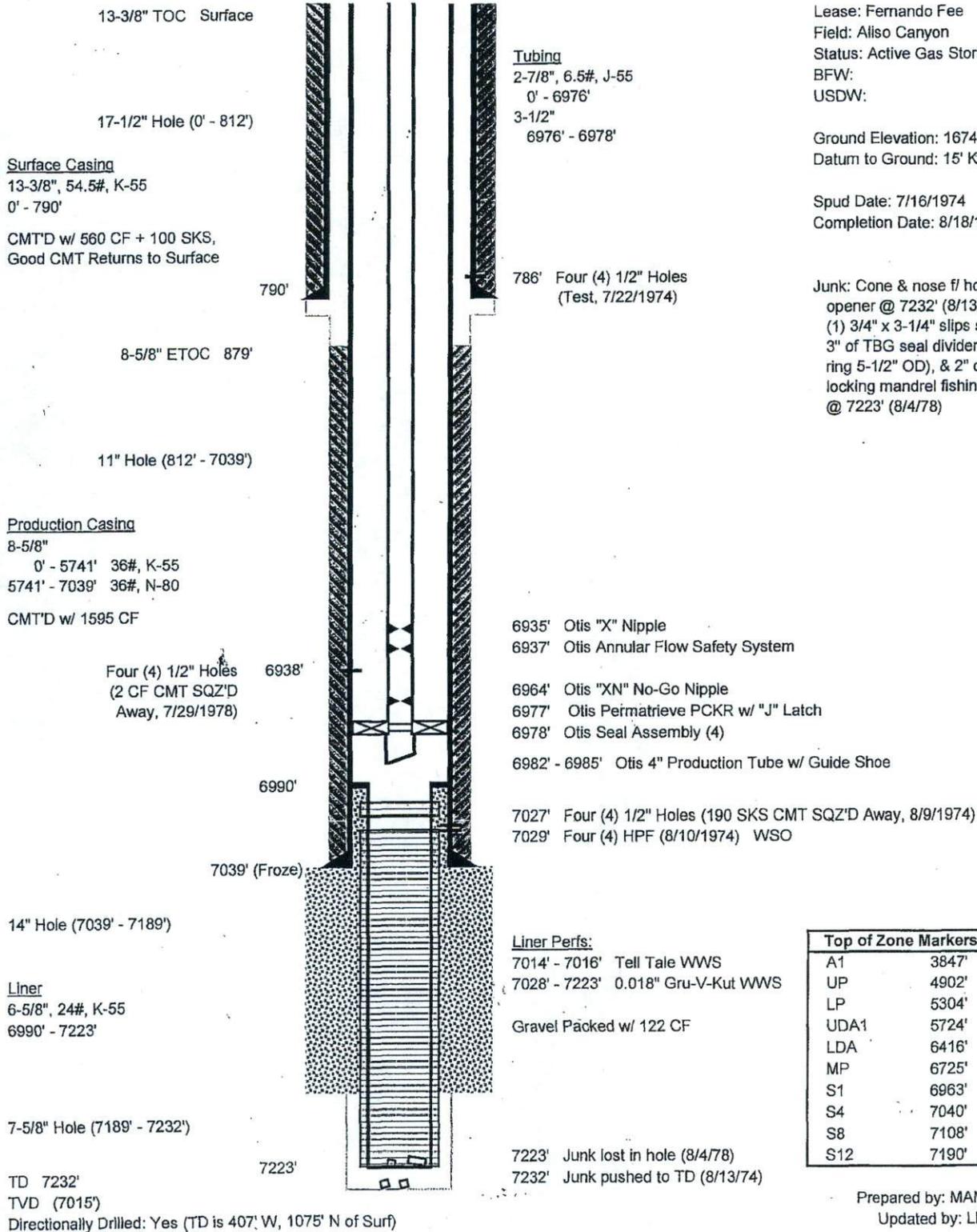
Operator: So. California Gas Co.

Lease: Fernando Fee
Field: Aliso Canyon
Status: Active Gas Storage
BFW:
USDW:

Ground Elevation: 1674' asl
Datum to Ground: 15' KB

Spud Date: 7/16/1974
Completion Date: 8/18/1974

Junk: Cone & nose fl hole
opener @ 7232' (8/13/74).
(1) 3/4" x 3-1/4" slips section,
3" of TBG seal divider (guide
ring 5-1/2" OD), & 2" of X-
locking mandrel fishing neck
@ 7223' (8/4/78)



Top of Zone Markers md (tvd)		
A1	3847'	(3835')
UP	4902'	(4820')
LP	5304'	(5192')
UDA1	5724'	(5584')
LDA	6416'	(6234')
MP	6725'	(6528')
S1	6963'	(6756')
S4	7040'	(6830')
S8	7108'	(6895')
S12	7190'	(6974')

Prepared by: MAM (4/5/2016)
Updated by: LD (7/8/2016)

InteAct

CURRENT TUBING DETAILS

Rec'd 07-14-18 DOGGER Ventura

WELL PROFILE



SOUTHERN CALIFORNIA OPERATOR GAS COMPANY		CASING	LINER	TUBING		
WELL #	I. W. #66			1	2	3
FIELD	Aliso Canyon	SIZE				
COUNTY	Los Angeles	WEIGHT				
STATE	California	GRADE				
DATE	August 8, 1978	THREAD				
	<input type="checkbox"/> NEW COMPLETION <input checked="" type="checkbox"/> WORKOVER	DEPTH				

ITEM NO.	TUBING DETAILS	LENGTH	DEPTH
1.	Kelly Bushing	15.00	15.00
2.	Doughnut	.69	15.69
3.	222 Joints 2 7/8" J-55 8rd Tubing	6909.65	6925.34
4.	Pup Joint 2 7/8" N-80 8rd	10.10	6935.44
5.	Otis "X" Nipple 2 7/8" 2.313" I.D. 8rd	1.10	6936.54
6.	Otis Annular Flow Safety System 2 7/8" 2.313" I.D. 8rd	7.67	6944.21
7.	Baker 20' Blast Joint 2 7/8" 8rd	20.32	6964.53
8.	Otis "XN" Nipple 2 7/8" 8rd 1.79" I.D.	1.20	6965.73
9.	Baker 10' Blast Joint 2 7/8" 8rd	10.05	6975.78
10.	X-Over 2 7/8" 8rd to 3 1/2" 10rd	1.06	6976.84
(15.)	Otis 8 5/8" Permatrieve Packer 4.00" I.D. set by wireline measurement.....		6975.00
11.	Otis "J" Latch 10 Rd	.84	6977.68
12.	Otis Seal Assembly (4) 4.04" O.D. 3.00" I.D.	4.06	6981.74
13.	Otis Production Tube 4.00" O.D. 3.00" I.D.	2.23	6983.97
14.	Guide 4.00" O.D. 3.00" I.D.	.94	6984.91

- Notes -

Tubing landed with 8000# on packer.
 Pulled 25,000# over weight of tubing to check latch.
 2 1/2" XX Plug ran in place in annular flow safety system.

COMMENTS:

SoCal Gas Company



Well Operations Procedure

Fernando Fee 35 A Aliso Canyon Storage Integrity Management Program 7/7/2016 Version 1

Primary Engineer: Mark Ghann-Amoah 818 700-3888 (ofc)/806 401-2979 (mobile)
Alternate Engineer: Brian Vlasko 818 700-3897 (ofc)/714 655-9506 (mobile)
Engineering Supervisor: Jose Iguaz 818 700-3889 (ofc)/661 384-5337 (mobile)
Well Site Supervisor: Jeff Sandoval 661 301-7102 (mobile)
Well Work Superintendent: Mike Volkmar 562 685-3810 (mobile)

Well Data:

API #: 037-21457
Datum: 1689'
KB to GL: 15'
WSO: 7027'
MD: 7223'
TVD: 7005'
PBMD: 7204' **Nature of Plug Back:** 19' of fill - sand

Objective:

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

Geologic Markers:

Zone Top (Formation)	MD (Feet)	TVD (Feet)
UDA2	6052	5890
LDA	6416	6234
MP	6725	6528
S1	6963	6756
S2	6997	6789
S4	7040	6830
S6	7060	6849
S8	7108	6895
S10	7148	6934
S12	7190	6974

SoCal Gas Company



Well Operations Procedure

Casing Data:

Surface Casing: 13 - 3 / 8", 54.5 #, K - 55, Cemented @ 790'
 Production Casing: 8 - 5 / 8", 36 #, K - 55, 0' / 5741'
 ▪ Metal Petal Basket - 4090' / 5530'
 8 - 5 / 8", 36 #, N - 80, 5741' / 7039', Cemented @ 7039'
 ▪ Float shoe - 6949', Metal Petal Basket - 6000' / 7034'
 Production Liner: 6 - 5 / 8", 24 #, K - 55, 6990' / 7223', Wire weld Liner

Tubing Data:

Tubing string: 2 - 7 / 8" J - 55 EUE 8rd, 16' / 6925'
 Pup Joint: 2 - 7 / 8" N - 80 EUE 8rd, 6925' / 6935'
 "X" Nipple: Otis 2 - 7 / 8" 8rd, 2.313" ID, 6935' / 6936'
 SSSV: Otis 2 - 7 / 8" 8rd, 2.313" ID, Annular flow Safety system, 6936' / 6944'
 Blast Joint: Baker 2 - 7 / 8" 8rd, 6944' / 6964'
 "XN" Nipple: Otis 2 - 7 / 8" 8rd, 1.79" ID, 6964' / 6965'
 Blast Joint: Baker 2 - 7 / 8" 8rd, 6965' / 6976'
 Crossover: 2 - 7 / 8" 8rd x 3.5" 10rd
 Packer: Otis 8 - 5 / 8", 4" ID, Permatrieve Packer, 6977' / 6984'
 Otis "J" Latch 10rd
 Otis Seal Assembly (4) 4.04" OD 3"ID
 Otis Production tube 4" OD 3"ID
 WLEG: 4" OD 3"ID 6984' / 6985'

Wellhead:

8" 5M (2 - 1 / 2" Master)
 10" x 8" Shaffer Tubing Head (T-AJO) / 2-7/8" EUE Hanger 5M
 10" Casing Spool 5M
 13-5/8" x 10" DSA 5M
 13-5/8" x 13-3/8" casing head SOW 5M

Current Status:

Idle for inspection

Permit Status:

Pending

SoCal Gas Company



Well Operations Procedure

PROJECT NOTES

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

PRE-RIG WORK

1. De-energize and remove all laterals. Install companion flanges for circulating the well.
→ Install companion flanges for circulating the well.
→ LOTO (lock-out/Tag-out) where required.
2. Ensure there are rig anchors and prepare surface location as required.
3. Ensure correlation log on file or plan for CCL.
4. Well currently has an XN plug at +/-6964'

SoCal Gas Company



Well Operations Procedure

WELLWORK PROGRAM

1. MIRU Ensign double w/o rig w/all equipment – pump, Baker tank, Shaker and mixer.
 - a) Perform JSA, JSP, CW. Safety Review: Talk about possible things that can hurt y'all.
2. Install 2-7/8" Shaffer backpressure valve in tubing hanger. ND tree and NU BOPE.
 - a) Send-in tree components to Cameron for inspection.
3. Install 11" 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.
 - a) 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.
 - b) Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the 2-7/8" pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
 - c) All tests are to be charted and witnessed by a DOGGR representative.
 - d) Pull back pressure valve from tubing hanger.
4. Remove Back Pressure Valve and XN plug in XN Nipple at +/- 6964'
5. Spot 500 bbl Baker tanks and load with HEC polymer.
 - a) Connect pump to the tubing and vent the casing through the choke manifold to the SoCalGas withdrawal system.
 - b) Treat all brine with Biocide, 5 gals/100 bbls
 - c) The tubing volume is ~ 40 bbls
 - d) The tubing/casing annulus is ~ 359 bbls.
6. Release tubing from Otis J-Latch packer at +/- 6977'
 - a) If unable to unset packer assembly at +/- 6977', E-line cut pipe (tubing) at 6910' (+/- 67' above packer), POOH standing back injection string. Fish out rest of injection string.
NOTE: OD's / ID's of injections are on second page.
 - b) Send tubing hanger to Cameron for re-work from 2-7/8" to 4.5"
7. RIH w/ 8-5/8", 36# casing scraper (positive) on 2-7/8" injection string to top of packer at 6977', POOH laying down injection string.
8. RIH w/ retrieving tool to retrieve Otis J-Latch Permatrieve Packer at +/- 6977'.
9. If unable retrieve packer, PU 2-7/8" work string and RIH to mill out packer at +/- 6977', POOH w/ milling assembly.
10. RIH w/ 8-5/8", 36# casing scraper (positive) on 2-7/8" work string to TOL – 6990', POOH

SoCal Gas Company



Well Operations Procedure

11. Rig-up wireline unit(s), necessary connections as required to run the following logs:

- a) Magnetic flux leakage / vertilog from TOL to surface (Baker)
- b) Multi-arm caliper log from TOL to surface
- c) Gyro survey from bottom (7223') to surface

NOTE: Run multi-arm caliper and gyro in tandem if possible

12. MU and RIH with 8-5/8", 36# test packer, RBP and run a pressure integrity test on the 8-5/8" casing from bottom of 8-5/8" casing to surface as per attached pressure test schedule, POOH w/test packer.

➤ NOTE: Follow Pressure Test schedule to avoid over pressuring.

13. RIH w/ 6-5/8" 24# scraper to scrape liner – 6990' / 7223', POOH

14. RIH w/ clean out assembly and clean out well to bottom – 7223', send fill samples to engineer.

15. If vertilog results does not pass, **THEN OPTION A - RUN INNER STRING;**

16. OPTION A (RUN INNER STRING)

- a) RIH w/ 6-5/8" 24# RBP, set in liner blank at +/- 7007' (blank - 6990' / 7014'), sand off, POOH
- b) RIH w/ 8-5/8", 36# stiff assembly (DC/work string/Mill) to TOL, POOH.
- c) RIH w/ new 6-5/8" inner string to be cemented in place as follows;
 - ⚡ **Double up facing cups, float collar, baffle plate, stage collar – All Baker locked**
 - ⚡ Crossover to 6-5/8" 28# LTC/BTC turndown collar casing w/ slip on centralizers w/clamps on every joint/every other joint to surface. **Baker lock first 6 joints from bottom.**
 - ⚡ 6-5/8" 28# LTC/BTC turndown collars x 6-5/8" 28# LTC plug container
- d) MIRU Halliburton cementers, Cement 6-5/8" inner string as follows;
 - ⚡ Install cement head w/wiper plug installed. Test all lines.
 - ⚡ Drop opening plug to sit on baffle, shift stage collar open at 2000psi.
 - ⚡ If stage collar does not open drop emergency plug to shift stage collar open
 - ⚡ Establish circulation w/ 3% KCL brine between 6-5/8" and 8-5/8" casing at 5bpm.
 - ⚡ Pump 20 bbls of mud flush III spacer ahead of cement blend to clean annulus at 5bpm
 - ⚡ Mix and pump 136 bbls of 12.5 ppg Lead cement followed by 16 bbls of 14.8 ppg tail cement at 5 bpm
 - ⚡ **NOTE: Volume based on pumping 130% of annulus volume (6-5/8" Casing volume ~226 bbl, 8-5/8" x 6-5/8" Annulus Volume ~ 117 bbl, surface volume ~ 1bbl)**
 - ⚡ Launch wiper (closing) plug in hydraulic valve to shift stage collar closed and displace to bottom with a total of ~226 bbl of 3% KCL
 - ⚡ Bump plug to 500 psi over circulation pressure.
 - NOTE: If plug bumps, test it. If it holds pressure, that's good. Hold pressure if it does not.
 - ⚡ WOC, when cement is set, bleed of pressure, remove cement head.
- e) Remove existing wellhead and install new wellhead for 6-5/8" cemented casing if necessary
- f) Pressure test new wellhead. Notify DOGGR to witness.
- g) Pressure test 6-5/8" casing and chart. DOGGR to witness

SoCal Gas Company



Well Operations Procedure

- h) Rig-up wireline unit(s) with lubricator as required to run the following logs in tandem:
- ✦ Ultrasonic imager from top of plug on stage collar to surface
 - ✦ Cement bond log from top of plug on stage collar to top of cement
 - ✦ NB: Send copies of all logs to engineering team for review
- i) RIH w/ drill bit for 6-5/8" 28# and drill out stage collar/baffle/float collar/ to TOL – 6990', POOH
- j) RIH w/retrieving head for RBP, Circulate out sand, Release RBP at +/- 7007'.
✦ POOH w/string and lay down RBP.
- k) Rig-up wireline unit(s), necessary connections as required to run the following logs:
- ✦ Gyro survey from bottom to surface
 - ✦ Multi-arm caliper log from TOL to surface
 - ✦ Magnetic flux leakage/vertilog from TOL to surface
- NB: Run gyro and caliper log in tandem if possible
- l) RIH w/new completion string as detailed below and hydro test connections as following; Run 3.5" connections. Install XN plug. Make up testing sub and test BHA to 3700 psi for 5 minutes. Remove test sub and pull XN plug. Continue running 4.5" tubing hydro-testing each connection to 3700psi.
- ➔ WLEG – 3.5" 9.3# L-80 TCPC
 - ➔ XN Nipple – 3.5" 9.3# L-80 TCPC (2.75" seal bore w/2.635" No-Go)
 - ➔ 10' pup – 3.5" 9.3# L-80 TCPC tubing
 - ➔ Production Packer – 3.5" 9.3# x 6-5/8" 28# TCPC Arrow set
 - ➔ 10' pup – 3.5" 9.3# L-80 TCPC tubing
 - ➔ Full joint 3.5" 9.3# L-80 TCPC tubing
 - ➔ Pup joint – 2' 3.5" 9.3# L-80 TCPC
 - ➔ Sliding sleeve – 3.5" 9.3 # L-80 TCPC (2.812" seal bore)
 - ➔ Pup joint – 4' 3.5" 9.3# L-80 TCPC
 - ➔ Crossover – 3.5" 9.3# L-80 TCPC x 4.5" 12.6# L-80 Hydril 513 crossover
 - ➔ Full joint - 4.5" 12.6# L-80 Hydril 513 tubing
 - ➔ 4.5" 12.6# L-80 Hydril 513 tubing to surface
 - ➔ Pup joints - 4.5" 12.6# L-80 Hydril 513 tubing for space-out
 - ➔ Fatigue nipple - 1' 4.5" 12.6# L-80 Hydril 513 (pin x pin)
 - ➔ Tubing hanger with 4-1/2" EUE top box / 4" BPV / 4.5" Hydril 513 bottom box

Notes: Prior to sending completion equipment to well site

- Make up first 5 items (WLEG to 10' pup above packer) 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 pup joint below sliding sleeve, sliding sleeve and pup joint above sliding sleeve 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 Arrow set packer, to be witnessed by Quality Tubulars.
- Packer vendor to provide Force Analysis / Tube Move Calculations prior to sending equipment to well site.

SoCal Gas Company



Well Operations Procedure

- m) Spot 50bbl packer fluid across bottom of tubing string
- n) Land tubing on tubing hanger as per vendor specification.
- NOTE:** Utilize Force Analysis / Tube Move Calculations for packer setting as per WFT engineer.
- o) Set new arrow set packer at +/- 6950
 - ⚡ Confirm good cement across packer, check final depth based on CBL
- p) Rig-up slick line unit and lubricator. Set a plug in the 3-1/2" XN nipple.
- q) Notify DOGGR to witness pressure tests of annulus to 1000 psi and tubing to 3700 psi. Both tests to be an hour in duration and recorded digitally.
- r) RIH and recover plug from XN nipple. RIH and shift the sliding sleeve open.
- s) Install BPV in tubing hanger. Nipple down the Class III 5M BOPE and install the production tree and test to 5000 psig. Remove BPV.
- t) RDMO

17. If vertilog results passes, **THEN OPTION B – NO INNER STRING;**

18. **OPTION B – NO INNER STRING**

- a) MU and RIH w/ 8-5/8", 36# RBP on work string. Set at +/- 6985' (5' above liner top).
- b) Fill hole w/ clean w/o fluid and Pressure Test -1000psi. Sand off – tag to confirm depth.
- c) POOH and lay down RBP retrieving head.
- d) Nipple down 11" Class III 5 M BOPE, tubing spool, and primary pack-off.
 - ⚡ Send wellhead equipment to Cameron for refurbishment
- e) Rig-up wireline unit(s), necessary connections as required to run the following logs:
 - ⚡ Ultrasonic imager from sand cap to surface (SLB)
 - ⚡ Cement bond log from sand cap to top of cement (SLB)
 NB: Send copies of all logs to engineering team for review
- f) Reinstall tubing spool and the 11" Class III BOPE and function test. Inspect and retest all connection broken in process.
 - ⚡ NU refurbished well head from Cameron and install BOPE.
 - ⚡ Pressure test BOPE and refurbished wellhead.
 - ⚡ All tests are to be charted and witnessed by a DOGGR representative.
- g) PU retrieving head for BP and RIH to retrieve RBP.
 - ⚡ Circulate out sand. Retrieve RBP at +/- 6985'.
 - ⚡ POOH and lay down work string and RBP.
- h) RIH w/new completion string as detailed below and hydro test connections as following;

Run first 9 connections. Install XN plug. Make up testing sub and test BHA to 3700 psi for 5 minutes. Remove test sub and pull XN plug. Continue running 4.5" tubing hydro-testing each connection to 3700psi.

 - ➔ WLEG – 4.5" 12.6# L-80 TCPC
 - ➔ XN Nipple – 4.5" 12.6# L-80 TCPC (3.813" seal bore w/3.725" No-Go)
 - ➔ 10' pup – 4.5" 12.6# L-80 TCPC tubing
 - ➔ Production Packer – 4.5" 12.6# x 8-5/8" 36# TCPC Arrow set
 - ➔ 10' pup – 4.5" 12.6# L-80 TCPC tubing

SoCal Gas Company



Well Operations Procedure

- ➔ Full joint 4.5" 12.6# L-80 TCPC tubing
- ➔ 2' Pup joint – 4.5" 12.6# L-80 TCPC tubing
- ➔ Sliding sleeve – 4.5" 12.6 # L-80 TCPC (3.812" seal bore)
- ➔ 4' Pup joint – 4.5" 12.6# L-80 TCPC tubing
- ➔ Full joint - 4.5" 12.6# L-80 TCPC tubing
- ➔ 4.5" 12.6# L-80 TCPC tubing to surface
- ➔ Pup joints - 4.5" 12.6# L-80 TCPC tubing for space-out
- ➔ Fatigue nipple - 1' 4.5" 12.6# L-80 TCPC (pin x pin)
- ➔ Tubing hanger with 4-1/2" EUE top box / 4" BPV / 4.5" TCPC bottom box

Notes: Prior to sending completion equipment to well site

- Make up first 5 items (WLEG to 10' pup above packer) 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 pup joint below sliding sleeve, sliding sleeve and pup joint above sliding sleeve 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 Arrow set packer, to be witnessed by Quality Tubulars.
 - Packer vendor to provide Force Analysis / Tube Move Calculations prior to sending equipment to well site.
- i) Spot 50bbl packer fluid across bottom of tubing string
 - j) Land tubing on tubing hanger as per vendor specification.
NOTE: Utilize Force Analysis / Tube Move Calculations for packer setting as per WFT engineer.
 - k) Set new arrow set packer at +/- 6950
✦ Confirm good cement across packer, check final depth based on CBL
 - l) Rig-up slick line unit and lubricator. Set a plug in the 4-1/2" XN nipple.
 - m) Notify DOGGR to witness pressure tests of annulus to 1000 psi and tubing to 3700 psi. Both tests to be an hour in duration and recorded digitally.
 - n) RIH and recover plug from XN nipple. RIH and shift the sliding sleeve open.
 - o) Install BPV in tubing hanger. Nipple down the Class III 5M BOPE and install the production tree and test to 5000 psig. Remove BPV.
 - p) RDMO

Socal Gas Company

Well Operations Procedure



PRESSURE TEST SCHEDULE

Depth (TVD)	85% of Burst Strength	Fluid / Formation Pressure Gradient	External Casing Backup Pressure	Pressure Test					Tubing Leak Net Burst Pressure @	Test Pressuree > 85% of Burst	Test Pressure < Tubing Leak - Net Burst (Gas-filled annulus)		
				External Casing Backup Pressure	Internal Water Hydrostatic Pressure	1	2	3				4	5
Surface Test Pressure													
Test Down Casing or Tubing													
Bridge Plug Depth													
0	4014	0.00	0	0	3625	3100	2600	2220	1870	1525	3625		
500	4014	0.00	0	221	3846	3321	2821	2441	2091	1746	3670		
1000	4014	0.00	0	442	4067	3542	3042	2662	2312	1967	3716	86%	
1500	4014	0.00	0	663	-	3763	3263	2883	2533	2188	3761		
2000	4014	0.00	0	884	-	3984	3484	3104	2754	2409	3806		
2500	4014	0.00	0	1105	-	4205	3705	3325	2975	2630	3852	89%	
3000	4014	0.00	0	1326	-	-	3926	3546	3196	2851	3897		
3500	4014	0.00	0	1547	-	-	4147	3767	3417	3072	3942	88%	
4000	4014	0.00	0	1768	-	-	-	3988	3638	3293	3988		
4500	4014	0.00	0	1989	-	-	-	4209	3859	3514	4033	89%	
5000	4014	0.00	0	2210	-	-	-	-	4080	3735	4078	86%	
5741	4014	0.00	0	2538	-	-	-	-	4408	4063	4145	93%	
6000	5517	0.00	0	2652	-	-	-	-	-	4177	4169		
6500	5517	0.00	0	2873	-	-	-	-	-	4398	4214		
6700	5517	0.00	0	2961	-	-	-	-	-	4486	4232		
6980	5517	0.00	0	3085	-	-	-	-	-	4610	4258		

0.442
psi/ft
Int. grad.

0.091
psi/ft
Int. grad.

Well Fernando Fee 35A

API #: 04-037-21457-00
Sec 34, T3N, R16W

Production Casing Pressure Test - Program (CMT'D 6-5/8" Inner String)

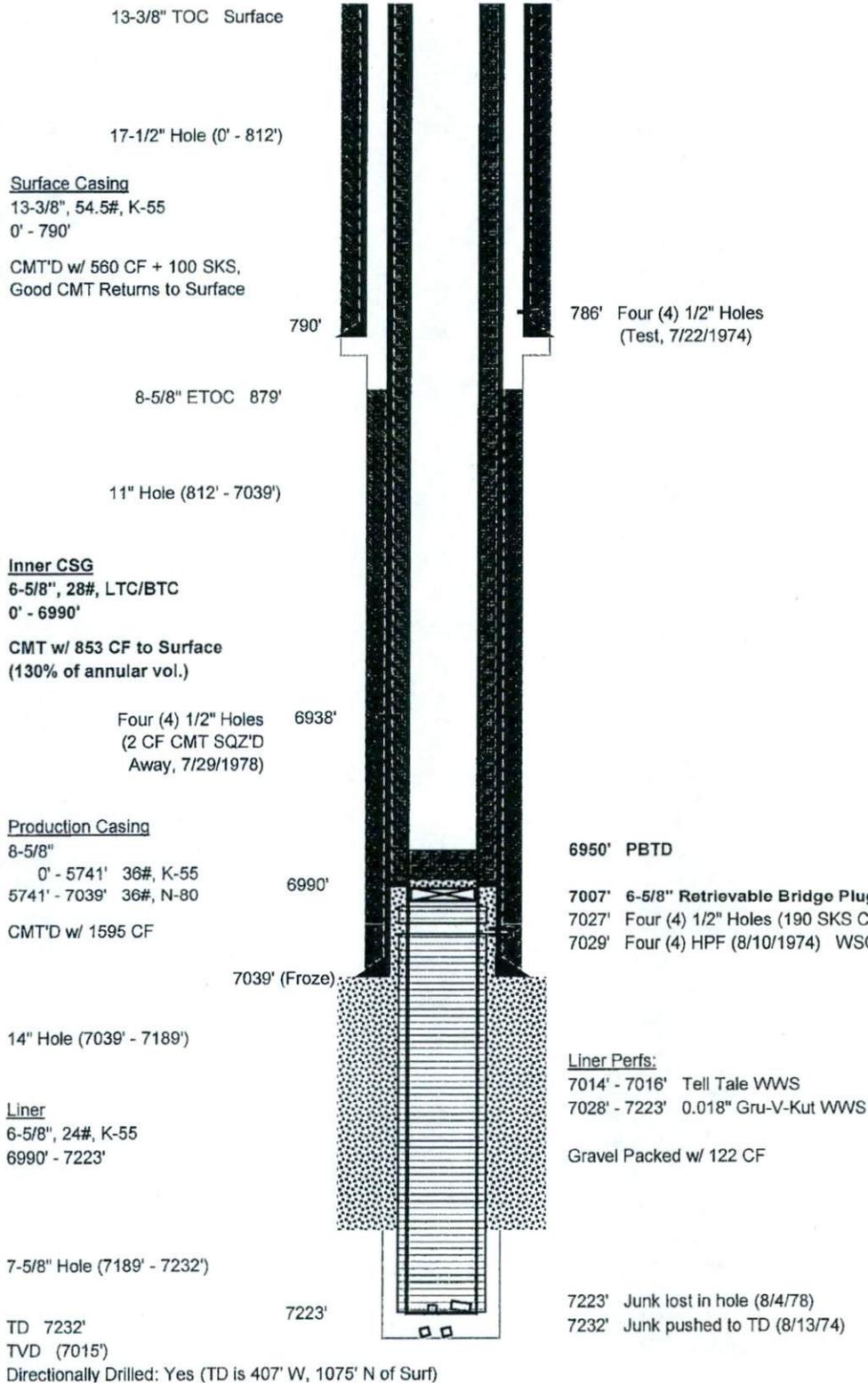
Operator: So. California Gas Co.

Lease: Fernando Fee
Field: Aliso Canyon
Status: Active Gas Storage
BFW:
USDW:

Ground Elevation: 1674' asl
Datum to Ground: 15' KB

Spud Date: 7/16/1974
Completion Date: 8/18/1974

Junk: Cone & nose f/ hole opener @ 7232' (8/13/74).
(1) 3/4" x 3-1/4" slips section, 3" of TBG seal divider (guide ring 5-1/2" OD), & 2" of X-locking mandrel fishing neck @ 7223' (8/4/78)



Top of Zone Markers md (tvd)		
A1	3847'	(3835')
UP	4902'	(4820')
LP	5304'	(5192')
UDA1	5724'	(5584')
LDA	6416'	(6234')
MP	6725'	(6528')
S1	6963'	(6756')
S4	7040'	(6830')
S8	7108'	(6895')
S12	7190'	(6974')

Prepared by: MAM (4/5/2016)
Updated by: LD (7/12/2016)

Well Fernando Fee 35A

API #: 04-037-21457-00
Sec 34, T3N, R16W

Proposed (CMT'D 6-5/8" Inner String)

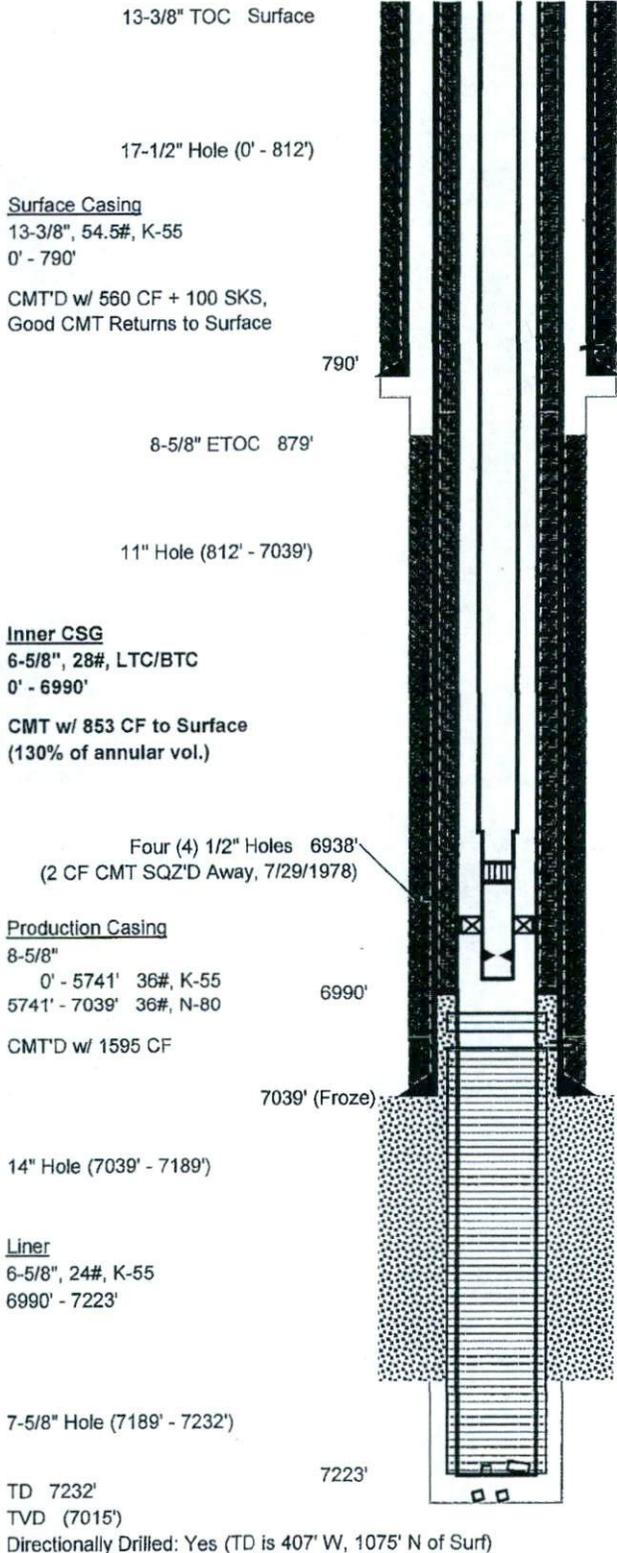
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(1) 3/4" x 3-1/4" slips section, 3" of TBG seal divider (guide ring 5-1/2" OD), & 2" of X-locking mandrel fishing neck @ 7223' (8/4/78)



Tubing
4-1/2", 12.6#, L-80
0' - 6900'
3-1/2", 9.3#, L-80
6900' - 6970'

786' Four (4) 1/2" Holes
(Test, 7/22/1974)

6900' 4-1/2" x 3-1/2" X-Over

6905' Sliding Sleeve (2.812" seal bore)

6950' 6-5/8" Arrow Set PCKR
6968' "XN" No-Go Nipple (2.75" seal-bore w/ 2.635" No-Go)
6970' Wire-line Re-entry Guide

7027' Four (4) 1/2" Holes (190 SKS CMT SQZ'D Away, 8/9/1974)
7029' Four (4) HPF (8/10/1974) WSO

Liner Perfs:
7014' - 7016' Tell Tale WWS
7028' - 7223' 0.018" Gru-V-Kut WWS

Gravel Packed w/ 122 CF

7223' Junk lost in hole (8/4/78)
7232' Junk pushed to TD (8/13/74)

Top of Zone Markers		md (tvd)
A1	3847'	(3835')
UP	4902'	(4820')
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S8	7108'	(6895')
S12	7190'	(6974')

Prepared by: MAM (4/5/2016)
Updated by: LD (7/12/2016)

Well Fernando Fee 35A

API #: 04-037-21457-00
Sec 34, T3N, R16W

Production Casing Pressure Test - Program (No Inner String)

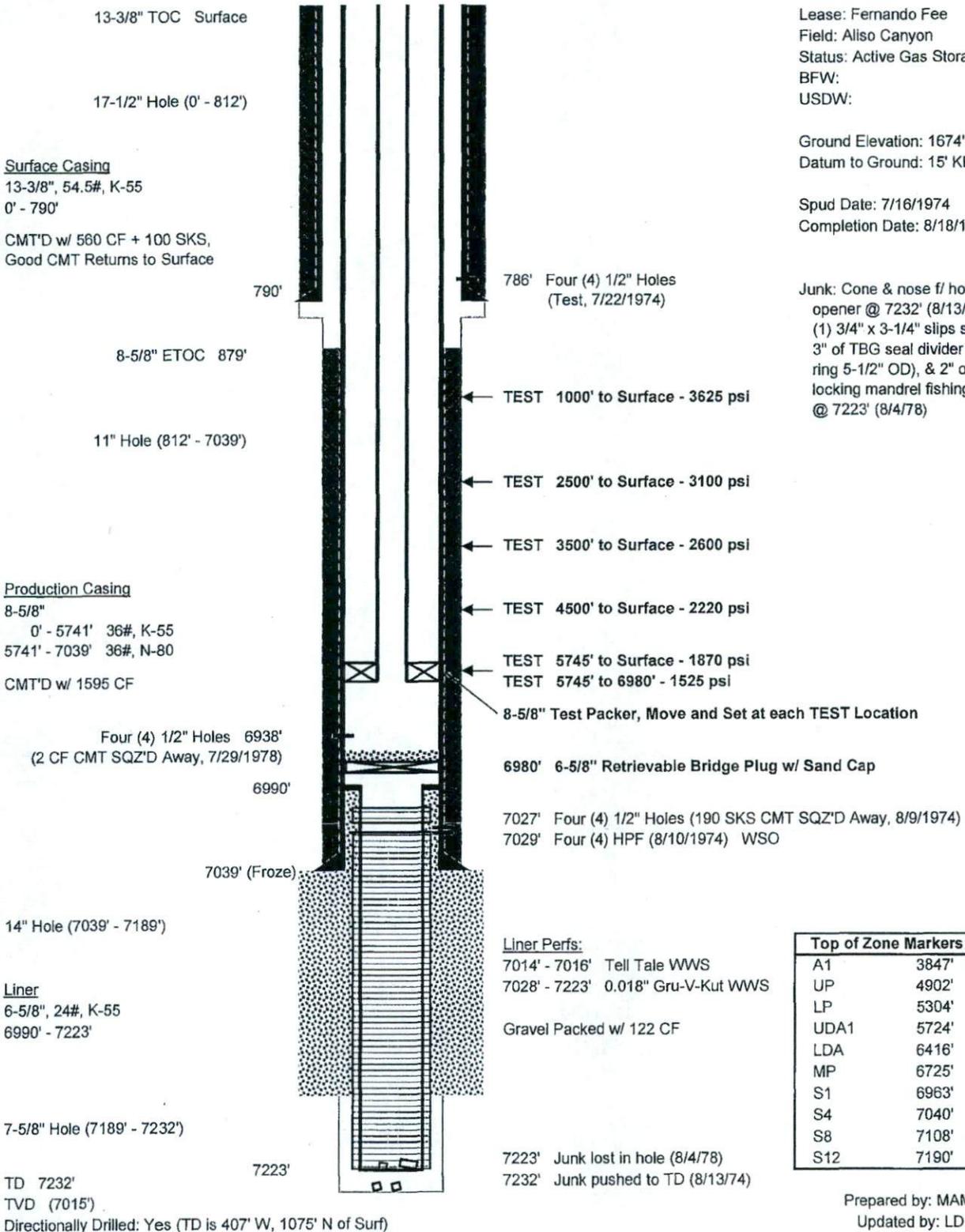
Operator: So. California Gas Co.

Lease: Fernando Fee
Field: Allso Canyon
Status: Active Gas Storage
BFW:
USDW:

Ground Elevation: 1674' asl
Datum to Ground: 15' KB

Spud Date: 7/16/1974
Completion Date: 8/18/1974

Junk: Cone & nose fl hole opener @ 7232' (8/13/74).
(1) 3/4" x 3-1/4" slips section, 3" of TBG seal divider (guide ring 5-1/2" OD), & 2" of X-locking mandrel fishing neck @ 7223' (8/4/78)



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Updated by: LD (7/12/2016)

Well Fernando Fee 35A

API #: 04-037-21457-00
Sec 34, T3N, R16W

Proposed (No Inner String Needed)

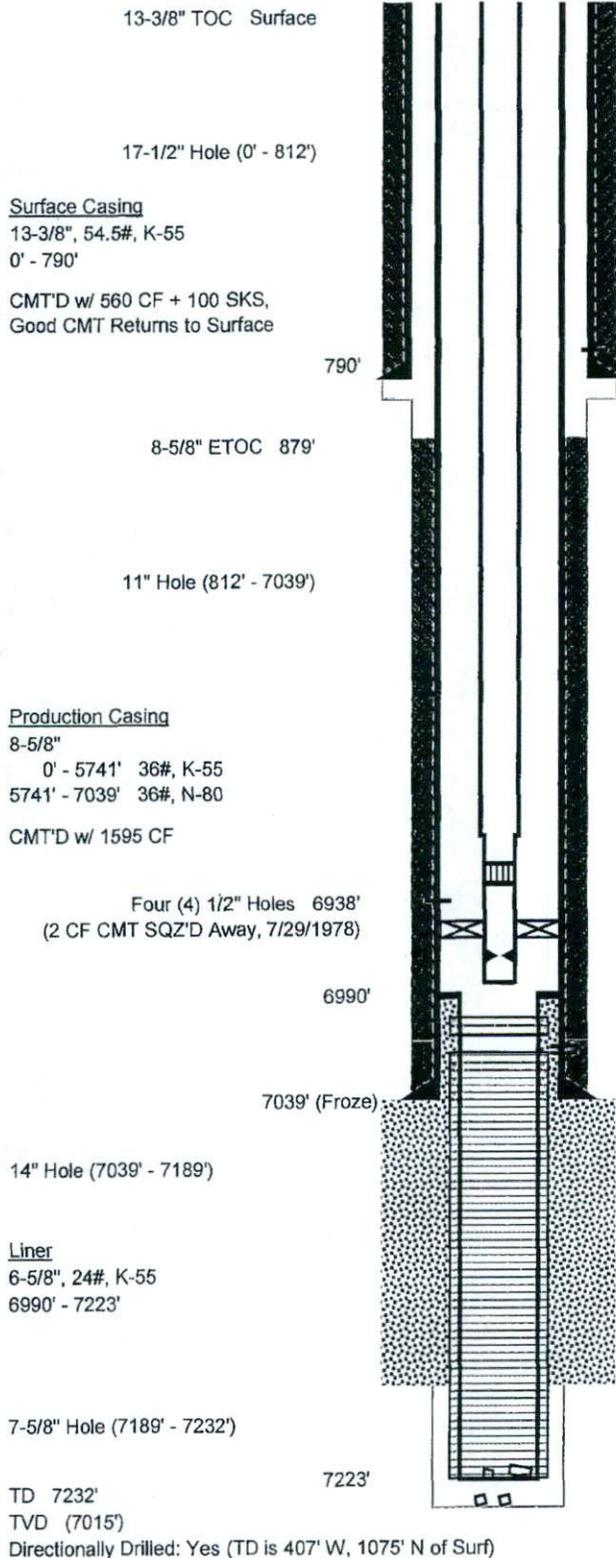
Operator: So. California Gas Co.

Lease: Fernando Fee
Field: Aliso Canyon
Status: Active Gas Storage
BFW:
USDW:

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Tubing
4-1/2", 12.6#, L-80
0' - 6900'
3-1/2", 9.3#, L-80
6900' - 6970'

786' Four (4) 1/2" Holes
(Test, 7/22/1974)

Surface Casing
13-3/8", 54.5#, K-55
0' - 790'
CMT'D w/ 560 CF + 100 SKS,
Good CMT Returns to Surface

Production Casing
8-5/8"
0' - 5741' 36#, K-55
5741' - 7039' 36#, N-80
CMT'D w/ 1595 CF

6900' 4-1/2" x 3-1/2" X-Over
6905' Sliding Sleeve (2.812" seal bore)

6950' 8-5/8" Arrow Set PCKR
6968' "XN" No-Go Nipple (2.75" seal-bore w/ 2.635" No-Go)
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Gravel Packed w/ 122 CF

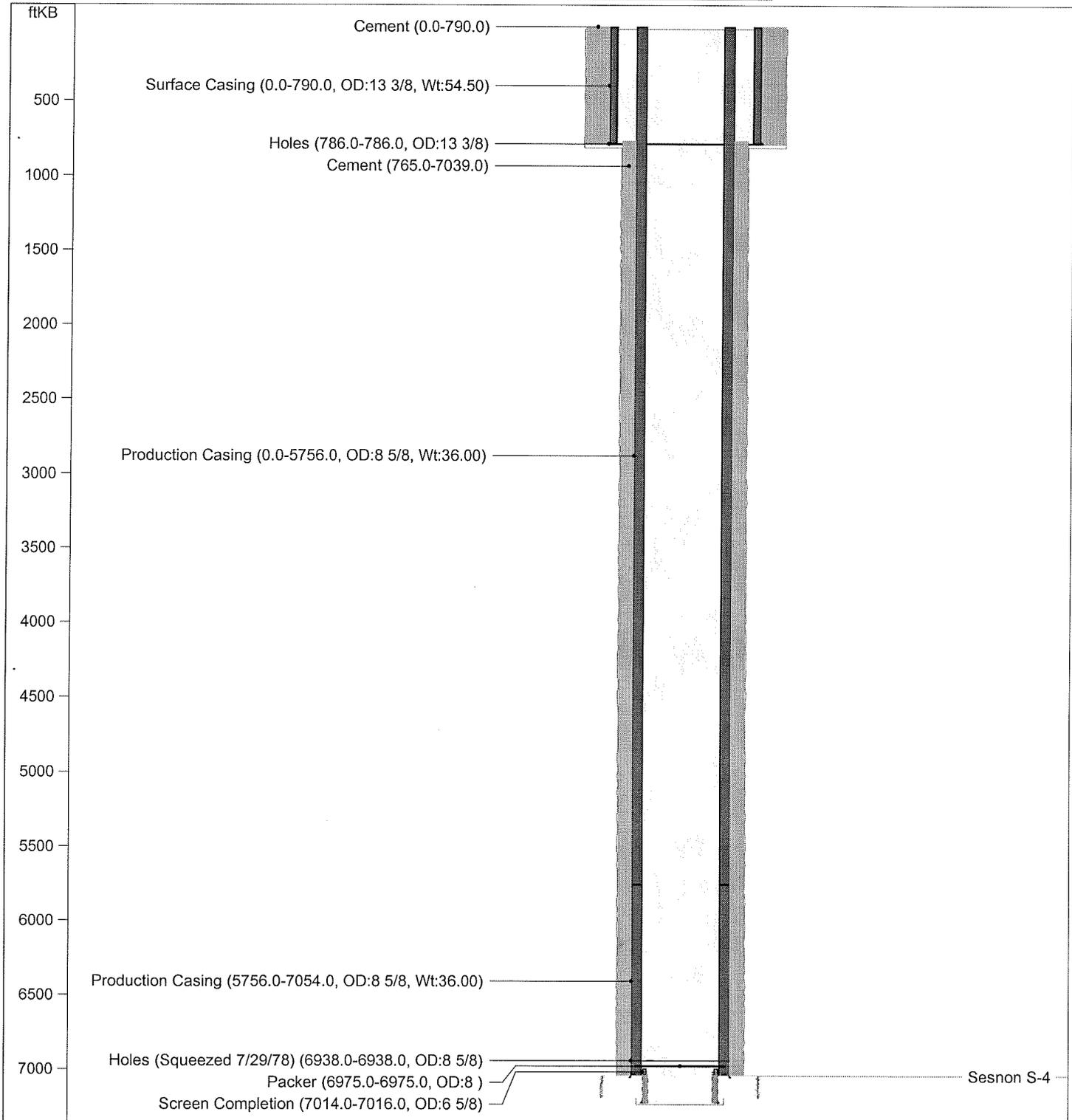
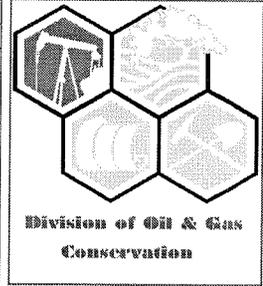
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Prepared by: MAM (4/5/2016)
Updated by: LD (7/12/2016)

04037214570000

Well Name	FERNANDO FEE 35A
Operator	SOUTHERN CA GAS CO
Field Name	ALISO CANYON
TD	7232.0 ftKB
PBTD	7232.0 ftKB
Approval Date	27-Jun-74
Spud Date	16-Jul-74
TD Date	11-Aug-64
Production Date	
Injection Date	
P/A Date	



STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

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

Ventura, California
February 23, 1990

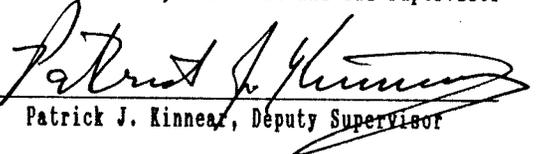
Your request, dated February 13, 1990, proposing to change the designation of wells in Sec. 34, T. 3N, R. 16W, SB B.&M., Aliso Canyon field Los Angeles County, District No. 2, has been received.

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

From:		To:	
IW 63	(037-21278)	"Fernando Fee" 35E	(037-21278)
IW 64	(037-21453)	"Fernando Fee" 35D	(037-21453)
IW 66	(037-21457)	"Fernando Fee" 35A	(037-21457)
IW 67	(037-21279)	"Fernando Fee" 35C	(037-21279)
IW 82	(037-21458)	"Fernando Fee" 35B	(037-21458)

bb

M.G. MEFFERD, State Oil and Gas Supervisor

By 
Patrick J. Kinneary, Deputy Supervisor

SEP 22 1978

DIVISION OF OIL AND GAS

SANTA PAULA, CALIFORNIA

History of Oil or Gas Well

OPERATOR SOUTHERN CALIFORNIA GAS COMPANY FIELD ALISO CANYON

Well No. I.W. #66, Sec. 34, T. 3N, R. 16W, S. B. B. & M.
A.P.I. No. 037-21457

Date September 12, 1978 Signed P.S. Magruder, Jr.

P. O. Box 3249, Terminal Annex Los Angeles, California 90051
(Address) (213) 689-3561 (Telephone Number) Title Agent (President, Secretary or Agent)

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

- Date 1978
- 7-25 Killed well with 445 barrels of 86#/cu.ft. brine-polymer drilling fluid. Started moving in California Production Service Rig D-4.
- 7-26 Finished rigging up California Production Service Rig #D-4. Removed Xmas tree and installed B.O.P.E. Tested blind rams and pipe rams with 4000 psi with water and nitrogen for 20 minutes each test; Hydril GK with 3000 psi with water and nitrogen for 20 minute test.
- 7-27 Released tubing from packer. Circulated well. Lost approximately 60-70 barrels to formation. Pulled tubing. Removed and laid down safety system. Made up 7 5/8" bit and casing scraper and started clean-out run.
- 7-28 Cleaned out to packer at 6975'. Pulled out of well. Ran in with plug and latched into packer. Set plug in packer. Rigged up Halliburton and spotted 9 sacks of sand on top of packer. Pulled up 60' and let stand for 4 hours. Did not locate sand. Spotted 9 more sacks of sand.
- 7-29 Located top of sand at 6914'. Backscuttled sand down to 6947'. Pulled tubing out of well. Rigged up Wellex and shot four 1/2" holes at 6938'. Ran tubing and rigged up Halliburton. Had breakdown of 0.5 cu.ft. per minute at 2000 psi with tubing hung at 6941'. Displaced 30 cu.ft. of water. Mixed 29 cu.ft. (25 sacks) of Class "G" cement with 0.75% CFR-2 and 4 cu.ft. water and 219 cu.ft. of drilling fluid behind. Pulled up to 6324' and squeezed away 9 cu.ft. at 2200 psi. Closed B.O.P.E.
- 7-30 Rig and crew idle.
- 7-31 Ran in and found top of cement at 6878'. Pulled out of well. Found 7 joints of tubing cemented. Estimated 2 cu.ft. of cement was squeezed out through the holes at 6938'. Ran in with bit and scraper and drilled out cement to 6944'. Rigged up Halliburton and pressure tested casing at 1850 psi for 20 minutes. Circulated well.

- 8-1 Pulled tubing out of well. Laid down bit and scraper. Rigged up Triangle and ran Noise Log from 6930' to 1000'. Log showed that gas leak had stopped. Cleaned out sand from 6944' to 6975'. Made up Otis retrieving tool and ran in to pull packer plug. Made several unsuccessful attempts to latch into plug. Pulled tubing out of well and found retrieving tool broken, leaving bottom of 12" tool in well.
- 8-2 Made up 6" O.D. magnet on one stand of 2 7/8" tubing and ran in on sand line - no recovery. Pulled out of well. Made up 7 1/2" O.D. impression block and ran in on sand line - no impression. Made up 5 7/8" O.D. socket with 3 1/8" slips, bumper sub and jars. Ran in to 6867'.
- 8-3 Attempted to latch onto packer plug with overshot - could not get below 6944'. Pulled out of well and laid down fishing tools. Made up bit and scraper and ran in to 6943'. Drilled out 3' cement bridge and cleaned out to top of packer at 6975'. Circulated well clean. Reran fishing tools and apparently latched onto packer plug.
- 8-4 Pulled out of well with Otis packer plug and fishing tools. Junk left in hole - one 3/4" x 3 1/4" slips section; 3" of tubing seal divider (guide ring 5 1/2" O.D. 3.69" I.D.); and 2" of X-locking mandrel fishing neck. Picked up sawtooth collar and ran in with 10 joints of 2 3/8" tubing on bottom on 2 7/8" tubing. Cleaned out from 6980' to bottom of 6 5/8" liner at 7223'. Circulated well clean. Pulled tubing out of well. Laid down 2 3/8" tubing and sawtooth collar.
- 8-5 Made up Lynes tester with three pressure bombs and four-way tool and ran in well. Set packer at 6900' - tail at 6920'. Tool was opened for initial flow at 11:35 A.M. and shut in at 11:45 A.M. Final flow was started at 11:55 A.M. and production test proceeded for 8 hours. Test was completed at 8:00 P.M. - flow rate 11 MM/D - 1200 psi surface pressure. Opened backscuttle tool and filled annulus and tubing with drilling fluid.
- 8-6 Rig and crew idle.
- 8-7 Pulled out of well and laid down Lynes testing tools. Rigged up Triangle and ran Noise Log from 7100' to 5000'. No indication of gas leakage. Made up Otis safety system with plug and tested to 5000 psi. Running in with 2 7/8" tubing, hydrotesting to 5000 psi for one minute.
- 8-8-78 Finished running in well with 2 7/8" tubing. Hydrotested all tubing to 5000 psi for one minute. Landed tubing with 8000# on packer and pulled 25,000# over weight of tubing string to check latch. Removed B.O.P.E. and installed Xmas tree.
- 8-9 Rigged up Associated Services test pumps and tested Xmas tree to 5000 psi. Circulated 82#/cu.ft. polymer drilling fluid out of well with lease salt water. Rigged up Otis, ran in and pulled side-door choke. Set plug in NO-GO nipple and tested packer and seals to 2200 psi. Pulled tubing plug.
RELEASED RIG at 4:00 P.M. (8-9-78).

DIVISION OF OIL AND GAS

Report on Operations

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

Santa Paula, Calif.

Your operations at well IW 66, API No. 037-21457, Sec. 34, T. 3N, R. 16W
S.B., B. & M. Aliso Canyon Field, in Los Angeles County, were witnessed
on 7/27/78 by T.E. Adams, representative of the supervisor, was
present from 0600 to 1100. There were also present R. O. Bivens, contract foreman

Present condition of well: No additions to the casing record since proposal dated 7/19/78.

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. METTERT
State Oil and Gas Supervisor
By John L. Hardoin
Deputy Supervisor
John L. Hardoin

REPORT ON PROPOSED OPERATIONS

Santa Paula, California

July 26, 1978

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

Your proposal to alter casing
in gas storage well IW 66
(Name and number)
A.P.I. No. 037-21457, Section 34, T. 3N, R. 16W
S.B. B. & M., Aliso Canyon field, Los Angeles County,
dated 7/19/78, received 7/24/78, has been examined in conjunction
with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. 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 emergencies.
2. Blowout prevention equipment of at least DOG Class III 5M, shall be installed and maintained in operating condition at all times.
3. THIS DIVISION SHALL BE NOTIFIED TO WITNESS A PRESSURE TEST OF THE BLOWOUT PREVENTION EQUIPMENT BEFORE COMMENCING DOWNHOLE OPERATIONS.

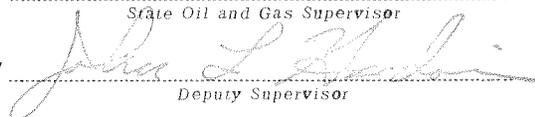
NOTE: A COPY OF THIS APPROVAL SHALL BE AVAILABLE AT THE WELL SITE DURING THE PROPOSED OPERATIONS.

Blanket Bond
MD:b

M. G. MEFFERD

State Oil and Gas Supervisor

By


Deputy Supervisor

John L. Hardoin

DIVISION OF OIL AND GAS
RECEIVED

JUL 24 1978

DIVISION OF OIL AND GAS
Notice of Intention to Rework Well

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

SANTA ANA, CALIFORNIA

FOR DIVISION USE ONLY		
BOND	FORMS	
	114	121
65	✓	✓

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well No. I. W. #66, API No. 037-21457, Sec. 27, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

- Total depth. 7232'
- Complete casing record, including plugs and perforations:

13 3/8" cemented 812'
8 5/8" cemented 7039', cp'd 7027' - WSO 7029'
233' 6 5/8" landed 7223', wire-wrapped 7223'-7028', gravel flow packed

- Present producing zone name Sesnon Zone in which well is to be recompleted -
- Present zone pressure 3100 psi New zone pressure -
- Last produced _____ (Date) _____ (Oil, B/D) _____ (Water, B/D) _____ (Gas, Mcf/D)
or
- Last injected _____ (Date) _____ (Water, B/D) _____ (Gas, Mcf) _____ (Surface pressure, psig.)

The proposed work is as follows:

- Move in and rig up. Kill well. Install B.O.P.E. and pressure test.
- Pull tubing. Set plug in packer and cap with sand.
- Shoot four 1/2" holes at 6938' and squeeze with cement. Run Audio Analyzer log. Make production test and re-run Audio Analyzer log.
- Run tubing with down-hole safety system.
- Return well to gas storage service.

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

Address P.O. Box 3249, Terminal Annex
 _____ (Street)
Los Angeles California 90051
 _____ (City) _____ (State) _____ (Zip)
 Telephone Number (213) 689-3561

SOUTHERN CALIFORNIA GAS COMPANY
 _____ (Name of Operator)
 By P.S. Magruder, Jr.
 _____ (Name) P.S. Magruder, Jr. (Date) 7-19-78
 Type of Organization _____
 _____ (Corporation, Partnership, Individual, etc.)

NOV - 2 1976

DIVISION OF OIL AND GAS

SANTA PAULA, CALIFORNIA

History of Oil or Gas Well

OPERATOR SOUTHERN CALIFORNIA GAS COMPANY FIELD Aliso Canyon

Well No. I.W. 66 (037-21457), Sec. 34, T. 3N, R. 16W, S. B. B. & M.

Date October 20, 1976

Signed P. S. Magruder, Jr.

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

Title Agent

(Address)

(213) 689-3561

(Telephone Number)

(President, Secretary or Agent)

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

Date

- 8-20-76 Killed well with 86# mud - used 430 barrels \pm .
- 9-14-76 Rigged down on I.W. #82 - preparing to move to I.W. #66.
- 9-15-76 Rigged up. Circulated well for four hours. Removed Christmas tree and installed B.O.P.E.
- 9-16-76 Tried to test blind rams - rams were bad - changed rams - no test. Changed plug in tubing hanger - no test. Installed one joint of tubing and tested pipe rams. Tubing hanger was not holding - unseated packer - made one circulation of drilling fluid in hole.
- 9-17-76 Finished pulling out of hole. Set Model "C" bridge plug at 180'. Tested B.O.P.E., as follows:
Blind rams with water at 4000 psi for 20 minutes - O.K.
(Installed joint 2 7/8" tubing and tubing hanger)
Tubing rams with water at 4000 psi for 20 minutes - O.K.
Hydril bag " " " 3000 psi " 20 " - O.K.
Tubing rams with nitrogen at 4000 psi for 20 minutes - O.K.
Hydril bag " " " 3000 psi " 20 " - O.K.
(Removed joint 2 7/8" tubing and tubing hanger)
Blind rams with nitrogen at 4000 psi for 20 minutes - O.K.
Rigged down NOWSCO and H. & H.
- 9-18-76 Ran in hole. Recovered Baker Model "C" bridge plug. Ran 5 5/8" bit and 6 5/8" casing scraper to 7223' - no fill. Circulated for three hours. Pulled out of hole. Changed manifold on B.O.P.E. Ran in hole with Johnston packer to test casing.
- 9-19-76 Rig and crew idle.

9-20-76

Set Johnston 8 5/8" Bobcat positrievie cementing tool at 6980' and tested casing, as follows:

Surface to 6980'	at 1000 psi	for 20 minutes)	
" "	5000'	" 1200 psi	" 20 ")
" "	4500'	" 1500 psi	" 20 ")
" "	4000'	" 1800 psi	" 20 ")
" "	3500'	" 2100 psi	" 20 ")
" "	3000'	" 2300 psi	" 20 ")
" "	2500'	" 2600 psi	" 20 ")
" "	2000'	" 2900 psi	" 20 ")
" "	1500'	" 3100 psi	" 20 ")
" "	1000'	" 3500 psi	" 20 ")
" "	750'	" 3700 psi	" 20 ")
Surface to 250'	at 4000 psi	for 20 minutes)	

All Tests O.K.

Ran in hole with 7 5/8" bit on 8 5/8" Shorty casing scraper to 6980' and circulated hole.

9-21-76

Pulled out of hole. Installed 8 5/8" lubricator. Rigged up McCullough Wireline Service. Ran and set 8 5/8" Otis Permatrievie packer at 6975'. Rigged down McCullough. Rigged up Hydrotest. Rigged up R. & R. power tongs. Ran plugged production tube: seal assembly; J-latch; 10' blast joint; "X-N" nipple; 20' blast joint. Hydrostatically tested to 5000 psi - O.K. Pulled and removed plug. Installed guide shoe. Made up Otis annular safety valve system. Installed B. & W. centralizer. Ran 2 7/8" tubing, changed couplings, applied Baker seal to pins only, drifting to 2.347" and hydrotested to 5000 psi for one minute.

9-22-76

Completed running tubing - as before. Spaced out tubing and latched into 8 5/8" Permatrievie packer at 6975'. Pulled 20,000# over weight of tubing. Landed tubing with 10,000# compression. Installed tubing hanger plug. Tore out B.O.P.E. Installed Christmas tree.

9-23-76

Seaboard Wellhead Service tested tubing hanger seals at 5000 psi for 20 minutes - O.K., then tested Christmas tree at 5000 psi for 20 minutes - O.K. Rigged up Archer-Reed Wireline Service, ran "X-N" plug and set in Otis "X-N" nipple at 7155'. Using drilling fluid, tested packer and seals at 1500 psi for 20 minutes - O.K. Changed circulating system to lease salt water. Tested packer and seals 1500 psi for 20 minutes - O.K. Rig released at 9:30 P.M.

SURVEY RECORD

3131-SOUTH & 660-EAST FROM STA. NO. 84

JOB NO IW-66

ONE

DATE 7-18-74

GRD..... 1674
K.B..... 15
ELEV.... 1689

STATION NO	MEASURED DEPTH	DRIFT ANGLE	TRUE VERTICAL DEPTH		COURSE DEVIATION	DRIFT DIRECTION	RECTANGULAR COORDINATES				REMARKS		
							NORTH	SOUTH	EAST	WEST			
1	156	.30	155	99		S 86 W			09		1	36	
2	338	.30	337	98		S 44 W			1 23		2	46	
3	520	1. 0	519	95		S 18 W			4 25		3	44	
4	702	1. 0	701	92		S 57 W			5 98		6	11	
5	1018	5.15	1016	59		S 61 W			20 00		31	40	
6	1049	5.30	1047	45		S 58 W			21 57		33	92	
7	1231	6.30	1228	28		S 52 W			34 25		50	15	
8	1417	7.15	1412	79		S 47 W			50 26		67	31	
9	1601	6.45	1595	51		S 63 W			60 08		86	58	
10	1818	5.15	1811	60		S 59 W			70 31		103	60	
11	2002	4. 0	1995	15		S 56 W			77 49		114	24	
12	2218	3.15	2210	80		S 58 W			83 98		124	63	
13	2434	2.30	2426	59		S 74 W			86 58		133	69	
14	2654	2.15	2646	42		S 74 W			88 96		142	00	
15	2967	1.15	2959	34		S 74 W			90 84		148	57	
16	3351	1.15	3343	25		S 71 W			93 57		156	49	
17	3414	.15	3406	25		S 29 E			93 81		156	36	
18	3444	1.30	3436	24		N 20 W			93 07		156	63	
19	3476	3.30	3468	18		N 24 W			91 29		157	43	
20	3633	7.45	3623	75		N 01 W			70 12		157	80	
21	3757	11.30	3745	26		NORTH			45 40		157	80	
22	3882	14.30	3866	27		N 02 E			14 12		156	71	
23	4005	18.30	3982	91		N 01 E	24	90			156	02	
24	4255	20.15	4217	46		N 01 E	111	42			154	51	
25	4551	22.45	4490	43		N 03 E	225	72			148	53	
26	4658	24.°	4588	17		N 07 W	268	92			153	83	
27	4721	24.30	4645	50		N 15 W	294	16			160	59	
28	4808	23.15	4725	43		N 19 W	326	63			171	77	
29	5121	22.15	5015	12		N 19 W	438	69			210	36	
30	5399	21.°	5274	66		N 19 W	532	90			242	80	
31	5709	21.°	5564	07		N 18 W	638	55			277	13	
32	5845	21.°	5691	04		N 18 W	684	90			292	19	

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

Report on Operations

No. T. 276-277

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

Santa Paula, Calif.
Sept. 22, 1976

DEAR SIR:

Operations at well No. IW 66, API No. 037-21457, Sec. 34, T. 3N, R. 16W,
S.B., B & M. Aliso Canyon Field, in Los Angeles County, were witnessed
on 9/17/76. Mr. T. E. Adams, representative of the supervisor was
present from 1000 to 1200. There were also present Allan Smith, company foreman

Present condition of well: 13 3/8" cem. 812', 8 5/8" cem 7039' op 7027', WSO 7029',
T.D. 7232'.

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

DECISION:

THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

HAROLD W. BERTHOLF

JOHN F. MATTHEWS, JR.

State Oil and Gas Supervisor

By

Deputy

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

REPORT ON PROPOSED OPERATIONS No. P 276-200

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

Santa Paula, Calif.
June 18, 1976

DEAR SIR:

(037-21457)

Your proposal to rework gas storage Well No. "IW" 66, Section 34, T. 3N, R. 16W, S.B.B. & M., Aliso Canyon Field, Los Angeles County, dated 6/10/76, received 6/16/76, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The drilling fluid used shall be of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts; and a reserve supply of this material shall be kept on hand to meet any emergency.
2. Blowout prevention equipment, at least of the Division of Oil and Gas Class III rating, shall be installed and maintained in operating condition at all times.
3. THIS DIVISION SHALL BE NOTIFIED TO WITNESS A PRESSURE TEST OF THE BLOWOUT PREVENTION EQUIPMENT BEFORE COMMENCING DOWNHOLE OPERATIONS.

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

Blanket Bond
MD:b

HAROLD W. BERTHOLF
JOHN F. MATTHEWS, JR., State Oil and Gas Supervisor

By *[Signature]*, Deputy
Chief

DIVISION OF OIL AND GAS
RECEIVED

JUN 16 1976

DIVISION OF OIL AND GAS Notice of Intention to Rework Well

SANTA PAULA, CALIFORNIA

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

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

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well No. IW-#66, API No. _____, Sec. 34, T. 3N, R. 16W, S.B.B. & M., Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

- Total depth. 7232'
- Complete casing record, including plugs and perforations:
 - 13 3/8" cemented 812'
 - 8 5/8" cemented 7039', cp'd 7027', WSO 7029'
 - 233' 6 5/8" landed 7223' - gravel flow packed in 14" hole

- Present producing zone name SESNON Zone in which well is to be recompleted ---
- Present zone pressure 2800 psi New zone pressure ---
- Last produced Gas Storage Well
(Date) (Oil, B/D) (Water, B/D) (Gas, Mcf/D)
or
- Last injected _____
(Date) (Water, B/D) (Gas, Mcf) (Surface pressure, psig.)

The proposed work is as follows:

- Move in rig, kill well, install B.O.P.E. and test.
- Pull tubing -- clean out to 7223'.
- Pressure test 8 5/8" casing. Perform remedial work if indicated.
- Run packer, tubing and safety valve.

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

Address P.O. Box 3249, Terminal Annex
(Street)
Los Angeles, California 90051
(City) (State) (Zip)
Telephone Number (213) 689-3561

SOUTHERN CALIFORNIA GAS COMPANY
(Name of Operator)
By P. S. Magruder, Jr. 6/10/76
(Date)
Type of Organization Corporation
(Corporation, Partnership, Individual, etc.)

DIVISION OF OIL AND GAS

WELL SUMMARY REPORT

SUBMIT IN DUPLICATE

Operator Pacific Lighting Service Co. Well No. IW 66

Sec. 34, T. 3N, R. 16W, S.B. B. & M. Aliso Canyon Field Los Angeles County.

Location From Station 84 3131.3' South and 659.5' East

(Give location from property or section corner, or street center lines)

Elevation of ground above sea level 1674 feet USGS

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

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

Date December 16, 1974

Signed *B. F. Jones*

E. O. Olson
(Engineer or Geologist)

B. F. Jones
(Superintendent)

Title Agent
(President, Secretary or Agent)

Commenced drilling <u>July 16, 1974</u>	GEOLOGICAL MARKERS	DEPTH
Completed drilling <u>August 11, 1974</u>	<u>Sesnon S-4</u>	<u>7040</u>
Total depth <u>7232</u> Plugged depth <u>None</u>		
Junk <u>Cone & nose from hole opener @ 7233'</u>		

Geologic age at total depth: Miocene

Commenced producing _____ (Date) Flowing/gas lift/pumping (Cross out unnecessary words) Name of producing zone Sesnon

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	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Drilled	Number of Sacks of Cement	Depth of Cementing if through perforation
<u>3-3/8"</u>	<u>812</u>	<u>sfc.</u>	<u>54.5</u>	<u>N</u>	<u>S</u>	<u>K-55</u>	<u>17 1/2</u>	<u>330</u>	
<u>8-5/8"</u>	<u>7039</u>	<u>sfc.</u>	<u>36</u>	<u>N</u>	<u>S</u>	<u>K&N</u>	<u>11</u>	<u>850</u>	
<u>6-5/8"</u>	<u>7223</u>	<u>6990</u>	<u>24</u>	<u>N</u>	<u>S</u>	<u>K</u>	<u>14</u>	<u>Gravel packed</u>	

PERFORATED CASING

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

8-5/8" - four holes per foot @ 7027; WNSO squeezed with cement.
four holes per foot @ 7029; WSO

Was the well directionally drilled? Yes Electrical Log Depths 7046' & 7232' (Attach Copy of Log)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Pacific Lighting Service Co. FIELD Aliso Canyon

Well No. IW 66, Sec. 34, T. 3N, R. 16W, S.B.B. & M.

Date December 16, 1974, 19____ Signed: [Signature]

P. O. Box 54790, Terminal Annex

L. A. Calif. 90051, (213) 689-3561 Title Agent

(Address)

(Telephone Number)

(President, Secretary or Agent)

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

Date

- 1974 The well was drilled by Camay Drilling Company, Contractor, using rig No. 8. All measurements taken from top of kelly bushing which was 15' above ground.
- 7-16 Spudded 17-1/2" hole at 4:30 PM and drilled to 102'. SWECO sand separator used on this well.
- 7-17 While drilling at 154', returns broke out in cellar. Ran 2" hose 10' below cellar floor and pumped in 1-1/2 yards of ready mix pea gravel. Ran 2" pipe to 57' and pumped in 5-1/2 yards of ready mix pea gravel. Ran 17-1/2" bit to 57' and surged cement. After standing cemented 5 hours, ran 17-1/2" bit without locating any cement and drilled to 210' before circulation again broke out in cellar.
- 7-18 Drilled to 325' with returns in cellar. Ran 5" open end drill pipe to 57' and pumped in 100 sacks class "G" cement mixed with 3% calcium chloride. Good cement returns through 3 holes in cellar floor. Cement in place at 6:15 AM. After standing cemented 5 hours, located cement at 45' and drilled out same to 75'. Drilled 17-1/2" hole to 594'.
Mud: 72#, 43 sec., 8 cc.
- 7-19 Drilled 17-1/2" hole to 812'.
Mud: 72#, 44 sec., 8 cc.
TO CEMENT 13-3/8" SURFACE CASING: Ran 20 joints or 791.94' of 13-3/8", 54.5#, K-55, R-3 Buttress thread new seamless casing and cemented same at 790' with 560 cu. ft. 1-1 Pozmix with 2% gel and 100 sacks class "G" mixed with 2% calcium chloride. Preceded cement with 100 cu. ft. of water and displaced with 10 cu. ft. water and 700 cu. ft. of mud. Did not bump plug. Cement returns

1974

- 7-19 after displacing 510 cu. ft. Casing fitted on bottom with float
Cont'd. shoe with centralizer 10' up. Thread locking compound on bottom
3 joints. Cement in place at 5:15 PM. Used HOWCO services.
Cut and recovered 13-3/8" casing.
- 7-20 Installed Gulfco 13-3/8", 5000# casing head and tested weld with
& 3600 psi for 20 minutes Ok. Installed double Shaffer and GK
7-21 Hydril B.O.P. and tested with 2000 psi fresh water for 20 minutes
Ok. Division of Oil and Gas, A.L. Lorshbough, Engineer waived
witnessing. Retested entire B.O.P.E. with 2500 psi nitrogen.
Flange on choke line repaired, changed out valve on mud cross and
replaced pipe rams.
Drilled out cement 785-788'.
- 7-22 TO TEST EFFECTIVENESS OF QUESTIONABLE 13-3/8" CEMENT JOB: Ran
Dresser-Atlas 4" O.D. carrier and shot four 1/2" jet holes at 786'.
Ran drill pipe to 758', closed rams and holes held 1450 psi for
20 minutes Ok. Cleaned out to 812' with 11" bit and drilled to
944'. Down 17 hours repairing rotary clutch.
- 7-23 Four hours repair clutch. Drilled 11" hole to 1818'.
Mud: 68#, 42 sec., 8.2 cc., 7% solids.
- 7-24 Drilled 11" hole to 2706'.
Mud: 74#, 44 sec., 6.5 cc., 7% solids.
- 7-25 Drilled 11" hole to 3351'.
Mud: 72#, 40 sec., 6.5 cc., 7% solids.
- 7-26 Dyna-Dril #1 and #1A 3351' to 3511'.
Mud: 72#, 36 sec., 5.5 cc., 7% solids.
- 7-27 Reamed 3351' to 3511' and directionally drilled 11" hole to 4030'.
Mud: 70#, 40 sec., 6.0 cc., 7% solids.
- 7-28 Directionally drilled 11" hole to 4255'. 7-1/2 hours repair ro-
tary sprocket.
Mud: 72#, 40 sec., 6.0 cc., 7% solids.
- 7-29 One hour repair sprocket. Directionally drilled 11" hole to 4295'
where tools twisted off in heavy wall drill pipe. Twist off caused
by washout in tool joint. 434' of fish in hole with top at 3861'.

1974

- 7-29 Ran Brown Oil Tool jars, bumper sub, accelerator and overshot and engaged fish. Jarred once and pulled and recovered entire fish. Mud: 71#, 42 sec., 6.0 cc., 6% solids.
- 7-30 Directionally drilled 11" hole to 4614' and Dyna-Drilled #2 using "Eye" tool to 4628'. Mud: 73#, 35 sec., 8.0 cc., 8% solids.
- 7-31 Dyna-drill #2 to 4756'. Reamed 4614' to 4756' and directionally drilled 11" hole to 4953'. Mud: 72#, 30 sec., 8.0 cc., 8% solids.
- 8-1 Directionally drilled 11" hole to 5786'. Mud: 70#, 36 sec., 7.0 cc., 8% solids.
- 8-2 Directionally drilled 11" hole to 6288'. Mud: 71#, 42 sec., 6.5 cc., 6% solids.
- 8-3 Directionally drilled 11" hole to 6712'. Mud: 71#, 42 sec., 6.0 cc., 7% solids.
- 8-4 Directionally drilled 11" hole to 7046'. Mud: 71#, 40 sec., 5.8 cc., 7% solids.
- 8-5 Ran Welex Induction Electric log from 7026' to 791'. Conditioned hole for casing and start running 8-5/8" casing.
- 8-6 TO CEMENT 8-5/8" CASING: Ran 175 joints or 7054.07' of 8-5/8", 36#, K-55 & N-80, R-3, buttress thread new seamless blank casing and cemented same at 7039' where same froze, with 1445 cu. ft. of 1-1 Pozmix with 2% gel mixed to 95#/cu. ft. slurry, followed by 150 cu. ft. of Class "G" with 2% calcium chloride mixed to 116#/cu. ft. slurry. Preceded cement with 200 cu. ft. of water and displaced with 2410 cu. ft. of mud to bump top plug under 3500 psi at 10:00 AM. Held 3500 psi Ok for 15 minutes. Bled back 26 cu. ft. for total displacement of 2394 cu. ft. Started mixing at 8:00 AM, finished at 8:55 AM. Good circulation throughout job. No cement to surface. Used HOWCO services.

EST. T.O.C. IN ANNUL
765' ±

1974

8-6 CASING DETAIL:

Bottom 32 joints or 1297.75 (7039-5741) N-80 fitted on bottom with Davis-Lynch fillup float shoe and at 6949' with Davis-Lynch fillup float collar. Metal petal cement basket at 7034' and 6000' with turbolizers above. Gemco cement (to casing) seal units 3' above and below basket. Centralizers on 6, 10, 14, 18, 22 & 30th joints.

Next 143 joints or 5756.32 (5741-top of k.b.) K-55 fitted with metal petal baskets at 5530 and 4090'. Centralizer on 34, 38, 42, 46, 50, 54, 56, 58, 62, 66, 70, 74, 78, 82, 86, 90, 92, 94, 98, 102, 106, 110, 114, 118, 120, 122 & 124th joints.

Total 175 joints or 7054.07

Installed 8-5/8" slips and packing. Cut & recovered 24.3' 8-5/8" casing.

8-7 Installed double Shaffer and GK Hydril and tested same with 2000 psi water pressure. Installed bean and connected well through tubing head to Gas Company kill line.

8-8 Retest B.O.P. with 3000 psi nitrogen. Blind rams, C.S.O., Hydril and choke manifold each tested for 30 minutes. Ran 7-5/8" bit with casing scraper above and drilled out cement from 6952' to 7030'. Ran Welex microseismogram log.

TO TEST WATER SHUT-OFF ON HOLES AT 7027' IN 8-5/8" CASING: Ran Johnston combination gun and tester and shot four 1/2" jet holes at 7027'. Set packer at 6986' with tail to 7012'. Opened tool at 5:03 PM. Immediate increasing blow. Closed tool at 5:05 PM. Bled off gas. Recovered 120' rise in 5" drill pipe. Charts showed increasing pressure. Water NOT SHUT-OFF BY COMPANY TEST.

8-9 TO SQUEEZE HOLES IN 8-5/8" CASING AT 7027' WITH CEMENT: Ran Johnston positrieve cementer on 5" drill pipe. Set tool at 6900' and holes took fluid at 22 cu. ft./min. rate under 2000 psi.

1974

8-9 Preceded cement with 20 cu. ft. water. Pumped in 200 sacks of Class "G" cement mixed to average 116#/cu. ft. slurry and followed with 10 cu. ft. of water and 388 cu. ft. of mud. Closed tool and squeezed in stages with an additional 342 cu. ft. of mud to force estimated 190 sacks of cement away under 1800 psi final pressure. Held 1500 psi on annulus. Started mixing at 12:45 AM, finished mixing at 12:50 AM with cement in place at 1:50 AM. Used Howco.

After standing cemented 17 hours, located top of cement at 6977' and drilled out same to 7030'.

8-10 TO TEST WATER SHUT-OFF ON HOLES AT 7029' IN 8-5/8" CASING: Ran Johnston combination gun and tester, shot holes at 7029'. Set packer at 7000' with tail to 7018'. Opened tool at 5:00 AM. No blow. Pulled and found gun failed to fire. Reran new gun and shot holes at 7029'. Set packer at 7000' with tail to 7018'. Opened tool at 11:00 AM. Puff blow, then dead balance of one hour test. Recovered 10' rise of drilling fluid. Charts Ok. WSO approved by Larry Bright of Division of Oil & Gas.

Drilled out cement and shoe and drilled 7-5/8" hole to 7120'.
Mud: 67#, 38 sec., 6.8 cc., 6% solids.

8-11 Drilled 7-5/8" hole to 7232', TOTAL DEPTH.
Mud: 70#, 49 sec., 7.0 cc., 7% solids.
Ran Welex Compensated Density, Sidewall Neutron, Acoustic Velocity and Induction Electric logs.

8-12 Completed logging and ran Grant Oil Tool hole opener #1 and opened 7-5/8" hole to 14" from 7039' to 7099'.

8-13 Ran 7-5/8" bit and pushed junk to bottom from 7187'. Displaced fluid in hole with lease salt water weighted to 65#/cu. ft. with calcium chloride.

8-14 Ran Grant hole opener #2 and opened hole to 14" from 7099'-7189'. Lost one cone and nose. Reran hole opener #1 and gaged hole from 7039' to 7187'.

1974

8-15 Ran 8 joints or 233.33' of 6-5/8", 24#, K-55, 8rd., L.T.&C. with couplings turned to 7.090' O.D., Layne and Bowler Gru-V-Kut wire weld (0.018 gauge) liner and hung same at 6990' with bottom at 7223'.

LINER DETAIL:

Bottom 7 joints or	194.95'	(7223-7028) wire weld screen with 6-5/8" collar and bull nose on bottom.
Next 1 joint or	32.48'	(7028-6995) blank with tell tale wire weld screen (2' long) at 7014.
Next	2.40'	(6995-6993) 6-5/8" 24# Burns port collar.
Next	3.50'	(6993-6990) 6-5/8" 24# x 8-5/8" 36# Burns lead seal liner hanger with hold down slips.
Total 8 joints	233.33'	(7223-6990)

Tested lead seal Ok with 1000 psi. Tested port collar closed with 700 psi. Opened port collar and commenced gravel packing with Layne & Bowler 12-20 mesh (.030" x .065") washed gravel at 11:00 AM and by 3:00 PM had pumped in 102 sacks. Closed port collar and backscuttled 3 cu. ft. of gravel.

8-16 Ran Burns Tool Company type "A" circulating washer and washed liner (5 passes per connection from 7223-7005. Checked port collar Ok with 750 psi. Opened collar and pumped in 17 sacks of gravel. Closed collar and backscuttled 2 cu. ft. Total gravel 114 cu. ft. of theoretical fill of 124 cu. ft. Rewashed liner as before and repacked with additional 10 cu. ft. of gravel.

8-17 Backscuttled 2 cu. ft. of gravel for final total gravel placement of 122 cu. ft. Checked port collar closed with 1000 psi. Layed down drill pipe and commenced running 2-7/8" tubing. Tubing hydro-tested with 5000 psi and broached with 2.340 O.D. broach.

8-18 Continued picking up and testing tubing. Ran 2-7/8", 6.5#, K-55 & N-80, 8rd. EUE used tubing as follows:

1974

8-18 TUBING DETAIL:

Bottom	0.33	2-7/8" bell collar	7009.30-7008.97
Next	30.60	2-7/8" 6.5# K-55 8rd. EUE used	7008.97-6978.37
Next	0.91	2½" x 3½" Swage	6978.37-6977.46
Next	0.43	3½" collar	6977.46-6977.03
Next	5.35	Brown 8-5/8" 36# Husky M-1 packer	6977.03-6971.68
Next	0.91	3½" x 2½" Swage	6971.68-6970.77
Next	0.43	2½" collar	6970.77-6970.34
Next	0.79	Baker R No-Go nipple	6970.34-6969.55
Next	30.97	2-7/8" tubing as above	6969.55-6938.58
Next	2.33	Udell landing nipple	6938.58-6936.25
Next	31.35	2-7/8" tubing as above	6936.25-6904.90
Next	3.82	2-7/8" Udell ported nipple with shield	6904.90-6901.08
Next	6886.08	221 jts. + 1 pup 2-7/8" tubing as above fitted on top with doughnut	6901.08-15
Next	15.00	Doughnut to K. B.	15 - datum

Rigged up Archer Reed and set retrievable tubing bridge plug at 351'. Tested Ok with 1000 psi. Removed B.O.P. and bit guide and landed tubing on doughnut with 10,000# on packer. Installed Gulfco 8"-5000# tree and tested Ok with 3500 psi. RIG RELEASED AT 6:30 PM, 8-18-74.

SURVEY RECORD

3131-SOUTH & 660-EAST FROM STA. NO. 84

JOB NO IV-66

ONE

DATE 7-18-74

GRD..... 1674
 K.B..... 15
 ELEV..... 1689

MEASURED DEPTH	DRIFT ANGLE	TRUE VERTICAL DEPTH	COURSE DEVIATION	DRIFT DIRECTION	RECTANGULAR COORDINATES				REMARKS	
					NORTH	SOUTH	EAST	WEST		
1	156	155	99	S 86 W				1	36	
2	338	337	98	S 44 W				2	46	
3	520	519	95	S 18 W				3	44	
4	702	701	92	S 57 W				5	98	
5	1018	1016	59	S 61 W				20	00	
6	1049	1047	45	S 58 W				21	57	
7	1231	1228	28	S 52 W				34	25	
8	1417	1412	79	S 47 W				50	26	
9	1601	1595	51	S 63 W				60	08	
10	1818	1811	60	S 59 W				70	31	
11	2002	1995	15	S 56 W				77	49	
12	2218	2210	80	S 58 W				83	98	
13	2434	2426	59	S 74 W				86	58	
14	2654	2646	42	S 74 W				88	96	
15	2967	2959	34	S 74 W				90	84	
16	3351	3343	25	S 71 W				93	57	
17	3414	3405	25	S 29 E				93	81	
18	3444	3436	24	N 20 W				93	07	
19	3476	3468	18	N 24 W				91	29	
20	3633	3623	75	N 01 W				70	12	
21	3757	3745	26	NORTH				45	40	
22	3882	3866	27	N 02 E				14	12	
23	4005	3982	91	N 01 E	24	90				
24	4255	4217	46	N 01 E	111	42				
25	4551	4490	43	N 03 E	225	72				
26	4658	4588	17	N 07 W	268	92				
27	4721	4645	50	N 15 W	294	16				
28	4808	4725	43	N 19 W	326	63				
29	5121	5015	12	N 19 W	438	69				
30	5399	5274	66	N 19 W	532	90				
31	5709	5564	07	N 18 W	638	55				
32	5845	5691	04	N 18 W	684	90				

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

Report on Operations

No. T. 274-288

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

Santa Paula, Calif.
August 13, 1974

DEAR SIR: (037-21457)
Operations at well No. IW 66, Sec. 34, T. 3N, R. 16W, S.B. B & M.
Aliso Canyon Field, in Los Angeles County, were witnessed
on August 10, 1974. Mr. L. Bright, representative of the supervisor was
present from 1400 to 1600. There were also present Mr. J. Boggs, Service Co.,
technician
Present condition of well: 13 3/8" cem. 790'; 8 5/8" cem. 7039', c.p. 7027', perf.
7029', WSO T.D. 7045'.

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

Mr. _____ reported:

THE 8 5/8" SHUT-OFF AT 7029' IS APPROVED.

b

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

By LOD Putzins Deputy

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P. 274-262

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

Santa Paula, Calif.
June 27, 1974

DEAR SIR:

(037-21457)

Your proposal to drill Well No. W 66,
Section 34, T. 3N, R. 16W, S.B.B. & M., Aliso Canyon Field, Los Angeles County,
dated 6/18/74, received 6/25/74, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Sufficient cement shall be pumped back of the 13 3/8" casing to fill from the shoe to the surface. a
2. Drilling fluid of/quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used. NO CONTAMINANTS OR TOXIC MATERIAL SHALL BE USED IN ANY DRILLING FLUID THAT IS TO BE PLACED IN AN UNLINED SUMP.
3. Constant surveillance of drilling fluid characteristics and volume shall be maintained by drilling personnel and by the use of mud pit level, volume, and return monitoring equipment.
4. Any sump used during drilling operations shall be thoroughly cleaned of all drilling materials and the site restored to its prior condition as soon as drilling operations are completed.
5. Blowout prevention equipment, at least of the Division of Oil and Gas Class III rating, shall be installed and maintained in operating condition at all times.
6. Blowout-prevention practice drills shall be conducted each tour at least weekly, and recorded in the log book.
7. Fresh waters and oil or gas zones back of the 8 5/8" casing shall be protected with cement.
8. THIS DIVISION SHALL BE NOTIFIED TO WITNESS:
 - a. A pressure test of the blowout prevention equipment before drilling out of the shoe of the 13 3/8" casing.
 - b. A test of the 8 5/8" water shut-off above the Sesnon zone.

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

Blanket Bond
DER:b

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

By DDP Ritzius, Deputy

DIVISION OF OIL AND GAS
Notice of Intention to Drill New Well
This notice and surety bond must be filed before drilling begins

037-21457

21457

2

Los Angeles Calif. June 18 19 74

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division III, Article 4, Public Resources Code, notice is hereby given that it is our intention to commence drilling well No. IW 66, Sec. 34, 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: as previously filed
(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 _____

From Station 84, 3246' South and 637' East approximate

Elevation of ground above sea level 1674 feet USGS datum.

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

PROPOSED CASING PROGRAM

SIZE OF CASING INCHES A.P.I.	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS
13-3/8"	48#	K-55 Smls	Sfc	800' +	800' +
8-5/8"	36#	K & N Smls	Sfc	7150' +	7150' + & 3500' +
6-5/8"	24#	K-55 Smls	7100'	7350' +	Perforated Liner

Intended zone(s) of completion: Seson 7150' - 7350' Estimated total depth 7350'
(Name) (Depth, top and bottom)

250	6-6-74 Pkw	✓	BB	✓
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It is understood that if changes in this plan become necessary we are to notify you immediately.

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

Los Angeles, CA 90051

By P. S. Magruder, Jr.
P. S. Magruder, Jr.

Telephone Number (213) 689-3561

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