DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

Operator: **Southern California Gas Company** WELL DESIGNATION **"Fernando Fee" 32G**

API No. **03730374** SE **27** T: **3N** R.: **16W** , **SB** B. and M.

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

Type of Notice: **Drill** **Date** **6/18/2014** **Report Number:** **P214-0195**

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

	Date	OK	NEED	Remarks
Well Summary (OG100)	6-30-15	✓		
History (OG103)	8-17-15	✓		
E-Log				
Mud Log				
Dipmeter				
Directional	8-17-15	✓		
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: 10-7-15 BH
(Date and Engineer)

Modified OGD2

AOR Datbase _____

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

Rec'd 08-17-15 DOGGR D2 Ventura

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Well. Fernando Fee 32 G
A P.I. No. 03730374

Field. Aliso Canyon
Surface Location 34 313457 N, 118.539835 W
Todd Van de Putte

County: Los Angeles
Title Drilling Manager
(President, Secretary, or Agent)

Date 8/17/2015

Signature Todd C Van de Putte
~~(Person Submitting Report)~~

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

Telephone Number: 818-701-3339

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

Start Date	Ops DOGGR Rpt
8/3/2014	Spudded the 17-1/2" hole at 07:00 Directionally drilled 17-1/2" hole from 103' to 540' with 8" mud motor and MWD BHA MW 9 5 ppg, Vis 57 sec, PV 29 cp, YP 12, Sol 8%
8/4/2014	Directionally drilled the 17-1/2" hole from 540' to 799' MW 9 5 ppg, Vis 51 sec, PV 22 cps, YP 14, Sol 9%
8/5/2014	Directionally drilled the 17-1/2" hole from 799' to 981' MW 9 4 ppg, Vis 48 sec, PV 22 cps, YP 12, Sol 8%
8/6/2014	Directionally drilled the 17-1/2" hole from 981' to 1080' Circulated the well clean and pulled out of the well The 17-1/2' bit, bit sub and mud motor head were missing Waited on the fishing tools, ran and impression block and pulled out of the well MW 9 4 ppg, Vis 46 sec, PV 20 cps, YP 11, Sol 8%
8/7/2014	Made up an overshot on the 5" drill pipe, ran in the well and latched on the mud motor stub. Pulled out of the well and laid down the fish with complete recovery Made a clean out run to 1080', circulated the well clean and pulled out of the well Picked up and ran 29 joints of 13-3/8", K-55 54 5#/ft BTC casing to 1076', float at 1038' Cemented with 157 bbl (430 sx) of 13 5 ppg, Class G lead and 56 bbl (175 sx) of 14.8 ppg, Class G tail with gas migration additives. Displaced with 164 bbl of 9.4 ppg drilling mud but did not bump the plug The float held, shut in the well and WOC MW 9 4 ppg, Vis 45 sec, PV 20 cps, YP 8, Sol 8%
8/8/2014	WOC. Slacked off the 13-3/8" surface casing and cut off the 13-3/8" surface casing Rigged down the 20" 2M diverter and assocated equipment MW 9 4 ppg, Vis 45 sec, PV 20 cps, YP 10, Sol 8%
8/9/2014	Cut off the 13-3/8" surface casing and welded on the 13-5/8" 5M casing head Pressure tested the welds to 4000 psig for 5 min and x-rayed (ok) Rigged up the 13-5/8" Class III 5M BOP stack Pressure tested the pipe rams and the lines to 5000 psig high for 20 minutes (Test failed) Repaired the valves (Test witnessed by DOGGR C Knight) MW 9 4 ppg, Vis 45 sec, PV 20 cps, YP 10, Sol 8%
8/10/2014	Pressure tested the annular preventer to 3600 psig (high) and 300 psig (low) for 20 minutes Pressure tested the 5" pipe rams to 5000 psig (high) and 300 psig (low) for 20 minutes. Pressure tested the 13-3/8" surface casing to 1000 psig for 20 minutes (All pressure tests passed/approved by DOGGR C Knight) Made up a 12-1/4" bit and cleanout BHA, ran in the well and cleaned out the 13-3/8" shoe track and cement from 1010' to 1080' Rotary drilled 12-1/4" hole from 1080' to 1220'. MW 9.3 ppg, Vis 45 sec, PV 13 cps, YP 9, Sol 7%
8/11/2014	Made up a 12-1/4" Kymera bit, the 9" Autotrak directional tools and the 14" Rhino reamer on the 5", 19.5#, X-95 drill pipe. Ran in the well to 1220' and directionally drilled 12-1/4" hole and opened to 14" from 1220' to 1395' MW 9 3 ppg, Vis 46 sec, PV 13 cps, YP 14, Sol 7%
8/12/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 1395' to 1902' with full returns At 1902' started losing 460 bbl/hr of drilling mud Directionally drilled the 12-1/4" hole and opened to 14" from 1902' to 1914' losing 460 bbl/hr of mud Pumped LCM sweeps and reduced the pump rate. Directionally drilled the 12-1/4" hole and opened to 14" from 1914' to 1968' with losses slowing to 25 bbl/hr Spotted an LCM pill and pulled to the shoe to mix mud. Total mud lost was 340 bbl MW 9 3 ppg, Vis 40 sec, PV 12 cps, YP 9, Sol 6%
8/13/2014	Mixed mud and monitored losses Ran in the well and directionally drilled the 12-1/4" hole and opened to 14" from 1968' to 2123' with full returns Directionally drilled the 12-1/4" hole and opened to 14" from 2123' to 2130' with partial to no returns. Spotted an LCM pill, pulled to the surface casing shoe and mixed mud Ran in the well, spotted an LCM pill, pulled to the surface casing shoe and mixed mud Ran in the well and directionally drilled the 12-1/4" hole and opened to 14" from 2130' to 2135' with 5 bbl/hr loss Daily mud lost was 244 bbl MW 9.2 ppg, Vis 38 sec, PV 10 cps, YP 5, Sol 5%
8/14/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 2135' to 2827' with full returns. MW 9 2 ppg, Vis 39 sec, PV 10 cps, YP 8, Sol 5%
8/15/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 2827' to 3000'. Tripped for drillstring pressure loss and bit, Replaced the 12-1/4" Kymera bit and the Autotrak BHA MW 9 1 ppg, Vis 39 sec, PV 11 cps, YP 8, Sol 4%
8/16/2014	Ran in the well and directionally drilled the 12-1/4" hole and opened to 14" from 3000' to 3122' Pulled out of the well for drill string pressure loss. Laid down a washed set of jars, and replaced the shock sub, Ran in the well to the surface casing shoe, slipped and cut the drilling line. Checked pressures at casing shoe, still had pressure loss, Pulled out of the well to the 8" drill collars and pump tested every stand Found a cracked drill collar Waited for the pipe inspectors and laid down the drill collars for inspection MW 9 2 ppg, Vis 40 sec, PV 12 cps, YP 8, Sol 5%

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

Rec'd 08-17-15 DOGGR D2 Ventura

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company — Field: Aliso Canyon — County. Los Angeles
Well. Fernando Fee 32 G — Surface Location 34 313457 N, 118.539835 W
A P.I. No. 03730374 — Todd Van de Putte — Title. Drilling Manager

(President Secretary or Agent)

Date: 8/17/2015 — Signature Todd R Van de Putte

~~(Person Submitting Report)~~

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 — Telephone Number. 818-701-3339

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Start Date	Ops. DOGGR Rpt
8/17/2014	Inspected 8 drill collars, and replaced 3 cracked 8" drill collars Made up the Autotrak directional drilling BHA and ran in the well to 3122' Directionally drilled the 12-1/4" hole and opened to 14" from 3122' to 3470' MW 9 2 ppg, Vis 40 sec, PV 12 cps, YP 10, Sol 5%
8/18/2014	Lost pump pressure and pulled out of the well for a cracked drill collar Welded the 8" collar, repalced the 8" drill collar, and replaced the stabilizers and moved the shock sub Downloaded the directional tools and checked the 12-1/4" bit Ran in the well and directionally drilled the 12-1/4" hole and opened to 14" from 3533' to 3589' MW 9 3 ppg, Vis 44 sec, PV 15 cps, YP 14, Sol 6%
8/19/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 3589' to 3980' MW 9 3 ppg, Vis 44 sec, PV 15 cps, YP 11, Sol 6%
8/20/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 3980' to 4133' Tripped for a new set of directional tools and a new 12-1/4" Kymera bit MW 9 3 ppg, Vis 45 sec, PV 13 cps, YP 13, Sol 6%
8/21/2014	Ran in the well to 4133' and directionally drilled the 12-1/4" hole and opened to 14" from 4133' to 4445' MW 9 3 ppg, Vis 44 sec, PV 16 cps, YP 12, Sol 6%
8/22/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 4445' to 4737' MW 9 4 ppg, Vis 43 sec, PV 12 cps, YP 11, Sol 7%
8/23/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 4737' to 4980' Lost 25 Klb string weight and 650 psig pump pressure Twisted off an 8" drill collar, attempted to screw back into the collar, circulated the well clean and pulled out of the well for fishing operation MW 9 3 ppg, Vis 43 sec, PV 15 cps, YP 10, Sol 6%
8/24/2014	Pulled out of the well, the 8" drill collar box twisted off. Approximately 161' of BHA left in the well, Ran in the well with the fishing tools and latched onto the BHA Pulled out of the well with BHA MW 9 3 ppg, Vis 43 sec, PV 22 cps, YP 15, Sol 6%
8/25/2014	Pulled out of the well with the fishing tools and laid down the BHA and the fishing tools Laid down the 8" drill collars and picked up rental 8" drill collars Made up the Autotrak directional drilling BHA and a new 12-1/4" Kymera bit Ran in the well to 4980' and directionally drilled the 12-1/4" hole and opened to 14" from 4980' to 5083' MW 9 3 ppg, Vis 45 sec, PV 17 cps, YP 9, Sol 6%
8/26/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 5083' to 5501' MW 9 4 ppg, Vis 45 sec, PV 18 cps, YP 11, Sol 7%
8/27/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 5501' to 5782' MW 9 5 ppg, Vis 47 sec, PV 20 cps, YP 13, Sol 7%
8/28/2014	Pulled out of the well for a directional tool failure Replaced the 12-1/4" Kymera bit, Rhino reamer and the BCPM Ran in the well to 5782' and directionally drilled the 12-1/4" hole and opened to 14" from 5782' to 5792' MW 9 5 ppg, Vis 50 sec, PV 20 cps, YP 14, Sol 7%
8/29/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 5792' to 5922' MW 9 4 ppg, Vis 44 sec, PV 16 cps, YP 12, Sol 7%
8/30/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 5922' to 6036', pulled up the well to 4000' for a pressure loss and went through the mud pumps Pulled to the surface casing shoe and repaired the iron roughneck Pulled out of the well and checked the drill string and BHA MW 9 4 ppg, Vis 44 sec, PV 16 cps, YP 12, Sol 7%
8/31/2014	Repalced the washed out jars and the shock sub Ran in the well and directionally drilled the 12-1/4" hole and opened to 14" from 6036' to 6159' MW 9 5 ppg, Vis 45 sec, PV 19 cps, YP 13, Sol 8%
9/1/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 6159' to 6460' MW 9 6 ppg, Vis 49 sec, PV 20 cps, YP 13, Sol 9%
9/2/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 6460' to 6825'. Pulled out of the well for a new 12-1/4" Kymera bit MW 9 5 ppg, Vis 49 sec, PV 19 cps, YP 13, Sol 8%
9/3/2014	Replaced the 12-1/4" Kymera bit Ran in the well to 6825' and directionally drilled the 12-1/4 " hole and opened to 14" from 6825' to 6880' MW 9 4 ppg, Vis 49 sec, PV 20 cps, YP 22, Sol 7%

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Rec'd 08-17-15 DOGGR D2 Ventura

HISTORY OF OIL OR GAS WELL

Operator. Southern California Gas Company Field Aliso Canyon County Los Angeles
Well Fernando Fee 32 G Surface Location 34.313457 N, 118.539835 W
A P I No. 03730374 Todd Van de Putte Title Drilling Manager
(President, Secretary or Agent)

Date· 8/17/2015 Signature Todd Van de Putte
(Person Submitting Report)

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number: 818-701-3339

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Start Date	Ops DOGGR Rpt
9/4/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 6880' to 6975' Pulled up the well to 4000' and repaired a mud pump Ran in the well to 6975' and directionally drilled the 12-1/4" hole and opened to 14" from 6975' to 7020'. MW 9 5 ppg, Vis 49 sec, PV 16 cps, YP 14, Sol 8%
9/5/2014	Repaired the drillers console, and circulated the well clean with the BHA stuck on bottom. Jarred on the 5" drill pipe, spotted LVT oil and worked the drill pipe Ran a free point survey, with the free point at 6702' (right below the drilling jars) MW 9 5 ppg, Vis 49 sec, PV 17 cps, YP 24, Sol 8%
9/6/2014	Jarred on the drill pipe, spotted LVT oil and continued to work the stuck pipe Moved in rigged up the Tiger wireline unit Ran a wireline charge and backed off the BHA below the drilling jars at 6724' Rigged down and moved out the Tiger wireline unit. MW 9 5 ppg, Vis 58 sec, PV 23 cps, YP 19, Sol 6%
9/7/2014	Pulled out of the well. Made up the fishing tools on the 5" drill pipe, Ran in the well and torque checked all the connections Screwed onto the BHA stub, jarred free and pulled out of the well with the BHA/fish Laid down the drill collars and function tested the Rhino reamer. MW 9 3 ppg, Vis 56 sec, PV 25 cps, YP 18, Sol 7%
9/8/2014	Ran in the well with a new 12-1/4" Kymera bit and Autotrak directional tools on 5" drill pipe Safety reamed from 6800' to 7000' MW 9 3 ppg, Vis 53 sec, PV 25 cps, YP 14, Sol 7%
9/9/2014	Directionally drilled the 12-1/4" hole and opened to 14" from 7020' to 7355' MW 9 5 ppg, Vis 53 sec, PV 21 cps, YP 16, Sol 7%.
9/10/2014	Pulled out of the well and laid down the Autotrak directional tools Made up a bull nose with a 14" Rhino reamer on 5" drill pipe and ran in the well to 7245'. Opened the 12-1/4" hole to 14" from 7245' to 7340', circulated the well clean and pulled out of the well for open hole logs MW 9 5 ppg, Vis 55 sec, PV 25 cps, YP 18, Sol 7%.
9/11/2014	Pulled out of the well Moved in and rigged up the Schlumberger wireline unit Made up and ran the Schlumberger triple combo-platform express from 1069'-7332' and sidewall cores from 7238'-7330' MW 9 5 ppg, Vis 57 sec, PV 22 cps, YP 19, Sol 7%
9/12/2014	Ran the Schlumberger FMI/DSI and USIT logs Rigged down and moved out the Schlumberger wireline unit Ran in the well and drilled the 12-1/4" hole and opened to 14" from 7355' to 7365' Circulated the well clean and pulled out of the well for the 9-5/8", 47#/ft, L-80 production casing MW 9 5 ppg, Vis 55 sec, PV 23 cps, YP 15, Sol 7%
9/13/2014	Laid down the 8 inch drilling tools Rigged up the Weatherford casing running crew and JAM unit Picked up and ran 186 joints of 9-5/8", 47#/ft L-80 Hydril 563 casing Casing shoe at 7364' and the float collar at 7280'. Rigged down and moved out the Weatherford casing running equipment Moved in and rigged up the Halliburton cementing equipment Pressure tested the lines to 4000 psig. Mixed and pumped 50 bbl mud flush ahead followed by 580 bbl (1590 sx) of 13 5 ppg, Class G (with additives) lead, and 307 bbl (950 sx) of 14.8 ppg Class G tail (with gas migration additives) Displaced with 535 bbl 9 5 ppg drilling mud, and bumped the plug at 1800 psig and held 10 minutes The floats held No cement returns to the surface Waited on the cement and the top job cement MW 9 5 ppg, Vis 57 sec, PV 25 cps, YP 19, Sol 7%
9/14/2014	Lifted the Class III 5M BOP stack, cut off the 9-5/8" production casing, installed the 11" 5M tubing spool and flanged up the Class III 5M BOPE. Pumped 24 bbl of 14 5 ppg, Type III top job cement Calculated 370 feet of annulus, the cement held at the surface Pressure tested the 11" 5M tubing spool pack offs to 3800 psig for 5 min each. MW 9 5 ppg, Vis 57 sec, PV 25 cps, YP 18, Sol 7%
9/15/2014	Pressure tested the 5" pipe rams to 5000 psig (high) and 300 psig (low) for 20 minutes each Pressure tested the annular preventer to 3500 psig (high) and 300 psig (low) for 10 minutes each (Test charts sent to DOGGR, M Davis). Made up a cleanout assembly with an 8-1/2" bit on the 5" drill pipe and cleaned out the 9-5/8" casing shoe track from 7272' to 7365' Drilled to 7367' and circulated the well clean Dumped and cleaned mud pits MW 9.5 ppg, Vis 57 sec, PV 25 cps, YP 18, Sol 7%
9/16/2014	Cleaned the mud pits, mixed the 8 5 ppg KCl/Polymer mud system, changed over the well and pulled out of the well Made up the directional drilling tools and an 8-1/2" Kymera bit on the 5" drill pipe Ran in the well and directionally drilled 8-1/2" hole from 7367' to 7369' MW 8 5 ppg, Vis 34 sec, PV 4 cps, YP 6, Sol 1%
9/17/2014	Directionally drilled the 8-1/2" hole from 7369' to 7608', circulated the well clean and pulled out of the well for Schlumberger logs. MW 8.5 ppg, Vis 34 sec, PV 4 cps, YP 5, Sol 1%.

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Operator: Southern California Gas Company — Field: Aliso Canyon — County. Los Angeles
Well: Fernando Fee 32 G — Surface Location: 34.313457 N, 118 539835 W
A P I. No. 03730374 — Todd Van de Putte — Title Drilling Manager

(President, Secretary, or Agent)

Date: 8/17/2015 — Signature Todd Van de Putte

(Person Submitting Report)

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Start Date	Ops DOGGR Rpt
9/18/2014	Moved in a rigged up the Schlumberger wireline unit Made up and ran the Schlumberger USIT log from 7358' to the surface. Made up and ran the platform express log to 7470' Pulled out of the well and rigged down the Schlumberger wireline unit Made up a 9-7/8" under reaming assembly on the 5" drill pipe Ran in the wel to 7364' and underreamed the 8-1/2" hole to 9-7/8" from 7364' to 7608'. Circulated the well clean and pulled out of the well for Schlumberger logs MW 8.5 ppg, Vis 34 sec, PV 5 cps, YP 7, Sol 1%
9/19/2014	Continued to pull out of the well Moved in and rigged up the Schlumberger wireline unit Made up and ran the Schlumberger Platform express from 7352'-7602', sidewall cores from 7464'-7584' and FMI/DSI logs from 7352'-7602' MW 8 5 ppg, Vis 34 sec, PV 4 cps, YP 7, Sol 1%.
9/20/2014	Ran in the well and drilled the 8-1/2" hole and opened to 9-7/8" from 7608' to 7616' and circulated the well clean Spotted 50 bbl of 3% KCl pill on bottom, Pulled up the well to 7061' and changed over the well to clean 3% KCl brine. Pulled out of the well, cleaned the mud pits and ran the 5-1/2" welded wirewrapped screen liner to 2809' MW 8 5 ppg, Vis 26 sec, PV 1 cps, YP 0, Sol 0%
9/21/2014	Ran 6 joints of 5-1/2", 17#/ft, L-80 BTC welded wire screen liner and 3 joints of 5-1/2" 17#/ft, L-80 BTC blank liner to 7618' (0.08" screen from 7377'-7612', at and top of the blank liner at 7258' with the top of hydraulic set steel adapter at 7253') Gravel packed the well with 112 cuft of 30/50 resin coated sand, 139% of calculated volume pumped at 2 bbl/min Initial pump pressure was 55 psig, packed off at 640 psig, retested the gravel pack at 300 psig and pressure tested the seal at 450 psig Pulled out of the well and laid down the liner running tools, Made up a 9-5/8" retrievable bridge plug on the 5" drill pipe and ran in the well, pressure tested the bridge plug at 1000' with difficult release and pulled out of the well to check the retrievable bridge plug. MW 8 5 ppg, Vis 33 sec, PV 5 cps, YP 1, Sol 0%
9/22/2014	Inspected the 9-5/8" retievable bridge plug Ran in the well and set the 9-5/8" retirevable bridge plut at 7000' and pressure tested to 1000 psig surface pressure. Laid down the 5" drill pipe, rigged down the Class III 5M BOPE and installed the production wellhead equipment Well secured MW 8 5 ppg, Vis 33 sec, PV 5 cps, YP 1, Sol 0%.
9/23/2014	Rigged down the top drive and released the Ensign 587 rig at 08 00 9/23/14
1/12/2015	Held safety meeting with the rig crews Moved in and rigged up the Ensign #321 production rig and associated rig equipment Tied down the hoist. Opened the well with 0 psig surface pressure Removed the production tree, and rigged up the 11" Class III 5M BOPE and function tested. Moved in the pipe trailer and secured the well
1/13/2015	Moved in and rigged up the WEA testing equipment Pressure tested the blind rams to 300 psig (low) and 5000 psig (high) for twenty minutes (Test good) Pressure tested the pipe rams to 300 psig (low) and 5000 psig (high) for twenty minutes (Test good) Pressure tested the Hydril annular preventer to 300 psig (low) and 5000 psig (high) for twenty minutes (Test good) Pressure tested all the control valves and the choke manifold to 300 psig (low) and 5000 psig (high) for twenty minutes (All tests good, C Gustafson, DOGGR inspected and approved BOPE) Made up a 9-5/8" bridge plug retrieving head and measured and picked up 3-1/2" tubing to 4000' and secured the well
1/14/2015	Changed the pipe trailers and opened the well with 0 psig surface pressure on the tubing and the casing The well was standing full Measured and picked up the 3-1/2" tubing to the 9-5/8" retrievable bridge plug at 7012' Engaged the 9-5/8" bridge plug and released the bridge plug Rigged up and circulated the gas cut brine from the well and secured the well
1/15/2015	Opened the well with 0 psig surface pressure on the tubing and the casing Filled the well with 56 bbl of 8 5 ppg KCl brine Pulled out of the well and laid down the 9-5/8" bridge plug. Measured and picked up (12) joinrts of 2-7/8" tubing. Ran in the well to 7616' (no fill). Rigged up and reverse circulated with 80 bbl of KCl brine Pulled out of the well to a kill string at 4000' and secured the well
1/16/2015	Filled the well with 21 bbl of 8 5 ppg KCl brine Pulled out of the well with the kill string and laid down (12) joints of 2-7/8" tubing Measured and picked up the WEA AS1X 9-5/8" production packer , (1) joint 3-1/2", 9 3#, L-80 tubing ,WEA WXN nipple, (1) joint of 3-1/2", 9.3 #, L-80 tubing, a WEA WXO sliding sleeve, (1) joint of 3-1/2", 9 3#, L-80 tubing, a BST GLMA gas lift mandrel Ran in well with 3-1/2", 9 3#, L-80 tubing to 7222', set the 9-5/8" production packer and filled the 3-1/2" tubing x 9-5/8" casing annulus Landed the 3-1/2" completion string in the tubing hanger with 15,000 lb compression and pressure tested the 3-1/2" x 9-5/8" casing annulus to 1000 psig for twenty minutes (Test good) and secured the well.

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A.P.I No. 03730374 Todd Van de Putte Title: Drilling Manager

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Start Date	Ops. DOGGR Rpt
1/19/2015	Opened the well with 1500 psig surface pressure Moved in and rigged up the WAC slickline unit Made up a PXN plug on wireline and ran in the well to 7174' Set the plug body and made up the prong Ran in the well and set the prong Filled the 3-1/2" tubing with 38 bbl and made up a "B" shifting tool Ran in the well to 7139' and shifted the sliding sleeve open. Pulled out of the well and rigged the wireline unit. Rigged down the working floor. Rigged down the Class III 5M BOPE Rigged up the production tree and pressure tested to 300 psig (low) and 5000 psig (high) for twenty minutes each (Good test). Loaded the BOPE and rigged down the rig equipment.
1/20/2015	Rigged down the Ensign #321 hoist and loaded the production rig and associated equipment for move to Honor Ranch WEZU C-7 Cleaned the location and secured the well

SOUTHERN CALIFORNIA GAS COMPANY

Location: CALIFORNIA_2
Field: Aliso Canyon (Grid)
Facility: Standard Sesnon (Grid)

Slot: FF 32G
Well: FF 32G
Wellbore: FF 32G Final

Southern California Gas Company
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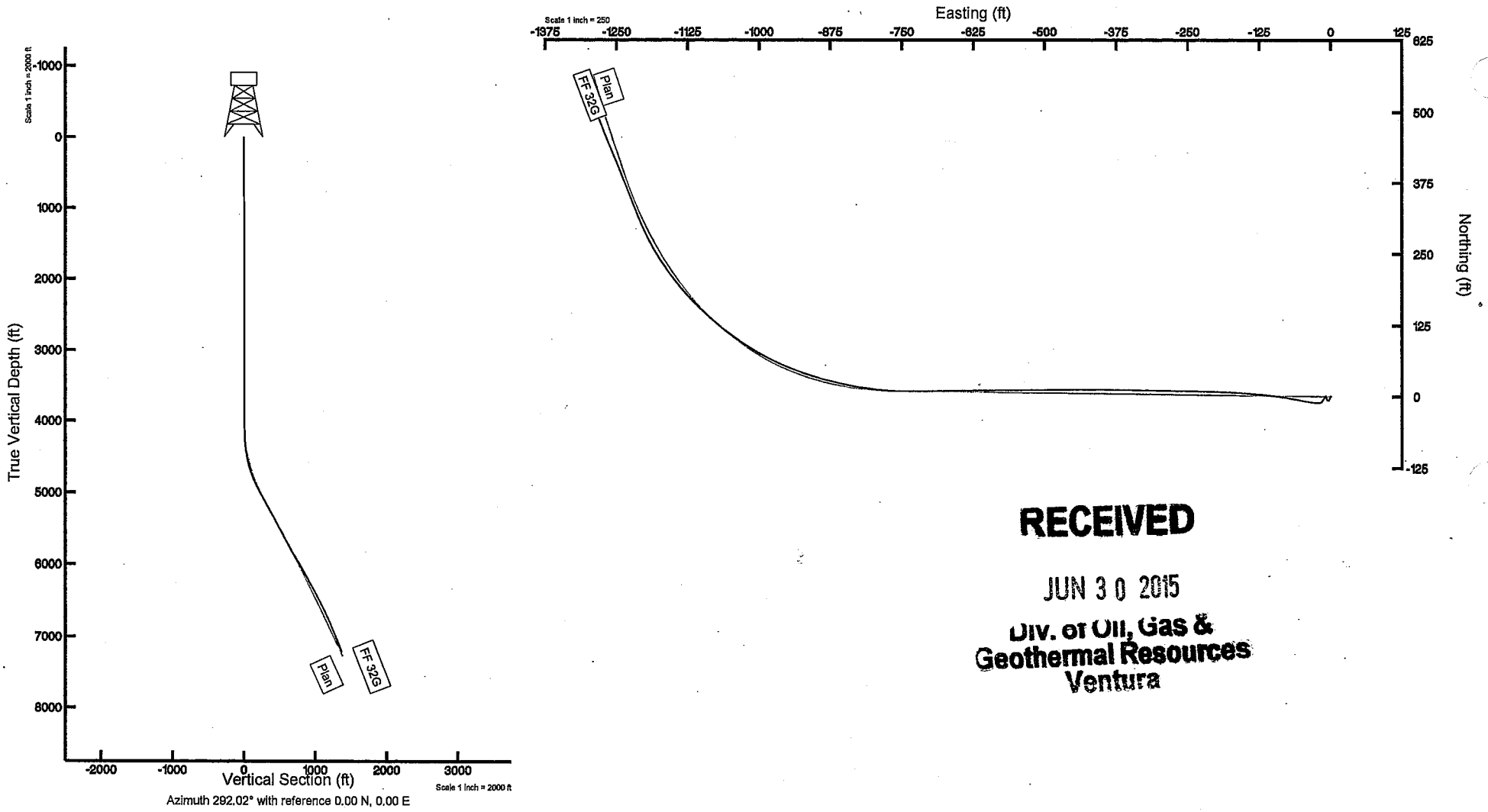
Plot reference wellpath is FF 32G	
True vertical depths are referenced to Rig on FF 32G (RT)	Grid System: NAD83 / Lambert California SP, Zone V (405), US feet
Measured depths are referenced to Rig on FF 32G (RT)	North Reference: Grid north
Rig on FF 32G (RT) to Mean Sea Level: 2021.28 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: FF 32G): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: neuewilw on 6/24/2014

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Standard Sesnon (Grid)			6385893.020	1919713.800	34°15'58.380"N	118°32'55.220"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
FF 32G	17179.94	2782.25	6388655.150	1936892.980	34°18'48.446"N	118°32'23.409"W
Rig on FF 32G (RT) to Mud line (At Slot: FF 32G)					2021.28ft	
Mean Sea Level to Mud line (At Slot: FF 32G)					0ft	
Rig on FF 32G (RT) to Mean Sea Level					2021.28ft	

Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
7609.99	22.930	339.139	7221.45	459.02	-1281.29	6387373.93	1937361.87	34°18'53.216"N	118°32'38.715"W



Southern California Gas Company

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Actual Wellpath Report

Positional Uncertainty

FF 32G

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert California SP, Zone V (405), US feet	Software System	WellArchitect® 4.0.0
North Reference	Grid	Well Planner	Wilbert Neuenkirk
Scale	0.999951	Report Generated	9/24/2014 at 3:49:11 PM
Convergence at slot	0.31° West	Database/Source file	BHI_Shafter/FF_32G.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	17179.94	2762.25	6398655.15	1936892.98	34°18'48.448"N	118°32'23.409"W
Facility Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W
Field Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on FF 32G (RT) to Facility Vertical Datum	2021.28ft
Horizontal Reference Pt	Slot	Rig on FF 32G (RT) to Mean Sea Level	2021.28ft
Vertical Reference Pt	Rig on FF 32G (RT)	Rig on FF 32G (RT) to Mud Line at Slot (FF 32G)	2021.28ft
MD Reference Pt	Rig on FF 32G (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	292.02°

POSITIONAL UNCERTAINTY CALCULATION SETTINGS					
Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	0.00ft	Surface Position Uncertainty	not included
Declination	12.40° East of TN	Dip Angle	59.02°	Magnetic Field Strength	47219nT
Slot Surface Uncertainty @1SD		Horizontal	2.000ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD		Horizontal	0.000ft	Vertical	0.000ft

Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes

Southern California Gas Company

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Actual Wellpath Report

Positional Uncertainty

FF 32G

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

WELLPATH DATA (114 stations) - with Positional Uncertainty values

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Vertical Semi-Axis [ft]	Horiz Major Semi-Axis [ft]	Horiz Minor Semi-Axis [ft]	Horiz Minor Axis Azim [°]	Comments
0.00	0.000	200.977	0.00	-2021.28	0.00	0.00	0.00	6398655.15	1936892.98	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
341.00	1.066	200.977	340.98	-1680.30	-0.06	-2.96	-1.14	6398654.01	1936890.02	3.17	200.977	0.31	3.49	2.01	1.23	110.995	
402.00	1.652	206.122	401.96	-1619.32	-0.01	-4.28	-1.73	6398653.42	1936888.70	4.61	201.956	0.98	3.51	2.37	1.46	291.135	
464.00	1.334	213.241	463.94	-1557.34	0.20	-5.69	-2.51	6398652.64	1936887.29	6.22	203.855	0.59	3.53	2.53	1.69	291.495	
525.00	0.572	215.380	524.93	-1496.35	0.41	-6.53	-3.08	6398652.07	1936886.45	7.22	205.258	1.25	3.56	2.69	1.91	291.487	
586.00	0.510	247.679	585.93	-1435.35	0.67	-6.88	-3.51	6398651.64	1936886.10	7.72	207.015	0.50	3.58	2.86	2.13	291.799	
648.00	0.437	280.783	647.93	-1373.35	1.10	-6.94	-4.00	6398651.16	1936886.04	8.01	209.929	0.45	3.61	3.02	2.33	291.596	
709.00	0.805	300.676	708.92	-1312.36	1.75	-6.68	-4.59	6398650.56	1936886.30	8.10	214.516	0.69	3.65	3.16	2.51	291.389	
772.00	0.897	316.705	771.92	-1249.36	2.64	-6.09	-5.31	6398649.84	1936886.89	8.08	221.079	0.40	3.68	3.31	2.69	290.894	
834.00	0.801	319.395	833.91	-1187.37	3.47	-5.41	-5.93	6398649.22	1936887.57	8.02	227.606	0.17	3.72	3.45	2.86	290.802	
897.00	0.968	330.245	896.90	-1124.38	4.27	-4.61	-6.48	6398648.67	1936888.37	7.95	234.535	0.37	3.76	3.60	3.04	290.693	
960.00	0.872	326.112	959.90	-1061.38	5.09	-3.75	-7.01	6398648.14	1936889.23	7.95	241.824	0.18	3.81	3.76	3.22	290.586	
1000.00	0.889	337.816	999.89	-1021.39	5.56	-3.21	-7.30	6398647.86	1936889.77	7.97	246.225	0.45	3.84	3.87	3.34	290.539	
1201.00	0.900	344.510	1200.87	-820.41	7.61	-0.25	-8.31	6398646.84	1936892.73	8.31	268.291	0.05	4.01	4.15	3.66	290.846	
1296.00	0.000	102.710	1295.86	-725.42	8.06	0.47	-8.51	6398646.65	1936893.45	8.52	273.171	0.95	4.09	4.18	3.72	111.282	
1390.00	0.060	156.490	1389.86	-631.42	8.03	0.43	-8.49	6398646.66	1936893.41	8.50	272.874	0.06	4.19	4.24	3.83	112.352	
1453.00	0.030	97.800	1452.86	-568.42	7.99	0.39	-8.46	6398646.69	1936893.37	8.47	272.664	0.08	4.25	4.29	3.88	112.361	
1517.00	0.030	51.600	1516.86	-504.42	7.96	0.40	-8.43	6398646.72	1936893.38	8.44	272.729	0.04	4.32	4.35	3.95	112.370	
1580.00	0.030	344.840	1579.86	-441.42	7.96	0.43	-8.42	6398646.73	1936893.41	8.43	272.909	0.05	4.39	4.42	4.03	292.371	
1644.00	0.040	348.520	1643.86	-377.42	7.99	0.47	-8.43	6398646.72	1936893.45	8.44	273.164	0.02	4.46	4.49	4.11	292.366	
1707.00	0.030	327.270	1706.86	-314.42	8.01	0.50	-8.44	6398646.71	1936893.48	8.45	273.399	0.03	4.53	4.58	4.20	292.357	
1770.00	0.060	147.870	1769.86	-251.42	8.00	0.49	-8.43	6398646.72	1936893.47	8.45	273.307	0.14	4.61	4.66	4.29	112.380	
1834.00	0.100	170.600	1833.86	-187.42	7.94	0.40	-8.40	6398646.75	1936893.38	8.41	272.751	0.08	4.69	4.75	4.39	112.461	
1897.00	0.110	270.610	1896.86	-124.42	7.97	0.35	-8.46	6398646.69	1936893.33	8.46	272.371	0.26	4.76	4.85	4.49	292.436	
1961.00	0.090	288.060	1960.86	-60.42	8.08	0.37	-8.56	6398646.59	1936893.35	8.57	272.450	0.06	4.85	4.95	4.60	292.357	
2024.00	0.070	257.740	2023.86	2.58	8.16	0.37	-8.65	6398646.50	1936893.35	8.66	272.473	0.07	4.93	5.06	4.72	292.338	
2086.00	0.100	237.520	2085.86	64.58	8.22	0.34	-8.73	6398646.42	1936893.32	8.74	272.207	0.07	5.01	5.17	4.84	292.314	
2151.00	0.030	63.930	2150.86	129.58	8.24	0.31	-8.76	6398646.39	1936893.29	8.77	272.048	0.20	5.10	5.30	4.97	112.305	
2214.00	0.070	5.190	2213.86	192.58	8.24	0.36	-8.75	6398646.40	1936893.34	8.75	272.351	0.10	5.19	5.43	5.11	292.306	
2277.00	0.130	16.810	2276.86	255.58	8.26	0.47	-8.72	6398646.43	1936893.45	8.73	273.057	0.10	5.28	5.56	5.26	292.307	
2341.00	0.030	59.010	2340.86	319.58	8.26	0.54	-8.69	6398646.46	1936893.52	8.70	273.583	0.17	5.38	5.71	5.41	112.330	
2402.00	0.070	210.180	2401.86	380.58	8.25	0.52	-8.69	6398646.46	1936893.50	8.71	273.423	0.16	5.47	5.84	5.55	292.349	
2467.00	0.030	296.710	2466.86	445.58	8.28	0.49	-8.73	6398646.42	1936893.47	8.74	273.235	0.11	5.57	5.98	5.70	292.347	
2531.00	0.040	260.090	2530.86	509.58	8.31	0.50	-8.76	6398646.39	1936893.48	8.78	273.245	0.04	5.66	6.13	5.85	292.334	
2594.00	0.030	291.140	2593.86	572.58	8.35	0.50	-8.80	6398646.35	1936893.48	8.82	273.246	0.03	5.76	6.28	6.01	292.313	
2658.00	0.000	102.710	2657.86	636.58	8.36	0.51	-8.82	6398646.33	1936893.49	8.83	273.279	0.05	5.87	6.43	6.17	112.312	
2721.00	0.070	333.550	2720.86	699.58	8.39	0.54	-8.83	6398646.32	1936893.52	8.85	273.496	0.11	5.97	6.58	6.33	292.330	
2784.00	0.040	64.620	2783.86	762.58	8.41	0.58	-8.83	6398646.32	1936893.56	8.85	273.780	0.13	6.07	6.74	6.49	112.373	
2847.00	0.040	209.870	2846.86	825.58	8.39	0.57	-8.82	6398646.33	1936893.55	8.84	273.722	0.12	6.18	6.90	6.65	292.369	
2911.00	0.130	237.580	2910.86	889.58	8.44	0.52	-8.89	6398646.26	1936893.50	8.91	273.317	0.15	6.29	7.05	6.82	292.351	
2970.00	0.000	102.710	2969.86	948.58	8.48	0.48	-8.95	6398646.20	1936893.46	8.96	273.067	0.22	6.39	7.20	6.97	112.364	
3033.00	0.060	233.150	3032.86	1011.58	8.50	0.46	-8.98	6398646.17	1936893.44	8.99	272.933	0.10	6.50	7.36	7.13	292.373	
3103.00	0.090	213.000	3102.86	1081.58	8.52	0.39	-9.04	6398646.11	1936893.37	9.05	272.483	0.06	6.62	7.54	7.32	292.341	
3167.00	0.040	175.700	3166.86	1145.58	8.52	0.33	-9.06	6398646.09	1936893.31	9.07	272.069	0.10	6.74	7.71	7.49	112.334	
3230.00	0.090	306.490	3229.86	1208.58	8.56	0.33	-9.10	6398646.05	1936893.31	9.11	272.107	0.19	6.86	7.88	7.66	292.326	

Southern California Gas Company

A Sempra Energy utility®

Actual Wellpath Report

Positional Uncertainty

FF 32G

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

WELLPATH DATA (114 stations) - with Positional Uncertainty values

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Vertical Semi-Axis [ft]	Horiz Major Semi-Axis [ft]	Horiz Minor Semi-Axis [ft]	Horiz Minor Axis Azim [°]	Comments
3293.00	0.030	297.120	3292.86	1271.58	8.63	0.37	-9.16	6398646.00	1936893.35	9.16	272.326	0.10	6.97	8.05	7.84	292.300	
3357.00	0.040	262.890	3356.86	1335.58	8.66	0.38	-9.19	6398645.96	1936893.36	9.20	272.347	0.04	7.09	8.23	8.03	292.272	
3420.00	0.030	271.080	3419.86	1398.58	8.70	0.37	-9.23	6398645.92	1936893.35	9.24	272.322	0.02	7.21	8.41	8.21	292.247	
3484.00	0.000	102.710	3483.86	1462.58	8.71	0.37	-9.25	6398645.90	1936893.35	9.26	272.320	0.05	7.34	8.58	8.39	112.247	
3548.00	0.070	242.980	3547.86	1526.58	8.74	0.36	-9.28	6398645.87	1936893.34	9.29	272.202	0.11	7.46	8.76	8.57	292.233	
3611.00	0.030	0.010	3610.86	1589.58	8.77	0.36	-9.32	6398645.83	1936893.34	9.32	272.187	0.14	7.59	8.94	8.75	292.172	
3674.00	0.070	274.380	3673.86	1652.58	8.81	0.38	-9.35	6398645.80	1936893.36	9.36	272.297	0.12	7.71	9.12	8.94	292.148	
3738.00	0.110	307.280	3737.86	1716.58	8.91	0.42	-9.44	6398645.71	1936893.40	9.45	272.519	0.10	7.84	9.31	9.13	292.116	
3801.00	0.070	167.240	3800.86	1779.58	8.95	0.41	-9.48	6398645.67	1936893.39	9.49	272.503	0.27	7.97	9.48	9.31	112.118	
3863.00	0.680	210.630	3862.86	1841.58	8.98	0.06	-9.66	6398645.49	1936893.04	9.66	270.362	1.02	8.10	9.66	9.49	292.522	
3925.00	1.840	211.570	3924.84	1903.56	9.20	-1.10	-10.37	6398644.78	1936891.88	10.43	263.925	1.87	8.23	9.85	9.67	293.795	
3988.00	2.710	213.150	3987.79	1966.51	9.65	-3.21	-11.71	6398643.44	1936889.77	12.15	254.665	1.38	8.36	10.05	9.86	294.375	
4052.00	2.590	211.490	4051.72	2030.44	10.18	-5.71	-13.30	6398641.85	1936887.27	14.47	246.752	0.22	8.50	10.24	10.06	294.505	
4115.00	2.350	214.170	4114.67	2093.39	10.69	-7.99	-14.77	6398640.39	1936884.99	16.79	241.567	0.42	8.64	10.43	10.25	294.012	
4178.00	2.400	228.290	4177.61	2156.33	11.55	-9.94	-16.48	6398638.67	1936883.04	19.24	238.895	0.93	8.78	10.62	10.45	293.242	
4242.00	3.090	258.250	4241.54	2220.26	13.57	-11.18	-19.17	6398635.99	1936881.80	22.19	239.734	2.45	8.92	10.82	10.66	290.030	
4305.00	4.640	272.510	4304.40	2283.12	17.39	-11.42	-23.37	6398631.78	1936881.56	26.01	243.964	2.88	9.06	11.04	10.90	280.347	
4368.00	6.510	276.640	4367.10	2345.82	23.23	-10.89	-29.47	6398625.68	1936882.09	31.42	249.712	3.03	9.20	11.26	11.13	269.007	
4432.00	8.110	279.350	4430.58	2409.30	31.14	-9.74	-37.53	6398617.63	1936883.24	38.77	255.449	2.56	9.34	11.48	11.37	258.648	
4495.00	9.130	280.710	4492.86	2471.58	40.37	-8.09	-46.82	6398608.33	1936884.89	47.52	260.198	1.65	9.48	11.72	11.59	253.575	
4558.00	12.380	281.620	4554.75	2533.47	51.92	-5.80	-58.35	6398596.80	1936887.18	58.64	264.324	5.17	9.62	11.97	11.82	249.507	
4622.00	15.350	280.040	4616.88	2595.60	66.96	-2.94	-73.42	6398581.74	1936890.04	73.48	267.706	4.68	9.76	12.27	12.11	236.385	
4685.00	17.190	277.560	4677.35	2656.07	84.13	-0.26	-90.86	6398564.30	1936892.72	90.86	269.835	3.12	9.91	12.57	12.41	237.630	
4748.00	19.740	275.870	4737.10	2715.82	103.37	2.05	-110.67	6398544.48	1936895.03	110.69	271.062	4.14	10.05	12.87	12.69	251.912	
4812.00	22.780	274.860	4796.74	2775.46	125.59	4.21	-133.78	6398521.38	1936897.19	133.84	271.801	4.78	10.19	13.25	12.99	261.181	
4875.00	25.200	273.920	4854.30	2833.02	150.00	6.16	-159.31	6398495.85	1936899.14	159.43	272.213	3.89	10.34	13.68	13.29	266.261	
4938.00	27.750	272.180	4910.68	2889.40	176.55	7.63	-187.35	6398467.80	1936900.61	187.51	272.333	4.23	10.49	14.18	13.55	269.284	
5001.00	29.350	271.050	4966.02	2944.74	204.76	8.47	-217.45	6398437.71	1936901.45	217.62	272.232	2.68	10.64	14.76	13.81	270.847	
5065.00	30.320	270.960	5021.54	3000.26	234.48	9.03	-249.28	6398405.88	1936902.01	249.45	272.075	1.52	10.79	15.40	14.04	271.006	
5128.00	30.380	271.050	5075.91	3054.63	264.20	9.59	-281.11	6398374.05	1936902.57	281.28	271.954	0.12	10.95	16.07	14.25	270.858	
5191.00	30.320	271.000	5130.27	3108.99	293.92	10.16	-312.94	6398342.23	1936903.14	313.11	271.859	0.10	11.11	16.78	14.46	270.761	
5255.00	30.550	270.980	5185.45	3164.17	324.18	10.72	-345.36	6398309.81	1936903.70	345.52	271.778	0.36	11.28	17.54	14.68	270.695	
5318.00	30.490	270.610	5239.72	3218.44	354.00	11.16	-377.35	6398277.82	1936904.14	377.51	271.695	0.31	11.45	18.31	14.90	270.634	
5382.00	30.400	270.130	5294.90	3273.62	384.14	11.37	-409.77	6398245.40	1936904.35	409.93	271.590	0.41	11.63	19.12	15.13	270.553	
5445.00	30.380	269.720	5349.24	3327.96	413.67	11.33	-441.65	6398213.53	1936904.31	441.79	271.470	0.33	11.80	19.94	15.36	270.452	
5509.00	30.510	269.350	5404.42	3383.14	443.63	11.07	-474.07	6398181.10	1936904.05	474.20	271.337	0.36	11.99	20.79	15.60	270.338	
5572.00	30.550	269.210	5458.69	3437.41	473.15	10.67	-506.07	6398149.10	1936903.65	506.19	271.207	0.13	12.17	21.64	15.85	270.225	
5635.00	30.410	269.570	5512.98	3491.70	502.64	10.33	-538.03	6398117.15	1936903.31	538.13	271.099	0.37	12.36	22.51	16.09	270.130	
5699.00	30.420	269.520	5568.17	3546.89	532.58	10.07	-570.43	6398084.75	1936903.05	570.52	271.011	0.04	12.56	23.40	16.34	270.056	
5762.00	30.470	269.620	5622.48	3601.20	562.09	9.83	-602.35	6398052.83	1936902.81	602.43	270.935	0.11	12.75	24.30	16.60	269.994	
5825.00	30.880	269.310	5676.67	3655.39	591.77	9.53	-634.49	6398020.69	1936902.51	634.56	270.860	0.70	12.95	25.21	16.86	269.936	
5889.00	30.910	269.230	5731.59	3710.31	622.07	9.11	-667.35	6397987.84	1936902.09	667.41	270.782	0.08	13.15	26.14	17.13	269.875	
5950.00	30.890	268.910	5783.93	3762.65	650.92	8.60	-698.67	6397956.52	1936901.58	698.72	270.705	0.27	13.35	27.05	17.38	269.812	
6014.00	31.790	269.860	5838.59	3817.31	681.64	8.25	-731.95	6397923.23	1936901.23	732.00	270.646	1.60	13.56	28.01	17.66	269.760	
6078.00	31.950	272.680	5892.95	3871.67	713.23	9.00	-765.73	6397889.46	1936901.98	765.78	270.673	2.34	13.77	29.00	17.94	269.783	

Actual Wellpath Report

Positional Uncertainty

FF 32G

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

WELLPATH DATA (114 stations) - with Positional Uncertainty values

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Vertical Semi-Axis [ft]	Horiz Major Semi-Axis [ft]	Horiz Minor Semi-Axis [ft]	Horiz Minor Axis Azim [°]	Comme
6141.00	31.790	276.940	5946.46	3925.18	744.99	11.78	-798.86	6397856.33	1936904.76	798.94	270.845	3.58	13.98	30.00	18.22	269.964	
6204.00	31.810	280.600	6000.01	3978.73	777.29	16.84	-831.65	6397823.54	1936909.82	831.82	271.160	3.06	14.20	30.99	18.49	270.310	
6268.00	31.260	283.530	6054.56	4033.28	810.25	23.83	-864.38	6397790.81	1936916.81	864.71	271.579	2.54	14.43	31.99	18.78	270.762	
6332.00	29.910	286.430	6109.65	4088.37	842.55	32.23	-895.83	6397759.36	1936925.21	896.41	272.060	3.12	14.66	32.94	19.06	271.287	
6395.00	29.000	289.750	6164.51	4143.23	873.45	41.83	-925.27	6397729.92	1936934.81	926.22	272.589	2.97	14.89	33.85	19.35	271.860	
6458.00	28.990	293.410	6219.62	4198.34	903.97	53.06	-953.66	6397701.54	1936946.04	955.13	273.185	2.82	15.11	34.73	19.64	272.488	
6522.00	29.050	296.950	6275.59	4254.31	934.96	66.27	-981.74	6397673.46	1936959.24	983.98	273.861	2.68	15.34	35.62	19.92	273.183	
6585.00	29.030	300.700	6330.68	4309.40	965.31	81.00	-1008.53	6397646.68	1936973.98	1011.77	274.592	2.89	15.56	36.47	20.20	273.929	
6648.00	29.030	304.390	6385.77	4364.49	995.36	97.44	-1034.28	6397620.92	1936990.42	1038.86	275.382	2.84	15.79	37.30	20.48	274.735	
6712.00	29.130	307.750	6441.70	4420.42	1025.52	115.75	-1059.42	6397595.79	1937008.73	1065.72	276.235	2.56	16.01	38.13	20.76	275.599	
6775.00	29.070	311.160	6496.75	4475.47	1054.74	135.21	-1083.07	6397572.14	1937028.19	1091.47	277.116	2.63	16.24	38.92	21.04	276.484	
6839.00	29.140	314.890	6552.68	4531.40	1083.79	156.45	-1105.81	6397549.39	1937049.42	1116.83	278.053	2.84	16.48	39.70	21.31	277.423	
6902.00	29.120	317.640	6607.71	4586.43	1111.75	178.60	-1127.01	6397528.20	1937071.57	1141.07	279.005	2.12	16.71	40.45	21.59	278.374	
6965.00	29.110	321.710	6662.76	4641.48	1138.89	201.96	-1146.84	6397508.37	1937094.93	1164.48	279.987	3.14	16.94	41.16	21.85	279.346	
7021.00	29.270	325.270	6711.65	4690.37	1162.17	223.90	-1163.08	6397492.13	1937116.87	1184.43	280.897	3.11	17.15	41.78	22.09	280.247	
7085.00	29.350	328.880	6767.46	4746.18	1187.81	250.19	-1180.10	6397475.11	1937143.16	1206.33	281.970	2.76	17.38	42.45	22.36	281.302	
7148.00	29.300	332.970	6822.39	4801.11	1211.81	277.14	-1195.09	6397460.13	1937170.11	1226.80	283.056	3.18	17.62	43.08	22.62	282.367	
7211.00	29.110	337.590	6877.39	4856.11	1234.18	305.04	-1207.94	6397447.28	1937198.01	1245.86	284.173	3.59	17.85	43.67	22.88	283.458	
7275.00	30.120	338.540	6933.03	4911.75	1256.13	334.38	-1219.75	6397435.47	1937227.34	1264.75	285.330	1.74	18.10	44.24	23.15	284.580	
7312.00	30.250	338.540	6965.01	4943.73	1268.93	351.69	-1226.55	6397428.66	1937244.66	1275.98	285.999	0.35	18.23	44.58	23.30	285.217	
7472.00	29.820	337.680	7103.53	5082.25	1324.47	426.00	-1256.40	6397398.81	1937318.96	1326.66	288.730	0.38	18.85	46.11	23.95	287.843	
7535.00	29.860	338.180	7158.18	5136.90	1346.28	455.05	-1268.18	6397387.03	1937348.01	1347.35	289.739	0.40	19.10	46.73	24.21	288.821	
7575.00	29.930	339.180	7192.85	5171.57	1359.97	473.63	-1275.43	6397379.78	1937366.58	1360.53	290.372	1.26	19.26	47.13	24.38	289.435	
7608.00	29.930	339.180	7221.45	5200.17	1371.16	489.02	-1281.28	6397373.93	1937381.97	1371.43	290.890	0.00	19.39	47.46	24.52	289.938	

Southern California Gas Company

A Sempra Energy utility®

Actual Wellpath Report

Positional Uncertainty

FF 32G

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
<FF 32G><T1>(Rev2)		7098.28	401.02	-1240.21	6397415.00	1937293.98	34°18'52.348"N	118°32'38.219"W	point
<FF 32G><T2>(Rev2)		7271.28	517.02	-1278.22	6397377.00	1937409.97	34°18'53.494"N	118°32'38.680"W	point

WELLPATH COMPOSITION - **Ref Wellbore: FF 32G** **Ref Wellpath: FF 32G**

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1000.00	NaviTrak (MagCorr)	<BHI>/<NaviTrak><17-1/2"><217-1000>	FF 32G
1000.00	7575.00	OnTrak (Standard)	<BHI><OnTrak MWD><12-1/4" Hole><1201-7575>	FF 32G
7575.00	7608.00	Blind Drilling	Projection to bit	FF 32G

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

Operator: **Southern California Gas Company** WELL DESIGNATION **"Fernando Fee" 32G**

API No. **03730374** SE **27** T: **3N** R.: **16W** , **SB** B. and M.

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

Type of Notice: **Drill** **Date** **6/18/2014** **Report Number:** **P214-0195**

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

	Date	OK	NEED	Remarks
Well Summary (OG100)	6-30-15	✓		
History (OG103)	6-30-15	✓		
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)

Modified OGD2

AOR Datbase _____

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

Rec'd 06-30-15 DOGGR D2 Ventura

WELL SUMMARY REPORT

API No. **037-30374**

Operator	Well				
Southern California Gas Company	**Fernando Fee 32G**				
Field (and Area, if applicable)	County	Sec.	T.	R.	B &M
Aliso Canyon, Sesnon-Frew Pool	**Los Angeles**	**27**	**3N**	**16W**	**S.B.**

Location of well (Give surface location from property or section corner, street center line)

Elevation of ground above sea level **1999'**

Lat./Long in decimal degrees, to six decimal places, NAD 83 format: Lat: **34.313351 N** Long: **118.539856 W**

Was the well directionally drilled? ☒ Yes ☐ No If yes, show coordinates (from surface location) and true vertical depth at total depth
489.02' North, 1281.28' West, 7221.45' TVD

Commenced drilling (date): **8/13/2014**
Completed drilling (date): **9/23/2014**
Commenced production/injection (date): **Currently Not In Service**
Production mode: ☒ Flowing ☐ Pumping ☐ Gas lift
Name of production/injection zone(s): **S-4, S-6, S-8, S-10, S-12**

Total depth: (1st hole) **7616'** (2nd) (3rd)

Present effective depth **7616'**

Junk? Describe: **N/A**

Depth measurements taken from top of: ☐ Derrick Floor ☐ Rotary Table ☒ Kelly Bushing
Which is **22.5** feet above ground

GEOLOGICAL MARKERS	DEPTH
M-P	**7008'**
S-1	**7346'**
S-2	**7396'**
S-4	**7463'**
S-6	**7486'**
S-8	**7535'**
S-10	**7577'**
S-12	**7608'**

Formation and age at total depth: **Sesnon, Miocene**
Base of fresh water: **N/A**

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

CASING AND CEMENTING RECORD (Present Hole)

Size of Casing (inches 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"	Surface	1076'	54 5#/ft	K-55	N	17-1/2"	1196 cu ft		Surface
9-5/8"	Surface	7364'	47#/ft	L-80	N	14"	4981 cu ft		Surface
5-1/2"	7253'	7616'	17#/ft	L-80	N	9-7/8"	N/A	N/A	Liner

PERFORATED CASING (Size, top, bottom, perforated intervals, size and spacing of perforations, and method)
5-1/2", 17#, L-80 blank liner and wirewrapped screen from 7253'-7616', 0.08" Ga screen from 7377'-7612' gravel packed w/112 cuft of 30-50 resin coated sand

Logs/surveys run? ☒ Yes ☐ No If yes, list type(s) and depth(s)
Resistivity/Gamma Ray - 1220'-7608' ; Induction/SP/Gamma Ray/Neutron/Density - 1069'-7332' ; USIT/Gamma Ray - 30'-1063', 12'-7358' ; Mud log - 103'-7608' ; Dipole Sonic - 7352'-7602' ; 4 Arm Caliper - 7352'-7602' ; Side Wall Cores - 7238'-7330', 7464'-7584' ; Directional Survey -341'-7608'

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 of person filing report	Telephone Number	Signature	Date
Todd Van de Putte	**818-701-3339**	Todd R Van de Putte	**6-30-2015**
Address		City/State	Zip Code
12801 Tampa Ave		**Northridge, CA**	**91326-1045**
Individual to contact for technical questions.	Telephone Number	E-Mail Address	
Todd Van de Putte	**818-701-3339**	**tvandeputte@semprautilities.com**	

OG100 (3/09)

SUBMIT IN DUPLICATE

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

No. T215-0012

REPORT ON OPERATIONS

Thomas W. Schroeder
Southern California Gas Company (S4700)
9400 Oakdale Avenue
Chatsworth, CA 91313

Ventura, California
January 21, 2015

Your operations at well **"Fernando Fee" 32G**, A.P.I. No. **037-30374**, Sec. **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **1/13/2015**. **Kris Gustafson**, a representative of the supervisor.

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

DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By _____
Bruce Hesson
District Deputy

KG/tkc
OG109

API No. 037-20874

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

T 215-0012 #12.1

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator So Cal Gas Well Fernando Fee 32C Sec. 27 T. 03N R. 16W

Field Aliso Cyn County Los Angeles Spud Date

VISITS: Date / Engineer / Time / Operator's Rep. / Title

1st 1-13-2015 K. Gustafson (1345 to 1415) Mike Volkmer Comp. [illegible]

2nd (to)

Contractor Ensign Rig # 321 Contractor's Rep. & Title Riley Hill toolpusher

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 9 5/8 " casing are approved.

Proposed Well Opns: Completion MACP: psi

REQUIRED BOPE CLASS: III 5M

Hole size: " fr. ' to ', " to ' & " to '

CASING RECORD OF BOPE ANCHOR STRING					Cement Details	Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at		Casing	Annulus
9 5/8	47#						
5 1/2	17#	liner					

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	CSD	Cameron	Spherical	11	5M								
RD	3 1/2	Shaffer	LWS	11	↓								
Rd	CSD		11	11	↓								

BOP STACK / TEST DATA — TOTAL: ok

ACTUATING SYSTEM

Accumulator Unit(s) Working Pressure 3000 psi

~~Total Rated Pump Output~~ gpm Fluid Level OK

Distance from Well Bore 50 ft.

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

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

	EMERG. BACKUP SYSTEM			Press.	Wkg. Fluid
4	N_2 Cylinders	1	L= 51 "	2000	5.1 gal.
	Other:	2	L= 51 "	2450	7.7 gal.
		3	L= 51* "		gal.
		4	L= 51* "		gal.
		5	L= "		gal.
		6	L= "		gal.
	*		TOTAL:		12.8 gal.

AUXILIARY EQUIPMENT	No.	Size (in.)	Rated Press	Weld	Flange	Thread	Test Press.
Fill-up Line		2"	3M			X	
Kill Line		2"			X		
Control Valve(s)					↓		
Check Valve(s)					↓		
Aux. Pump Cnnct.					↓		
Choke Line		3	5M		X		
Control Valve(s)			↓		↓		
Pressure Gauge			↓		↓		
Adjstble Choke(s)			↓		↓		
Bleed Line			↓				
Upper Kelly Cock							
Lower Kelly Cock							
Standpipe Valve							
Stndpipe Pres. Gau.							
Pipe Safety Valve		3 1/2	5M				
Internal Preventer		3 1/2	5M				

HOLE FLUID MONITORING EQUIPMENT	Audible	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)
3% KCL	8.5	800 bbls (Baker)

REMARKS AND DEFICIENCIES:

* N2 bottles need two replacements to proceed.

OGD9 (9/06)

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

No. T214-0368

REPORT ON OPERATIONS

Thomas W. Schroeder
Southern California Gas Company (S4700)
9400 Oakdale Avenue
Chatsworth, CA 91313

Ventura, California
September 18, 2014

Your operations at well **"Fernando Fee" 32G**, A.P.I. No. **037-30374**, Sec. **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **9/14/2014**. **Mark Davis**, a representative of the supervisor.

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

DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By _____
Bruce Hesson
District Deputy

MD/tkc
OG109

API No. 037-20374 DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES T 214-0368 #11, 1

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator SO. CAL GAS CO. Well "FERNANDO FEE" 326 Sec. 27 T. 3N R. 16W
Field ALISO CANYON County LOS ANGELES Spud Date 8-3-14

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	9-14-14	M. DAVIS	(1700 to 2000)	MIKE DOZIER	CONSULTANT
2nd			(to)		

Contractor EMSIGN Rig # 587 Contractor's Rep. & Title
Casing record of well: 13 3/8" CEM 1000'; 9 5/8" CEM 7364', TD 7365' (DRILLING)

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: DRILL . MACP: psi **REQUIRED BOPE CLASS:** III 5M
Hole size: " fr. ' to ', " to ' & " to '

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
9 5/8	47#	L-80	7364'	—	LEAD: 3400 CF TYPE G CEM 13.5 PPG. TAIL 1717 CF CLASS G 14.8 PPG. FLOAT COLLAR 7280'	—	0'

BOP STACK

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul
A	—	HYDRIL		11"	5M	
RD	5"	CAMERON		11"	5M	
RD	CSO	CAMERON		11"	5M	

TEST DATA

Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
						—
					9-14	5M
					9-14	5M

ACTUATING SYSTEM

Accumulator Unit(s) Working Pressure 3000 psi
Total Rated Pump Output — gpm Fluid Level 1/2
Distance from Well Bore 60 ft.

	Accum. Manufacturer	Capacity	Precharge
1	WAGNER	— gal.	1500 psi
2		gal.	psi

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

EMERG. BACKUP SYSTEM			Press.	Wkg.Fluid
X N_2 Cylinders	1	L= "	2700	gal.
Other:	2	L= "	2750	gal.
	3	L= "	2800	gal.
	4	L= "	2800	gal.
	5	L= "	2800	gal.
	6	L= "	2800	gal.
	TOTAL:			gal.

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			B
Flow Sensor			C
Mud Totalizer			C
Calibrated Trip Tank			
Other:			

TOTAL: WITH TOP DRIVE

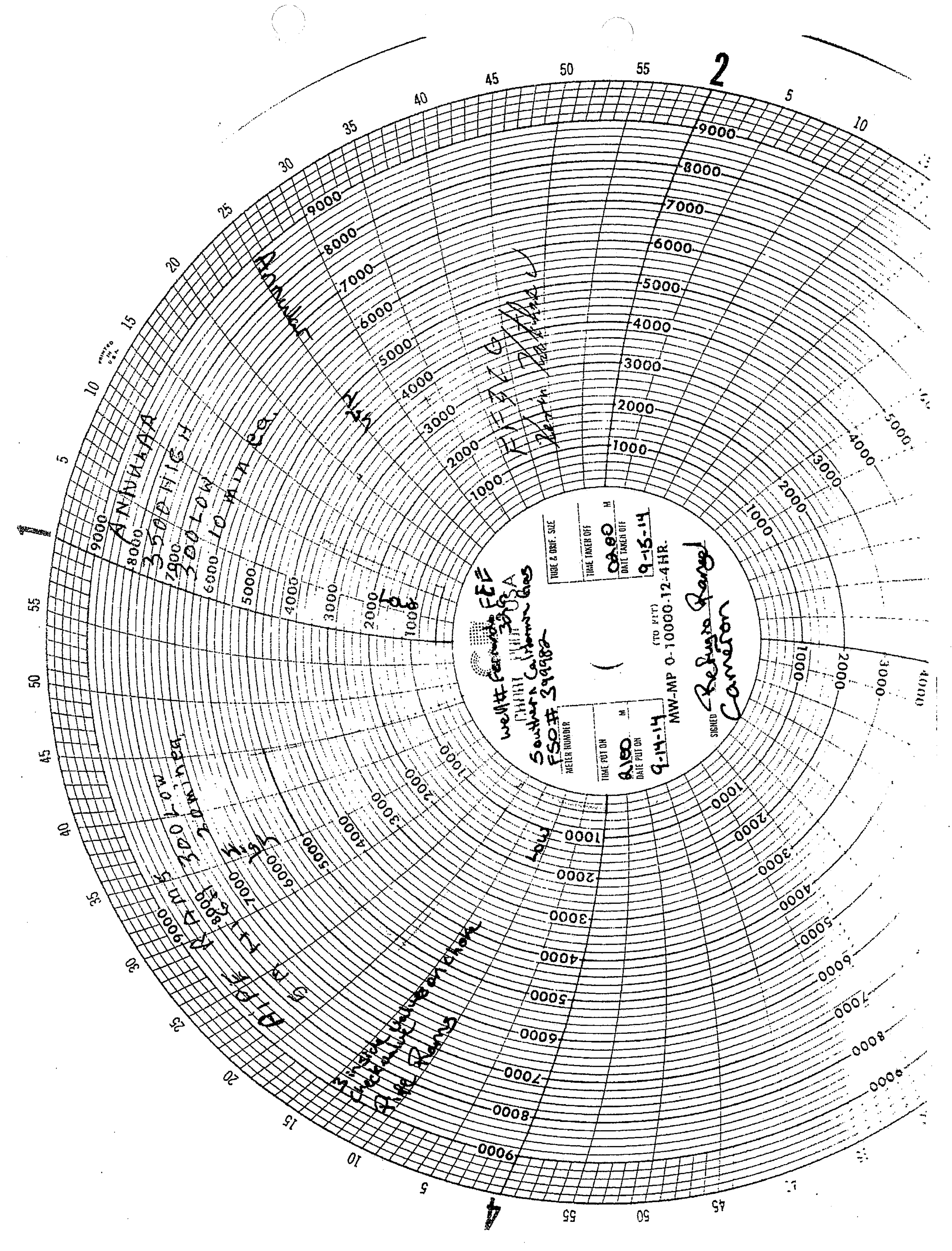
AUXILIARY EQUIPMENT

		No.	Size (in.)	Rated Press	Connections: Weld	Connections: Flange	Connections: Thread	Test Press.
	Fill-up Line							
X	Kill Line		2"	5M		X		
X	Control Valve(s)	3		4		X		
X	Check Valve(s)	1		4		X		
	Aux. Pump Cnnct.							
X	Choke Line		3	5M		X		
X	Control Valve(s)	9				X		
X	Pressure Gauge					X		
X	Adjstble Choke(s)	2	2"	5M		X		
	Bleed Line		—					
X	Upper Kelly Cock							
	Lower Kelly Cock		—					
	Standpipe Valve							
	Stndpipe Pres. Gau.							
X	Pipe Safety Valve		5"	5M				
X	Internal Preventer		5"	5M				

Hole Fluid Type	Weight	Storage Pits (Type & Size)
MUD	9.5	7968 BBLS

REMARKS AND DEFICIENCIES:
ONLY DISCONNECTED STACK. HAD ONE PRESSURE TEST, FROM PIPE RAMS DOWN.

OGD9 (9/06)



TUBE & ORIF. SIZE
METER NUMBER
TIME PUT ON
DATE PUT ON
9-14-14
TIME TAKEN OFF
DATE TAKEN OFF
9-15-14
MW-MP 0-10000-12-4HR.
SIGNED
FSO# 399982
Southern California Gas
Annular

L .PARTMENT OF CONSERVA.)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

REPORT ON OPERATIONS

No. T214-0316

Thomas W. Schroeder
Southern California Gas Company (S4700)
9400 Oakdale Avenue
Chatsworth, CA 91313

Ventura, California
August 18, 2014

Your operations at well **"Fernando Fee" 32G**, A.P.I. No. **037-30374**, Sec. **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **8/10/2014**. **Clifford R. Knight**, a representative of the supervisor.

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

DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By _____
Bruce Hesson
District Deputy

CRK/ms
OG109

API No. 037-30374 DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES T 2N-0316

BLOWOUT PREVENTION EQUIPMENT MEMO 11,1

Operator So Cal Gas Well Fernando Fee 32G Sec. 27 T. 03N R. 16W
Field Aliso Canyon County Los Angeles Spud Date 8/3/14

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	8/9/14	C. Knight	(1430 to 2330)	Felipe Stallions	Rig Manager
2nd	8/10/14	C. Knight	(0830 to 0900)	" "	" "

Contractor Ensign Rig # 587 Contractor's Rep. & Title Kevin Kotoles Co-Man (661-302-5991)
Casing record of well: 13 3/8 54.5# K-55 0-1076, Float Collar 13 3/8" 1037.8-1039.2, Float shoe 13 3/8 1075-1076

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: Drilling out Shoe of 13 3/8 . MACP: psi
Hole size: 13 3/8 " fr. 0 ' to 1076 ', " 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	1075	1076	Class G 430 sack, 152 bbls (Halliburton) Yes - cement return 32 bbls	1038'	surface

BOP STACK

API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	CSO	Hydril	GK13	13 3/8	5M	1/2014	15.3						3600
Rd	5	Schaffer SL	LWS	13 3/8	5M	12/2013	5.3						5M
Rd	CSO	Schaffer SL	LWS	-	5M	12/2013	5.3						5M

TOTAL: 25.9

ACTUATING SYSTEM

Accumulator Unit(s) Working Pressure 3000 psi
Total Rated Pump Output gpm Fluid Level
Distance from Well Bore 93 ft. 1/2

	Accum. Manufacturer	Capacity	Precharge
1	Wagner 20-135-38N	80 gal.	1,000 psi
2		gal.	psi

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

EMERG. BACKUP SYSTEM

				Press.	Wkg.Fluid
6	N_2 Cylinders	1	L= 55 "	2,706	10.3 gal.
	Other:	2	L= 55 "	2,600	9.7 gal.
		3	L= 55 "	2,700	10.3 gal.
		4	L= 55 "	2,700	10.3 gal.
		5	L= 55 "	2,700	10.3 gal.
		6	L= 55 "	2,700	10.3 gal.
			TOTAL:	61.2	gal.

AUXILIARY EQUIPMENT

		No.	Size (in.)	Rated Press	Connections: Weld	Connections: Flange	Connections: Thread	Test Press.
	Fill-up Line							
1	Kill Line		3"	5M		X		5M
1	Control Valve(s)			5M				5M
1	Check Valve(s)	1						5M
1	Aux. Pump Cnnct.						X	
1	Choke Line		3	5M		X		5M
10	Control Valve(s)			5M		X		5M
1	Pressure Gauge							
2	Adjstble Choke(s)	2	3	5M		X		5M
	Bleed Line							
2	Upper Kelly Cock							5M
	Lower Kelly Cock							
1	Standpipe Valve							5M
2	Stndpipe Pres. Gau.							
2	Pipe Safety Valve		5"	5M				5M
1	Internal Preventer		5					5M

HOLE FLUID MONITORING EQUIPMENT

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

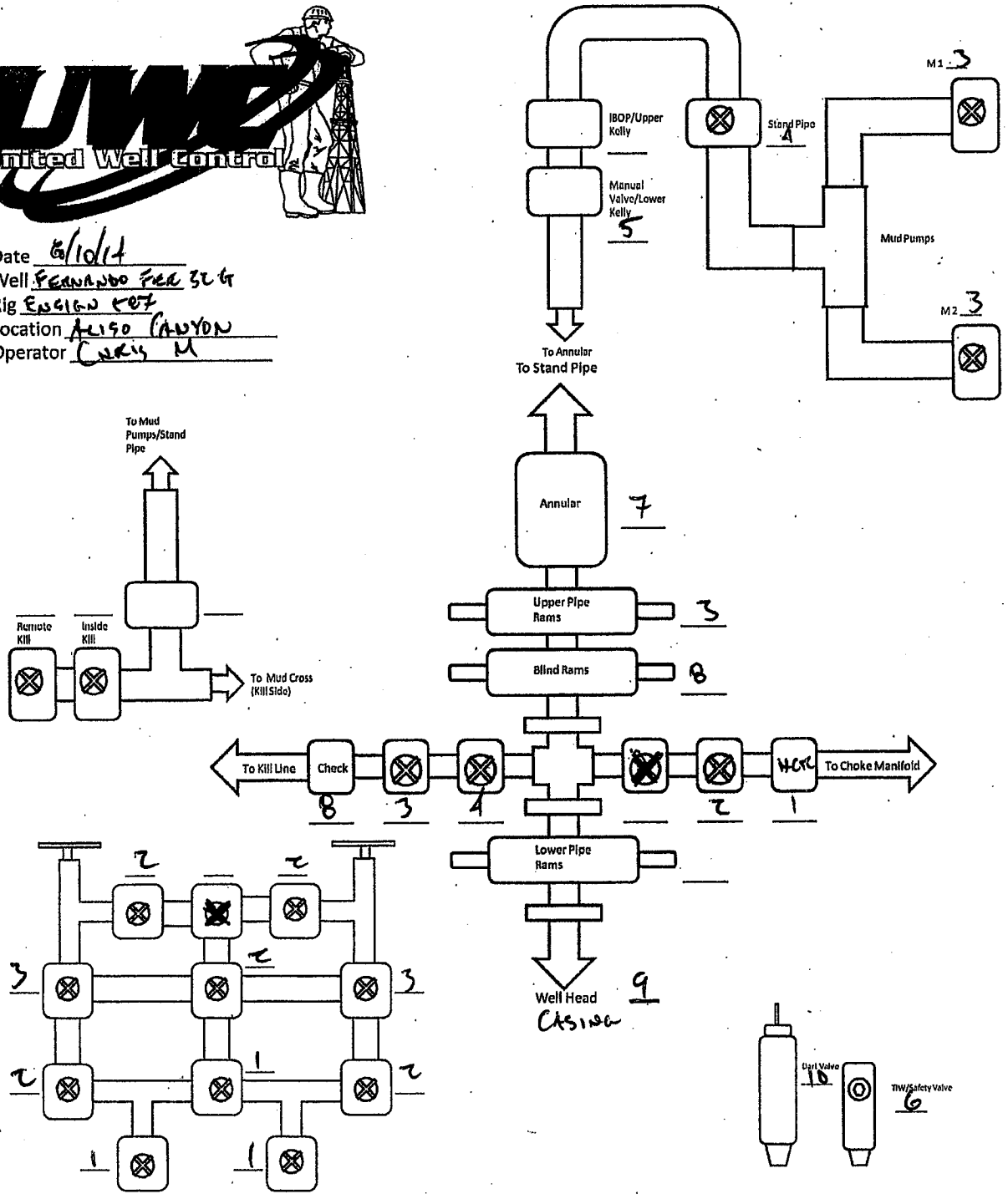
Hole Fluid Type	Weight	Storage Pits (Type & Size)
KCl Mud PolyTech	9.4	1200 bbls Mud tanks, 750 current

REMARKS AND DEFICIENCIES:
Backup Kill line hookedup 2"
Testing Company: B&L (Chris Mendoza).
Leaks detected on 8/9/14 (PM). Ensign to call back out to view charts

OGD9 (9/06)

United Well Control

Date 6/10/14
Well FERNANDO FED 32G
Rig ENSIGN 107
Location ALISO CANYON
Operator CHRIS M



Test #	Start Time	PSI	Duration	PSI	Duration	Closing Time	Comments
1	158	300	10	5K	10		8/9
2	519	300	10	5K	10		8/9
3	128	300	10	5K	10		8/10
4	156	300	10	5K	10		
5	253	300	10	5K	10		
6	337	300	10	5K	10		
7	108	300	10	3600	10		
8	531	300	10	5K	10		
9	—	[redacted]		[redacted]			
10	700	300	10	5K	10		
9	655	—	—	1000	10		

1) HCR, 3 Outermost Choke
2) Inside Mud Cross (Choke), 3 Outer Mud Choke
3) Pipe Rams, Outside Mud Cross (Kill)
2 [redacted] Inner Mud Choke, 1" Mud Pumps
4) 1" Stand Pipe, Inside Mud Cross (Kill)
2 Innermost Choke
5) Manual Valve
6) Floor Valve
7) Annular
8) Blind Rams, Check
9) Casing
10) Dart Valve

Casing & Cement

Casing Detail:

Casing Description	Run Date	Set Depth (ftKB)	Wellbore	Centralizers	Scratchers
Surface	8/7/2014 13:00	1,076.0	Original Hole	11	

Casing Components

Joints	Item Description	Icon	OD Nominal (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Length (ft)	Top Depth (ftKB)	Bottom Depth (ftKB)
28	Casing Joints	Casing (black)	13 3/8	12.615	54.50	K-55	Buttress Thread	1,040.98	-3.2	1,037.8
1	Float Collar	Float collar	13 3/8	12.615	54.50	K-55	Buttress Thread	1.45	1,037.8	1,039.2
1	Casing Joints	Casing (black)	13 3/8	12.615	54.50	K-55	Buttress Thread	35.75	1,039.2	1,075.0
1	Float Shoe	Casing shoe	13 3/8	12.615	54.50	K-55	Buttress Thread	1.03	1,075.0	1,076.0

Cementing Job Details:

Description	Type	String	Wellbore
Surface Casing Cement	Casing	Surface, 1,076.0ftKB	Original Hole

Cementing Start Date	Cementing End Date	Cementing Company
8/7/2014 20:49	8/7/2014 22:18	Halliburton Energy Services

Comment

Cement Stage#1 Description:

Stage Number	Top Depth (ftKB)	Bottom Depth (ftKB)	Cement Volume Return (bbl)
1	22.5	1,080.0	32.0

Float Failed?	Plug Failed?	Full Return?	Pipe Reciprocated?	Pressure Held (psi)
No	Yes	Yes	Yes	

Top Plug?	Bottom Plug?	Initial Pump Rate (bbl/min)	Final Pump Rate (bbl/min)
Yes	Yes	6	4

Avg Pump Rate (bbl/min)	Final Pump Pressure (psi)	Plug Bump Pressure (psi)	Pressure Release Date
6	186.0		

Preflush Fluid Details for Stage#1 :

Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Preflush	Fresh water			20.0

Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Yield (ft³/sack)	Mix H20 Ratio (gal/sack)	Free Water (%)
22.5	22.5			

Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
8.40			

Comment

Additive Details

Add	Conc	Conc Unit

Lead Fluid Details for Stage#1 :

Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Lead	Lead cement	430	G	157.0

Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Yield (ft³/sack)	Mix H20 Ratio (gal/sack)	Free Water (%)
22.5	680.0	2.05		

Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
13.50			

Comment

Additive Details

Add	Conc	Conc Unit
Gel	6.0	%
Halad-322	0.4	%
Mitsubishi Premium	61.1	lbm
Pozmix A	25.9	lbm
SS-200	35.0	%
WG-17	0.3	%

Casing & Cement

Tail Fluid Details for Stage#1 :

Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Tail	Tail cement	175	G	56.0

Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Yield (ft³/sack)	Mix H20 Ratio (gal/sack)	Free Water (%)
680.0	1,080.0	1.81		

Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
14.80			

Comment

Additive Details

Add	Conc	Conc Unit
		%
Halad-322	0.5	%
Micrilite	5.0	%
Mitsubishi Premium	94.0	lbm
SS-200	35.0	%
Super CBL	0.25	%

Displacement Fluid Details for Stage#1 :

Fluid Type	Fluid Description	Amount (sacks)	Class	Volume Pumped (bbl)
Displacement	Drilling mud			164.0

Estimated Top (ftKB)	Estimated Bottom Depth (ftKB)	Yield (ft³/sack)	Mix H20 Ratio (gal/sack)	Free Water (%)
22.5	1,080.0			

Density (lb/gal)	Plastic Viscosity (cP)	Thickening Time (hr)	1st Compressive Strength (psi)
9.40			

Comment

Additive Details

Add	Conc	Conc Unit

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

No. P 214-0195

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

PERMIT TO CONDUCT WELL OPERATIONS

GAS STORAGE
Modelo (Miocene) Formation

Ventura, California
June 30, 2014

Thomas W. Schroeder, Agent
Southern California Gas Company (S4700)
9400 Oakdale Avenue
Chatsworth, CA 91313

Your proposal to **Drill** well **"Fernando Fee" 32G**, A.P.I. No. **037-30374**, Section **27**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **6/18/2014**, received **6/19/2014** has been examined in conjunction with records filed in this office. (Lat: **34.313351** Long: **-118.539856** 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 **IIIB 5M** on the **13 3/8"** casing.
   b. Class **IIIB 5M** on the **9 5/8"** casing.
   c. Class **IIIB 5M** on the **9 5/8"** casing.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. The **13 3/8" and 9 5/8"** casings are cemented with sufficient cement to fill behind the casings from the shoes to the surface.
5. A pressure test is conducted to demonstrate the mechanical integrity of the **9 5/8**" casing.
6. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
7. **THIS DIVISION SHALL BE NOTIFIED TO:**
   a. Witness a test of the installed blowout prevention equipment prior to drilling out the shoe of the **13 3/8"** casing.
   b. Witness a test of the installed blowout prevention equipment prior to drilling out the shoe of the **9 5/8"** casing.
   c. Inspect the installed blowout prevention equipment prior to commencing **the completion** operations.
   d. Witness a pressure test of the **9 5/8"** casing prior to commencing injection.
   e. Witness a mechanical integrity test within three months after injection has commenced.

NOTE:

1. The base of the freshwater zone should be encountered above **800'**.

Steven Bohlen
State Oil and Gas Supervisor

Blanket Bond Dated: 7/6/1999
UIC Project Number: 0100006

Engineer Kris Gustafson
Office (805) 654-4761

By _____
Bruce Hesson, *District Deputy*

KG/kg

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

OG111 (revised 6/2011)

Rec'd 06-19-14 DOGGR D2 Ventura

FOR DIVISION USE ONLY			
	Forms		
Bond	~~OGD114~~	OGD121 ✓	
	CAL ✓ WIMS	115 ✓	

WS ✓

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

OIL, GAS & GEOTHERMAL

010/00/30
GS

NOTICE OF INTENTION TO DRILL NEW WELL

P14-0195

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 drill well "Fernando Fee" 32G, well type Storage Well, API No. 037-30374 (Assigned by Division)

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

Legal description of mineral-right lease, consisting of N/A acres (attach map or plat to scale), is as follows:

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) _____ and

Lat./Long. in decimal degrees, to six decimal places, NAD 83 format: Latitude: 34.313351 North Longitude: 118.539856 West

If well is to be directionally drilled, show proposed coordinates (from surface location) and true vertical depth at total depth:

556 feet North (Direction) and 1272.1 feet West (Direction). Estimated true vertical depth 7272'. Elevation of ground above sea level 2000 feet. All depth measurements taken from top of Kelly Bushing (Derrick Floor, Rotary Table, or Kelly Bushing) that is 22.5 feet above ground.

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

Is a California Environmental Quality Act (CEQA) document required by a local agency? Yes☐ No☒ If yes, see next page.

PROPOSED CASING PROGRAM

SIZE OF CASING (Inches API)	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	FORMATION PRESSURE (Estimated Maximum)	CALCULATED FILL BEHIND CASING (Linear Feet)
13-3/8"	54.5#	K-55	Surface	1100'	Surface	Hydrostatic	1100'
9-5/8"	47#	L-80	Surface	7300'	Surface	Hydrostatic	7300'
5-1/2"	17#	L-80	7200'	7670'	None	Variable-Storage	0'

(Attach a complete drilling program including wellbore schematics in addition to the above casing program.)

Estimated depth of base of fresh water: N/A Anticipated geological markers: M-P: 7024', S-1: 7323', S-4:7459', S14:7661' (Name, depth)

Intended zone(s) of completion: Sesnon - Storage Zone- Variable ✓ (Name, depth and expected pressure) Estimated total depth: 7670'

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 S4700			
Address: 12801 Tampa Ave.		City/State: Northridge, CA	Zip Code: 91326-1045
Name of Person Filing Notice: Todd Van de Putte	Telephone Number: 661-305-5387	Signature: Todd R Van de Putte	Date: 6-18-14
Individual to contact for technical questions: Todd Van de Putte	Telephone Number: 661-305-5387	E-Mail Address: tvandeputte@semprautilities.com	

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 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.

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.

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

Southern California Gas Company - Aliso Canyon – Fernando Fee 32G
Drilling/Completion Program

PROGRAM REVISED: June 18, 2014

OBJECTIVE: Drill and complete a new replacement storage well in the Aliso Canyon Storage Field

SURFACE LOCATION: 27 Section , Township 3N, Range 16W, S.B. B&M / GPS Coordinates (NAD 83): 34.313351 North; 118.539856 West

API NUMBER: TBD

DRILLING RIG: Ensign #587 (See attached proposed Rig Equipment List) Note: Drilling rig main power to use two 1500 hp low emission-natural gas fired generators with one diesel generator backup.

ELEVATIONS:

Ground Elevation: 2000'
Estimated Rig KB: 22.5'
All depths refer to proposed kelly bushing 22.5' above ground.

BOTTOM HOLE COORDINATES (See attached Directional Plan):

Intermediate Target: 7457' MD, 7099' TVD, 446' North, 1234' West, 1307' VSS.

Bottom Hole Target: 7669' MD, 7272' TVD, 556' North, 1272.1' West, 1388.3' VSS.

TOP OF ZONES: Storage Zone (Sesnon): MP: 7024' MD / 6733' TVD, S-1: 7323' MD / 6987' TVD, S-4: 7459' / 7100' TVD, S-14: 7667' / 7270' TVD

ESTIMATED FORMATION FRACTURE GRADIENT: 0.80 psi/ft

FIELD PRESSURE: Sesnon Storage Zone: Variable BHP – hydrostatic maximum bottom hole pressure (8.6-9.2 ppg mud planned, adjust mud weight according to actual storage zone pressure to maintain overbalance)

PROPOSED CASING PROGRAM (See attached wellbore schematic):

0' – 1100'	13-3/8"	54.5#	K-55, Buttress, Surface casing, cemented to surface.
0' – 7300'	9-5/8"	47.0#	L-80, Hydril 563, Production Casing cemented to surface
7200'- 7670'	5-1/2"	17#	L-80, Premium Connection, 0.012" Wire Wrapped Screen gravel pack liner w/30-50 gravel.

PROPOSED HOLE SIZES (+/-):

0' to 1100' -- 17-12" hole
1101' to 7300' -- 14" hole.
7301' to 7670' -- 8-1/2" hole.

DIRECTIONAL PROGRAM:

(See attached plan)
Drill vertical hole to 1100' MD / 1100' TVD.
Directionally Drill 14" hole from 1100' to 7300'(+/-) MD, 8-1/2" hole to 7670'(+/-) MD.
Estimated Total Measured Depth: 7670'(+/-) MD

MUD PROGRAM:

1. For drilling to the casing shoes at 1100'MD (+/-) and 7300'MD (+/-), use the GEO Drilling Fluids Polytek+ w/6% Potash mud with the following properties:

   a. Weight: 8.8 – 9.6 ppg
   b. Viscosity: 45 – 55 sec. A.P.I.
   c. Yield Point: 15-25 lb/100 sqft.
   d. Fluid loss: 8 - 10 cc/ 30 min. A.P.I.
   e. % solids: 3-7 %
   f. pH: 9.0 – 9.5

2. For drilling and scraping liner interval, use a 3% KCL/polymer Drill-In mud with the following properties:

   a. Weight: 8.5 – 8.7 ppg
   b. Viscosity: 40 – 50 sec. A.P.I.
   c. Plastic visc: 6 - 10 cps
   d. Yield point: 15 – 25 lb/100 cf
   e. Fluid loss: < 5 cc / 30 min. A.P.I.
   f. % solids: < 4 %

   Estimated static temperature at total depth, 7300' TVD, is 185°F

   NOTES:

   - Add the equivalent of 3% KCl to inhibit clay swelling while drilling in the producing zones.
   - Use sized calcium carbonate as required to control mud losses while drilling high angle section below the 9-5/8" production casing shoe.
   - Solids Control: a Mud cleaner with 150-200 mesh (API) screens and a Centrifuge will be onsite during the drilling operations. Run the Mud Cleaner and the Centrifuge to maintain a high gravity solids content in the mud of less than 4%.
   - Mud weights to be adjusted (if possible) based Sesnon zone bottomhole pressure.
   - Hydraulics to be based on a 120-160 ft/min annular velocity.

BOPE REQUIREMENTS: (Surface Casing Hole: 20", 2M Annular Preventer, Diverter w/6" diameter lines (minimum) / Production Casing Hole, Open Hole to TD and completion operations: 13-5/8" Class IIIB 5M BOPE:

1. Annular Preventer: Bag type-hydraulic, 13-5/8", 5M.
2. Ram Preventer: Double gate-hydraulic (pipe and blind), 13-5/8", 5M.
3. Accumulator – 140 gallon (minimum) with dual station controls and secondary kill line.
4. 3" choke lines required.
5. BOP requirements in 224.05 should be fully implemented. Class IIIB 5M (minimum) requirements should be followed.
6. Field reservoir inventory and pressures should be monitored during the drilling and the workover operations with a 300 psig minimum overbalance on well control fluids.

DRILLING PROGRAM:

1. Install an 8' diameter steel cellar ring and install and cement a 20" OD conductor pipe from approximately 60'-80' to the surface. Prepare and level the well location. Install a barrier around the cellar/conductor to prevent access to the cellar. Secure/cover the conductor hole with steel plating or similar prior to the arrival of the drilling rig. Install the mousehole/rathole with sleeves per the Ensign Rig #587 footprint.

2. Move in and rig up Ensign #587 drilling rig. Rig up the natural gas fuel supply lines and the meter skid.

3. Install a 20" riser spool with a 20" 2M flange, and a diverter system; including a 20" cross w/minimum 6" outlets, 6" diverter lines (minimum) a 20", 2M annular preventer and a pitcher nipple. Orient the diverter vent lines away from the rig, operating facilities and down wind from the rig/operating facilities.
    a. Notify the DOGGR to witness the function test of the 20" annular preventer.

4. Run in the hole with a 17-1/2" button bit (Type 437 bit or equivalent), a 9-1/2" mud motor/MWD, a bumper sub on the 5", 19.5#, X-95 drill pipe and clean out the cement with the 17-1/2" bit to the bottom of the conductor. Circulate and condition the mud.

5. Drill the 17-1/2" surface casing hole to 1100' (+/-).
    a. Collect surface casing hole directional surveys via a gyro survey or via the MWD after the surface casing is cemented in place.
    b. Circulate the hole clean.
    c. Verify the mud/flow line circulating temperature prior to the cementing operations.

6. Rig up the casing running crew and run 1100' (+/-) 13-3/8", 54.5#, K-55 surface casing with Buttress thread. Run the surface casing with a 13-3/8" guide shoe and a float collar located 40' above the casing shoe.
    a. Baker Lock the bottom three casing joints, during the casing running operations.
    b. Run the 13-3/8" x 17-1/2" hole bow spring type centralizers per the recommended program based on the drilled hole conditions.
    c. Proper make up for the 13-3/8" Buttress Casing is to the triangle stamp on the pin end.
    d. Use/apply the Weatherford thread compound to each connection during the casing make up process.

Note: Collect a sample of the mix water to be used for cementing the 13-3/8" surface casing. Supply the cementing company with the water sample for analysis and formulation with the lead and tail slurries.

7. Rig up a cementing head, cementing equipment, mix and pump per finalized cementing schedule:
   a. Cement Density: Type III, 13.5 ppg lead/14.8 ppg tail w/gas migration additives
   b. Cement Volume: 600 lineal feet lead / 400 lineal feet tail.
   c. 50% Excess cement add to the lead slurry (adjust depending on hole conditions)
   d. Adjust the cement slurry pump time based on the current hole conditions.
   e. Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
   f. Reciprocate the 13-3/8" casing during the hole conditioning and cementing operations.
   g. Bump the plug with 1000 psig maximum surface pressure.

8. Wait on the cement a minimum of 12 hours and remove the diverter system. Cut off the 20" conductor pipe to the cellar floor level. Cut and prepare the 13-3/8" surface casing stub. Weld on the 13-5/8", 5M SOW casing head to the surface casing stub as per the Gas Company weld procedure. Level the casing head flange and land the flange face at the ground level elevation. Orient the casing head flange bolt holes per the surface facility engineer. X-ray the casing head weld and pressure test the casing head to 4000 psig.

9. Install a 13-5/8" riser spool and a 13-5/8" Class IIIB 5M BOPE. All connections and valves must be flanged and at least 5000 psig rated. Install a test plug in the 13-5/8" 5M casing head.
   a. Pressure test the 13-5/8" 5M annular preventer to 3600 psig (high) / 300 psig (low) for 20 minutes. Test Blind Rams and the 5" Pipe Rams to 5000 psig (high) / 300 psig (low) for 20 minutes. Test all lines and connections to 5000 psig (high) / 300 psig (low). All tests are to be charted and witnessed by a DOGGR representative. Remove the test plug.

10. Pressure test the 13-3/8", 54.5#, K-55 surface casing to 1000 psig surface pressure. Run a 12-1/4" cleanout bit, and 8" drill collars on the 5" drill pipe and clean out the cement and the float equipment from 1060' to 1100'. Make approximately 10'-50' of rathole below the 13-3/8" surface casing shoe or to depth as recommended by the directional drilling company. Pull out of the hole and lay down the clean out BHA.

11. Rig up the mud loggers and the mud logging equipment. Record and collect samples are per the geologist recommendation.

12. Pick up and run a 12-1/4" Kymera bit, and the 9-1/2" Autotrak rotary steerable system, 14" Rhino Reamer and associated BHA on the 5" drill pipe. Drill 14" directional hole from 1100'MD (+/-) to 7300'MD (+/-) per the attached directional program. Verify the final production casing shoe depth.

13. Condition the mud for the open hole logging runs. Note the salinity and other mud properties from the daily mud report. Pull out of the hole and lay down the 12-1/4" Kymera bit, the 9-1/2" Autotrak rotary steerable system and the 14" Rhino Reamer.

Note: Collect a sample of the mix water to be used for cementing the 9-5/8" production casing. Supply cementing company with the water sample for analysis and formulation with the lead and tail slurries.

14. Move in and rig up the wireline logging crew and run a Platform Express Log, and a Dipole Sonic Log from 1100' to 7300' (+/-). Rig down and move out the wireline logging crew. Note: Depending on the final directional path, push down logging tools may be required in order to get to bottom.
15. Run a 12-1/4" cleanout bit with jets removed below one stand of 8" drill collars and clean out the well to bottom. Condition the mud for casing running/cementing operations. Pull out of the well and lay down the cleanout BHA.

16. Rig up the casing running crew and WEA Jam Unit and run 9-5/8", 47#/ft., L-80, Hydril 563 connection, casing to 7300' (+/-). Production casing string to include a 9-5/8" casing differential fill float shoe, and a differential float collar two joints up from shoe. The centralizers will be run spaced and run according to the hole conditions and as per recommended centralizer plan.
    a. Baker Lock the bottom 3 joints of casing.
    b. During casing running operations, rig up the top drive / Hydril 563 casing cross over as required and work/rotate the casing in the hole, if required.
    c. Make up the Hydril 563 connection per the recommended thread compound application and optimum make up torque requirements. The minimum yield torque on the Hydril 563 connection is 75,000 ft-lb.

17. Rig up to the top drive with a cross over sub and circulate the hole clean. Stage circulate the well while running in the hole to maintain good mud properties. If possible, rotate the 9-5/8" casing while conditioning the 12-1/4" hole. Do not exceed 60,000 ft-lb torque value specified in Step 16c during the top drive casing rotating operations.

18. Rig up a cementing head, cementing equipment, mix and pump per finalized cementing schedule. Cement the 9-5/8", 47#/ft, L-80 production casing.
    a. Cement Density: Class "G", 13.5 ppg lead/14.8 ppg tail w/gas migration additive
    b. Cement Volume: 4300 lineal feet lead / 3000 lineal feet tail.
    c. 20% Excess cement in the lead slurry (adjust depending on hole conditions).
    d. Adjust the pump time of the cement slurry based on the current hole conditions.
    e. Use top and bottom wiper plugs
    f. Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
    g. Either reciprocate or rotate the 9-5/8" casing during hole conditioning and cementing operations.
    h. Bump the plug with 1000 psig maximum surface pressure.
    i. Leave small volume of cement on top of the wiper plug.

19. After the 9-5/8" production casing cement slurry has setup (approximately 16 hrs), use a lift kit to pick up the 13-5/8" Class IIIB 5M BOPE stack.
    a. Land the 9-5/8" casing in a minimum of 100,000 lb tension in the 13-5/8" casing head with the 13-5/8" x 9-5/8" non automatic slips and independent pack off assembly.
    b. Cut off the 9-5/8" casing stub in preparation for the installation of the 13-5/8"x 13-5/8" 5M seal flange.
        i. Verify 9-5/8" casing stub height to ensure the 9-5/8" casing stub will pack off in the lower tubing head seal assembly.
        ii. Install the 13-5/8" x 13-5/8" 5M seal flange.
        iii. Install the 13-5/8" x 11" 5M tubing head.

iv. NOTE: If the rig sub base beams allow, orient the tubing head to align with the other wellheads on the location and with the existing production header.
v. Energize all seals and pressure test to 5000 psig.

20. Install an 11" x 13-5/8" 5M DSA and reinstall the 13-5/8" Class IIIB 5M BOPE stack and nipple up the same.

21. A repeat BOPE pressure test or function test may be required by DOGGR, if so, use procedures outlines in Step #9 in the program.
    a. Pressure test the 9-5/8" production casing to 1000 psig surface pressure.

22. Run in the hole with an 8-1/2" cleanout bit with jets removed and 9-5/8" casing scraper 30' above bit on one stand of heavy weight drill pipe.
    a. Clean out the cement 10 ft past the 9-5/8" production casing shoe. **Do not let scraper go out of shoe.**
    b. Pull up inside the production casing and circulate the hole clean.

23. Change the wellbore over to a 3%KCl / XC polymer based Drill-In mud system. Verify the current storage field pressure while building the mud system to determine whether or not the overbalance is excessive and requires the addition of sized calcium carbonate to the mud in order to control mud losses.

24. Pull out of the hole and lay down the 8-1/2" cleanout bit, the casing scraper and the heavy weight drill pipe.

25. Rig up the cased hole wireline unit with lubricator and run a cement bond / USIT log or equivalent from the 9-5/8" production casing shoe to the surface to verify the 9-5/8" cement bond. Rig down and move out the wireline unit.

26. Pick up and run an 8-1/2" (Type 517 or Kymera or equivalent) bit and the 6-3/4" Autotrak steerable tools and associated BHA. Drill an 8-1/2" hole with the rotary steerable tools to 7670'MD (+/-) as per the directional plan. Circulate the hole clean and condition the polymer mud. Note the mud properties before drilling into the zone and at total depth. Pull out of the hole and lay down the directional tools/BHA.

27. Rig down the mud loggers and mud logging equipment.

28. Run in the hole with open ended 5" drill pipe to bottom. Circulate the 8-1/2" hole clean, **rotating the 5" drill pipe and working the pipe continuously**. Stage circulate the hole at 7400', 6000', 4500' and repeat same procedure.

29. Lower the 5" drill pipe to bottom. **Do not circulate bottoms up.** Spot a high viscosity polymer pill on bottom calculated to fill the open hole volume plus 200' above the 9-5/8" production casing shoe. Keep the hole full while pulling out of the hole.

COMPLETION: PHASE I (Drilling Rig):

30. As per the Weatherford recommended gravel pack procedure (See attached plan); Rig up the casing running crew and run approximately 300'(+/-) of 5-1/2", WWS liner plus 5-1/2" blank liner consisting of the following:
    a. 9-5/8"x 5-1/2" hydraulic set liner hanger/packer
    b. 5-1/2", 17 lb/ft, L-80 with premium thread blank liner
    c. 5-1/2", 17 lb/ft, L-80 with premium thread semi-perf liner (2 joints)
    d. 5-1/2" (6"OD), 17 lb/ft, L-80 with premium thread, wire wrapped screen to be equipped with centralizers.
    e. 5-1/2", circulating shoe with a double flapper.

24. Position the 5-1/2", WWS liner for gravel packing operations. Note: The gravel pack program and pumping schedule will be per the Weatherford/Baker program(s).

25. Set the 9-5/8" x 5-1/2" hydraulic set packer/packer hanger. Gravel pack with 30-50 gravel and filtered 3% KCl water until packed off. Retain a sample of gravel to be sent to lab for sieve analysis.

26. Reverse circulate out the excess 30-50 gravel. Wait 2 hours for the gravel pack to settle, and bump down if possible.

27. Restress gravel pack and repack if necessary. Release from the 5-1/2" liner and pull out of the hole with the gravel packing tools. Pressure test the 5-1/2" x 9-5/8" packer/hanger to 1000 psig for 15 minutes.

28. Run in the hole with a 2-3/8" tubing tail to the bottom of the 5-1/2" liner and place polymer breaker across the 5-1/2" liner. Inhibit the reaction time of polymer breaker by 12 hours.

29. Immediately pull out of the well and run back in the well with a 9-5/8" bridge plug on 5" drill pipe and set the bridge plug at approximately 7000' (+/-). Pressure test the bridge plug to 1000 psig surface pressure.

30. Verify the hole is full of 3% KCl brine. Secure the well, rig down and move the Ensign #587 drilling rig.

COMPLETION: PHASE II (Production Rig):

31. Move in and rig up the Ensign #321 workover rig.

32. Verify there is no pressure on the well and that the hole is full of 3% KCl brine. Verify the current field pressure and ensure that the brine in the well and the brine on the location are of sufficient weight to manage the current reservoir pressure.

33. Nipple up an 11" Class III 5M BOPE (per Gas Company Procedure) on the 11" 5M tubing head.
    a. Fit the 5M BOPE with 3-1/2" pipe rams and CSO.

b. The 5M BOPE must have connection and valve below the blind rams. Fit with 5000 psig minimum rated valve.
c. Test the 11" 5M BOPE system to assure the integrity of connections.
d. Test the pipe rams and blind rams to 5000 psig (high) and 300 psig (low). Test the Annular Preventer to 3500 psig (high) and 300 psig (low) all tested for 20 minutes at each pressure.
e. Pressure tests the lines and connections to 5000 psig (high) and 300 psig (low) for 20 minutes each pressure.
f. Notify the DOGGR prior to the BOPE test

34. Pick up the 3-1/2" tubing string with the 9-5/8" bridge plug retrieving tool and run in the hole to 7000' (+/-).

35. Engage the bridge plug and release the 9-5/8" bridge plug and allow the well to equalize, then pull out of the hole and lay down the 9-5/8" bridge plug.

36. Pick a 2-3/8" tubing tail on the 3-1/2" tubing and make a feeler/cleanout run to bottom to verify the liner is clear to bottom. Pull out of the hole and lay down the 2-3/8" tubing tail.

37. Pick up and run the completion tubing string:
    a. 9-5/8" WEA Completion packer
    b. 1 pup joint of 3-1/2", 9.3#, L-80 tubing
    c. 1 3-1/2", XN profile
    d. 1 joint of 3-1/2", 9.3, L-80 tubing
    e. 3-1/2" WEA - sliding sleeve (closed)
    f. 1 joint of 3-1/2",9.3# L-80 tubing
    g. 3-1/2" GLM with dummy valve installed
    h. 3-1/2" EUE 8R L-80 tubing to the surface.

38. Land the 3-1/2" production tubing string/completion in compression as per tube move recommendation.

39. Space out and land the tubing hanger. Run in all hold down studs and pressure test production packer to 1000 psig for 15 minutes. Record pressure tests on charts and file the original charts.

40. Install the BPV. Remove the 11" Class IIIB 5M BOPE and install the 5M rated production tree. Pressure test the production tree and all the wellhead seals to 5000 psig. Remove the BPV.

41. Rig down and move out the Ensign #321 workover rig. Clean the location.

Southern California Gas Company
A Sempra Energy utility

SOUTHERN CALIFORNIA GAS COMPANY

Location: CALIFORNIA_2
Field: Aliso Canyon (Grid)
Facility: Standard Sesnon (Grid)
Slot: FF 32G
Well: FF 32G
Wellbore: FF 32G Rev-B.0

BAKER HUGHES

Plot reference wellpath is FF 32G Rev-B.0	
True vertical depths are referenced to Rig on FF 32G (RT)	Grid System: NAD83 / Lambert California SP, Zone V (405), US feet
Measured depths are referenced to Rig on FF 32G (RT)	North Reference: Grid north
Rig on FF 32G (RT) to Mean Sea Level: 2022.5 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: FF 32G): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: darstyb on 6/11/2014

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Standard Sesnon (Grid)			6395893.020	1919713.800	34°15'58.360"N	118°32'55.220"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
FF 32G	17140.96	2758.10	6398649.000	1936854.000	34°18'48.662"N	118°32'23.480"W
Rig on FF 32G (RT) to Mud line (At Slot: FF 32G)					2022.5ft	
Mean Sea Level to Mud line (At Slot: FF 32G)					0ft	
Rig on FF 32G (RT) to Mean Sea Level					2022.5ft	

Survey Program

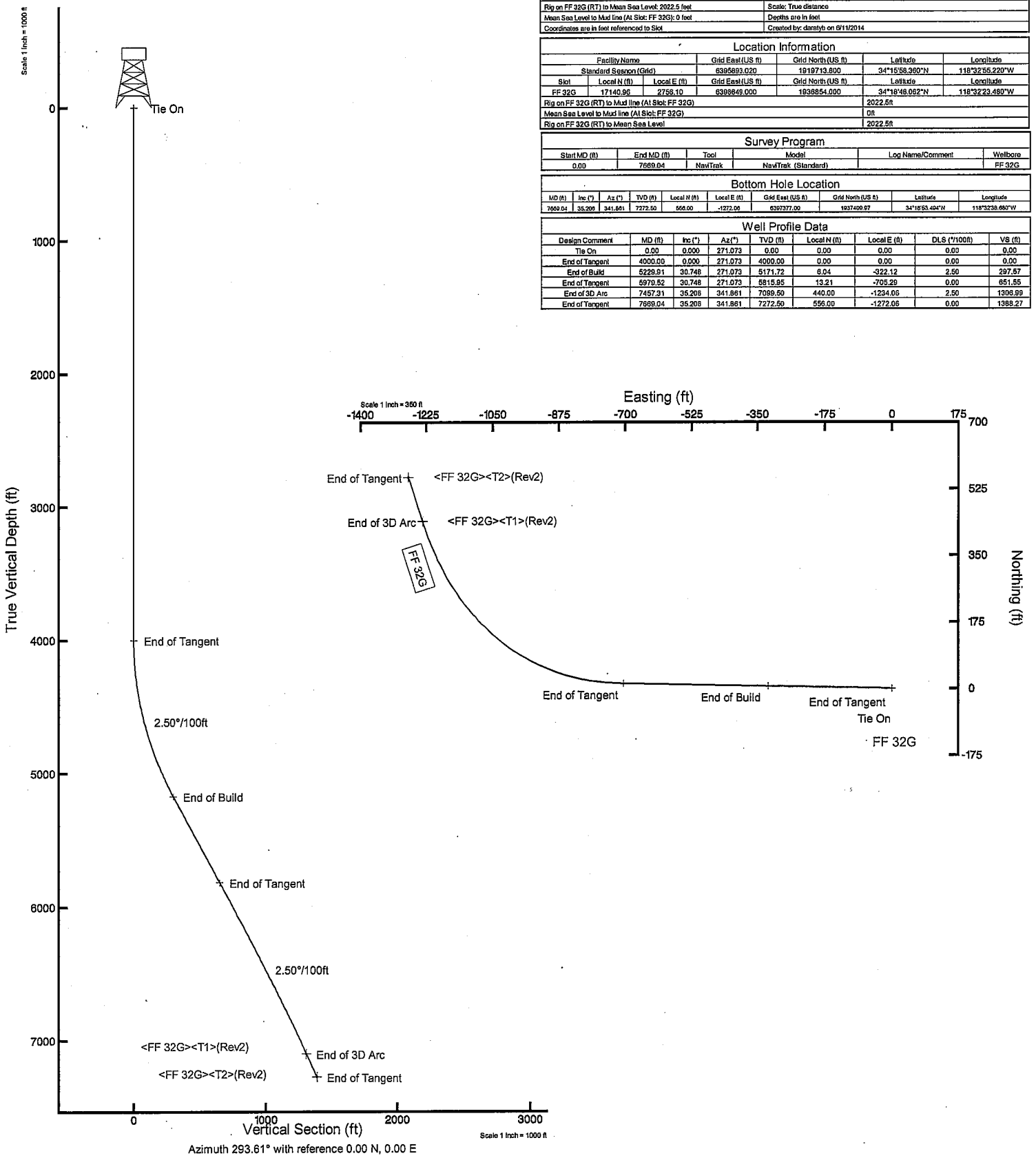
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
0.00	7669.04	NaviTrak	NaviTrak (Standard)		FF 32G

Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
7669.04	35.208	341.861	7272.50	556.00	-1272.06	6397377.00	1937469.97	34°18'53.494"N	118°32'38.660"W

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	271.073	0.00	0.00	0.00	0.00	0.00
End of Tangent	4000.00	0.000	271.073	4000.00	0.00	0.00	0.00	0.00
End of Build	5229.91	30.748	271.073	5171.72	6.04	-322.12	2.50	297.57
End of Tangent	5979.52	30.748	271.073	5815.95	13.21	-705.29	0.00	651.55
End of 3D Arc	7457.31	35.208	341.861	7099.50	440.00	-1234.06	2.50	1306.99
End of Tangent	7669.04	35.208	341.861	7272.50	556.00	-1272.06	0.00	1388.27



Southern California Gas Company

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Planned Wellpath Report

Positional Uncertainty

FF 32G Rev-B.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert California SP, Zone V (405), US feet	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Daratyb
Scale	0.999951	Report Generated	6/11/2014 at 2:53:30 PM
Convergence at slot	0.31° West	Database/Source file	Shafter_DB/FF_32G.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	17140.96	2756.10	6398649.00	1936854.00	34°18'48.062"N	118°32'23.480"W
Facility Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W
Field Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on FF 32G (RT) to Facility Vertical Datum	2022.50ft
Horizontal Reference Pt	Slot	Rig on FF 32G (RT) to Mean Sea Level	2022.50ft
Vertical Reference Pt	Rig on FF 32G (RT)	Rig on FF 32G (RT) to Mud Line at Slot (FF 32G)	2022.50ft
MD Reference Pt	Rig on FF 32G (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	293.61°

POSITIONAL UNCERTAINTY CALCULATION SETTINGS					
Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	0.00ft	Surface Position Uncertainty	not included
Declination	12.77° East of TN	Dip Angle	59.03°	Magnetic Field Strength	47653nT
Slot Surface Uncertainty @1SD		Horizontal	2.000ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD		Horizontal	0.000ft	Vertical	0.000ft

Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

WELLPATH DATA (81 stations) - with Positional Uncertainty values † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	DLS [°/100ft]	Toolface [°]	Vertical Semi-Axis [ft]	Horiz Major Semi-Axis [ft]	Horiz Minor Semi-Axis [ft]	Horiz Minor Axis Azim [°]	Comments
0.00	0.000	271.073	0.00	-2022.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	0.00	0.00	0.00	0.000	Tie On
100.00†	0.000	271.073	100.00	-1922.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.45	0.36	0.36	270.224	
200.00†	0.000	271.073	200.00	-1822.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.46	0.72	0.72	270.224	
300.00†	0.000	271.073	300.00	-1722.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.48	1.08	1.08	270.671	
400.00†	0.000	271.073	400.00	-1622.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.51	1.44	1.44	270.224	
500.00†	0.000	271.073	500.00	-1522.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.55	1.80	1.80	270.448	
600.00†	0.000	271.073	600.00	-1422.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.59	2.16	2.16	270.671	
700.00†	0.000	271.073	700.00	-1322.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.64	2.52	2.52	315.000	
800.00†	0.000	271.073	800.00	-1222.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.70	2.87	2.87	270.224	
900.00†	0.000	271.073	900.00	-1122.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.77	3.23	3.23	0.000	
1000.00†	0.000	271.073	1000.00	-1022.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.84	3.59	3.59	270.000	
1100.00†	0.000	271.073	1100.00	-922.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	3.92	3.95	3.95	270.224	
1200.00†	0.000	271.073	1200.00	-822.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.00	4.31	4.31	270.224	
1300.00†	0.000	271.073	1300.00	-722.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.10	4.67	4.67	270.448	
1400.00†	0.000	271.073	1400.00	-622.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.20	5.03	5.03	315.000	
1500.00†	0.000	271.073	1500.00	-522.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.30	5.39	5.39	315.000	
1600.00†	0.000	271.073	1600.00	-422.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.41	5.75	5.75	270.224	
1700.00†	0.000	271.073	1700.00	-322.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.52	6.11	6.11	270.671	
1800.00†	0.000	271.073	1800.00	-222.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.64	6.47	6.47	315.000	
1900.00†	0.000	271.073	1900.00	-122.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.77	6.83	6.83	315.000	
2000.00†	0.000	271.073	2000.00	-22.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	4.90	7.19	7.19	315.000	
2100.00†	0.000	271.073	2100.00	77.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.03	7.55	7.55	359.776	
2200.00†	0.000	271.073	2200.00	177.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.17	7.90	7.90	270.224	
2300.00†	0.000	271.073	2300.00	277.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.32	8.26	8.26	315.000	
2400.00†	0.000	271.073	2400.00	377.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.46	8.62	8.62	315.000	
2500.00†	0.000	271.073	2500.00	477.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.62	8.98	8.98	270.224	
2600.00†	0.000	271.073	2600.00	577.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.77	9.34	9.34	0.000	
2700.00†	0.000	271.073	2700.00	677.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	5.93	9.70	9.70	315.000	
2800.00†	0.000	271.073	2800.00	777.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.10	10.06	10.06	0.000	
2900.00†	0.000	271.073	2900.00	877.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.27	10.42	10.42	315.000	
3000.00†	0.000	271.073	3000.00	977.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.44	10.78	10.78	315.000	
3100.00†	0.000	271.073	3100.00	1077.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.62	11.14	11.14	315.000	
3200.00†	0.000	271.073	3200.00	1177.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.80	11.50	11.50	315.000	
3300.00†	0.000	271.073	3300.00	1277.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	6.99	11.86	11.86	315.000	
3400.00†	0.000	271.073	3400.00	1377.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	7.17	12.22	12.22	270.448	
3500.00†	0.000	271.073	3500.00	1477.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	7.37	12.58	12.58	315.000	
3600.00†	0.000	271.073	3600.00	1577.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	7.56	12.94	12.94	270.448	
3700.00†	0.000	271.073	3700.00	1677.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	7.77	13.29	13.29	315.000	
3800.00†	0.000	271.073	3800.00	1777.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	7.97	13.65	13.65	270.448	
3900.00†	0.000	271.073	3900.00	1877.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	0.00	8.18	14.01	14.01	315.000	
4000.00	0.000	271.073	4000.00	1977.50	0.00	0.00	0.00	6398649.00	1936854.00	0.00	-88.93	8.39	14.37	14.37	270.224	End of Tangent
4100.00†	2.500	271.073	4099.97	2077.47	2.01	0.04	-2.18	6398646.82	1936854.04	2.50	0.00	8.61	14.77	14.73	183.227	
4200.00†	5.000	271.073	4199.75	2177.25	8.06	0.16	-8.72	6398640.28	1936854.16	2.50	0.00	8.82	15.29	15.09	182.842	
4300.00†	7.500	271.073	4299.14	2276.64	18.11	0.37	-19.60	6398629.40	1936854.37	2.50	0.00	9.04	15.79	15.46	183.388	
4400.00†	10.000	271.073	4397.97	2375.47	32.16	0.65	-34.81	6398614.19	1936854.65	2.50	0.00	9.27	16.29	15.85	184.117	

Southern California Gas Company

A Sempra Energy utility®

Planned Wellpath Report

Positional Uncertainty

FF 32G Rev-B.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

WELLPATH DATA (81 stations) - with Positional Uncertainty values † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	DLS [°/100ft]	Toolface [°]	Vertical Semi-Axis [ft]	Horiz Major Semi-Axis [ft]	Horiz Minor Semi-Axis [ft]	Horiz Minor Axis Azim [°]	Comments
4500.00†	12.500	271.073	4496.04	2473.54	50.18	1.02	-54.32	6398594.69	1936855.02	2.50	0.00	9.49	16.78	16.26	185.070	
4600.00†	15.000	271.073	4593.17	2570.67	72.13	1.46	-78.08	6398570.93	1936855.46	2.50	0.00	9.73	17.26	16.70	186.416	
4700.00†	17.500	271.073	4689.17	2666.67	97.97	1.99	-106.05	6398542.95	1936855.99	2.50	0.00	9.96	17.73	17.19	188.559	
4800.00†	20.000	271.073	4783.85	2761.35	127.66	2.59	-138.19	6398510.82	1936856.59	2.50	0.00	10.21	18.20	17.75	192.671	
4900.00†	22.500	271.073	4877.05	2854.55	161.13	3.27	-174.42	6398474.58	1936857.27	2.50	0.00	10.46	18.68	18.36	203.359	
5000.00†	25.000	271.073	4968.57	2946.07	198.33	4.02	-214.69	6398434.32	1936858.02	2.50	0.00	10.72	19.25	18.97	233.389	
5100.00†	27.500	271.073	5058.25	3035.75	239.18	4.85	-258.91	6398390.11	1936858.85	2.50	0.00	10.99	20.04	19.47	254.454	
5200.00†	30.000	271.073	5145.92	3123.42	283.60	5.75	-306.99	6398342.02	1936859.75	2.50	0.00	11.27	20.99	19.92	261.254	
5229.91	30.748	271.073	5171.72	3149.22	297.57	6.04	-322.12	6398326.90	1936860.03	2.50	0.00	11.34	21.31	20.04	262.415	End of Build
5300.00†	30.748	271.073	5231.96	3209.46	330.67	6.71	-357.94	6398291.08	1936860.71	0.00	0.00	11.52	22.07	20.28	264.438	
5400.00†	30.748	271.073	5317.90	3295.40	377.89	7.66	-409.06	6398239.96	1936861.66	0.00	0.00	11.79	23.23	20.63	266.002	
5500.00†	30.748	271.073	5403.84	3381.34	425.11	8.62	-460.18	6398188.85	1936862.62	0.00	0.00	12.07	24.45	20.98	266.900	
5600.00†	30.748	271.073	5489.78	3467.28	472.33	9.58	-511.29	6398137.73	1936863.58	0.00	0.00	12.36	25.72	21.35	267.487	
5700.00†	30.748	271.073	5575.73	3553.23	519.56	10.54	-562.41	6398086.62	1936864.54	0.00	0.00	12.66	27.04	21.72	267.902	
5800.00†	30.748	271.073	5661.67	3639.17	566.78	11.49	-613.53	6398035.50	1936865.49	0.00	0.00	12.97	28.39	22.10	268.214	
5900.00†	30.748	271.073	5747.61	3725.11	614.00	12.45	-664.64	6397984.39	1936866.45	0.00	0.00	13.28	29.78	22.49	268.456	
5979.52	30.748	271.073	5815.95	3793.45	651.55	13.21	-705.29	6397943.74	1936867.21	0.00	115.07	13.54	30.91	22.80	268.614	End of Tangent
6000.00†	30.534	271.986	5833.57	3811.07	661.22	13.49	-715.73	6397933.31	1936867.49	2.50	114.29	13.60	31.20	22.88	268.655	
6100.00†	29.585	276.605	5920.14	3897.64	708.45	17.21	-765.64	6397883.39	1936871.21	2.50	110.29	13.94	32.63	23.29	269.076	
6200.00†	28.805	281.476	6007.44	3984.94	755.62	24.85	-813.78	6397835.26	1936878.85	2.50	106.04	14.28	34.07	23.72	269.843	
6300.00†	28.208	286.564	6095.33	4072.83	802.64	36.38	-860.05	6397788.99	1936890.38	2.50	101.56	14.62	35.47	24.15	270.770	
6400.00†	27.807	291.821	6183.63	4161.13	849.41	51.79	-904.37	6397744.68	1936905.79	2.50	96.92	14.96	36.83	24.58	271.834	
6500.00†	27.608	297.182	6272.18	4249.68	895.86	71.05	-946.64	6397702.41	1936925.04	2.50	92.17	15.31	38.16	25.01	273.020	
6600.00†	27.618	302.577	6360.81	4338.31	941.89	94.12	-986.79	6397662.26	1936948.11	2.50	87.39	15.65	39.44	25.43	274.313	
6700.00†	27.835	307.932	6449.34	4426.84	987.41	120.95	-1024.74	6397624.31	1936974.95	2.50	82.65	16.00	40.68	25.85	275.704	
6800.00†	28.255	313.175	6537.61	4515.11	1032.34	151.50	-1060.42	6397588.63	1937005.50	2.50	78.02	16.36	41.89	26.26	277.184	
6900.00†	28.869	318.246	6625.45	4602.95	1076.59	185.71	-1093.76	6397555.29	1937039.71	2.50	73.57	16.71	43.06	26.67	278.747	
7000.00†	29.664	323.095	6712.70	4690.20	1120.08	223.52	-1124.71	6397524.35	1937077.51	2.50	69.34	17.08	44.20	27.07	280.387	
7100.00†	30.628	327.690	6799.19	4776.69	1162.73	264.84	-1153.18	6397495.87	1937118.83	2.50	65.36	17.45	45.31	27.47	282.097	
7200.00†	31.744	332.012	6884.74	4862.24	1204.45	309.61	-1179.15	6397469.91	1937163.59	2.50	61.67	17.83	46.39	27.86	283.876	
7300.00†	32.996	336.055	6969.21	4946.71	1245.16	357.73	-1202.55	6397446.51	1937211.71	2.50	58.25	18.21	47.46	28.26	285.717	
7400.00†	34.370	339.822	7052.43	5029.93	1284.79	409.12	-1223.34	6397425.72	1937263.10	2.50	55.12	18.61	48.50	28.65	287.618	
7457.31	35.206	341.861	7099.50[1]	5077.00	1306.99	440.00	-1234.06	6397415.00	1937293.98	2.50	0.00	18.84	49.09	28.87	288.722	End of 3D Arc
7500.00†	35.206	341.861	7134.38	5111.88	1323.38	463.39	-1241.73	6397407.34	1937317.37	0.00	0.00	19.01	49.53	29.03	289.531	
7600.00†	35.206	341.861	7216.09	5193.59	1361.76	518.18	-1259.67	6397389.39	1937372.15	0.00	0.00	19.42	50.56	29.43	291.365	
7669.04	35.206	341.861	7272.50[2]	5250.00	1388.27	556.00	-1272.06	6397377.00	1937409.97	0.00		19.71	51.31	29.71	292.585	End of Tangent

Southern California Gas Company

A Sempra Energy utility®

Planned Wellpath Report

Positional Uncertainty

FF 32G Rev-B.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHERN CALIFORNIA GAS COMPANY	Slot	FF 32G
Area	CALIFORNIA_2	Well	FF 32G
Field	Aliso Canyon (Grid)	Wellbore	FF 32G
Facility	Standard Sesnon (Grid)		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) <FF 32G><T1>(Rev2)	7457.31	7099.50	440.00	-1234.06	6397415.00	1937293.98	34°18'52.348"N	118°32'38.219"W	point
2) <FF 32G><T2>(Rev2)	7669.04	7272.50	556.00	-1272.06	6397377.00	1937409.97	34°18'53.494"N	118°32'38.680"W	point

SURVEY PROGRAM - Ref Wellbore: FF 32G Ref Wellpath: FF 32G Rev-B.0

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	7669.04	NaviTrak (Standard)		FF 32G

Well Completion Schematic

API	Field Name	Operator	County	State
	Aliso Canyon	Southern California Gas Company	Los Angeles	California

Rec'd 06-19-14 DOGGR D2 Ventura

Ground Elevation (ft)	KB-Ground Distance (ft)	Spud Date
2,000.00	22.50	

Original Hole, 6/17/2014 3:16:43 PM

MD (ftKB)	Vertical schematic (actual)
22.5	
103.0	Description:Conductor, OD:20 in, ID:0.000 in, Top (MD):22.5 ftKB, Btm (MD):103.0 ftKB, Length:80.50 ft
1,122.4	Description:Surface, OD:13 3/8 in, ID:12.615 in, Top (MD):22.5 ftKB, Btm (MD):1,122.5 ftKB, Length:1,100.00 ft
7,200.1	
7,201.1	
7,322.5	Description:Production, OD:9 5/8 in, ID:8.681 in, Top (MD):22.5 ftKB, Btm (MD):7,322.5 ftKB, Length:7,300.00 ft
7,350.1	
7,399.9	
7,660.1	Description:Wire wrapped screen Liner, OD:5 1/2 in, ID:4.892 in, Top (MD):7,200.0 ftKB, Btm (MD):7,660.0 ftKB, Length:460.00 ft
	Description:TD - Original Hole, Depth

Description:Conductor, Sz:30, Depth (MD):22.5-103.0

Conductor Cement, 22.5-103.0 ftKB

Description:Surface, Sz:17 1/2, Depth (MD):103.0-1,122.5

Surface Casing Cement, 22.5-1,122.5 ftKB

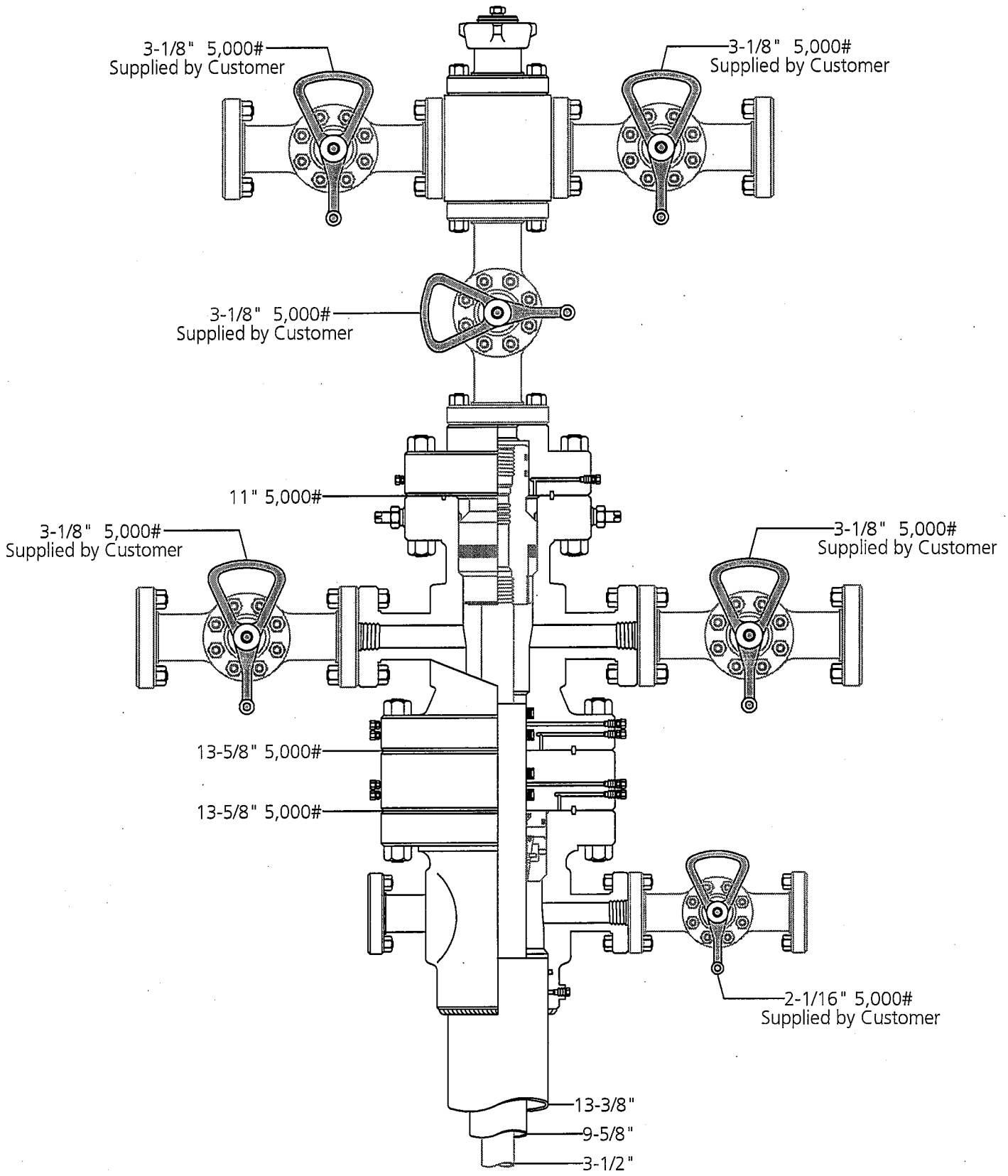
Description:Production, Sz:14, Depth (MD):1,122.5-7,322.5

Description:Liner hanger, OD:8 in, ID:5.000 in, Top (MD):7,200.0 ftKB, Btm (MD):7,201.0 ftKB

Production Casing Cement, 22.5-7,322.5 ftKB

30/50 Gravel Pack Sand 7,300'-7,660'

Description:Liner, Sz:5 1/2, Depth (MD):7,322.5-7,670.0



Southern California Gas
Gas Storage / Production Wells
La Goleta & Aliso Canyon

CAMERON

Name: Jeanette	Date: 6-16-14	Working Pressure: #	20602012-C