

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. T216-0113

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 20, 2016

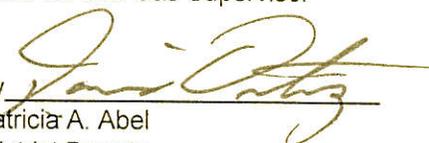
Your operations at well "**Fernando Fee**" 32H, A.P.I. No. **037-30456**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **4/4/2016**. **Ernest Blevins**, a representative of the supervisor.

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
District Deputy

EB/tkc

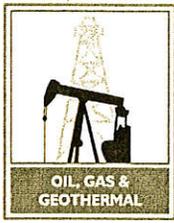
OG109

No. T 216-0113
#15, 3

MECHANICAL INTEGRITY TEST (MIT)

Operator: <u>S₀ CA Gas</u>					Well: <u>Fernando Fee 32H</u>				
Sec. <u>27</u>	T. <u>3N</u>	R. <u>16W</u>	B.&M. <u>SB</u>	API No.: <u>037-30456</u>			Field: <u>Aliso Canyon</u>		
County: <u>Los Angeles</u>					Witnessed/Reviewed on: <u>4-4-16</u>				
<u>Ernie Blevins</u> , representative of the supervisor, was present from <u>0900</u> to <u>1130</u> .									
Also present were: <u>Clayton w/ Welaco</u>									
Casing record of the well: <u>13 3/8" K-55 0 - 1,126'</u> <u>9 5/8" L-80 0 - 7566'</u> <u>7" L-80 6184' - 7963'</u>									
The MIT was performed for the purpose of demonstrating that all the injection fluid is confined to the approved zone. <u>Temperature Survey</u>									
<input type="checkbox"/> The MIT is approved since it indicates that all of the injection fluid is confined to the formations below _____ feet at this time.									
<input type="checkbox"/> The MIT is not approved due to the following reasons: (specify)									

Well: <u>Fernando Fee 32H</u>		Date: <u>4-4-16</u>		: <u>0920</u>	
Observed rate:	B/D	Meter rate:	B/D	Fluid level:	feet
				<u>Gas</u>	
Injection pressure:	psi	MASP:		Pick-up depth:	feet
<u>1160</u>					
Initial annulus pressure:	psi	Pressure after bleed-off:			psi
<u>1160</u>		<u>0</u>			
Casing vented during test (Y/N) <u>(N)</u>		Survey company: <u>Well Analysis Corp.</u>			
<u>SPINNER COUNTS</u>					
DEPTH	COUNTS	RATE	DEPTH	COUNTS	RATE
_____			_____		
COMMENTS: <u>Spinner Not Used</u>					
<u>TRACER CASING AND TUBING RATE CHECKS</u>					
Interval	Time (sec.)	Rate (B/D)	Background log: _____ to _____		
			COMMENTS:		
<u>TOP PERFORATION CHECK</u>					
Top perforation depth:		Wait at:		for	seconds
					Beads: <u>(Y/N)</u>
Casing shoe at:	WSO holes at:		Arrival time: <u>Calculated</u>		<u>Actual</u>
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @
COMMENTS:					
<u>PACKER CHECK</u>					
Packer at: <u>No Packer</u>		Wait at:		for	seconds
					Beads: <u>(Y/N)</u>
Tubing tail at: <u>No Tubing</u>		Tubing size: _____		2nd Packer at:	Mandrel:
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @
COMMENTS:					
COMMENTS: <u>5300-6600 = Temperature change noticed</u>					



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

No. T216-0112

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 20, 2016

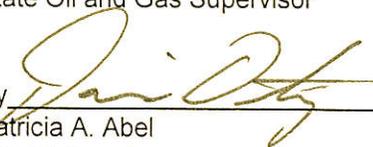
Your operations at well "**Fernando Fee**" 32H, A.P.I. No. **037-30456**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **4/4/2016**. **Ernest Blevins**, a representative of the supervisor.

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
District Deputy

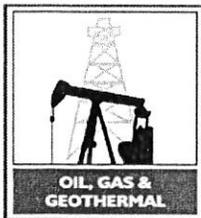
EB/tkc
OG109

No. T 216-0112
 #15,3

MECHANICAL INTEGRITY TEST (MIT)

Operator: <u>So CA Gas</u>					Well: <u>Fernando Fee 32 H</u>				
Sec. <u>27</u>	T. <u>3N</u>	R. <u>16W</u>	B.&M. <u>SB</u>	API No.: <u>037-30456</u>		Field: <u>Aliso Canyon</u>			
County: <u>Los Angeles</u>					Witnessed/Reviewed on: <u>4-4-16</u>				
<u>Ernie Blevins</u> , representative of the supervisor, was present from <u>1130</u> to <u>1300</u> . Also present were: <u>Clayton w/ Welaco</u>									
Casing record of the well: <u>13 3/8" K-55 0-1,126'</u> <u>9 5/8" L-80 0-7,566'</u> <u>7" L-80 6184'-7963</u>									
The MIT was performed for the purpose of demonstrating that all the injection fluid is confined to the approved zone. <p style="text-align: center;"><u>Noise Log Survey</u></p>									
<input type="checkbox"/> The MIT is approved since it indicates that all of the injection fluid is confined to the formations below _____ feet at this time. <u>SEE Report</u>									
<input type="checkbox"/> The MIT is not approved due to the following reasons: (specify)									

Well: <i>Fernando Fee 32H</i>		Date: <i>4-4-16</i>		Time: <i>0920</i>	
Observed rate:	B/D	Meter rate:	B/D	Fluid level: <i>Gas</i>	feet
Injection pressure: <i>1160</i>	psi	MASP:		Pick-up depth:	feet
Initial annulus pressure: <i>1160</i>			psi	Pressure after bleed-off: <i>∅</i>	
Casing vented during test (Y/N) <i>(Y)</i>		Survey company: <i>Well Analysis Corp.</i>			
<u>SPINNER COUNTS</u>		<u>SPINNER COUNTS</u>		COMMENTS: <i>Spinner Not Used</i>	
DEPTH	COUNTS	RATE	DEPTH		
<u>TRACER CASING AND TUBING RATE CHECKS</u>					
Interval	Time (sec.)	Rate (B/D)	Background log: _____ to _____		
COMMENTS:					
<u>TOP PERFORATION CHECK</u>					
Top perforation depth:		Wait at: _____ for _____		seconds	Beads: (Y/N) <i>(Y)</i>
Casing shoe at:	WSO holes at:		Arrival time: <i>Calculated</i>		<i>Actual</i>
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @
COMMENTS:					
<u>PACKER CHECK</u>					
Packer at: <i>No Packer</i>		Wait at: _____ for _____		seconds	Beads: (Y/N) <i>(Y)</i>
Tubing tail at: <i>No Tubing</i>		Tubing size: _____	2nd Packer at:		Mandrel:
LOG FROM	TO	SLUG @	LOG FROM	TO	SLUG @
COMMENTS:					
COMMENTS: <i>5300-6600 = Temperature change noticed</i>					



DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES

1000 S. Hill Rd, Suite 116, Ventura, CA 93003-4458 Phone:(805) 654-4761

NOTICE OF RECORDS DUE

Ventura, California
3/9/2016

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

In accordance with Division 3 of the California Public Resources Code, the following records are due
(covering the drilling notice dated 5/18/2015) for your well "Fernando Fee" 32H (037-30456).
Aliso Canyon Field, Los Angeles County, Sec. 27, T. 03N, R. 16W, SB B.&M.

Records, in duplicate are due within 60 days after completion of any well work or tests. Failure to provide such records may result in enforcement action, including issuance of violations, civil penalties and orders of the supervisor, pursuant to PRC 3236.5.

- Well Summary (Form OG 100)
History (Form OG 103, OGG 103)
Core of sidewall sample (Form OG 101, OGG 101)
Directional survey
Other
All Logs
Dipmeter (computed)
Oil and/or gas analysis
Water analysis
Pressure measurements (flowing or static)
Velocity Survey
Temperature Survey
Spinner survey
Standard Annular Pressure Test
RA Tracer survey (fluid migration test)

REPORTS FOR THE MONTH OF 3/9/2016 : Production, oil and gas disposition, and injection reports are due on or before the 30th day of each month for the preceding calendar month. Division forms must be signed in the spaces provided.

OIL AND GAS OPERATION

GEOTHERMAL OPERATION

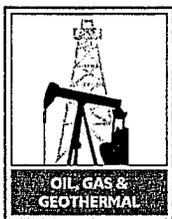
- Production and disposition reports (Form OG 110 or computer report)
Injection reports (Form OG 110B or computer report)
Production reports (Form OGG 110)
Injection reports (Form OGG 110B)

Name: Kris Gustafson

Title: Energy & Mineral Resources Engineer

Signature:

[Handwritten signature]



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. T215-0389

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

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

Ventura, California
October 22, 2015

Your operations at well "**Fernando Fee**" 32H, A.P.I. No. **037-30456**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **10/8/2015**. **Mark Davis**, a representative of the supervisor.

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

DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By 
Bruce Hesson
District Deputy

MD/tkc
OG109

BLOWOUT PREVENTION EQUIPMENT MEMO 12, 1

Operator SO. CAL GAS CO. Well "FERNANDO FEE" 32-H Sec. 27 T. 3M R. 16h
 Field ALISO CANYON County LOS ANGELES Spud Date _____

VISITS: 10-8-15 M. DRUS (10:45 to 11:15) MIKE VOLKMAN
 1st _____ (_____ to _____) _____
 2nd _____ (_____ to _____) _____
 Contractor ENSIGN Rig # 321 Contractor's Rep. & Title _____

Casing record of well: _____

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

Proposed Well Opns: COMPLETION . MACP: _____ psi **REQUIRED BOPE CLASS:** III SM
 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.
<u>A</u>	<u>—</u>	<u>HYDROL</u>		<u>11"</u>	<u>SM</u>								
<u>RA</u>	<u>3 1/2</u>	<u>FX-10M</u>		<u>11"</u>	<u>SM</u>								
<u>RD</u>	<u>COO</u>	<u>" "</u>		<u>11"</u>	<u>SM</u>								

ACTUATING SYSTEM				TOTAL:		AUXILIARY EQUIPMENT											
Accumulator Unit(s) Working Pressure <u>3000</u> psi										Connections							
Total Rated Pump Output _____ gpm				Fluid Level _____						Weld		Flange		Thread		Test Press.	
Distance from Well Bore <u>50</u> ft.																	
Accum. Manufacturer		Capacity		Precharge		Fill-up Line											
1 <u>KOONS</u>		gal.		<u>1500</u> psi		<input checked="" type="checkbox"/> Kill Line				<u>2"</u>		<u>SM</u>					
2		gal.		psi		<input checked="" type="checkbox"/> Control Valve(s)		<u>3</u>				<u>SM</u>					
<input checked="" type="checkbox"/> Manifold at accumulator unit				Elec.		Hyd.		Pneu.									
<input type="checkbox"/> Remote at Driller's station																	
Other:						<input checked="" type="checkbox"/> Choke Line		<u>9</u>		<u>2"</u>		<u>SM</u>					
<input checked="" type="checkbox"/> EMERG. BACKUP SYSTEM				Press.		Wkg. Fluid											
<input checked="" type="checkbox"/> N ₂ Cylinders		1 L= "		<u>2400</u> gal.		<input checked="" type="checkbox"/> Pressure Gauge											
Other:		2 L= "		<u>2350</u> gal.		<input checked="" type="checkbox"/> Adjstble Choke(s)		<u>2</u>		<u>2"</u>		<u>SM</u>					
		3 L= "		<u>2500</u> gal.		Bleed Line											
		4 L= "		<u>2550</u> gal.		Upper Kelly Cock											
		5 L= "		gal.		Lower Kelly Cock											
		6 L= "		gal.		Standpipe Valve											
		TOTAL:		gal.		<input checked="" type="checkbox"/> Pipe Safety Valve		<u>3 1/2</u>		<u>SM</u>							
						<input checked="" type="checkbox"/> Internal Preventer											

HOLE FLUID MONITORING EQUIPMENT			Alarm Type		Class		Hole Fluid Type		Weight		Storage Pits (Type & Size)	
	Audible	Visual										
Calibrated Mud Pit					A		<u>WATER KCL</u>	<u>10⁴</u>	<u>500</u>	<u>BOLS</u>		
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
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. T215-0299

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

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

Ventura, California
August 11, 2015

Your operations at well "**Fernando Fee**" 32H, A.P.I. No. **037-30456**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **7/30/2015**. **Ernest Blevins**, a representative of the supervisor.

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

DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By 
Bruce Hesson
District Deputy

EB/tkc
OG109

API No. 037-30456

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

T 215-0299

BLOWOUT PREVENTION EQUIPMENT MEMO

11, 2

Operator So CA Gas Co. Well "Fernando Fee" 32H Sec. 27 T. 3N R. 16W
 Field Aliso Cyn County Los Angeles Spud Date 6-30-15
 VISITS: Date 7-30-15 Engineer Ernie Blevins (1015 to 1330) Operator's Rep. _____ Title _____
 1st _____ to _____
 2nd _____ to _____
 Contractor Ensign Rig # 587 Contractor's Rep. & Title DSM - Kevin Katolas
 Casing record of well: _____

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

Proposed Well Opns: Drill . MACP: _____ psi
 Hole size: _____ " fr. _____ " to _____ " to _____ " & _____ " to _____ " REQUIRED BOPE CLASS: III B 5M

CASING RECORD OF BOPE ANCHOR STRING					Cement Details		Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at	Lead -	Tail -	Casing	Annulus
<u>9 5/8</u>	<u>47 #</u>	<u>L-80</u>	<u>7505'</u>		<u>3574 cu ft (636 bbl)</u>	<u>1727 cu ft (307 bbl)</u>		
					<u>Ø cement return [Top Job = 34 bbl = 19 cu ft]</u>			

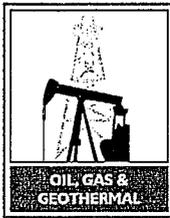
BOP STACK						TEST DATA							
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
<u>AP</u>		<u>Hydril</u>			<u>5M</u>							<u>7-30-15</u>	<u>3500</u>
<u>Rd</u>	<u>5"</u>	<u>Shaffer</u>			<u>5M</u>								
<u>Rd</u>	<u>CSO</u>	<u>Shaffer</u>			<u>5M</u>								
		<u>Shell Stack test</u>											<u>5000</u>
	<u>9 5/8</u>	<u>CASING TEST</u>											<u>1200</u>

ACTUATING SYSTEM				TOTAL:	AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>3000</u> psi				<u>I-BOP / TOP Drive</u>	No.	Size (in.)	Rated Press.	Connections			Test Press.
Total Rated Pump Output _____ gpm Fluid Level _____								Weld	Flange	Thread	
Distance from Well Bore <u>~75</u> ft.											
Accum. Manufacturer	Capacity	Precharge	Fill-up Line								
<u>1</u>	<u>Wagner</u>	<u>220 gal.</u>	<u>1750 psi</u>	<u>✓ Kill Line</u>		<u>4"</u>	<u>5K</u>			<u>5K</u>	
<u>2</u>	<u>120-135-3BN</u>	<u>gal.</u>	<u>psi</u>	<u>✓ Control Valve(s)</u>	<u>4</u>						
CONTROL STATIONS				<u>✓ Check Valve(s)</u>	<u>12</u>		<u>5K</u>				
<u>✓</u> Manifold at accumulator unit				<u>✓ Aux. Pump Connect.</u>							
<u>✓</u> Remote at Driller's station				<u>✓ Choke Line</u>		<u>3"</u>	<u>5K</u>				
Other: _____				<u>✓ Control Valve(s)</u>							

EMERG. BACKUP SYSTEM				Press.	Wkg. Fluid						
<u>✓</u> N ₂ Cylinders	1	L=	"	<u>2600</u>	gal.	<u>✓</u> Pressure Gauge					
Other: <u>6 tanks</u>	2	L=	"	<u>2650</u>	gal.	<u>✓</u> Adjustable Choke(s)					<u>5K</u>
	3	L=	"	<u>2500</u>	gal.	<u>✓</u> Bleed Line					
	4	L=	"	<u>2600</u>	gal.	<u>✓</u> Upper Kelly Cock					<u>5K</u>
	5	L=	"	<u>2600</u>	gal.	<u>✓</u> Lower Kelly Cock					<u>1</u>
	6	L=	"	<u>2650</u>	gal.	<u>✓</u> Standpipe Valve					<u>1</u>
TOTAL:					ga	<u>✓</u> Standpipe Press. Gau.					
						<u>✓</u> Pipe Safety Valve					
						<u>✓</u> Internal Preventer					

HOLE FLUID MONITORING			Alarm Type		Class	Hole Fluid Type	Weight	Storage Pits (Type & Size)
✓	Audible	Visual						
<u>✓</u> Calibrated Mud Pit	<u>✓</u>	<u>✓</u>			<u>A</u>	<u>Poly Tek Mud</u>	<u>7.2</u>	<u>744</u>
<u>✓</u> Pit Level Indicator	<u>✓</u>	<u>✓</u>						
<u>✓</u> Pump Stroke Counter	<u>✓</u>	<u>✓</u>			<u>B</u>			
<u>✓</u> Pit Level Recorder	<u>✓</u>	<u>✓</u>						
<u>✓</u> Flow Sensor	<u>✓</u>	<u>✓</u>			<u>C</u>			
<u>✓</u> Mud Totalizer	<u>✓</u>	<u>✓</u>						
<u>✓</u> Calibrated Trip Tank	<u>✓</u>	<u>✓</u>						
Other: _____								

REMARKS AND DEFICIENCIES:
AL - tool Pusher
United Well Control - BOP Testers



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. T215-0272

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

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

Ventura, California
July 16, 2015

Your operations at well **"Fernando Fee" 32H**, A.P.I. No. **037-30456**, Sec. **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, in **Los Angeles** County, were witnessed on **7/8/2015**. **Ernest Blevins**, a representative of the supervisor.

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

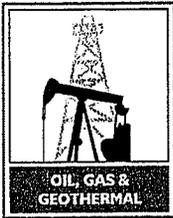
DECISION:

APPROVED

Steven Bohlen
State Oil and Gas Supervisor

By 
Bruce Hesson
District Deputy

EB/tkc
OG109



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 215-0118

PERMIT TO CONDUCT WELL OPERATIONS

<u>Old</u>	<u>New</u>
--	010
FIELD CODE	
--	00
AREA CODE	
<u>New</u>	
<u>Drill</u>	030
POOL CODE	

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

Ventura, California
 May 25, 2015

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

Your proposal to **Drill** well "**Fernando Fee**" 32H, A.P.I. No. **037-30456**, Section **27**, T. **03N**, R. **16W**, **SB B. & M.**, **Aliso Canyon** field, Any area, **Sesnon-Frew** pool, **Los Angeles** County, dated **5/18/2015**, received **5/21/2015** has been examined in conjunction with records filed in this office. (Lat: **34.313493** Long: **-118.539779** Datum:83)

THE PROPOSAL IS APPROVED PROVIDED:

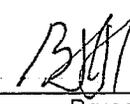
1. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
 - a. A **6" diverter system** on the **20"** casing with a **50'** minimum blowdown line.
 - b. Class **IIIB 5M** on the **13 3/8"** casing.
 - c. Class **IIIB 5M** on the **9 5/8"** casing.
 - d. Class **III 5M** on the **9 5/8"** casing for completion operations.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. Blowout prevention practice drills are conducted at least weekly and recorded on the tour sheet. A practice drill may be required at the time of the test/inspection.
4. The **13 3/8"** and **9 5/8"** casings are cemented with sufficient cement to fill behind the casings from the casing shoes to the surface.
5. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
6. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Inspect the diverter system prior to commencing **drilling** operations.
 - b. Witness a test of the installed blowout prevention equipment prior to drilling out the shoe of the **13 3/8"** casing.
 - c. Witness a test of the installed blowout prevention equipment prior to drilling out the shoe of the **9 5/8"** casing.
 - d. Inspect the installed blowout prevention equipment prior to commencing **completion** operations.
 - e. Witness a pressure test of the **9 5/8"** casing prior to commencing injection.
 - f. Witness a mechanical integrity test within three months after injection has commenced.

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

Steven Bohlen

 State Oil and Gas Supervisor

Engineer Kris Gustafson
 Office (805) 654-4761

By 

 Bruce Hesson, District Deputy

KG/kg

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

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Well #: "Fernando Fee" 32H

API #: 037-30456

Permit: P 215-0118

Date: May 25, 2015

NOTE:

1. The base of the freshwater zone should be encountered above 800'.
2. 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 well resuming operations.



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

Rec'd 05-21-15 DOGGR D2 Ventura
FOR DIVISION USE ONLY

Bond	Forms	
	OGD 21	OGD 21
	CAL WIMS	115V

WS ✓

010/00/30 GS
UIC Proj: 0100006

NOTICE OF INTENTION TO DRILL NEW WELL P215-0118
Detailed instructions can be found at: www.conservation.ca.gov/dog/

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to drill well "Fernando Fee" 32H, well type Gas Storage Well, API No. 037-30456 (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)

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: 34.313493 ✓ Longitude: -118.539779 ✓

If well is to be directionally drilled, show proposed coordinates (from surface location) and true vertical depth at total depth: 463.6 feet South and 1813.4 feet West. Estimated true vertical depth 7299'. Elevation of ground above sea level 1999 feet. All depth measurements taken from top of Kelly Bushing that is 22.5 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 KB 2,021.5'

SIZE OF CASING (Inches API)	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	FORMATION PRESSURE (Estimated Maximum)	CALCULATED FILL BEHIND CASING (Linear Feet)
13-3/8"	54.5#	K-55	Surface	1100'	Surface	Hydrostatic	1100'
9-5/8"	47#	L-80	Surface	7550'	Surface	Hydrostatic	7550'
7"	23#	L-80	7450'	7972'	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: 7045', S-1: 7518', S-2: 7586', S-14: 7972' (Name, depth)

Intended zone(s) of completion: Sesnon - Storage Zone- Variable Estimated total depth: 7972' (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 S4700		
Address 12801 Tampa Ave.	City/State Northridge, CA	Zip Code 91326-1045
Name of Person Filing Notice Todd Van de Putte	Telephone Number: 661-305-5387	Signature <i>Todd Van de Putte</i> Date 5-18-15
Individual to contact for technical questions: Todd Van de Putte	Telephone Number: 661-305-5387	E-Mail Address: tvandeputte@semprautilities.com

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

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

If an environmental document has been prepared by the lead agency, submit a copy of the *Notice of Determination* or *Notice of Exemption* with this notice.

CRITICAL WELL DEFINITION

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

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

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

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

DATE: May 15, 2015

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

SURFACE LOCATION:

27 Section, Township 3N, Range 16W, S.B. B&M / GPS Coordinates (NAD 83): 34.313493 North; 118.539779 West

API NUMBER: TBD

DRILLING RIG:

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

ELEVATIONS:

Ground Elevation: 1999'
Estimated Rig KB: 22.5'
All depths refer to proposed kelly bushing 22.5' above ground.

BOTTOM HOLE COORDINATES (See attached Directional Plan):

Intermediate Target: 7517' MD, 6996' TVD, 48.2 deg Inc, 248.5' South, 1551.4' West, 1564.6' VSS.
Bottom Hole Target: 7972' MD, 7299' TVD, 48.2 deg Inc, 463.5' South, 1813.4' West, 1871.7' VSS.

TOP OF ZONES (Estimated, Measured Depth):

MP: 7045'; S-1: 7518'; S-2: 7586'; S-4: 7670'; S-6: 7712'; S-8: 7788'; S-10: 7843'; S-12: 7919'; S-14: 7972'.

FORMATION FRACTURE GRADIENT (Estimated): 0.80 psi/ft

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

PROPOSED CASING PROGRAM (See attached wellbore schematic):

0' – 1100'	13-3/8"	54.5#	K-55, Buttress, Surface casing, cemented to surface.
0' – 7550'	9-5/8"	47.0#	L-80, Hunting Seal Lock GS, Production Casing cemented to surface
7450' - 7970'	7"	23#	L-80, Expandable Screen Liner w/120 Micron Screen.

PROPOSED HOLE SIZES (+/-):

0' to 1100' -- 17-12" hole
1101' to 7550' -- 14" hole.
7551' to 7970' -- 8-1/2" hole.

DIRECTIONAL PROGRAM:

(See attached plan)

Drill vertical hole to 1100' MD / 1100' TVD.

Directionally Drill 14" hole from 1101' to 7550'(+/-) MD, 8-1/2" hole to 7970'(+/-) MD.

Estimated Total Measured Depth: 7970'(+/-) MD

MUD PROGRAM:

1. For drilling to the casing shoes at 1100'MD (+/-) and 7550'MD (+/-), use the GEO Drilling Fluids Polytek+ w/3%-6% Potash mud with the following properties:

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

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

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

Estimated static temperature at total depth, 7299' TVD, is 185°F

NOTES:

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

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 80' to the surface. Prepare and level the well location. Install a barrier around the cellar/conductor to prevent access to the cellar. Secure/cover the conductor hole with steel plating or similar prior to the arrival of the drilling rig. Install the mousehole/rathole with sleeves per the Ensign Rig #587 footprint.
2. Move in and rig up Ensign #587 drilling rig. Rig up the natural gas fuel supply lines and the meter skid.
3. Install a 20" riser spool with a 20" 2M flange, and a diverter system; including a 20" cross w/minimum 6" outlets, 6" diverter lines (minimum) a 20", 2M annular preventer and a pitcher nipple. Orient the diverter vent lines away from the rig, operating facilities and down wind from the rig/operating facilities.
 - a. Notify the DOGGR to witness the function test of the 20" annular preventer.
4. Run in the hole with a 17-1/2" button bit (Type 437 bit or equivalent), an 8" mud motor/MWD, a bumper sub on the 5", 19.5#, X-95 drill pipe and clean out the cement with the 17-1/2" bit to the bottom of the conductor. Circulate and condition the mud.
5. Drill the 17-1/2" surface casing hole to 1100' (+/-).
 - a. Collect surface casing hole directional surveys via a gyro survey or via the MWD after the surface casing is cemented in place.
 - b. Note this hole section will likely encounter the grey Topanga formation which will greatly reduce ROP in this hole section.
 - c. Circulate the hole clean.
 - d. Verify the mud/flow line circulating temperature prior to the cementing operations and provide the circulation temperature to the cementing contractor.
6. Rig up the casing running crew and run 1100' (+/-) 13-3/8", 54.5#, K-55 surface casing with Buttress thread. Run the surface casing with a 13-3/8" guide shoe and a float collar located 40' above the casing shoe.
 - a. Baker Lock the bottom three casing joints, during the casing running operations.
 - b. Run the 13-3/8" x 17-1/2" hole bow spring type centralizers per the recommended program based on the drilled hole conditions.

- c. Proper make up for the 13-3/8" Buttress Casing is to the triangle stamp on the pin end.
- d. Use/apply the Weatherford thread compound to each connection during the casing make up process.

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

7. Rig up a cementing head, cementing equipment, mix and pump per finalized cementing schedule:
 - a. Cement Density: Type III, 13.5 ppg lead/14.8 ppg tail
 - b. Cement Volume: 700 lineal feet lead / 400 lineal feet tail.
 - c. 50% Excess cement add to the lead slurry (adjust depending on hole conditions)
 - d. Adjust the cement slurry pump time based on the current hole conditions.
 - e. Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
 - f. Reciprocate the 13-3/8" casing during the hole conditioning and the cementing operations.
 - g. Bump the plug with 1000 psig maximum surface pressure.
8. Wait on the cement a minimum of 12 hours and remove the diverter system. Cut off the 20" conductor pipe to the cellar floor level. Cut and prepare the 13-3/8" surface casing stub. Weld on the 13-5/8", 5M SOW casing head to the surface casing stub as per the Gas Company weld procedure. Level the casing head flange and land the flange face at the ground level elevation. Orient the casing head flange bolt holes per the surface facility engineer. X-ray the casing head weld and pressure test the casing head to 3500 psig.
9. Install a 13-5/8" riser spool and a 13-5/8" Class IIIB 5M BOPE. All connections and valves must be flanged and at least 5000 psig rated. Install a test plug in the 13-5/8" 5M casing head.
 - a. Pressure test the 13-5/8" 5M annular preventer to 3600 psig (high) / 300 psig (low) for 20 minutes. Test Blind Rams and the 5" Pipe Rams to 5000 psig (high) / 300 psig (low) for 20 minutes. Test all the lines and the connections to 5000 psig (high) / 300 psig (low) for 20 minutes each. All tests are to be charted and witnessed by a DOGGR representative. Remove the test plug.
10. Pressure test the 13-3/8", 54.5#, K-55 surface casing to 1000 psig surface pressure. Run a 12-1/4" cleanout bit, and 8" drill collars on the 5" drill pipe and clean out the cement and the float equipment from 1060' to 1100'. Make approximately 10'-50' of rathole below the 13-3/8" surface casing shoe or to depth as recommended by the directional drilling company. Pull out of the hole and lay down the clean out BHA.
11. Rig up the mud loggers and the mud logging equipment. Record and collect samples as per the geologist recommendation.
12. Pick up and run a 12-1/4" Kymera bit, and the 9-1/2" Autotrak rotary steerable system, 14" Rhino Reamer and associated BHA on the 5" drill pipe. Drill 14" directional hole from 1100'MD (+/-) to 7500'MD (+/-) per the attached directional program. Verify the final production casing shoe depth.
13. Condition the mud for the open hole logging runs. Note the salinity and other mud properties from the daily mud report. Pull out of the hole and lay down the 12-1/4" Kymera bit, the 9-1/2" Autotrak rotary steerable system and the 14" Rhino Reamer.

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

14. Move in and rig up the wireline logging crew and run a Platform Express Log from 1100' to 7550' (+/-). 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 a 14" Rhino reamer 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 7550' (+/-). Production casing string to include a 9-5/8" casing differential fill float shoe, and a differential float collar two joints up from shoe.
 - a. The 9-5/8" x 14" centralizers will be run spaced and run according to the hole conditions and as per recommended centralizer plan.
 - b. Baker Lock the bottom 3 joints of casing.
 - c. During casing running operations, rig up the top drive / Hunting Seal Lock GS casing cross over as required and work/rotate the casing in the hole, if required.
 - d. Make up the Hunting Seal Lock GS connection per the recommended thread compound application and optimum make up torque requirements. The minimum yield torque on the Hunting Seal Lock GS connection is 32,900 ft-lb.
17. Rig up to the top drive with a cross over sub and circulate the hole clean. Stage circulate the well while running in the hole to maintain good mud properties. Attempt to reciprocate the 9-5/8" casing while conditioning the 14" hole.
18. Rig up a cementing head, cementing equipment, mix and pump per finalized cementing schedule. Cement the 9-5/8", 47#/ft, L-80 production casing.
 - a. Cement Density: Class "G", 13.5 ppg lead/14.8 ppg tail w/gas migration additive
 - b. Cement Volume: 4550 lineal feet lead / 3000 lineal feet tail.
 - c. 20% Excess cement in the lead slurry (adjust depending on hole conditions).
 - d. The cement lead slurry may require an LCM additive as the previous well on the location had weeping losses during the drilling of the production casing hole section.
 - e. Adjust the pump time of the cement slurry based on the current hole conditions.
 - f. Use top and bottom wiper plugs.
 - g. Condition the hole and pump the recommended fresh water, mud preflush followed by cement slurry, mud displacement and water.
 - h. Reciprocate the 9-5/8" casing during hole conditioning and casing cementing operations.
 - i. Bump the plug with 1000 psig maximum surface pressure.
 - j. Leave a small volume of cement on top of the wiper plug.
19. After the 9-5/8" production casing cement slurry has setup (approximately 16-18 hrs), use a lift kit to pick up the 13-5/8" Class IIIB 5M BOPE stack.
 - a. Land the 9-5/8" casing in a minimum of 100,000 lb tension in the 13-5/8" casing head with the 13-5/8" x 9-5/8" non automatic slips and independent pack off assembly.

- b. Cut off the 9-5/8" casing stub in preparation for the installation of the 13-5/8" x 13-5/8" 5M seal flange.
 - i. Verify 9-5/8" casing stub height to ensure the 9-5/8" casing stub will pack off in the lower tubing head seal assembly.
 - ii. Install the 13-5/8" x 13-5/8" 5M seal flange.
 - iii. Install the 13-5/8" x 11" 5M tubing head.
 - iv. NOTE: If the rig sub base beams allow, orient the tubing head to align with the other wellheads on the location and with the existing production header.
 - v. Energize all seals and pressure test to 5000 psig.
20. Install an 11" x 13-5/8" 5M DSA and reinstall the 13-5/8" Class IIIB 5M BOPE stack and nipple up the same.
21. A repeat BOPE pressure test or function test may be required by DOGGR, if so, use procedures outlines in Step #9 in the program.
 - a. Pressure test the 9-5/8" production casing to 1000 psig surface pressure.
22. Run in the hole with an 8-1/2" cleanout bit with jets removed and 9-5/8" casing scraper 30' above bit on one stand of heavy weight drill pipe.
 - a. Clean out the cement 10 ft past the 9-5/8" production casing shoe. **Do not let scraper go out of shoe.**
 - b. Pull up inside the production casing and circulate the hole clean.
23. Change the well 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 9-5/8" casing scraper and the 5" heavy weight drill pipe.
25. Rig up the cased hole wireline unit with lubricator and run a cement bond / USIT log or equivalent from the 9-5/8" production casing shoe to the surface to verify the 9-5/8" cement bond. Rig down and move out the wireline unit. Note: If drilling operations do not allow for the timely or efficient running of the USIT log, the log may be run with the workover rig during the final well completion process.
26. Pick up and run an 8-1/2" (Type 517 or Kymera or equivalent) bit and the 6-3/4" Autotrak steerable tools and associated BHA. Drill an 8-1/2" hole with the rotary steerable tools to 7970' MD (+/-) as per the directional plan. Circulate the well clean and condition the polymer mud. Note the mud properties before drilling into the zone and at total depth. Pull out of the hole and lay down the directional tools/BHA.
27. Rig down the mud loggers and mud logging equipment.
28. Pick up a 9-5/8", 47# casing scraper on the 5" drill pipe and run to within 20' of the 9-5/8" casing shoe to confirm the production casing is free from debris and any residual cement residue. Pull out of the hole and lay down the 9-5/8" casing scraper. Circulate the well clean.

29. Run in the hole with open ended 5" drill pipe to bottom. Circulate the 8-1/2" hole clean, rotating the 5" drill pipe and working the pipe continuously. Condition the completion hole and change the shaker screens to the Weatherford recommended procedure/sizing in order to condition the well fluids. Record the up and down weights while circulating the hole clean and also while sliding through the open hole section. Stage circulate the hole at 7850', 6000', 4500' and repeat same procedure ensure at least two hole volumes have been circulated.
30. Lower the 5" drill pipe to bottom. 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.

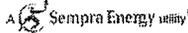
COMPLETION: PHASE I (Drilling Rig):

31. As per the Weatherford recommended Expandable Screen Liner running procedure; Rig up the casing running crew and run approximately 520' (+/-) of 7", 120 micron, Weatherford Expandable Screen liner, associated blank with the 9-5/8" x 7" EXR hanger assembly.
32. Run the 7" ESS liner per the vendor recommended running procedure. Do not rotate the liner during the running process. Position the 7" ESS liner on depth for the installation operations. The liner shoe will be approximately 2' (+/-) of the final TD.
33. Drop the ball and set the 9-5/8" x 7" EXR hydraulic set packer/packer hanger at approximately 7450' (+/-) with approximately 1300 psig for 10 mins per the Weatherford hanger setting procedure. Pull out of the hole with the liner setting tools and lay down the same.
34. Pick up the 7" x 8-1/2" ESS liner expansion assembly on the 5" drill pipe and run in the well to the top of the screen in the liner. Test the installation tools and begin the liner expansion process per the recommended installation procedure. This assembly will be initially run to the top of the screen, the assembly activated via pump pressure, then rotated and pushed from the top of the screen to down the liner bottom as per the optimum ROP and WOB requirements.
35. Pull out of the well with the ESS liner expansion assembly and lay down the same.
36. If a polymer pill was required in the open hole section during the liner installation process, then run in the hole with a 2-7/8" or 3-1/2" tubing tail to the bottom of the 7" ESS liner and place the polymer breaker across the 7" liner.
37. Pull out of the well and run back in the well with a 9-5/8" bridge plug on 5" drill pipe and set the bridge plug at approximately 7000' (+/-). Pressure test the 9-5/8" bridge plug to 1000 psig surface pressure. Verify the hole is full of 3% KCl brine.
38. Secure the well, rig down and move the Ensign #587 drilling rig.

COMPLETION: PHASE 2 (Workover Rig):

1. Move in and rig up the Ensign #321 workover rig.
2. Verify there is no pressure on the well and that the well is full of 3% KCl brine. Verify the current field pressure and ensure that the brine in the well and the brine on the location are of sufficient weight to manage the current reservoir pressure.
3. Nipple up an 11" Class III 5M BOPE (per Gas Company Procedure) on the 11" 5M tubing head.
 - a. Fit the 5M BOPE with 3-1/2" pipe rams and CSO.
 - b. The 5M BOPE must have connection and valve below the blind rams. Fit with 5000 psig minimum rated valve.
 - c. Pressure test the 11" 5M BOPE system to assure the integrity of connections.
 - d. Pressure test the pipe rams and blind rams to 5000 psig (high) and 300 psig (low). Pressure test the Annular Preventer to 3500 psig (high) and 300 psig (low) all tested for 20 minutes at each pressure.
 - e. Pressure test the lines and connections to 5000 psig (high) and 300 psig (low) for 20 minutes each pressure.
 - f. Notify the DOGGR prior to the BOPE testing operations.
4. Pick up the 3-1/2" tubing string with the 9-5/8" bridge plug retrieving tool and run in the hole to 7000' (+/-). Adjust the workover brine in the well to the correct kill weight if necessary. Circulate the well the well clean above the bridge plug.
5. If the USIT log was not performed in the 9-5/8" production casing during the drilling operations, then prepare to run the USIT log. Move the bridge plug down to 7430' (+/-), reset the bridge plug, pressure test to 500 psig surface pressure and fill the well with workover brine. Pull out of the well with the bridge plug retrieving tool. Move in and rig up the USIT logging tool and associated equipment. Log the 9-5/8" production casing from 7430' (+/-) to the surface. Rig down and move out the wireline equipment.
6. Run in the well with the 9-5/8" bridge plug retrieving tool, engage the bridge plug and release the 9-5/8" bridge plug and allow the well to equalize, circulate the well, if necessary, then pull out of the hole and lay down the 9-5/8" bridge plug.
7. Pick up a 2-3/8" tubing tail on the 3-1/2" tubing and make a feeler/cleanout run to bottom to verify the liner is clear to bottom. Pull out of the hole and lay down the 2-3/8" tubing tail.
8. Pick up and run the completion tubing string:
 - a. 9-5/8" WEA Completion packer set at approximately 7350' (+/-).
 - b. 1 pup joint of 3-1/2", 9.3#, L-80 tubing
 - c. 1 3-1/2", XN profile
 - d. 1 joint of 3-1/2", 9.3, L-80 tubing
 - e. 3-1/2" WEA - sliding sleeve (closed)
 - f. 1 joint of 3-1/2", 9.3# L-80 tubing
 - g. 3-1/2" GLM with dummy valve installed

- h. 3-1/2" EUE 8R L-80 tubing to the surface.
- 9. Land the 3-1/2" production tubing string/completion in compression as per the tube move recommendation.
- 10. Space out and land the the 3-1/2" completion string in the tubing hanger. Run in all hold down studs and pressure test production packer to 1000 psig for 15 minutes. Record pressure tests on charts and file the original charts.
- 11. Install the BPV. Remove the 11" Class IIIB 5M BOPE and install the 5M rated production tree. Pressure test the production tree and all the wellhead seals to 5000 psig. Remove the BPV.
- 12. Rig down and move out the Ensign #321 workover rig. Clean the location.



SOUTHERN CALIFORNIA GAS COMPANY

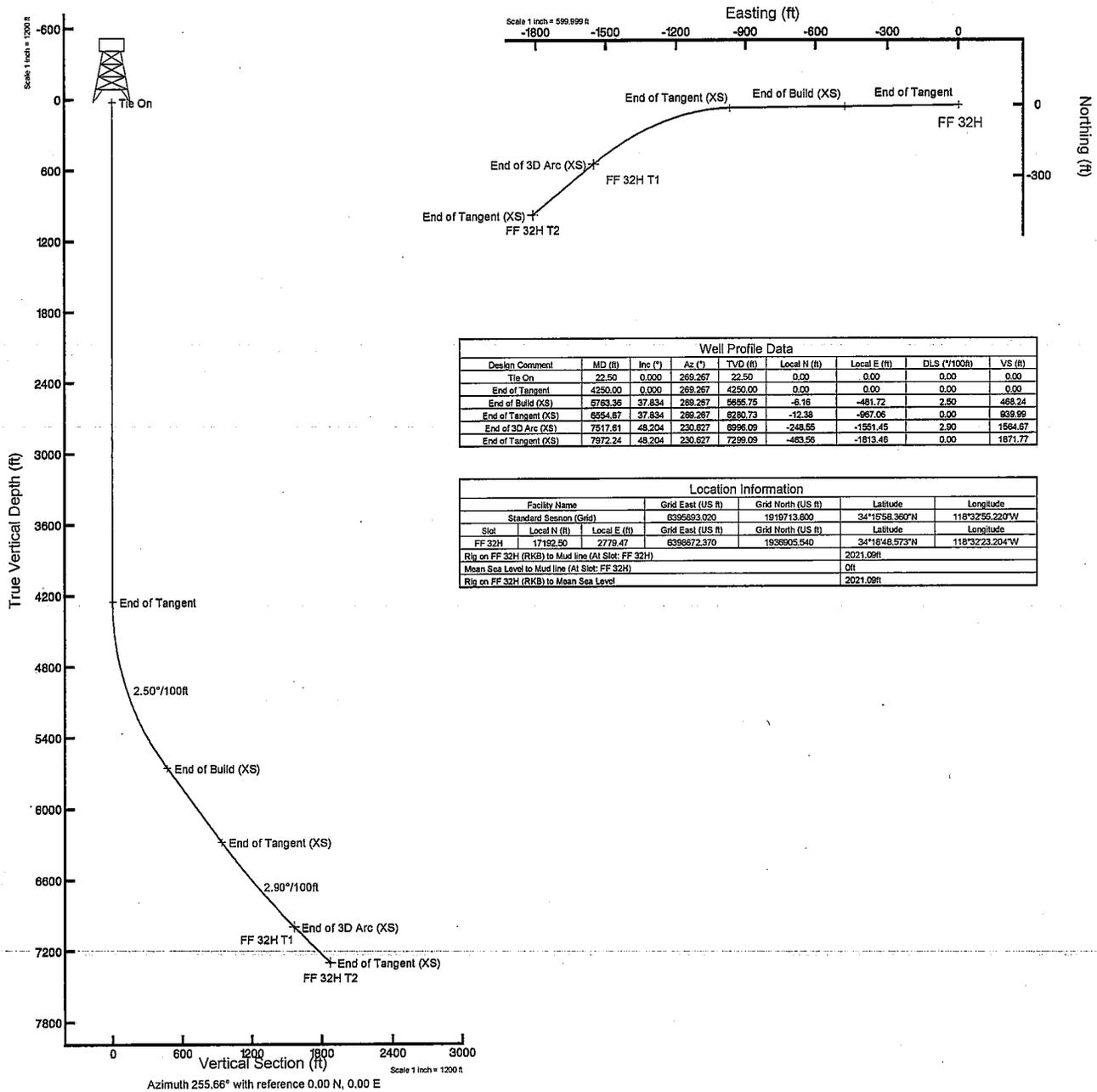
Location: CALIFORNIA_2 Slot: FF 32H
 Field: Aliso Canyon (Grid) Well: FF 32H
 Facility: Standard Sesnon (Grid) Wellbore: FF 32H



Plot reference wellbore is FF 32H Rev: C.0	
True vertical depths are referenced to Rig on FF 32H (RKB)	Grid System: NAD83 / Lambert California SP Zone Y (405) US feet
Measured depths are referenced to Rig on FF 32H (RKB)	North Reference: Grid north
Rig on FF 32H (RKB) to Mean Sea Level: 2021.09 feet	Scale: True distance
Mean Sea Level to Mud line (AI Slot: FF 32H): 0 feet	Depth are in feet
Coordinates are in feet referenced to Slot	
Created by: moredata on 5/4/2015	

Survey Program						
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore	
22.50	7972.24	NewTrak	NewTrak (Standard)		FF 32H	

Bottom Hole Location									
MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
7972.24	48.204	230.627	7299.09	-483.56	-1813.46	6396872.370	1936905.540	34°18'43.890"N	118°32'44.780"W



Well Profile Data								
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*/100ft)	VS (ft)
Tie On	22.50	0.000	269.267	22.50	0.00	0.00	0.00	0.00
End of Tangent	4250.00	0.000	269.267	4250.00	0.00	0.00	0.00	0.00
End of Build (XS)	5783.36	37.834	289.287	5695.75	-6.16	-481.72	2.50	488.24
End of Tangent (XS)	6564.87	37.834	289.287	6280.73	-12.38	-967.06	0.00	839.99
End of 3D Arc (XS)	7517.81	48.204	230.627	6996.09	-248.55	-1551.45	2.90	1584.87
End of Tangent (XS)	7972.24	48.204	230.627	7299.09	-483.56	-1813.46	0.00	1871.77

Location Information						
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
Standard Sesnon (Grid)	6396872.370	1919713.600	34°18'58.360"N	118°32'55.220"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
FF 32H	17192.50	2779.47	6396872.370	1936905.540	34°18'48.573"N	118°32'23.204"W
Rig on FF 32H (RKB) to Mud line (AI Slot: FF 32H)						2021.09ft
Mean Sea Level to Mud line (AI Slot: FF 32H)						0ft
Rig on FF 32H (RKB) to Mean Sea Level						2021.09ft

Rec'd 05-21-15 DOGGR D2 Ventura



Planned Wellpath Report

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A Sempra Energy utility[®]

REFERENCE WELLPATH IDENTIFICATION

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

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert California SP, Zone V (405), US feet	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Meyedavr
Scale	0.999951	Report Generated	5/4/2015 at 1:22:39 PM
Convergence at slot	0.31° West	Database/Source file	Extra/FF_32H.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	17192.50	2779.47	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W
Facility Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W
Field Reference Pt			6395893.02	1919713.80	34°15'58.360"N	118°32'55.220"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on FF 32H (RKB) to Facility Vertical Datum	2021.09ft
Horizontal Reference Pt	Slot	Rig on FF 32H (RKB) to Mean Sea Level	2021.09ft
Vertical Reference Pt	Rig on FF 32H (RKB)	Rig on FF 32H (RKB) to Mud Line at Slot (FF 32H)	2021.09ft
MD Reference Pt	Rig on FF 32H (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	255.66°



Planned Wellpath Report

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A Sempra Energy utility

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

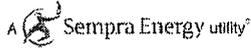
WELLPATH DATA (86 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]
0.00†	0.000	269.267	0.00	-2021.09	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
22.50	0.000	269.267	22.50	-1998.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
122.50†	0.000	269.267	122.50	-1898.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
222.50†	0.000	269.267	222.50	-1798.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
322.50†	0.000	269.267	322.50	-1698.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
422.50†	0.000	269.267	422.50	-1598.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
522.50†	0.000	269.267	522.50	-1498.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
622.50†	0.000	269.267	622.50	-1398.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
722.50†	0.000	269.267	722.50	-1298.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
822.50†	0.000	269.267	822.50	-1198.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
922.50†	0.000	269.267	922.50	-1098.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1022.50†	0.000	269.267	1022.50	-998.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1122.50†	0.000	269.267	1122.50	-898.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1222.50†	0.000	269.267	1222.50	-798.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1322.50†	0.000	269.267	1322.50	-698.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1422.50†	0.000	269.267	1422.50	-598.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1522.50†	0.000	269.267	1522.50	-498.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1622.50†	0.000	269.267	1622.50	-398.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1722.50†	0.000	269.267	1722.50	-298.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1822.50†	0.000	269.267	1822.50	-198.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
1922.50†	0.000	269.267	1922.50	-98.59	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2022.50†	0.000	269.267	2022.50	1.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2122.50†	0.000	269.267	2122.50	101.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2222.50†	0.000	269.267	2222.50	201.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2322.50†	0.000	269.267	2322.50	301.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2422.50†	0.000	269.267	2422.50	401.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2522.50†	0.000	269.267	2522.50	501.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2622.50†	0.000	269.267	2622.50	601.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2722.50†	0.000	269.267	2722.50	701.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2822.50†	0.000	269.267	2822.50	801.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
2922.50†	0.000	269.267	2922.50	901.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3022.50†	0.000	269.267	3022.50	1001.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3122.50†	0.000	269.267	3122.50	1101.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3222.50†	0.000	269.267	3222.50	1201.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3322.50†	0.000	269.267	3322.50	1301.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3422.50†	0.000	269.267	3422.50	1401.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3522.50†	0.000	269.267	3522.50	1501.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3622.50†	0.000	269.267	3622.50	1601.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3722.50†	0.000	269.267	3722.50	1701.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3822.50†	0.000	269.267	3822.50	1801.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
3922.50†	0.000	269.267	3922.50	1901.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
4022.50†	0.000	269.267	4022.50	2001.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
4122.50†	0.000	269.267	4122.50	2101.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
4222.50†	0.000	269.267	4222.50	2201.41	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00
4250.00	0.000	269.267	4250.00	2228.91	0.00	0.00	0.00	6398672.37	1936905.54	34°18'48.573"N	118°32'23.204"W	0.00



Planned Wellpath Report

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

WELLPATH DATA (86 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD from Fld Vert Ref [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]
4322.50†	1.812	269.267	4322.49	2301.40	1.11	-0.01	-1.15	6398671.22	1936905.53	34°18'48.572"N	118°32'23.218"W	2.50
4422.50†	4.312	269.267	4422.34	2401.25	6.31	-0.08	-6.49	6398665.88	1936905.46	34°18'48.572"N	118°32'23.282"W	2.50
4522.50†	6.812	269.267	4521.86	2500.77	15.73	-0.21	-16.18	6398656.19	1936905.33	34°18'48.570"N	118°32'23.397"W	2.50
4622.50†	9.312	269.267	4620.86	2599.77	29.36	-0.39	-30.20	6398642.17	1936905.15	34°18'48.567"N	118°32'23.564"W	2.50
4722.50†	11.812	269.267	4719.16	2698.07	47.17	-0.62	-48.53	6398623.84	1936904.92	34°18'48.564"N	118°32'23.783"W	2.50
4822.50†	14.312	269.267	4816.56	2795.47	69.14	-0.91	-71.13	6398601.25	1936904.63	34°18'48.560"N	118°32'24.052"W	2.50
4922.50†	16.812	269.267	4912.89	2891.80	95.21	-1.25	-97.95	6398574.42	1936904.29	34°18'48.555"N	118°32'24.372"W	2.50
5022.50†	19.312	269.267	5007.96	2986.87	125.34	-1.65	-128.95	6398543.42	1936903.89	34°18'48.550"N	118°32'24.741"W	2.50
5122.50†	21.812	269.267	5101.58	3080.49	159.48	-2.10	-164.07	6398508.31	1936903.44	34°18'48.543"N	118°32'25.160"W	2.50
5222.50†	24.312	269.267	5193.58	3172.49	197.55	-2.60	-203.24	6398469.14	1936902.94	34°18'48.536"N	118°32'25.627"W	2.50
5322.50†	26.812	269.267	5283.78	3262.69	239.49	-3.15	-246.38	6398426.00	1936902.39	34°18'48.528"N	118°32'26.141"W	2.50
5422.50†	29.312	269.267	5372.02	3350.93	285.21	-3.76	-293.42	6398378.97	1936901.79	34°18'48.520"N	118°32'26.702"W	2.50
5522.50†	31.812	269.267	5458.12	3437.03	334.62	-4.41	-344.26	6398328.13	1936901.13	34°18'48.511"N	118°32'27.308"W	2.50
5622.50†	34.312	269.267	5541.92	3520.83	387.64	-5.10	-398.80	6398273.59	1936900.44	34°18'48.501"N	118°32'27.958"W	2.50
5722.50†	36.812	269.267	5623.26	3602.17	444.17	-5.85	-456.95	6398215.44	1936899.69	34°18'48.491"N	118°32'28.651"W	2.50
5763.36	37.834	269.267	5655.75	3634.66	468.24	-6.16	-481.72	6398190.67	1936899.38	34°18'48.486"N	118°32'28.947"W	2.50
5822.50†	37.834	269.267	5702.46	3681.37	503.50	-6.63	-518.00	6398154.40	1936898.91	34°18'48.480"N	118°32'29.379"W	0.00
5922.50†	37.834	269.267	5781.44	3760.35	563.12	-7.41	-579.33	6398093.07	1936898.13	34°18'48.469"N	118°32'30.110"W	0.00
6022.50†	37.834	269.267	5860.42	3839.33	622.73	-8.20	-640.66	6398031.74	1936897.34	34°18'48.457"N	118°32'30.841"W	0.00
6122.50†	37.834	269.267	5939.40	3918.31	682.35	-8.98	-701.99	6397970.41	1936896.56	34°18'48.446"N	118°32'31.572"W	0.00
6222.50†	37.834	269.267	6018.38	3997.29	741.97	-9.77	-763.33	6397909.08	1936895.77	34°18'48.435"N	118°32'32.303"W	0.00
6322.50†	37.834	269.267	6097.36	4076.27	801.58	-10.55	-824.66	6397847.75	1936894.99	34°18'48.424"N	118°32'33.034"W	0.00
6422.50†	37.834	269.267	6176.34	4155.25	861.20	-11.34	-885.99	6397786.42	1936894.20	34°18'48.413"N	118°32'33.766"W	0.00
6522.50†	37.834	269.267	6255.32	4234.23	920.81	-12.12	-947.32	6397725.09	1936893.42	34°18'48.402"N	118°32'34.497"W	0.00
6554.67	37.834	269.267	6280.73	4259.64	939.99	-12.38	-967.06	6397705.86	1936893.16	34°18'48.399"N	118°32'34.732"W	0.00
6622.50†	38.091	266.096	6334.21	4313.12	980.79	-14.07	-1008.73	6397663.69	1936891.47	34°18'48.380"N	118°32'35.229"W	2.90
6722.50†	38.624	261.502	6412.64	4391.55	1042.19	-20.78	-1070.39	6397602.04	1936884.76	34°18'48.310"N	118°32'35.963"W	2.90
6822.50†	39.331	257.030	6490.39	4469.30	1104.93	-32.51	-1132.15	6397540.28	1936873.03	34°18'48.191"N	118°32'36.699"W	2.90
6922.50†	40.204	252.706	6567.27	4546.18	1168.86	-49.22	-1193.86	6397478.57	1936856.32	34°18'48.022"N	118°32'37.433"W	2.90
7022.50†	41.232	248.548	6643.08	4621.99	1233.81	-70.87	-1255.36	6397417.07	1936834.67	34°18'47.805"N	118°32'38.165"W	2.90
7122.50†	42.403	244.568	6717.62	4696.53	1299.61	-97.41	-1316.50	6397355.94	1936808.14	34°18'47.539"N	118°32'38.892"W	2.90
7222.50†	43.706	240.772	6790.70	4769.61	1366.10	-128.76	-1377.11	6397295.33	1936776.78	34°18'47.226"N	118°32'39.613"W	2.90
7322.50†	45.128	237.161	6862.13	4841.04	1433.10	-164.86	-1437.04	6397235.40	1936740.69	34°18'46.865"N	118°32'40.325"W	2.90
7422.50†	46.658	233.729	6931.74	4910.65	1500.45	-205.59	-1496.15	6397176.30	1936699.96	34°18'46.459"N	118°32'41.027"W	2.90
7517.61	48.204	230.627	6996.09 ¹	4975.00	1564.67	-248.55	-1551.45	6397121.00	1936657.00	34°18'46.031"N	118°32'41.683"W	2.90
7522.50†	48.204	230.627	6999.35	4978.26	1567.98	-250.86	-1554.27	6397118.18	1936654.69	34°18'46.008"N	118°32'41.717"W	0.00
7622.50†	48.204	230.627	7066.00	5044.91	1635.52	-298.16	-1611.90	6397060.55	1936607.40	34°18'45.537"N	118°32'42.401"W	0.00
7722.50†	48.204	230.627	7132.64	5111.55	1703.07	-345.45	-1669.53	6397002.92	1936560.11	34°18'45.066"N	118°32'43.085"W	0.00
7822.50†	48.204	230.627	7199.29	5178.20	1770.62	-392.74	-1727.16	6396945.30	1936512.82	34°18'44.596"N	118°32'43.769"W	0.00
7922.50†	48.204	230.627	7265.94	5244.85	1838.17	-440.04	-1784.79	6396887.67	1936465.52	34°18'44.125"N	118°32'44.453"W	0.00
7972.24	48.204	230.627	7299.09 ²	5278.00	1871.77	-463.56	-1813.46	6396859.00	1936442.00	34°18'43.890"N	118°32'44.793"W	0.00

TARGETS										
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
1) FF 32H T1	7517.61	6996.09	-248.55	-1551.45	6397121.00	1936657.00	34°18'46.031"N	118°32'41.683"W	point	

Rec'd 05-21-15 DOGGR D2 Ventura

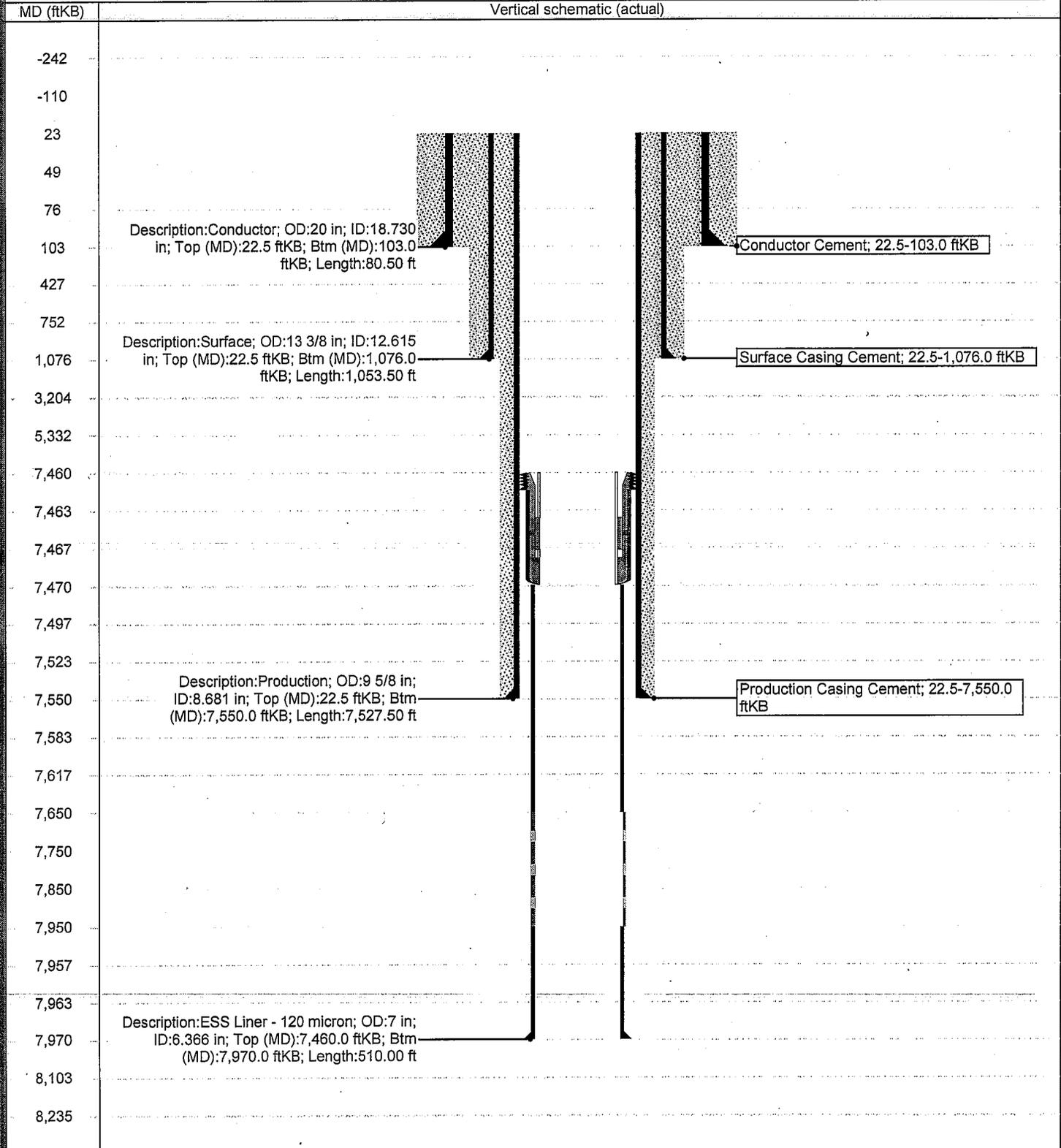
2) FF 32H T2	7972.24	7299.09	-463.56	-1813.46	6396859.00	1936442.00	34°18'43.890"N	118°32'44.793"W	point
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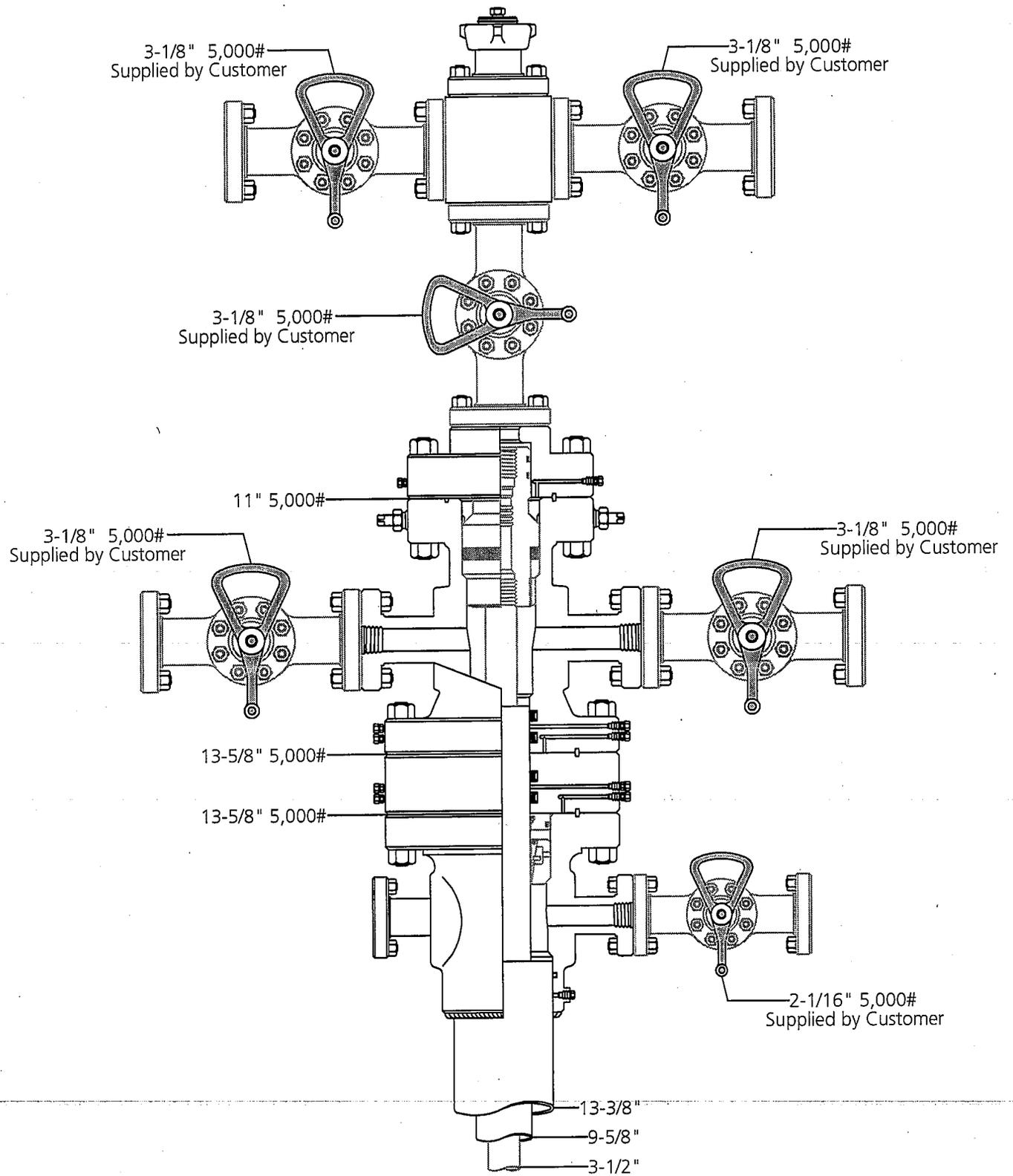
SURVEY PROGRAM - Ref Wellbore: FF 32H Ref Wellpath: FF 32H Rev-C.0				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.50	7972.24	NaviTrak (Standard)		FF 32H

Gas Company Schematic

API	Field Name Aliso Canyon	Operator Southern California Gas Company	County Los Angeles	State California
Ground Elevation (ft)	1,999.00	KB-Ground Distance (ft)	22.50	Spud Date
Job Name	May 2015 - Prepare location	Start Date	5/1/2015	End Date

Original Hole, 5/15/2015 9:53:03 AM





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



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