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

Rec'd 08-15-16 DOGGR Ventura.

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Well: Fernando Fee 38 B
A.P.I. No. 03724231
Date: 7/25/2016
Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300

Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
Name: Tom McMahon Title: SIMP Project Manager
(President, Secretary, or Agent)
Telephone Number: 714-398-5020
Signature: Thomas McMahon
(Person Submitting Report)

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

Start Date	Ops this Report (DOGGR)
4/12/2016	Held safety meeting. Serviced rig. Field pressure = 1,058 psi, SITP = 0 psi, SICP = 0 psi. Rigged up (Weatherford) testers. Changed pipe rams from 3 1/2" to 2 7/8". Pressure tested BOP as per Gas Company Standard 224.05: Pressure tested pipe and blind rams, lines and connections 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. Bled off pressure and rigged down (Weatherford) equipment. Addison Williams (DOGGR) inspected BOP equipment. Monitor well. Well dead. Backed out lock screws and tried to pull hanger. Worked hanger free at 92K.. Release (Halliburton) G-6 packer. Laid down hanger and (3) 2 7/8", 6.5#, N-80, 8rd pup joints. Pulled out of the hole with (94) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Filled the hole with 2 bbl's of 8.6 ppg, 56 vis polymer every 10 stands. Laid down gas lift mandrel. Secure well till the AM.
4/13/2016	Held safety meeting. Serviced rig. Field pressure = 1,057', SITP = 0 psi, SICP = 0 psi. Opened well. Pumped 50 bbl's of 8.6 ppg, 56 vis polymer down casing. Continued pulling out of the hole with (120) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Laid down (Halliburton) XO sliding sleeve, (1) joint of 2 7/8", 6.5#, N-80, 8rd tubing, (Halliburton) ON/Off, 4' - 2 7/8", 6.5#, N-80, 8rd pup joint and (Halliburton) 9 5/8", 47# G-6 packer. Filling the hole with 2 bbl's of 8.6 ppg, 56 vis polymer every 10 stands. Tallied and picked up (Weatherford) 9 5/8", 47# scraper and bumper sub. Ran in the hole on (214) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Picked up (4) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Tagged liner top at 6,860". Pulled out of the hole and stood back (218) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Laid down scraper and bumper sub. Filling the hole with 2 bbl's of 8.6 ppg, 56 vis polymer every 10 stands. Tallied and picked up (1) 2 3/8" mule shoe, (20) joints of 2 3/8", 5.95#, WTS-6 tubing, 2 3/8" WTS-6 X 2 7/8" 8rd crossover. Ran in the hole on (216) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Tagged at 7,374'. (PBTD 7,389'). Pulled out of the hole and stood back (188) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Held BOP drill (42 seconds). Filling the hole with 2 bbl's of 8.6 ppg, 56 vis polymer every 10 stands. Secured well till the AM.
4/14/2016	Held safety meeting. Serviced rig. Field pressure = 1,050 psi, SITP = 0 psi, SICP = 0 psi. Pumped 50 bbls of 8.5 ppg, 56 vis polymer down the casing. Open well. Continued pulling out of the hole and stood back (30) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Laid down (20) of 2 3/8", 5.95#, N-80, WTS-6 tubing and mule shoe. Held pre-job safety meeting. Rigged up (Western) wireline unit and lubricator. Ran (Scientific Drilling Inc) Gyro log from 7,353' to surface. Rigged down (Western) wireline unit and lubricator. Ran in the hole with (Halliburton) 9 5/8", 47# 3L bridge plug. Set at 6,848' (COE). Filled the hole with 110 bbls of 8.5 ppg, 56 vis polymer. Tested bridge plug to 1,500 psi for 10 minutes. Bled off pressure and dumped 10' of sand and displaced with 37 bbls of 8.5 ppg, 56 vis polymer. Pulled out of the hole and stood back (90) joints of 2 7/8", 6.5#, N -80, 8rd tubing. Filling the hole with 8.5 ppg, 56 vis polymer every 10 stands. Secure well till the AM.
4/15/2016	Held safety meeting.East field side pressure 1052 psi, Check well pressures: SITP 0 psi, SICP 0 psi, Monitored high winds, 35 mph gusty winds. Unable to pull kill string. Secure well and rig till am.
4/16/2016	Held safety meeting with crew. East Field pressure 1,054 psi. SITP zero psi, SICP zero psi. Pull out of the well with 64 stands of 2-7/8" tubing. Held safety meeting with Schlumberger. Rig up SLB to run Ultrasonic Imager & Cement Bond log. Ran in the well. Tagged sand on top of the bridge plug at 6,831'. Logged 9-5/8" casing to surface. Ran USIT logging tools back to 6,831'. Made high resolution pass from 6,820' to 6,750'. Pulled out of the well. Laid the Sonic/CBL tools down. Lowered the USIT tools to 300' and logged the 9-5/8" casing to surface. Rigged SLB down. Ran in the well with 25 stands. Secured the well.
4/18/2016	Held safety meeting. Serviced rig. Field pressure = 1,055 psi, SITP =0 psi, SICP = 0 psi. Open well. Pulled out of the hole with (50) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Filling the hole every 10 stands. Held pre-job safety meeting. Rigged up (Baker) wireline unit. Logged Vertilog from 6,832' to surface. Logged caliper log from 6,832' to surface. Rigged down (Baker) wireline unit. Measured and picked up (Halliburton) 9 5/8", 47# RTTS packer. Ran in the hole on (110) joints of 2 7/8", 6.5#, N -80, 8rd tubing. Secured well till the AM.

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Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
Name: Tom McMahon Title: SIMP Project Manager
(President, Secretary, or Agent)
Telephone Number: 714-398-5020

Signature: _____
(Person Submitting Report)

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

Start Date	Ops this Report (DOGGR)
4/19/2016	Held safety meeting. Serviced rig. Field pressure = 1,041 psi, SITP = 0 psi, SICP = 0 psi. Opened well. Picked up (2) 8' - 2 7/8", 6.5#, N-80, 8rd pup joints and (1) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Set packer at 3,499' (COE). Rigged up (PROS) test unit. Tested from the bridge plug at 6,848' (COE) to the packer at 3,499' (COE) to 2,250 psi for one hour. Bled off pressure. Tested the annulus from the packer at 3,499' (COE) to surface to 3,625 psi for one hour. Tests were witnessed by Addison Williams with the DOGGR. Rigged down (PROS) test unit. Bled off pressure. Released packer and pulled out of the hole and stood back a (110) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Laid down (Halliburton) 9 5/8", 47# RTTS packer. Rigged down work floor. Nippled down annular and double gate BOP. Nippled down tubing spool. Cameron inspected casing stub and seal. Nippled up crossover spool and double gate BOP. Filled the hole with 8.5 ppg, 56 vis polymer. Secured well.
4/22/2016	Held safety meeting with crew. East field pressure 1,059 psi. Zero psi on well. Nipple down 11" 5M double gate. Install refurbished 13-5/8" x 11' 5M double studded seal flange and 11" 5M tubing head. Packed seals with DESCO plastic packing.Tested the seals to 600 psi low and 3,800 psi high charted for 20 minutes each test. Nipple up 11" Class III BOP. Function tested rams and annular. Rigged up floor and tubing tools. Ran in the well with Halliburton 3L retrieving tool to 4,312'. Closed well in. Shut down for night. Conducted BOP trip drill at 17:15 hours. Well closed in 63 seconds.
4/23/2016	Held safety meeting with crew. East Field Pressure 1060 psi, SITP 0 psi, SICP 0 psi, and open well. Land tubing hanger, pressure test BOP as per SoCal procedures: 300 psi low/3,000 psi high for 20 minutes each test, good test and open well. Install circulating head with 11" 5M - 7" 3M Cross Over flange. Run in the well (80) joints of 2-7/8" L-80 tubing and tag down top of sand at 6831'. Rig up King Swivel with Kelly hose, reverse circulate out sand with 120 BBLS of 8.6 ppg 46 Vis Polymer. Latch onto 9-5/8" 3L bridge plug, Open by pass valve. Well on vacuum. Monitor for 15 minutes to let well equalize. Release bridge plug, monitored well for 15 minutes, no flow and began to pull out of the well. Pull out of the well and stand back (218) joints of 2-7/8" L-80 tubing. Break and lay down 9-5/8" 3L Bridge Plug. The bridge plug lost the bottom packing element. Run in the well (50) joints of 2-7/8" L-80 tubing open ended as kill string. Tubing tail @ 1,590', secure well and rig for the weekend.
4/25/2016	Held safety meeting. Serviced rig. Field pressure = 1,062 psi. SITP = 0 psi, SICP = 0 psi. Pulled out of the hole with (50) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Filling the hole every 10 stands with 8.5 ppg, 56 vis polymer. Tallied and picked up 7 7/8" Reverse circulating junk basket and crossovers. Ran in the hole on (218) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Tagged liner top at 6,860'. Pumped 40 bbls of 8.5 ppg, 56 vis at 4 bpm. Rotated slowly to the liner top. Increased rate to 6 bpm. Pumped a total of 199 bbls of 8.5 ppg, 56 vis polymer. Pulled out of the hole with (218) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Filling the hole every 10 stands with 8.r ppg, 56 vis polymer. Tallied and picked up 2 3/8" mule shoe and (20) joints of 2 3/8", 5.9#, N-80. WTS-6 tubing, 2 3/8" WTS-6 X 2 7/8", 8rd crossover and ran on (218) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Tagged rubber at 7,019' and pushed to 7,374'. Rigged up to lay down tubing. Pulled out of the hole laying down (29) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Secured well till the AM.
4/26/2016	Held safety meeting. Serviced rig. Field pressure = 1,059 psi, SITP = 0 psi, SICP = 0 psi. Opened well. Continued pulling out of the hole laying down (186) joints of 2 7/8", 6.5#, N-80, 8rd tubing. Changed over handling equipment to 2 3/8". Laid down (20) joints of 2 3/8", 5.9#, N-80, WTS-6 tubing and mule shoe. Filled the hole every 20 joints with 8.5 ppg, 56 vis polymer. Changed pipe rams to 3 1/2". Changed out trailers with 3 1/2" tubing. Tested pipe rams 300 psi low / 1500 psi high for 20 minutes. Good test. Rigged up (Weatherford) testers. Tallied and picked up (Halliburton) 9 5/8", 47#, G-6 packer with wireline guide, 4 1/2" X 2 7/8" crossover, (1) 10' 2 7/8", 6.5#, L-80, 8rd pup joint. (Halliburton) 2 7/8" XN nipple (2.313" / 2.205") plug in place, (1) joint of 2 7/8", 6.5#, L-80, 8rd tubing, 2 7/8", (Halliburton Durasleeve) sliding sleeve (2.313"), (1) joint of 2 7/8", 6.5#, L-80, 8rd tubing, 2 7/8" X 3 1/2" crossover, (1) joint of 3 1/2", 9.3#, L-80, 8rd tubing. Bundle tested to 5000 psi. Good test. Rigged up (Western) wireline unit and pulled plug from XN nipple. Rigged down (Western) wireline. Rigged up (Weatherford) bar tools. Continued to tally, drift and pick up (57) joints of 3 1/2", 9.3#, L-80, 8rd tubing. Hydrotesting to 5000 psi. Secured well till the AM.

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Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
Name: Tom McMahon Title: SIMP Project Manager
(President, Secretary, or Agent)
Telephone Number: 714-398-5020

Signature: _____
(Person Submitting Report)

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Start Date	Ops this Report (DOGGR)
4/27/2016	Held safety meeting. Serviced rig. Field pressure = 1.065 psi, SITP = 0 psi, SICP = 0 psi. Pumped 40 bbls of 8.5 ppg, 56 vis polymer down the annulus. Open well. Continued to tallying and picking up (157) of 3 1/2", 9.3#, L-80, 8rd tubing. Seal Lubed every connection and hydrotesting to 5,000 psi. Rigged down (Weatherford) testers. Made up 3 1/2" X 2 7/8" crossover, (1) joint of 2 7/8", 6.5#, L-80, 8rd tubing, (1) 10' - 2 7/8", 6.5#, L-80, 8rd pup joint, (1) 2' - 2 7/8", 6.5#, L-80, 8rd pup joint and 11" tubing hanger. Bundled tested to 5,000 psi. Good test. Rigged up circulating equipment and pumped 100 bbls packer fluid. Set (Halliburton) 9 5/8", 47# G-6 packer at 6,821' (COE) in 10K compression. Rigged up (Western) wireline. Ran in with PXN plug and set in "XN" nipple at 6,807'. Pulled out of the hole. Ran in with shifting tool and opened sleeve (down) at 6,777'. Pulled out of the hole. Rigged up circulating equipment. Pumped a 100 bbls of 8.5 ppg, 56 vis polymer to fill the hole. Secured well till the AM.

D 'ARTMENT OF CONSERVAT N

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. T216-0152

REPORT ON OPERATIONS

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

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

Ventura, California
May 05, 2016

Your operations at well **"Fernando Fee" 38B**, A.P.I. No. **037-24231**, Sec. **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **4/28/2016**, by **Daniel Woldemariam**, a representative of the supervisor.

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By _____
Patricia A. Abel
District Deputy

DW1/tkc
OG109

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

T 216-0152
16,1

Casing and Tubing Pressure Test

Operator: So Cal Gas Well Designation: Fernando Fee 38B

Sec. 27, T. 03N, R. 16W, SB B.M. API No. 03724231 Field: Aliso Canyon

County. Los Angeles Witnessed on: 04/28/2016. Daniel Woldemarcam, representative

of the supervisor, was present from 0600 to 10:30.

Also Present were Mathews Melnar from PROS

Casing Record of the Well: 13 3/8 54.5#, K-55, 0-760'

9 5/8 47 #, N-80, 0-7499'

The operations were performed for the purpose of testing the Casing and tubing integrity

Pressure Test of the Casing

Packer/ Bridge Plug at 6821
Casing Pressured with polymer 8.5
Casing Pressure Start PSI: 1108
Casing Pressure End PSI: 1107
Pressure Held 60 Min. Total drop in Pressure 1 psi 0.09 %.

Well Type Gas storage
Volume ½ bbl
Start Time: 08:05
End Time: 09:05

Test Result: ✓ Good _____ Not Good

Pressure Test of the Tubing

Packer/ Bridge Plug at 6807
Tubing Pressured with polymer 8.5
Tubing Pressure Start PSI: 3806
Tubing Pressure End PSI: 3773
Pressure Held 60 Min. Total drop in Pressure 27 psi 0.7 %.

Well Type Gas storage
Volume 1½ bbl
Start Time: 09:25
End Time: 10:25

Test Result: ✓ Good _____ Not Good

Remarks: _____

D 'ARTMENT OF CONSERVAT N

No. T216-0136

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

REPORT ON OPERATIONS

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

Amy Kitson
Southern California Gas Company (S4700)
12801 Tampa Ave., SC9382
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Ventura, California
May 05, 2016

Your operations at well **"Fernando Fee" 38B**, A.P.I. No. **037-24231**, Sec. **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **4/19/2016**, by **Addison T. Williams**, a representative of the supervisor.

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By _____
Patricia A. Abel
District Deputy

ATW/tkc
OG109

No. T 216-0136

16,1

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

PRESSURE TEST (MIT)

Operator SoCal Gas Well Designation "Fernando Fee" 38B

Sec. 27, T. 03N, R. 16W, SB B.& M. API No. 037-24231 Field Aliso Canyon

County Las Angelas. Witnessed on 4/19/16. Addison T. Williams, representative

Supervisor, was present from 0600 to 0945.

Also present were Jeff Sandoval 661-301-7102

Casing record of the well

The operation were performed for the purpose of determining casing integrity. Block Test

Pressure Test Casing

Packer at PKR @ 3500' Bridge Plug @ 6848' Well Type GS

Casing Pressured With Polimer 8 1/2# & Water Volume N/A

Casing Pressure Start (psi) Csg 3677psi Start Time 0838

Casing Pressure End (psi) Csg 3662psi End Time 0938

Pressure Held 60min minutes. Total change in pressure 15psi psi 0.00407 %

Test results X Good ____ No Good ____ Inconclusive

Pressure Test Tubing

Plug-Back to PKR @ 6770' Bridge Plug @ 6757' Well Type GS

Tubing Pressured With Polimer 8 1/2# & Water Volume N/A

Tubing Pressure Start (psi) Tbg 2298psi Start Time 0713

Tubing Pressure End (psi) Tbg 2288psi End Time 0813

Pressure Held 60min minutes. Total drop in pressure 10psi psi 0.0043 %

Test results X Good ____ No Good ____ Inconclusive

Remarks Chart recorder calibrated 2/26/16

Pressure Gage calibrated 2/26/16 ID 2105-10, ID 2000-0650C

Rig Ensign 341

D 'ARTMENT OF CONSERVAT. .N

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. T216-0123

REPORT ON OPERATIONS

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

Amy Kitson
Southern California Gas Company (S4700)
12801 Tampa Ave., SC9382
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Ventura, California
May 05, 2016

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By _____ for
Patricia A. Abel
District Deputy

ATW/tkc
OG109

API No. 037-24231 DIVI N OF OIL, GAS, AND GEOTHERMAL RESOI ES T 216-0123

BLOWOU PREVENTION EQUIPMENT MEMO 12.1

Operator SoCal Gas Well Fernando Fee 38-B Sec. 27 T. 03N R. 16W SB
Field Aliso Canyon County Las Angeles Spud Date

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	4/12/16	Addison T. Williams	(0905 to 1130)		
2nd			(to)		

Contractor Ensign Rig # Ensign 341 Contractor's Rep. & Title Jeff Sandoval 661-301-7102
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 9⅝ 47# " casing are approved.

Proposed Well Opns: Csg Logs & SIMP . MACP: psi **REQUIRED BOPE CLASS:** 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

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul
A	CSO	Shaffer		11"	5K	V5/16
Rd	2⅞	NOV		11"	5K	1/5/16
Rd	CSO	NOV		11"	5K	1/5/16

TEST DATA

Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
18.67						
2.8						
2.8						

ACTUATING SYSTEM

Accumulator Unit(s) Working Pressure 3000 psi
Total Rated Pump Output 5 gpm Fluid Level 1/4
Distance from Well Bore 50 ft.

	Accum. Manufacturer	Capacity	Precharge
1	Koomey	80 gal.	1000 psi
2		gal.	psi

TOTAL: 24.27

CONTROL STATIONS	Elec.	Hyd.	Pneu.
Manifold at accumulator unit			✓
Remote at Driller's station			✓
Other:			

EMERG. BACKUP SYSTEM

			Press.	Wkg. Fluid
4	N_2 Cylinders	1 L= 55 "	2700	10 gal.
	Other:	2 L= 55 "	2650	10 gal.
		3 L= 55 "	2600	9 gal.
		4 L= 55 "	2600	9 gal.
		5 L= "		gal.
		6 L= "		gal.
		TOTAL: 10550	38	gal.

AUXILIARY EQUIPMENT

	No.	Size (in.)	Rated Press	Connections: Weld	Connections: Flange	Connections: Thread	Test Press.
Fill-up Line							
• Kill Line							
Control Valve(s)							
Check Valve(s)							
Aux. Pump Cnnct.							
• Choke Line							
Control Valve(s)							
Pressure Gauge							
Adjstble Choke(s)							
Bleed Line							
Upper Kelly Cock							
Lower Kelly Cock							
Standpipe Valve							
Stndpipe Pres. Gau.							
Pipe Safety Valve		2⅞	5K				
Internal Preventer		2⅞	5K				

HOLE FLUID MONITORING EQUIPMENT

	Alarm Type: Audible	Alarm Type: Visual	Class
Calibrated Mud Pit			A
Pit Level Indicator			B
Pump Stroke Counter			B
Pit Level Recorder			C
Flow Sensor			C
Mud Totalizer			C
Calibrated Trip Tank			C
Other:			

Hole Fluid Type	Weight	Storage Pits (Type & Size)

REMARKS AND DEFICIENCIES: Test Result Good-OK #12

OGD9 (9/06)

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

Operator: **Southern California Gas Company** WELL DESIGNATION **"Fernando Fee" 38B**

API No. **03724231** SE **27** T: **3N** R.: **16W** , **SB** B. and M.

County: **Los Angeles** FIELD: **Aliso Canyon**

Type of Notice: **Rework** **Date** **4/12/2016** **Report Number:** **P216-0044**

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

	Date	OK	NEED	Remarks
Well Summary (OG100)				
History (OG103)				
E-Log				
Mud Log				
Dipmeter				
Directional				
Core and/or SWS				

NEW STATUS

DATE: _____

NOTICE OF RECORDS DUE

DATE: _____

DATE: _____

DATE: _____

DATE: _____

WELL STATUS INQUIRY

DATE: _____

DATE: _____

Well Stat

Change Required: _____

Change Done: _____

ABANDONMENTS/REABANDONMENTS/DRILLS/REDRILLS

CalWims Abandonment Form: _____ SURFACE INSPECTION NEEDED _____ COMPLETED _____
Date and Inspector

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

ENGINEER'S CHECK LIST

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

Calwims Location _____ Calwims ELEVATION: _____ CONFIDENTIAL RELEASE DATE: _____ PERMIT REQUIREMENTS MET _____

CLERICAL CHECK LIST

LOCATION CHANGE (OG165) _____ ELEVATION CHANGE (OG165) _____ RELEASE OF BOND (OG150) _____

REMARKS

RECORDS SCANNED: _____
(Date)

RECORDS APPROVED: _____
(Date and Engineer)

Modfied OGD2

AOR Datbase _____

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

No. P 216-0044

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

PERMIT TO CONDUCT WELL OPERATIONS

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

Ventura, California
April 18, 2016

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

Your proposal to **Rework** well **"Fernando Fee" 38B**, A.P.I. No. **037-24231**, Section **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, **--** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **4/12/2016**, received **4/12/2016** has been examined in conjunction with records filed in this office. (Lat: **34.309668** Long: **-118.544513** Datum:**83**)

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
   a. Class **III 5M** on the **9-5/8"** casing.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. A 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 **9-5/8"**casing has integrity.
6. Prior to commencing injection, a pressure test is conducted to demonstrate the mechanical integrity of the **9-5/8"** 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 **9-5/8" casing** prior to commencing injection.

(CONTINUED ON PAGE 2)

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

Engineer Randall Morlan
Office (805) 654-4761

RM/rm

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

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

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

Well #: **"Fernando Fee" 38B**
API #: **037-24231**
Permit : **P 216-0044**
Date: April 18, 2016

NOTE:

1. No operation shall be undertaken or continued that will contaminate or otherwise damage the environment.
2. 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.
3. 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.**
4. 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: **Requirements of Comprehensive Safety Review of 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.

Rc J4-12-16 DOGGR Ventura.

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

FOR DIVISION USE ONLY		
Bond	Forms ~~OGD114~~	OGD121
	CAL WINS	1154

P216-0044

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 ☐ (Check one) well Fernando Fee 38B, API No. 037-24231,

Sec. 27, 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: 7503 feet. The effective depth is: 7389 feet.

Present completion zone(s): Sesnon (Name). Anticipated completion zone(s): Same (Name).

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

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

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

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

See attached program

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

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: Jovy Kroh	Telephone Number: 937-239-0279	Signature: Jovy Kroh	Date: 04/12/2016
Individual to contact for technical questions: Jovy Kroh	Telephone Number: 937-239-0279	E-Mail Address: jkroh@semprautilities.com	

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

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

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

CRITICAL WELL DEFINITION

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

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

WELL OPERATIONS REQUIRING BONDING

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

This form may be printed from the DOGGR website at www.conservation.ca.gov/dog/

WORKOVER PROJECT

Fernando Fee 38B – Well Inspection

DATE: April 12, 2016

OPERATOR: SOUTHERN CALIFORNIA GAS COMPANY

FIELD: ALISO CANYON

WELL: Fernando Fee 38B

API NUMBER: 037-24231

ELEVATION: All depths based on original KB, 32' above GL

SURFACE LOCATION: SEC 27, T3N, R16W, S.B. B&M

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 2-7/8" completion string, running casing inspection logs, pressure testing casing and well laterals, installing a new completion string, converting well to tubing flow, and installing pressure monitors. Baseline assessment data will be gathered on vertical casing pipe and other well components.

WELL RECORD

Current Status:	Active
TD:	7503'; PBTD at 7389'
Special Conditions:	Last tagged at 7383', temp survey 03/11/2016
Casing Record:	13-3/8", 54.5#, K-55 casing cemented at 760' with 506 sks 9-5/8", 47#, N-80 casing cemented at 7499' with 1376 sks Perfs: 7035'-7100', six 5/8" HPF; 6952'-7002', six ½" HPF Perforated 6-5/8", 24#, K-55, LTC shroud jacketing 4", 11.0#, K-55, LTC 0.012" WWS liner from 6854' to sump packer at 7114'. Note: WWS from 6932'-7015' & 7034'-7114' (opposite 9-5/8" perf intervals).
Tubing Record:	See attached tubing detail as run 02/14/2003

GEOLOGIC MARKERS

MP	6636'md	-4766'vss	S8	7023'md	-5138'vss
S1	6868'md	-4989'vss	S10	7060'md	-5173'vss
S2	6906'md	-5025'vss	S12	7104'md	-5216'vss
S4	6954'md	-5072'vss	S14	7134'md	-5245'vss
S6	6974'md	-5091'vss	Frew	7150'md	-5260'vss

Estimated Field Pressure: 1057 psi on 04/11/2016 (Variable)

Estimated Bottom-hole Temperature: 179°F from 03/11/16 temperature survey

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 as stated on permit.

PRE-RIG WORK

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

2. Complete slickline work as required to set-up well for circulation.

WELLWORK PROGRAM

1. Move in production rig and rig pump with tank, shaker, and mixer.

2. Spot 500 bbl Baker tanks and load with 8.5 ppg KCl brine.

   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

3. Change well over to 8.5 ppg KCL brine. The tubing volume is approximately 40 bbls. and the tubing/casing annulus is approximately 445 bbls. Use HEC polymer as required to minimize lost circulation.

4. Install backpressure valve in tubing hanger. Nipple down tree. Send-in wellhead and tree components to Cameron for inspection.

5. +++Install a 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.) 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.
   b.) 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.
   c.) All tests are to be charted and witnessed by a DOGGR representative.
   d.) Remove BPV.

6. Release G-6 production packer at 6827' and POOH standing back 2-7/8", EUE 8rd, N-80 tubing string and lay down packer, SSD & mandrel. Note: packer was landed in 10,000 lbs. compression.

7. Pick-up a 9-5/8", 47# casing scraper on 2-7/8" production string and RIH to 4" liner 6854'. Circulate well clean. POOH.

8. RIH with clean-out assembly for 4", 11# liner and clean-out through liner and sump packer at 7114' to effective depth at 7389'. POOH.

   Notes: Smallest ID in liner is 3.473". Temperature log run on 03/11/2016' found pick-up at 7383'.

9. Make-up and run a 9-5/8" retrievable bridge plug (BP) on production string. Set at approximately 6844' (10 ft above liner top), pressure test, and sand off.

10. Rig-up wireline unit(s) with lubricator and run the following:

    a.) Gyro survey from BP to surface
    b.) Ultrasonic imager from BP to surface
    c.) Magnetic flux leakage BP to surface
    d.) Multi-arm caliper log from BP to surface
    e.) Cement bond log from BP to top of cement

11. RIH with a test packer and run a Pressure Integrity Test on 9-5/8" casing from surface to BP to 115% of the wells maximum allowable operating pressure (3625 psi) as per attached Pressure Test Schedule. POOH with test packer.

    a.) Engineering team to analyze log and pressure test results and recommend any additional remediation.

12. Nipple down 11" Class III 5 M BOPE, crossover spool, and primary pack-off.

    a.) Replace the pack-off seals and reinstall tubing head, refurbished as necessary. Install new wellhead and tree valves.
    b.) Pressure test all the wellhead seals to 3625 psig.
    c.) Reinstall the 11" Class III BOPE and function test.

13. RIH with retrieving tool for BP on production string to top of sand. Circulate out sand and engage BP. Release BP at 6844', circulate as required to control. POOH and lay down workstring.

14. RIH with new completion string as follows:

    a.) 4-1/2" 12.6# L-80 EUE 8RD wireline re-entry guide
    b.) 4-1/2" 12.6# x 9-5/8" 47# TCPC production packer
    c.) 10' pup joint 4-1/2" 12.6# L-80 TCPC tubing
    d.) 4-1/2" 12.6# L-80 TCPC XN no-go nipple
    e.) 8' Blast joint 4-1/2" 12.6# L-80 TCPC tubing
    f.) Full joint 4-1/2" 12.6# L-80 TCPC tubing
    g.) 4-1/2" 12.6# L-80 TCPC sliding sleeve
    h.) Full joint 4-1/2" 12.6# L-80 TCPC tubing
    i.) 4-1/2" 12.6# TCPC Pin x 5-1/2" 20# TCPC Box Crossover pup joint
    j.) 5-1/2" 20# L-80 TCPC tubing to surface

k.) Pup joints 5-1/2" 20# L-80 TCPC tubing for space-out
l.) 4' 5-1/2" 20# L-80 TCPC fatigue nipple (pin x pin)
m.) 10-3/4" Tubing hanger with 4-1/2" EUE top box / 4" BPV / 5-1/2" TCPC bottom box

Notes: Run sliding sleeve in closed position. Ensure new production packer depth is at or above depth at which retrievable bridge plug was used for pressure testing.

15. Land tubing as per vendor specifications. **Note: amount of compression to set on packer will be determined by Force Analysis / Tube Move Calculations.**

16. Rig-up slickline unit and lubricator. Set a plug in the 4-1/2" XN profile.

17. 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.

18. RIH and recover plug from XN nipple. RIH and shift the sliding sleeve open.

19. Rig-up nitrogen unit. Recover workover fluid by pumping down annulus taking returns up tubing.

20. RIH with slickline and shift sliding sleeve closed. POOH and rig down slickline unit.

21. Install BPV in tubing hanger. Nipple down the Class III 5M BOPE and install the production tree and test to 5000 psig. Remove BPV.

22. Release production rig, rig down and move out.

WELL LATERAL HYDROTESTING

21. Per Gas Company Standard 182.0170, pressure test the tubing and casing pump-in laterals from the wellhead to the remote tie in to 3625 psig. Pressure test the tubing and casing withdrawal/injection laterals from wellhead to operating valves to 3625 psig.

22. Reinstall the hydro-tested laterals.

23. Install the well safety systems and instrumentation. Install pressure transmitters on tubing, casing, and surface casing.

24. Release well to operations.

EXTERNAL CORROSION PROTECTION

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

Tubing Detail as ran 02/14/2003:

Quantity	Item	Length	Depth
1	KB	32.00	32.00
1	Donut	0.52	32.52
1	2-7/8", EUE 8rd, N-80 pup jt	5.95	38.47
1	2-7/8", EUE 8rd, N-80 pup jt	8.10	46.57
1	2-7/8", EUE 8rd, N-80 pup jt	1.74	48.31
94	2-7/8", EUE 8rd, N-80 tbg.	2956.71	3005.02
1	2-7/8", EUE 8rd, N-80 pup jt.	4.16	3009.18
1	2-7/8" mandrel	6.06	3015.24
1	2-7/8", EUE 8rd, N-80 tbg. pup jt.	0.67	3015.91
120	2-7/8", EUE 8rd, N-80 tbg.	3769.10	6785.01
1	XO sliding sleeve	3.20	6788.21
1	2-7/8", EUE 8rd, N-80 tbg.	30.77	6818.98
1	On/off tool	2.47	6821.45
1	2-7/8", EUE 8rd, N-80 pup jt.	4.20	6825.65
1	X-over	1.07	6826.72
1	Packer	5.32	6832.04
1	Bell Collar	0.52	6832.56

Casing Pressure Test Schedule:

Well: Fernando Fee 38B

		External Casing Backup Pressure			Pressure Test Net Burst Pressure @ Depth				Tubing Leak Net Burst Pressure @		
Depth (TVD)	85% of Burst Strength	Fluid / Formation Pressure Gradient	External Casing Backup Pressure	Internal Water Hydrostatic	1	2	3	Final	Gas-Filled Annulus	Test Pressuree > 85% of Burst	Test Pressure < Tubing Leak - Net Burst (Gas-filled annulus)
				Surface Test Pressure	3625			2250	3625		
				Test Packer Depth	3500						
				Test Down Casing or Tubing	Casing			Tubing			
				Bridge Plug Depth				6844			
0	5840	0.00	0	0	3625			2250	3625		
500	5840	0.00	0	221	3846			2471	3670		
1000	5840	0.00	0	442	4067			2692	3716		
1500	5840	0.00	0	663	4288			2913	3761		
2000	5840	0.00	0	884	4509			3134	3806		
2500	5840	0.00	0	1105	4730			3355	3852		
3000	5840	0.00	0	1326	4951			3576	3897		
3500	5840	0.00	0	1547	5172			3797	3942		
4000	5840	0.00	0	1768	-			4018	3988		
4500	5840	0.00	0	1989	-			4239	4033		
5000	5840	0.00	0	2210	-			4460	4078		
5500	5840	0.00	0	2431	-			4681	4123		
6000	5840	0.00	0	2652	-			4902	4169		
6500	5840	0.00	0	2873	-			5123	4214		
6844	5840	0.00	0	3025	-			5275	4245		
				0.442 psi/ft int. grad.					0.091 psi/ft int. grad.		

Rec'd 04-12-16 DOGGR Ventura.

Well
Fernando Fee 38B

API #: 04-037-24231-00
Sec 27, T3N, R16W

Operator: So. California Gas Co.

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

Ground Elevation: 1708' asl
Datum to Ground: 32' KB

Spud Date: 10/31/2001
Completion Date: 11/17/2001

Junk: None

13-3/8" ETOC Surface
9-5/8" ETOC Surface

17-1/2" Hole
(to 860')

Surface Casing
13-3/8", 54.5#, K-55
0' - 760

CMT'D w/ 506 SKS

760'

12-1/4" Hole

Production Casing
9-5/8", 47#, N-80
0' - 7499'

CMT'D w/ 2633 CF/1376 SKS

6854'

9-5/8" ECP 6869' - 6898'
(per Collar Log, CMT'D w/ 229 CF)

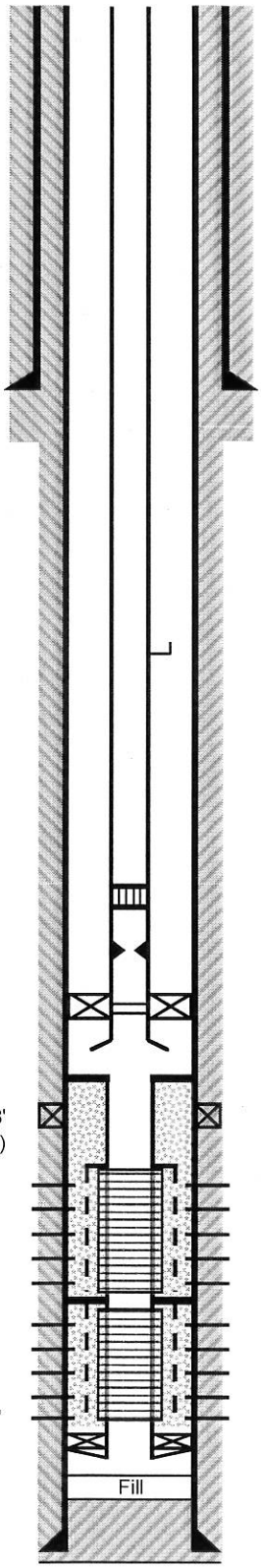
6952'

Inner Liner
4", 11#, K-55
6854' - 7114'
w/ 6-5/8", 24#, K-55 Perf'd Shroud
f/ 6932' - 7011' & 7029' - 7110'

7100'

PBTD 7389'

TD 7503' 7499'
TD VSS (-5600')
Directionally Drilled: Yes (TD is 242' E, 943' N of Surf, 7380' TVD)



Tubing
2-7/8", 6.5#, N-80
0' - 6826'

3009' GLM w/ BK-2 Latch (w/ Dummy Valve)

Top of Zone Markers		
MP	6636'	(-4766')
S1	6868'	(-4989')
S4	6954'	(-5072')
S8	7023'	(-5138')
CR	7150'	(-5260')

6785' XO Sliding Sleeve

6819' On / Off Tool (Dresser Type, Left hand release)
6826' 2-7/8" x 4-1/2" X-Over
6827' G-6 PCKR

6833' 4-1/2" Bell Collar

9-5/8" Perfs:
6952' - 7002' Six (6) 1/2" HPF (1/21/2003)
(Frac'd on 1/28/2003, Pumped Away ~2,250 lbs. 20/40 Gravel)
7035' - 7100' Six (6) 5/8" HPF (5/11/2002)
(Frac'd on 1/17/2003, Pumped Away 25,000 lbs. 20/40 Resin Coated Sand)

7028' 4" Adapter

Inner Liner Perfs:
6932' - 7015' & 7034' - 7114' 0.012" ga. WWS

Frac Packed w/ See Perfs for Details

7114' - 7122' AWD Sump PCKR w/ Mule Shoe

7383' Tagged Fill (3/11/2016)

Prepared by: CAM (3/29/2016)

InterAct

Well
Fernando Fee 38B

API #: 04-037-24231-00
Sec 27, T3N, R16W

Production Casing Pressure Test - Program

Operator: So. California Gas Co.

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

Ground Elevation: 1708' asl
Datum to Ground: 32' KB

Spud Date: 10/31/2001
Completion Date: 11/17/2001

Junk: None

13-3/8" ETOC Surface
9-5/8" ETOC Surface

17-1/2" Hole
(to 860')

Surface Casing
13-3/8", 54.5#, K-55
0' - 760

CMT'D w/ 506 SKS

760'

Tubing
2-7/8", 6.5#, N-80
0' - 6826'

12-1/4" Hole

TEST 3500' to Surface - 3625 psi
TEST 3500' to 6844' - 2250 psi

9-5/8" Test Packer (COE @ 3500')

Production Casing
9-5/8", 47#, N-80
0' - 7499'

CMT'D w/ 2633 CF/1376 SKS

Top of Zone Markers		
MP	6636'	(-4766')
S1	6868'	(-4989')
S4	6954'	(-5072')
S8	7023'	(-5138')
CR	7150'	(-5260')

6844' 9-5/8" Retrievable Bridge Plug

6854'

9-5/8" ECP 6869' - 6898'
(per Collar Log, CMT'D w/ 229 CF)

6952'

9-5/8" Perfs:
6952' - 7002' Six (6) 1/2" HPF (1/21/2003)
(Frac'd on 1/28/2003, Pumped Away ~2,250 lbs. 20/40 Gravel)
7035' - 7100' Six (6) 5/8" HPF (5/11/2002)
(Frac'd on 1/17/2003, Pumped Away 25,000 lbs. 20/40 Resin Coated Sand)

7028' 4" Adapter

Inner Liner
4", 11#, K-55
6854' - 7114'
w/ 6-5/8", 24#, K-55 Perf'd Shroud
f/ 6932' - 7011' & 7029' - 7110'

Inner Liner Perfs:
6932' - 7015' & 7034' - 7114' 0.012" ga. WWS

Frac Packed w/ See Perfs for Details

7100'

7114' - 7122' AWD Sump PCKR w/ Mule Shoe

Fill

7383' Tagged Fill (3/11/16)

PBTD 7389'

TD 7503' 7499'
TD VSS (-5600')
Directionally Drilled: Yes (TD is 242' E, 943' N of Surf, 7380' TVD)

Prepared by: CAM (3/29/2016)

InterAct

OPERATOR Southern CA Gas Co. A.P.I. 03- 24231

WELL NO. "Fernando Fee" 35B SECTION 27, T. 3 N, R. 16 W

MAP

INTENTION	Drill	REWORK				
NOTICE DATED	5-22-01	01/06/2003				
P-REPORT NUMBER	201-219	P203-1				
CHECKED BY/DATE						
MAP LETTER DATED		2-12-05				
SYMBOL						

	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED
NOTICE	9-19-01		01/06/03									
HISTORY	7-12-02		12-13-94									
SUMMARY	7-10-02											
E-LOG w/ DENSITY	2-11-02											
MUD LOG												
DIPMETER												
DIRECTIONAL	7-10-02											
CORE/SWS												
CBL												
CALIPER/GAMMA	2-11-02											
PERF MEMO	6-4-02											

ENGINEERING CHECK

T-REPORTS		✓				
OPERATOR'S NAME		✓				
WELL NO.		✓				
LOC & ELEV		✓				
SIGNATURE		✓				
SURFACE INSP.						
DRILL CARD						

RECORD'S COMPLETE 7-25-02 SPM 1-21-05 MD

FINAL LETTER OK

MAILED

RELEASED BOND

INJECTION BOOK

IDLE WELL LIST

SURFACE INSP. CARD

REMARKS:

OK TO RELEASE FROM CONFIDENTIAL

ABANDONED-REMOVED FROM E.D.P.

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
Well: Fernando Fee 38 B
A.P.I. No. 037-24231

Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
Mike Dozier Title: Technical Specialist
(Person Submitting Report) (President, Secretary, or Agent)

Date: 12/09/2004 Signature: Michael L Dozier

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number: 818-700-3235

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

Start Date	Ops DOGGR
12/23/2002	Pre rig
12/26/2002	Pre rig
12/30/2002	Pre rig
01/03/2003	Move in rig up
01/06/2003	Rigged up equipment and remove laterals.
01/07/2003	Pumped 65 bbls. of polymer down tubing, displaced with 10 bbls. of 3% KCL. Rigged up wireline, ran guage ring to 6980'. Pulled out of well with gauge ring, ran in well and set "F" stop at 6786' and rigged down wireline. Ran in well and shot one 3/8" hole in tubing at 6783', pulled out of well with "F" stop. Circulated well with 445 bbls. 3% KCL
01/08/2003	Removed wellhead, nippled up and tested BOP. BOP test approved by Anneliese Anderle (CADOGGR). Rigged up working floor and tubing equipment.
01/09/2003	Released HES G-6 packer circulated well. Pulled out of well with 2-7/8" tubing. Took gas kick, closed in well and circulated gas bubble out. Pulled out of well, laid down packer and gun assembly. Made up 9-5/8" casing scraper and ran in well to 4000'.
01/10/2003	Continued running in well with 2-7/8" tubing to 7399'. Reverse circulated 90 bbls. Pulled out of well laying down 2-7/8" tubing and casing scraper.
01/13/2003	Pulled out of well with kill string. Rigged up wireline, ran cement bond log from 7385' to 5000'. Rigged up and ran sump packer and set at 7114'. Rigged down wireline. Made up wash tools and ran in well.
01/14/2003	Continued running in well with wash tools to 6972'. Wash cups failed to hold pressure. Pulled out of well.
01/15/2003	Continued pulling out of well and layed down wash tools. Made up 9-5/8" pin point injection tool and ran in well. Tested tool at 3225' and continued running in well to 7114', tagged packer, pulled to 7100'. Washed perforations from 7100' to 7035'. Pulled out of well to 6902'.
01/16/2003	Continued pulling wash tools out of well. Made up wire wrapped liner with 6-5/8" shroud and ran in well to 6915'.
01/17/2003	Set frac packer at 6894'. Tested to 2000 psi. Frac'd well per program, successfully pumped away 25,000 lbs. of 20/40 resin coated sand. Pulled four stands out of well.
01/20/2003	Pulled gravel pack equipment out of the well. Installed a shooting flange, rigged up wireline unit and ran a 9-5/8" retrievable bridge plug and set top of same at 7006'. Ran in well with a dump bailer and placed one cubic foot of 8/12 gravel on top of the bridge plug. Pulled dump bailer out of well and ran in with a kill string.
01/21/2003	Pulled kill string out of well. Rigged up and ran in well with perforating guns. Perforated 9-5/8" casing form 6952' to 7002' with six, 1/2" holes per foot. Pulled guns out of well, ran in well with 9-5/8" scraper to 7007'. Pulled scraper out of well. Ran in well with pin point injection tool and an isolation packer with 5' spacing to 2189'.
01/22/2003	Continued running pin point injection tool in well and set at 6906'. Tested tool to 5000 psi. OK. Ran in well and tagged top of sand at 7005'. Washed perforations from 7000' to 6952'. Pulled pin point injection tool out of well and ran in well with bridge plug retreiving tool.
01/23/2003	Ran in well, circulated clean, engauged bridge plug and pulled it out of well. Made up 403' of wire wrapped, 4" liner, 30' of 4" blank liner and gravel pack tools. Ran in well to 7015', engauged top of existing liner and tested annulus between 3-1/2" and 9-5/8" to 2500 psi.
01/24/2003	Attempted to frac well with 27,200 lbs. of sand. Sand did not screen out, tool test failed. Released from liner, pulled four stands out of well.
01/27/2003	Continued pulling frac tools out of well. Made up cup type gravel pack tools and ran in well, engauged the existing liner at 6888'. Pulled 4,000 lbs over to verify latch.
01/28/2003	Pumped 2000 lbs. of 20/40 gravel. Pumped 1000 lbs. of gravel. Reversed out 22 bbls. with 500 to 1000 lbs. of gravel in returns. Pumped 1000 lbs. of gravel. Reversed out 150 barrels with 1000 lbs of gravel in returns. Pulled on tubing and verified that the wicker was not latched. Pulled work string out of the well and found the threads on the overshot washed out. Ran in well with 70 joints.

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
Well: Fernando Fee 38 B
A.P.I. No. 037-24231

Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
Mike Dozier Title: Technical Specialist
(Person Submitting Report) (President, Secretary, or Agent)

Date: 12/09/2004 Signature:

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number: 818-700-3235

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

Start Date	Ops. DOGGR
01/29/2003	Pulled out of well with 70 joints. Made up 8-1/2" x 4-1/2" mill shoe and ran in well to the top of the sand @ 6866'. Circulated out 20/40 gravel from 6866' to the top of the landing nipple 6888'. Milled on centralizing fins from 6889' to 6890'. Unable to work deeper. Pulled four joints out of well.
01/30/2003	Tested 3-1/2" x 9-5/8" annulus against the pack for 15 minutes, OK. Pulled sizing mill out of the well. Ran in with 7-3/4" impression block on sand line to 6888'. Pulled impression block out of the well. Impression block showed damage to the top of the landing nipple. Ran in well with 70 joints.
01/31/2003	Pulled 70 joints out of the well. Made up 8-1/8" x 6-5/8" mill, ran in well and tagged at 6890'. Cleaned out around the landing nipple to 6896'. Milled top of the landing nipple down to 6891'. Pumped 100 bbls. of polymer sweep. Circulated 435 bbls. of KCL at 6 bbls. per minute. Mixed and pumped 80 bbls. polymer pill. Circulated 435 bbls. of KCL. Pulled 4 joints out of the well.
02/03/2003	Continued pulling mill assembly out of the well. Ran in the well with an impression block on sand line to 6890'. Pulled impression block out of the well. Ran in well with an overshot and seals to the top of the landing nipple at 6890'.
02/04/2003	Tagged down at 6890' and began bailing operations. Retreived metal shavings. After several bailer runs, bailer unscrewed from sand line weight bar. Pulled sand line out of the well and ran in with an over shot and fished bailer. Continued bailing at 6890' retrieving pieces of metal. Unable to work deeper.
02/05/2003	Shut down for the day. Scheduling coiled tubing
02/06/2003	Riged up and ran coiled tubing to 6890', unable to work deeper. Made 20 bbl. sweep with gel. Pulled coiled tubing out of the well. Made up 2.35" mill and motor on coiled tubing and ran in the well to 6890' and cleaned out to 7001'. Pulled out of the well and serviced the motor. Ran back in the well with coiled tubing and 2.35" mill, cleaned out to 7014'. Unable to work deeper. Made 20 bbl. sweep with gel.
02/07/2003	Continued to attempt to work deeper than 7014' with no success. Circulated well clean, pulled coiled tubing and mill out of the well. Took a gas kick, circulated the bubble out with 360 bbls of KCL. Pulled out of the well with the seal assembly and ran in well with 80 joints.
02/10/2003	Pulled 80 joints out of the well. Made up 8-1/8" overshot with 4-1/2" grapple. Ran in well and latched on to existing liner top at 6891'. Pulled 20,000 lbs. over to verify that the overshot was latched. Set elastomer seal assembly top at 6854'. Released from running tool and pulled out of the well. Made up 2-3/8" PH-6 saw tooth collar and ran in well with 80 joints.
02/11/2003	Continued running in well to the top of the liner and tagged at 7024'. Worked down to the top of the flapper valve at 7026'. Pulled up to 6892'.
02/12/2003	Ran in well to 7026', knocked out flapper valve and reverse circulated clean. Ran in slowly through the sump packer at 7118' to 7148' no fill. Pulled out of the well. Ran in well with 3-1/2" open ended tubing to 6824'. Rigged up wireline camera and ran in well to 6850', attempted to circulate clean. Unable to get a visual with the camera. Pulled the camera out of the well.
02/13/2003	Ran in well again with wireline camera to 6850' with same result. No visual due to dirty fluid. Pulled wireline camera out of the well. Mixed and pumped a polymer pill, pulled 3-1/2" work string out of the well.
02/14/2003	Filled well with 3% KCL. Continued pulling out of the well with 3-1/2" work string. Made up the completion string and ran in well with 2-7/8" , N-80 tubing and set packer with tubing tail at 6829.08'. Landed on donut with 10,000 lbs. of compression. Tested 2-7/8" x 9-5/8" annulus to 1500 psi. for 15 minutes, OK.
02/15/2003	Rig down tubing equipment. Nippled down BOPE, installed wellhead, rigged down.

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

No. **T203-003**

Report on Operations

James D. Mansdorfer, Agent
SOUTHERN CALIFORNIA GAS CO.
400 Oakdale Ave.
Chatsworth, Ca 91313

Ventura, California
January 10, 2003

Your operations at well **"Fernando Fee" 38B,** API No. **037-24231,** Sec. **27**, T. **3N**, R.**16W**, S.B.B.&M. **Aliso Canyon** Field, in **Los Angeles** County, were witnessed on **01-08-2003**. **Anne Anderle,** representative of the supervisor, was present from **1315** to **1415**. There were also present **Mike Volkmar.**

Present condition of well: **13 3/8" cem 760'; 9 5/8" cem 7499', perf 7035'-7100'. TD 7503'. Plugged w/ cem 7499'-7389'.**

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

DECISION:

The blowout prevention equipment and its installation on the 9 5/8" casing are approved.

tkc

Kenneth P. Henderson
Acting State Oil and Gas Supervisor

By_____
Steven A. Fields
Acting Deputy Supervisor

API No. 037-24231 DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES T203-003

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator Southern Cal Gas Co. Well "Fernando Fee" 38B Sec. 27 T. 3N R. 16W
Field Aliso Canyon County Los Angeles Spud Date

VISITS: 1st 1-08-03 Annaliese Anderle (1315 to 1415) Mike Volkmar Consultant
2nd (to)
Contractor Pool Well Services Rig # 321 Contractor's Rep. & Title Jim McCusker Rig foreman
Casing record of well: 13 3/8" CEM 760'; 9 5/8" CEM 7499', PERF 7035'-7100'.
TD 7503'. PLUGGED w/CEM 7499'-7389'

OPERATION: Testing (inspecting) the blowout prevention equipment and installation. Critical well? Y ☐ N ☐
DECISION: The blowout prevention equipment and its installation on the 9 5/8 " casing are approved.

Proposed Well Opns: Workover . MACP: psi
Hole size: " fr. ' to ', " to ' & " to '

REQUIRED BOPE CLASS: 3M 5M

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

BOP STACK

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul
Ha		Hydril	GK	11"	5M	10-02
rd	2 7/8	Shaffer	LWS	11"	5M	↓
rd	CSO		LWS	11"	5M	

TEST DATA

Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
					1-8-03	3200
					1-8-03	-
					1-8-03	5M

ACTUATING SYSTEM ~~3000~~ 3000
Accumulator Unit(s) Working Pressure ~~3000~~ psi
Total Rated Pump Output gpm Fluid Level
Distance from Well Bore 60 ft.

	Accum. Manufacturer	Capacity	Precharge
1	Shaffer	80 gal.	1000 psi
2		gal.	psi

CONTROL STATIONS	Elec.	Hyd.	Pneu.
X Manifold at accumulator unit	X	X	
X Remote at Driller's station			X
Other:			

EMERG. BACKUP SYSTEM

			Press.	Wkg. Fluid
4 N_2 Cylinders	1	L= "	1800	gal.
Other:	2	L= "	1900	gal.
	3	L= "	1750	gal.
	4	L= "	1900	gal.
	5	L= "		gal.
	6	L= "		gal.
	TOTAL:			ga

HOLE FLUID MONITORING	Alarm Type: Audible	Alarm Type: Visual	Class
Calibrated Mud Pit			A
Pit Level Indicator			
Pump Stroke Counter		X	B
Pit Level Recorder			
Flow Sensor			C
Mud Totalizer			
Calibrated Trip Tank			
Other:			

TOTAL:

AUXILIARY EQUIPMENT

	No.	Size (in.)	Rated Press.	Connections: Weld	Flange	Thread	Test Press.
~~Fill-up Line~~							
X Kill Line		2"					5M
X Control Valve(s)	2						5M
X Check Valve(s)	1						3200
X Aux. Pump Connect.							5M
X Choke Line		3"					5M
X Control Valve(s)	10						3200 & 5M
X Pressure Gauge						X	
X Adjustable Choke(s)	2	2"					—
X Bleed Line		2"					
~~Upper Kelly Cock~~							—
X Lower Kelly Cock		3.5"					5000
X Standpipe Valve							
X Standpipe Press. Gau.							
X Pipe Safety Valve		2 1/8					5M
X Internal Preventer		2 1/8					5M

Hole Fluid Type	Weight	Storage Pits (Type & Size)
3% KCl	8.5	800 BBL

REMARKS AND DEFICIENCIES:

OGD9 (9/00)

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

No. P203-1

PERMIT TO CONDUCT WELL OPERATIONS

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

Gas Storage Project

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

Ventura, California
January 6, 2003

Your _____ proposal to rework _____ well "Fernando Fee" 38B _____,
A.P.I. No. 037-24231 _____ Sec. 27 , T. 3N , R. 16W , SB B.&M.,
Aliso Canyon _____ field, _____ area, Sesnon-Frew _____ pool
Los Angeles _____ County, dated 01-06-2003 received 01-06-2003 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

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

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

SAF:sf
Super Blanket Bond

Engineer Steven A. Fields

Phone (805) 654-4761

KENNETH P. HENDERSON,
Acting State Oil & Gas Supervisor

By _____
Acting Deputy Supervisor

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

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

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

NOTICE OF INTENTION TO REWORK / REDRILL WELL P203-1

C.E.Q.A. INFORMATION (when redrilling or deepening only)			
Exempt ☐	Neg. Dec. ☐	E.I.R. ☐	Document not required by local jurisdiction ☐
Class _____	S.C.H. No.	S.C.H. No.	
See Reverse Side			

FOR DIVISION USE ONLY			
	Forms		EDP Well
Bond	OGD114	OGD121	File
1,000,000.	111	115	

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

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well Fernando Fee #38R API No. 037-24231

Sec. 34 T3N R. 16W SB B.&M. Aliso Canyon Field

Los Angeles County.

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

GS

2. The total depth is: 7500 feet. The effective depth is: 7399 feet.

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

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

5. Last produced: _____ (Date) _____ (Oil, B/D) _____ (Water, B/D) _____ (Gas, Mcf/D)

(or)

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

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

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

JAN 06 2003
VTA D066R

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

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

Name of Operator	Telephone Number	
Southern California Gas Company	818 701 2351	
Address: 9400 Oakdale Ave.	City: Chatsworth	Zip Code: 91313
Name of Person Filing Notice: Richard Jackson	Signature: [signature]	Date: 6 January 2003

File In Duplicate

OG107 (7/97/GSR/5M)

COMPLETION/STIMULATION PROGRAM

(2 stage frac)

18 December 2002

Fernando Fee 38B

DATE: 18 December 2002

Revisions: **20 December 2002-final**

OPERATOR: **Southern California Gas Company**

FIELD: **Aliso Canyon**

WELL: **Fernando Fee 38B**

CONTRACTOR: **Pool**

OBJECTIVE: **Frac Stimulate and Complete well with Frac Packed Liner**

ACCOUNT: **GWO 95362 IO 300237703**

ELEVATION: **Take all measurements from the original KB = 32' above GL.**

SAFETY: **Hard hats are to be worn by all personnel on or near a rig. No smoking is permitted within 100' of any wellhead or near any other flammable material.**

PRESENT CONDITIONS:

Casing:

0' - 760'	13-3/8"	54.5#	K-55	Cemented
0' - 7499'	9-5/8"	47#	N-80	Cemented
E.D. – 7399'				
7100'-7035'				Perforated 6 HPF (TVDTP=6930')

Tubing:

223 Joints	2-7/8"	6.5#	N-80	EUE 8R

Packer

Halliburton G-6	9-5/8"	Top at 6926'

Note: BOP requirements in 224.05 should be fully implemented. Class III should be followed. Reservoir is at high inventory and pressures should be monitored regularly.

Aliso Canyon is a Title V Facility: Check with Staff environmental specialist to assure all permits and procedures are properly recorded.

Work in this program will require approval from CaDOGGR

Notice of approval to be posted on site during well work operations. All provisions are to be followed.

WELL WORK PROGRAM FF38B

Pre rig:

Well kill procedure will use fluids which will provide a 500psi minimum overbalance at all open intervals in the well bore.

1) Remove instrumentation. Remove laterals and install companion flanges and valves for killing well.

2) Set 500 barrel closed top tank and fill with 3% KCl water. Treat all water with ucarcide, 5 gallons per 100 barrels. Set 2 additional frac tanks as required providing storage capacity for Frac procedure. Tanks to be fitted with 4" suction manifold and with 3" circulating line to back of tank.

3) Move in pump with 100b circulating tank, shaker and mixer. Well crew to provide labor for killing well and installing kill equipment.

4) Dead head 80 barrels of polymer KCl/salt water down tubing to provide required overbalance. Use aprox. 2#/barrel HEC polymer to achieve 60 sec minimum viscosity. Check wellhead pressure prior to pumping and calculate gradient using TVD=6930'. Weight as required.

5) Rig up Spicer Wireline with full lubricator and run in well with tubing punch. Perforate 1) ½" equalizing hole at Approximately 6800'. Avoid radioactive marker. (Spicer (661) 322-4260 or 303-9145) UGS to make arrangements.

(Note: Annulus is filled with 3% KCl water. Use caution until equalized)

6) Fill 500 barrel closed top tank with 3% KCl water and sufficient Sodium Chloride for adequate fluid weight to obtain 500psi overbalance.

   a) Treat all water with ucarcide, 5 gallons per 100 barrels. Set Port-a-feed on location with drum of ucarcide.

   b) Connect pump to tubing and vent casing through choke manifold to Gas Co. system. Notify Aliso Operations prior to venting any gas to system.

7) Kill well per schedule: Maintain 500psi overbalance throughout kill.

a) Pump down casing and vent tubing bubble before starting kill schedule.

b) Vent gas through choke to Gas Co. system.

Rig work:

1) Move in Pool light work over rig capable of 300,000#. Rig up. Sub base will not be needed on this work. Use working floor.

2) Set 2-7/8" LH Shaffer BPV. Install Weatherford Class III BOPE directly on 11"-5000psi flange. Fit BOPE with 2-7/8" pipe rams and CSO. BOPE must have connection and valve below the blind rams. Fit with 5000psi valve.

3) Test BOPE system per Co. job instruction. Test to 5000psi. Notify DOGGR to witness testing.

4) Install 1 jt of 2-7/8" N-80 tubing in tubing hanger with Safety valve in top. Unland and work RH torque in tubing to get ¼ turn at packer. Pick up to equalize across packer. (4000# above string weight) Continue picking up to automatically "J" to running position. Allow element to relax then work up and down until free. Pull out of well with packer and TCP assembly. Lay down all tubing accessories. Call HES to handle radioactive marker sub and to redress packer.

5) Run 9-5/8" –47# positive scraper on 2-7/8" tubing to top of cement. Reverse circulate clean. Lay down 2-7/8" tubing when pulling out. Change pipe rams to 3-1/2". Run Schlumberger oriented USIT with VDL from 7399' to 5000' or as directed by field engineer. Use full lubricator. Rig down loggers.

6) Make up opposed cup wash tool with 5' cup spacing and run in well picking up 3-1/2" work string from Gas Co. stock. Test tubing to maximum working pressure against closed tool. Wash perforations to assure holes are open. Use high rate from frac pump as required. Record: pressure vs. rate and plot to determine frac of formation. Wash all perforations at rate above frac pressure. Wait as directed at specified depths to observe closure pressure.

7) Wireline set 9-5/8" X 5" HES AWD sump packer at approximately 7110' (tally depth to allow top of 1st stage of liner to fall near the base of S-6 at 7015'). Top of wicker on liner will need to be at exactly 7015'.

8) Pick up 6-5/8"- 23.6# shroud and set in slips. Make up 4-1/2"O.D. (4" base pipe) wire wrapped liner with .012 screen and run in well on "over the top" tools and baffle plug in top blank.

9) Run 1-1/2" dip tube through baffle and space out to bottom of liner. Make up on "clutch joint" and into 6-5/8" shielding.

10) Run in well with liner assembly and stab through AWD packer. Check latch by pulling 4000# above up weight. Colette will release at from 7000 to 10,000# up strain at latch. Set down on no-go.

11) Halliburton to perform frac procedure per attached program. At completion of pumping, release from liner and pull out of well with packing tools and dip tube.

12) Pick up 9-5/8" retrievable bridge plug on 3-1/2" tubing and run in well. Set BP at top of liner. Release from BP and dump 2 sacks of 6/9 gravel down tubing. Displace to BP. Pull out of well with tubing.

13) Rig up HES wireline and perforate remaining intervals: S-4 (from 6954'to6984') and partial S-6 (6984' to 7010'). Load guns so perforations can be deleted if 7010' cannot be achieved due to BP.

    a) Use 5" carrier

    b) 6 jet holes per foot

14) Run 9-5/8" –47# positive scraper to top of BP with retrieving tool on 3-1/2" tubing. Reverse circulate clean, and latch on to BP. Release BP and pull out of well.

15) Make up opposed cup wash tool with 5' cup spacing and run in well. Wash perforations to assure holes are open. Use high rate from frac pump as required. Record: pressure vs. rate and plot to determine frac of formation. Wash all perforations. Wait as directed at specified depths to observe closure pressure.

16) Pick up 6-5/8" shielding and set in slips. Make up 4-1/2" wire wrapped liner and run in shielding on "over the top" tools.

17) Run 1-1/2" dip tube inside liner through baffle and space out to baffle in first stage. Make up on tools and into 6-5/8" shielding. Run in well and set on top of 1st stage liner and pull over up weight by 2000# to check overshot double wicker latch.

18) Frac pack liner per attached program. Release from liner and circulate clean. Pull out of well. Lay down packing tools.

19) Make up drive on adapter with hold down slips and elastomer seal. Latch on to liner top and set slips and sealing element. Release from adapter and pull out of well laying down 3-1/2" tubing. Change rams to 2-7/8".

20) Set 9-5/8" X 2-7/8" HES packer (redressed from well) approximately 20' above of top liner on completion tubing as follows:

    a) HES packer

    b) 2-7/8" N-80 X 6' pup joint

    c) LH Release On/off tool with XN profile

    d) 1 joint of 2-7/8" EUE 8R N-80 tubing

    e) HES XD sliding sleeve (closed)

    f) 2-7/8" EUE 8R N-80 tubing as required.

    g) Set packer.

    h) Land tubing in 10,000# compression or as recommended by HES.

    i) Test packer to 1500psi for 20 minutes.

21) Install BPV and remove BOPE. Install tree and test to 5000psi. Remove BPV.

22) Pick up weight bars on sand line and run in well and knock out baffles. Full lubricator must be used.

23) Release rig.

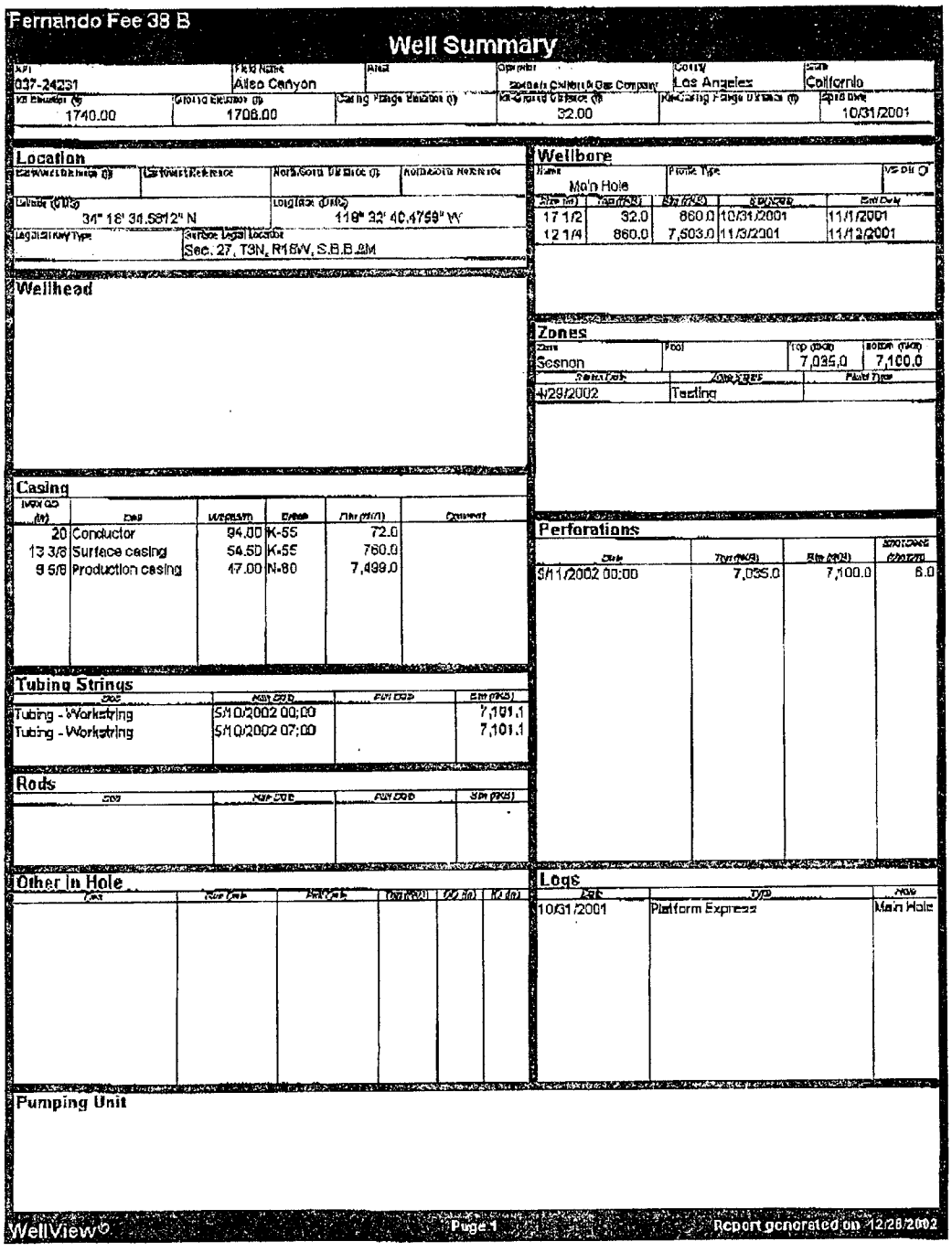
Post rig

1. Clean location and replace laterals with Casing flow choke in place. Inspect probes and replace as required.
2. Open sliding sleeve and unload well.
3. Flow well at high rate to remove as much fluid as possible to avoid potential salt precipitation.

Richard Jackson 20 December 2002

Approved:

_____



Fernando Fee 38 B

Well Summary

API	Field Name	Area	Operator	County	State
037-24231	Aliso Canyon		Southern California Gas Company	Los Angeles	California

KB Elevation (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	KB-Ground Distance (ft)	KB-Casing Flange Distance (ft)	Spud Date
1740.00	1708.00		32.00		10/31/2001

Location

Latitude (DMS)	Longitude (DMS)
34° 16' 34.5812" N	118° 32' 40.4759" W

Legal/Lot/Unit Type: Surface Legal Location: Sec. 27, T3N, R16W, S.B.B.&M.

Wellbore

Name: Main Hole

Size (in)	Top (ftKB)	Set (ftKB)	Spud Date	End Date
17 1/2	32.0	860.0	10/31/2001	11/1/2001
12 1/4	860.0	7,503.0	11/3/2001	11/12/2001

Wellhead

Zones

Zone	Pool	Top (ftKB)	Bottom (ftKB)
Sesnon		7,035.0	7,100.0

Status Date	Zone Type	Fluid Type
4/29/2002	Testing	

Casing

Nom OD (in)	Desc	Wt/Len (lb/ft)	Grade	Top (ftKB)	Comment
20	Conductor	94.00	K-55	72.0	
13 3/8	Surface casing	54.50	K-55	760.0	
9 5/8	Production casing	47.00	N-80	7,499.0	

Perforations

Date	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)
5/11/2002 00:00	7,035.0	7,100.0	6.0

Tubing Strings

Desc	Main OD	Run Date	Btm (ftKB)
Tubing - Workstring	5/10/2002 00:00		7,101.1
Tubing - Workstring	5/10/2002 07:00		7,101.1

Rods

Desc	Main OD	Run Date	Btm (ftKB)

Other In Hole

Type	Run Date	Pull Date	Top (ftKB)	OD (in)	ID (in)

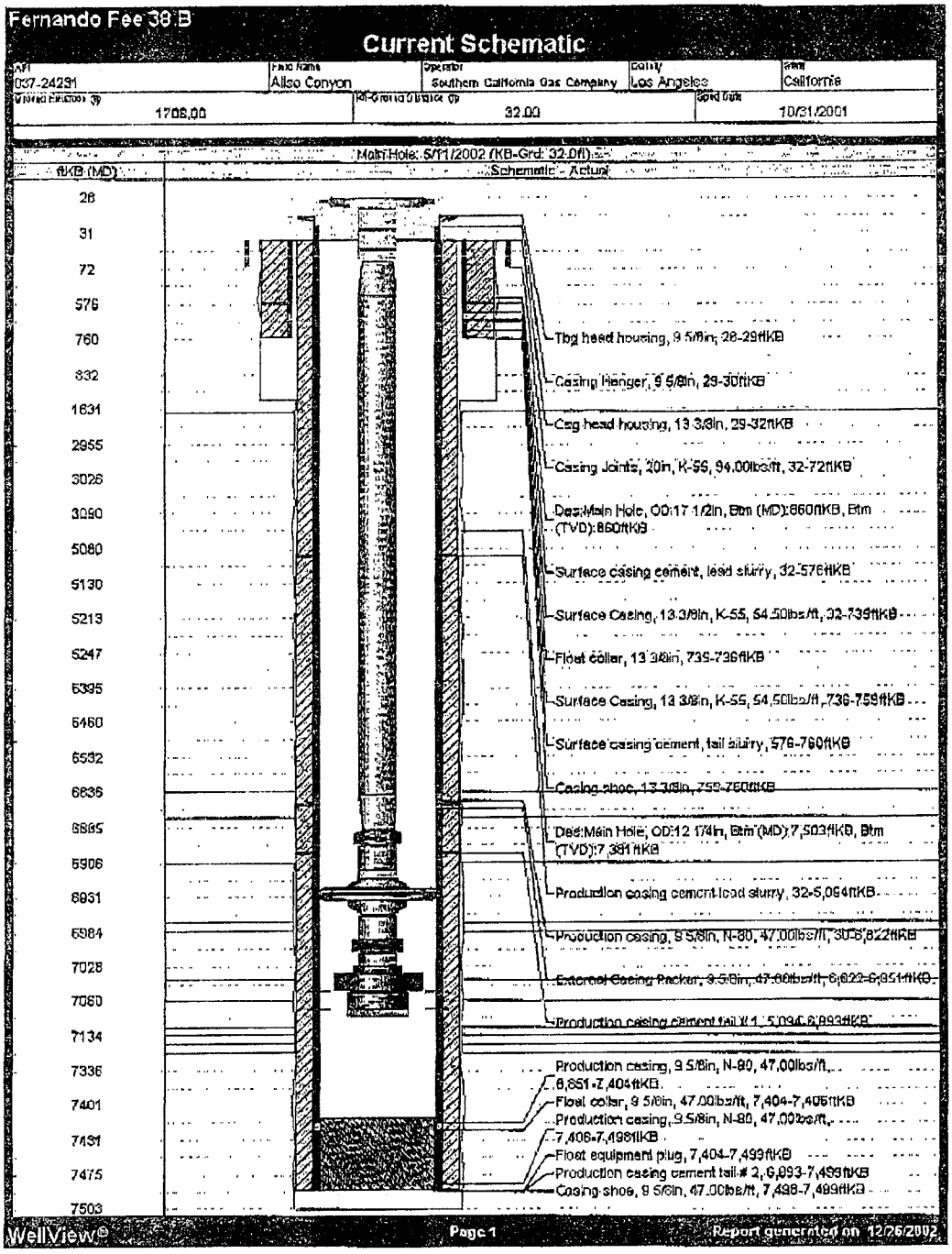
Logs

Date	Type	Note
10/31/2001	Platform Express	Main Hole

Pumping Unit

WellView© Page 1 Report generated on 12/28/2002

Fernando Fee 38B Completion 12-02



Fernando Fee 38B Completion 12-02

Fernando Fee 38 B

Tubing String Summary

API	Field Name	ARS	County	State	Operator	License No.
037-24231	Aliso Canyon		Los Angeles	California		

KB Elevation (ft)	Ground Elevation (ft)	KB-CF (ft)	KB-TH (ft)	Plug Back Total Depth (MD)	Spud Date	Rig Release Date
1740.00	1708.00				10/31/2001	11/17/2001

Tubing: Tubing - Workstring set at 7,101.1RKB on 5/10/2002 00:00

Bottom of Set Depth (MD)	Set Reason	String Max Nominal OD (in)	String Drift Min (in)	Comment
7,101.1		2 7/8	2.347	

Tubing Components

Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top (MD)	Len (ft)	P (collapse) (psi)	P (burst) (psi)
	Tubing Hanger	2 7/8	2.441				28.0	0.65		
1	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		28.6	1.75		
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		30.4	2.34		
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		32.7	8.09		
219	Tubing	2 7/8	2.441	6.50	N-80		40.8	6844.20	11,160.0	10,570.0
	Radioactive marker	3 5/8	2.441				6,885.0	4.13		
1	Tubing	2 7/8	2.441	6.50	N-80		6,889.1	31.50	11,160.0	10,570.0
	Tubing Pup Joint	2 7/8	2.441				6,920.6	4.21		
	Cross Over	4 1/2	2.441				6,924.8	1.08		
	G-6 Packer	8 3/8	3.500				6,925.9	5.35		
	Cross Over	4 1/2	2.441				6,931.3	1.19		
2	Tubing	2 7/8	2.441	6.50	N-80		6,932.5	62.35	11,160.0	10,570.0
	Underbalance Vent	3.38	2.200				6,994.8	1.40		
1	Tubing	2 7/8	2.441	6.50	N-80		6,996.2	31.55	11,160.0	10,570.0
	TCP Gun Firing Head	3.68	1.562				7,027.8	5.00		
	TCP Gun Spacer	6.68					7,032.8	2.22		
	TCP Gun Assembly	4.83					7,035.0	65.00		
	Bull Plug	4.83					7,100.0	1.09		

Tubing: Tubing - Workstring set at 7,101.1RKB on 5/10/2002 07:00

Bottom of Set Depth (MD)	Set Reason	String Max Nominal OD (in)	String Drift Min (in)	Comment
7,101.1		2 7/8	2.347	

Tubing Components

Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top (MD)	Len (ft)	P (collapse) (psi)	P (burst) (psi)
	Tubing Hanger	7 1/16	2.441				28.0	0.65		
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		28.6	1.75	11,160.0	10,570.0
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		30.4	2.34	11,160.0	10,570.0
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		32.7	8.09	11,160.0	10,570.0
218	Tubing	2 7/8	2.441	6.50	N-80		40.8	6844.20	11,160.0	10,570.0
	Radioactive marker	2 7/8	2.441	6.50	N-80		6,885.0	4.13	11,160.0	10,570.0
1	Tubing	2 7/8	2.441	6.50	N-80		6,889.1	31.50	11,160.0	10,570.0
	Tubing Pup Joint	2 7/8	2.441	6.50	N-80		6,920.6	4.21	11,160.0	10,570.0
	Cross Over	4.075	2.441				6,924.8	1.08		
	Packer	8 3/8	4.000				6,925.9	5.35		
	Cross Over	4.075	2.441				6,931.3	1.19		
2	Tubing	2 7/8	2.441	6.50	N-80		6,932.4	62.35	11,160.0	10,570.0
	TCP Gun Fluid Isolation Sub	3 7/8	2.250				6,994.8	1.40		
1	Tubing	2 7/8	2.441	6.50	N-80		6,996.2	31.55	11,160.0	10,570.0
	TCP Gun Firing Head	2 7/8	1.562				7,027.7	5.04		
	TCP Gun Spacer	4 5/8					7,032.8	2.22		
	TCP Gun Assembly	4 5/8					7,035.0	65.00		
	Bull Plug	4 5/8					7,100.0	1.09		

Fernando Fee 38B Completion 12-02

RECEIVED
JUL 25 2002
By

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

WELL SUMMARY REPORT

API NO. 037- 24231

Operator	Well				
Southern California Gas Company	Fernando Fee 38 B				
Field	**County**	**Sec.**	**T.**	**R.**	**B.&M.**
Aliso Canyon	Los Angeles	27	3N	16W	S.B.

Location (Give surface location from property or section corner, street center line)
480' East and 2870' South from Station 84

Elevation of ground above sea level
1708'

California Coordinates (if known):

Was the well directionally drilled? ■ Yes ☐ No If yes, show coordinates at total depth.
7380' TVD, 941.31 N and 241.94 E

Commenced drilling (date)	Total depth (1st hole)	(2nd)	(3rd)
10/31/01	7503'		

Completed drilling (date) 11/12/01

Depth measurements taken from top of: ☐ Derrick Floor ☐ Rotary Table ■ Kelly Bushing
Which is 32 feet above ground

Commenced production/injection (date)

Present effective depth 7389'

Production mode: ■ Flowing ☐ Pumping ☐ Gas lift

Junk
None

Name of production/injection zone(s)
Lower Sesnon

GEOLOGICAL MARKERS	DEPTH
MP	6636'
S4	6954'
Frew	7149'

Formation and age at total depth
Frew / Eocene

Base of fresh water

	Clean Oil (bbl per day)	API Gravity (clean oil)	Percent Water (including emulsion)	Gas (Mcf per day)	Tubing Pressure	Casing Pressure
Initial Production				Storage well	2200 psi.	2200 psi.
Production After 30 days						

CASING AND CEMENTING RECORD (Present Hole)

Size of Casing (API)	Top of Casing	Depth of Shoe	Weight of Casing	Grade and Type of Casing	New (N) or Used (U)	Size of Hole Drilled	Number of Sacks or Cubic Feet of Cement	Depth of Cementing (if through perforations)	Top(s) of Cement in Annulus
13 3/8"	33' KB	760'	54.5 #	N-80 SMLS	N	17-1/2"	506 sks.	Shoe	Surface
9 5/8"	33' KB	7499'	47 #	N-80 SMLS	N	12-1/4"	1574 sks.	Shoe	Surface

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

7035' - 7100', 5/8" holes, six holes per foot, gun perforated.

Logs/surveys run? ■ Yes ☐ No If yes, list type(s) and depth(s).

Wellbore deviation survey from 72' to TD. Platform Express array and six arm caliper log from 824' to 7496'.

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

Name	Title		
Mike Dozier	Technical Specialist		
Address	**City/State**	**Zip Code**	
P. O. Box 2300, M.L. SC 9365,	Chatsworth, CA	91313-2300	
Telephone Number	**Signature**	**Date**	
818.701.3235	Mike Dozier	Julv 5. 2002	

OG100 (1/98/GSR/1M)
Printed on recycled paper.

SUBMIT IN DUPLICATE

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 38 B
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M
A.P.I. No. 037-24231
Mike Dozier (Person Submitting Report)
Title: Storage Field Engineer (President, Secretary, or Agent)
Date: 7/11/2002
Signature: Mike Dozier
Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300
Telephone Number: (818) 701-3235

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

Start Date	Ops This Rpt
10/9/2001	Prepared location.
10/29/2001	Rigged down at FF 38 A, moved in on FF 38 B and rigged up.
10/30/2001	Moved to FF 38 B and spudded a 17-1/2" hole at 03:00 hrs. 10/31/2001.
10/31/2001	Drilled from 125' to 706'.
11/1/2001	Drilled from 706' to 860'. Ran 13-3/8", 54 #, K-55 casing. Cemented surface pipe. Lead slurry: 378 sacks, class G w/ 65-35 pos 6% gel 2% CaCl, 0.25 pps cellophane. Tail slurry: 128 sacks, class G w/ 2% CaCl, 0.25 pps cellophane.
11/2/2001	Welded on 13-3/8" slip on 3000 psi. well head. X-rayed weld - OK. Installed and tested Class III BOP.
11/3/2001	Tested BOP - OK, witnessed by Steve Mulqueen (CADOGGR), drilled a 12 1/4" hole from 860' to 1460'.
11/4/2001	Drilled from 1460' to 2535'.
11/5/2001	Drilled from 2535' to 3091'.
11/6/2001	Drilled from 3019' to 4181'
11/7/2001	Drilled from 4181' to 4901'.
11/8/2001	Drilled from 4901 to 5529'
11/9/2001	Drilled from 5529' to 6323'
11/10/2001	Drilled from 6323' to 6690'.
11/11/2001	Drilled from 6690' to 7503'. T.D well @ 4:30 a.m.
11/12/2001	Logged well. Ran Platform Express and six arm caliper log. Ran 9 5/8" casing.
11/13/2001	Ran 9 5/8" casing.
11/14/2001	Ran 9 5/8" casing. Shoe set at 7499'. Cemented casing, lead: 2069 cubic feet of 12.0 ppg. slurry, 888 sacks of class G + 1.25% bwoc R-3 + 0.2% bwoc CD-32 + 0.2% bwoc FL-62 + 2 gals / 100 sacks FP-6L + 2.5% bwoc Sodium Metasilicate + 7.5% bwoc MPA-1 +132% fresh water. Tail #1: 564 cubic feet of 15.8 ppg. slurry, 488 sacks of class G + 0.5% bwoc R-3 + 0.5% bwoc FL-63 + 0.5% bwoc CD-32 + 2 gals / 100 sacks FP-6L + 0.3% bwoc Sodium Metasilicate + 43.5% fresh water. Tail # 2: 229 cubic feet of 15.8 ppg. slurry, 198 sacks of class G + 1.5 gps BA-86L + 0.5% bwoc R-3 + 0.4% bwoc FL-63 + 0.5% bwoc CD-32 + 1 gal / 100 sacks FP-6L + 0.3% bwoc Sodium Metasilicate + 30.3% fresh water. Good returns to surface.
11/15/2001	Set slips for 9 5/8" casing. Made scraper run to 7389'.
11/16/2001	Changed fluid over to KCL. Laid down drill pipe. Rigged down. Released rig @ 12 a.m. 11-17-01.

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
Well: Fernando Fee 38 B
A.P.I. No. 037-24231

Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 27, T3N, R16W, S.B.B.&M

Mike Dozier (Person Submitting Report) Title: Storage Field Engineer (President, Secretary, or Agent)

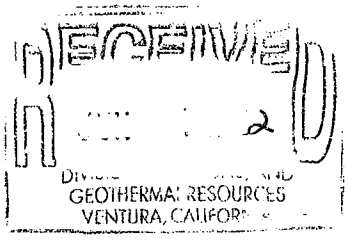
Date: 7/11/2002 Signature: Mike Dozier

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number: (818) 701-3235

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

Start Date	Ops This Rpt
5/9/2002	Moved in and spotted equipment.
5/10/2002	Removed wellhead. Picked up 65' of 4-5/8" perforating guns, ran in well picking up 223 joints of 2-7/8" N-80 tubing to 7113'. Landed tubing on hanger, shut well in.
5/11/2002	Rigged up to run Gamma Ray Neutron depth control log. Put guns on depth, bottom shot @ 7100' and top shot @ 7035' (65'). Packer was set @ 6958' with 15K on packer. Installed and tested wellhead to 5000 psi. Droped bar @ 14:00 hrs., guns fired @ 14:02. Perforated 7100' to 7035' , six, 5/8" SPF, 60 degree phasing, gun O.D. 4-5/8". Fluid to surface in 4 minutes. Flowed well for 2 hours, recovered 18 bbls. of fluid. Final tubing pressure, 2200 psi. Shut in well. Rigged down. Released rig @ 18:00.

Perforating intervals Aliso canyon			
WELL NAME	TOP DEPTH	BOTTOM DEPTH	SHOT DENSITY / SIZE
Fernando Fee 38 A	7175'	7185'	12 spf – 1"
"	7195'	7212'	12 spf – 1"
"	7222'	7242'	12 spf – 1"
"	7247'	7345'	12 spf – 1"
"			
Fernando Fee 38 B	7035'	7100'	6 spf – 0.43"
Fernando Fee 38 C	7160'	7230'	6 spf – 0.43"
Porter 69 F	7645'	7790'	6 spf – 0.43"
Porter 69 G	7820'	7900'	6 spf – 0.43"
Porter 69 H	7605'	7670'	6 spf – 0.43"
"	7704'	7762'	6 spf – 0.43"
"	7785'	7850'	6 spf – 0.43"
Porter 69 J	7920'	8000'	6 spf – 0.43"
Porter 69 K	7975'	8050'	6 spf – 0.43"



Aliso Canyon
Fernando Fee, Slot 38B
38B - Original

SURVEY REPORT

28 November, 2001

Surface Coordinates: 1935499.00 N, 6397216.00 E (34° 18' 34.5812" N, 118° 32' 40.4759" W)
Surface Coordinates relative to Global Coordinates: 1935499.00 N, 6397216.00 E (Grid)
Surface Coordinates relative to Structure: 356.10 N, 190.69 W (Grid)
RKB: 1748.00ft above Mean Sea Level

sperry-sun
DRILLING SERVICES
A Halliburton Company

Survey Ref: svy35190

Aliso Canyon

Fernando Fee

Measured Depth (ft)	Incl.	Azim.	Sub-Sea Depth (ft)	Vertical Depth (ft)	Local Coordinates Northings (ft)	Local Coordinates Eastings (ft)	Global Coordinates Northings (ft)	Global Coordinates Eastings (ft)	Dogleg Rate (°/100ft)	Vertical Section	Comment
0.00	0.000	0.000	1748.00	0.00	0.00 N	0.00 E	1935499.00 N	6397216.00 E		0.00	
159.00	0.250	21.000	1589.00	159.00	0.32 N	0.12 E	1935499.32 N	6397216.12 E	0.157	0.34	
294.00	0.000	0.000	1454.00	294.00	0.60 N	0.23 E	1935499.60 N	6397216.23 E	0.185	0.64	
447.00	0.500	212.000	1301.00	447.00	0.03 N	0.12 W	1935499.03 N	6397215.88 E	0.327	0.00	
600.00	0.500	221.000	1148.01	599.99	1.04 S	0.92 W	1935497.96 N	6397215.08 E	0.051	-1.23	
780.00	0.500	309.000	968.01	779.99	1.14 S	2.04 W	1935497.86 N	6397213.96 E	0.386	-1.61	
849.00	0.800	312.900	899.02	848.98	0.62 S	2.63 W	1935498.38 N	6397213.37 E	0.439	-1.26	
909.00	0.600	323.200	839.02	908.98	0.08 S	3.12 W	1935498.92 N	6397212.88 E	0.393	-0.86	
968.00	1.400	54.200	780.03	967.97	0.59 N	2.72 W	1935499.59 N	6397213.28 E	2.598	-0.12	
1028.00	3.400	66.500	720.08	1027.92	1.73 N	0.50 W	1935500.73 N	6397215.50 E	3.423	1.55	
1087.00	5.100	71.100	661.25	1086.75	3.27 N	3.59 E	1935502.27 N	6397219.59 E	2.936	4.07	
1148.00	6.400	74.600	600.56	1147.44	5.05 N	9.43 E	1935504.05 N	6397225.43 E	2.206	7.26	
1210.00	7.000	76.600	538.98	1209.02	6.85 N	16.44 E	1935505.85 N	6397232.44 E	1.038	10.76	
1271.00	7.100	76.200	478.44	1269.56	8.61 N	23.72 E	1935507.61 N	6397239.72 E	0.183	14.29	
1333.00	5.600	79.600	416.82	1331.18	10.07 N	30.41 E	1935509.07 N	6397246.41 E	2.493	17.39	
1395.00	4.100	85.400	355.05	1392.95	10.79 N	35.60 E	1935509.79 N	6397251.60 E	2.542	19.39	
1454.00	3.100	81.600	296.16	1451.84	11.19 N	39.28 E	1935510.19 N	6397255.28 E	1.742	20.70	
1482.00	2.600	75.300	268.20	1479.80	11.47 N	40.64 E	1935510.47 N	6397256.64 E	2.105	21.31	
1543.00	1.100	41.000	207.23	1540.77	12.26 N	42.36 E	1935511.26 N	6397258.36 E	2.953	22.51	
1605.00	0.800	343.100	145.24	1602.76	13.12 N	42.63 E	1935512.12 N	6397258.63 E	1.543	23.41	
1668.00	0.600	309.500	82.24	1665.76	13.75 N	42.25 E	1935512.75 N	6397258.25 E	0.711	23.92	
1732.00	0.300	127.900	18.24	1729.76	13.86 N	42.12 E	1935512.86 N	6397258.12 E	1.406	24.00	
1794.00	1.000	117.400	-43.75	1791.75	13.51 N	42.73 E	1935512.51 N	6397258.73 E	1.141	23.82	
1856.00	1.200	117.500	-105.74	1853.74	12.97 N	43.78 E	1935511.97 N	6397259.78 E	0.323	23.55	
1888.00	1.200	129.700	-137.73	1885.73	12.60 N	44.34 E	1935511.60 N	6397260.34 E	0.797	23.33	
1948.00	0.900	123.900	-197.72	1945.72	11.93 N	45.21 E	1935510.93 N	6397261.21 E	0.530	22.91	
1979.00	0.900	130.900	-228.72	1976.72	11.64 N	45.60 E	1935510.64 N	6397261.60 E	0.354	22.72	
2040.00	0.700	138.600	-289.71	2037.71	11.04 N	46.21 E	1935510.04 N	6397262.21 E	0.372	22.30	
2103.00	0.600	134.600	-352.71	2100.71	10.52 N	46.70 E	1935509.52 N	6397262.70 E	0.174	21.92	
2167.00	0.600	134.400	-416.71	2164.71	10.05 N	47.18 E	1935509.05 N	6397263.18 E	0.003	21.58	
2229.00	0.700	155.800	-478.70	2226.70	9.48 N	47.56 E	1935508.48 N	6397263.56 E	0.420	21.13	
2290.00	0.600	173.800	-539.70	2287.70	8.82 N	47.75 E	1935507.82 N	6397263.75 E	0.371	20.54	
2350.00	0.500	167.800	-599.70	2347.70	8.26 N	47.84 E	1935507.26 N	6397263.84 E	0.192	20.01	
2411.00	0.400	189.800	-660.69	2408.69	7.79 N	47.86 E	1935506.79 N	6397263.86 E	0.324	19.56	
2471.00	0.400	169.900	-720.69	2468.69	7.37 N	47.86 E	1935506.37 N	6397263.86 E	0.230	19.16	

Aliso Canyon

Fernando Fee

Measured Depth (ft)	Incl.	Azim.	Sub-Sea Depth (ft)	Vertical Depth (ft)	Local Coordinates Northings (ft)	Local Coordinates Eastings (ft)	Global Coordinates Northings (ft)	Global Coordinates Eastings (ft)	Dogleg Rate (°/100ft)	Vertical Section	Comment
2532.00	0.300	72.400	-781.69	2529.69	7.21 N	48.05 E	1935506.21 N	6397264.05 E	0.870	19.05	
2595.00	1.500	36.100	-844.68	2592.68	7.93 N	48.69 E	1935506.93 N	6397264.69 E	2.017	19.91	
2657.00	2.100	26.100	-906.65	2654.65	9.60 N	49.67 E	1935508.60 N	6397265.67 E	1.089	21.77	
2719.00	2.200	22.100	-968.61	2716.61	11.73 N	50.62 E	1935510.73 N	6397266.62 E	0.291	24.07	
2811.00	2.100	23.100	-1060.54	2808.54	14.91 N	51.94 E	1935513.91 N	6397267.94 E	0.116	27.48	
2904.00	1.200	14.200	-1153.50	2901.50	17.42 N	52.85 E	1935516.42 N	6397268.85 E	1.003	30.14	
2996.00	0.800	353.400	-1245.49	2993.49	19.00 N	53.01 E	1935518.00 N	6397269.01 E	0.580	31.71	
3102.00	0.800	323.700	-1351.48	3099.48	20.33 N	52.49 E	1935519.33 N	6397268.49 E	0.387	32.86	
3192.00	1.300	345.800	-1441.47	3189.47	21.82 N	51.87 E	1935520.82 N	6397267.87 E	0.705	34.16	
3281.00	1.900	1.900	-1530.43	3278.43	24.28 N	51.67 E	1935523.28 N	6397267.67 E	0.836	36.48	
3373.00	2.000	2.900	-1622.38	3370.38	27.41 N	51.80 E	1935526.41 N	6397267.80 E	0.115	39.54	
3463.00	2.100	0.300	-1712.32	3460.32	30.62 N	51.89 E	1935529.62 N	6397267.89 E	0.152	42.68	
3558.00	2.900	0.600	-1807.23	3555.23	34.77 N	51.92 E	1935533.77 N	6397267.92 E	0.842	46.70	
3654.00	3.500	1.500	-1903.08	3651.08	40.12 N	52.03 E	1935539.12 N	6397268.03 E	0.627	51.91	
3714.00	4.100	4.800	-1962.95	3710.95	44.09 N	52.25 E	1935543.09 N	6397268.25 E	1.064	55.81	
3775.00	4.800	8.700	-2023.76	3771.76	48.79 N	52.82 E	1935547.79 N	6397268.82 E	1.250	60.49	
3837.00	5.300	8.900	-2085.52	3833.52	54.18 N	53.66 E	1935553.18 N	6397269.66 E	0.807	65.92	
3900.00	5.800	9.200	-2148.23	3896.23	60.20 N	54.62 E	1935559.20 N	6397270.62 E	0.795	71.99	
3963.00	6.500	10.100	-2210.86	3958.86	66.85 N	55.75 E	1935565.85 N	6397271.75 E	1.122	78.71	
4023.00	7.200	12.900	-2270.43	4018.43	73.86 N	57.19 E	1935572.86 N	6397273.19 E	1.292	85.86	
4086.00	7.900	17.400	-2332.89	4080.89	81.84 N	59.36 E	1935580.84 N	6397275.36 E	1.454	94.13	
4148.00	8.400	19.600	-2394.26	4142.26	90.17 N	62.15 E	1935589.17 N	6397278.15 E	0.950	102.90	
4212.00	9.500	19.900	-2457.48	4205.48	99.54 N	65.52 E	1935598.54 N	6397281.52 E	1.720	112.81	
4273.00	10.600	18.900	-2517.55	4265.55	109.58 N	69.05 E	1935608.58 N	6397285.05 E	1.826	123.42	
4337.00	10.900	16.200	-2580.42	4328.42	120.96 N	72.65 E	1935619.96 N	6397288.65 E	0.916	135.34	
4399.00	11.500	14.000	-2641.24	4389.24	132.59 N	75.78 E	1935631.59 N	6397291.78 E	1.188	147.38	
4462.00	11.900	13.000	-2702.93	4450.93	145.01 N	78.76 E	1935644.01 N	6397294.76 E	0.712	160.15	
4524.00	12.700	13.500	-2763.51	4511.51	157.87 N	81.79 E	1935656.87 N	6397297.79 E	1.302	173.35	
4586.00	13.000	13.000	-2823.96	4571.96	171.29 N	84.95 E	1935670.29 N	6397300.95 E	0.516	187.14	
4648.00	13.700	11.900	-2884.28	4632.28	185.27 N	88.03 E	1935684.27 N	6397304.03 E	1.201	201.44	
4711.00	14.500	10.400	-2945.38	4693.38	200.33 N	90.99 E	1935699.33 N	6397306.99 E	1.396	216.76	
4806.00	16.000	11.600	-3037.03	4785.03	224.85 N	95.77 E	1935723.85 N	6397311.77 E	1.613	241.70	
4901.00	15.600	11.600	-3128.45	4876.45	250.19 N	100.97 E	1935749.19 N	6397316.97 E	0.421	267.53	
4963.00	15.500	11.300	-3188.18	4936.18	266.48 N	104.27 E	1935765.48 N	6397320.27 E	0.207	284.13	
5058.00	15.800	10.500	-3279.65	5027.65	291.64 N	109.12 E	1935790.64 N	6397325.12 E	0.389	309.70	

Survey Report for 38B - Original

Aliso Canyon

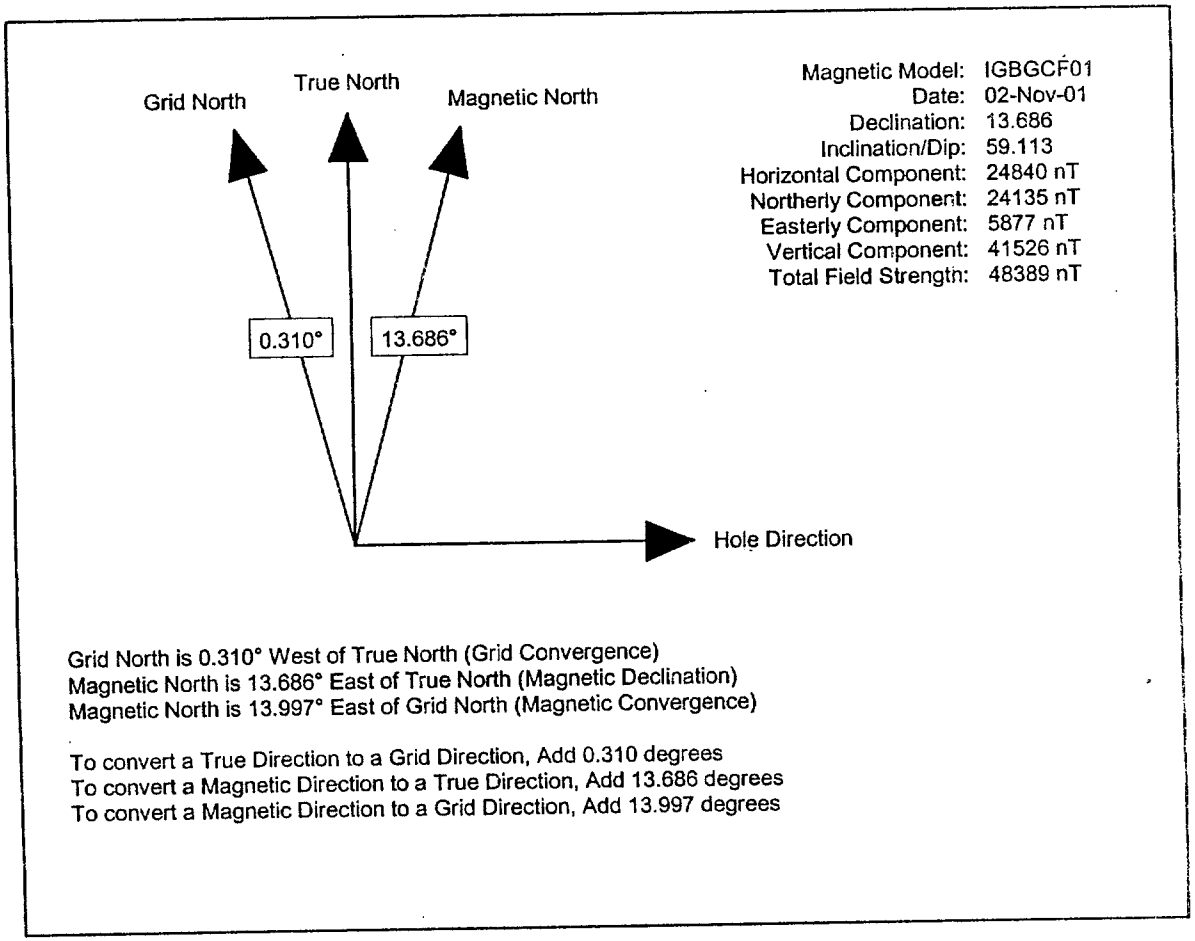
Fernando Fee

Measured Depth (ft)	Incl.	Azim.	Sub-Sea Depth (ft)	Vertical Depth (ft)	Local Coordinates Northings (ft)	Local Coordinates Eastings (ft)	Global Coordinates Northings (ft)	Global Coordinates Eastings (ft)	Dogleg Rate (°/100ft)	Vertical Section	Comment
5179.00	16.000	9.900	-3396.02	5144.02	324.27 N	114.99 E	1935823.27 N	6397330.99 E	0.214	342.76	
5276.00	15.900	11.800	-3489.29	5237.29	350.45 N	120.00 E	1935849.45 N	6397336.00 E	0.548	369.35	
5370.00	15.900	12.300	-3579.69	5327.69	375.63 N	125.38 E	1935874.63 N	6397341.38 E	0.146	395.08	
5465.00	15.900	12.000	-3671.06	5419.06	401.07 N	130.85 E	1935900.07 N	6397346.85 E	0.087	421.08	
5559.00	15.700	13.500	-3761.51	5509.51	426.03 N	136.50 E	1935925.03 N	6397352.50 E	0.484	446.66	
5653.00	15.400	13.800	-3852.07	5600.07	450.52 N	142.45 E	1935949.52 N	6397358.45 E	0.330	471.86	
5747.00	15.300	12.400	-3942.72	5690.72	474.76 N	148.09 E	1935973.76 N	6397364.09 E	0.408	496.73	
5841.00	16.000	10.300	-4033.23	5781.23	499.62 N	153.07 E	1935998.62 N	6397369.07 E	0.958	522.05	
5905.00	16.000	10.100	-4094.75	5842.75	516.98 N	156.19 E	1936015.98 N	6397372.19 E	0.086	539.64	
5999.00	15.800	9.900	-4185.16	5933.16	542.34 N	160.66 E	1936041.34 N	6397376.66 E	0.221	565.31	
6092.00	16.000	10.500	-4274.60	6022.60	567.41 N	165.18 E	1936066.41 N	6397381.18 E	0.278	590.71	
6185.00	16.100	12.400	-4363.97	6111.97	592.61 N	170.28 E	1936091.61 N	6397386.28 E	0.575	616.38	
6280.00	15.900	11.800	-4455.29	6203.29	618.21 N	175.77 E	1936117.21 N	6397391.77 E	0.273	642.54	
6374.00	15.500	10.700	-4545.79	6293.79	643.16 N	180.74 E	1936142.16 N	6397396.74 E	0.530	667.94	
6466.00	15.700	12.900	-4634.40	6382.40	667.37 N	185.80 E	1936166.37 N	6397401.80 E	0.679	692.65	
6564.00	16.100	13.300	-4728.65	6476.65	693.52 N	191.88 E	1936192.52 N	6397407.88 E	0.423	719.48	
6658.00	15.600	12.900	-4819.07	6567.07	718.53 N	197.70 E	1936217.53 N	6397413.70 E	0.544	745.15	
6752.00	15.100	12.600	-4909.72	6657.72	742.79 N	203.20 E	1936241.79 N	6397419.20 E	0.539	770.02	
6816.00	15.600	11.900	-4971.44	6719.44	759.35 N	206.79 E	1936258.35 N	6397422.79 E	0.833	786.95	
6877.00	16.200	11.500	-5030.10	6778.10	775.72 N	210.18 E	1936274.72 N	6397426.18 E	1.000	803.64	
7002.00	16.200	11.200	-5150.14	6898.14	809.91 N	217.04 E	1936308.91 N	6397433.04 E	0.067	838.46	
7065.00	16.000	11.700	-5210.67	6958.67	827.03 N	220.51 E	1936326.03 N	6397436.51 E	0.386	855.90	
7128.00	16.000	11.300	-5271.23	7019.23	844.05 N	223.97 E	1936343.05 N	6397439.97 E	0.175	873.24	
7190.00	15.900	11.500	-5330.84	7078.84	860.75 N	227.34 E	1936359.75 N	6397443.34 E	0.184	890.26	
7251.00	15.400	11.200	-5389.58	7137.58	876.88 N	230.58 E	1936375.88 N	6397446.58 E	0.830	906.68	
7313.00	15.000	10.900	-5449.41	7197.41	892.84 N	233.69 E	1936391.84 N	6397449.69 E	0.658	922.91	
7376.00	15.000	10.300	-5510.26	7258.26	908.86 N	236.69 E	1936407.86 N	6397452.69 E	0.246	939.18	
7439.00	15.000	9.200	-5571.12	7319.12	924.93 N	239.45 E	1936423.93 N	6397455.45 E	0.452	955.42	
7503.00	15.005	8.083	-5632.94	7380.94	941.31 N	241.94 E	1936440.31 N	6397457.94 E	0.452	971.90	TD Projection

Fernando Fee

Aliso Canyon

Coordinate System is NAD83 California State Planes, Zone V
Grid Coordinates of Well: 1935499.00 N, 6397216.00 E
Geographical Coordinates of Well: 34° 18' 34.5812" N, 118° 32' 40.4759" W
Grid Convergence at Surface is -0.310°. Magnetic Convergence at Surface is -13.997° (2 November, 2001)



Grid North is 0.310° West of True North (Grid Convergence)
Magnetic North is 13.686° East of True North (Magnetic Declination)
Magnetic North is 13.997° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Add 0.310 degrees
To convert a Magnetic Direction to a True Direction, Add 13.686 degrees
To convert a Magnetic Direction to a Grid Direction, Add 13.997 degrees

Aliso Canyon **Fernando Fee**

All data is in Feet (US) unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet (US).
Vertical Section is from Well and calculated along an Azimuth of 14.550° (Grid).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7503.00ft.,
The Bottom Hole Displacement is 971.91ft., in the Direction of 14.415° (Grid).

Comments

Measured Depth (ft)	Station Coordinates TVD (ft)	Northings (ft)	Eastings (ft)	Comment
7503.00	7380.94	941.31 N	241.94 E	TD Projection

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

No. **T202-011**

Report on Operations

James D. Mansdorfer, Agent
SOUTHERN CALIFORNIA GAS COMPANY
9400 Oakdale Ave.
Chatsworth, CA 91313

Ventura, California
January 11, 2002

Your operations at well **"Fernando Fee" 38B,** API No. **037-24231,** Sec. **27**, T. **3N**, R.**16W**, S.B.B.&M. **Aliso Canyon** Field, in **Los Angeles** County, were witnessed on **11-03-2001. Steve Mulqueen ,** representative of the supervisor, was present from **0600** to **0800.** There were also present **Jim Dayton.**

Present condition of well: **20" cem 40'; 13 3/8" cem 826'. TD 860' (drilling).**

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

DECISION:

The blowout prevention equipment and its installation on the 13 3/8" casing are approved.

tkc

William F. Guerard, Jr.
State Oil and Gas Supervisor

By _____
Patrick J. Kinnear
Deputy Supervisor

API No. 037 - 24231 DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES 11/6/01 T202-011

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator SOUTHERN CALIFORNIA GAS CO. Well "FERNANDO FEE" 38 B Sec. 27 T. 3N R. 16W
Field ALISO CANYON County LOS ANGELES Spud Date 10-29-01

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	11-3-01	S. MULQUEEN	(0600 to 0800)	JIM DAYTON	ENGINEER
2nd			(to)		

Contractor KENAI DRILLING CO. Rig # 6 Contractor's Rep. & Title CALVIN MORROW
Casing record of well: 20" cem 40'; 13 3/8" cem 826'. TD 860' (drilling).

OPERATION: Testing (~~inspecting~~) the blowout prevention equipment and installation. Critical well? Y ___ N ✓
DECISION: The blowout prevention equipment and its installation on the 13 3/8 " casing are approved.

Proposed Well Opns: DRILL . MACP: ___ psi
Hole size: 17½ " fr. 40 ' to 860 ' , ___ " to ___ ' & ___ " to ___ '
REQUIRED BOPE CLASS: III B 5M

CASING RECORD OF BOPE ANCHOR STRING

Size	Weight(s)	Grade(s)	Shoe at	CP at	Cement Details	Top of Cement: Casing	Top of Cement: Annulus
13 3/8"	54.5	K-55	826	—	FLOAT COLLAR @ 801 LEAD SLURRY 87 BBL TAIL SLURRY 54 BBL (LEAD 65/35 CEM/POZ w/6% GEL 2% CC, TAIL "G" w/2% CC	801'	0

BOP STACK

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul
A	—	HYDRIL	GK	13 5/8	5000	
RD	5	SHAFFER	LWS	"	"	
RD	CSO	"	"	"	"	

TEST DATA

Gal. to Close	Recovery Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
					11-3	2500 *
					11-3	1500 *
					11-3	1500 *
* TEST PUMP & CHART						

ACTUATING SYSTEM

Accumulator Unit(s) Working Pressure 3000 psi
Total Rated Pump Output ___ gpm Fluid Level ___
Distance From Well Bore 90 ft.

	Accum. Manufacturer	Capacity	Precharge
1	KOOMEY	152 gal	1000 psi
2		gal	psi

CONTROL STATIONS

		Elec.	Hyd.	Pneu.
Y	Manifold at accumulator unit		✓	
Y	Remote at Driller's station			✓
	Other:			

EMERG. BACKUP SYSTEM

				Press.	Wkg. Fluid
X	N_2 Cylinders	1	L= "	2050	gal.
	Other:	2	L= "	2250	gal.
ACCUM. BOTTLES: 12 - 10 GAL. 4 - 8 GAL. 152 GAL.		(3)	L= "	2250	gal.
		4	L= "		gal.
		5	L= "		gal.
		6	L= "		gal.
		TOTAL:			gal.

HOLE FLUID MONITORING EQUIPMENT

		Alarm Type: Audible	Alarm Type: Visual	Class
✓	Calibrated Mud Pit		✓	A
Y	Pit Level Indicator	✓	✓	B
X	Pump Stroke Counter		✓	B
X	Pit Level Recorder		✓	B
X	Flow Sensor	✓	✓	C
✓	Mud Totalizer		✓	C
	Calibrated Trip Tank			C
	Other:			C

TOTAL:

AUXILIARY EQUIPMENT

		No.	Size (in.)	Rated Press.	Connections: Weld	Connections: Flange	Connections: Thread	Test Press.
X	Fill-up Line							
X	Kill Line		2	5000	✓	✓	✓	2500
X	Control Valve(s)	3		"		✓		2500
X	Check Valve(s)	2		"		✓		2500
X	Aux. Pump Connect.			"			✓	2500
X	Choke Line		3 4	5000	✓	✓	✓	2500
X	Control Valve(s)	12		"		✓		2500
X	Pressure Gauge						✓	
X	Adjustable Choke(s)	2	3	"		✓		—
X	Bleed Line		3				✓	
X	Upper Kelly Cock							2500
X	Lower Kelly Cock		5	5000				2500
X	Standpipe Valve							2500
X	Standpipe Press. Gauge							
X	Pipe Safety Valve		5	"				2500
X	Internal Preventer		5	"				2500

Hole Fluid Type	Weight	Storage Pits (Type & Size)
CLAY GEL	9.1	153 BBL

REMARKS AND DEFICIENCIES:

OGD9 (1/96/GSR1/3M)

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

No. P201-219

PERMIT TO CONDUCT WELL OPERATIONS

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

(old pool code)

Gas Storage Project

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

Ventura, California
October 3, 2001

Your proposal to drill well "Fernando Fee" 38B,
A.P.I. No. 037-24231 Sec. 27, T. 3N, R. 16W, SB B.&M.,
Aliso Canyon field, ---------- area, Sesnon-Frew pool
Los Angeles County, dated 5/22/2001 received 9/19/2001 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

Drilling Operations

1. Blowout prevention equipment conforming to DOGGR Class IIIB 5M equipment on the 13-3/8" casing and maintained in operating condition at all times during drilling.
2. Drilling fluid of a quality and in sufficient quantity is used to control all subsurface condition in order to prevent blowouts.
3. An approved blowout prevention and control plan shall be available during the proposed operations.
4. Any sump used during these operations shall be thoroughly cleaned and filled with earth as soon as operations are completed.
5. If extensive, unplanned drill pipe operations occur (such as fishing, milling, etc.) and there is a possibility of casing damage, the casing must be pressure tested prior to resuming normal operations. This Division must be notified to witness the tests
6. The spacing provisions of Section 3606 shall apply.
7. A subsurface directional survey is made and a plat of such survey is filled with this office within 15 days of completion of the well.
8. This office shall be consulted before sidetracking the well or running any additional casing.
9. This office shall be consulted before initiating any changes or additions to this proposed operation, or operations are to be suspended.
10. **THIS DIVISION SHALL BE NOTIFIED:**
    a. To witness a pressure test of the blowout prevention equipment prior to drilling out of the shoe of the 13-3/8" casing. Prior to notifying the Division engineer to witness the test, the blind rams must be tested. Information on the blind rams test must be entered on the tour sheet along with the signature of the person is charge

Continued on Page 2

SAF:sf
Super Blanket Bond

Engineer Steven A. Fields

Phone (805) 654-4761

WILLIAM F. GUERARD, JR., State Oil and Gas Supervisor

By _____
Deputy Supervisor

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

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

Southern California Gas Company
October 3, 2001
P201-219

Completion Operations

1. Blowout prevention equipment conforming to DOGGR Class II 5M requirements shall be installed and maintained in operating conditions at all times.
2. Hole fluid of a quality and in sufficient quantity is used to control all subsurface conditions in order to prevent blowouts.
3. Wire line operations are conducted through at least a 5M lubricator.
4. Requirements specified in our approval of the Gas Storage project dated July 26, 1989 shall apply.
5. **THIS DIVISION SHALL BE NOTIFIED:**
   a. To inspect the installed blowout prevention equipment prior to commencing downhole operations.

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

P201-219

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

NOTICE OF INTENTION TO DRILL NEW WELL

RECEIVED
SEP 19 2001
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES
VENTURA, CALIFORNIA

C.E.Q.A. INFORMATION			
EXEMPT ☐ CLASS ____	NEG. DEC. ☐ S.C.H. NO. ____	E.I.R. ☐ S.C.H. NO. ____	DOCUMENT NOT REQUIRED BY LOCAL JURISDICTION ☐
See Reverse Side			

FOR DIVISION USE ONLY					
MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
254	9-22-01	✓	1,000,000	✓	✓

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to commence drilling well "Fernando Fee" 38B, well type Gas Storage, API No. 037-24231 (Assigned by Division)

Sec. 27, T. 3N, R. 16W, S.B. B.&M., Aliso Canyon Field, Los Angeles County.

Legal description of mineral-right lease, consisting of ____ acres (attach map or plat to scale), is as follows:
(See attached base map)

S

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 ____ (Direction) along section ☐ / property ☐ (Check one) line and ____ feet ____ (Direction)

at right angles to said line from the ____ corner of section ☐ / property ☐ (Check one) ____ or

480' East and 2870' South from Station 84

Is this a critical well according to the definition on the next page of this form? Yes ☐ No ☒

If well is to be directionally drilled, show proposed coordinates (from surface location) and true vertical depth at total drilled depth:
240 feet East (Direction) and 850 feet North (Direction) Estimated true vertical depth 7157'. Elevation of ground above sea level 1708 feet. All depth measurements taken from top of KB (Derrick Floor, Rotary Table, or Kelly Bushing) that is 24 feet above ground.

PROPOSED CASING PROGRAM

SIZE OF CASING INCHES API	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING (Linear Feet)
13-3/8"	54.5 lb/ft	K55 ST&C	Surface	800	800	800
9-5/8"	47 lb/ft	N80 LT&C	Surface	7365	7365	7365

(A complete drilling program is preferred and may be submitted in lieu of the above program.)

Intended zone(s) of completion Sesnon, Frew (Name, depth, and expected pressure) Estimated total depth 7365 (Feet)

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

Name of Operator	Type of Organization (Corporation, Partnership, Individual, etc.)	
Southern California Gas Company	Corporation	
Address: 9400 Oakdale Avenue	City: Chatsworth	Zip Code: 91313
Telephone Number: 818-701-3251 / Name of Person Filing Notice: Dan Neville	Signature: Dan Neville	Date: 5/22/01

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

OG105 (5/98)

Information for compliance with the California Environmental Quality Act of 1970 (C.E.Q.A.).

If an environmental document has been prepared by the lead agency, please submit a copy of the document with this notice *or* supply the following information:

Lead Agency: _____

Lead Agency Contact Person: _____

Address: _____

_____

Phone: ( ) _____

FOR DIVISION USE ONLY
District review of environmental document (if applicable)? Yes ☐ No ☐
Remarks: _____
_____
_____

CRITICAL WELL

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

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

Exceptions or additions to this definition may be established by the supervisor upon his own judgment or upon written request of an operator. This written request shall contain justification for such an exception.