

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
REPORT ON OPERATIONS

No. T216-0131

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

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

Ventura, California
May 05, 2016

Your operations at well "**Porter**" 50B, A.P.I. No. 037-24336, Sec. 27, T. 03N, R. 16W, SB B. & M., **Aliso Canyon** field, in **Los Angeles** County, were witnessed on 4/18/2016, by **Clifford R. Knight**, a representative of the supervisor.

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By 
Patricia A. Abel
District Deputy

CRK/tkc
OG109

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

Operator: <u>So Cal Gas</u>				Well: <u>Porter 50B</u>	
Sec. <u>27</u>	T. <u>3N</u>	R. <u>16W</u>	B.&M. <u>SB</u>	API No.: <u>037-24336</u>	Field: <u>Aliso Canyon</u>
County: <u>Los Angeles</u>				Witnessed/Reviewed on: <u>C. Knight 12-18-16</u>	

C. Knight, representative of the supervisor, was present from 1000 to 1245.

Also present were: Jeff Mosier Matt Melner (PROs)

Casing record of the well: 13 3/8 54.5# K-55 0-921'

- 9 5/8" 47# L-80 0-7177' KOP: 7196'
- 7" Liner 26# L-80 6754-7480'
- Inner liner
 - 6620' - 7493' 5" N-80
 - 7493' - 8494' 5 1/2" N-80
 - 8494' - 8500' 5" N-80
- Temp Packer 3500' RTTS Haliburton
- Rot. BP 6619' 8.5 ppq polymer

① Surface 2297 psi - 2288
 hydro 2919 psi
 total 5216 psi - 5207

② Surface 3711 - 3685 psi
 hydro 1542 psi
 Total 5258 - 5232 psi

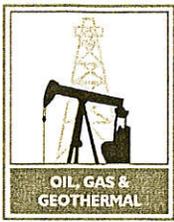
The Internal MIT was performed for the purpose of pressure testing the 9 5/8" casing above 6615' (2) (prior to injecting fluid)

The Internal MIT is approved since it indicates that the 9 5/8" casing has mechanical integrity above 6615' at this time..

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

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

10:07	① 2297 psi	11:25	② 3711 psi	The <u>9 5/8"</u> casing from surface to <u>6615'</u> held 115% of reservoir pressure for 60 minutes. Witnessed by DOGR. C. Knight.
11:07	2288 psi	12:25	3685 psi	



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Phone:(805) 654-4761 Fax:(805) 654-4765
REPORT ON OPERATIONS

No. T216-0151

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

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

Ventura, California
May 05, 2016

Your operations at well "**Porter**" 50B, A.P.I. No. 037-24336, Sec. 27, T. 03N, R. 16W, SB B. & M., Aliso Canyon field, in Los Angeles County, were witnessed on 4/29/2016, by Daniel Woldemariam, a representative of the supervisor.

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By 
Patricia A. Abel
District Deputy

DW1/tkc
OG109

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

T 216-0151
16,1

Casing and Tubing Pressure Test

Operator: So Cal Gas Well Designation: Porter 50B
Sec. 27, T. D3N, R. 16W1, SB B.M. API No. 03724336 Field: Aliso Canyon
County: Los Angeles Witnessed on: 04/29/2016 Daniel Woldemarcam, representative
of the supervisor, was present from 0745 to 13:18.
Also Present were Mathew Melnar from pros

Casing Record of the Well:
13 3/8, 54.5#, K-55, 0-921'
9 5/8, 47#, L-80 0-717'
7", 26#, L-80 0-7480'
Liner 5", 15#, N-80 620-8500'

The operations were performed for the purpose of Observation

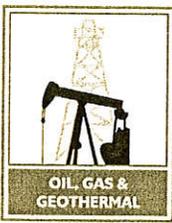
Pressure Test of the Casing

Packer/ Bridge Plug at 6615 Well Type Gas storage
Casing Pressured with Polymer 8k Volume 1662
Casing Pressure Start PSI: 1193 Start Time: 07:55
Casing Pressure End PSI: 1193 End Time: 08:55
Pressure Held 60 Min. Total drop in Pressure 0 psi 0 %
Test Result: Good Not Good

Pressure Test of the Tubing

Packer/ Bridge Plug at 6699 Well Type _____
Tubing Pressured with _____ Volume _____
Tubing Pressure Start PSI: 3827 Start Time: 12:18
Tubing Pressure End PSI: 3836 End Time: 13:18
Pressure Held 60 Min. Total drop in Pressure +9 psi +0.24 %
Test Result: Good Not Good

Remarks: _____



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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. T216-0121

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

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

Ventura, California
April 13, 2016

Your operations at well **"Porter" 50B**, A.P.I. No. **037-24336**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **4/11/2016**. **Addison T. Williams**, a representative of the supervisor.

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

DECISION:

APPROVED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By *Patricia A. Abel* For P.A. Abel
Patricia A. Abel
District Deputy

ATW/tkc
OG109

BLOWOUT PREVENTION EQUIPMENT MEMO

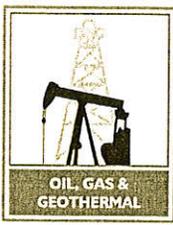
Operator SoCal Gas Well Porter 50B Sec. 27 T. 03N R. 16W/5B
 Field Aliso Canyon County Las Angeles Spud Date _____

VISITS: Date 4/11/16 Engineer Addison T Williams (1355 to 1500) Operator's Rep. _____ Title _____
 1st _____
 2nd _____
 Contractor Key Energy Services Rig # Key 331 Contractor's Rep. & Title Jeff Sandoval 661-301-7102
 Casing record of well: _____

OPERATION: Testing (inspecting) the blowout prevention equipment and installation. Critical well? Y N
 DECISION: The blowout prevention equipment and its installation on the 11" casing are approved.

Proposed Well Opns: Re-work Order No. 1109 . MACP: _____ psi **REQUIRED BOPE CLASS: Class III 5M**
 Hole size: _____ " fr. _____ " to _____ " to _____ " & _____ " to _____ "

CASING RECORD OF BOPE ANCHOR STRING					Cement Details				Top of Cement				
Size	Weight(s)	Grade(s)	Shoe at	CP at					Casing	Annulus			
BOP STACK					TEST DATA								
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A				11"	5K	1/5/16	18.67						
Rd	3 1/2			11"	5K	1/5/16	3						
Rd	CSO	Shaffer		11"	5K	1/5/16	3						
ACTUATING SYSTEM					TOTAL: 24.67		AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>3000</u> psi							Connections						
Total Rated Pump Output <u>14.3</u> gpm Fluid Level _____							No.	Size (in.)	Rated Press	Weld	Flange	Thread	Test Press.
Distance from Well Bore <u>50</u> ft. <u>1/4</u>													
Accum. Manufacturer			Capacity	Precharge	Fill-up Line								
1	<u>Koomey</u>		<u>80</u> gal.	<u>1000</u> psi	Kill Line								
2			gal.	psi	Control Valve(s)								
CONTROL STATIONS				Elec.	Hyd.	Pneu.	Check Valve(s)						
<input checked="" type="checkbox"/>	Manifold at accumulator unit					<input checked="" type="checkbox"/>	Aux. Pump Cnct.						
<input checked="" type="checkbox"/>	Remote at Driller's station					<input checked="" type="checkbox"/>	Choke Line						
<input checked="" type="checkbox"/>	Other: <u>Key on Drill Flore</u>						Control Valve(s)						
EMERG. BACKUP SYSTEM				Press.	Wkg. Fluid	Pressure Gauge							
<u>4</u>	N ₂ Cylinders	1	L= <u>55</u> "	<u>2600</u>	gal.	Adjstble Choke(s)							
	Other:	2	L= <u>55</u> "	<u>2500</u>	gal.	Bleed Line							
		3	L= <u>55</u> "	<u>2450</u>	gal.	Upper Kelly Cock							
		4	L= <u>55</u> "	<u>2600</u>	gal.	Lower Kelly Cock							
		5	L= " "		gal.	Standpipe Valve							
		6	L= " "		gal.	Stndpipe Pres. Gau.							
TOTAL: 10150 gal.							Pipe Safety Valve 3 1/2 5K						
							Internal Preventer 3 1/2 5K						
HOLE FLUID MONITORING EQUIPMENT				Alarm Type			Hole Fluid Type Weight Storage Pits (Type & Size)						
		Audible	Visual	Class									
Calibrated Mud Pit				A									
Pit Level Indicator				B									
Pump Stroke Counter													
Pit Level Recorder													
Flow Sensor				C									
Mud Totalizer													
Calibrated Trip Tank													
Other:													
REMARKS AND DEFICIENCIES:													



DEPARTMENT OF CONSERVATION

No. T216-0082

DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES

1000 S. Hill Rd, Suite 116 Ventura, CA 93003-4450

Phone:(805) 654-4761 Fax:(805) 654-4765

REPORT ON OPERATIONS

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

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

Ventura, California
April 13, 2016

Your operations at well **"Porter" 50B**, A.P.I. No. **037-24336**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **3/8/2016**. **Clifford R. Knight**, a representative of the supervisor.

The operations were performed for the purpose of **demonstrating that all of the injection fluid is confined to the approved zone.**

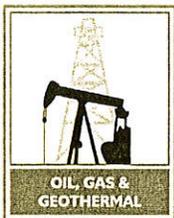
DECISION:

WITNESSED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By *Patricia A. Abel* For P.A. Abel
Patricia A. Abel
District Deputy

CRK/tkc
OG109



DEPARTMENT OF CONSERVATION

No. T216-0083

DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES

1000 S. Hill Rd, Suite 116 Ventura, CA 93003-4458

Phone:(805) 654-4761 Fax:(805) 654-4765

REPORT ON OPERATIONS

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

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

Ventura, California
April 13, 2016

Your operations at well "**Porter**" 50B, A.P.I. No. **037-24336**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **3/8/2016** by , a representative of the supervisor.

The operations were performed for the purpose of **demonstrating that all of the injection fluid is confined to the approved zone.**

DECISION:

WITNESSED

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

By *Patricia A. Abel* For P.A. Abel
Patricia A. Abel
District Deputy

/tkc
OG109

216-0082
 No. T 216-0083
 15,3

MECHANICAL INTEGRITY TEST (MIT)

Operator: <i>So Cal Gas</i>					Well: <i>Porter SOB</i>																									
Sec. <i>27</i>	T. <i>3N</i>	R. <i>16W</i>	B.&M. <i>SB</i>	API No.: <i>035-24336</i>			Field: <i>Aliso Canyon</i>																							
County: <i>Los Angeles</i>					Witnessed/Reviewed on: <i>C. Knight 3-8-16</i>																									
<i>C. Knight</i> , representative of the supervisor, was present from <i>1145</i> to <i>1400</i> .																														
Also present were: <i>Nick Arbour (InterAct), Duane Prokuski, Greg Fisher</i>																														
Casing record of the well:																														
<table style="width:100%; border:none;"> <tr> <td style="width:15%;"><i>26# 6748-7480</i></td> <td style="width:15%;"><i>7" casing</i></td> <td style="width:15%;"><i>packer HES ASI-X packer 6605.7-6614'</i></td> </tr> <tr> <td><i>47# 0-7177</i></td> <td><i>9 5/8" casing</i></td> <td><i>sliding sleeve 6556-6561, 3/2" (open)</i></td> </tr> <tr> <td><i>0-920.5'</i></td> <td><i>13 3/8" casing</i></td> <td><i>Cast. Off Mandrel 6517-6523 3/2" (pulled)(open)</i></td> </tr> <tr> <td></td> <td></td> <td><i>perf: 7492-8494</i></td> </tr> <tr> <td><i>9.3# 21-6615'</i></td> <td><i>3 1/2" Tubing</i></td> <td></td> </tr> <tr> <td><i>15# 6620-8500</i></td> <td><i>5" liner</i></td> <td><i>250' noise log interval (not including anomaly investigation @ 20')</i></td> </tr> <tr> <td></td> <td></td> <td><i>100'/min temp survey speed</i></td> </tr> </table>										<i>26# 6748-7480</i>	<i>7" casing</i>	<i>packer HES ASI-X packer 6605.7-6614'</i>	<i>47# 0-7177</i>	<i>9 5/8" casing</i>	<i>sliding sleeve 6556-6561, 3/2" (open)</i>	<i>0-920.5'</i>	<i>13 3/8" casing</i>	<i>Cast. Off Mandrel 6517-6523 3/2" (pulled)(open)</i>			<i>perf: 7492-8494</i>	<i>9.3# 21-6615'</i>	<i>3 1/2" Tubing</i>		<i>15# 6620-8500</i>	<i>5" liner</i>	<i>250' noise log interval (not including anomaly investigation @ 20')</i>			<i>100'/min temp survey speed</i>
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		<i>100'/min temp survey speed</i>																												
The MIT was performed for the purpose of <i>perform temp survey also with noise log following with detailed noise log on any temperature anomaly.</i>																														
<input type="checkbox"/> The MIT is approved since it indicates that all of the injection fluid is confined to the formations below <u><i>6605</i></u> feet at this time.																														
<input type="checkbox"/> The MIT is not approved due to the following reasons: (specify)																														

Well: <u>Porter 50B</u>	Date: <u>3/8/16</u>	Time: <u>1145</u>				
Observed rate: <u> </u> B/D	Meter rate: <u> </u> B/D	Fluid level: <u>none</u> feet				
Injection pressure: <u>1058</u> psi	MASP: <u> </u>	Pick-up depth: <u>7697</u> feet				
Initial annulus pressure: <u>1058</u> psi	Pressure after bleed-off: <u>none</u> psi					
Casing vented during test (Y/N) <u>no</u>	Survey company: <u>Well Analysis Corp.</u>					
SPINNER COUNTS						
DEPTH COUNTS RATE	DEPTH COUNTS RATE	COMMENTS:				
TRACER CASING AND TUBING RATE CHECKS						
Interval	Time (sec.)	Rate (B/D)	Background log: <u>NA</u> to <u>NA</u>			
			COMMENTS: Temp anomaly noted: 4900 - 5020 } 20' noise log intervals 6380 - 6460 } 7060 - 7330 } No abnormal noise detected in log 168°F Bottom hole temp			
TOP PERFORATION CHECK						
Top perforation depth: <u>7492 - 8494</u>	Wait at: <u> </u> for <u> </u> seconds	Beads: (Y/N)				
Casing shoe at: <u>9578</u> <u>7177</u>	WSO holes at: <u> </u>	Arrival time: <u>Calculated</u>	<u>Actual</u>			
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @	COMMENTS:
PACKER CHECK						
Packer at: <u>6605.7</u>	Wait at: <u> </u> for <u> </u> seconds	Beads: (Y/N)				
Tubing tail at: <u>6650</u>	Tubing size: <u>3/2</u>	2nd Packer at: <u> </u>	Mandrel: <u>Gas lift</u> <u>6517</u>			
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @	COMMENTS:
COMMENTS: <u>7060 - 7330 possible temp anomaly</u> <u>4900 - 5020' temp survey leveled off</u> <u>6380 - 6500' temp survey leveled out 158°F</u>						

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

Operator: Southern California Gas Company WELL DESIGNATION "Porter" 50B

API No. 03724336 SE 27 T: 3N R.: 16W , SB B. and M.

County: Los Angeles FIELD: Aliso Canyon

Type of Notice: Rework Date 3/7/2016 Report Number: P216-0028

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

NEW STATUS

	Date	OK	NEED	Remarks
Well Summary (OG100)				
History (OG103)				
E-Log				
Mud Log				
Dipmeter				
Directional				
Core and/or SWS				
<u>SAPT</u>	<u>4/29/16</u>	<input checked="" type="checkbox"/>		<u>to be approved by senior casing & tubing test</u>

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) _____

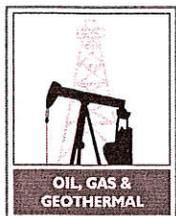
REMARKS

RECORDS SCANNED: _____

(Date)

RECORDS APPROVED: Doc.

(Date and Engineer)



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

No. P 216-0028

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

PERMIT TO CONDUCT WELL OPERATIONS

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

Ventura, California
 March 18, 2016

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

Your proposal to **Rework** well "**Porter**" **50B**, A.P.I. No. **037-24336**, Section **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, **Any** area, **Sesnon-Frew** pool, **Los Angeles** County, dated **3/7/2016**, received **3/7/2016** has been examined in conjunction with records filed in this office. (Lat: **34.314956** Long: **-118.547391** Datum:**83**)

THE PROPOSAL IS APPROVED PROVIDED:

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

Continued on Next Page

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

Engineer Kris Gustafson
 Office (805) 654-4761

KG/kg

Kenneth A. Harris Jr.
 State Oil and Gas Supervisor

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

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

Page 2
Well #: "Porter" 50B
API #: 037-24336
Permit : P 216-0028
Date: March 18, 2016

NOTE:

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

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

**ATTACHMENT 1
TO DOGGR ORDER 1109**

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

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

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

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

REQUIRED TESTS FOR EACH WELL IN THE FACILITY

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

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

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

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

REQUIRED TESTS IF A WELL IS INTENDED TO RESUME OPERATIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

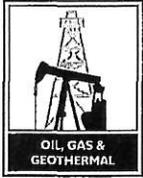
- a. Conduct daily gas monitoring at the surface of the non-operational well, including monitoring the area around the well perimeter and in the annular space between the plugged casing string and the outmost casing;
- b. Conduct noise log, temperature log and positive pressure test every six months;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

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

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

REQUIREMENTS FOR WELLS RESUMING OPERATIONS IN ALISO CANYON

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



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

Rec'd 03-07-16 DOGGR Ventura
FOR DIVISION USE ONLY

Bond	Forms	
	OGD114	OGD121
	CAL WIMS	115V

P216-0028

NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: www.conservation.ca.gov/dog/

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework / redrill well Porter 50B, API No. 037-24336,
(Check one)

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

The complete casing record of the well (present hole), including plugs and perforations, is as follows: (Attach wellbore schematics diagram also.)

See attached wellbore schematic

The total depth is: 8520 feet. The effective depth is: 8500 feet.
Present completion zone(s): Sesnon Anticipated completion zone(s): Same
(Name) (Name)
Present zone pressure: storage psi. Anticipated/existing new zone pressure: storage psi.

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

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

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

See attached program

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

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

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

Name of Operator Southern California Gas Company			
Address P. O. Box 2300		City/State Chatsworth	Zip Code 91313-2300
Name of Person Filing Notice Jovy Kroh	Telephone Number: (937)239-0279	Signature <i>Jovy Kroh</i>	Date 03/07/16
Individual to contact for technical questions: Jovy Kroh	Telephone Number: (937)239-0279	E-Mail Address: jkroh@semprautilities.com	

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

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

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

CRITICAL WELL DEFINITION

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

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

WELL OPERATIONS REQUIRING BONDING

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

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

WORKOVER PROJECT**Porter 50B – Well Inspection**

DATE: March 7, 2016
OPERATOR: SOUTHERN CALIFORNIA GAS COMPANY
FIELD: ALISO CANYON
API NUMBER: 037-24336
ELEVATION: All depths based on original KB, 22.5' above GL
SURFACE LOCATION: SEC 27, T3N, R16W, S.B. B&M

OBJECTIVE

The intent of this program is to inspect the well integrity and remediate identified conditions as part of the Storage Integrity Management Program (SIMP). This project will include pulling 3-1/2" completion string, running gyro surveys, casing inspection logs, pressure testing casing and well laterals, installing a new completion string, converting well to tubing flow, and installing pressure monitors. Baseline assessment data will be gathered on vertical casing pipe and other well components.

WELL RECORD

Current Status:	Shut-in
TD:	8520' md
Last Workover:	No workovers noted since drilling and completion 08/28/2010
Casing Record:	See attached wellbore schematic Note: Max hole angle 81° inclination at 7936' At liner top at 6620' hole angle is 38° inclination
Tubing Record:	See attached tubing detail

GEOLOGIC MARKERS

	Zone	ss-tvd	MD
P50B	MP	-4584	6788
P50B	S1	-4910	7280
P50B	S2	-4959	7383
P50BST1	S1	-4902	7260
P50BST1	S2	-4960	7370
P50BST1	S4	-5025	7515
P50BST1	S6	-5049	7580
P50BST1	S6	-5203	8245

Estimated Field Pressure: 1034 psi on 03/07/2016 (Variable)

Estimated Bottomhole Temperature: 161°F

PROGRAM NOTES

1. BOPE requirements in Gas Company Standard 224.05 shall be fully implemented at all times.
2. The storage reservoir pressures shall be monitored during the workover with a minimum of 300 psig overbalance for well control fluids.
3. Prepare the location by removing all relevant landscaping/lighting fixtures as well as surface piping and electrical components as needed. Locate rig anchors, reinstall if necessary.
4. DOGGR permit must be posted on site. Notify the DOGGR as required for BOPE testing as stated on permit.

PRE-RIG WORK

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

WELLWORK PROGRAM

1. Move in production rig and rig pump with tank, shaker, and mixer.
2. Spot 500 bbl Baker tanks and fill with 8.6 ppg KCl brine.
 - 2.1 Connect pump to the tubing and vent the casing through the choke manifold to the SoCalGas system.
 - 2.2 Treat all brine with Biocide, 5 gals/100 bbls
3. If the well is not standing full of brine, then kill the well with an HEC polymer pill with approximately 8.6 ppg KCl brine. The liner volume is approximately 41 bbl. The tubing volume is approximately 58 bbl, and the tubing/casing annulus is approximately 327 bbl.

NOTE: Verify field surface pressure to ensure the proper kill fluid density is used prior to killing well and for well control during workover operations.

4. +++Install a Class III 5M BOPE per Gas Company Standard 224.05 and in accordance with the DOGGR permit. All connections and valves must be flanged and at least 5000 psig rated.
 - a.) Pressure test the Class III 5M annular preventer to 3500 psig for 20 minutes. Test blind rams and the 2-7/8" pipe rams to 5000 psig for 20 minutes. Test all lines and connections to 5000 psig.
 - b.) Perform a 300 psig low pressure test on the annular preventer, blind rams and pipe rams for 20 minutes. Test all lines and connections to 300 psig.
 - c.) All tests are to be charted and witnessed by a DOGGR representative.
5. Pick up a joint of tubing with safety valve, attempt to unland the 3-1/2" 9.3#, L-80 tubing string, *pull out of HES ASI-X packer*, and POOH with the completion tubing string. POOH and lay down tubing and completion jewelry.

6. Pick up 9-5/8" 47# casing scraper on tubing and scrape to 5" liner top at 6620', or as deep as possible. Circulate well clean. POOH.
7. Rig up wireline unit and run gyro survey from ECOD at 8500' (or as deep as possible) to surface. Rig down wireline.
8. Make up and run a 9-5/8" retrievable bridge plug on 2-7/8" workstring. Set at approximately 6615' (5 ft above liner top, or as deep as possible) pressure test, and sand off.
9. Rig up SLB wireline unit and log USIT/Neutron/CBL/GR in high resolution mode (1.5" vertical measurement) in the 9-5/8" production casing from the top of the bridge plug to surface. Rig down SLB wireline.
10. Rig up Baker wireline. Perform logs in two runs in the 9-5/8" production casing from the top of the bridge plug to surface. Rig down Baker wireline.
 - 10.1 Run #1: Log Baker Vertilog.
 - 10.2 Run #2: Log 60-arm real-time caliper.
11. Run Pressure Integrity Test on 9-5/8" casing from bridge plug to surface to a minimum of 3625 psi as per schedule.
 - 11.1 Engineering team to analyze USIT and pressure test results and recommend any additional remediation.
12. Inspect production tree and pressure test the wellhead seals to a minimum of 3625 psig.
 - a.) Nipple down the 11" Class III 5M BOPE, crossover spool, and primary pack-off.
 - b.) Replace the pack-off seals and reinstall a tubing head, refurbished as necessary.
 - c.) Pressure test all the wellhead seals to 3625 psig.
 - d.) Reinstall the 11" Class III 5M BOPE on the tubing head and function test.
13. Pick up and run tubing with bridge plug retrieving head to top of sand. Circulate out sand. Release bridge plug at approximately 6615', re-kill the well if necessary. POOH and lay down tubing.
14. Pick up new completion string:
 - a.) Full joint 2-7/8" 6.4# N-80 EUE 8RD tubing with tail
 - b.) 2-7/8" Ball catcher seat
 - c.) 5-1/2" x 9-5/8" hydraulic production packer
 - d.) Crossover pup joint
 - e.) Full joint 3-1/2" 9.3# N-80 EUE 8RD tubing
 - f.) 3-1/2" XN EUE 8RD no-go nipple
 - g.) Full joint 3-1/2" 9.3# N-80 EUE 8RD tubing
 - h.) 3-1/2" EUE 8RD sliding sleeve
 - i.) 3-1/2" x 5-1/2" Crossover pup joint
 - j.) 5-1/2" 20# N-80 EUE 8RD tubing to surface
 - k.) Pup joints 5-1/2" 20# N-80 EUE 8RD tubing for space-out
 - l.) Tubing hanger and fatigue nipple
15. RIH with new completion string and land as per vendor specification.

- 15.1 Keep sliding sleeve closed while RIH with completion string.
- 15.2 Ensure new production packer depth is at or above depth at which retrievable bridge plug was just pulled from.
16. Rig up slickline. RIH with slickline and set tubing plug in XN nipple. POOH.
17. Notify DOGGR to witness pressure test.
 - 17.1 Pressure test the 3-1/2" tubing x 7" casing annulus to 2250 psig surface pressure.
 - 17.2 Pressure test the tubing to 3625 psig surface pressure.
18. RIH with slickline and pull tubing plug from XN nipple. POOH. RIH with slickline and shift sliding sleeve open. POOH.
19. Rig up nitrogen unit. Reverse circulate nitrogen, pumping down annulus and taking returns out tubing. Rig down nitrogen unit.
20. RIH with slickline and shift sliding sleeve closed. POOH, rig down slickline.
21. Fill annulus with packer fluid including corrosion inhibitor.
 - 21.1 Vent nitrogen returns as appropriate.
 - 21.2 Monitor annulus fluid level and re-fill with packer fluid as necessary.
22. Nipple down the Class III 5M BOPE and install the production tree and test to 5000 psig.
23. Release production rig, rig down and move out.

WELL LATERAL HYDROTESTING

24. Per Gas Company Standard 182.0170, pressure test the tubing and casing kill laterals from the wellhead to the remote tie in to 3400 psig. Pressure test the tubing and casing withdrawal/injection laterals from wellhead to operating valves to 3400 psig.
25. Reinstall the hydro-tested laterals.
26. Install the well safety systems and instrumentation. Install pressure transmitters on tubing, casing, and surface casing.
27. Release well to operations.

EXTERNAL CORROSION PROTECTION

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

Well Porter 50B

API #: 04-037-24336-00
Sec 27, T3N, R16W

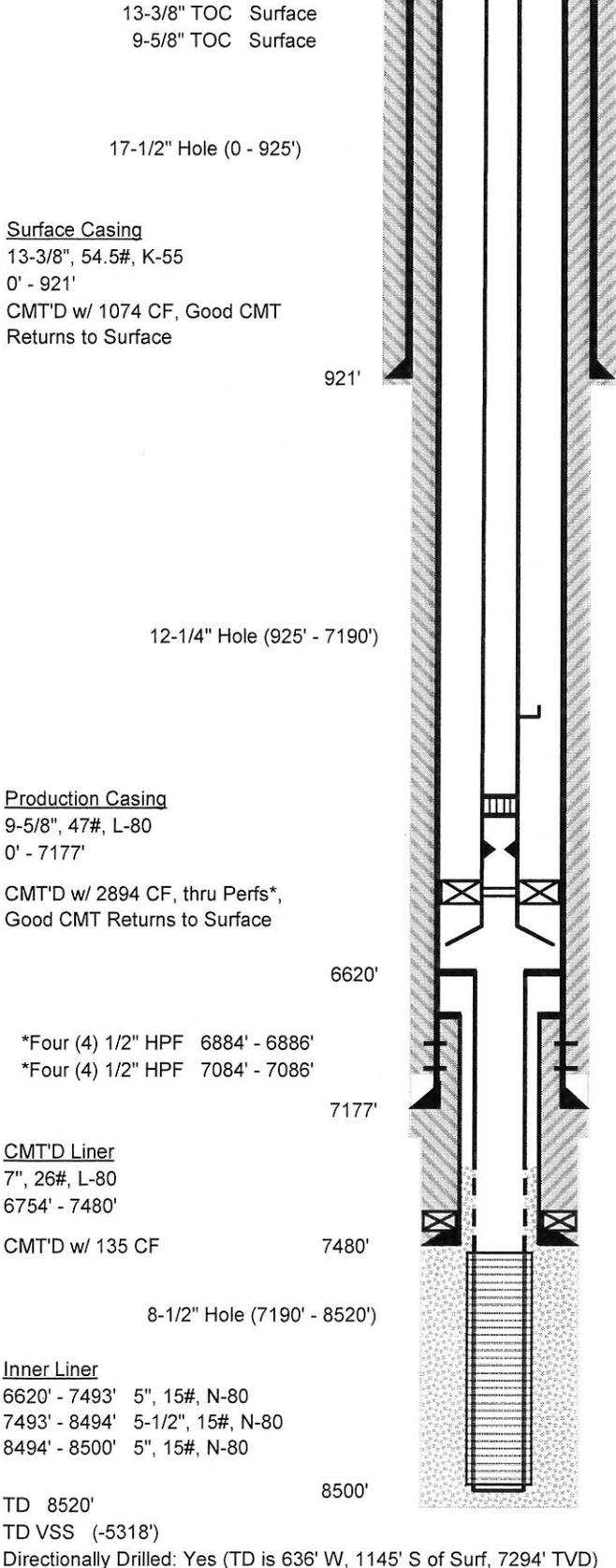
Operator: So. California Gas Co.

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

Ground Elevation: 1954' asl
Datum to Ground: 22.5' KB

Spud Date: 6/30/2010
Completion Date: 8/28/2010

Junk: None



Tubing
3-1/2", 9.3#, L-80
0' - 6615'

6517' GLM

6557' Sliding Sleeve

6594' XN Nipple

6606' HES ASI-X PCKR

6615' Bell Collar

6748' ETOC (Top of 7" Liner)

7448' - 7479' Baker ECP

5" & 5-1/2" Liner Perfs:
7383' - 7472' Slots (Specs not reported)
7493' - 8494' 0.012" ga. WWS

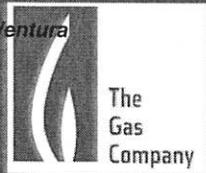
Gravel Packed w/ 256 CF
(103% of theor.) 20x40

Wellbore History	
Orig. Hole TD @	7437'
(12-1/4" Hole w/ 9.4 ppg Mud)	
Ran & CMT'D 9-5/8" CSG	
(Stuck @ 7177')	
12-1/4" Open Hole Unstable	
Plugged Back: 162 CF/141 SKS	
CMT Lost Below 7228'	
CMT Plug @ 7190' - 7228'	
(248 CF/216 SKS, C/O f/ 6875')	
Sidetrack KOP @ 7190'	
into this wellbore	

Notes	
*9-5/8" CSG Stuck @ 7177'. Shot	
Perfs (see below & left) for CMT'ing	
of CSG	

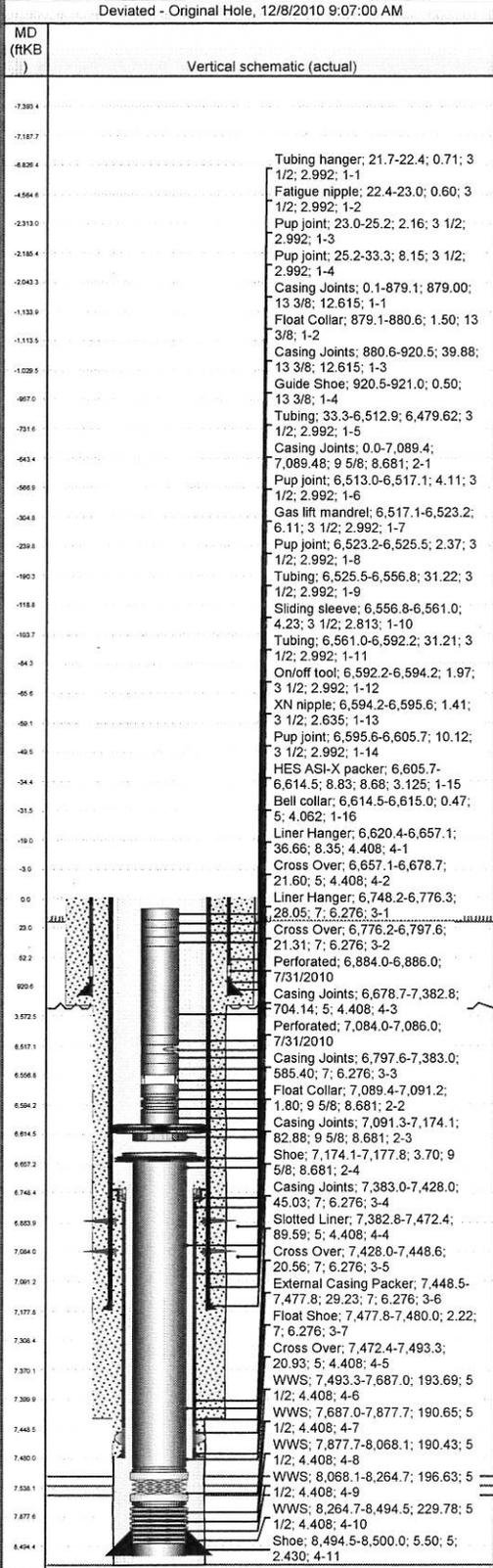
Top of Zone Markers	
MP	6788' (-4584')
S1	7260' (-4902')
S2	7370' (-4960')
S4	7515' (-5025')

Prepared by: MAM (3/2/2016)



Tubing Strings (Completions)

Field Name Aliso Canyon	State CA/U.S.	Current Well Status
Ground Elevation (ft) 1,954.00	Original KB Elevation (ft) 1,976.50	KB-Ground Distance (ft) 22.50



Tubing set at 6,615.0ftKB on 12/8/2010 09:07

Tubing Description		Set Depth (ftKB)		Run Date		Pull Date			
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Len (ft)	Top (ftKB)	Btm (ftKB)
	Tubing hanger	3 1/2	2.992				0.71	21.7	22.4
	Fatigue nipple	3 1/2	2.992				0.60	22.4	23.0
	Pup joint	3 1/2	2.992				2.16	23.0	25.2
	Pup joint	3 1/2	2.992				8.15	25.2	33.3
208	Tubing	3 1/2	2.992		L80		6,479.6 2	33.3	6,513.0
	Pup joint	3 1/2	2.992				4.11	6,513.0	6,517.1
	Gas lift mandrel	3 1/2	2.992				6.11	6,517.1	6,523.2
	Pup joint	3 1/2	2.992				2.37	6,523.2	6,525.5
1	Tubing	3 1/2	2.992		L80		31.22	6,525.5	6,556.8
	Sliding sleeve	3 1/2	2.813				4.23	6,556.8	6,561.0
1	Tubing	3 1/2	2.992		L80		31.21	6,561.0	6,592.2
	On/off tool	3 1/2	2.992				1.97	6,592.2	6,594.2
	XN nipple	3 1/2	2.635				1.41	6,594.2	6,595.6
	Pup joint	3 1/2	2.992				10.12	6,595.6	6,605.7
	HES ASI-X packer	8.681	3.125				8.83	6,605.7	6,614.5
	Bell collar	5	4.062				0.47	6,614.5	6,615.0

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

WELL SUMMARY REPORT

API No. 037-24336

Operator Southern California Gas Company		Well Porter 50B				
Field (and Area, if applicable) Allso Canyon, Sesnon-Frew Pool		County Los Angeles	Sec. 27	T. 3N	R. 16W	B.&M. S.B.
Location of well (Give surface location from property or section corner, street center line)					Elevation of ground above sea level: 1954'	
Lat./Long. In decimal degrees, to six decimal places, NAD 83 format: Lat: 34.314956N Long: 118.547391W						

Was the well directionally drilled? Yes No If yes, show coordinates (from surface location) and true vertical depth at total depth.
1145.3' South, 636.4' West, 7294.7' TVD

Commenced drilling (date) 6/30/2010	(1st hole) 8520'	Total depth (2nd)	(3rd)	Depth measurements taken from top of: <input type="checkbox"/> Derrick Floor <input type="checkbox"/> Rotary Table <input checked="" type="checkbox"/> Kelly Bushing																			
Completed drilling (date) 8/28/2010	Present effective depth 8500'			Which is 22.5 feet above ground.																			
Commenced production/injection (date) Currently Not In Service	Junk? Describe: N/A			<table border="1"> <tr> <th colspan="2">GEOLOGICAL MARKERS</th> <th>DEPTH</th> </tr> <tr> <td>M-P</td> <td></td> <td>6788'</td> </tr> <tr> <td>S-1</td> <td></td> <td>7260'</td> </tr> <tr> <td>S-2</td> <td></td> <td>7370'</td> </tr> <tr> <td>S-4</td> <td></td> <td>7515'</td> </tr> <tr> <td>S-6</td> <td></td> <td>7580'</td> </tr> </table>		GEOLOGICAL MARKERS		DEPTH	M-P		6788'	S-1		7260'	S-2		7370'	S-4		7515'	S-6		7580'
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S-1		7260'																					
S-2		7370'																					
S-4		7515'																					
S-6		7580'																					
Production mode: <input checked="" type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas lift				Formation and age at total depth Sesnon, Miocene																			
Name of production/injection zone(s) S-6				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	921'	54.5#/ft	K-55	N	17-1/2"	1074 cu ft		Surface
9-5/8"	Surface	7177'	47#/ft	L-80	N	12-1/4"	2894 cu ft	7084'	Surface
7"	6748'	7480'	26#/ft	L-80	N	8-1/2"	135 cu ft		6748'
5"	6620'	8500'	15#	N-80	N	8-1/2"	NA	NA	NA

PERFORATED CASING (Size, top, bottom, perforated intervals, size and spacing of perforations, and method.)
9-5/8", 47#, L-80 production casing (perforated at 6884' and 7084' w/ 4-1/2" hpf for cementing)
5", 15#, N-80 blank liner and wirewrapped screen from 6620'-8500', 0.012" Ga from 7492'-8494'

Logs/surveys run? Yes No If yes, list type(s) and depth(s).
Resistivity/Gamma Ray - 7190'-8520' Induction/SP/Gamma Ray/Neutron/Density/Caliper - 925'-6907' USIT/Gamma Ray - 50'-7179', 600'-7150', 6000'-7500' Mud log - 937'-7437', 7180'-8520'

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 Todd Van de Putte	Telephone Number 818-701-3339	Signature 	Date 3-17-2011
Address 9400 Oakdale Ave		City/State Chatsworth, CA	Zip Code 91313
Individual to contact for technical questions: Todd Van de Putte	Telephone Number 661-305-5387	E-Mail Address: tvandeputte@semprautilities.com	

OG100 (3/09)

SUBMIT IN DUPLICATE

*Division of Oil, Gas, and Geothermal Resources
District 2-Ventura
Log Report*

Operator Southern Calif. Gas Co.

Well Designation: Porter

50B

API Number: 03724336

Sec. 27 T. 3N R 16W SB

<i>Date Run</i>	<i>Type</i>	<i>Depth from</i>	<i>Depth to</i>
8/17/2010	Mud Log	937	7437
8/21/2010	Mud Log	7180	8520
8/20/2010	Multiple Propagation Resistivity Gamma Ray	7190	8520
7/29/2010	Platform Express Array Induction SP Gamma Ray Neutron Density Caliper	925	6907
8/4/2010	Ultrasonic Imager Gamma Ray	600	7150
8/10/2010	Ultrasonic Imager Gamma Ray	50	7179
8/23/2010	Ultrasonic Imaging Log Gamma Ray	600	7500

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Well: Porter 50 B
A.P.I. No. 03724336

Field: Aliso Canyon
Surface Location: Sec 27, T. 3N, R. 16W, S.B.B&M
Todd Van de Putte Title: Senior Storage Field...

County: Los Angeles

(President, Secretary, or Agent)

Date: 3/17/2011

Signature: 

(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
7/1/2010	Mixed up clay based spud mud 8.9 ppg, 43 vis, 17 PV 15 YP. Picked up a locked up drilling assembly on 5", 19.5#, X-95 drill pipe with 8" collars and a 17-1/2" gage protected mill tooth bit and drilled 17-1/2" hole from 101' to 283'. Pulled out of the hole and repaired the top drive.
7/2/2010	Repaired the top drive and picked up a shock sub for BHA, ran in the hole to 283' and drilled a 17-1/2" hole from 283' to 370'.
7/3/2010	Drilled 17-1/2" hole from 370' to 447'. Vibration problems on the top drive, repaired the top drive.
7/4/2010	Pulled out of the hole and laid down the 17-1/2" mill tooth bit and picked up a 17-1/2" button bit. Drilled 17-1/2" hole from 447' to 614'.
7/5/2010	Drilled 17-1/2" hole from 614' to 706'. Conditioned mud and circulated the hole clean. Pulled out of the hole and laid down worn near bit stabilizer. Ran in the hole to 706' and drilled to 796'.
7/6/2010	Drilled 17-1/2" hole from 796' to 925', circulated the hole clean and dropped the multishot and surveyed the surface casing hole. Pulled out of the hole and rigged up the 13-3/8" casing running equipment.
7/7/2010	Ran and cemented the 921' of 13 3/8", 54.5#, K-55 casing with a guide shoe on bottom and float collar at 879'. Pumped 50 bbl water, 20 bbl mud flush followed by 307 sxs(651 cuft), 12.5 ppg Type III cement w/ CaCl2 & 316 sxs(423 cuft), 14.8 ppg Type III cement. Displaced with 100 bbl water and 37 bbl mud. Cement returns to surface, C.I.P. @ 11:17am Bumped the plug with 1250 psig surface pressure.
7/8/2010	Cut off the 13-3/8" surface casing and welded on 13 5/8", 5000# SOW casing head. Xrayed the casing head weld. The weld passed xray and pressure tested the casing head to 5000 psig for 15 mins. Pressure tested ok. Nipped up the 13-5/8", Class III 5M BOPE.
7/9/2010	Pressure tested the 13-5/8", Class III, 5M BOPE. Performed a high 5000 psig and low pressure 250 psig pressure test. Tested annular preventer to 3500 psig and the pipe rams to 5000 psig. All BOPE components held and test pressures charted. (Test witnessed and approved W. Beil DOGGR) Run in the hole with a 12-1/4" bit and cleanout BHA and cleaned out the 13 3/8" float and shoe and drilled 12-1/4" pilot hole from 925' to 935'. Pulled out the hole and picked up a 12-1/4", 5 blade PDC and GEOpilot BHA. Mud: 9.0 ppg, Vis 43, PV 18, YP 14
7/10/2010	Rigged up the mud loggers and the 9" GEOpilot rotary steerable drilling BHA with a 12-1/4" bit. Conditioned the clay based mud, MW 8.8 ppg, Vis 42, PV 17 and directionally drilled 12-1/4" hole from 937' to 1586'.
7/11/2010	Directionally drilled 12-1/4" hole from 1586' to 2013'. Pulled out of the hole to lay down the 12-1/4" PDC bit and pick up a 12-1/4" button bit. Mud: 8.8 ppg, 41 Vis, 17 PV, YP 13, 4% solids.
7/12/2010	Directionally drilled 12-1/4" hole from 2013' to 2417'. Mud: 8.9 ppg, 42 vis, 16 PV, YP 14
7/13/2010	Directionally drilled 12-1/4" hole from 2417' to 2901'. Wiped the 12-1/4" hole from 900' to 2475'.
7/14/2010	Directionally drilled 12-1/4" hole from 2901' to 3278'. Trip to pick up a 12-1/4" PDC bit.
7/15/2010	Directionally drilled 12-1/4" hole from 3278' to 3289'. Rig down for repairs.
7/16/2010	Directionally drilled 12-1/4" hole from 3289' to 4000'.
7/17/2010	Directionally drilled 12-1/4" hole from 4000' to 4920'. Mud: 9.2 ppg, Vis 43, PV 14, YP 20
7/18/2010	Directionally drilled 12 1/4" hole from 4920' to 5265'. Pulled out of the hole to change out the GEOpilot. Repaired the top drive. Tripped back in the hole with 12-1/4" PDC bit and new GEO pilot tools. Mud: 9.1 ppg, Vis 44, PV 16, YP 23.
7/19/2010	Directionally drilled 12 1/4" hole from 5265' to 5725'. Back reamed out of the hole and wiped hole from 5555' to 5080'. Mud: 9.1. Vis 45, PV 17, YP 23.
7/20/2010	Directionally drilled 12 1/4" hole from 5725' to 5970'. Pulled out to the surface casing shoe for rig pump repairs. Back reamed from 5970' to 5449'.
7/21/2010	Completed rig pump repairs. Directionally drilled 12-1/4" hole from 5970' to 6021'. Mud: 9.1 ppg, Vis 44, PV 16, YP 20.
7/22/2010	Directionally drilled 12-1/4" hole from 6021' to 6296'.
7/23/2010	Directionally drilled 12-1/4" hole from 6296' to 6451'. Back reamed one stand off bottom and tripped for bit. Changed out and downloaded the GEOpilot tools. Picked up button bit and new mud motor and ran back in the hole to 330' and tested tools.

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Well: Porter 50 B
A.P.I. No. 03724336

Field: Aliso Canyon
Surface Location: Sec 27, T. 3N, R. 16W, S.B.B&M
Todd Van de Putte Title: Senior Storage Field...

County: Los Angeles

(President, Secretary, or Agent)

Date: 3/17/2011

Signature: 

(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
7/24/2010	Continued to run in the hole and directionally drilled 12-1/4" hole from 6451' to 6728'. Mud: 9.1 ppg, Vis 45, PV 17, YP 19.
7/25/2010	Directionally drilled 12-1/4" hole from 6728' to 6994'. Backreamed from 6994' to 6067' and wiped the 12-1/4" hole to 5975'. Picked up drill pipe.
7/26/2010	Directionally drilled 12-1/4" hole from 6994' to 7182'. Pulled out of the hole for mud motor AKO setting.
7/27/2010	Directionally drilled 12-1/4" hole from 7182' to 7362'. Reamed from 5890' to 6052', spot reamed from 6052' to 6900' and from 6900' to 7182'. Mud: 9.4 ppg, Vis 42, PV 21, YP 16
7/28/2010	Directionally drilled 12-1/4" hole from 7362' to 7437'. Pulled out of the hole for cleanout run for open hole logs. Ran back in the hole with cleanout assembly and made a clean out run.
7/29/2010	Made clean out run to 7437' and circulated the hole clean. Rigged up the Schlumberger wireline unit and ran the Platform Express log from 925'-6907'. Pulled out of the hole and laid down the wireline tools and rigged down the wireline unit.
7/30/2010	Picked up a 12-1/4" mill tooth bit and cleanout BHA and cleaned out the well to 7437'. Pulled out of the hole with the cleanout BHA and rigged up the Weatherford casing running equipment. Began running 9-5/8", 47#, L-80 casing.
7/31/2010	Continued to run the 9-5/8", 47#, L-80 SLGS casing with float collar, and EZ Ream shoe.
8/1/2010	Ran 9-5/8", 47#, L-80 SLGS casing to 7177'. The casing stuck casing in the hole and could not pull free or circulate. The shoe located at 7177'. Perforated the 9-5/8", 47#, L-80 casing at 7084' and 6884'.
8/2/2010	Rigged up the BJ Services cementing equipment. Pressure tested equipment and lines to 4000 psig for 5 mins. Held ok. Cement 9-5/8", 47#, L-80, SLGS casing through perforations at 6884'. Mixed and pumped 20 bbl water ahead, 40 bbl UltraFlush II spacer, 724 sxs(1817 cuft or 324 bbl), 12 ppg Class "G" lead cement, 688 sxs(1077 cuft or 192 bbl), 14.5 ppg Class "G" with gas migration additive tail slurry. Dropped plug and displaced with 487 bbl mud. Cement returns to surface. Final pressure 900 psig and shut in well. C.I.P. at 09:18
8/3/2010	Nipped up the Class III 5M BOPE and pressure tested the 9-5/8", 47#, L-80 casing to 1000 psig surface pressure and tested the wellhead to 5000 psig. Made up an 8-1/2" bit with a cleanout BHA and tagged cement at 6784'. Cleaned out cement the shoe track to 7173'.
8/4/2010	Picked up an 9-5/8" casing scraper on a cleanout BHA. Cleaned out to 7171', circulated the hole clean and pulled out of the hole. Rigged up the Schlumberger wireline unit and ran a USIT/GR log from 7150' to 600'. Rigged down the Schlumberger wireline unit. Made up a test packer and ran in the hole.
8/5/2010	Pressure tested the perforations to 500 psig and 900 psig surface pressure. Pressure tested the 9-5/8" casing shoe @ 7177' to 500 psig and 900 psig surface pressure. Slight bleed off at 900 psig. Pulled the test packer out of the hole. Picked up an 8-1/2" bit and cleanout assembly, ran in the hole, cleaned out float and shoe track to 7437' and circulated the hole clean. Pulled out of the hole and cleaned the mud pits.
8/6/2010	Cleaned the mud pits and built new mud volume. Ran in the hole to 7437' and displaced the clay based mud w/KCL/Xanvis drill-in polymer mud. Conditioned the mud in the hole. Mud: 9.3 ppg, Vis 34, PV 6, YP 12, 0.5% solids.
8/7/2010	Pulled out of the hole with the 8-1/2" cleanout assembly. Picked up the 8-1/2" bit and the GEOPilot BHA and uploaded the directional tool. Ran in the hole and tagged at 7191'. Pulled out of the hole and laid down GEOPilot BHA. Picked up the 8-1/2" cleanout assembly and ran in the hole and tagged @ 7191', washed to 7193'. Ran in the hole to 7437' circulated the hole clean.
8/8/2010	Pulled out of the hole. Ran in the hole with a new clean out gage run assembly to 7437'. Pulled out of the hole with a tight spot at 7167' and reamed through. Pulled out of the hole and slipped and cut the drilling line.
8/9/2010	Made up two 8-1/2" OD string mills for a production casing gauge run. Ran in the hole and reamed from 7219' to 7064'. The BHA didn't take weight. Pulled out of the hole and the inspected mills. No wear on the mills. Waited on the wireline loggers.
8/10/2010	Rigged up the Schlumberger wireline unit and ran a USIT log from 7178' to 50'. Rigged down the Schlumberger wireline unit. Picked up the 8-1/2" bit and the 6-3/4" GEOPilot rotary steerable BHA. Ran in the hole to 7190' and stacked out the BHA. Pulled the GEOPilot out of the hole. Made up an 8-1/2" milling/gauge run bottomhole assembly.

RESOURCES AGENCY OF CALIFORNIA
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HISTORY OF OIL OR GAS WELL

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Well: Porter 50 B
A.P.I. No. 03724336

Field: Aliso Canyon
Surface Location: Sec 27, T. 3N, R. 16W, S.B.B&M
Todd Van de Putte Title: Senior Storage Field...

County: Los Angeles

(President, Secretary, or Agent)

Date: 3/17/2011

Signature: 

(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
8/11/2010	Ran in the hole with a modified 8-1/2" mill/gauge run bottomhole assembly. Gauge reamed from 7178' to 6850'. Pulled out of the hole with the gauge BHA. Ran in the hole with an 8-1/2" bit and the GEOPilot directional BHA and stacked out at 7190'. Pulled the GEOPilot BHA out of the hole.
8/12/2010	Pulled out of the hole with the GEOPilot BHA and laid down the directional tools. Made up an 8-1/2" bit and cleanout BHA. Ran in the hole to 7210' and tagged fill. Cleaned out the 12-1/4" hole from 7210' to 7397'.
8/13/2010	Pulled out of the hole with the 8-1/2" bit and cleanout BHA. Ran in the hole with open ended drill pipe and sawtooth collar to 7332'. Prepared to spot cement plug to seal off the unstable 12-1/4" hole below the 9-5/8" casing shoe at 7177'. Moved in and rigged up BJ services cementing equipment. Tested lines and equipment to 3000 psig. Pumped 30 bbl water spacer, 141sxs (162 cuft or 28.8 bbls) of 15.8 ppg, Class "G" cement, 10 bbl water spacer and displaced with 105 bbl mud. CIP 13:10 Hrs. ETOC at 7078'. Pulled out of the hole with the sawtooth collar. Ran in the hole with an 8-1/2" mill tooth bit and cleanout BHA, unable to tag cement at 7204'. Pulled out of the hole.
8/14/2010	Pulled out of the hole with the 8-1/2" bit and the cleanout BHA. Ran in the hole with a sawtooth collar on drill pipe to 7228'. Rigged up the BJ services cementing equipment and cemented the 12-1/4" open hole with 30 bbl water ahead, 216 sxs(248 cuft or 44 bbl), 15.8 ppg Class "G" cement, 10 bbls water spacer and displaced with 100 bbl mud. CIP at 12:00 Hrs. ETOC at 6677'. Pulled out of the hole with the sawtooth collar. Ran in the hole with the 8-1/2" bit and cleanout BHA, tagged the cement plug at 6875' and cleaned out the cement to 7034'.
8/15/2010	Cleaned out the cement from 7034' to 7190'. Pulled out of the hole with the 8-1/2" bit and cleanout BHA. Made up the AutoTrak directional tools, ran in the hole and tagged cement at 7190'. Drilled 8-1/2" hole to 7206'. The hole bridged off. Worked stuck pipe at 7206'
8/16/2010	Rigged up and ran a wireline free point indicator, backed off fish the 7084'. Pulled out of the hole with the drill pipe. Made up an overshot with BHA and ran in the hole to screw into the fish at 7084'. Jarred on the fish, tools came free and pulled out of the hole with the BHA.
8/17/2010	Pulled out of the hole with the recovered fish and laid down the same. Made up a new Autotrak directional tool and BHA and ran in the hole to 7206'. Communication tool failure occurred and pulled out of the hole. Changed out directional tools and tested. Ran the hole and circulated down from 7163' to 7206'. Mud: 9.2 ppg, Vis 43, PV 12, YP 30, KCI 7%
8/18/2010	Directionally drilled 8-1/2" hole from 7206' to 7400', circulated bottoms up and conditioned mud. Pulled out of the hole for a new set of AutoTrack tools. Mud: 9.3 ppg, Vis 41, PV 9, YP 26, KCI
8/19/2010	Directionally drilled 8-1/2" hole from 7400' to 7970', wiped the hole to the shoe (LWD tools in the BHA), slipped cut the drilling line.
8/20/2010	Directionally drilled the 8-1/2" hole from 7970' to 8520' TD. Pulled out of the hole with the directional tools and LWD and laid down the directional tools and LWD. Rigged down the mud loggers. Made up an 8-1/2" bit and cleanout BHA for a clean out run to TD. Mud: 9.3 ppg, Vis 41, PV 9, YP 29, KCI
8/21/2010	Made clean out run and spotted hi-vis pill on bottom. No fill on bottom. Pulled the cleanout assembly out of the hole. Picked up and ran a 9-5/8" x 7" Baker hanger/packer, 16 joints of 7", 26#, L-80 liner, an ECP, a float and a shoe.
8/22/2010	Ran 7", 26#, L-80, SLFJ liner from 6748' to 7480' with Baker liner setting tool BHA. Liner assembly included a Baker ECP and a ZXP 9-5/8" x 7" hanger packer. Rigged up BJ services cementing equipment. Pressure tested cementing equipment and lines to 4500 psig for 5 minutes. Mixed and pumped 20 bbl mud, 40 bbl SS-2 spacer, 71 sxs (135 cuft or 24 bbl) 14.5 ppg Class "G" cement with gas migration additive, dropped the plug and displaced the plug with 137 bbl mud. Bumped the plug with 1800 psig. Rigged down the BJ cementing equipment. Ran in the hole and tagged the 7" liner top at 6754', pulled out the hole for a 6-1/8" bit.
8/23/2010	Ran in the hole with an 6-1/8" bit and tagged the ECP float at 7463'. Pressure tested the 7", 26#, L-80 casing and lap to 1500 psig surface pressure for 10 minutes, held pressure. Cleaned out the 7" shoe track to 7507'. Ran in the hole to 8520', circulated the hole clean and pulled out of the hole with the cleanout assembly. Rigged up the Schlumberger wireline unit and ran a USIT log on the 7" liner from 7500' to 6000'.
8/24/2010	Picked up and ran an 8-1/2" under reamer to gage the hole. Began to pick up and run the 5-1/2", 0.012" Ga gravel pack screen and 5", 15#, N-80, Hyd 511 blank and slotted liner with a circulating shoe and a Baker Model SC-2 packer.

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Start Date	Ops. DOGGR Rpt
8/25/2010	Ran 5-1/2" gravel pack screen liner and 5", 15#, N-80 blank and slotted liner with Hydril 511 from 6620' to 8500' (0.012" Ga wire wrapped screen from 7492' to 8494').
8/26/2010	Open hole gravel packed the 8-1/2" hole with a 5", 15#, N-80 liner with a BakerWeld screen with 256 cuft 20-40 gravel, 0.58 ppg at 8.2 BPM, 103% in place, screened out at 1500 psig. Restressed the gravel pack and pulled out of the hole. Laid down the gravel pack liner running BHA and picked up and set a 9-5/8" Halliburton 3L bridge plug at 6500'. Pulled out of the hole laying down the 5" drill pipe.
8/27/2010	Laid down the 5" drill pipe and the 8" collars and nipped down the Class III 5M BOPE. Removed the wear bushing, installed the production tree and secured the well. Cleaned the mud pits and began the rig down of the top drive.
8/28/2010	Laid down the Tesco 350 Top drive, Ensign Rig #587 released at 13:00 hrs. Began to rig down the rig and associated equipment for move to the Honor Rancho Field.
11/22/2010	Moved in the Ensign production rig #321. Spotted the tanks, mud pump unloaded the rig equipment. Moved in and rigged up the hoist. Opened the well with 0 psig wellhead pressure and nipped down the production tree. Nipped up the 5M Class III BOPE.
11/23/2010	Rigged up the BOPE tester and tested the blind rams to 300 psig (low) and 5000 psig (high) for twenty minutes. Tested the pipe rams to 300 psig (low) and 5000 psig (high) for twenty minutes. Tested the Hydril annular preventer to 300 psig (low) and 3000 psig (high) for twenty minutes. Tested all control valves and choke manifold to 300 low and 5000 high for twenty minutes. All BOP equipment tested good (A. Stewart DOGGR witnessed and approved test) Made up the HES retrieving tool, measured and picked up the 3-1/2" tubing to 1650'.
11/24/2010	Measured and picked up the 3-1/2", 9.3#, L-80 tubing to 6000'.
11/30/2010	Measured and picked up the 3-1/2", 9.3# L-80 tubing to 6496'. Rigged up and reverse circulated out the drilling mud and released the 9-5/8" Bridge plug. Circulated the well with 37 bbls, 9.5 ppg brine. Pulled out of the well to 1490' and circulated out gas and the gas cut brine. Monitored the wellhead pressure.
12/1/2010	Monitored the wellhead pressure. Rigged up and changed over the wellbore brine from 1490' to surface with 10 ppg brine. Ran in the well to 6605'.
12/2/2010	Opened the well with 0 psig wellhead pressure, rigged up and changed over the well to 10 ppg brine. Pulled out of the well to 3161' for a kill string.
12/3/2010	Pulled out of the well with the kill string and laid down the 9-5/8" bridge plug. Made up an HES 9-5/8" G-6 packer, 10' 3-1/2" pup joint, on/off tool, one joint 3-1/2" tubing, Sliding sleeve, one joint 3-1/2" tubing, gas lift mandrel w/dummy valve. Ran in the well to 6610' and set the packer. Respaced the well (could not engage the on/off tool.) Laid down the spacing pup joint and the tubing hanger. Attempted to engage the on/off tool and secured the well.
12/6/2010	Rigged up the Western wire line unit and made up the sliding sleeve shifting tool. Ran in the well and shifted sliding sleeve closed. Rigged up and reverse circulated on top of the on/off tool. Attempted to latch the on/off tool and pulled out of the well and laid down the production equipment. (Sent top half of the on/off tool to the shop to be re-worked.)
12/7/2010	Made up the top half of the on/off tool and ran in the well with the production equipment. Engaged the on/off tool and respaced the well. Landed the production string in the tubing hanger with 10,000lb compression. Tested the 3-1/2" tubing x 9-5/8" casing annulus to 500 psig (Bled down to 0 psig, leaking thru the on/off tool). Released the rig crew and rigged up the Western wire line unit. Made up the sliding sleeve shifting tool and ran in the hole and opened the sliding sleeve. Made up a pulling tool on wireline, ran in well and was unable to pull the PXN plug.
12/8/2010	Opened the well and released the 9-5/8" G-6 packer at 6610'. Pulled out of the well and laid down the production equipment. Made up an 9-5/8" HES G-6 packer, 10' 3-1/2" pup jt., On/Off tool with PXN plug in place, 1 jt 3-1/2" tubing, sliding sleeve, 1 jt 3-1/2" tubing, GLMA with dummy valve. Ran in the well to 6610'. Made up the tubing hanger and spaced out the well. Set the packer with 12,000lb compression. Made up the hold down studs and tested the 3-1/2" x 9-5/8" annulus to 500 psig for twenty minutes. Held pressure ok. Rigged down the tubing equipment and the working floor.
12/9/2010	Opened the well and installed the BPV. Nipped down the 5M Class III BOPE and nipped up the production tree. Rigged down the rig hoist rigged down and loaded the rig and associated equipment.

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

Report on Operations

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

Ventura, California
December 23, 2010

Your operations at well "Porter" 50B, API No. 037-24336
Sec. 27, T. 3N, R. 16W, SB B. & M. Aliso Canyon
Field in Los Angeles County,
were witnessed on 11/23/2010 by Aaron Stewart, representative of the supervisor.

Operations Witnessed	Result - Def.	Engineer	Date
BOPE Test	Approved	Aaron Stewart	11/23/2010

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

DECISION: Approved

tkc

By

Elena M. Miller
State Oil and Gas Supervisor



Deputy Supervisor

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator So. Cal. Gas Co. Well "Porter" 50B Sec. 27 T. 3N R. 1
 Field Aliso Canyon County Los Angeles Spud Date _____
 VISITS: Date Engineer Time Operator's Rep. Title
 1st 11/23/10 A. Stewart (1200 to 1400) Mike Volkmar Consultant
 2nd _____ _____ _____ _____
 Contractor Ensign Rig # 321 Contractor's Rep. & Title Ron Carlson - Pusher
 Casing record of well: 13-3/8" 54.5# N-80 CM TO E 925'
9-5/8" 47# N-80 CM TO E 717'
7" 26# N-80 from 6748'-7480' 5" liner ude 8520', TOL = 6639'

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: Complete + run tubing MACP: _____ psi **REQUIRED BOPE CLASS**
 Hole size: _____ " fr. _____ " to _____ " to _____ " & _____ " to _____ " III 5M

CASING RECORD OF BOPE ANCHOR STRING					Cement Details		Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at			Casing	Anchor
9-5/8"	47#	N-80	717'	Shoe				

BOP STACK						TEST DATA						
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date
A	-	Shaffer	GK	9-5/8"	5M	11/2010						11/23/10
Rd	C80	"	LWS	"	5M	"						"
Rd	3-1/2"	"	LWS	"	5M	"						"

ACTUATING SYSTEM				TOTAL:		AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>1500</u> psi						Connections						
Total Rated Pump Output _____ gpm						No.	Size (in.)	Rated Press.	Weld	Flange	Thread	
Distance from Well Bore <u>60</u> ft.				Fluid Level <u>3/4</u>								
Accum. Manufacturer		Capacity	Precharge	X	Fill-up Line							
1	Weatherford	80 gal.	2800 psi	X	Kill Line	2	2"	5M		X		5
2				X	Control Valve(s)	2		5M		X		5
				X	Check Valve(s)	1		5M		X		5
				X	Aux. Pump Connect.			5M			X	5
				X	Choke Line					X		5
				X	Control Valve(s)	2		5M		X		5

CONTROL STATIONS				EMERG. BACKUP SYSTEM		TOTAL:		AUXILIARY EQUIPMENT							
Manifold at accumulator unit				Elec.	Hyd.	Pneu.	X	Pressure Gauge							
Remote at Driller's station							X	Adjustable Choke(s)	2	2"	5M		X		6
Other:							X	Bleed Line		2"			X		6
X							X	Upper Kelly Cock							
							X	Lower Kelly Cock							
							X	Standpipe Valve							
							X	Standpipe Press. Gau.							
							X	Pipe Safety Valve		3-1/2"	5M				5
							X	Internal Preventer		3-1/2"	5M				5

HOLE FLUID MONITORING			Alarm Type		Hole Fluid Type		Weight		Storage Pits (Type & Size)		
Calibrated Mud Pit			Audible	Visual	Class						
Pit Level Indicator					A	lease water	9.5#	\$60 bbl. + more on the way			
Pump Stroke Counter					B						
Pit Level Recorder											
Flow Sensor					C						
Mud Totalizer											
Calibrated Trip Tank											
Other:											

REMARKS AND DEFICIENCIES:

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

PERMIT TO CONDUCT WELL OPERATIONS

**Gas Storage
Supplementary**

No. P 210-191

010 010

(Old) Field Code (New)

00 00

(Old) Area Code (New)

30 30

(Old) Pool Code (New)

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

Ventura, California
August 31, 2010

Your proposal to drill well "Porter" 50B, A.P.I. No. 037-24336, Section 27, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Sesno-Frew Pool, Los Angeles County, dated 08/23/10, received 08/24/10 has been examined in conjunction with records filed in this office.

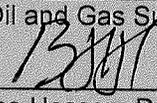
THE PROPOSAL IS APPROVED PROVIDED:

1. In all other respects, the operations are to be conducted in accordance with provisions outlined in Permit P210-106 dated May 12, 2010.
2. No program changes are made without Division approval.
3. THIS DIVISION SHALL BE NOTIFIED TO:
 - a. Witness a pressure test of the 7" linear and lap between the 7" x 9-5/8" casings.
 - b. Witness a test of the installed blowout prevention equipment prior to commencing completion operations.

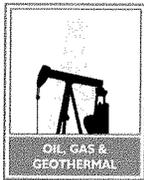
Engineer: Steve Fields

Phone: (805) 654-4761

Elena M. Miller
State Oil and Gas Supervisor

By 
Bruce Hesson, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work is completed or the operations have been suspended. Issuance of this permit does not preclude the recipient from the obligation of being in compliance with all applicable Federal, State and Local laws, regulations and ordinances.



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

FOR DIVISION USE ONLY		
Bond	Forms	
	OGD114	OGD121
1000 000	112	115

SUPPLEMENTARY NOTICE

P210-191

Detailed instructions can be found at: www.conservation.ca.gov/dog/

A notice to the Division of Oil, Gas, and Geothermal Resources, dated May 12, 2010, stating the intention to

Drill well "Porter" 50B, API No. 037-24336
(Drill, Rework, Abandon)

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

should be amended because of changed conditions.

The complete casing record of the well (present hole), including plugs and perforations, is as follows: (Attach wellbore schematics diagram also.)

- 20", 94#, K-55 conductor cemented at 80'.
- 13-3/8", 54.5#, K-55 surface casing at 921', cemented to surface.
- 9-5/8", 47#, L-80 production casing at 7177', cemented to surface (perforated from 7084'-7086' and 6884'-6886').
- 12-1/4" hole to 7437'

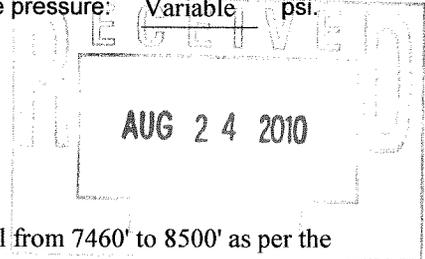
The total depth is: 7437 feet. The effective depth is: 7437 feet. *GS*

Present completion zone(s): S-1 (Name) Anticipated completion zone(s): S-6 (Storage Zone) (Name)

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

We now propose: (A complete program is preferred and may be attached.)

- Plug back the 12-1/4" open hole from 7437' to 7177'.
- Drill 8-1/2" hole to 8500' (+/-) as per the original directional program.
- Run and cement 7" scab liner with ECP from 6748' to 7480'.
- Cleanout the 7" liner and pressure test the lap to 1500 psig.
- Cleanout to total depth and run and gravel pack 5" wirewrap screen liner with 20/40 gravel from 7460' to 8500' as per the original plan.



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

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

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

Name of Operator Southern California Gas Company		
Address 9400 Oakdale Ave	City/State Chatsworth	Zip Code 91313
Name of Person Filing Notice Todd Van de Putte	Telephone Number: 661-305-5387	Signature <i>Todd Van de Putte</i> Date 8-23-10
Individual to contact for technical questions: Todd Van de Putte	Telephone Number: 661-305-5387	E-Mail Address: tvandeputte@semprautilities.com

This notice must be filed, and approval given, before the operations begin. If operations have not commenced within one year of the Division's receipt of this supplementary notice, this notice will be considered cancelled.

CRITICAL WELL DEFINITION

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

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

WELL OPERATIONS REQUIRING BONDING

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

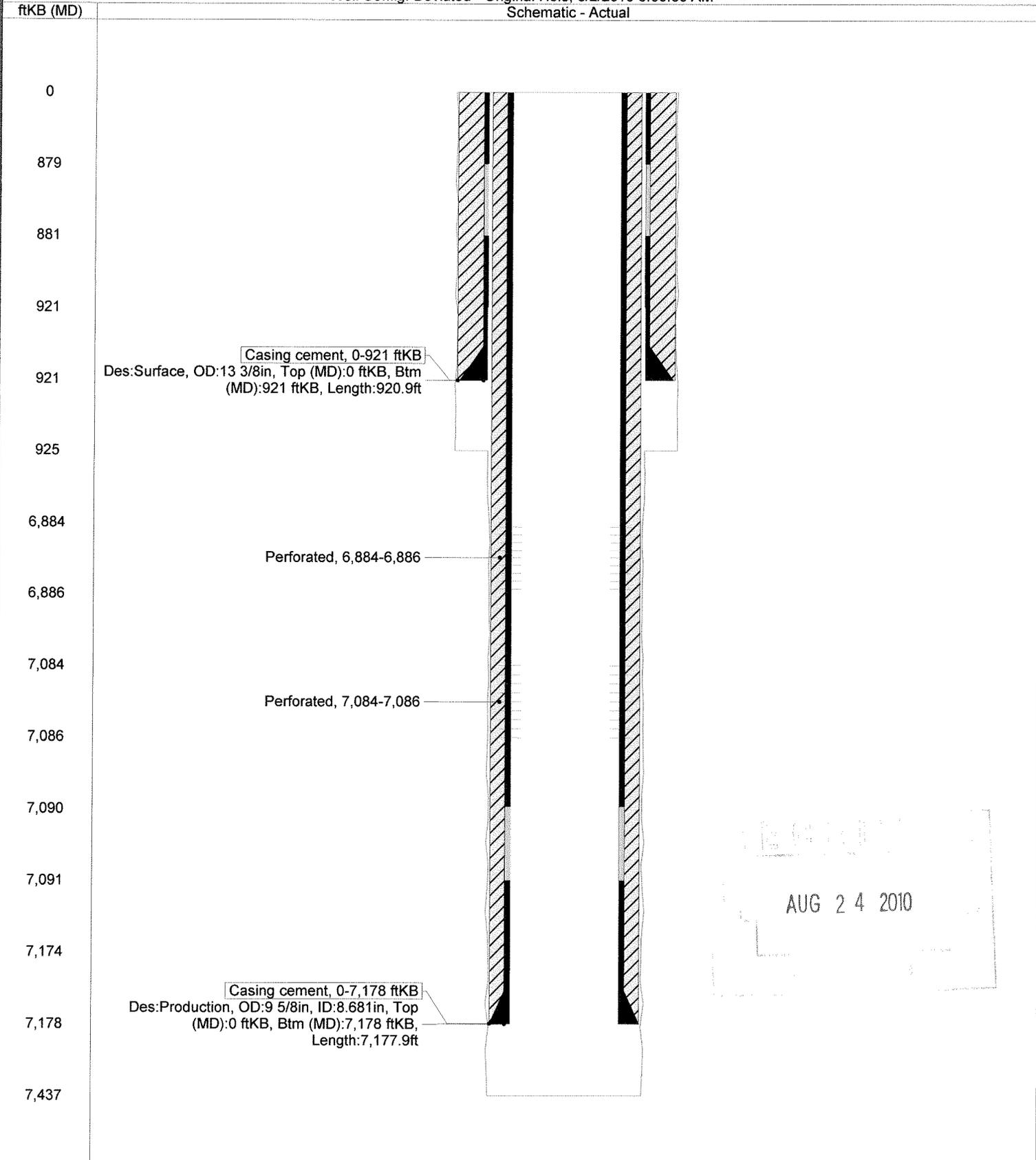
This form may be printed from the DOGGR website at www.conservation.ca.gov/dog/

AUG 24 2010

Gas Company Schematic

API 037-24336	Field Name ALISO CANYON	Operator Southern California Gas Company	County Los Angeles	State CA/U.S.
Ground Elevation (ft) 1,954.00	KB-Ground Distance (ft) 22.50	Spud Date 7/1/2010		

Well Config: Deviated - Original Hole, 8/2/2010 6:00:00 AM
Schematic - Actual



DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

OPERATOR Southern Calif. Gas Co. WELL DESIGNATION: "Porter" 50B

API No. 03724336 SEC 27 , T. 3N , R. 16W , SB B. and M.

COUNTY: Los Angeles FIELD Aliso Canyon

Type of Notice: Drill Date: 4/30/2010 Report Number: P210-106

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

NEW STATUS

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

DATE: _____

NOTICE OF RECORDS DUE

DATE: _____

DATE: _____

DATE: _____

DATE: _____

WELL STATUS INQUIRY

DATE: _____

DATE: _____

Well Stat
407

Change Required: _____

Change Done: _____

ABANDONMENTS/REABANDONMENTS/DRILLS/REDRILLS

ABANDONMENT DATABASE : _____ SURFACE INSPECTION NEEDED _____ COMPLETED _____
Date and Inspector

FINAL LETTER NEEDED _____ COMPLETED _____ DRILL/REDRILL DATABASE _____
(Date)

ENGINEER'S CHECK LIST

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

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

Report on Operations

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

Ventura, California
August 6, 2010

Your operations at well "Porter" 50B, API No. 037-24336
Sec. 27, T. 3N, R. 16W, SB B. & M. Aliso Canyon
Field in Los Angeles County,
were witnessed on 8/3/2010 by F. Pineda, representative of the supervisor.

Operations Witnessed	Result - Def.	Engineer	Date
BOPE Test	Approved	F. Pineda	8/3/2010

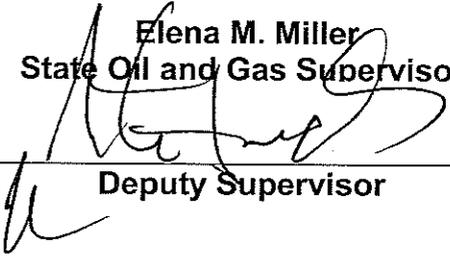
The operations were performed for the purpose of testing the blowout prevention equipment and installation.

DECISION: Approved

tkc

By

Elena M. Miller
State Oil and Gas Supervisor


Deputy Supervisor

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator So. Cal. Gas Company Well "Porter" 5D B Sec. 27 T. 3N R. 16W
 Field Aliso Canyon County Los Angeles Spud Date 7/1/10
 VISITS: Date 8/3/10 Engineer Fred Pineda Time 1030 to 1200 Operator's Rep. Kevin Katolas Title Drilling Supr
 1st _____ to _____
 2nd _____ to _____
 Contractor Ensign Rig # 527 Contractor's Rep. & Title Brian Gresham / Rig supr.
 Casing record of well: 13 3/8" cem. 921', 9 5/8" cem. 7178' TO 7437' (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: Drilling MACP: _____ psi REQUIRED BOPE CLASS: II B 5M
 Hole size: _____ " fr. _____ " to _____ " to _____ " & _____ " to _____ " to _____ "

CASING RECORD OF BOPE ANCHOR STRING					Cement Details			Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at	Lead	Tail	Casing	Annulus	
13 3/8"	54.5#	K-55	921'		650 CF Type III 12.5#	426 CF Type III 14.8 PPG		Surf	
9 5/8"	47#	L-80	7178'	#6884'	1817 CF Class G 12 PPG III 107 CF 14.5 PPG		6784'	Surface	

BOP STACK							TEST DATA						
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	5"	Hydril	6K	13 5/8"	5M	6/10						8/3/10	—
	Rd 5"				5M								—
	Rd CSD				5M								5100

ACTUATING SYSTEM				TOTAL:		AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>3000</u> psi						Connections						
Total Rated Pump Output _____ gpm		Fluid Level _____				No.	Size (in.)	Rated Press	Weld	Flange	Thread	Test Press.
Distance from Well Bore <u>75</u> ft.		<u>OK</u>										
Accum. Manufacturer	Capacity	Precharge				Fill-up Line	2"					
1 <u>Wagner</u>	240 gal.	1000 psi				Kill Line	3.5"	5M				5100
2	gal.	psi				Control Valve(s)	3	5M				5100
						Check Valve(s)	1	5M				
						Aux. Pump Cnct.						
CONTROL STATIONS				Elec.	Hyd.	Pneu.						
Manifold at accumulator unit					X		Choke Line					
Remote at Driller's station						X	Control Valve(s)					
Other:							Pressure Gauge					
							Adjstble Choke(s)					
							Bleed Line					
							Upper Kelly Cock					
							Lower Kelly Cock					
							Standpipe Valve					
							Stndpipe Pres. Gau.					
							Pipe Safety Valve					
							Internal Preventer					

HOLE FLUID				Alarm Type		Hole Fluid Type			Storage Pits (Type & Size)		
MONITORING EQUIPMENT				Audible	Visual	Mud			9.6# 840 bbls.		
X	Calibrated Mud Pit	X	X	A							
X	Pit Level Indicator	X	X	B							
X	Pump Stroke Counter	X	X								
X	Pit Level Recorder	X	X								
X	Flow Sensor	X	X	C							
X	Mud Totalizer	X	X								
	Calibrated Trip Tank										
	Other:										

REMARKS AND DEFICIENCIES:
 * Squeezed cement through perf.
 Pressure test of tbg. spindle w/CSO & outer Kill & choke valves closed.

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

No. T 210-145

Report on Operations

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

Ventura, California
July 12, 2010

Your operations at well "Porter" 50B, API No. 037-24336
Sec. 27, T. 3N, R. 16W, SB B. & M. Aliso Canyon
Field in Los Angeles County,
were witnessed on 7/8/2010 by F. Pineda, representative of the supervisor.

Operations Witnessed	Result - Def.	Engineer	Date
BOPE Test	Approved	W. Beil	7/8/2010

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

DECISION: Approved

tkc

By

Elena M. Miller
State Oil and Gas Supervisor


Deputy Supervisor

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator So. Cal Gas Co. Well "Porter" 50B Sec. 27 T. 3N R. 16W
 Field ALISO CANYON County LOS ANGELES Spud Date 07-02-10

VISITS: Date Engineer Time Operator's Rep. Title
 1st 07-08-10 W. Beil (23:00 to 01:00) DEAN BRAYMER -Consultant
 2nd _____ (_____ to _____) _____ _____

Contractor ENSIGN Rig # 587 Contractor's Rep. & Title Brian Gredham - Rig Supervisor
 Casing record of well: 20" 0-100' cut; 13 3/8" 0-921' cut

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 [7/8/10 TD=925'] MACP: _____ psi REQUIRED BOPE CLASS: III B 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	LEAD	TYPE	Casing	Annulus
13 3/8	54.5 #	J-55	921'		651 FT	12.5 lb/GAL		
					TAIL 1: 244 FT	14.8 lb/GAL		
					TAIL 2: 180 FT	NEAT 14.8 lb/GAL		

BOP STACK					TEST DATA								
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	-	Hydrill		13 1/4	5M							7/8/10	3500
Rd	5" CSO	Shaffer											5M
													5M

ACTUATING SYSTEM				TOTAL:		AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>2900</u> psi						Connections						
Total Rated Pump Output _____ gpm				Fluid Level <u>50%</u>		No.	Size (in.)	Rated Press	Weld	Flange	Thread	Test Press.
Distance from Well Bore <u>60</u> ft.												
Accum. Manufacturer		Capacity		Precharge								
1 <u>WAGNER</u>		<u>120</u> gal.		<u>1000</u> psi								
2												

CONTROL STATIONS				AUXILIARY EQUIPMENT				
Manifold at accumulator unit <input checked="" type="checkbox"/>								
Remote at Driller's station <input checked="" type="checkbox"/>								
Other: _____								
				<input checked="" type="checkbox"/> Fill-up Line <input checked="" type="checkbox"/> Kill Line <input checked="" type="checkbox"/> Control Valve(s) <input checked="" type="checkbox"/> Check Valve(s) <input checked="" type="checkbox"/> Aux. Pump Cnct. <input checked="" type="checkbox"/> Choke Line <input checked="" type="checkbox"/> Control Valve(s) <input checked="" type="checkbox"/> Pressure Gauge <input checked="" type="checkbox"/> Adjstble Choke(s) <input checked="" type="checkbox"/> Bleed Line <input checked="" type="checkbox"/> Upper Kelly Cock <input checked="" type="checkbox"/> Lower Kelly Cock <input checked="" type="checkbox"/> Standpipe Valve <input checked="" type="checkbox"/> Stndpipe Pres. Gau. <input checked="" type="checkbox"/> Pipe Safety Valve <input checked="" type="checkbox"/> Internal Preventer				

EMERG. BACKUP SYSTEM				TOTAL:	
N2 Cylinders				Wkg. Fluid	
<input checked="" type="checkbox"/>	1	L=	"	<u>2200</u>	gal.
	2	L=	"	<u>2300</u>	gal.
	3	L=	"	<u>2300</u>	gal.
	4	L=	"	<u>2400</u>	gal.
	5	L=	"	<u>2450</u>	gal.
	⑥	L=	"	<u>2500</u>	gal.
Other: _____					

HOLE FLUID MONITORING EQUIPMENT			Alarm Type		Hole Fluid Type			Storage Pits (Type & Size)	
			Audible	Visual					
<input checked="" type="checkbox"/>	Calibrated Mud Pit				<u>Gel mud</u>			<u>9.3</u> <u>1260</u> bbls TKS & hole	
<input checked="" type="checkbox"/>	Pit Level Indicator								
<input checked="" type="checkbox"/>	Pump Stroke Counter								
<input checked="" type="checkbox"/>	Pit Level Recorder								
<input checked="" type="checkbox"/>	Flow Sensor								
<input checked="" type="checkbox"/>	Mud Totalizer								
<input checked="" type="checkbox"/>	Calibrated Trip Tank								
Other: _____									

REMARKS AND DEFICIENCIES:
BEL TESTING Leaking Kelly hose - fixed

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

No. P 210-106

PERMIT TO CONDUCT WELL OPERATIONS

010 010
(Old) Field Code (New)
00 00
(Old) Area Code (New)
30 30
(Old) Pool Code (New)

Gas Storage

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

Ventura, California
May 12, 2010

Your proposal to drill well "Porter" 50B, A.P.I. No. 037-24336, Section 27, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Sesno-Frew Pool, Los Angeles County, dated 04/30/10, received 04/30/10 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, as defined by this Division's publication No. MO7, shall be installed and maintained in operating condition and meet the following minimum requirements:

Conductor: Class II 2M

Surface Casing: Class IIIB 5M

Production String: Class IIIB 5M and 5M lubricator for logging operations.

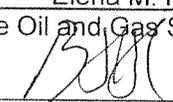
Completion Operations: Class III 5M

2. Hole fluid of a quality and in sufficient quantity is used to control all subsurface conditions in order to prevent blowouts.
3. The conductor and 13-3/8" casing are cemented with sufficient cement to fill behind the casing from the shoe to the surface.
4. The 9-5/8" casings are cemented with sufficient cement to fill behind the casings to at least 500' above all oil, gas zones, and/or anomalous pressure intervals and to at least 100' above the base of freshwater zone, if present.
5. This well shall conform to the provisions set forth in our letter dated April 18, 1989 approving the project.
6. No program 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" and 9-5/8" casings.
 - b. Witness a test of the installed blowout prevention equipment prior to commencing completion operations.

Engineer: Steve Fields

Phone: (805) 654-4761

Elena M. Miller
State Oil and Gas Supervisor

By 
Bruce Hesson, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work is completed or the operations have been suspended. Issuance of this permit does not preclude the recipient from the obligation of being in compliance with all applicable Federal, State and Local laws, regulations and ordinances.



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

FOR DIVISION USE ONLY		
Bond	Forms	
	OGD 114	OGD 121
1000 000	111 ✓	115 ✓

NOTICE OF INTENTION TO DRILL NEW WELL

Detailed instructions can be found at: www.conservation.ca.gov/dog/

P210-106

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to drill well "Porter" 50B, well type Storage Well, API No. 037-24336

(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 _____ along section / property line and _____ feet _____

(Direction)

(Check one)

(Direction)

at right angles to said line from the _____ corner of section / property and _____

(Check one)

Lat./Long. in decimal degrees, to six decimal places, NAD 83 format: Latitude: 34.31491 North Longitude: 118.54733 West

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

1470.7 feet South and 934 feet West. Estimated true vertical depth 7457. Elevation of ground

(Direction)

(Direction)

above sea level 1947 feet. All depth measurements taken from top of Kelly Bushing that is 24.6 feet above ground.

(Derrick Floor, Rotary Table, or Kelly Bushing)

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	900'	Surface	Hydrostatic	900'
9-5/8"	47#	L-80	Surface	7300'	Surface	Hydrostatic	7300'
5"	15.5#	L-80	7200'	8640'	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: 6820', S-1: 7250', S-4: 7450' MD

(Name, depth)

Intended zone(s) of completion: Sesnon - Storage Zone- Variable Estimated total depth: 8640'

(Name, depth and expected pressure)

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

APR 30 2010

Address
9400 Oakdale Ave.

City/State
Chatsworth, CA

Zip Code
91313

Name of Person Filing Notice
Todd Van de Putte

Telephone Number:
661-305-5387

Signature

Todd Van de Putte

Date
4-30-10

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.

910' 10' 30"

4/19/10

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/

APR 30 1990

Southern California Gas Company - Aliso Canyon - Porter 50B
Drilling/Completion Program

PROGRAM REVISED: April 29, 2010

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

SURFACE LOCATION: Section 27, Township 3N, Range 16W, S.B. B&M / GPS Coordinates (NAD 83): 34.31491 North; 118.54733 West

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: 1947'

Estimated Rig KB: 24.6'

All depths refer to proposed kelly bushing 24.6' above ground.

BOTTOM HOLE COORDINATES:

Intermediate Target: 7510' MD, 7042' TVD, 650.7' Southerly, -274'
Easterly, 696' VSS.

Bottom Hole Target: 8640' MD, 7457' TVD, 1470' Southerly, -934'
Easterly, 1742' VSS.

TOP OF ZONES: Storage Zone(Sesnon): M-P: 6820'MD/6660'TVD, S-1: 7250'MD/6930'TVD, S-4: 7450'MD/7014'TVD

ESTIMATED FORMATION FRACTURE GRADIENT: 0.80 psi/ft

FIELD PRESSURE: Sesnon Storage Zone: Variable BHP – hydrostatic maximum bottom hole pressure (8.9-9.2 ppg mud planned)

PROPOSED CASING PROGRAM (See attached wellbore schematic):

0' – 900'	13-3/8"	54.5#	K-55, Buttress, Surface casing, cemented to surface.
0' – 7300'	9-5/8"	47 .0#	L-80, Hunting Seal Lock GS, Production Casing cemented to surface
7200' - 8640'	5"	15.5#	L-80, Premium Connection, Wire Wrapped Screen (0.012") gravel pack liner (perforated from 7348'-8636')

PROPOSED HOLE SIZES (+/-):

0' to 900' -- 17-12" hole
901' to 7300' -- 12-1/4" hole.
7301' to 8640' -- 8-1/2" hole.

DIRECTIONAL PROGRAM:

(See attached plan)

Drill vertical hole to 1000'MD, 1000'TVD.

Directionally Drill 12-1/4" hole from 1400' to 7300'(±) MD, 8-1/2" hole to 8640'(±) MD.

Estimated Total Measured Depth: 8640'(±) MD

MUD PROGRAM:

1. For drilling to the casing shoes at 900'MD(±) and 7300'MD(±), use fresh water/gel base mud with the following properties:
 - a. Weight: 8.8 – 9.2 ppg
 - b. Viscosity: 40 – 60 sec. A.P.I.
 - c. Fluid loss: 5 - 7 cc/ 30 min. A.P.I.
 - d. % solids: 2 - 4 %
 - e. pH: 7.5 – 8.5

2. For drilling and scraping liner interval, use a 3% KCL/polymer Drill-In mud with the following properties:
 - a. Weight: 8.6– 9.0 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 %

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Estimated static temperature at total depth, 7400' 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.
- 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.
2. Move in and rig up Ensign #587 drilling rig.
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" bit and clean out the cement with a 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 900'(+/-).
 - a. Collect surface casing hole directional surveys (approximately 100' intervals) for directional program tie-in from the surface casing shoe.
 - b. Circulate the hole clean.
6. Rig up the casing running crew and run 900' (+/-) 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 bow spring type centralizers per the recommended program.
 - c. Proper make up for the 13-3/8" Buttress Casing is to the triangle stamp on the pin end.

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.

APR 30 2010

7. Rig up a cementing head, cementing equipment, mix and pump per finalized cementing schedule:
 - a. Cement Density: 12.5 ppg lead/14.8 ppg tail w/gas migration additives
 - b. Cement Volume: 600 lineal feet lead / 300 lineal feet tail.
 - c. 50% Excess cement (adjust depending on hole conditions)
 - d. Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
 - e. Reciprocate the 13-3/8" casing during the hole conditioning and cementing operations.
 - f. Bump the plug with 1000 psig maximum surface pressure.
 8. Wait on the cement for 8 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. 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 3000 psig for 15 minutes. Test Blind Rams and the 5" Pipe Rams to 5000 psig for 15 minutes. Test all lines and connections to 5000 psig. All tests are to be charted and witnessed by a DOGGR representative. Remove the test plug.
 10. Pressure test 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 and clean out cement and float equipment from 860' to 900'. Pull out of the hole and lay down the clean out BHA.
 11. Rig up the mud loggers and mud logging equipment.
 12. Pick up and run a 12-1/4", 5 blade PDC bit and the 8" GEO Pilot rotary steerable system and associated BHA. Drill 12-1/4" directional hole from 1000'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 and lay down the 12-1/4" PDC bit and the 8" GEO Pilot rotary steerable system.
- 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 Triple Combo Log from 1000' to 7300'(+/-). Rig down and move out the wireline logging crew.
 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, Hunting Seal Lock GS connection, casing to 7300' (+/-). Production casing string to include a 12-1/4" x 9-5/8" EZREAM casing shoe, differential fill float collar, and a differential float collar two joints up from shoe. Rotating type centralizers to be used according to the recommended centralizer plan. **Note: Make up torque 10,500 ft-lb minimum, 14,200 ft-lb maximum, 12,400 ft-lb optimum, with torque turn chart for each connection. Minimum Yield Torque on the connection is 32,900 ft-lb.**
- Baker Lock the bottom 3 joints of casing.
 - During casing running operations, rig up the top drive/casing cross over as required and work/rotate the casing in the hole if required.
 - Minimum yield torque on the Hunting Seal Lock GS connection is 32,900 ft-lb. Do not allow the top drive torque setting to exceed 75% of this value or approximately 25,000 ft-lb of torque.
17. Rig up to the top drive with a cross over sub and circulate the hole clean. Stage circulate while running in the hole to maintain good mud properties. Rotate the 9-5/8" casing while conditioning the 12-1/4" hole. Do not exceed 25,000 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.
- Cement Density: 12.5 ppg lead/14.8 ppg tail w/gas migration additive
 - Cement Volume: 4300 lineal feet lead / 3000 lineal feet tail.
 - 20% Excess cement (adjust depending on hole conditions).
 - Use top and bottom wiper plugs
 - Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
 - Rotate the 9-5/8" casing during hole conditioning and cementing operations.
 - Bump the plug with 1000 psig maximum surface pressure.
 - Leave small volume of cement on top of the wiper plug.
 - Cement company to have screens cleaned and in place so no debris is pulled into mixing system
19. After the 9-5/8" production casing cement slurry has setup (approximately 12-16 hrs), use a lift kit to pick up the 13-5/8" Class IIIB 5M BOPE stack.
- Land the 9-5/8" casing in 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.
 - Cut off the 9-5/8" casing stub in preparation for the installation of the 13-5/8"x 11" 5M seal flange.
 - 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.
 - If the seal flange is not installed at this stage, a bit guide/wear bushing should be installed on the 9-5/8" casing stub for protection against drilling operation damage.
20. Set down 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.
- 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 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”, 5 blade PDC bit and the 6-3/4” LWD (Resistivity-GR)/GEO Pilot rotary steerable tools and associated BHA. Drill an 8-1/2” hole with LWD tools to 8640’MD (+/-) as per the directional plan. Circulate the hole clean and condition the 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 hole clean, **rotating the 5” drill pipe and working the pipe continuously**. Stage circulate the hole at 8400’, 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. Rig up the casing running crew and run approximately 1000’(+/-) of 5”, 0.012” WWS liner consisting of the following:
 - a. 9-5/8”x 5” hydraulic set liner hanger/packer
 - b. 5”, 15.5 lb/ft, L-80 with premium thread blank liner (1 joint)
 - c. 5”, 15.5 lb/ft, L-80 with premium thread semi-perf liner (2 joints)
 - d. 5”, 15.5 lb/ft, L-80 with premium thread, wire wrapped screen to be equipped with centralizers.
 - e. 5”, circulating shoe with a double flapper.
24. Position the 5”, WWS liner for gravel packing operations.
25. Set the 9-5/8” x 5” hydraulic set packer/packer hanger. Gravel pack with 20-40 Ottawa resin coated 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 20-40 resin coated 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" liner and pull out of the hole with the gravel packing tools. Pressure test the 5" 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" liner and place polymer breaker across the 5" 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 the 9-5/8" completion packer. Note: The production tubing may be either 2-7/8" or 3-1/2", L-80 tubing pending the final design determination.
30. Pick up 9-5/8" HES G-6 packer assembly as follows:
 - a. 9-5/8" production HES G-6 packer
 - b. 3-1/2" - 8' L-80 pup joint
 - c. 3-1/2" HES LH release on/off tool with XN profile with PXN plug in place in profile
 - d. Pressure test the 9-5/8" HES G-6 packer to 1000 psig for 10 minutes.
 - e. Release from 3-1/2" HES on/off tool and pull out of the hole laying down the drillpipe.
31. Verify the hole is full of fluid. Secure the well, rig down and move the Ensign #587 drilling rig.

COMPLETION: PHASE II (Production Rig):

32. Move in and rig up the Ensign #321 workover rig.
33. Verify there is no pressure on the well, the hole is full of fluid and nipple down the 13-5/8" Class IIIB, 5M BOPE.
34. Remove the 9-5/8" bit guide from the 9-5/8" casing stub. Measure and prepare the 9-5/8" casing stub for the seal flange/tubing head installation.
35. Install the 13-5/8" 5M x 11" 5M Double P-Seal seal flange and the 11" 5M x 11" 5M tubing head on the 13-5/8" 5M casing head. Pressure test the seals to 5000 psig. Chart and file the seal pressure tests.
36. Nipple up a 11" Class IIIB 5M BOPE (per Gas Company Procedure) on the 11" 5M tubing head.
 - a. Fit the 5M BOPE with 2-7/8" 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 ram to 5000 psig. Test the Annular Preventer to 3500 psig.
 - e. Notify the DOGGR prior to the BOPE test.

37. Pick up and run the completion tubing string:
 - a. Top half of the HES on/off tool
 - b. 1 joint of 3-1/2" EUE 8R L-80 tubing
 - c. 3-1/2" HES Durasleeve X profile - sliding sleeve (closed)
 - d. 1 joint of 3-1/2" EUE 8R L-80 tubing
 - e. 3-1/2" gas lift mandrel with dummy valve
 - f. 3-1/2" EUE 8R L-80 tubing to the surface.
38. Land the 3-1/2" production tubing string in compression as per tube move recommendation.
39. Latch on to the 3-1/2" on/off tool. Release and place packer fluid. Space out and land the tubing hanger. Run in all hold down studs and pressure test packer to 1500 psig for 15 minutes. Pressure test the production tubing to 1500 psig for 10 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 to 5000 psig. Remove the BPV.
41. Rig down and move out the Ensign #321 workover rig. Clean the location.

ENSIGN

United States Drilling (California) Inc

Ensign 587 EQUIPMENT LIST 15,000'

DRAWWORKS

- ◆ Gardner Denver 800; 1000 Hp drawworks with a Elmago 5032 Aux. Brake.

DRAWWORKS POWER

- ◆ One GE 752; 1000 Hp Traction Motor

MAST

- ◆ Pyramid 146'; 820 GNC, 590,000# Hook Load with six sheave cluster and 1 ¼" drilling line.
- ◆ Traveling Blocks; BJ 350 Ton with BJ 350 Ton Hook.
- ◆ Swivel; Oilwell PC 300, 300 ton with a 5 ¼" Hex Kelly with Varco HDS Kelly Bushings.

ROTARY TABLE

- ◆ Gardner Denver; 27 ½" Table

SUBBASE

- ◆ Pyramid; 24'6" K.B. with 18'9" Rotary Beam Clearance

MUD PUMPS

- ◆ Main Pump; Gardner Denver PZ10, 1350 Hp 6 1/2"x10" triplex powered by two GE752 Traction Motors
- ◆ Stand By Pump; Gardner Denver PZ10, 1350Hp 6 1/2"x10" triplex powered by two GE752 Traction Motor

MUD SYSTEM

- ◆ 600 bbl. Shaker Pit with three Agitators and twin shakers, Swaco Linear Motion
- ◆ 600 bbl. Main Pit with five agitators and two 5" X 6" mixing pumps powered by 50 Hp motors at 1750 RPM.

POWER PLANT

2 3516G Caterpillar 1500hp each natural gas fired

- ◆ 1 1000 KW Power by Series 16V2000 at 1500 Hp diesel back up

WATER TANK

- ◆ 500 bbl water tank

DRILL PIPE/DRILL COLLARS

- ◆ 383 Jts of 5"; 4 1/2"IF 19.50 # Grade X 95
- ◆ 90 Jts of 5" 4 1/2"IF 25.60 # Grade X 95
- ◆ (4) 6 1/2" x 2 1/4" Drill Collars with 4 ½" XH Thread

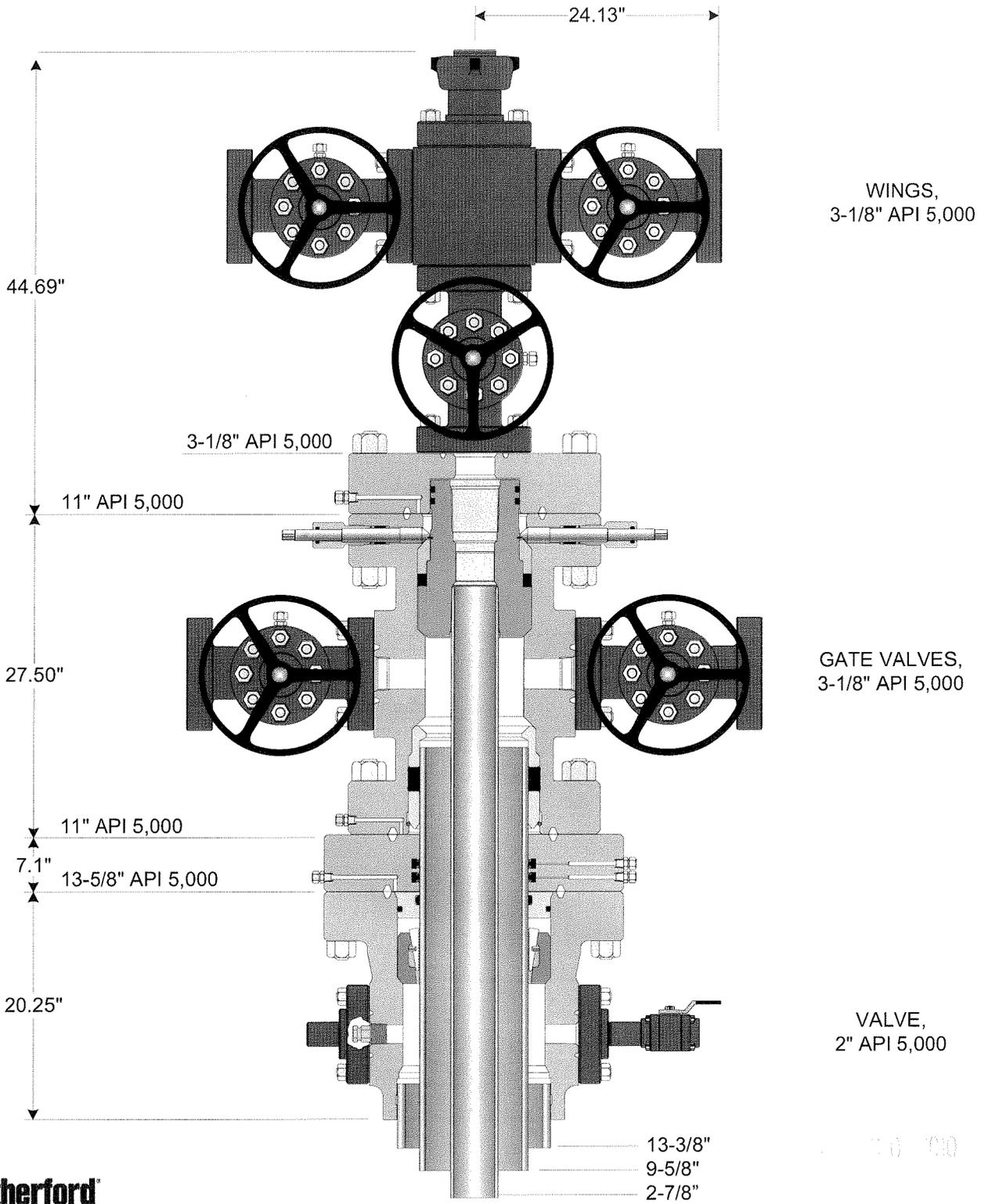
B.O.P.

- ◆ Two 11" 5,000 PSI Single Hydraulic Gates and 11" 5,000 PSI Annular



Preventor with 140 Gallon Wagner Accumulator
◆ *TOP DRIVE TESCO EXI 350 ELECTRIC*

THIS DRAWING IS NOT TO SCALE. THE DIMENSIONS REFLECTED ON THIS DRAWING ARE ESTIMATED DIMENSIONS AND ARE FOR REFERENCE ONLY.



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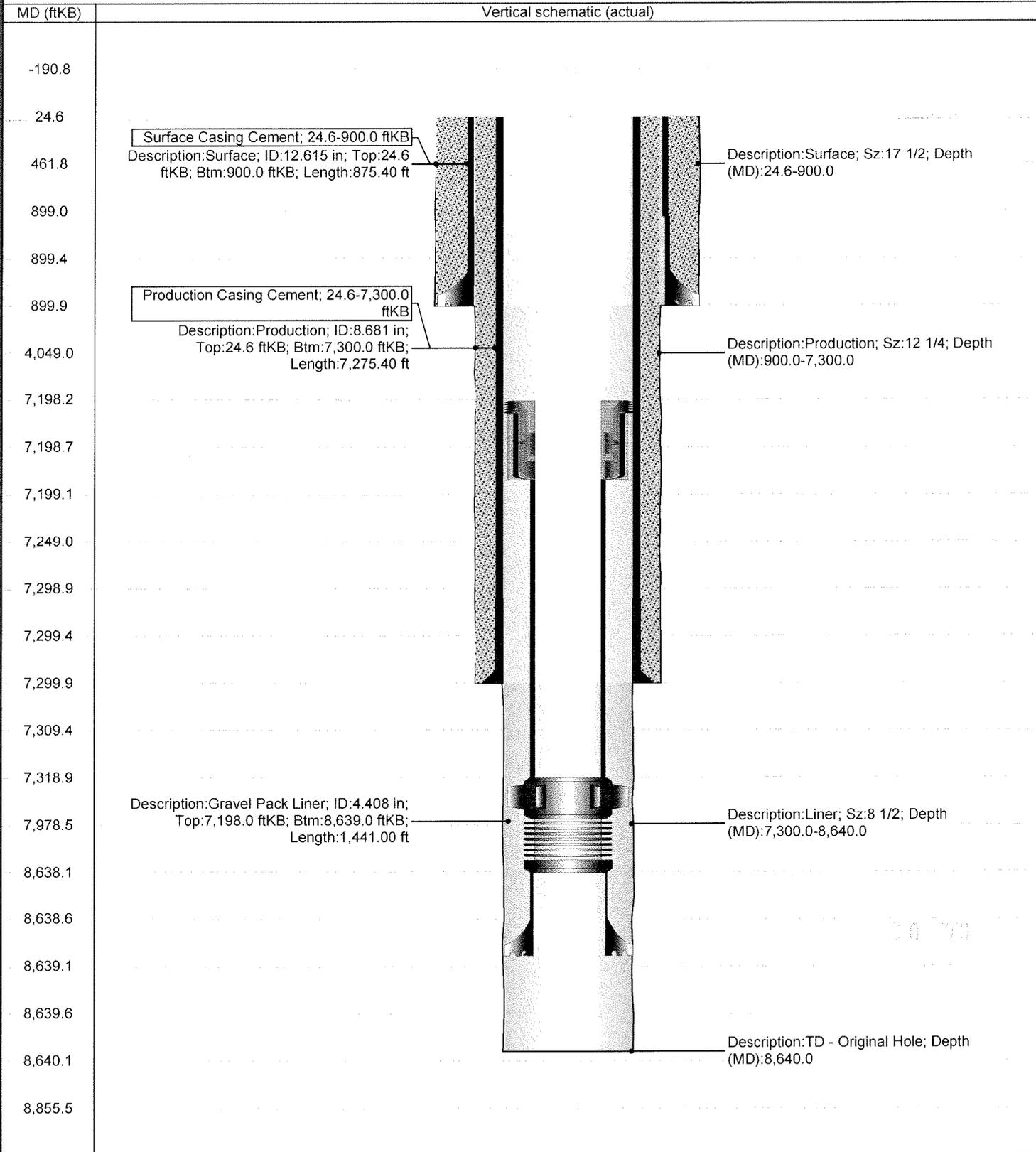
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Tender, Project or Well: ALISO CANYON – PORTER 50B	Date: 04-27-2010	Drawn By: JJ

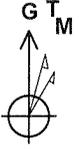
Proposed Porter 50 B

Gas Company Schematic

API	Field Name Aliso Canyon	Operator Southern California Gas Company	County Los Angeles	State California
Ground Elevation (ft)	1,947.00	KB-Ground Distance (ft)	24.60	Spud Date

Original Hole, 4/29/2010 1:53:07 PM





Azimuths to Grid North
 True North: 0.31°
 Magnetic North: 13.14°

Magnetic Field
 Strength: 47670.0nT
 Dip Angle: 59.06°
 Date: 4/27/2010
 Model: IGRF2010

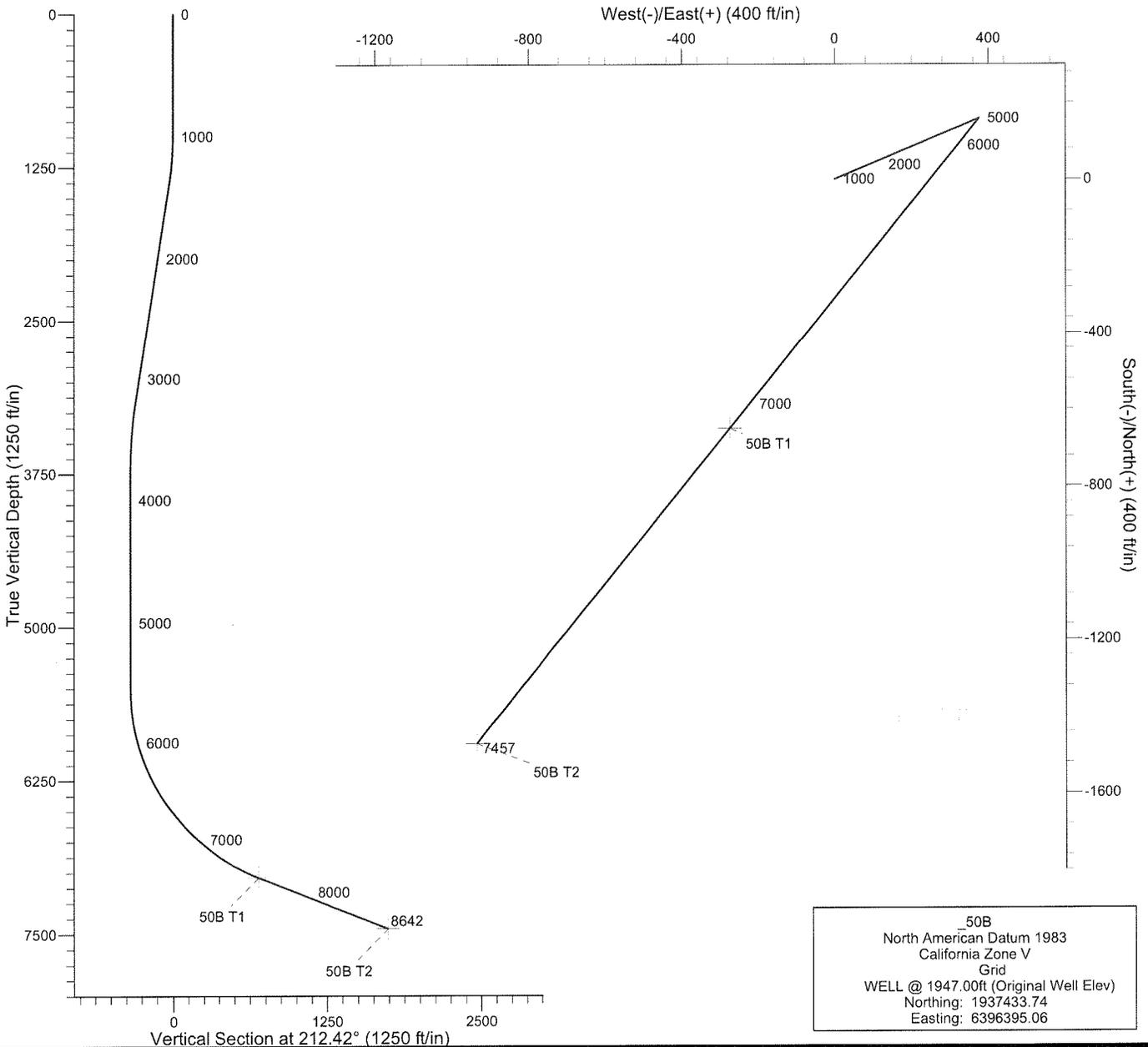
Southern California Gas

Project: Aliso Canyon
 Site: Porter
 Well: 50B
 Wellbore: Wellbore #1
 Design: Plan #3 (28-Apr-10)

HALLIBURTON
Sperry Drilling Services

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
3	1412.97	10.32	67.23	1410.74	14.36	34.21	2.50	67.23	-30.47	
4	3228.19	10.32	67.23	3196.57	140.30	334.17	0.00	0.00	-297.59	
5	3744.41	0.00	0.00	3710.00	158.26	376.94	2.00	180.00	-335.67	
6	5544.41	0.00	0.00	5510.00	158.26	376.94	0.00	0.00	-335.67	
7	5866.56	11.28	218.80	5830.07	133.63	357.14	3.50	218.80	-304.27	
8	5875.80	11.28	218.80	5839.14	132.22	356.01	0.00	0.00	-302.48	
9	7510.31	68.48	218.83	7042.00	-650.74	-274.06	3.50	0.03	696.25	50B T1
10	8641.78	68.48	218.83	7457.00	-1470.74	-934.06	0.00	0.00	1742.28	50B T2



Southern California Gas

Aliso Canyon

Porter

_50B

Wellbore #1

Plan: Plan #3 (28-Apr-10)

Job No. Plan #3 (28-Apr-10)

Sperry Drilling Services Combo Report

28 April, 2010

Well Coordinates: 1,937,433.74 N, 6,396,395.06 E (34° 18' 53.68" N, 118° 32' 50.39" W)
Ground Level: 1,935.00 ft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well _50B
WELL @ 1947.00ft (Original Well Elev)

N
Grid
API - US Survey Feet

Version: 2003.14 Build: 82

HALLIBURTON

Plan Report for _50B - Plan #3 (28-Apr-10)

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft) Easting (ft)	Map Coordinates Northing (ft) Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
0.00	0.00	0.00	1,947.00	0.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
100.00	0.00	0.00	1,847.00	100.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
200.00	0.00	0.00	1,747.00	200.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
300.00	0.00	0.00	1,647.00	300.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
400.00	0.00	0.00	1,547.00	400.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
500.00	0.00	0.00	1,447.00	500.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
600.00	0.00	0.00	1,347.00	600.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
700.00	0.00	0.00	1,247.00	700.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
800.00	0.00	0.00	1,147.00	800.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
900.00	0.00	0.00	1,047.00	900.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	
1,000.00	0.00	0.00	947.00	1,000.00	0.00 N 0.00 E	1,937,433.74 6,396,395.06	0.00	0.00	Start Build 2.50
1,100.00	2.50	67.23	847.03	1,099.97	0.84 N 2.01 E	1,937,434.59 6,396,397.07	2.50	-1.79	
1,200.00	5.00	67.23	747.25	1,199.75	3.38 N 8.04 E	1,937,437.12 6,396,403.10	2.50	-7.16	
1,300.00	7.50	67.23	647.86	1,299.14	7.59 N 18.08 E	1,937,441.33 6,396,413.14	2.50	-16.10	
1,400.00	10.00	67.23	549.03	1,397.97	13.48 N 32.10 E	1,937,447.22 6,396,427.16	2.50	-28.59	
1,412.97	10.32	67.23	536.26	1,410.74	14.36 N 34.21 E	1,937,448.11 6,396,429.27	2.50	-30.47	Start 1815.22 hold at 1412.97 MD
1,500.00	10.32	67.23	450.64	1,496.36	20.40 N 48.59 E	1,937,454.15 6,396,443.65	0.00	-43.27	
1,600.00	10.32	67.23	352.26	1,594.74	27.34 N 65.12 E	1,937,461.08 6,396,460.18	0.00	-57.99	
1,700.00	10.32	67.23	253.88	1,693.12	34.28 N 81.64 E	1,937,468.02 6,396,476.70	0.00	-72.71	
1,800.00	10.32	67.23	155.50	1,791.50	41.22 N 98.17 E	1,937,474.96 6,396,493.23	0.00	-87.42	
1,900.00	10.32	67.23	57.12	1,889.88	48.15 N 114.69 E	1,937,481.90 6,396,509.75	0.00	-102.14	
2,000.00	10.32	67.23	-41.26	1,988.26	55.09 N 131.22 E	1,937,488.83 6,396,526.28	0.00	-116.85	
2,100.00	10.32	67.23	-139.65	2,086.65	62.03 N 147.74 E	1,937,495.77 6,396,542.80	0.00	-131.57	
2,200.00	10.32	67.23	-238.03	2,185.03	68.97 N 164.27 E	1,937,502.71 6,396,559.33	0.00	-146.28	
2,300.00	10.32	67.23	-336.41	2,283.41	75.90 N 180.79 E	1,937,509.65 6,396,575.85	0.00	-161.00	
2,400.00	10.32	67.23	-434.79	2,381.79	82.84 N 197.32 E	1,937,516.59 6,396,592.38	0.00	-175.72	
2,500.00	10.32	67.23	-533.17	2,480.17	89.78 N 213.84 E	1,937,523.52 6,396,608.90	0.00	-190.43	
2,600.00	10.32	67.23	-631.55	2,578.55	96.72 N 230.37 E	1,937,530.46 6,396,625.43	0.00	-205.15	
2,700.00	10.32	67.23	-729.93	2,676.93	103.66 N 246.89 E	1,937,537.40 6,396,641.95	0.00	-219.86	
2,800.00	10.32	67.23	-828.31	2,775.31	110.59 N 263.42 E	1,937,544.34 6,396,658.47	0.00	-234.58	
2,900.00	10.32	67.23	-926.69	2,873.69	117.53 N 279.94 E	1,937,551.27 6,396,675.00	0.00	-249.29	
3,000.00	10.32	67.23	-1,025.07	2,972.07	124.47 N 296.47 E	1,937,558.21 6,396,691.52	0.00	-264.01	
3,100.00	10.32	67.23	-1,123.45	3,070.45	131.41 N 312.99 E	1,937,565.15 6,396,708.05	0.00	-278.72	
3,200.00	10.32	67.23	-1,221.83	3,168.83	138.35 N 329.51 E	1,937,572.09 6,396,724.57	0.00	-293.44	
3,228.19	10.32	67.23	-1,249.57	3,196.57	140.30 N 334.17 E	1,937,574.04 6,396,729.23	0.00	-297.59	Start Drop -2.00
3,300.00	8.89	67.23	-1,320.37	3,267.37	144.94 N 345.22 E	1,937,578.68 6,396,740.28	2.00	-307.43	
3,400.00	6.89	67.23	-1,419.42	3,366.42	150.25 N 357.88 E	1,937,584.00 6,396,752.93	2.00	-318.70	
3,500.00	4.89	67.23	-1,518.89	3,465.89	154.22 N 367.33 E	1,937,587.97 6,396,762.39	2.00	-327.12	
3,600.00	2.89	67.23	-1,618.65	3,565.65	156.85 N 373.59 E	1,937,590.59 6,396,768.64	2.00	-332.69	
3,700.00	0.89	67.23	-1,718.59	3,665.59	158.12 N 376.62 E	1,937,591.87 6,396,771.68	2.00	-335.39	

Plan Report for _50B - Plan #3 (28-Apr-10)

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
3,744.41	0.00	0.00	-1,763.00	3,710.00	158.26 N	376.94 E	1,937,592.00	6,396,772.00	2.00	-335.67	Start 1800.00 hold at 3744.41 MD
3,800.00	0.00	0.00	-1,818.59	3,765.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
3,900.00	0.00	0.00	-1,918.59	3,865.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,000.00	0.00	0.00	-2,018.59	3,965.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,100.00	0.00	0.00	-2,118.59	4,065.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,200.00	0.00	0.00	-2,218.59	4,165.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,300.00	0.00	0.00	-2,318.59	4,265.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,400.00	0.00	0.00	-2,418.59	4,365.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,500.00	0.00	0.00	-2,518.59	4,465.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,600.00	0.00	0.00	-2,618.59	4,565.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,700.00	0.00	0.00	-2,718.59	4,665.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,800.00	0.00	0.00	-2,818.59	4,765.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
4,900.00	0.00	0.00	-2,918.59	4,865.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,000.00	0.00	0.00	-3,018.59	4,965.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,100.00	0.00	0.00	-3,118.59	5,065.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,200.00	0.00	0.00	-3,218.59	5,165.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,300.00	0.00	0.00	-3,318.59	5,265.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,400.00	0.00	0.00	-3,418.59	5,365.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,500.00	0.00	0.00	-3,518.59	5,465.59	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	
5,544.41	0.00	0.00	-3,563.00	5,510.00	158.26 N	376.94 E	1,937,592.00	6,396,772.00	0.00	-335.67	Start Build 3.50 - 50B TO
5,600.00	1.95	218.80	-3,618.58	5,565.58	157.52 N	376.35 E	1,937,591.26	6,396,771.41	3.50	-334.74	
5,700.00	5.45	218.80	-3,718.36	5,665.36	152.50 N	372.31 E	1,937,586.24	6,396,767.37	3.50	-328.33	
5,800.00	8.95	218.80	-3,817.55	5,764.55	142.74 N	364.46 E	1,937,576.48	6,396,759.52	3.50	-315.89	
5,866.56	11.28	218.80	-3,883.07	5,830.07	133.63 N	357.14 E	1,937,567.38	6,396,752.20	3.50	-304.27	Start 9.24 hold at 5866.56 MD
5,875.80	11.28	218.80	-3,892.14	5,839.14	132.22 N	356.01 E	1,937,565.97	6,396,751.07	0.00	-302.48	Start DLS 3.50 TFO 0.03
5,900.00	12.12	218.80	-3,915.83	5,862.83	128.40 N	352.94 E	1,937,562.14	6,396,748.00	3.50	-297.60	
6,000.00	15.62	218.81	-4,012.90	5,959.90	109.72 N	337.91 E	1,937,543.46	6,396,732.97	3.50	-273.78	
6,100.00	19.12	218.81	-4,108.32	6,055.32	86.46 N	319.20 E	1,937,520.20	6,396,714.26	3.50	-244.11	
6,200.00	22.62	218.82	-4,201.75	6,148.75	58.70 N	296.88 E	1,937,492.44	6,396,691.93	3.50	-208.71	
6,300.00	26.12	218.82	-4,292.82	6,239.82	26.55 N	271.01 E	1,937,460.30	6,396,666.07	3.50	-167.71	
6,400.00	29.62	218.82	-4,381.21	6,328.21	9.86 S	241.71 E	1,937,423.88	6,396,636.77	3.50	-121.26	
6,500.00	33.12	218.82	-4,466.58	6,413.58	50.42 S	209.08 E	1,937,383.33	6,396,604.14	3.50	-69.53	
6,600.00	36.62	218.82	-4,548.61	6,495.61	94.95 S	173.24 E	1,937,338.79	6,396,568.30	3.50	-12.72	
6,700.00	40.12	218.82	-4,626.99	6,573.99	143.31 S	134.33 E	1,937,290.43	6,396,529.39	3.50	48.96	
6,800.00	43.62	218.83	-4,701.44	6,648.44	195.30 S	92.49 E	1,937,238.44	6,396,487.55	3.50	115.28	
6,900.00	47.12	218.83	-4,771.68	6,718.68	250.74 S	47.88 E	1,937,183.01	6,396,442.94	3.50	185.99	
7,000.00	50.62	218.83	-4,837.45	6,784.45	309.41 S	0.66 E	1,937,124.33	6,396,395.72	3.50	260.83	
7,100.00	54.12	218.83	-4,898.49	6,845.49	371.10 S	48.99 W	1,937,062.64	6,396,346.07	3.50	339.53	
7,200.00	57.62	218.83	-4,954.59	6,901.59	435.58 S	100.88 W	1,936,998.17	6,396,294.18	3.50	421.77	

HALLIBURTON

Plan Report for _50B - Plan #3 (28-Apr-10)

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates			Map Coordinates			Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Depth (ft)	Northing (ft)	Easting (ft)				
7,300.00	61.12	218.83	-5,005.53	6,952.53	502.60 S	154.82 W	1,936,931.14	6,396,240.23	3.50	507.27			
7,400.00	64.62	218.83	-5,051.12	6,998.12	571.92 S	210.62 W	1,936,861.82	6,396,184.44	3.50	595.70			
7,500.00	68.12	218.83	-5,091.19	7,038.19	643.28 S	268.05 W	1,936,790.46	6,396,127.01	3.50	686.73			
7,510.31	68.48	218.83	-5,095.00	7,042.00	650.74 S	274.06 W	1,936,783.00	6,396,121.00	3.50	696.25	Start 1131.47 hold at 7510.31 MD - 50B T1		
7,600.00	68.48	218.83	-5,127.90	7,074.90	715.74 S	326.38 W	1,936,718.00	6,396,068.68	0.00	779.17			
7,700.00	68.48	218.83	-5,164.58	7,111.58	788.22 S	384.71 W	1,936,645.53	6,396,010.35	0.00	871.62			
7,800.00	68.48	218.83	-5,201.25	7,148.25	860.69 S	443.04 W	1,936,573.05	6,395,952.02	0.00	964.07			
7,900.00	68.48	218.83	-5,237.93	7,184.93	933.16 S	501.37 W	1,936,500.58	6,395,893.69	0.00	1,056.52			
8,000.00	68.48	218.83	-5,274.61	7,221.61	1,005.63 S	559.70 W	1,936,428.11	6,395,835.36	0.00	1,148.97			
8,100.00	68.48	218.83	-5,311.29	7,258.29	1,078.11 S	618.03 W	1,936,355.64	6,395,777.03	0.00	1,241.41			
8,200.00	68.48	218.83	-5,347.96	7,294.96	1,150.58 S	676.36 W	1,936,283.17	6,395,718.69	0.00	1,333.86			
8,300.00	68.48	218.83	-5,384.64	7,331.64	1,223.05 S	734.70 W	1,936,210.69	6,395,660.36	0.00	1,426.31			
8,400.00	68.48	218.83	-5,421.32	7,368.32	1,295.52 S	793.03 W	1,936,138.22	6,395,602.03	0.00	1,518.76			
8,500.00	68.48	218.83	-5,458.00	7,405.00	1,367.99 S	851.36 W	1,936,065.75	6,395,543.70	0.00	1,611.21			
8,600.00	68.48	218.83	-5,494.68	7,441.68	1,440.47 S	909.69 W	1,935,993.28	6,395,485.37	0.00	1,703.66			
8,641.78	68.48	218.83	-5,510.00	7,457.00	1,470.74 S	934.06 W	1,935,963.00	6,395,461.00	0.00	1,742.28	TD at 8641.78 - 50B T2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.00	1,000.00	0.00	0.00	Start Build 2.50
1,412.97	1,410.74	14.36	34.21	Start 1815.22 hold at 1412.97 MD
3,228.19	3,196.57	140.30	334.17	Start Drop -2.00
3,744.41	3,710.00	158.26	376.94	Start 1800.00 hold at 3744.41 MD
5,544.41	5,510.00	158.26	376.94	Start Build 3.50
5,866.56	5,830.07	133.63	357.14	Start 9.24 hold at 5866.56 MD
5,875.80	5,839.14	132.22	356.01	Start DLS 3.50 TFO 0.03
7,510.31	7,042.00	-650.74	-274.06	Start 1131.47 hold at 7510.31 MD
8,641.78	7,457.00	-1,470.74	-934.06	TD at 8641.78

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin		Start TVD (ft)
			+N/-S (ft)	+E/-W (ft)	
TD	No Target (Freehand)	212.42	0.00	0.00	0.00
		Slot			

HALLIBURTON

Plan Report for _50B - Plan #3 (28-Apr-10)

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	8,641.78	Plan #3 (28-Apr-10)	MWD ISCWSA

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
50B T0 - plan hits target - Point	0.00	360.00	5,510.00	158.26	376.94	1,937,592.00	6,396,772.00	34.3153505	-118.5460846
50B T1 - plan hits target - Point	0.00	360.00	7,042.00	-650.74	-274.06	1,936,783.00	6,396,121.00	34.3131177	-118.5482258
50B T2 - plan hits target - Point	0.00	0.00	7,457.00	-1,470.74	-934.06	1,935,963.00	6,395,461.00	34.3108546	-118.5503966

North Reference Sheet for Porter - _50B - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to WELL @ 1947.00ft (Original Well Elev). Northing and Easting are relative to _50B

Coordinate System is US State Plane 1983, California Zone V using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -118.0000000°, Longitude Origin:0.0000000°, Latitude Origin:35.4666667°

False Easting: 6,561,666.67ft, False Northing: 1,640,416.67ft, Scale Reduction: 0.99995092

Grid Coordinates of Well: 1,937,433.74 ft N, 6,396,395.06 ft E

Geographical Coordinates of Well: 34° 18' 53.68" N, 118° 32' 50.39" W

Grid Convergence at Surface is: -0.31°

Based upon Minimum Curvature type calculations, at a Measured Depth of 8,641.78ft
the Bottom Hole Displacement is 1,742.28ft in the Direction of 212.42° (Grid).

Magnetic Convergence at surface is: -13.15° (27 April 2010, , IGRF2010)

