DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST-RECORDS RECEIVED AND WELL STATUS

Operator: **Southern California Gas Company** WELL DESIGNATION **"Frew" 2**

API No. **03700665** SE **29** T: **3N** R.: **16W** , **SB** B. and M.

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

Type of Notice: **Rework** **Date** **9/26/2014** **Report Number:** **P214-0289**

RECORDS RECEIVED (ATTACH PAGES IF REQUIRED)

	Date	OK	NEED	Remarks
Well Summary (OG100)				
History (OG103)	2-19-15	✓		
E-Log				
Mud Log				
Dipmeter				
Directional				
Core and/or SWS				

NEW STATUS

DATE: _____

NOTICE OF RECORDS DUE

DATE: _____

DATE: _____

DATE: _____

DATE: _____

WELL STATUS INQUIRY

DATE: _____

DATE: _____

Well Stat

Change Required: _____

Change Done: _____

ABANDONMENTS/REABANDONMENTS/DRILLS/REDRILLS

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

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

ENGINEER'S CHECK LIST

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

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

CLERICAL CHECK LIST

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

REMARKS

RECORDS SCANNED: _____
(Date)

RECORDS APPROVED: 2-12-15 BH
(Date and Engineer)

Modified OGD2

AOR Datbase _____

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

Rec'd 02-19-15 DOGGR D2 Ventura

HISTORY OF OIL OR GAS WELL

Operator. Southern California Gas Company | Field. Aliso Canyon | County: Los Angeles
Well: Frew 2 | Surface Location: Sec. 29 3N 16W S.B B.M.
A P.I. No. 03700665 | Todd Van de Putte | Title. Senior Storage Field...
(President, Secretary, or Agent)

Date: 2/19/2015 | Signature. Todd Van de Putte
(Person Submitting Report)

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

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

Start Date	Ops DOGGR Rpt
8/12/2014	Moved in and rigged up the Rival Rig #12 and the associated equipment and tied down the hoist Moved in the pump and the Class III 5M BOPE equipment Rigged up the Onyx seperator for the well kill
8/13/2014	Opened the well with 1935 psig surface pressure on the tubing and the casing Rigged up and pumped 50 bbl of Hi-vis HEC polymer and displaced with 48 bbls of 8 5 ppg KCl brine and killed the well per schedule through the Onyx seperator with 250 bbl of KCl brine Rigged down and moved out the Onyx seperator as associated equipment. The well had 0 psig surface pressure on the tubing and the casing Serviced the wellhead bolts (Casing flowing and shut-in the well with 430 psig surface pressure on the tubing and 0 psig on the casing. Rigged up and pumped 80 bbl of 8 5 ppg KCl brine down the tubing and bled the casing pressure to 0 psig Serviced the hold down studs and the well head bolts and secured the well.
8/14/2014	Opened the well with 0 psig surface pressure on the tubing and 1187 psig on the casing Rigged up and filled the casing with 148 bbl of 8.5 ppg KCl brine Pumped down the tubing and filled with 8 bbl of KCl brine and circulated the well. Installed the BPV and nippled down the production tree Installed the Class III 5M BOPE. (well flowing from the casing 150 psig bled to 0 psig and flowed back 30 bbl of KCl brine) Rigged up the WEA test unit to test BOPE Pressure tested the blind rams to 300 psig (low) and 5000 psig (high) for 20 minutes (Test good) Pressure tested the pipe rams to 300 psig (low) and 5000 psig (high) for 20 minutes (Test good) Pressure tested the Hydril annular preventer to 300 psig (low) and 3600 (high) for 20 minutes (Test good) Pressure tested all the control valves and the choke manifold to 300 psig (low) and 5000 psig (high) for 20 minutes (All tests good). Rigged down and moved out the WEA test unit. Filled the well with 60 bbl of 8.5 ppg KCl brine and secured the well.
8/15/2014	Opened the well with 948 psig surface pressure on the casing and 0 psig on the tubing. Bled down the casing and filled well with 85 bbl of 8 5 ppg KCl brine Circulated the well with 300 bbl down the tubing and the casing was at 0 psig Unlanded the tubing, rotated and worked the completion tubing to release from the permanent packer latch Tubing moving up the hole at 96k lb and moved up the hole 50' when the tubing parted. Screwed into the tubing and pulled out of well and laid down the 2-7/8" SSSV. The SSSV control line tubing parted at 20 joints below the surface Made up an overshot with a 2-7/8" grapple and pack off on 2-7/8" workstring. Ran in the well and engaged the fish/tubing stub and secured the well
8/18/2014	Opened the well with 1092 psig surface pressure on the tubing and the casing. Bled the well down to 0 psig and filled the well with 110 bbl of 8.5 ppg KCl brine. Circulated the well with 330 bbl of 8.5 KCl brine. Worked the 2-7/8" tubing to 90 klb with no movement Well started flowing, shut in the well, circulated the gas cut brine from the well and secured the well.
8/19/2014	The well had 1100 psig surface pressure on the tubing and the casing Filled the well with 67 bbl of 8 5 ppg KCl brine Circulated the well with 330 bbl of KCl brine, holding 300 psig back pressure, and opened the well with 0 psig surface pressure The well was flowing out the tubing. Shut in the well and circulated the well while holding back pressure. The well was blown down to 0 psig and secured the well
8/20/2014	Opened the well with 600 psig surface pressure on the tubing and the casing Filled the well with 100 bbl of 8.5 ppg KCl brine. Rigged up and pumped 245 bbl of 10 ppg NaCl brine and shut in the well. Pumped 44 bbl of 10 ppg NaCl brine and opened the well with 0 psig surface pressure on the tubing and the casing Released from the fish/tubing stub, pulled out of the well and laid down the overshot Made up (1) jt 5" of wash pipe and outside 2-7/8" tubing cutter on the 2-7/8" workstring Ran in the well to the top of the fish/tubing stub at 637' and worked on the fish. Cut the 2-7/8" tubing at 648', pulled out of the well and laid down the tubing cutter and the wash pipe Made up a 5-3/4" overshot with 2-7/8" grapple on the 2-7/8" workstring. Ran in the well to 648', engaged tubing stub and secured the well.
8/21/2014	Opened the well with 915 psig surface pressrue on the tubing and the casing. Filled the well with 85 bbl of 10 ppg NaCl brine. Circulated the well with 240 bbl of 10 ppg brine while holding 300 psig back pressure on the casing Waited on the wireline unit and filled the well with 1 bbl of 10 ppg brine every 10 minutes and secured the well
8/22/2014	Opened the well with 850 psig surface pressure on the tubing and the casing Circulated the well with 200 bbl of 10 ppg NaCl brine. The well was at 0 psig surface pressure on the tubing and the casing Moved in and rigged up the Tiger wireline unit and made up the 2-7/8" free point tools on wireline. Ran in the well and found the tubing free at 8103' pulled out of the well. Made up an 2-7/8 " RTC cutter on the wireline. Ran in the well to 8103', correlated, cut the 2-7/8" production tubing Pulled out the well, rigged down and moved out the Tiger wireline unit and secured the well.

Rec'd 02-19-15 DOGGR D2 Ventura

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company Field: Aliso Canyon County. Los Angeles
Well· Frew 2 Surface Location. Sec. 29 3N 16W S.B.B.M.
A P I. No. 03700665 Todd Van de Putte Title Senior Storage Field...
(President, Secretary or Agent)

Date· 2/19/2015 Signature Todd Van de Putte
(Person Submitting Report)

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

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

Start Date	Ops. DOGGR Rpt
8/25/2014	Opened the well with 200 psig surface pressure on the tubing and the casing Bled the well down and filled the well with 3 bbl of 10 ppg NaCl brine Circualted the well with 200 bbl of NaCl brine Pulled out of the well and laid down 173 jts of 2-7/8" production tubing to a kill string at 2800' Replaced the tubing trailers and secured the well
8/26/2014	Opened the well with 200 psig surface pressure on the tubing and the casing Circulated the well with 150 bbl of 10 ppg brine Pulled out of the well and laid down the 2-7/8" production tubing and production equipment. Swapped the tubing trailers, measured and picked up a WEA casing scraper and a bumper sub Measured and picked up 2-7/8" workstring tubing to 4300' and secured the well.
8/27/2014	Opened the well with 10 psig surface pressure on the tubing and the casing The well was standing full of 10 ppg brine. Measured and picked up 2-7/8", P-110 workstring tubing. Ran the 7" casing scraper to the top of the fish at 8105'. Rigged up and circulated the well with 150 bbl of 10 ppg brine Pulled out of the well to a kill string at 3680' and secured the well
8/28/2014	Opened the well with 10 psig surface pressure on the tubing and the casing Circulated the well with150 bbl of 10 ppg brine. Pulled out of the well and laid down the 7" casing scraper and the bumper sub. Made up (2) jts of 5-1/2" wash pipe with a 5-3/4" shoe on the 2-7/8" workstring Ran in the well to 3872' and tagged Attempted to work through (25 klb over pull). Pulled out of the well and laid down the wash pipe Ran in well to a kill string at 3125' and secured the well
8/29/2014	Opened the well with 50 psig surface pressure on the tubing and the casing. Circulated the well with 125 bbl of 10 ppg NaCl brine Pulled out of the well and laid down the wash pipe. Made up a 5-3/4" swedge, a bumper sub,a set of jars, and (4) 4-3/4" drill collars on the 2-7/8" workstring Ran in the well to 3872' and worked through the tight spot with 10,000 lb (down and up) to work through. Pulled up the hole to 3800' and secured the well
9/2/2014	Opened the well with 50 psig surface pressure on the tubing and the casing Circulated the well with 150 bbl of 10 ppg NaCl brine. Pulled out of the well and laid down the swedge and the jars. Made up (2) jts of 5" wash pipe and a bumper sub on the 2-7/8" workstring Ran in the well to 3872' and worked through the tight spot (10,000 lb to 12,000 lb to work through) Ran in the well to 8105' to the top of the fish/tubing stub and attempted to work over the fish and secured the well.
9/3/2014	Opened the well with 50 psig surface pressure on the tubing and the casing Bled down the well to 0 psig Installed the PGSR and picked up the power swivel Broke circulation and worked over the fish/tubing stub at 8105' Reverse circulated and rotated down to 8130' found a restriction in the 7" production casing at 8130' (8000 lb down and 12,000 lb up) Cleaned out to the top of the permanent packer at 8160' and reversed circulated the well clean Pulled out of the well and laid down the wash pipe Made up a 4-11/16" overshot with 2-7/8" right hand grapple, a bumper sub and a set of jars on the 2-7/8" workstring. Ran in the well to a kill string at 3144' and secured the well.
9/4/2014	Opened the well with 85 psig surface pressure on the tubing and the casing Bled down the well with the well standing full. Worked over the fish and attempted to release from the permanent packer seals. Picked up the power swivel and released the seals from the permanent packer at 8160'. Laid down the power swivel and pulled out of the well to a kill string at 3750'.
9/5/2014	Opened the well with 987 psig surface pressure on the tubing and the casing. Bled down the well to 0 psig. Filled the well with 97 bbl of 10 ppg NaCl brine and circulated the gas cut brine from the well. Pulled out of the well and laid down the fish and the fishing tools (recovered 2-7/8" tubing cut off, (2) joints of 2-7/8" production tubing, the no/go and the packer seals) Made up a 7", 32# positive casing scraper and a bumper sub on the 2-7/8" workstring. Ran in the well to 3915' and secured the well
9/8/2014	Opened the well with1362 psig surface pressure on the tubing and the casing Bled down the well to 0 psig and filled the well with 131 bbl of 10 ppg of brine Ran in the well to 8020' and circulated the gas cut brine from the well Ran in the well to 8130' with the 7", 32# positive casing scraper and tagged at 8130' Pulled out of the well to a kill string at 3710' and secured the well.
9/9/2014	Opened the well with 1066 psig surface pressure on the tubing and the casing. Bled down the well to 0 psig. Filled the well with 87 bbl of 10 ppg brine and circulated the well Pulled out of the well with the kill string and laid down the 7" casing scraper Made up a WEA 7", 32# bridge plug on the 2-7/8" workstring Ran in the well to 3872', worked through the tight spot in the 7" production casing. Ran in the well to 8125' , tagged, pulled to 8120', set the 7" bridge plug and secured the well

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
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Rec'd 02-19-15 DOGGR D2 Ventura

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Well: Frew 2
A P.I No. 03700665

Field: Aliso Canyon
Surface Location Sec. 29 3N 16W S.B.B.M.

County: Los Angeles

Todd Van de Putte
Title: Senior Storage Field...
(President, Secretary, or Agent)

Date: 2/19/2015

Signature. Todd R Van de Putte
(Person Submitting Report)

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

Telephone Number: 818-701-3339

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Start Date	Ops DOGGR Rpt
9/10/2014	Opened the well with 130 psig surface pressure on the tubing and the casing. Filled the well with 6 bbl of 10 ppg NaCl brine and circulated the well with 30 bbl of 10 ppg brine Dumped 12 cuft of. sand and displaced with 30 bbl of 10 ppg brine Pulled out of the well to 5100' and circulated the well with 170 bbl of 10 ppg brine Pulled out of the well and laid down the 7" retrieving tool Made up a WEA 7" test packer on the 2-7/8" workstring. Ran in the well to 1000', set the test packer and pressure tested the 2-7/8" x casing annulus to 1000 psig for 10 minutes (test good). Released the test packer, ran in the well to 2000', set the test packer and pressure tested the 2-7/8" x casing annulus to 1500 psig for 10 minutes (Test good) Released the test packer, ran in the well to 2998', set the test packer, and pressure tested the 2-7/8" x casing annulus to 1500 psig for 10 minutes (No test). Released the test packer, pulled to 2872', set the test packer and pressure tested the 2-7/8" x casing annulus to 1500 psig for 10 minutes (Test good). Ran in the well to 2971', set the test packer, pressure tested the 2-7/8" x casing annulus to 1500 psig for 10 minutes (No test). Pulled out of the well to 2955', set the test packer and pressure tested the 2-7/8"' x casing annulus to 1500 psig for 10 minutes (Test good; leak between 2971' and 2955') Released the 7" test packer and secured the well
9/11/2014	Opened the well with 175 psig surface pressure on the tubing and the casing Filled the well with 5 bbl of 10 ppg brine and circulated the well. Pulled out of the well and laid down the 7" test packer Move in and rigged up the Schlumberger wireline unit Rigged up a full lubricator and made up the USIT tools Ran in the well to 8110' and logged to the surface Laid down the USIT tools and secured the well
9/12/2014	Opened the well with 235 psig surface pressure on the tubing and the casing Bled the well down to 0 psig and filled the well with 5 bbl of 10 ppg NaCl brine Rigged up the Schlumberger wireline unit and made up the CBL tools on wireline Ran in the well to 8100' and ran CBL logs to 2600' Rigged down and moved out the Schlumbeger wireline unit. Made up a WEA 7" retrievable bridge plug on the 2-7/8' workstring Ran in the well to 2912', set the 7" bridge plug and pressure tested the 2-7/8' workstring x casing annulus to 1000 psig for 10 minutes Bled down the pressure and secured the well
9/15/2014	Opened the well with 180 psig surface pressure on the tubing and the casing Filled the well with 4 bbl of 10 ppg NaCl brine. Released from the WEA 7" bridge plug at 2900', and circulated the gas cut brine from the well. Dumped 10' of sand and displaced with 10 bbl of 10 ppg brine Pulled out of the well and laid down the bridge plug retrieving tool. Installed the shooting flange and moved in and rigged up the Schlumberger wireline unit (logging truck down for repairs, unable to release drum brakes). Rigged down wireline unit and secured the well
9/16/2014	The well was standing full of 10 ppg brine Moved in and rigged up the Schlumberger wireline unit and made up the USIT/CBL tools on wireline. Ran in the well to 2900' and ran the USIT/CBL log to the surface. Rigged down and moved out the Schlumberger wireline unit Rigged down the shooting flange Made up a 7" bridge plug retrieving tool on the 2-7/8" workstring. Ran in the well to 2900' and secured the well
9/17/2014	The well was standing full of brine Rigged up and reverse circulated the sand from the well and opened the tool by pass and circulated the well. Released the 7" bridge plug, pulled out of the well and laid down the bridge plug. Ran in the well open ended to 3100' Rigged up and circulated gas cut brine from the well. Ran in the well to 8090', circulated the well with 300 bbl of brine. Pulled out of the well to 7000' and secured the well
9/18/2014	Opened the well with 245 psig surface pressure on the tubing and the casing Bled down the well and circulated the well with 95 bbl of 10 ppg brine. Pulled out of the well to 1250' with the well flowing and circulated the gas cut brine from the well Pulled out of the well. Made up a WEA 7" test packer on the 2-7/8" workstring Ran in the well to 1000', set the test packer and filled the workstring x casing annulus. Pressure tested the 2-7/8" workstring x casing annulus to 3100 psig for 20 minutes (Test good) Released the 7" test packer, ran in the well to 5000' and secured the well.
9/19/2014	Opened the well with 190 psig surface pressure on the tubing and the casing. Bled down the well and pumped 20 bbl of 10 ppg brine Ran in the well with the 7" test packer to 5509', set the test packer, rigged up test chart, and pressure tested the 7" production casing from 5509' to 8100' at 1250 psig surface pressure for 20 minutes (lost 5 psig in 20 minutes). Released the 7" test packer, pulled tro 3000' to a kill string, and secured the well

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HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company | Field. Aliso Canyon | County: Los Angeles
Well: Frew 2 | Surface Location: Sec. 29 3N 16W S.B.B.M.
A.P.I No. 03700665 | Todd Van de Putte | Title: Senior Storage Field...
(President, Secretary, or Agent)

Date: 2/19/2015 | Signature. Todd R Van de Putte
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Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 | Telephone Number: 818-701-3339

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

Start Date	Ops. DOGGR Rpt
9/22/2014	Opened the well with 335 psig surface pressure on the casing and 190 psig on the tubing Bled down the well and circulated the well Pulled out of the well and laid down the 7" test packer Made up a 7" retrievable bridge plug on the 2-7/8" workstring Ran in the well to 3000' and circulated gas cut brine from the well Ran in the well to 5452', set and released from the 7" bridge plug Dumped 10 cuft of sand and displaced with 20 bbl of brine Pulled to a kill string at 3000' and secured the well
9/23/2014	Opened the well with 330 psig surface pressure on the tubing and the casing. Bled down the well and circulated the well. Pulled out of well and laid down the 7" bridge plug running tool Made up a WEA 7" test packer on the 2-7/8" workstring Ran in the well to 5000', set the test packer, rigged up the test chart, and pressure tested below the test packer from 5000' to 5452' to 1000 psig for 20 minutes (Test good) Released the test packer, pulled to 4000', filled the well, set the test packer and pressure tested form 4000' to 5452' to 1000 psig for 20 minutes (Test good) Pulled to up the hole to 3000' and secured the well
9/24/2014	Opened the well with 300 psig surface pressure on the tubing and the casing Bled down the well and circulated the well. Pulled out of the well to 2969', set the test packer and pressure tested from 2969' to 5452' to 1000 psig for 20 minutes (Test good) Released the test packer, pulled to 2949', set the test packer and pumped brine below the test packer at 900 psig @ 1 5 bpm. Pressure tested the 2-7/8" x casing annulus to 2150 psig for 20 minutes (Test good; leak from 2969' to 2949') Released the test packer, pulled to 2000', set the test packer, filled the annulus brine and pressure tested to 2600 psig for 20 minutes (Test good). Pulled out of the well and laid down the 7" test packer. Made up the 7" bridge plug retreiving tool on the 2-7/8" workstring Ran in the well to 5364' and secured the well
9/25/2014	Opened the well with 200 psig surface pressure on the tubing and the casing Circulated the well, cleaned out the sand and released the 7" bridge plug at 5452'. Pulled to 3500', set the 7" retrievable bridge plug and dumped 10 cuft of sand Pumped the cellar and attempted to open the surface casing valves and secured the well
9/26/2014	Cleaned the cellar and opened the 7" production casing x 10-3/4" surface casing annulus with 0 psig pressure Work as directed and cleaned the location.
9/29/2014	Opened the well with 200 psig surface pressure. Bled down the well and circulated the gas cut brine from the well. Pulled out of the well and laid down the bridge plug retrieving tool. Made up an WEA 7" squeeze packer on the 2-7/8" workstring. Ran in the well to 3005', set the test packer and pressure tested between packer and retrievable bridge plug to 500 psig for 10 minutes (Test good). Released the test packer, pulled to 2943', set the test packer and pumped at 1 9 bpm @ 900 psig surface pressure Released the test packer, ran in the well to 3005' set the test packer, opened the bridge plug unloader and secured the well
9/30/2014	Opened the well with 300 psig surface pressure on the tubing and the casing Bled down the well and circulated the gas cut brine from the well Released the test packer, pulled to 2786', set the test packer and pressure tested the 2-7/8' workstring x casing annulus to 1000 psig for 10 minutes (Test good) Moved in and rigged up the Halliburton cementing equipment and pressure tested the lines to 3000 psig Established injection rate at 1 bpm at 900 psig surface pressure. Mixed and pumped 16 bbls of 14.9 ppg, Class "G" cement with additives Closed the unloader and displaced the cement with 17 bbl of brine. Squeezed 11 bbl of cement out of the leak at 2946' with the final squeeze pressure at 1130 psig Rigged down and moved out the Halliburton cementing equipment. Waited on cement for 2 hours. Opened the well with 530 psig and bled down the pressure to 0 psig. Released the test packer, Pulled to 2386', rigged up and reverse circulated with 45 bbl of brine with a trace of cement to the surface and secured the well
10/1/2014	Opened the well with 230 psig surface pressure on the tubing and the casing. Ran in the well and tagged cement at 2760', pulled to 2693' and set the test packer. Pressure tested the 2-7/8" workstring x casing annulus to 1000 psig for 10 minutes (Test good) Pressure tested below the test packer to 1000 psig (Bleed down 500 psig in one minute) Pulled out of the well and laid down the test packer. Made up a 6-1/8" bit, a bit sub, and (4) 4-3/4" drill collars on the 2-7/8" workstring. Ran in the well to 2760', rigged up the power swivel and cleaned out the cement to 2980' Circulated the well clean and secured the well.

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HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company
Field: Aliso Canyon
County: Los Angeles
Well: Frew 2
Surface Location. Sec. 29 3N 16W S.B.B.M
A.P.I. No. 03700665
Todd Van de Putte
Title: Senior Storage Field...
(President, Secretary, or Agent)
Date: 2/19/2015
Signature: Todd K Van de Putte
(Person Submitting Report)
Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300
Telephone Number: 818-701-3339

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Start Date	Ops. DOGGR Rpt
10/2/2014	Opened the well with 95 psig surface pressure on the tubing and the casing. Ran in the well to 3050' with no tag of cement Pulled out of the well and laid down the 6-1/8" bit Made up a 7" casing scraper on the 2-7/8" workstring. Ran in the well to 3050' and pulled out of the well and laid down the 7" casing scraper. Made up a WEA 7" test packer on the 2-7/8" workstring Ran in the well to 3050', set the test packer and pressure tested below the test packer to 1000 psig for 10 minutes (Test good). Released the 7" test packer, pulled to 2786', set the test packer and pressure tested the 2-7/8" workstring x casing annulus to 1000 psig for 10 minutes (Test good). Pressure tested below the 7" test packer and pumped in at1.5 bpm @ 900 psig. Released the test packer, pulled up the hole to 2900' and secured the well
10/3/2014	Opened the well with 100 psig surface pressure on the tubing and the casing. Circulated the gas cut brine from the well. Pulled out of the well and laid down the 7" test packer Move in and rigged up Schlumberger wireline unit Made up 7" USIT tools on wireline. Ran in the well to 3500' and logged to the surface with 500 psig pressured on the production casing. Rigged down and moved out the Schlumberger wireline unit Made up a WEA 7" test packer on the 2-7/8" workstring. Ran in the well to 3000' and secured the well.
10/6/2014	The well had 300 psig surface pressure on the tubing and the casing Circulated the gas cut brine from the well Pulled to 2786', set the 7" test packer and pressure tested the 2-7/8" workstring x casing annulus to 1000 psig (Test good). Moved in and rigged up the HES cementing equipment and pressure tested the lines to 3000 psig Pumped in at 1 bpm at 850 psig Opened the test packer unloader, mixed and pump 16 bbl of 14.9 ppg Class "G" cement with additives, closed the unloader and displaced with 17 bbl of brine with the final squeeze pressure at 930 psig Closed in the well and monitored the well pressure Rigged down and moved out the HES cementing equipment. Waited on cement two hours. Opened the well with 600 psig surface pressure, released the test packer, and pulled to 2600'. Rigged up and reverse circulated with 33 bbl of brine with trace of cement returns to the surface Set the 7" test packer and pressured to 900 psig and secured the well
10/7/2014	Opened the well with 179 psig surface pressure on the tubing and 0 psig on the casing. Pressured tubing to 950 psig (slow bleed down) Bled down the pressure to 0 psig and released the test packer Pulled out of the well and laid down the test packer Made up a 6-1/8" bit,a bit sub and (4) 4-3/4" drill collars on the 2-7/8" workstring. Ran in the well and tagged cement at 2795' Rigged up the power swivel and drilled out the cement to 2916' Ran in the well to 3100' and circulated the well clean Pressure tested the 7" production casing from 3500' to 1013 psig surface pressure (bled down to 995 psig in 10 minutes) and secured the well.
10/8/2014	Opened the well with 30 psig surface pressure on the tubing and the casing Pulled out of the well and laid down the 6-1/8" bit. Made up a 7" casing scraper and a bumper sub on the 2-7/8" workstring Ran in the well to 3500', pulled out of the well and laid down the casing scraper Made up a WEA 7" test packer on the 2-7/8" workstring Ran in the well to 3000', set the test packer and pressure tested below the packer to the bridge plug at 3500' to 1900 psig surface pressure for 20 minutes (Test good) Pressure tested the 2-7/8" workstring x casing annulus to 1060 psig surface pressure (broke down and pumped in at 1 3 bpm at 750 psig) Released the test packer, pulled to 2910', set the test packer and pressure tested the 2-7/8" workstring x casing annulus to 1900 psig for 20 minutes (Test good) Pressure tested below the 7" test packer and pumped in at 1.3 bpm at 750 psig Released the test packer, ran in the well to 3000' and secured the well
10/9/2014	Opened the well with 262 psig surface pressure on the tubing and the casing Circulated the gas cut brine from the well with 95 bbl of 10 ppg brine. Pulled out of the well and laid down the test packer. Moved in and rigged up the Schlumberger wireline unit with pack-off Made up the USIT tools on the wireline Ran in the well to 3200' and logged from 3200' to 1000'. Rigged down and moved out the Schlumberger wireline unit. Ran in the well with an open ended 2-7/8" workstring to 3350' and secured the well
10/10/2014	Opened the well with 90 psig surface pressure on the tubing and the casing and circulated the gas cut brine from the well. Dumped 20 cuft of sand on top of the 7" retrievable bridge plug and displaced with 10 bbl of brine Pulled up the hole to 2976', rigged up and reverse circulated the well clean Pulled out of the well. Made up a WEA 7" cement retainer on the 2-7/8" workstring Ran in the well to 2849', set the cement retainer, pressure tested the 2-7/8" workstring x casing annulus to 1000 psig for 20 minutes, pressure tested the tubing to 1000 psig (Both tests good) and secured the well.

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company Field: Aliso Canyon County. Los Angeles
Well: Frew 2 Surface Location. Sec 29 3N 16W S.B.B.M.
A.P.I. No 03700665 Todd Van de Putte Title· Senior Storage Field. .
(President, Secretary, or Agent)
Date· 2/19/2015 Signature. Todd R. Van de Putte
(Person Submitting Report)
Address PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number· 818-701-3339

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

Start Date	Ops DOGGR Rpt
10/13/2014	Opened the well with 265 surface pressure on the tubing and bled off pressure. Moved in and rigged up the Halliburton cementing equipment and pressure tested lines to 3000 psig Pumped into retainer at 0.6 bpm at 950 psig, Unstabbed from the cement retainer. Mixed and pumped 16 bbls of 14.9 ppg Class "G" cement with additives, stabbed into the cement retainer and squeezed 10.5 bbl of cement out holes, unstabbed and pumped 1.5 bbl of cement on top of the retainer (final squeeze pressure; 814 psig at 0.2 bpm) Pulled up the hole to 2700', rigged up and reverse circulated with a trace of cement to the surface. Pulled out of the well and laid down the star guide. Made up a 6-1/8" bit and (4) 4-3/4" drill collars on the 2-7/8" workstring. Ran in the well to 2480' and secured the well
10/14/2014	The well was standing full of brine Ran in the well and tagged cement at 2814' Laid down the tubing and picked up the power swivel Drilled out the cement to 2850' (shut down and repacked packing on the power swivel). Drilled out the cement retainer to 2850', circulated the well clean, pulled up the hole to 2820' and secured the well
10/15/2014	Opened the well with 0 psig surface pressure on the tubing and the casing The well was standing full of brine Drilled out the retainer (bit locking up) Pulled out of the well and laid the down 6-1/8" bit (cones loose). Ran in the well with open ended tubing to 2850' Rigged up and reverse circulated large chunks of retainer from the well and secured the well
10/16/2014	The well was standing full of brine. Pulled out of the well with the kill string Made up a 6-1/8" bit, a bit sub, and (4) 4-3/4" drill collars on the 2-7/8" workstring. Ran in the well and picked up the power swivel and drilled out the cement retainer and cement to 2877' Circulated the well clean and secured the well
10/17/2014	Opened the well with 0 psig surface pressure on the tubing and the casing. Rigged up a power swivel and cleaned out cement to 2943' Circulated the well clean and laid down the power swivel Rigged up and pressure tested the production casing from surface to 3400' to 1900 psig surface pressure for 20 minutes (lost 95 psig) and pulled out of the well Made up a 7" casing scraper on the 2-7/8" workstring. Ran in the well to 3000', pulled out of the well and laid down the casing scraper Made up a bridge plug retrieving tool on the 2-7/8' workstring Ran in the well to 3299', cleaned out fill and sand to the bridge plug at 3500', and circulated the well clean Released the 7" retrievable bridge plug, pulled out of the well to 2300' and secured the well
10/20/2014	Pulled out of well and laid down the retrievable bridge plug Rigged up the shooting flange and moved in and rigged up the Baker Atlas wireline unit. Made up a junk basket on wireline. Ran in the well to 8100' and pulled out of the well Made up the Vertilog tools on wireline. Ran in well to 3872' unable to work past tight spot at 3872' Logged from 3872' to the surface Rigged down and moved out the Baker wireline unit Ran in the well with a kill string to 2900' and secured the well.
10/21/2014	The well was standing full of brine Pulled out of the hole with the kill string. Moved in and rigged up the Tiger wireline unit. Ran in the hole with 7" - 60 arm caliper tool to 8,100' Logged the 7" production casing from 8,079' to the surface Rigged down and moved out theTiger wireline unit Made up a WEA 7" bridge plug retrieving tool on the 2-7/8' workstring Ran in the hole to 5,860' and secured the well
10/22/2014	The well was standing full of 10 ppg brine. Ran in the hole with the bridge plug retrieving tool to 5860'. Tagged sand at 8103' and changed hole over to clean 8 5 ppg KCl brine Cleaned pump tank and reverse circulated the sand from 8103'; to the bridge plug at 8120'. Reverse circulated two tubing volumes and released the 7" bridge plug at 8120'. Pulled up the hole to 3,100' and secured the well.
10/23/2014	Opened the well with 0 psig surface pressure on the tubing and the casing Filled the well with 75 bbl of 8 5 ppg KCl brine. Pulled out of the well and laid down the 7" bridge plug Made up an Otis Seal Assembly on one joint of 2-7/8",6.5# L-80 tubing, 10' x 2-7/8" pup joint and a Weatherford H Valve and a retrieving head on the 2-7/8" workstring Ran in the hole to the Otis permanent packer profile at 8160' and latched the Seal Assembly into the packer profile Pulled 12 klb over string weight to check the J latch. Filled the casing with 8.5 ppg KCl brine and pressure tested the packer seals to 500 psig surface pressure for 5 minutes. Lost 60 psig and bled off the pressure Casing flowing and circulated the gas cut brine from the well. Pulled up the hole to 3150' and secured the well

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company | Field: Aliso Canyon | County: Los Angeles
Well: Frew 2 | Surface Location: Sec. 29 3N 16W S.B.B.M.
A.P.I. No. 03700665 | Todd Van de Putte | Title Senior Storage Field...
(President, Secretary, or Agent)

Date: 2/19/2015 | Signature. Todd Van de Putte
(Person Submitting Report)

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

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Start Date	Ops. DOGGR Rpt
10/24/2014	Opened the well with 0 psig surface pressure on the tubing and the casing Filled the well with 2 bbl of 8.5 ppg KCl brine Pulled out of the well and laid down the H Valve running tool Ran in the hole to 2939' with a 7" fullbore test packer on the 2-7/8" workstring. Set the test packer and pressure tested the 2-7/8" workstring x casing annulus from surface to packer at 1000 psig surface pressure (Test good) Released the 7" test packer, ran the in hole to 5506', and pressure tested from 5506' to the Otis Packer at 8160' at 1,250 psig for 20 minutes (recorded on a test chart, Test good). Pressure tested from 5506' to the surface at 1250 psig for 20 minutes (recorded on a test chart, Pressure bled to 750 psig over the 20 minute interval). Released the test packer and pulled to 3998'. Pressure tested from 3998' to 8160' to 1250 psig for 20 minutes (recorded on a test chart, Test good) Released the test packer and pulled up the hole to 3126'. Pressure tested from 3126' to 8160' at 1250 psig for 20 minutes (recorded on a test chart, Test good). Pressure tested from 3126' to surface at 1250 psi for 20 minutes (recorded on a test chart, pressure bled to 750 psig over the 20 minute interval). Released the test packer and secured the well.
10/27/2014	Opened the well 360 psig surface pressure and bled the pressure from the well The well was standing full of KCl brine Pulled the test packer to 2939' Pressure tested the 2-7/8" workstring x casing annulus from 2939' to surface at 2170 psig for 20 minutes (recorded on a test chart, Test good) Released the test packer and pull up the hole to 2001' Set test packer and pressure tested the 2-7/8" workstring x casing annulus to surface at 2590 psig for 20 minutes (recorded on a test chart, Lost 40 psig over the test interval) Released the test packer and pulled up the hole to 1,500'. Set the test packer and pressure tested the 2-7/8" workstring x casing annulus to 2750 psig for 20 minutes. (Lost 15 psig over the test interval) Released the test packer and pulled up the hole to 1000' Set the test packer and pressure tested the 2-7/8" workstring x casing annulus to 3112 psig for 20 minutes (Lost 62 psig over the test interval). Release the test packer, pulled out of the hole and laid down the test packer Ran in the hole open ended to 3150' and secured the well
10/28/2014	Opened the well with 167 psig surface pressure and bled the pressure to 0 psig The well was standing full of 8 5 ppg KCl brine. Pulled out the well with the kill string and install pack-off. Moved in and rigged up the Schlumberger wireline unit Made up the USIT tools on wireline Ran in the well with the USIT tools and calibrated the logging tools from 8106' to 7900'. Ran back in to 8117' and log the well to the surface Rigged down the Schlumberger wireline unit and secured the well.
10/29/2014	Opened the well with156 psig surface pressure and bled the pressure from the well The well was standing full Rigged up the Schlumbeger wireline unit and picked up the Schlumberger UCI logging tools Ran in the well to 3700'. Logged from 3700' to 3550', 3240' to 3190', 3000' to 2450', 1675' to 1400', 750' to 440' Pulled out of the well and laid down the UCI logging tools. Rigged down and moved out the Schlumberger wireline unit Ran in the hole with a kill string to 3120' and secured the well
10/30/2014	Opened the well with 115 psig surface pressure and bled pressure from the well to 0 psig Pulled the kill string from 3150', installed the shooting flange and secured the well
10/31/2014	Moved in and rigged up the Weatherford wireline unit to log the well. Made up the WEA Ultrasonic Radial Scanner and Cement Bond tools on wireline. Ran in the well to 8177' and logged the 7" production casing to the surface. Laid down the logging tools and secured the well
11/3/2014	Opened the well with 220 psig surface pressure and bled the pressure from the well The well was standing full of KCl brine Weatherford logging truck was down for repairs Cleaned the location and secured the well
11/4/2014	Opened the well with 130 psig surface pressure and bled the pressure from the well The well was standing full of KCl brine Rigged up the Weatherford wireline unit to run the cased hole logs Made up the 5 5" Multi Sensor Caliper Log tools on wireline Ran in the well and set down on the tight spot in the 7" casing at 3872' Ran the log from 3872' to the surface Laid down the caliper log tool and made up the CIT logging tools on wireline Ran in the well and logged the 7" production casing from 2872' to the surface Rigged down and moved out the Weatherford wireline unit and rigged down the shooting flange Ran in the hole with a kill string to 3100' and secured the well

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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: Frew 2
A.P.I. No. 03700665

Field: Aliso Canyon
Surface Location. Sec. 29 3N 16W S.B.B.M

County: Los Angeles

Todd Van de Putte
Title: Senior Storage Field. .
(President, Secretary, or Agent)

Date: 2/19/2015

Signature: Todd R Van de Putte
(Person Submitting Report)

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

Telephone Number: 818-701-3339

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Start Date	Ops. DOGGR Rpt
11/5/2014	Opened the well with 5 psig surface pressure and bled the pressure from the well Circulated the well with 100 bbl of 8 5 ppg KCl brine at 3100' Pulled out of the wel with the kill string Made up a 7" Lokset test packer on the 2-7/8" workstring, Ran in the hole 1719', set the test packer and pressure tested the 2-7/8" workstring x casing annulus to 1820 psig for 10 minutes (recorded on a test chart, Test good). Released the test packer, ran in the hole to 2939' and set the test packer Pressure tested the 2-7/8" workstring x casing annulus to 1270 psig for 10 minutes (recorded on a test chart, Test good). Released the test packer, pulled out of the well and laid down the test packer. Made up a 7" retrievable bridge plug on the 2-7/8" workstring. Ran in the well and set bridge plug at 4000' Spotted 18 linear feet of sand on top of the bridge plug and pulled out of hole Made up a 7" Lokset test packer on the 2-7/8" workstring Ran in the well and set the test packer at 3000' Pressure tested the bridge plug at 4000' to 1000 psig for 5 minutes (Good test). Released the test packer and pulled up the hole to 2939' Rigged up the test chart and pressure tested the cement squeeze holes (2949' to 2959') to 1,250 psig surface pressure The pressure bled to 800 psig surface pressure in 2 minutes. Recorded the pressure loss on the 24 hour chart and secured the well
11/6/2014	The test chart showed 308 psig remaining on the well after a 12 hour pressure test on the squeeze holes from 2939' to 2959' Conducted step rate injection test with the rig pump with 1 bpm at 950 psig;1.7 bpm at 1100 psig and 2 bpm at 1200 psig. Bled the pressure down from the well. Released the 7" test packer at 2939'. Lowered the test packer to 3000' and pressure tested the 7" production casing from 3000' to the bridge plug at 4000' to 1250 psig surface pressure (charted for 20 minutes, Good test) Released the 7" test packer, pulled out of the hole and laid down the test packer Ran in the well with a kill string to 3100' and secured the well.
11/7/2014	Opened the well with 264 psig surface pressure and bled the pressure from the well. Pulled out of the well from 3100' Made up a full bore squeeze packer on the 2-7/8" workstring. Ran in well to 3100', rigged up the PGSR and secured the well
11/10/2014	Opened the well with 247 psig surface pressure and bled the pressure from the well. Circulated the well with 100 bbl of 8 5 ppg KCl with tail hanging at 3,100'. Pulled the tubing tail to 2977'. Held JSA/Safety meeting with the Rival and the HES crews. Moved in and rigged up the HES cementing equipment Pumped 5 bbl fresh water ahead, mixed and pumped 15 6 bbls of 14.9 ppg Type III cement with 35% BWOC Silica Flour, 0.5% BWOC Halad-322, 0 25% BWOC Super CBL, and 0 5% BWOC CFR-3 followed by 1 bbl of fresh water and displaced the cement with 12 bbls of 8.5 ppg KCl brine Cement in place at 9:55 am. Pulled the tubing tail to 2445', fullbore packer at 1943' Reverse circulated two tubing volumes from the well with a small amount of cement in returns to the surface. Began squeezing cement at 10.48 am Squeezed away 4 bbls at 0.25 bpm Final the squeeze pressure 1200 psig Shut down for 7 minutes and the pressure bled to 1076 psig Attempted to hesitate squeeze and pressure locked up at 1238 psig Closed in the well and rigged down the Halliburton cementing equipment. Moved in the power swivel and secured the well
11/11/2014	Opened the well with 917 psig surface pressure on the well (1,238 psig previous day) on the tubing and 277 psig (332 psig previous day) on the casing Bled off the pressure and released the fullbore packer, lowered the tubing and tagged the cement at 2770'. Pulled out of the hole and laid down the fullbore packer Made up a 6-1/8" bit and four 4-3/4" drill collars on the 2-7/8" workstring. Ran in the hole and rigged up the power swivel Drilled out firm cement from 2767' to 2775' and hard cement from 2775' to 2905'. Circulated the well clean Pulled up the hole and secured the well.
11/12/2014	Opened the well with 0 psig surface pressure on the well Drilled out hard cement from 2905' to 2981' and circulated the wel clean Ran in the hole and stopped in a tight spot at 3880' Pulled out of hole and stood back the bit and drill collars Made up a 7" 32# positive casing scraper on the 2-7/8" workstring Ran in the hole and made two passes through cemented area from 2976' to 2985' Worked through the tight spot at 3872' several times. Took 6 klb to push and pull through the tight spot. Ran the casing scraper to 3910'. Pulled out of the hole and laid down the casing scraper Made up a 7" Lokset test packer on the 2-7/8" workstring. Ran in the hole to 3001', set the test packer and pressure tested the bridge at 4,000' to 500 psig for 5 minutes (Lost 7 psig) Released the test packer and pulled up the hole to 2939'. Pressure tested from 2939' to the bridge plug at 4000' to 950 psig for 10 minutes (Recorded on test chart, Test good). Left 950 psig on the tubing and the casing and shut in the well. Recorded pressure over night on a test chart and secured the well

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

HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company Field Aliso Canyon County: Los Angeles
Well: Frew 2 Surface Location. Sec. 29 3N 16W S.B B.M.
A.P.I. No. 03700665 Todd Van de Putte Title: Senior Storage Field...
(President, Secretary, or Agent)

Date: 2/19/2015 Signature [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
11/13/2014	Removed pressure recording chart Pressure on the well remained at 950 psig for 10 hours Released the test packer at 2939' and pull out of hole Rigged down the tubing tools and the rig floor. Bled surface pipe to zero. Rigged down the Class III 5M BOPE Rigged up the production tree. Installed a 2-7/8" N80 pup joint on top of the tree Rigged down 11" x 13-5/8" 5M tubing head and seal flange Attempted to pull the tubing head loose with no success. Scheduled the welder to cut the wellhead studs in the morning and secured the well.
11/14/2014	The well had 0 psi surface pressure Assisted the welder in cutting wellhead bolts Cut six bolts completely through Partially cut an additional six bolts. Left four bolts intact and secured the well
11/17/2014	Unable to cut the wellhead bolts due to Red Flag Warning/weather conditions. Cleaned and prepped the waste bins for transport.
11/18/2014	Unable to cut the wellhead bolts due to Red Flag Warning/weather. Worked as directed. Labor only
11/19/2014	Obtained fire permit from Gas company Operations. Cut the welll head bolts and removed the tubing head and the primary seals (sent in for repairs) Nippled up a crossover flange, the production tree and secured the well
11/20/2014	Held safety meeting Work as directed Waiting on the tubing head repair.
11/21/2014	Waiting for the rebuilt tubing head equipment Worked as directed.
11/24/2014	The well had 0 psig surface pressure. Removed the production tree and the crossover spools Installed new 7" x 13-5/8" seals Installed the re-built 13-5/8" x 9" DSA and 9" 5M Tubing Spool Pressure tested the upper seals to 300 psig (low) and 3400 psig (high) for 15 minutes each, and recorded on a test chart Pressure tested the lower seal to 300 psgi (low) and 3400 psig (high0 for 15 minutes, each recorded on a test chart Nippled up the Class III 5M 11" BOPE Installed the tubing hanger. Shell tested the BOPE to the pipe rams to 1200 psig for 15 minutes (Test good) Laid down the four drill collars and secured the well
11/25/2014	Made up the 7" bridge plug retrieving tool on the 2-7/8" workstring. Ran in the well and tagged the sand at 3983' Reverse circulated the sand from the bridge plug at 4000'. Released the 7" Lokset Bridge plug, pulled out of the hole and laid down the bridge plug Ran in hole to 3100' with a kill string and secured the well
11/26/2014	Opened the well with 0 psig surface pressure on the tubing and the casing Ran in hole with the bridge plug retrieving tool to 8070' and secured the well.
12/1/2014	The well was standing full of 8.5 ppg KCl brine. Ran in the hole and latched onto the H Valve at 8116'. Pulled 12 klb over string weight to check the latch. Equalized the pressure and pulled the seals out of the packer at 8130' Filled the well with 20 bbl of 8 5 ppg KCl brine. Circulated 60 bbl of 8 5 ppg KCl brine down the tubing Pulled out of the hole and laid down the H Valve and seal assembly. Halliburton picked up the permanent packer seal assembly for re-dress. Picked up 11 joints of 2-1/16" CS Hydril tubing with a mule shoe on the 2-7/8" workstring Ran in the hole to 7871' and secured the well
12/2/2014	Ran in the well with 2-1/16" CS Hydril tubing from 7861' Worked the mule shoe through the permanent packer profile at 8160' and tagged fill at 8445' (13' of fill) Filled hole with 43 bbl of 8 5 ppg KCl brine Reverse circulated the fill from 8445' to the top of the cement plug at 8458' Reverse circulated the well clean with 106 bbl of KCl brine. Pulled out of the well and laid down 121 joints of 2-7/8" P-110 workstring tubing. Swapped the tubing trailers an laid down 27 joints of 2-7/8" P-110 workstring tubing and secured the well
12/3/2014	Opened the well with 0 psig surface pressure on the tubing and the casing Filled well with 60 bbl of 8.5 ppg KCl brine. Finished laying down the 2-7/8" P-110 workstring tubing and the 11 joints of 2-1/16" CS Hydril tubing tail Moved in the trailer with 190 joints of 2-7/8",6 5# L-80 eue completion tubing Made up re-dressed a seal assembly on a 6' x 2-7/8" L-80 pup joint. Picked up one joint of 2-7/8",6 5# L-80 tubing, a 2.213" WXN profile nipple, one joint of 2-7/8",6.5# L-80 tubing, a WEA Sliding Sleeve, one joint of 2-7/8",6.5# L-80 tubing, 2' x 2-7/8" L-80 pup jts, a new BST Gas Lift Mandrel (loaded with a dummy valve), a 4' x 2-7/8" L-80 pup jt and 112 joints of 2-7/8",6.5# L-80 tubing and secured the well

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HISTORY OF OIL OR GAS WELL

Operator: Southern California Gas Company | Field: Aliso Canyon | County: Los Angeles
Well: Frew 2 | Surface Location: Sec. 29 3N 16W S.B.B.M.
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Start Date	Ops DOGGR Rpt
12/4/2014	Opened the well with 0 psig surface pressure on the tubing and the casing Pumped 35 bbl of 8.5 ppg KCl brine and the well did not fill. Continued drifting and picking up 2-7/8",6 5# L-80 tubing Picked up the Weatherford 2-7/8" SSSV and picked up and additional 17 joints of 2-7/8", 6.5# L-80 tubing. Latched into the Otis permanent packer at 8160'. Pulled 10 klb over to check the latch. Set down with 10 klb compression and marked the tubing for space out Released the seal assembly from the permanent packer Laid down one joint of 2-7/8" tubing Pulled 8 stands to the SSSV and installed the 1/4" control line. Pressure tested the control line to 4500 psig. Lost 250 psig in 15 minutes with no visible leaks. Bled off the control line Secured the well and re-pressured the control line to 4500 psig for over night test.
12/5/2014	Test pressure on the control line dropped to 3200 psig overnight Bled the control line to zero and removed the control line from the SSSV Connected the test pump to the SSSV and pressured the SSSV to 4500 psig (Held for 15 minutes, Test good) Re-installed the control line and pressure tested to 4500 psi for 20 minutes (Test good) Ran in the hole with 8 stands of the 2-7/8" L-80 tubing and installed 3 stainless steel bands per joint on the control line Rigged up to circulate down the tubing Changed the well over to clean 8 5 ppg KCl with biocide and corrosion inhibitor. Picked up two 2-7/8" L-80 tubing pups (6' and 4') and the redressed the tubing hanger Tied 1/4" control line into the bottom of the tubing hanger. Pressure tested the control line to 4500 psig for 15 minutes (Test good). Up/down weight was 52 klb. Lowered the seal assembly and latched into the Otis permanent packer at 8160'. Pulled 10 klb over string weight to check the J-Latch. Landed the completion tubing with 10 klb compression. Locked the tubing hanger down with the tie down pins on the wellhead Pressure tested the tubing x casing annulus to 500 psig for 10 minutes (Test good) Rigged down the working floor and the tubing tools Rigged down the Class III 5M BOPE Installed the production tree and pressure tested to 300 psig (low) and 5000 psig (high) for 15 minutes each (Test good). Pressure tested the control line to the SSSV to 4500 psig for 15 minutes (Test good). Secured the well
12/8/2014	Rigged down the Rival Rig #12 and load the tools and associated equipment. Rigged down and loaded the pump and the tanks. Moved rig and associated equipment to the P69 drill site

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

No. P 214-0289

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

PERMIT TO CONDUCT WELL OPERATIONS

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

Ventura, California
October 1, 2014

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

Your proposal to **Rework** well **"Frew" 2**, A.P.I. No. **037-00665**, Section **29**, T. **03N**, R. **16W**, **SB** B. & M., **Aliso Canyon** field, **Sesnon** pool, **Los Angeles** County, dated **9/26/2014**, received **9/30/2014** has been examined in conjunction with records filed in this office. (Lat: **34.315434** Long: **-118.574546** Datum:**83**)

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: **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. This office shall be contacted by phone prior to making any program changes and no changes are made without Division approval.
4. **THIS DIVISION SHALL BE NOTIFIED TO:**
   a. Inspect the installed blowout prevention equipment prior to commencing downhole operations.

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

Engineer Bruce Hesson
Office (805) 654-4761

Steven Bohlen
State Oil and Gas Supervisor

By _____
Bruce Hesson, *District Deputy*

BH/bh

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.

Rec'd 09-30-14 DOGGR D2 Ventura

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

FOR DIVISION USE ONLY		
	Forms	
Bond	~~[illegible]~~ / OGD121	
	CALV WIMS	1154

NOTICE OF INTENTION TO REWORK / REDRILL WELL

Detailed instructions can be found at: www.conservation.ca.gov/dog/ P214-0289

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework ☒ / redrill ☐ (Check one) well "Frew" 2, API No. 037-00665,

Sec. 29, 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.)

13-3/8", 48# K-55 at 501' (cemented to surface)
7", 26#, 23#,28#, 30# J-55, N-80 (0-8850') (cemented) WSO @ 8236' squeezed at 8243' (See schematic for perf intervals)
4-3/4", 16#, J-55 from 8817'-9290', TD = 9339' / PBTD = 8485'

The total depth is: 9339 feet. The effective depth is: 8458 feet.

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

Present zone pressure: Varies psi. Anticipated/existing new zone pressure: Variable 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) : Nipple up a Class III 5M BOPE
Pull the 2-7/8" tubing string/scrape the 7" production casing
Run USIT log, pressure test 7" production casing, and attempt to squeeze the 7" production casing at 2950' (+/-)
Clean out fill to the bottom of the 7" production casing @ 8458'
Run a new 2-7/8" completion string and test.
Nipple down the Class III 5M BOPE

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

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

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

Name of Operator			
Southern California Gas Company			
Address: 12801 Tampa Ave.		City/State: Northridge, CA	Zip Code: 91326-1045
Name of Person Filing Notice: Todd Van de Putte	Telephone Number: 661-305-5387	Signature: Todd Van de Putte	Date: 9-26-2014
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 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 Program

DATE: September 26, 2014

OPERATOR: Southern California Gas Company

FIELD: Aliso Canyon

WELL: Frew 2

CONTRACTOR: Rival #12

OBJECTIVE: Remove and replace the failed 2-7/8" Subsurface Safety Valve, replace the expended 2-7/8" tubing string, cement squeeze the casing leak at 2950'(+/-) and the replace the leaking wellhead valves.

API Number: 037-00665

ELEVATION: Take all measurements from the original KB = 8' above GL (GL@ 2796').

SURFACE LOCATION: Sec 29, T3N, R16W, S.B. B&M

PRESENT WELL CONDITION (See attached wellbore schematic):

0' – 501'	13-3/8"	48#	K-55, Buttress	Cemented (to surface)
0' – 47'	7"	26#	N-80, LT&C	Cemented, WSO @ 8236', squeezed at 8243'. Perf from 8265'-8458' (Possible casing restrictions at 3878' and 8130') Identified casing leak at 2950'; See schematic for detailed perforation intervals.
47'-1732'		23#	N-80	
1732'-5485'		23#	J-55	
5485'-6531'		29#	J-55	
6531'-8850'		32#	J-55	
8817'- 9290'	4-1/2"	13.5#	J-55	Slotted from 9179'-9290', Liner perf and squeezed at 9179' w/ 50 sxs. TD = 9339' / PBTD = 8458'.

Estimated Wellbore Top of Geologic Markers:

~~MP: 7875' MD / 7874' TVD~~
S1: 8160' MD / 8159' TVD
S4: 8262' MD / 8261' TVD
S8: 8420' MD / 8419' TVD

Estimated Surface Pressure: 2300 psig (variable)

Estimated Bottomhole Static Temperature: 180 deg F

Pre Rig Notes:

Locate the rig anchors and reinstall if necessary.

The well is on a tight location and site prep will be required.

There is currently a failed 2-7/8" Baker Model T-5 SSSV in the tubing string and the wellhead valves are leaking. There are wireline tools stuck in the 2-7/8" completion string.

The wellbore is vertical.

WELL WORK PROGRAM

1. Move in and rig up the production rig. Spot the pump and the closed top Baker tanks. Prepare to re-kill the well with an HEC polymer pill and 8.6 ppg KCl brine. Verify the current field surface pressure to confirm the proper kill fluid density prior to killing the well and for well control fluids during the workover operation.
2. Install an 11" Class III 5M BOPE per Gas Company instructions. All connections and valves must be flanged and at least 5000 psig rated.
    a. Pressure test the 9" 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 each test.
    c. All tests are to be charted and filed.
3. Rig up and kill the well with a 50 bbl, 100 vis, HEC polymer pill followed by the 8.6 ppg KCl brine per schedule. Verify the field surface pressure to confirm kill fluid weight prior to killing the well.
4. Release from the 7", the Otis PW permanent packer, pull out of the well and lay down the 2-7/8" completion string and the associated production equipment. Send the 2-7/8" completion tubing to Tuboscope in Santa Paula for inspection.
5. Pick up a 7" casing scraper on the 2-7/8", 6.5#, P-110 workstring and run to the top of the 7" permanent packer at 8160'. Pull out of the hole and lay down the 7" casing scraper. *Note: In the previous workover, restrictions in the 7" production casing were noted at 3878' and 8130'. Use caution when working through these areas in the production casing.*
6. Make up a cleanout BHA with a 2-1/16" tubing tail on the 2-7/8" workstring and run in the hole, tag fill and make an attempt to clean out the 7" production casing to the top of the cement plug at 8458'(+/-).
7. Pick up and run a 7" retrievable bridge plug to 8120' (+/-). Set the bridge plug, sand off the bridge plug and pressure test the 7" production casing to 1000 psig surface pressure.
8. Rig up the wireline unit and run a USIT/CBL/Neutron log in the 7" production casing from the top of the bridge plug at 8120' (+/-) to the surface. Rig down the wireline unit and the associated equipment.

9. Pick up a 7" test packer on the 2-7/8", P-110 workstring and run in the hole and pressure test the entire 7" production casing per the pressure testing schedule (to be provided). Pull out of the hole and lay down the 7" test packer.

10. Possible casing damage/casing leak was identified at 2950' (+/-). Install a 7" retrievable bridge plug at 3500'(+/-) and spot a sand plug on top of the 7" bridge plug. Pressure test the bridge plug with the 7" test packer on the 2-7/8" workstring tubing.

11. Pick up and run a 7" test packer on the 2-7/8" workstring tubing and squeeze (50 sxs/minimum delivery) 14.8 ppg, Class "G" cement with gas migration additives into the perforations. Release the 7" test packer and pull 1500' above the squeeze holes and clear the tubing. Wait on the cement at least 8-12 hrs.

12. Lay down the 7" test packer and pick up and run a 6-1/8" mill tooth bit on a cleanout BHA and clean out the cement from the 7" production casing.

13. Pressure test the cement squeeze area of the 7" production casing at 2950' and verify the integrity of the casing. If the 7" production casing doesn't pressure test in this interval, then re-squeeze the 2950' interval with the same cement slurry as the first attempt.

14. Circulate the sand from the top of the 7" retrievable bridge plug.Remove the 7" retrievable bridge plug at 3500' and lay down the same.

15. Nipple down the Class III 5M BOPE and replace the pack off and the wellhead seals. Send in the 5M tubing head for seal replacements, refurbishment and for the installation of two new 3-1/8", 5M manual gate valves on the tubing head. Resinstall and function test the Class III 5M BOPE.

16. Once the tubing head and seals are refurbished and returned to the wellsite, remove the BOPE, and reinstall the tubing head and test all the wellhead seals to 5000 psig. Nipple up the 5M Class III BOPE and function test the BOPE.

17. Run in the hole with the 7" bridge plug retrieving tool on the 2-7/8", P-110 workstring, circulated the sand from the top of the bridge plug at 8120'. Release the 7" bridge plug, pull out of the hole and lay down the 7" bridge plug and the 2-7/8", P-110 workstring.

18. Pick up the new 2-7/8", 6.5#, L-80 tubing, the Weatherford 2-7/8" SSSV set at 524'(+/-), the refurbished GLM, new 2-7/8" sliding sleeve, new 2-7/8" XN nipple, a 2-7/8"and a new Otis seal assembly with a tubing tail and guide shoe and set in the Otis PW permanent packer profile as per the vendor recommended setting procedure.

19. Pressure test the 2-7/8" tubing x 7" production casing annulus to 1000 psig surface pressure. Function test the 2-7/8" SSSV per the vendor recommended procedure.

20. Nipple down the 11" Class III 5M BOPE and install the production tree with all new 5000#, manual gate valves and test to 5000 psig.

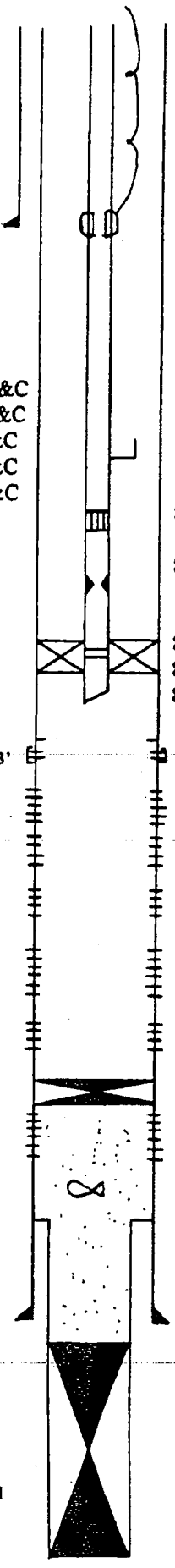
21. Release the Ensign Rig #321, rig down and move out the production rig and the associated equipment.

22. Unload the workover fluids from the wellbore and return the well to service.

FREW 2
ALISO CANYON

Elevation (GRD):	2796' ASL
Elevation (KB):	2804' ASL
Elevation (KB):	8' AGL
Status:	Injection/Withdrawal
Flow Region:	Tubing Flow
Surface Loc:	522' S and 410' W of station 99
Bottomhole Loc:	At 8100' MD, wellbore is 2' N and 52' W of surface location.

10/1/43: Well spudded
7/2/44: Well completed
12/5/56 - 1/16/57: Unsuccessful attempt to segregate gas-oil zones. Well shut-in due to excessive GOR.
3/13/73 - 4/14/72: Cleaned out to 8801'. Well converted to gas storage by perforating in Sesnon zone.
8/29/77 - 9/9/77: Cleaned out fill to 8770'. Pressure tested casing. Ran SSSV.
1/2/90 - 1/15/90: Cleaned out to 8801'. Set sand plug from 8470' to 8801'. Dump bailed cement from 8458' to 8470'. Ran Vertilog. Washed perfs from 8265' - 8458'. Ran casing scraper to 8458'.
5/20/94 - 5/24/94: Ran casing caliper log to inspect 7" casing following earthquake. Restrictions indicated at 3878' and 8130'. Installed SCSSV.



Surface Casing
13-3/8", 48#
0' - 501'

Production Casing
7"
0' - 47', 26#, N80, LT&C
47' - 1732', 23#, N80, ST&C
1732' - 5485', 23#, J55, ST&C
5485' - 6531', 28#, J55, ST&C
6531' - 8850', 30#, J55, LT&C

Tubing
2-7/8", 6.5#, N80, EUE
0' - 8166'

524' Baker T5 SCSSV

8053' PSIU Mandrel w/ 1" SOV @ 2700 psi w/ 1" BK latch

8092' Otis XD Sliding Sleeve (2.313" ID)

8127' Otis XN Nipple (2.313" seal bore) (2.205" no go)

Otis PW Packer at 8160' 3.25" ID

8160' J Latch landed with 6000 # on pkr
8162' Seal Units (2)
8166' Guide Shoe

WSO at 8236'
WSO (sqzd) at 8243'

Perfs 8 spf
8265', 8275', 8315' - 8335'
8360' - 8375', 8385' - 8405'
8430' - 8450', 8465' - 8473'
8490' - 8500', 8545' - 8560'
8580' - 8595', 8610' - 8655'
Perfs at 8545' - 8560' (cmtd)

Perfs 4 spf
8450' - 8456', 8608' - 8610'
Reperfs 2 spf
8385' - 8395', 8432' - 8450'
8492' - 9496', 8610' - 8620'

Cement Plug at 8458' - 8470'

Top of Fish (pkr slips) at 8801'

Sand Plug at 8470' - 8904'

Cement Plug at 8904' - 9339'

Liner
4-3/4", 16#, 45Y,FJ
8817' - 9290'
0.010" slotted liner from 9179' to 9290'
Liner perfed and squeezed with 50 sx cmt. at 9178'

TD at 9339' (9338')

Well Volume

	Cu. Ft.	Bbl.
Tubing	265	47
Csg/Lnr	61	11
Annulus	1400	249
Total	1726	307

Zone Tops

MP	7875'	(7874')
S1	8160'	(8159')
S4	8262'	(8261')
S8	8420'	(8419')

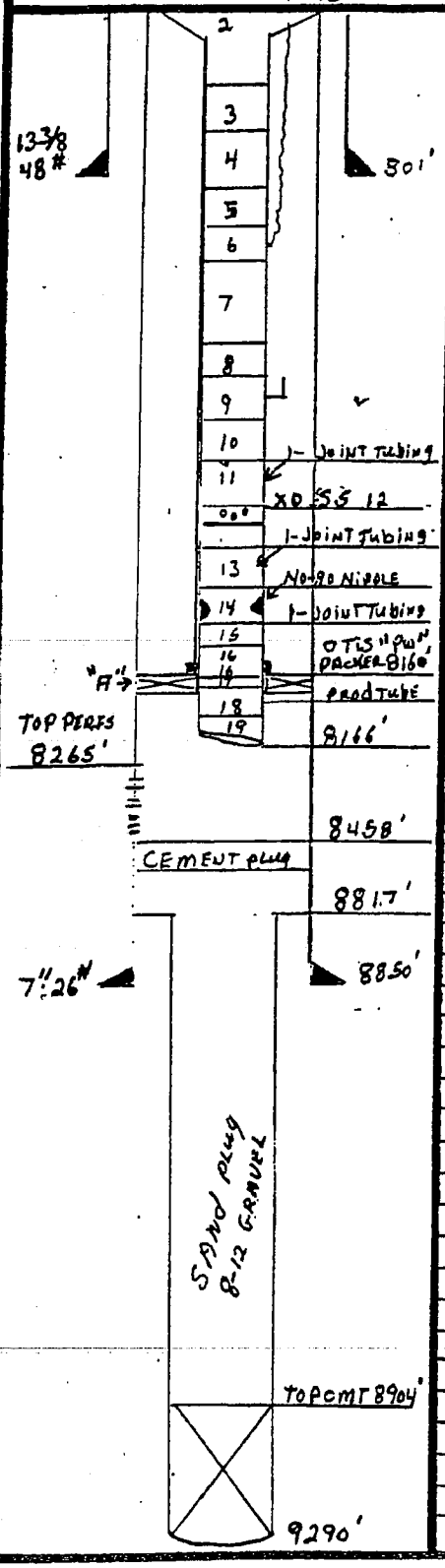
Reviewed By Date
Drlg. Eng: 1/6/95
Petr. Eng: 1/9/95
Region: 1/12/95

APPENDIX-B

TUBING DETAIL

WELL: FREW #2
FIELD: ALISO CANYON

STATUS:
DATE: 5-23-94

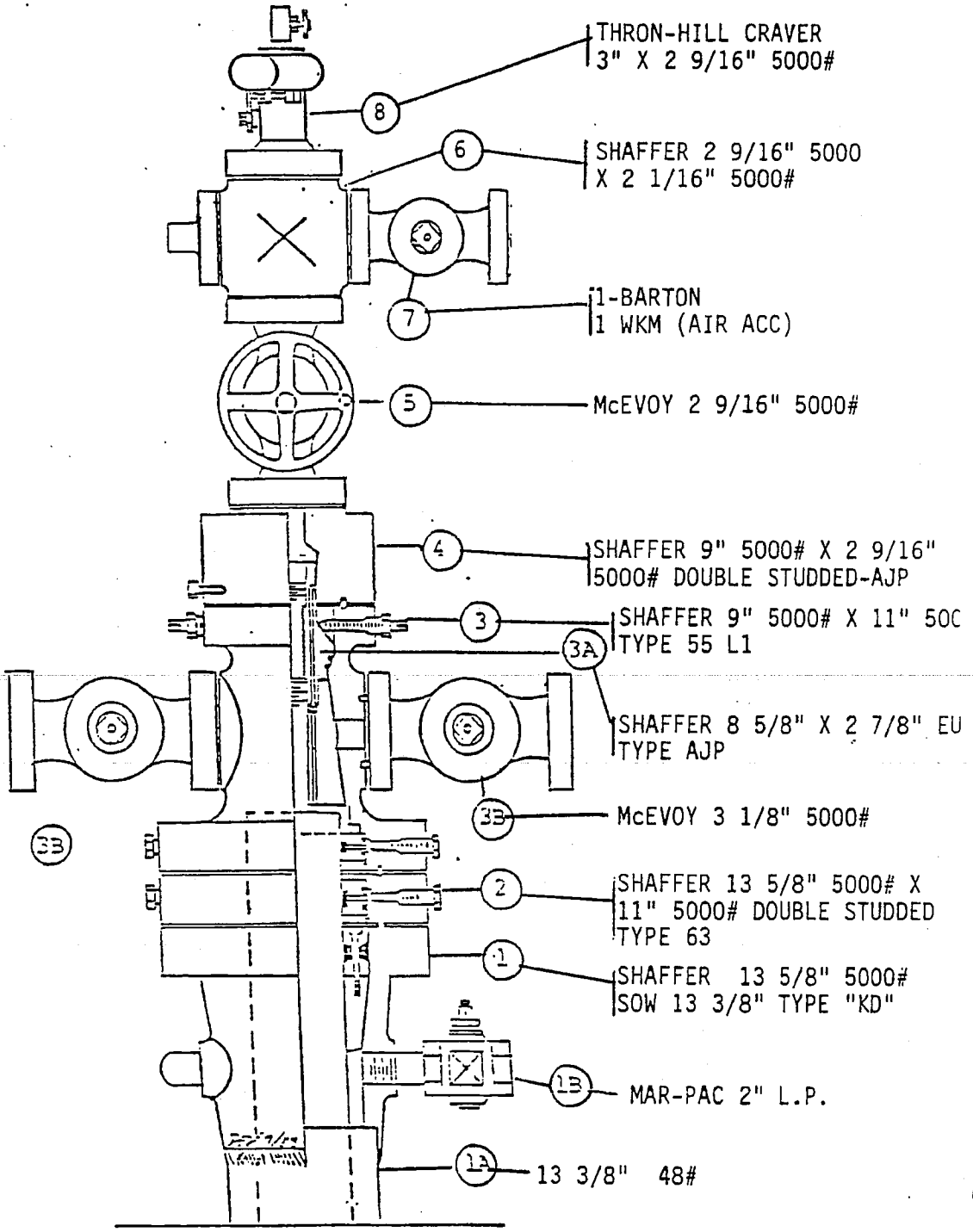


	TUBING	TUBING	TUBING	
SIZE	2 7/8			
WEIGHT	6.5#			
GRADE	N-80			
THREAD	EUE 8Rd			
DEPTH	8159			
I.D.	2.441			
DRIFT ID	2.347			
O.D.	2.875			

ITEM #	DESCRIPTION	DRIFT ID	OD	LENGTH	DEPTH
1	K. B.			8.30	8.30
2	SHAFFER 8 5/8 X 2 7/8 AJP TUBING HANGER			.65	8.95
3	2 7/8 6.5# N-80 PUP JT	2.347	3.668	7.65	16.60
4	16 JOINTS 2 7/8 N-80 TUBING	2.347	3.668	502.82	519.42
5	2 7/8 6.5# N-80 PUP JT	2.347	3.668	4.25	523.67
6	2 7/8 BAKER SAFETY	2.347	4.657	4.67	528.43
	VALVE TS SER# 128797-4-B				
7	242 JOINTS 2 7/8 N-80 TUBING	2.347	3.668	7520.03	8048.46
8	2 7/8 6.5# N-80 PUP JT	2.347	3.668	4.13	8052.59
9	MANDREL PSIO4 W/1"	2.347	4.500	6.02	8058.61
	VALVE ON 1" BK LATCH				
10	2 7/8 6.5# N-80 PUP JT	2.347	3.668	1.68	8060.29
11	ONE JOINT 2 7/8 N-80 TUBING	2.347	3.668	31.67	8091.96
12	OTIS 2.313 XO SLIDING SLEEVE	2.313	3.668	3.17	8095.13
13	ONE JOINT 2 7/8 N-80 TUBING	2.347	3.668	31.68	8126.81
14	OTIS 2.205 XN NO-GO NIPPLE	2.313	3.668	1.30	8128.11
15	ONE JOINT 2 7/8 N-80 TUBING	2.347	3.668	31.49	8159.60
16	"J" LATCH ABOVE PACKER	2.347	4.500	.40	8160.00
16	"J" LATCH IN SIDE PACKER			.75	8160.75
17	TWO OTIS SEAL UNITS	2.347	3.250	2.00	8162.75
18	PROD TUBE	2.347	3.200	2.95	8165.70
19	45° GUIDE SHOE	2.347	3.200	.40	8166.10
A	7" 29# OTIS "PW" PACKER WITH LATCH SET AT 8160'				
	TUBING LANDED WITH 6,000# ON PACKER				

CONSULANT RICHARD L. JACKSON

TYPE IV



Well Name: FREW-2

Mfgr: SHAFFER TOOL WORKS

Date Prepared: 5/25/94

~~WELLHEAD DESCRIPTION~~ TYPE

Rec'd 09-30-14 DOGGR D2 Ventura

Well No: FREW - 2

Field: ALISO CANYON

Date Prepared: 5/25/94

Wellhead Mfr: SHAFFER TOOL WORKS

1. Casing Head SHAFFER Size 13 5/8" 5000# SOW 13 3/8"

   Slips & Pack-off 12 X 7" "KD"

   A. Surface Csg Size 13 3/8" Wt 48 # Grade

   B. Casing Head Valve MAR-PAC Size 2" L.P. Fig

2. Seal Flange SHAFFER Size 13 5/8" 5000# X 11" 5000# DOUBLE STUDDED

   Type Seal T-63 Ring BOTTOM BX-160 & TOP RX- 54

3. Tubing Head SHAFFER Type Seal T-63

   Size 11" 5000# X 9" 5000# TYPE 55 L1 Outlets 3 1/8" 5000#

   Sec.Seal 7" Valve Thrd 2 1/2" L.P. Ring Type Btm RX-54 Top RX-50

   A. Tubing Hanger SHAFFER Size 8 5/8" X 2 7/8" EUE 8 RD Bore 2.375

   Type T-55 AJP Thread 2 7/8" EUE 8 RD

   B.P.B. Size & Thrd SHAFFER 2 7/8"

   B. Tubing Head Valves McEVOY Size 3 1/8" 5000#

   C. Automatic Csg Valve N/A Size

4. Adapter Seal Flange SHAFFER Size 9" 5000# X 2 9/16" 5000# DOUBLE STUDDED-AJP

   A. Ring Size TOP RX-27 & BOTTOM RX-50 Bore 2 9/16

5. Master Valve McEVOY Size 2 9/16" 5000#

6. Xmas Tree Cross SHAFFER Size 2 9/16" 5000# X 2 1/16" 5000#

7. Tbg Wing Valves 1-BARTON 1- WKM (AIR ACC.) Size 2 1/16" 5000#

   Auto Tbg. Prod Valve N/A Size

8. Unibolt THORN-HILL CRAVER Size 3" X 2 9/16" 5000# Inside Thrds NO

9. Csg Size 7" Wt 26# Grade N-80

10. Tubing Head to Ground Level 3" ABOVE ABOVE GROUND LEVEL

11. Wt. Landed on Doughnut Tubing Size 2 7/8" 6.5# Type N-80

OPERATOR SoCal Gas
LSE & NO SI7M F-2
MAP 250

	(6)	( )	( )	( )	( )	( )
INTENTION	REWORK	Rework	REPERFORATE			
NOTICE DATED	8-19-77	11/6/89	01/19/2006			
P-REPORT NUMBER	277-317	289-422	P206-26			
CHECKED BY/DATE						
MAP LETTER DATED	NU	NC	NC			
SYMBOL						

	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED	REC'D	NEED
NOTICE	8-31-77		11/7/89		01/25/06							
HISTORY	9-30-77		5/17/90		3/6/06							
SUMMARY												
IES/ELECTRIC LOG			TDT Logs* (2) 4/3/79									
DIRECTIONAL SURV												
CORE/SWS DESCRIP												
OTHER (caliper)			6/16/94		3/13/06							
RECORDS COMPLETE	W		pmc		KM							

ENGINEERING CHECK

T-REPORTS	
OPERATOR'S NAME	
WELL DESIGNATION	
LOC & ELEV	
SIGNATURE	
SURFACE INSPECTION	
FINAL LETTER OK	

CLERICAL CHECK

POSTED TO 121 _____ 170 MAILED _____ FINAL LETTER MAILED _____

RELEASED BOND _____

REMARKS: * No Notice Required SMC

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: Frew 2
A.P.I. No. 037-00665

Field: Aliso Canyon County: Los Angeles
Surface Location: Sec. 29 3N 16W S.B.B.M.
Mark Kuncir Title: Storage Field Engineer
(President, Secretary, or Agent)

Date: 03/03/2006

Signature: [signature]
(Person Submitting Report)

Address: PO Box 2300, SC9365, Chatsworth, CA, 91313-2300 Telephone Number: 818-700-3810

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

Start Date	Ops. DOGGR Rpt
01/16/2006	RU Spicer W/L. RIH w/ 1-3/4" x 30' drift tool to clear tbg. Tagged @ 8492' w/ tbg tail @ 8166'. RD W/L.
01/20/2006	RU Schlumberger W/L. RIH w/ PDC GR-NL tool. Tagged @ 8444'. PU 1-11/16" strip gun and RIH and perforated 7" csg w/ 2 SPF (Enjet-DP 1.69", EJ3, RDX, ~0.28" hole) from 8440-8430' (Run 1, 10'). Closed well in and RD (Forecast for Santa Ana winds thru 1/24).
01/25/2006	RU and RIH w/ 1-11/16" strip gun. Perforated 7" csg w/ 2 SPF from 8405-8385', 8375-8360', 8335-8315' and 8275-8265' (Runs 2 - 6, 65'). Closed well in and RD W/L.

RECEIVED
MAR 06 2006
By

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

No. P206-26

PERMIT TO CONDUCT WELL OPERATIONS

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

Gas Storage

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

Ventura, California
January 26, 2006

Your proposal to reperforate well "Frew" 2,
A.P.I. No. 037-00665 Sec. 29, T. 3N, R. 16W, SB B.&M.,
Aliso Canyon field, area, Sesnon-Frew pool
Los Angeles County, dated 01/19/2006 received 01/25/2006 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Wire line operations are conducted through at least a 5M lubricator.
2. This office shall be consulted before initiating any changes or additions to this proposed operation or if operations are to be suspended.

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

SAF:sf

Engineer Steven A. Fields

Phone (805) 654-4761

Hal Bopp, State Oil and Gas Supervisor

By _____
Deputy Supervisor

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

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

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

NOTICE OF INTENTION TO REWORK / REDRILL WELL P206-26

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

FOR DIVISION USE ONLY			
	Forms		EDP Well
Bond	OGD114 ✓	OGD121 ✓	File
1000 000	111 ✓	115 ✓	

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

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to

rework/redrill (Circle one) well Frew #2 (Well designation) API No. 03700665

Sec. 29 T. 3N R. 16W S.B.B.&M. Aliso Canyon Gas Storage Field

Los Angeles County.

GS

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

0-501' 13-3/8" 48# J55 Surface csg;
0-8850' 7" 23-30# J55 & N80 Prod. csg;
8817-9290' 4-3/4" 16# 45 Liner (Abandoned);
0-8166' 2-7/8" 6.5# N80 EUE 8rd tbg w/ Baker Model T5 SCSSV @ 524' and Otis 7" PW pkr @ 8160';
7" csg perforated w/ 8 - 1/2" HPF from 8265-8275', 4 - 1/2" HPF from 8315-8335', 8360-8375', 8385-8405', 8430-8465' and 8450-8456' (91') and re-perforated w/ 2 - 1/2" HPF from 8385-8395' and 8432-8450'.

2. The total depth is: 9339 feet. The effective depth is: 8458 feet.

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

4. Present zone pressure: 2777 psi. Anticipated/existing new zone pressure: 2777 psi.

5. Last produced: 11/2004 (Date) - (Oil, B/D) - (Water, B/D) 1,457 (Gas, Mcf/D)

(or)

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

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

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

Re-perforate Sesnon interval w/ 4 SPF (1-11/16" strip gun loaded w/ Enjet-DP 1.69", RDX, ~0.28" hole) 8265-8275', 8315-8335', 8360-8375', 8385-8405' and 8430-8452' (87' total)

RECEIVED
JAN 25 2006
DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES
VENTURA, CALIFORNIA

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

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

Name of Operator: Southern California Gas Company	Telephone Number: 818.700.3810	
Address: 12801 Tampa Avenue	City: Northridge	Zip Code: 91326
Name of Person Filing Notice: Mark T. Kuncir	Signature: [signature]	Date: 1/19/06

File In Duplicate

OG107 (7/97/GSH/5M)

C.E.Q.A. INFORMATION

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

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

Lead Agency:_____

Lead Agency Contact Person:_____

Address:_____

_____

Phone:_____

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

CRITICAL WELL DEFINITION

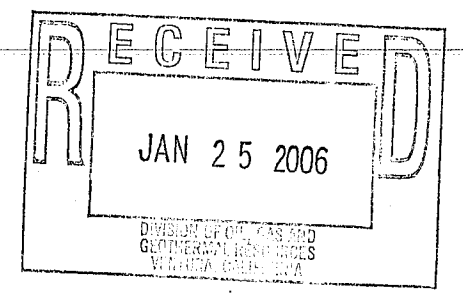
As defined in the California Code of Regulations, Title 14, Section 1720 (a), "Critical well" means a well within:

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 nearest rail of an operating railway that is in general use;
   b. Any navigable body of water or watercourse perennially covered by water;
   c. Any public recreational facility such as a golf course, amusement park, picnic ground, campground, or any other area of periodic high-density population; or
   d. Any officially recognized wildlife preserve.

Exceptions or additions to this definition may be established by the State Oil and Gas Supervisor upon his or her own judgment or upon written request of an operator. The written request must contain justification for such an exception.

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.



STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

Ventura, California

November 12, 1991

R. D. Phillips, Agent
SOUTHERN CALIFORNIA GAS COMPANY
P.O. Drawer 3249 Mail Location 22GO
Los Angeles, CA 90051-1249

Your request, dated July 24, 1991, proposing to change the designation of well(s) in Sec. 29, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon field, Los Angeles County, District No. 2, has been received.

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

FROM	TO
"SFZU" F-2 (037-00665)	"Frew" 2 (037-00665)
"SFZU" F-3 (037-00666)	"Frew" 3 (037-00666)
"SFZU" F-4 (037-00667)	"Frew" 4 (037-00667)
"SFZU" F-5 (037-00668)	"Frew" 5 (037-00668)
"SFZU" F-6 (037-00669)	"Frew" 6 (037-00669)
"SFZU" F-7 (037-00670)	"Frew" 7 (037-00670)
"SFZU" F-8 (037-00671)	"Frew" 8 (037-00671)
"SFZU" F-9 (037-00672)	"Frew" 9 (037-00672)
"SFZU" SS-4 (037-00757)	"Standard Sesnon" 4 (037-00757)
"SFZU" SS-12 (037-00764)	"Standard Sesnon" 12 (037-00764)
"SFZU" SS-4-0 (037-22063)	"Standard Sesnon" 4-0 (037-22063)
"SFZU" SS-10 (037-00040)	"Standard Sesnon" 10 (037-00040)

M. G. MEFFERD, State Oil and Gas Supervisor

By _____
Deputy Supervisor
PATRICK J. KINNEAR

OGD157 (10/85/DWRR/1M)

SUBMIT IN DUPLICATE

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
MAY 1 1990
VENTURA, CALIFORNIA

History of Oil or Gas Well

"SFZU" F-2

Operator Southern California Gas Co. Field Aliso Canyon County Los Angeles
Well ~~Frew #2~~ "SFZU" F-2, Sec. 29, T 3N, R 16W, SB B. & M.
A.P.I. No. #037-00665 Name R. D. Phillips (Person submitting report) Title Agent (President, Secretary or Agent)
Date April 3, 19 90

Signature J.B. Lane
J.B. Lane for R.D. Phillips
P.O Box 3429 Terminal Annex, Los Angeles, CA 90051 (213) 689-3925
(Address) (Telephone Number)

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

Date	
	MWO No.99182: was issued to plug back lower sesnon zone.
1990	
1-2 to 1-3	Rigged up. Re-killed well.
1-4	Removed xmas tree. Installed BOPE and tested blind rams, pipe rams and choke manifold to 4000 psi, Hydril bag to 2300 psi. Pam Ceccarelli of the DOG waived witnessing of the test.
1-5 to 1-6	Released from packer and measured out of well. Laid down production equipment. Made up casing scraper. Ran in well to packer at 8239' - no fill. Pulled out of well.
1-8 to 1-10	Ran in well and latched into packer at 8239'. Released Otis permatrieve packer and pulled out of well. Laid down packer and retrieving tool. Ran 2-3/8" tubing tail on 2-7/8" tubing and cleaned out fill from 8707' to 8801' (top of junk). Backscuttled well clean. Poured 71 sacks of 8-12 mesh sand down tubing. Pulled up and waited two hours. Located top of sand at 8440'. Cleaned out of well to 8470'.
1-11	Ran Vertilog casing inspection log from surface to 8250'. Ran bailer and dumped 2.3 cu.ft. of cement on top of sand. Top of cement at 8458'.
1-12	Washed perforations from 8265' - 8458'. Pulled out of well with wash tool. Ran 6" bit and 7" 29# casing scraper to top of cement at 8458'.

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

No. P289-422
Field Code 010
Area Code 00
New Pool Code 30
Old Pool Code 30

PERMIT TO CONDUCT WELL OPERATIONS
GAS STORAGE

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

Ventura, California
November 8, 1989

Your proposal to rework well "SFZU" F-2, A.P.I. No. 037-00665, Section 29, T. 3N, R. 16W, S.B. B.&M., Aliso Canyon field, any area, Sesnon pool, Los Angeles County, dated 11/6/89, received 11/7/89, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Blowout prevention equipment conforming to DOG Class III 3M requirements shall be installed and maintained in operating condition at all times.
2. Hole fluid of a quality and in sufficient quantity is used to control all subsurface conditions in order to prevent blowouts.
3. Any sump used during these operations shall be thoroughly cleaned and filled with earth as soon as operations are completed.
4. The proposed cement plug at 8460' does not fulfill the requirements for the abandonment of the lower portion of the well.
5. This office shall be consulted before initiating any changes or additions to this proposed operation, or if operations are to be suspended.
6. THIS DIVISION SHALL BE NOTIFIED:
   a. To witness an injection profile survey within three months after injection has recommenced.

Jerry Wood called for BOPE test 1/4/90 - Test waived - witness not required on permit.
pc

Blanket Bond
b

Engineer Steve Fields

Phone (805) 654-4761

M.G. MEFFERD, State Oil and Gas Supervisor

By Patrick J. Kinnear
Patrick J. Kinnear
Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.
OG111

1-13 Ran 7" 29# gauge ring on wireline to 8250'. Set Otis 7" 29# Permatrieve packer at 8160'.

1-15 Solid tested seals, J-latch, one joint of 2-7/8" tubing, Otis 2.205" No-Go nipple, one joint of tubing, Otis 2-7/8" XD sliding sleeve, one joint of tubing, and BST gas lift mandrel to 4000 psi. Drifted and hydrotested tubing to 4000 psi. Landed with 6000 lb on packer. Checked latch to 20,000 lb pull. Changed over from 63#/cu.ft. polymer completion fluid to double inhibited 2% KCl water. Removed BOPE and installed xmas tree. Tested tree to 5000 psi. Released rig at 10:00 P.M.

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

Notice of Intention to Rework Well

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

FOR DIVISION USE ONLY		
BOND	FORMS	
	OGD 114	OGD 121
BB	✓	✓

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well ~~Frew #2~~ SFZU F-2 (Well designation), API No. 037-00665

Sec. 29, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth 8904'

2. Complete casing record, including plugs and perforations (present hole)

13-3/8"	0'- 501'	48#	cemented at 501'
7"	0'- 49'	26#	cemented at 8850', perf., 8265'-8275',
	-5486'	23#	8315'-8335', 8360'-8375', 8385'-8405',
	-6531'	28#	8430'-8500', 8580'-8595', 8610'-8655'
	-8850'	30#	
4-3/4"	8817'-9339'	16#	Hung from 8817'-9339', and plugback from bottom to 8904'

3. Present producing zone name Sesnon ; Zone in which well is to be recompleted Sesnon

4. Present zone pressure 3000 psig ; New zone pressure _____

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

(or)

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

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

The proposed work is as follows:

1. Move in and rig up. Kill well. Install and test BOPE.
2. Pull tubing. Retrieve packer.
3. Sand out zone to approximately 8470' and set cement plug on top to 8460'.
4. Run casing inspection log.
5. Set packer. Run and land tubing.
6. Restore well to gas storage service.

Note: If well is to be redrilled, show proposed new bottom-hole coordinates and true vertical depth.

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

Address Box 3249, Terminal Annex (Street)

Los Angeles, CA 90051 (City) (State) (Zip)

Telephone Number (213) 689-3925

Southern California Gas Company (Name of Operator)

By N. W. Buss for R. W. Weibel, Agent (Name-Printed)

(Name-Signature) 11/6/89 (Date)

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

OPERATOR PLSC
LSE & NO SFZU F-2
MAP NO. 250

INTENTION	Drill 1	Supp to Drill 2	Cem for Segreg 3	Cem Upper Perfs 4	Reperf & Conv to gas 5 Stor
NOTICE DATED	10-15-43	1-25-44	11-27-56	5-23-63	1-19-73
P-REPORT NUMBER	1-38954	1-39289	156-1664	163-584	273-58
CHECKED BY/DATE					PRW/1-21-74
MAP LETTER DATED					1-26-74 GS
SYMBOL					♂ 9

NOTICE	10-20-43 REC'D	NEED	1-28-44 REC'D	NEED	11-28-56 REC'D	NEED	5-24-63 REC'D	NEED	2-2-73 REC'D	NEED
HISTORY	See Col 2		10-2-45		4-24-57		CANCELLED		1-16-74	
SUMMARY			10-2-45		–				–	
IES/ELECTRIC LOG			?		–				–	
DIRECTIONAL SURV.			?		–				–	
CORE/SWS DESCRIP.			–		–				–	
DIPMETER RESULTS			–		–				–	
OTHER			–		–				–	
			–		–				–	
RECORDS COMPLETE			✓		✓				1-21-74 PRW	

ENGINEERING CHECK

T-REPORTS	✓
OPERATOR"S NAME	✓
WELL DESIGNATION	✓
LOC. & ELEV.	✓
SIGNATURE	✓
SURFACE INSPECTION	–
LINAL LETTER OK	–

CLERICAL CHECK

POSTED TO 121 _____ 170 MAILED _____ FINAL LETTER MAILED _____

RELEASE

BOND _____

REMARKS: _____

SUBMIT IN DUPLICATE

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
RECEIVED
SEP 30 1977
SANTA PAULA, CALIFORNIA

History of Oil or Gas Well

Operator Southern California Gas Company Field or County Aliso Canyon
Well name and No. FREW #2, Sec. 29, T 3S, R 16W, S.B.B. & M.
A.P.I. well No. 037-00665 Name P. S. Magruder, Jr. (Person submitting report) Title Agent (President, Secretary or Agent)
Date September 24, 19 77

Signature P. S. Magruder, Jr.

P.O. Box 3249 Terminal Annex, Los Angeles, Calif., 90051 (Address) (213) 689-3561 (Telephone Number)

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

Date	
8-29-77	Killed well using 1774 cu.ft. of 76#/cu.ft. brine polymer drilling fluid.
8-31-77	Starting at 11:00 A.M. rigged down at I.W. #62, moved California Production Service Rig #D-4 to FREW #2 and rigged up. Tested well head seals on casing.
9-1-77	Finished rigging up. Circulated brine-polymer drilling fluid in well to get rid of any gas-cut fluid. Set plug in doughnut. Bled off 1" control line for safety system. Removed Christmas tree. Set plug in control line. Installed B.O.P.E. Tested for 20 minutes each blind rams and pipe rams to 4000 psi and Hydril bag to 3000 psi with water. Tested choke manifold to 2000 psi. These tests witnessed and approved by D.O.G. Tested for 20 minutes each blind rams and pipe rams to 4000 psi and Hydril bag to 3000 psi with nitrogen - all test O.K.
9-2-77	Unseated tubing from packer. Started pulling 2 7/8" tubing with 1" control line from the well while laying down 1" control line.
9-3-77	Finished pulling out 2 7/8" tubing and 1" safety system control line. Ran in well with 6 5/8" bit and 7" casing scraper. Cleaned out fill from 8702' to 8770'. Circulated polymer drilling fluid to clean well. Started pulling out of well.
9-4-77	Rig and crew idle.
9-5-77 (Holiday)	Rig and crew idle.
9-6-77	Ran back to 8870' with bit and scraper. Pulled out of well. Ran in well with Baker Lok-Set bridge plug and set it at 8240'. Tested bridge plug to 2000 psi with mud pump. Displaced polymer drilling fluid in well with fresh water mixed with surface tension reducing agent. Pulled out of well and ran back in with Baker fullbore retainer to 3800'. Tested casing as follows:

3800' to 8240'	at	2500 psi	for	60 minutes
Surface to 3800'	"	2700 psi	"	60 "
" " 3400'	"	2900 psi	"	60 "

All above tests O.K.

9-7-77 Continued pressure testing 7" casing as follows:

Surface	to	2900'	at	3100 psi	for 60 minutes
"	"	2500'	"	3300 psi	" 60 "
"	"	1600'	"	4000 psi	" 60 "

Pulled out of well and ran back in with Baker retrieving tool to 8240'. Displaced water in well with polymer drilling fluid. Retrieved Baker Lok-Set bridge plug and pulled out of well. Ran Otis 7" packer on wireline and set it at 8240' (top of packer).

9-8-77 Pulled out of well. Started running production string while changing collars, cleaning pins, applying Baker seal and hydrotesting to 5000 psi for one minute.

9-9-77 Finished running production string while changing collars cleaning pins, applying Baker Seal and Hydrotesting it to 5000 psi for 1 minute. Landed in Otis packer with 10,000# pulled 25,000# over weight of tubing to check the latch (hook load 44,000 lbs.) Set back pressure valve in donut. Removed B.O.P.E. and installed Xmas Tree. Tested Xmas tree seals to 5000 psi for 20 minutes. Test O.K. Replaced polymer fluid in the well with lease salt water. Set tubing plug in NO-GO nipple and pressure tested seals and packer to 2000 psi for 20 minutes. Test O.K. Removed plug from NO-GO nipple.

Rig Released at 10 P.M. 9-9-77

Production string includes Otis packer seal assembly, Otis annular flow safety system and 2 7/8" tubing.

GCA/nd

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Report on Operations

No. T 277-252

Mr. P. S. Magruder, Jr., Agent
Southern Calif. Gas Co.
P.O. Box 54790 Terminal Annex
Los Angeles, Calif. 90024

Santa Paula, Calif.
Sept. 22, 1977

DEAR SIR:

Operations at well No. "SFZU" F-2, API No. 037-00665, Sec. 29, T. 3N, R. 16W, S.B., B & M. Aliso Canyon Field, in Los Angeles County, were witnessed on 9/14/77. Mr. Ms. T. M. Calloway, representative of the supervisor was present from 1800 to 2100. There were also present J.Anand,SO.CA.GAS CO. engr and C.B. Todd, CPS foreman

Present condition of well: No additions to the casing record since proposal dated 8/19/77.

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

DECISION:

THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

b

M. G. MEFFERD
~~JOHN F. MATTHEWS, JR.~~
State Oil and Gas Supervisor

By _____ Deputy
John L. Hardoin

OG109 (2-75—OSP—20M)

30986-705 2-75 20M ① ◇ OSP

No. P277-317

Santa Paula, ..., ...

Sept. 1, 1977

Mr. P. S. Magruder, Jr., Agent
So. California Gas Co.
P.O. Box 54790 Terminal Annex
Los Angeles, Calif. 90024

Your ..... proposal to rework gas storage well "SFZU" F-2 (Name and number)
....., A.P.I. No. 037-00665, Section 29, T. 3N, R. 16W,
S.B. B. & M., Aliso Canyon field, Los Angeles County,
dated 8-19-77, received 8-31-77, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The drilling fluid used shall be of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts; and a reserve supply of this material shall be kept on hand to meet any emergency.
2. Blowout prevention equipment, at least of the Division of Oil and Gas Class III,3M, rating, shall be installed and maintained in operating condition at all times. The BOPE and choke system shall be tested under minimum pressure of at least 1500 psi.
3. THIS DIVISION SHALL BE NOTIFIED TO WITNESS A PRESSURE TEST OF THE BLOWOUT PREVENTION EQUIPMENT BEFORE COMMENCING DOWNHOLE OPERATIONS.

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

Blanket Bond
MD:b

M. G. MEFFERD
State Oil and Gas Supervisor

By .....
Deputy Supervisor

John L. Hardoin

OG111 (11-76—GSR1—30M)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS
RECEIVED
AUG 31 1977
SANTA PAULA, CALIFORNIA

DIVISION OF OIL AND GAS

Notice of Intention to Rework Well

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

FOR DIVISION USE ONLY		
BOND	OGD114	OGD121
BB	✓	✓

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well No. FREW #2, API No. 037 - 00665, Sec. 29, T. 3S, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth. 9290'

2. Complete casing record, including plugs and perforations:

13 3/8" cemented 501'

7" cemented 8850', cp'd 8230', 8802', 8804', 8805'
WNSO 8236' - squeezed and not retested
perforated at intervals 8655'-8265'

473' 4 3/4" landed 9290' cp'd 9178' and 8860', top 8817'
slotted 9290'-9179' - plugged with cement at 8904'

3. Present producing zone name SESNON Zone in which well is to be recompleted -

4. Present zone pressure 3600 psi New zone pressure -

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

or

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

The proposed work is as follows:

1. Move in and rig up. Kill well. Install B.O.P.E. and pressure test.
2. Pull tubing and lay down 1" side-line. Pressure test 7" casing.
3. Perform any remedial work indicated by pressure testing.
4. Run packer. Run tubing with down-hole safety system.
5. Return well to gas storage.

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

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

SOUTHERN CALIFORNIA GAS COMPANY
(Name of Operator)
By P.S. Magruder, Jr. (Date) 8-19-77
(Name) P.S Magruder, Jr.
Type of Organization Corporation
(Corporation, Partnership, Individual, etc.)

OG107 (8-75—GSRI—15M)

FREW #2 - ALISO CANYON

Program to run new packer, pressure test casing and run down hole safety valve

TUBING WITHDRAWAL, CASING INJECTION

Take all measurements from original derrick floor 8.3' above ground.

PRESENT CONDITIONS:

13 3/8" cemented 501'
7" cemented 8850', cp'd 8250', 8802', 8804, 8805', 8860' WNSO 8236', squeezed not retested
473' 4 3/4" Landed 9290', cp'd 9178' and 8860' - slotted 9179' - 9290', top 8817'
plugged with cement @ 8904'

Perforated 8265'-8275'
8315'-8335'
8360'-8375'
8385'-8405'
8430'-8456'
8465'-8473'
8490'-8510'
8545'-8560'
8580'-8595'
8608'-8655'

7" CASING DETAIL

			100% Safety Factor Burst	Collapse
0'-1738'	23#	N-80	63400	4300
1738'-4186'	23#	J-55	4360	3290
4186'-5491'	26#	J-55	4980	4060
5491'-6537'	28#	J-55	5400	4500
6537'-8850'	30#	J-55	5800	5000

TUBING DETAIL:

2 7/8" 8rd EUE J-55 landed 8150'
Includes 1" GTS side line to 8132'
Otis Hydraulic packer 8145'
Camco ball safety valve 8133'
Otis sliding sleeve 8059' (OPEN)

PROGRAM:

1. Move in and rig up. Pressure test wellhead seals to 4000 psi.

2. Kill well with 75#/cu.ft. brine polymer drilling fluid. Check bottom hole pressure before moving in rig. Volume of well 350 barrels

3. Install back pressure valve in doughnut. Remove Christmas tree and install class III 5000 psi B.O.P.E. Pressure test complete shut-off rams and pipe rams to 4000 psi with water and nitrogen. Also test Hydril bag to 3000 psi with water and nitrogen. Use float valve.

4. Unseat packer and pull tubing. Lay down 1" GST side line.

5. Run 6" bit and casing scraper. Clean out to top of 4 3/4" liner at 8817'.

6. Set bridge plug at 8240' and pressure test with rig pump. Circulate polymer fluid out of well with fresh water treated with surface tension agent. Pressure test casing, using cement retainer and cement pump truck equipped with calibrated pressure chart and pressure gauge, as follows:

3800'	to	8240'	with	2500 psi	for	60	minutes
Surface	"	3800'	"	2700 psi	"	60	"
"	"	3400'	"	2900 psi	"	60	"
"	"	2900'	"	3100 psi	"	60	"
"	"	2500'	"	3300 psi	"	60	"
"	"	1600'	"	4000 psi	"	60	"

Change to polymer fluid.

7. Perform any remedial work indicated by pressure testing. Recover bridge plug.

8. Run Otis Permatrieve Packer on wire line and using reference collars set packer near 8240'. DO NOT set packer in casing collar.

9. Run 2 7/8" tubing, changing collars, cleaning pins, applying Baker seal and hydro testing to 5000 psi holding each test for one minute. Tubing to include:

Otis production tube
Otis four seals
Otis Latch-in-locator
Otis 10' heavy wall tube
Otis 1.79" "XN" "NO GO" nipple with 2 7/8" threads
Otis 20' heavy wall tube & Otis annular flow safety system

10. Land tubing on packer with up to a maximum of 10,000# - pull 25,000 lbs over weight of tubing to check latch.

PROGRAM (Continued)

11. Set back pressure valve in doughnut. Remove B.O.P.E. and reinstall Christmas tree. Pressure test Christmas tree to 5000 psi.

12. Circulate drilling fluid out of well with waste lease salt water. Set tubing plug in "NO GO" nipple and pressure test seals and packer under 2500 psi. Remove tubing plug and release rig.

G. C. ABRAHAMSON
August 19, 1977

cc: Rig Supervisor
Contract Pusher (2)
Relief Rig Supervisor
Book Copy

Division of Oil and Gas ✓

Ben Jones
Don Smiley
John Melton
Dwayne Justice)
Mondo Grijalva)

Well File
Spare Copy

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.
LA 05564-A FREW

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

DIVISION OF OIL AND GAS
RECEIVED
AUG 26 1977

1. OIL WELL ☐ GAS WELL ☒ OTHER Gas Storage Well

7. UNIT AGREEMENT NAME
SFZU

2. NAME OF OPERATOR
SOUTHERN CALIFORNIA GAS COMPANY SANTA PAULA, CALIFORNIA

8. FARM OR LEASE NAME
FREW

3. ADDRESS OF OPERATOR
P. O. Box 3249, Terminal Annex, Los Angeles, California 90051

9. WELL NO.
2

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
From the Ex Mission San Fernando Ranch line (Point #99) Southerly 522.8' along Rancho line; thence 410.8' Westerly at right angles.

10. FIELD AND POOL, OR WILDCAT
Aliso Canyon, Sesnon

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
29 3N 16W

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2804.3 DF

12. COUNTY OR PARISH
Los Angeles

13. STATE
California

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other) Install safety system			XX	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

PRESENT CONDITIONS:

13 3/8" cemented 501'

7" cemented 8850', cp'd 8230', 8802', 8804', 8805'
WNSO 8236' - squeezed and not retested
perforated at intervals 8655'-8265'

473' 4 3/4" landed 9290' cp'd 9178' and 8860', top 8817'
slotted 9290'-9179' - plugged with cement at 8904'

1. Move in and rig up. Kill well. Install B.O.P.E. and pressure test.
2. Pull tubing and lay down 1" side-line. Pressure test 7" casing.
3. Perform any remedial work indicated - by pressure testing.
4. Run packer. Run tubing with down-hole safety system.

18. I hereby certify that the foregoing is true and correct

SIGNED Guy C. Abrahamson GUY C. ABRAHAMSON TITLE Chief Consulting Engineer DATE August 19, 1977

(This space for Federal or State office use)

APPROVED BY John P Wagner TITLE District Engineer DATE August 24, 1977
CONDITIONS OF APPROVAL, IF ANY: John P. Wagner

cc: DOG, Long Beach

SEE ATTACHED CONDITIONS AND REQUIREMENTS

GEOLOGICAL SURVEY
RECEIVED
AUG 24 1977
BAKERSFIELD

*See Instructions on Reverse Side

4. Unseat packer and pull tubing. Lay down 1" GST side line.

5. Run 6" bit and casing scraper. Clean out to top of 4 3/4" liner at 8817'.

6. Set bridge plug at 8240' and pressure test with rig pump. Circulate polymer fluid out of well with fresh water treated with surface tension agent. Pressure test casing, using cement retainer and cement pump truck equipped with calibrated pressure chart and pressure gauge, as follows:

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Change to polymer fluid.

7. Perform any remedial work indicated by pressure testing. Recover bridge plug.

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Otis four seals
Otis Latch-in-locator
Otis 10' heavy wall tube
Otis 1.79" "XN" "NO GO" nipple with 2 7/8" threads
Otis 20' heavy wall tube & Otis annular flow safety system

10. Land tubing on packer with up to a maximum of 10,000# - pull 25,000 lbs over weight of tubing to check latch.

FORM 103 SUBMIT IN DUPLICATE △ OSP

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

JAN 16 1974

SANTA PAULA, CALIFORNIA

History of Oil or Gas Well

OPERATOR Pacific Lighting Service Co. FIELD Aliso Canyon

Well No. SFZU Frew 2, Sec. 29, T. 3N, R. 16W, S.B. B. & M.

Date January 11, 19 74 Signed

P.O. Box 54790, Terminal Annex
Los Angeles, CA 90054 (213) 689-3561 Title P. S. Magruder Jr.
(Address) (Telephone Number) (President, Secretary or Agent)

P. S. Magruder, Jr., Agent

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

Date	
1973	
3-13	Moved in California Production Service and rigged up.
3-14	Pumped 70 bbls. Polymer workover fluid down tubing. Rigged up Otis to pull safety valve from 1019'. Released safety valve and collar lock but could not pull past 985'. Parted wire.
3-15	Attempted to pull fish with sand line without success. Ran jar down tools and recovered Otis tool string. Safety valve and collar lock lost downhole. Reran Otis tool string on piano wire and latched on to safety valve at 7920'. Unable to jar loose.
3-16	Cut piano wire at 7900' and left Otis tools in hole. Filled casing with salt water. Installed and tested Class III BOPE. Unlanded packer and displaced salt water with Polymer workover fluid. Pulled tubing.
3-17	Ran 7" casing scraper to 8789'. Ran 3-7/8" bit and 4-3/4" casing scraper. Found fill at 8789'.
3-18	Idle
3-19	Cleaned out to 8801' but unable to get deeper due to junk. Ran 7" casing scraper to 8796' and pumped in three sacks of sand.
3-20	Rigged up Schlumberger. Ran Cement Bond Log 5000-8768', and TDT Log 5000-8730'. Loggers tagged top of sand at 8772'. Ran 7" fullbore packer and found top of sand at 8782'. Set fullbore at 8712' and tested 4-3/4" x 7" splice and casing 8712-8904' with 1300 psi for 15 minutes OK.
3-21	Rigged up Schlumberger. Ran Compensated Density, Compensated Neutron, and Gamma Ray Logs 7800-8773'.

1973

3-22 Ran 7" Baker bridge plug and fullbore packer to test 7" casing. Qualified casing for 3500 psi injection pressure from surface to 8235'. Found leak at 8235'. Circulated through leak and back into casing through perforations at 8265'. Leak is probably WSO holes shown in records at 8243'. Set bridge plug at 5500' and pulled fullbore packer.

3-23 Filled 7" x 13-3/8" annulus with salt water. Removed BOPE and tubing head. Rigged up casing jacks and 7" spear. Unlanded 7" casing with 180,000 lbs.

3-24 Cut off old casing head and welded on new API 5000 psi casing head. X-rayed weld, unsatisfactory.

3-25 Idle

3-26 Cut off casing head and deepened cellar using jackhammars. Rewelded new head.

3-27 X-rayed 13-3/8" weld, OK. Landed 7" casing with 121,000 lbs. Found 7" casing too far out-of-round to allow primary packing.

3-28 Cut off 12" of 7" casing and welded on new piece of 7". Installed new 5000 psi seal flange and tubing head. Tested all seals with 3500 psi for 20 minutes, OK. Reinstalled BOPE and tested same with 1500 psi.

3-29 Pulled 7" bridge plug from 5500'. Ran open ended tubing to 8790' and pumped in 110 sacks of sand. Spotted 10 sacks cement at 8240'.

3-30 Ran squeeze tool and tagged fill at 8448'. Not high enough. Pulled tool and reran tubing open ended. Pumped in 38 sacks sand to bring fill to 8265'.

3-31 Found sand at 8225'. Reversed out sand to 8244' and pumped in 15 sacks of cement. Ran squeeze tool to 8244' and found no cement. Pumped in sand and brought fill to 8257'. Pulled up and set squeeze tool at 8061'. Obtained breakdown of 6 cfm at 2900 psi. Mixed and pumped 29 cf Class G cement and squeezed 22 cf to formation through holes at 8235' with 3300 psi final pressure. Shut well in with 2200 psi on tubing.

4-1 Idle

4-2 Bled off pressure and pulled squeeze tool. Ran bit and scraper. Cleaned out stringers 8149-8186' and drilled semi-hard cement to 8249'.

1973

4-3 Pulled bit and scraper. Jet perforated four holes 8236-37'. Ran Johnston tester. Set packer at 8173' with tail to 8191'. Opened tool at 1:10 p.m. for 60 minute test. Strong blow for 45 minutes diminishing to medium blow. Pulled tester and recovered 30' workover fluid. WSO approved by D.O.G. Ran packer to pressure test WSO holes. Would not hold pressure. Could circulate with tool set at any point below 8236'.

4-4 Set tool at 8186'. Breakdown 4 cfm at 2900 psi. Mixed and pumped 29 cf Class G cement but could not squeeze any away at 3300 psi. Backscuttled all cement. Spotted 250 gallons 15% HCl on bottom and shut well in for night.

4-5 Squeezed away acid at 6 cfm at 2900 psi. Mixed and pumped 29 cf Class "G" cement and squeezed 12 cf to formation through holes at 8235' with 3300 psi final pressure. Pulled squeeze tool.

4-6 Ran bit and scraper. Cleaned out stringers 8124-8155' and drilled out hard cement to 8246'. Tested casing with 1375 psi for 20 minutes, OK. Cleaned out cement and sand to 8745' and circulated clean.

4-7 Found top of fill at 8719'. Pulled tubing. Rigged up Schlumberger and jet perforated 4 HPF 8450-8456', and 8608-8610'. Reperforated 2 HPF 8385-8395', 8432-8450', 8492-8496', and 8610-8620'.

4-8 Idle

4-9 Started running completion string including Camco safety valve and 1" GST control line.

4-10 Continued running completion string. Both tubing and control line tested to 5000 psi. Unable to land tubing and set packer due to small control line leak at surface.

4-11 Repaired leak and tested safety valve and control line with 5020 psi for 20 minutes, OK. Landed tubing. Ran Otis plug to 8150' and closed circulating sleeve at 8059'. Pressured tubing to set Otis RH Hydraulic packer at 8145'; approximately 4000 lbs. on packer. Opened sleeve at 8059'.

4-12 Displaced workover fluid with salt water from 8059'. Removed BOPE and installed wellhead. Tested all wellhead seals with 5000 psi for 20 minutes each. Tore out C.P.S.

4-13 Displaced salt water with nitrogen. Pulled Otis tubing plug from 8150'.

4-14 Closed sliding sleeve at 8059'. Bled off nitrogen from tubing and casing. Well ready for pipeline connections.

SFZU Frew 2

TUBING DETAIL

Item	Depth Below KB
257 jts. 2-7/8", EU, 8 rd, J-55 tubing w/ 1" GST control line hung on 2-7/8" x 1" bual collars at approx. 1150' intervals	8059'
2-7/8" x 2.313" I.D. Otis XO sliding sleeve (closed)	8059'
2 jts. 2-7/8", EU, 8 rd, J-55 tubing w/1" GST control line and 1 dual collar	8132'
2-7/8" Camco tubing removeable safety valve	8133'
2-7/8" x 7", 30# Otis RH Hydraulic packer	8145'
2-7/8" x 1.875" I.D. x 1.791" No-Go Otis XN nipple	8150'

IN RUN SURVEY

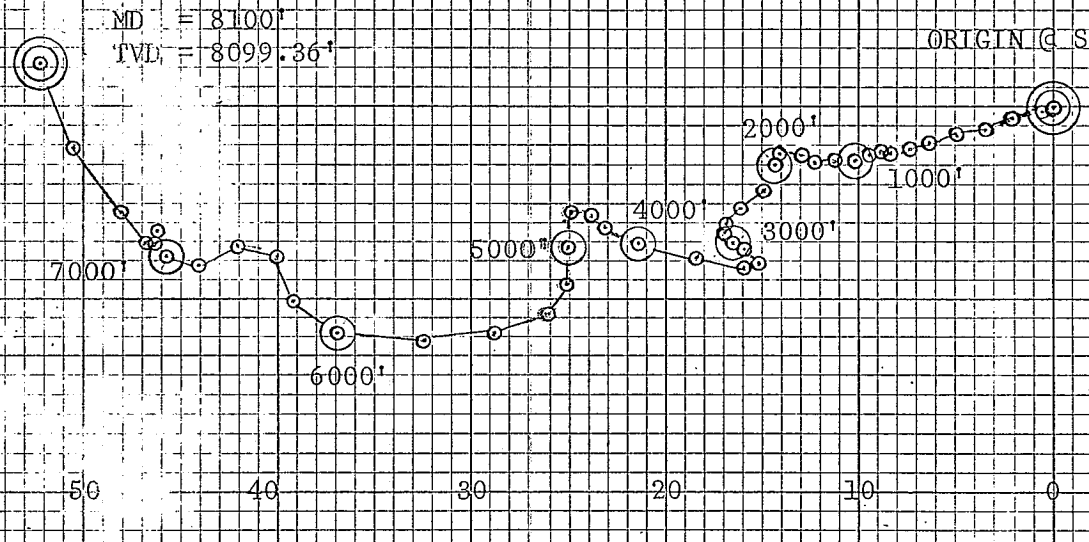
MEASURED DEPTH	TRUE VERTICAL DEPTH	TRUE INCLINATION DEG	MIN	CORRECTED BEARING DEG	MIN		DOG-LEG SEVERITY DEG/100	RECTANGULAR COORDINATES LATITUDE		DEPARTURE	
-0.	-.00	0	0	N 0	0	E		-.00	N	.00	E
100.	100.00	0	45	S 82	43	W	.75	.08	S	.65	W
200.	199.99	0	55	S 64	57	W	.31	.50	S	2.02	W
300.	299.97	0	50	S 69	44	W	.11	1.10	S	3.43	W
400.	399.96	0	55	S 74	49	W	.11	1.56	S	4.88	W
500.	499.95	0	45	S 82	14	W	.20	1.85	S	6.31	W
600.	599.94	0	30	S 73	38	W	.27	2.06	S	7.37	W
700.	699.94	0	25	S 66	16	W	.14	2.20	S	8.15	W
800.	799.94	0	25	S 69	31	W	.14	2.34	S	8.86	W
900.	899.94	0	20	S 81	11	W	.11	2.51	S	9.49	W
1000.	999.93	0	25	S 64	13	W	.09	2.59	S	10.14	W
1200.	1199.93	0	15	S 69	27	W	.09	2.82	S	11.27	W
1400.	1399.93	0	15	N 72	47	W	.08	2.84	S	12.09	W
1600.	1599.93	0	15	N 77	30	W	.01	2.62	S	12.94	W
1800.	1799.92	0	25	N 81	11	W	.08	2.41	S	14.08	W
2000.	1999.92	0	30	S 36	17	E	.42	3.00	S	14.28	W
2200.	2199.91	0	40	S 62	56	W	.45	4.24	S	14.80	W
2400.	2399.90	0	20	S 31	42	W	.21	5.26	S	16.14	W
2600.	2599.90	0	15	S 27	53	W	.04	6.14	S	16.65	W
2800.	2799.89	0	5	S 2	41	W	.09	6.67	S	16.86	W
3000.	2999.89	0	15	S 43	16	E	.10	7.14	S	16.57	W
3200.	3199.89	0	15	S 68	45	E	.06	7.61	S	15.87	W
3400.	3399.89	0	15	S 34	13	E	.07	8.13	S	15.21	W
3600.	3599.88	0	30	N 63	26	W	.34	8.39	S	15.84	W
3800.	3799.86	1	5	N 78	53	W	.29	7.93	S	18.56	W
4000.	3999.84	0	40	N 64	50	W	.23	7.07	S	21.47	W
4200.	4199.83	0	20	N 65	11	W	.17	6.33	S	23.05	W
4400.	4399.83	0	15	N 63	38	W	.04	5.89	S	23.97	W
4600.	4599.82	0	20	N 68	43	W	.04	5.49	S	24.90	W
4800.	4799.82	0	25	S 11	12	E	.33	5.99	S	25.30	W
5000.	4999.81	0	25	S 11	14	E	.00	7.42	S	25.02	W
5200.	5199.81	0	35	S 13	42	W	.14	9.12	S	25.12	W
5400.	5399.79	0	45	S 48	37	W	.22	10.97	S	26.34	W
5600.	5599.77	0	50	S 69	13	W	.28	11.86	S	28.78	W
5800.	5799.74	1	15	S 83	5	W	.22	12.14	S	32.40	W
6000.	5999.69	1	20	N 78	45	W	.21	11.95	S	36.85	W
6200.	6199.65	0	45	N 7	7	W	.65	10.20	S	39.29	W
6400.	6399.64	0	40	N 29	35	W	.14	7.89	S	40.03	W
6600.	6599.62		30	S 78	38	W	.44	7.16	S	42.03	W
6800.	6799.60		35	S 35	29	W	.29	8.28	S	44.04	W
[illegible]	6999.59	0	55	N 42	51	W	.59	7.93	S	45.72	W
[illegible]	7199.57	0	20	N 58	29	E	.52	6.45	S	46.32	W
[illegible]	7399.56	0	45	S 18	30	W	.51	7.39	S	46.24	W
[illegible]	7599.54	0	15	N 8	46	W	.73	7.34	S	46.85	W
[illegible]	7799.53	0	40	N 63	21	W	.33	5.52	S	48.09	W
[illegible]	7999.47	1	50	N 24	29	W	.69	2.09	S	50.46	W
8100.	8099.36	3	15	N 18	42	W	1.44	2.05	N	52.03	W

HORIZONTAL DISPLACEMENT DEPTH 8100. IS 52.07 FEET AT N 87 44 W
TRUE VERTICAL DEPTH IS 8099.36 FEET

TRAPAZOIDAL CALCULATIONS

SPERRY-SUN WELL SURVEYING COMPANY

HORIZONTAL PROJECTION



SOUTHERN CALIFORNIA GAS COMPANY
FREW WELL NO. 2
ALISO CANYON FIELD
LOS ANGELES COUNTY, CALIFORNIA
GYROSCOPIC MULTISHOT SURVEY NO. SU1.75-12890-1
JANUARY 10, 1974 SCALE: 1" = 10'

FORM 10-3 SUBMIT IN DUPLICATE

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Pacific Lighting Service Co. FIELD Aliso Canyon

Well No. SFZU Frew 2, Sec. 29, T. 3N, R. 16W, S.B. B. & M.

Date January 11, 19 74 Signed

P.O. Box 54790, Terminal Annex
Los Angeles, CA 90054 (213) 689-3561 Title P. S. Magruder Jr.
(Address) (Telephone Number) (President, Secretary or Agent)

P. S. Magruder, Jr., Agent

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Date	
1973	
3-13	Moved in California Production Service and rigged up.
3-14	Pumped 70 bbls. Polymer workover fluid down tubing. Rigged up Otis to pull safety valve from 1019'. Released safety valve and collar lock but could not pull past 985'. Parted wire.
3-15	Attempted to pull fish with sand line without success. Ran jar down tools and recovered Otis tool string. Safety valve and collar lock lost downhole. Reran Otis tool string on piano wire and latched on to safety valve at 7920'. Unable to jar loose.
3-16	Cut piano wire at 7900' and left Otis tools in hole. Filled casing with salt water. Installed and tested Class III BOPE. Unlanded packer and displaced salt water with Polymer workover fluid. Pulled tubing.
3-17	Ran 7" casing scraper to 8789'. Ran 3-7/8" bit and 4-3/4" casing scraper. Found fill at 8789'.
3-18	Idle
3-19	Cleaned out to 8801' but unable to get deeper due to junk. Ran 7" casing scraper to 8796' and pumped in three sacks of sand.
3-20	Rigged up Schlumberger. Ran Cement Bond Log 5000-8768', and TDT Log 5000-8730'. Loggers tagged top of sand at 8772'. Ran 7" fullbore packer and found top of sand at 8782'. Set fullbore at 8712' and tested 4-3/4" x 7" splice and casing 8712-8904' with 1300 psi for 15 minutes OK.
3-21	Rigged up Schlumberger. Ran Compensated Density, Compensated Neutron, and Gamma Ray Logs 7800-8773'.

1973

3-22 Ran 7" Baker bridge plug and fullbore packer to test 7" casing. Qualified casing for 3500 psi injection pressure from surface to 8235'. Found leak at 8235'. Circulated through leak and back into casing through perforations at 8265'. Leak is probably WSO holes shown in records at 8243'. Set bridge plug at 5500' and pulled fullbore packer.

3-23 Filled 7" x 13-3/8" annulus with salt water. Removed BOPE and tubing head. Rigged up casing jacks and 7" spear. Unlanded 7" casing with 180,000 lbs.

3-24 Cut off old casing head and welded on new API 5000 psi casing head. X-rayed weld, unsatisfactory.

3-25 Idle

3-26 Cut off casing head and deepened cellar using jackhammars. Rewelded new head.

3-27 X-rayed 13-3/8" weld, OK. Landed 7" casing with 121,000 lbs. Found 7" casing too far out-of-round to allow primary packing.

3-28 Cut off 12" of 7" casing and welded on new piece of 7". Installed new 5000 psi seal flange and tubing head. Tested all seals with 3500 psi for 20 minutes, OK. Reinstalled BOPE and tested same with 1500 psi.

3-29 Pulled 7" bridge plug from 5500'. Ran open ended tubing to 8790' and pumped in 110 sacks of sand. Spotted 10 sacks cement at 8240'.

3-30 Ran squeeze tool and tagged fill at 8448'. Not high enough. Pulled tool and reran tubing open ended. Pumped in 38 sacks sand to bring fill to 8265'.

3-31 Found sand at 8225'. Reversed out sand to 8244' and pumped in 15 sacks of cement. Ran squeeze tool to 8244' and found no cement. Pumped in sand and brought fill to 8257'. Pulled up and set squeeze tool at 8061'. Obtained breakdown of 6 cfm at 2900 psi. Mixed and pumped 29 cf Class G cement and squeezed 22 cf to formation through holes at 8235' with 3300 psi final pressure. Shut well in with 2200 psi on tubing.

4-1 Idle

4-2 Bled off pressure and pulled squeeze tool. Ran bit and scraper. Cleaned out stringers 8149-8186' and drilled semi-hard cement to 8249'.

1973

4-3 Pulled bit and scraper. Jet perforated four holes 8236-37'. Ran Johnston tester. Set packer at 8173' with tail to 8191'. Opened tool at 1:10 p.m. for 60 minute test. Strong blow for 45 minutes diminishing to medium blow. Pulled tester and recovered 30' workover fluid. WSO approved by D.O.G. Ran packer to pressure test WSO holes. Would not hold pressure. Could circulate with tool set at any point below 8236'.

4-4 Set tool at 8186'. Breakdown 4 cfm at 2900 psi. Mixed and pumped 29 cf Class G cement but could not squeeze any away at 3300 psi. Backscuttled all cement. Spotted 250 gallons 15% HCl on bottom and shut well in for night.

4-5 Squeezed away acid at 6 cfm at 2900 psi. Mixed and pumped 29 cf Class "G" cement and squeezed 12 cf to formation through holes at 8235' with 3300 psi final pressure. Pulled squeeze tool.

4-6 Ran bit and scraper. Cleaned out stringers 8124-8155' and drilled out hard cement to 8246'. Tested casing with 1375 psi for 20 minutes, OK. Cleaned out cement and sand to 8745' and circulated clean.

4-7 Found top of fill at 8719'. Pulled tubing. Rigged up Schlumberger and jet perforated 4 HPF 8450-8456', and 8608-8610'. Reperforated 2 HPF 8385-8395', 8432-8450', 8492-8496', and 8610-8620'.

4-8 Idle

4-9 Started running completion string including Camco safety valve and 1" GST control line.

4-10 Continued running completion string. Both tubing and control line tested to 5000 psi. Unable to land tubing and set packer due to small control line leak at surface.

4-11 Repaired leak and tested safety valve and control line with 5020 psi for 20 minutes, OK. Landed tubing. Ran Otis plug to 8150' and closed circulating sleeve at 8059'. Pressured tubing to set Otis RH Hydraulic packer at 8145'; approximately 4000 lbs. on packer. Opened sleeve at 8059'.

4-12 Displaced workover fluid with salt water from 8059'. Removed BOPE and installed wellhead. Tested all wellhead seals with 5000 psi for 20 minutes each. Tore out C.P.S.

4-13 Displaced salt water with nitrogen. Pulled Otis tubing plug from 8150'.

4-14 Closed sliding sleeve at 8059'. Bled off nitrogen from tubing and casing. Well ready for pipeline connections.

SFZU Frew 2

TUBING DETAIL

Item	Depth Below KB
257 jts. 2-7/8", EU, 8 rd, J-55 tubing w/ 1" GST control line hung on 2-7/8" x 1" bual collars at approx. 1150' intervals	8059'
2-7/8" x 2.313" I.D. Otis XO sliding sleeve (closed)	8059'
2 jts. 2-7/8", EU, 8 rd, J-55 tubing w/1" GST control line and 1 dual collar	8132'
2-7/8" Camco tubing removeable safety valve	8133'
2-7/8" x 7", 30# Otis RH Hydraulic packer	8145'
2-7/8" x 1.875" I.D. x 1.791" No-Go Otis XN nipple	8150'

FORM 109

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Report on Operations

No. T 273-187

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

Santa Paula Calif.
April 5, 1973

DEAR SIR:

Operations at well No. "SFZU" F-2, API No. 037-00665), Sec. 29, T. 3N, R. 16W, S.B., B & M. Aliso Canyon Field, in Los Angeles County, were witnessed on April 3, 1973. Mr. P R Wygle, engineer, representative of the supervisor was present from 1630 to 1830. There were also present J. Hampton, drilling foreman

Present condition of well: 13 3/8" cem. 501'; 7" cem. 8850', Co. WSO, c.p. 8250', 8802', & 8804', perf. 8805', CO. WSO (cem. off), perf. 8236' WSO, perf. 8243' WSO (cem off), perf. 8545-8560'(cem off), perf. (ints) 8255-8655'; 4 3/4" ld. 8817-9290', c.p. 8860', 9173', 9174' & 9178', perf. 9172' WSO, perf. 9179-9290'. T.D. 9334'. Plugged with cem. 9336-9206' & 8950-8904'.

The operations were performed for the purpose of testing the 7" shut-off by means of a formation tester.

DECISION:

THE 7" SHUT-OFF AT 8236' IS APPROVED.

a
cc: Operator

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

By [signature] Deputy

FORM 109 (REV. 1-73)

10342-708 1-73 22M ② OSP

FORM 111

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 273-58

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

Santa Paula Calif.
February 7, 1973

(037-00665)

DEAR SIR:

Your proposal to convert to gas storage Well No. "SFZU" F-2, Section 29, T. 3N, R. 16W, S.B. B. & M., Aliso Canyon Field, Los Angeles County, dated 1/19/73, received 2/2/73, has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED THAT NONE OF THE PROPOSED PERFORATIONS SHALL BE ABOVE 8243'.

Blanket Bond
ALL:a
cc: Operator

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

By [signature], Deputy

57625-705 11-71 35M OSP

FORM 107

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Deepen, Redrill, Plug or Alter Casing in Well

This notice must be given before work begins; one copy only

DIVISION OF OIL AND GAS
RECEIVED
FEB 2 1973
SANTA PAULA, CALIFORNIA

Los Angeles Calif. January 19, 1973

DIVISION OF OIL AND GAS

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of deepening, redrilling, plugging or altering casing at Well No. SP 29 (Cross out unnecessary words)

, Sec. 29, T. 3N, R. 16W, B. & M.

Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth. TD 9339; cmt. plug 8904'

2. Complete casing record, including plugs:

26", 90# C 42'
13-3/8", 48# C 501'
7" 23, 26, 28 & 30# C 8850'
WSO D.D. 4 h's 8243'
~~WSO (co) 4 h's 8265'-8275'~~
~~Shot & cmtd. 4 h's 8802'~~
WSO 4 h's (cmtd)(Co) 8805'
WSO (Co) 7" shoe 8850'
Cmtd. 4 h's 8250' & 8804'

G.P. 4 HPF 8265'-8655' at intervals
Pfs: At 8545'-8560' sealed with cmt.
Cmtd. blank section 8500'-8545'
87'-4-3/4, 16# effec. to 8904'
WSO splice, wit. & appr. D.O.G.; cmt.
4 h's 8860'
TLH 8817'
Casing ineff. below cmt. plg. at 8904'

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

The proposed work is as follows:

Perforate 4-1/2" holes per foot and/or reperforate two 1/2" holes per foot in the Sesnon zone as required to convert well to a gas storage well.

MAP	MAP	Cards	Book	FORMS 113	FORMS 121
			BB	✓	✓

P. O. Box 54790, Terminal Annex
Los Angeles, California 90054
(Address)

(213) 689-3561
(Telephone No.)

Pacific Lighting Service Company
(Name of Operator)

By R. S. Magruder Jr.

48086-705 11-70 15M OSP

FORM 157

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT ON PROPOSED CHANGE OF WELL DESIGNATION

830 North La Brea Avenue
Inglewood, California

September 24, 1968

Corrections Made as Follows:	By Whom
Form 114	
" 115	as
" 121 ✓	
" 148	
Cards	
Production Reports ✓	ec
Well Records (Folders ✓	ec
(Reports	
Field Maps 150 ✓	
Map Book 9-24-68 ✓	

Mr. Mr. C. C. Nelson, Agent
Getty Oil Co., Operator
P. O. Box 811
Agent for Ventura, California 93001

DEAR SIR:

Your ~~request~~ dated letter dated August 26, 1968, relative to change in designation of well(s) in Sec. 29, T. 3 N., R. 16 W., S.B. B. & M., Aliso Canyon field, Los Angeles County, District No. 1, has been received;

and in accordance with Section 3203, Public Resources Code, reading in part as follows:

> "* * * The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by Section 3203, shall not be changed without first obtaining a written consent of the Supervisor."

the proposed change in designation is hereby authorized as follows: (formerly owned by Standard Oil Co. of Calif.)

Old Designation	New Designation
"Frew 1" 2 ✓	"SFZU" F-2 (037-00665)
" 3 ✓	" F-3 (037-00666)
" 4 ✓	" F-4 (037-00667)
" 5 ✓	" F-5 (037-00668)
" 6 ✓	" F-6 (037-00669)
" 7 ✓	" F-7 (037-00670)
" 8 ✓	" F-8 (037-00671)
" 9 ✓	" F-9 (037-00672)

ag
cc: F. E. Kasline
Production Dept.
Conservation Committee

F. E. KASLINE
~~E. R. MURRAY-AARON~~
State Oil and Gas Supervisor

By Wm C Bailey
Deputy Supervisor

△ SPO

FORM 156

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

REPORT OF PROPERTY AND WELL TRANSFER

Field or County: Aliso Canyon — District: 1

Former Owner: Standard Oil Co. of Calif. — Date: Sept. 24, 1968

Description of Property: Sec. 29, T. 3 N., R. 16 W., S. B. B. & M.

List of Wells:
"Frew 1" 2 (037-00665)
" 3 (037-00666)
" 4 (037-00667)
" 5 (037-00668)
" 6 (037-00669)
" 7 (037-00670)
" 8 (037-00671)
" 9 (037-00672)

Date of Transfer: August 1, 1968
New Owner: GETTY OIL COMPANY, OPERATOR
Address: 3450 Wilshire Boulevard, Room 720
Los Angeles, California 90005
Telephone No. 381-7151

Type of Organization: Corporation
Reported by: C. G. Nelson for Getty Oil Co. (letter of 8-7-68)
Confirmed by: R. E. France for Standard Oil Co. of Calif. (letter of 9-18-68)
New Operator New Status PA , Old Operator New Status PA
Request Designation of Agent No

Remarks:

ag
cc: F. E. Kasline
Production Dept.
Conservation Committee

Wm C Bailey
Deputy Supervisor

		INITIALS	DATE
Form 121	✓	AB	9-24-68
New Well Cards	✓	✓	✓
Well Records	✓	✓	✓
Electric Logs	✓	✓	✓
Production Reports	✓	✓	
Map and Book 150	✓	GJF	9-24-68
Form 148			
Notice to be cancelled		—	
Bond status Blanket		Covered	

LEGEND
PA—Producing Active
NPA—Non Potential Active
PI—Potential Inactive
NPI—Non Potential Inactive
Ab—Abandoned or No More Wells

71869-705 5-66 3M ② OSP

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
830 North La Brea Avenue
Inglewood, California
90302

DIVISION OF OIL AND GAS
RECEIVED
SEP 19 1968
INGLEWOOD, CALIFORNIA

September 3, 1968

STANDARD OIL CO. OF CALIF.
Frew 1 Lease wells Nos. 2,3,4,5,6,7,8,9
Sec. 29-3N-16W SB B&M
Aliso Canyon Field

Unit Agreement for Sesnon and Frew Zones,

Mr. R. E. France, Agent
Standard Oil Company of California
P. O. Box 605
La Habra, California

Dear Mr. France:

We have been informed that Getty Oil Company, Operator, acquired the above-listed wells.

In order that our records will be correct and complete, will you please fill in the information checked below, sign and return one copy to this office. Your prompt cooperation will be appreciated.

Sincerely,

WM. G. BAILEY
Deputy Supervisor

John L. Zulberti
Senior Oil and Gas Engineer

Approve transfer and name change. Only above-listed wells included in transfer? Yes

OK

x Effective date you transferred the above-listed wells: 8-1-68

x Name and address of person or company to whom you transferred the well(s): GETTY OIL COMPANY OPERATOR

___ Brief legal description of property on which well(s) located: ______

___ What are your plans for the well(s): ______

___ Type of organization (individual, partnership, etc.): ______

Other: ______

Standard Oil Company of Calif.,
Western Operations, Inc.
(Company)

R. E. France/gll
By R. E. France, Mgr. Prod.Dept., So.Div.
(Signature)

ag
Attach.
cc: Prod. Dept.

September 18, 1968
(Date)

Getty Oil Company P.O. Box 811, Ventura, California 93001 | (805) 643-2154

August 26, 1968

Division of Oil and Gas
830 N. La Brea Avenue
Inglewood, California 90302

Re: Sesnon-Frew Zone Unit,
Aliso Canyon Field

Gentlemen:

In regard to the above unit please have all your records listed as Getty Oil Company, Operator.

At this time we also want to make the well name changes as shown on the attached list.

Very truly yours,

GETTY OIL COMPANY

C. G. Nelson

C. G. NELSON, AGENT

CGN:brm

Attachments

WELL DESIGNATION CHANGES
FOR
FREW AND SESNON ZONE UNIT
ALISO CANYON FIELD, LOS ANGELES COUNTY, CALIFORNIA

Section	Township & Range	Old Designation			New Designation		
		Operator	Lease	Well No.	Operator	Lease	Well No.
29	T3N R16W	Standard	Frew 1	2 (037-00665)	Getty	SFZU	F-2
"	" "	"	"	3 (037-00666)	"	"	F-3
"	" "	"	"	4 (037-00667)	"	"	F-4
"	" "	"	"	5 (037-00668)	"	"	F-5
"	" "	"	"	6 (037-00669)	"	"	F-6
"	" "	"	"	7 (037-00670)	"	"	F-7
"	" "	"	"	8 (037-00671)	"	"	F-8
"	" "	"	"	9 (037-00672)	"	"	F-9
34	" "	Porter, Sesnon et al	Porter Fee	1	"	"	PF-1
"	" "	"	"	2	"	"	PF-2
"	" "	"	"	3	"	"	PF-3
33	" "	"	Sesnon Fee	1	"	"	SF-1
"	" "	"	"	2	"	"	SF-2
"	" "	"	"	3	"	"	SF-3
32	" "	"	"	4	"	"	SF-4
33	" "	"	"	5	"	"	SF-5
32	" "	"	"	6	"	"	SF-6
33	" "	"	"	7	"	"	SF-7
"	" "	"	"	8	"	"	SF-8
28	" "	Getty	Std. Sesnon 1	1	"	"	SS-1
"	" "	"	"	2	"	"	SS-2
"	" "	"	"	3	"	"	SS-3
29	" "	"	"	4	"	"	SS-4
28	" "	"	"	5	"	"	SS-5
"	" "	"	"	6	"	"	SS-6
"	" "	"	"	7	"	"	SS-7
"	" "	"	"	8	"	"	SS-8
"	" "	"	"	9	"	"	SS-9
29	" "	"	"	10	"	"	SS-10
28	" "	"	"	11	"	"	SS-11
29	" "	"	"	12	"	"	SS-12
28	" "	"	"	13	"	"	SS-13
"	" "	"	"	14	"	"	SS-14
"	" "	"	"	16	"	"	SS-16
"	" "	"	"	17	"	"	SS-17
"	" "	"	"	24	"	"	SS-24
"	" "	"	"	25	"	"	SS-25
"	" "	"	"	29	"	"	SS-29
"	" "	"	"	30	"	"	SS-30
"	" "	"	"	31	"	"	SS-31
"	" "	"	"	44	"	"	SS-44

Getty Oil Company P.O. Box 811, Ventura, California 93001 | (805) 643-2154

August 7, 1968

Division of Oil and Gas
830 N. La Brea Avenue
Inglewood, California 90302

Re: Unit Agreement for Sesnon and Frew Zones, Aliso Canyon Field, Los Angeles County, California

Gentlemen:

The subject agreement became effective at 7:00 A.M., August 1, 1968. Getty Oil Company has been designated the operator. Other Working Interest Owners are Standard Oil Company and the Porter Sesnon Interests.

Wells in the unit to be operated by Getty Oil Company are as follows:

Getty Oil Company

Standard-Sesnon #1 Lease wells Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 24, 25, 29, 30, 31 and 44.

Porter Lease wells Nos. 4, 12, 25, 26, 30, 31, 32, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46 and 47.

Porter-Sesnon Line Well No. 42.

Fernando Fee wells Nos. 31, 32, 33, 34 and 35.

Mission Adrian Fee wells Nos. 3, 4 and 5.

Standard Oil Company U.S. Lease Sec. 29-3N-16W "Frew" 1-Aliso.

Frew 1 Lease wells Nos. 2, 3, 4, 5, 6, 7, 8 and 9.

Porter Sesnon, et al

Porter Fee wells No. 1, 2 and 3.

Sesnon Fee wells Nos. 1, 2, 3, 4, 5, 6, 7, and 8.

Getty Oil Company, as operator, will submit the Monthly Oil, Water and Gas Production Report, Form 110 covering the above wells in addition to the remaining wells operated by Getty in the Aliso Canyon Field.

Very truly yours,

EEL:brm

GETTY OIL COMPANY

C. G. Nelson

C. G. Nelson, Agent

cc: G. C. Wishart
J. M. Cadden

FORM 165

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF CORRECTION OR CANCELLATION

Inglewood, California

June 10, 1964

MR. J. T. Crooker
P. O. Box 748
Santa Barbara, California
Agent for STANDARD OIL COMPANY OF CALIFORNIA

Dear Mr. Crooker:

In accordance with your letter received June 9, 1964,

the following change pertaining to your well No. "Frew 1" 2,

Sec. 29, T. 3 N., R. 16 W., S. B. B. & M., Aliso Canyon field,

Los Angeles County, District No. 1, is being made in our records:

☐ The corrected location is

☐ The corrected elevation is

☐ Report No. , dated , has been corrected as follows:

CORRECTIONS MADE AS FOLLOWS:	BY WHOM
FORM 114	
" 115	
" 121	
" 148	
CARDS	
PRODUCTION REPORTS	
WELL RECORDS	
FIELD MAPS	
MAP BOOK	

☒ Your notice to alter casing (Drill, abandon, etc.) dated May 23, 1963, and our report No. P 163-584, issued in answer thereto, are hereby cancelled inasmuch as the work will not be done. If you have a drilling bond on file covering this notice it will be returned. No request for such return is necessary.

☐ Other:

es
cc - Mr. E. R. Murray-Aaron
Division Engineer
United States Geological Survey

E. R. MURRAY-AARON
State Oil and Gas Supervisor

By
Deputy Supervisor

92739 7-63 5M ② SPO

FORM 107

DIVISION OF OIL AND GAS
RECEIVED
MAY 24 1963
INGLEWOOD, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to ~~Deepen, Redrill, Plug or~~ Alter Casing in Well

This notice must be given before work begins; one copy only

Oxnard Calif. May 23 19 63

DIVISION OF OIL AND GAS

Inglewood, Calif. CANCELLED

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of ~~deepening, redrilling, plugging or~~ altering casing at Well No. Frew 1 #2
(Cross out unnecessary words)

, Sec. 29, T. 3N, R. 16W, S. B. B. & M.

Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth. 9339' Effective Depth: 8904'

2. Complete casing record, including plugs:

13-3/8" cemented 501'
7" cemented 8850' CP'd. 8250', 8804', 8805', and 8545-8560'
Perforated at intervals 8265-8655'.
473' of 4-3/4" landed 9290' Top at 8817'. CP'd. 9178', 9173', and 9174'.
Perforated 9177-9290', all plugged with cement.

Alter casing

MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
			Blanket		

3. Last produced. Nov. 1962 (Date) 114 B/D (Net Oil) (3840 GOR) 21.0° (Gravity) 6.6% (Cut)

The proposed work is as follows:

1. Move in, kill well, install B.O.P., and pull tubing.
2. Clean out to 8817' and set magnesium bridge plug in blank at 8600'.
3. Re-cement blank section and squeeze holes at 8545-8595' and 8430-8500' with cement.
4. Drill out cement and bridge plug and clean out to 8817'. If necessary, because of cement below bridge plug, reperforate interval 8610-8655' with 2 jet holes per fo
5. Rerun tubing and place well on production.

Standard Oil Company of California
Western Operations, Incorporated
(Name of Operator)

By J. T. CROOKER, Mgr. Prod. Dept., So. D.

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

49127 9-61 10M © GPO

DOG-2
CWG
HCB
RWN
APR 24 1957
MC-File

RE-COMPLETION OR ABANDONMENT REPORT - PRO-319-D

STANDARD OIL COMPANY OF CALIFORNIA

FIELD: Aliso Canyon

PROPERTY: "Frew 1"

WELL NO: 2 Sec. 29, T. 3-N., R. 16-W., S.B. B.&M.

Following is complete and correct record of all work done on the well since the previous record dated July 31, 1945.

PURPOSE OF WORK: Exclude Gas.

DATE OF REPORT: April 15, 1957

Standard Oil Company of California
By Standard Oil Company of California,
Western Operations, Inc.

W. C. Johnson
Manager, Prod. Dept., So. Div.

WORK DONE BY: Terminal Drilling Company and California Production Service, contractors, using portable equipment.

COMMENCED OPERATIONS: December 5, 1956 COMPLETED OPERATIONS: January 16, 1957

DATE WELL LAST PROD: October 19, 1956 DATE RETURNED TO PROD: Shut-in January 16, 1957

S U M M A R Y

TOTAL DEPTH: 9339'

PLUGS: 8904-8950' and 9206-9336', cement.

CASING:

26"	cemented	42'	Not tested.
13-3/8"	cemented	501'	with 400 sacks. Cemented annulus at 33' with 40 sacks. Pressure tested O.K. 17-1/2" hole.
7"	cemented	8850'	with 90 sacks. C.P. 8250', 8802', 8804' and 8805'. Deferred decision on holes at 8243'. W.S.O. on holes at 8802'. Perforated 8265-8275', 8315-8335', 8360-8375', 8385-8405', 8430-8450', 8465-8473', 8490-8500', *8545-8560', 8580-8595', and 8610-8655'. Cemented blank section 8500-8545'. *Sealed with cement. Hole Size: 17-1/2" 501-509'; 12-1/4" to 3804'; 11" to 6700'; 10-5/8" to 8850'.
473' 4-3/4"	hung	9290'	Perforated 9179-9290'. CP. 8860'- 9173', 9174' and 9178'. W.S.O. on splice and gun holes at 9172'. Hole Size: 10-5/8" 8850-8854'; 6" to 9339'.

(Summary continued next page.)

S U M M A R Y

PERFORATIONS:

7"	gun perforated with four 1/2" holes at *8250', *8804' and *8805', Lane-Wells gun.
7"	gun perforated with eight 1/2" holes at 8243' and *8802' (W.S.O.), Lane-Wells gun.
7"	gun perforated with eight 1/2" holes/foot from 8265-8275', Lane-Wells gun.
7"	gun perforated with four 1/2" holes/foot from 8315-8335', 8360-8375', 8385-8405', 8430-8450', 8465-8473', 8490-8500', *8545-8560', 8580-8595' and 8610-8659', Lane-Wells gun.
4-3/4"	perforated from 9179-9290' with 12 rows, 2" x 100 mesh, 6" centers, 6° undercut Kobe torch-cut slots.
4-3/4"	gun perforated with one 1/2" hole at 9229', Lane-Wells gun.
4-3/4"	gun perforated with four 1/2" holes at *8860', 9172' (W.S.O.), *9173', *9174', 9204', 9215', 9240', 9247' and from 9203-9206', Lane-Wells gun.
4-3/4"	gun perforated with eight 1/2" holes from 9180-9203', Lane-Wells gun.
4-3/4"	gun perforated with eight 9/16" holes at 9288', Lane-Wells gun.
4-3/4"	gun perforated with twelve 9/16" holes/foot from 9260-9288', Lane-Wells gun.

*Sealed with cement.

JUNK: None

LOGS RUN:	Type	Intervals Logged
	Schlumberger electric log	501-9337'.

Frew 1-#2
Aliso Canyon

Standard Oil Company of California

Discussion

Frew 1-#2, an unsatisfactory Sesnon zone well, has been standing shut-in since October 19, 1956, because of excessive gas-oil ratio. A temperature survey made on September 18, 1956 showed the major gas entry between 8440' to 8450' and a possible minor gas entry at 8475'. During October, 1956, the well was killed with oil base mud, a packer was run and communication was established around the cement blank sections 8500' to 8545', 8560' to 8580' and 8595' to 8610'.

Proposal (Dated November 27, 1956)

1. Recement 7" blank section 8500-8545' to segregate overlying gas sands from underlying oil zone.

2. Set packer in cemented blank section near 8530' and return well to production.

Work Done

December 5, 1956, Terminal Drilling Company, contractor, using a portable hoist and spark plug equipment, commenced work at 7:00 a.m. Circulated and conditioned drilling fluid.

December 6, 1956, installed Class III B.O.P. and pulled tubing.

December 7-8, 1956, ran magnesium bridge plug which stopped at 7392'. Backed off of bridge plug and pulled out of hole.

December 9, 1956, crew on standby.

December 10-11, 1956, drilled out and shoved magnesium bridge plug to 8602' and conditioned drilling fluid.

December 12, 1956, set magnesium bridge plug at 8566' and Baker model "K" retainer at 8510'.

To Cement Blank Section in 7" Casing from 8500' to 8545': December 13, 1956, ran stinger in retainer at 8510' and broke circulation around blank section from 8500' to 8545'. Formation broke down under 1500# and took fluid at 12 cu.ft./minute under 3000# pressure. Circulated 50 cubic feet of mud through blank section then pumped in 60 cubic feet of Diesel oil followed by 30 sacks of Colton type "D" cement, mixed to an average 116-118#/cu.ft. slurry. Working pressure 1500-1700#; final pressure 1700#. Displaced cement with 278 cubic feet of drilling fluid and 5 cubic feet of water. Good circulation throughout.

December 14, 1956, drilled out retainer at 8510' and drilled out cement to 8560'.

December 15, 1956, set retainer at 8519'. Applied pressure and circulated freely around blank section 8500' to 8545'. Pulled retainer and set Baker model "K" retainer at 8510'.

To Recement Blank Section in 7" Casing from 8500' to 8545': December 16, 1956, with retainer set at 8510' broke circulation through perforations from 8545' to 8560' under 1800# pressure. Pumped in 40 sacks of class "D" cement, mixed to an average 112#/cu.ft. slurry. Displaced cement with 288 cubic feet of drilling fluid. Working pressure 1600#; final pressure 2000#. Full circulation throughout.

December 17, 1956, drilled out cement from 8500' to 8510'; drilled out retainer at 8510'; drilled out cement to 8532'; cleaned out to 8551; and drilled out cement to 8552'.

December 18, 1956, set Baker retrievable, retainer at 8519' and circulated behind blank section in 7" casing from 8500' to 8545' under 1200 psi.

To Recement Blank Section in 7" Casing from 8500' to 7545': December 18, 1956, set magnesium retainer at 8520' and pumped in 40 sacks of Class "D" cement, mixed with 25 cubic feet of water and 40# of lime to an average 120#/cu.ft. slurry. Preceded cement with 40 cubic feet of drilling fluid. Displaced cement with 100 cubic feet of drilling fluid. Working pressure 1400-2200#; final pressure 500#. Full circulation throughout.

December 19, 1956, drilled out magnesium retainer at 8520' and cement to 8553'.

December 20, 1956, ran magnesium bridge plug which stopped at 8379'. Cleaned out to 8554' with a 6" bit and set magnesium retainer at 8520'.

December 21, 1956, pressure tested blank section in 7" casing from 8500' to 8545' under 1500 psi - held O.K.

December 22-26, 1956, drilled out retainer at 8520'; cleaned out to 8554'; drilled out cement to 8566' including bridge plug at 8566' and cleaned out to 8813' and circulated hole clean.

December 27, 1956, reran and hung 2-1/2" tubing at 8520' with packer at 8519' and gas lift mandrel in closed position at 8449'.

December 27, 1956, installed Xmas tree. Ran opening tool and opened gas lift mandrel at 8449'.

Displaced drilling fluid with oil.

Crew released at 4:00 p.m., December 28, 1956

Frew 1-#2
Aliso Canyon

Standard Oil Company of California

December 31, 1956-January 1, 1957, well flowed for twenty-seven hours and recovered 52 barrels of oil and 12 barrels of water and was shut-in because of excessive gas-oil ratio.

January 9, 1957, California Production Service, contractor, commenced work at 7:30 a.m. Pumped 200 barrels of 65 pcf oil base mud in hole and killed well.

January 10-11, 1957, removed Xmas tree and installed B.O.P.

January 12, 1957, pulled tubing and replaced bad joints.

January 13-14, 1957, ran 2-1/2" tubing to 8561' but unable to set packer at 8529'.

January 15, 1957, reran 2-1/2" tubing and unsuccessfully attempted to set packer at 8520', 8522', 8526', 8534', 8565', 8569', 8575' and 8582'. Set packer at 8200' and tested under 1500# pressure - held O.K.

January 16, 1957, reran and hung 2-1/2" tubing at 8561' with the swab shoe at 8561'; standing valve shoe at 8560'; packer (unset) at 8527' and gas lift mandrel at 8521'.

Re-installed Xmas tree.

Crew released at 8:00 p.m., January 16, 1957 and well shut-in because of excessive oil-gas ratio.

APR 24 1957.

Frew 1-#2
Aliso Canyon

Standard Oil Company of California

Contractor:	Terminal Drilling Company	California Production Service
Drillers:	W. F. Hames	L. E. Gilleland
	D. D. Brown	
	D. Dole	
	P. S. Jones	
	G. Elder	
	C. Henderson	

N. TWERELL

NT: hk
April 15, 1957

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 156-1664

Mr. W C Johnson
P O Box 397
LA HABRA California

Los Angeles 15 Calif.
November 30 19 56

Agent for STANDARD OIL CO OF CALIFORNIA

DEAR SIR:

Your proposal to alter casing Well No. "Frew 1" 2,

Section 29, T. 3 N, R. 16 W, S B B. & M., Aliso Canyon Field, Los Angeles County,

dated Nov. 27, 1956, received Nov. 28, 19 56, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES
"The present condition of the well is as follows:
1. Total depth. 9339' Plugs: 8904-8950 and 9206'-9336'

2. Complete casing record.
13-3/8" cemented 501'
7" cemented 8850', CP 8250', 8802', 8804', 8805', and 8860'. DD at 8243', WSO 8802'. Gun perfd 8265-8275', 8315-8335', 8360-8375', 8385-8405', 8430-8450', 8465-8473', 8490-8500', 8545'-8560', 8580-8595', 8610-8655'.
473'- 4-3/4" landed 9290'. CP 9178', 9173', 9174', WSO 9172' and on splice. Perf 9179-9290'.

Well has been standing shut in because of excessive gas oil ratio.

3. Last produced. Sept. 1956 (Date)" 128 B/D Oil and 0 B/D Water.

PROPOSAL
"The proposed work is as follows:
(1) Recement 7" blank section 8500-8545' to segregate overlying gas sands from underlying oil zone.
(2) Set packer in cemented blank section near 8530' and return well to production."

DECISION
THE PROPOSAL IS APPROVED.

FEK:OH

cc Mr C W Gibbs, Asst Gen Mgr Producing Dept
Standard Oil Co of California
225 Bush Street
San Francisco 20 California

Mr R W Norton
Standard Oil Co of California
P O Box 1309
OXNARD California

E. H. MUSSER, State Oil and Gas Supervisor

By R. W. Walling, Deputy

Blanket bond.

(11210-755 30M SPO)

FORM 107.

DIVISION OF OIL AND GAS
RECEIVED
NOV 28 1956
LOS ANGELES, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Deepen, Redrill, Plug or Alter Casing in Well

This notice must be given before work begins; one copy only

Oxnard Calif. November 27 1956

DIVISION OF OIL AND GAS

Los Angeles Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of ~~deepening, redrilling, plugging~~ altering casing at Well No. Frew 1-2
(Cross out unnecessary words)

, Sec. 29, T. 3 N, R. 16 W, S. B. B. & M.

Aliso Canyon Field, , Los Angeles County.

The present condition of the well is as follows:

1. Total depth. 9339' Plugs: 8904-8950 and 9206'-9336'

2. Complete casing record. 13-3/8" cemented 501'
7" cemented 8850', CP 8250', 8802', 8804', 8805', and 8860'. DD at 8243', WSO 8802'. Gun perfd 8265-8275', 8315-8335', 8360-8375', 8385-8405', 8430-8450', 8465-8473', 8490-8500', 8545-8560', 8580-8595', 8610-8655'.
473'- 4-3/4" landed 9290'. CP 9178', 9173', 9174', WSO 9172' and on splice. Perf 9179-9240'.

Well has been standing shut in because of excessive gas oil ratio.

3. Last produced. Sept. 1956 (Date) 128 B/D Oil and 0 B/D Water (Net Oil) (Gravity) (Cut)

The proposed work is as follows:

(1) Recement 7" blank section 8500-8545' to segregate overlying gas sands from underlying oil zone.

(2) Set packer in cemented blank section near 8530' and return well to production.

MAP	MAP BOOK	CARDS		FORMS 114	121

Standard Oil Company of California
(Name of Operator)

By W.C. Johnson
W.C. Johnson, Mgr. Prod. Dept., So. Div.

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

STANDARD OIL COMPANY OF CALIFORNIA

STANDARD OIL BUILDING

LOS ANGELES, 54, CAL.

PRODUCING DEPARTMENT
J. E. GOSLINE
MANAGER—SOUTHERN DISTRICT

October 15, 1945

Mr. E.H. Musser, Deputy Supervisor
Division of Oil & Gas
629 S. Hill Street,
Los Angeles 14, California

Re: Frewl-#2
Aliso Canyon

Dear Sir:

Please refer to our Completion Report - New Well - Pro-18-1, dated July 31, 1945, on subject well, and correct entry of April 30, 1945, on page 21 to read, "April 30, 1945, ran Lane Wells perforator and shot four 9/16" holes per foot 9290-9260'."

Yours very truly,

J E Gosline
WAJ

Acknowledge receipt
C&B

JET
SUP.MUR.
DOG-2
L.A.FILE

COMPLETION REPORT—NEW WELL PRO-18-1

PROSPECT WELL

FIELD Aliso Canyon — Standard Oil Company of California — COMPANY S. B.

PROPERTY Frew 1 — WELL NO. 2 — SEC. 28 — T. 3 N. — R. 16-W. B & M

LOCATION From the ExMission San Fernando Ranch line point #19 southerly 522.8' along the Rancho line; thence 410.8' westerly at right angles. — ELEV. 2804.3' D.F. U.S.G.S.

RECEIVED
OCT 2 1945
DIVISION OF OIL AND GAS
LOS ANGELES, CALIFORNIA

FOLLOWING IS COMPLETE AND CORRECT RECORD OF ALL WORK DONE ON THIS WELL

COMMENCED: RIGGING UP October 11, 1943 — COMMENCED DRILLING October 19, 1943

COMPLETED: RIGGING UP October 19, 1945 — COMPLETED DRILLING July 2, 1944

DEPTH 9339' — PLUGGED TO See History — DATE OF INITIAL PRODUCTION July 2, 1944

PRODUCTION (DAILY AVERAGE 1ST 30 DAYS) {FLOWING / PUMPING} 301 — BBL. OIL: 8 — BBL. WATER: 21.1 °A.P.I.
(Prg 20) July'44 25

GAS PRODUCTION (DAILY AVERAGE 1ST 30 DAYS) 112 — M. CU. FT. — — GALS. GASOLINE PER M. CUBIC FEET
(Prg 20) July'44 25

TUBING PRESS. 373 — CASINGHEAD PRESS. — — FLOW NIPPLE —

CASING RECORD

SIZE OF CASING	LENGTH OF CASING	DEPTH LANDED	CEMENTED (DEPTH IF THRU PERF.)	WEIGHT PER FOOT	THREADS PER INCH	MAKE OF CASING	SEAMLESS OR LAPWELDED	MAKE OF SHOE
26"	22	42	Yes	90#		unknown	Unknown	Shop
13-3/8"	487	501	"	48#	8-rnd.	Spang	Seamless	Baker
7"	8850	8850	8250	*	*	*	"	"
4-3/4"	473	9290	9178 & 9179	16#	2-step flush	S. H. unknown	Seamless	"

*Details in History.

CEMENTING OR OTHER SHUT OFF RECORD

SIZE OF CASING	DEPTH LANDED	DEPTH CEMENTED	NO. SACKS USED	NO. SACKS TREATED	KIND OF CEMENT	METHOD	TIME SET DAYS	RESULT OF TEST
26"	42	42	5 cu. yds.	ready-mix con		Outside casing	19	Not tested
13-3/8"	501	501	400	None	Colt. cons.	Plug	2	Press. tested O.K.
7"	8850	8850	90	None	Vic.High temp	Plug	6	(WSO thru gun holes at
		8250	300	"	" " "	C.P.	3	8245' and 8302'
4-3/4"	9290	9178	50	"	Vic.Hi.Temp	C.P.	9	(See History)

PERFORATION RECORD

SIZE OF CASING	FROM	TO	SIZE OF HOLES OR SLOTS	NUMBER OF ROWS	SPACING (INCHES)	HOW PERFORATED
4-3/4"	9179	9290	2" x 100 mesh	12	6	6° undercut Kobe torchcut slots.

For additional perforation in 7" casing and 4-3/4" liner see Summary.

PLUG: Yes — KIND See History — LENGTH — TOP AT

ADAPTER: Yes — KIND Burns plain liner groove — SIZE 4-3/4" O.D. — SET AT 8817'

ROTARY TOOLS: FROM 0 TO 9339' FEET — CABLE TOOLS: FROM — TO — FEET

SIDETRACKED PIPE AND LOST TOOL RECORD

Lost shank from 6" core head at 9257' and sidetracked at 9257'.
Lost cones from 6" rock core head and sidetracked at 9264'.
Left one slip from Olympic packer at 8770'.

MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121

DRILLERS NAMES ON LAST SHEET

DATE July 31, 1945

STANDARD OIL COMPANY OF CALIFORNIA

BY J. E. Gosline

J.E.Gosline, Mgr., Prod. Dept. No. Dist.

Frew 1-#2 Standard Oil Company of California

DIVISION OF OIL AND GAS
RECEIVED
OCT 2 1945
LOS ANGELES, CALIFORNIA

From	To	Feet	Formation Drilled and Cored

Drilled by Rocky Mountain Drilling Company, contractor, using standard derrick and spark plug equipment.

October 1, 1943, contractor, McMullen Construction Company with portable rotary equipment, drilled 38" hole to 42'.

0	42	42	decomposed rock and shale

- -

October 1, 1943, cemented 26" casing at 42' with 5 cubic yards of ready-mixed concrete poured in on outside.

Casing Detail: All 1 joint or 42' is 26", 90#, double 8 gauge stove pipe fitted on bottom with a 1/2" x 4" steel band welded on for a shoe.

- -

October 19, 1943, spudded well in and drilled 12-1/4" hole:

42	80	38	sand and gravel
80	190	110	gravel
190	490	300	sand and gravel
490	509	109	no formation logged

Lost circulation at 328' and drilled 328-490' with partial circulation.

Reamed 12-1/4" hole to 17-1/2" 42-509'.

- -

October 22, 1943, cemented 13-3/8" casing at 501' with 400 sacks Colton construction cement mixed to an average 118# slurry. Used top and bottom wooden plugs. Displaced cement with 460 cu. ft. of mud, 200# working pressure and plugs bumped under 500# final pressure. 44 minutes to mixing and displacing cement. Good circulation throughout, no cement returns. Used Halliburton Power equipment and bulk cement.

Casing Detail: All 13 joints or 501' are 13-3/8" O.D., 48#, 8-round thread, Range 3, new Spang seamless casing fitted on bottom or at 501' with a 14-3/8" O.D. Baker cement guide shoe.

- -

Located top of cement outside 13-3/8" casing at 53' and pumped in 40 sacks of cement through 1" pipe hanging outside of the 13-3/8" casing and brought cement to the surface.

- -

Cut off and recovered 20' of 26" casing all from below derrick floor.

Frew 1-#2 Standard Oil Company of California

From	To	Feet	Formation Drilled and Cored

Cut off and recovered 19' of 13-3/8" casing, 5' of which was above derrick floor.

Tested 13-3/8" casing with 1000# pressure. Held O.K.

Drilled out plugs and cement to 509' with 12-1/4" bit.

Drilled, 12-1/4" hole:

509	530	21	shale
530	583	53	sand and shells
583	627	44	hard sand and shells
627	690	63	silt and sand
690	1157	467	sand

Lost circulation while drilling at 1151'.

Pumped in 100 sacks Colton construction cement through 4½" drill pipe hanging at 1157' and regained circulation.

October 29, 1945, drilled out cement 1137-1157' and drilled 12¼" hole with good circulation:

1157	1276	119	sand and shells
1276	1327	51	no formation logged
1327	1425	98	silt and sand
1425	1459	34	shale
1459	1549	90	sand and shale
1549	1623	74	sand
1623	1866	243	shale
1866	1936	70	sand and streaks of shale
1936	2049	113	sand

Lost circulation while drilling at 2045' and drilled to 2049' without circulation.

November 3 and 4, 1945, pumped in 250 sacks of Colton construction cement in two stages through 4½" drill pipe hanging at 2049'. Used Halliburton power equipment and bulk cement.

Located top of cement at 1900'.

November 4, 1945, pumped in 150 sacks Colton construction cement through 4½" drill pipe hanging at 1800'. Used Halliburton power equipment and bulk cement.

November 5, 1945, drilled out cement 1745-2049' with 12¼" bit.

Drilled, 12¼" hole with good circulation:

2049	2136	87	sand and shale
2136	2250	114	sandy shale and silt
2250	2340	90	sand
2340	2371	31	silty shale

Frew 1-#2 Standard Oil Company of California

From	To	Feet	Formation Drilled and Cored

Lost circulation while drilling at 2371'

Pumped in 250 sacks Colton construction cement through 4½" drill pipe hanging at 2371'. Used Halliburton power equipment and bulk cement. Conditioned mud in hole with fibrous material.

November 7, 1943, drilled out cement 2175-2371' with 12¼" bit.

Drilled, 12¼" hole with circulation:

2371	2412	41	silty shale
2412	2457	45	shale and sand
2457	2547	90	sandy shale
2547	2746	199	shale
2746	2804	58	silty shale
2804	2919	115	shale
2919	2959	40	silty shale
2959	2965	26	no formation logged
2965	3694	609	shale
3694	3713	19	shale and streaks sand

Lost circulation while drilling at 3713'. Conditioned mud with fibrous material and regained circulation.

Cored, 7-5/8" hole:

3713	3718	5	recovered 1'
3713	3714	1	1' gray coarse conglomeritic sand with pebbles, up to 1" diameter, of dark green glaconitic firm coarse sand, gray very hard limestone with small calcareous concretions, and gray igneous. (Grains making up sand are multi-colored.)
3714	3718	4	4' no recovery, drilled hard, probably same material as above.
3718	3724	6	recovered 1'
3718	3719	1	1' same conglomeritic sand. Top 2" gray micaceous firm silt (in small pieces).
3719	3724	5	5' no recovery
3724	3730	6	recovered 5'
3724	3727	3	3' alternate 4" to 6" beds gray fine friable sand and well bedded dark gray and brownish gray fine sandy silty shale, fractured locally. Dip 40-50°
3727	3729	2	2' gray medium grained friable sand with 5" hard sandstone shell at top.
3729	3730	1	1' no recovery

Reamed 7-5/8" hole to 12¼" from 3713-3730'.

Drilled, 12¼" hole:

3730	3804	74	conglomerate and sand

Frew 1-#2 Standard Oil Company of California

From	To	Feet	Formation Drilled and Cored
	Drilled, 11" hole, thus reducing 12¼" hole to 11" at 3804':		
3804	3845	41	conglomerate and sand
3845	4899	1054	sand
4899	4908	9	shale
	Cored, 7-5/8" hole:		
4908	4918	10	recovered 3'
4908	4909	1	1' bluish grey hard clay shale. Locally broken and slickensided. Dip 35° good.
4909	4910	1	1' hard sandstone shell
4910	4911	1	1' grey coarse friable massive sand
4911	4918	7	7' no recovery--sand and shale
4918	4923	5	recovered 5'
4918	4921	3	3' grey coarse friable sand
4921	4923	2	2' bluish grey well bedded hard clay shale, streaked with grey fine hard sand. Broken and slickensided locally. Dip 38-41° very good.
	Reamed 7-5/8" hole to 11" 4908-4923' and drilled, 11" hole:		
4923	4951	28	sand and streaks of shale
4951	4984	33	shale
4984	5029	45	sand and shale
5029	5077	48	no formation logged
5077	5202	125	sand and shale
5202	5232	30	shale
5232	5234	2	no formation logged
5234	5265	31	shale
5265	5289	24	sticky shale
5289	5382	93	shale
5382	5501	119	sandy shale
5501	5536	35	shale
5536	5586	50	sand
5586	5623	37	sand and shale streaks
5623	5731	108	sand
5731	5794	47	sand and streaks shale
5841	5879	38	sand
5879	5933	54	shale and sand
5933	6029	96	sand
6029	6054	25	sandy shale
6054	6082	28	silty sand
6082	6119	37	sand and streaks of shale
6119	6202	83	sand
6202	6288	86	sand and shale
6288	6418	130	sand and silt
6418	6458	40	silt stone
6458	6478	20	sand and shale
6478	6580	102	shale and sand
6580	6624	44	sand and shale
6624	6684	60	shale and sand
6684	6700	16	hard sandy shale

Frew 1-#2 Standard Oil Company of California

From	To	Feet	Formation Drilled and Cored
	Drilled, 10-5/8" hole, thus reducing 11" hole to 10-5/8" at 6700':		
6700	6719	19	hard sandy shale
6719	6764	45	sand and shale
6764	6826	62	sand
6826	6852	26	sandy shale
6852	6974	122	sand
6974	7004	30	sandy shale
7004	7054	50	sand
7054	7082	28	sand and thin shells
7082	7199	117	sand and streaks of shale
7199	7320	121	sand
7320	7447	127	shale
7447	7503	56	sandy shale
7503	7553	50	sand and shale
7553	7635	82	sandy shale
	Cored, 7-5/8" hole:		
7635	7645	10	recovered 7'
7635	7642	7	7' gray coarse massive friable sand. No apparent dip.
7642	7645	3	3' no recovery
	Reamed 7-5/8" hole to 10-5/8" 7635-7645' and drilled, 10-5/8" hole:		
7645	7692	247	sand and shale
7692	7932	40	shale and sand
7932	7957	25	shale and streaks of sand
7957	7961	4	shale and sand
7961	7991	30	shale
7991	8022	31	brown shale
	Cored, 7-5/8" hole:		
8022	8032	10	recovered 3'
8022	8025	3	3' dark brown brittle siliceous shale, laminated with buff color phosphatic? material. Light brown nodules scattered throughout, 1/2" to 1" in diameter. Dip 35°. (Core is burned and broken by coring except one 8" solid piece in center which is brown and light brown very hard laminated lime? shale. This lithology is comparable to the Miocene shale in S.O.-Assoc., Sesmon No. 2)
8025	8032	7	7' no recovery, same shale
8032	8035	3	recovered 3'
8032	8035	3	3' same dark brown brittle laminated shale. (Also burned in coring.)
	Reamed 7-5/8" hole to 10-5/8" 8022-8035' and drilled, 10-5/8" hole:		
8035	8111	76	dark brown shale
8111	8129	18	no formation logged
8129	8182	53	dark brown shale
8182	8204	22	brown shale
8204	8210	6	shale and sand

Frew 1-A2 Standard Oil Company of California

From	To	Feet	Formation Drilled and Cored
			Cored, 7-5/8" hole:
8210	8220	10	recovered 8'
8210	8217	7	7' brownish grey fine sandy very firm mainly massive siltstone, saturated with dark oil in many spots. Dip 42°
8217	8218	1	1' dark oil saturated fine sandy firm massive siltstone. (May be called fine silty firm oil sand.) Looks good--productive. Good odor.
8218	8220	2	2' no recovery
8220	8230	10	recovered 5'
8220	8225	5	5' same dark oil saturated fine sandy firm siltstone
8225	8230	5	5' no recovery, same silt
8230	8240	10	recovered 0'
8230	8240	10	10' no recovery, drilled like firm sand
8240	8245	5	recovered 1'
8240	8241	1	1' dark grey hard silty massive shale. Dip 40°, faint
8241	8245	4	4' no recovery, hard shale
8245	8255	10	recovered 0'
8245	8255	10	10' no recovery, hard shale
8255	8265	10	recovered 5'
8255	8260	5	5' dark grey hard silty massive shale. Dip 42°, faint
8260	8265	5	5' no recovery, hard shale
8265	8275	10	recovered 10'
8265	8271	6	6' dark grey hard silty massive shale
8271	8275	4	4' dark oil saturated fine sandy firm massive silt (May be called fine silty firm OIL SAND.) Good odor. Looks productive. Few gas bubbles.

December 28, 1945, Johnston Formation Test 8210-8275': Set combination packer on square shoulder at 8210'. Open 45 minutes. Medium steady blow for 5 minutes, weak steady blow for balance of test. Gas in 20 minutes. Jarred 2 hours to get packer loose. Started to flow a little rotary mud and oily mud at end of jarring. Recovered 8210' fluid. Top 870' oily rotary mud. Balance rotary mud, most of which came in while jarring packer loose. Water samples tested: 8210' above tool 24 grains per gallon; 7700' above tool 27 grains per gallon. Estimated gravity of oil 32°.

Tool Assembly: Combination packer sleeve 9-5/8", cone 7-5/8" x 9-5/8". Tail: 33' x 2-7/8". (Top 12' blank, next 20' perforated and 7' recorder) 3/8" bean. Bowen jars.

Reamed 7-5/8" hole to 10-5/8" 8210-8270' with 10-5/8" bit.

Cored, 7-5/8" hole:

8275	8282	7	recovered 1'
8275	8276	1	1' dark grey very hard limy shell
8276	8282	6	6' no recovery, drilled like sand

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From	To	Feet	Formation Drilled and Cored
8282	8292	10	recovered 10'
8282	8292	10	10' dark gray hard silty massive shale, with scattered OIL stained spots. Few small gas bubbles. Dip 45°.
			Drilled, 7-5/8" hole:
8292	8323	31	sand
8323	8375	52	sand and streaks of sandy shale
			December 31, 1943, ran Schlumberger electric log and recorded 501-8371'.
			Cored, 7-5/8" hole:
8375	8385	10	recovered 6'
8375	8381	6	6' dark gray hard silty massive shale. OIL stains near top. Dip 34°. Top 1' broken, probably in coring.
8381	8385	4	4' no recovery, shale
			Drilled, 7-5/8" hole:
8385	8405	20	sand and shale
			Cored, 7-5/8" hole:
8405	8415	10	recovered 10'
8405	8415	10	10' OIL saturated hard massive fine sandy silt, with few streaks fairly friable. (This may be called firm silty fine OIL SAND.) Free OIL on fractures. Few gas bubbles.
			Drilled, 7-5/8" hole:
8415	8435	20	sand

January 8, 1944, Johnston Formation Test 8270-8455'. Packer would not hold. No test.

Reamed 7-5/8" hole to 10-5/8" 8270-8323' and cleaned out 8285-8435' with 7-5/8" bit.

January 4, 1944, Johnston Formation Test 8285-8435': Open 89 minutes. Weak steady blow throughout test. No gas to surface. Recovered 5100' fluid in 4½" drill pipe. Top 2800' gassy mud, next 1400' oily mud, next 1000' black oil, next 400' emulsion and bottom 100' oily muddy water. Oil sample 900' above tool: 17.3 deg. gravity, 8% cut (all mud). Water samples: 5100' above tool, 21 G/G; 2200' above tool 21 G/G; 400' above tool, 27 G/G, and at tool 21 G/G. Ditch 21 G/G.

Tool Assembly: Combination packer: sleeve 9-5/8", cone 7-5/8" x 9-5/8". Tail: 39' x 2½" (Top 12' blank, next 20' perforated., and 7' recorder) 3/8" bean, Bowen jars.

Reamed 7-5/8" hole to 10-5/8" 8285-8455'.

Cored, 7-5/8" hole:

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From	To	Feet	Formation Drilled and Cored
8435	8445	10	recovered 1'
8435	8436	1	1' dark brown brittle shale. (Actual recovery 6")
8436	8445	9	9' no recovery, drilled like firm sand
8445	8455	10	recovered 10'
8445	8452	7	7' medium to coarse grained friable dark OIL SAND. Looks very good.
8452	8455	3	3' fine silty firm OIL SAND.
8455	8465	10	recovered 10'
8455	8465	10	10' fine firm silty OIL SAND. Looks fairly tight for much fluid.
8465	8475	10	recovered 10'
8465	8475	10	10' fine silty firm OIL SAND with friable streaks
8475	8485	10	recovered 10'
8475	8485	10	10' some silty firm OIL SAND. Some free OIL.
8485	8495	10	recovered 10'
8485	8491	6	6' fine silty very firm OIL SAND. Looks too tight for much fluid.
8491	8495	4	4' coarse firm but friable OIL SAND. Looks good
8495	8505	10	recovered 10'
8495	8505	10	10' fine silty firm to friable dark OIL SAND. Much free OIL. Looks good
8505	8515	10	recovered 6'
8505	8508	3	3' fine silty very firm OIL SAND, grading into
8508	8511	3	3' OIL stained fine sandy massive very firm silt
8511	8515	4	4' no recovery, drilled like sand
8515	8525	10	recovered 9'
8515	8524	9	9' gray fine sandy massive very firm silt, OIL stained locally
8524	8525	1	1' no recovery
8525	8535	10	recovered 8'
8525	8533	8	8' gray fine sandy massive very firm silt. No apparent oil however, has a light amber cut.
8533	8535	2	2' no recovery
8535	8545	10	recovered 8'
8535	8543	8	8' some hard silt, OIL stained towards bottom
8543	8545	2	2' no recovery
8545	8555	10	recovered 10'
8545	8548	3	3' coarse firm but friable OIL SAND. Looks good.
8548	8555	7	7' OIL stained fine sandy quite hard siltstone. Too tight to have fluid.
8555	8565	10	recovered 10'
8555	8565	10	10' OIL stained fine sandy quite hard siltstone, too tight for good production

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From	To	Feet	Formation Drilled and Cored
8565	8575	10	recovered 8'
8565	8573	8	8' OIL stained fine sandy quite hard siltstone with friable streaks. much free OIL
8573	8575	2	2' no recovery
8575	8585	10	recovered 10'
8575	8579	4	4' OIL stained fine sandy quite hard siltstone. (Too tight and fine to be an OIL SAND.)
8579	8585	6	6' OIL saturated fine sandy firm but friable silt. Much free OIL. Looks fairly good. (This may be called a fine firm OIL SAND.)
8585	8595	10	recovered 1'
8585	8586	1	1' small pieces gray very hard fine sandstone.
8586	8595	9	9' no recovery, streaks of hard and soft sand
8595	8605	10	recovered 1'
8595	8596	1	1' small pieces of igneous pebbles and OIL stained firm silt
8596	8605	9	9' no recovery, streaks of hard and soft sand
8605	8607	2	recovered 1'
8605	8606	1	1' very hard dark gray well cemented conglomerate
8606	8607	1	1' no recovery

January 8, 1944, ran Schlumberger electric log and recorded 8371-8605'.

January 9, 1944, ran Schlumberger dip meter.

Reamed 7-5/8" hole to 8½" 8426-8607' with 8½" bit and drilled, 8½" hole:

8607	8619	12	conglomerate
8619	8620	1	very hard
8620	8621	1	hard conglomerate
8621	8633	12	conglomerate

Cored, 8½" hole:

8633	8634	1	recovered 1'
8633	8634	1	1' dark brown very hard lisy slightly sandy shale, small fragments. (Actual recovery 2".)
8634	8640	6	recovered 1'
8634	8635	1	1' fine silty friable OIL SAND. Fair odor.
8635	8640	5	5' no recovery, drilled like sand with hard streaks.
8640	8648	8	recovered 6'
8640	8646	6	6' fine to coarse very firm dark OIL SAND. Good odor, but too tight to have much fluid.
8646	8648	2	2' no recovery
8648	8653	5	recovered 1'
8648	8649	1	1' fragments of very hard coarse pebbly well cemented sandstone.
8649	8653	4	4' no recovery, very hard material. (Actual recovery 3".)

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From	To	Feet	Formation Drilled and Cored
8653	8656	3	recovered 2'
8653	8654	1	1' fine to coarse friable OIL stained sand, wet.
8654	8655	1	1' dark greenish grey massive very hard silty shale, mottled with gray fine hard sand. Non-marine. Looks possibly to be reworked material. Few irregular slickensided planes. Probably Eocene age
8655	8656	1	1' no recovery
8656	8658	2	recovered 2'
8656	8658	2	2' dark greenish gray to dark green very hard massive silty shale, with small inclusions (mottled) of gray fine hard sand.
8658	8668	10	recovered 10'
8658	8668	10	10' same as in 8656-8658 with two streaks gray sand
8668	8678	10	recovered 7'
8668	8675	7	7' greenish gray to green hard silty shale with inclusions and streaks of grey (slightly reddish) fine hard sand
8675	8678	3	3' no recovery
8678	8688	10	recovered 5'
8678	8683	5	5' dark greenish gray to green hard massive silty shale with inclusions of grey (slightly reddish) fine hard sand. One 2" streak gray fine sand. Looks non-marine and possibly reworked material.
8683	8688	5	5' no recovery, same as above
8688	8690	2	recovered 1'
8688	8689	1	1' same as in 8678-8688
8689	8690	1	1' no recovery
	Drilled, 8½" hole:		
8690	8694	4	no formation logged
8694	8730	36	shale
	Cored, 8½" hole:		
8730	8735	5	recovered 3'
8730	8731	1	1' dark purplish gray hard sandy shale streaked with reddish gray fine hard sand. Dip 40°. Marine fossils.
8731	8733	2	2' well cemented fragments of greenish gray, gray, and purplish gray sandy and silty shale
8733	8735	2	2' no recovery
8735	8745	10	recovered 7'
8735	8742	7	7' gray very hard well cemented sand, thinly streaked in bottom 5' with dark shale. Marine fossils.
8742	8745	3	3' no recovery
	Drilled, 8½" hole:		
8745	8755	10	shale

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From	To	Feet	Formation Drilled and Cored
			Cored, 8½" hole:
8755	8760	5	recovered 3'
8755	8758	3	3' very hard thinly bedded dark gray sandy and silty shale and purplish gray fine sandstone. Dip 40°.
8758	8760	2	2' no recovery
			Drilled, 8½" hole:
8760	8787	27	shale
			Cored, 8½" hole:
8787	8792	5	recovered 5'
8787	8788	1	1' gray fine friable sand
8788	8792	4	4' hard laminated dark gray sandy shale and gray fine hard sand. Dip 40°
			Drilled, 8½" hole:
8792	8854	62	shale

January 19, 1944, ran Schlumberger electric log and recorded 8808-8854'.

January 19, 1944, ran Schlumberger dip meter.

Reamed 8½" hole to 10-5/8" 8436-8854'.

January 21, 1944, ran Halliburton hole size measuring device (Calipers) and recorded 501-8854' (bottom), in order to better estimate required volume of cement.

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January 23, 1944, cemented 7" casing at 8850' with 90 sacks of Victor High Temperature cement, mixed to a 117# slurry. 48 minutes mixing and pumping cement to place. Used 1 bottom wooden plug and 2 top. Plugs bumped under 600# working pressure and 1050# final pressure. Pipe was not moved after cementing began. Good circulation to surface. Used Halliburton power equipment and bulk cement.

Casing Detail:

All	215 joints	or 8850' are 7" OD new Range 3, seamless casing.
Top	44 "	or 1738' are 23#, N-80, Jones and Laughlin, 8-round thread, long couplings.
Next	55 "	or 2448' are 23#, J-55, Republic, 8-round thread, short collars.
"	32 "	or 1303' are 26#, J-55, Jones and Laughlin, 8-round thread, short couplings.
"	24 "	or 1046' are 28#, J-55, Jones and Laughlin and Bethlehem, 8-round threads short collars.
Bottom	60 "	or 2319' are 30#, J-55, Pittsburgh, 10-V thread long collars.
Total	215 joints	8856'

At 8260' the 16th joint from bottom is fitted with a Baker 10-5/8" OD metal petal basket. Shoe joint is fitted on bottom or at 8850' with a 7" OD Baker cement float shoe, and on top or at 8809' with a 7" OD Baker cement float collar.

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From To Feet Formation Drilled and Cored

January 23, 1944, ran Lane Wells gun perforator. Would not go below 1700'. Pulled same.

Ran 6" bit on 2½" tubing and cleaned out to 8433'.

January 25, 1944, ran Lane Wells gun perforator and shot four 1/2" holes in 7" casing at 8250'.

Broke circulation with 1700# pressure through gun holes at 8250'. Pressure dropped back to 750# and circulated freely.

January 26, 1944, cemented 7" casing through four 1/2" holes at 8250' with 300 sacks of Victor High Temperature cement mixed to a 116# slurry. 100 minutes mixing and pumping cement to place. Used 1 top plug. Displaced cement with 1750 cu. ft. mud under 1000# working pressure and 2800# final pressure. Left approximately 200' cement in casing from 8250-8050'. Circulation good to surface throughout job. Used Halliburton power equipment and bulk cement.

January 29, 1944, drilled out cement 8135-8245' with 6" bit.

January 30, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 8243'.

January 30, 1944, Johnston Water Shut-Off Test on shot holes at 8243'. Set packer at 8229', tail to 8259'. Open 60 minutes. Light steady blow for 40 minutes, weak steady blow for 20 minutes. Recovered 6075' rise in 3" drill pipe: Top 1080' mud and water; next 1890' mud with a little oil, bottom 3105' muddy oil and oil. Sample 6000' above tool tested 38 G/G. Sample 6500' above tool tested 38 G/G. Test witnessed and a deferred decision was given by Inspector S. H. Nook of the Division of Oil and Gas.

Tool Assembly: 2-7/8" x 10' tail, (top 8' blank, next 4' perforated, bottom 4' recorder), 3/8" bean. 7" Olympic packer.

January 31, 1944, cleaned out to 8790' and drilled out cement 8790-8854' (4' below shoe) with 6" bit.

January 31, 1944, Johnston Water Shut-off Test on shoe of 7" casing at 8850'. Hole open to 8854'. Set packer in 7" casing at 8769'. 1000' mud cushion, opened valve at 10:58 PM. Open 10 minutes (after which fluid in 7" dropped). Moderate steady blow throughout. No gas to surface. Recovered 3480' rise of new fluid in 5½" drill pipe. Top 175' light mud with a little oil and bottom 3305' oily mud and oil. Water sample 3480' above tool tested 68 grains of salt per gallon. (No more water available, only oil filters out). Division of Oil and Gas waived witnessing test. Water believed to be shut-off as result of test.

Tool Assembly: 7" Olympic packer, 2-7/8" x 14' tail, (top 3' blank, next 5' perforated, and bottom 6(recorder (1)).

Drilled 6" hole:

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From	To	Feet	Formation Drilled and Cored
	8854	8875	21 No formation logged.
	8875	8887	12 shale
	8887	8897	10 no formation logged

Cored, 6" hole:

8897	8909	12	recovered 10'
8897	8907	10	10' dark gray very sandy hard massive shale indistinct dip less than 5°. Eocene age.
8907	8909	2	2' no recovery

Drilled, 6" hole:

8909	8925	14	shale
8925	8957	24	sandy shale
8957	8971	24	hard shale streaks of sand
8971	9023	52	hard shale, streaks of sand

Cored, 6" hole:

9023	9035	12	recovered 12'
9023	9035	12	12' laminated dark gray hard silty and clayey shale and purplish gray fine hard sand. An occasional 2" streak of purplish gray very hard limy shale. Few fracture planes slickensided. Dip 15-19°.

Drilled, 6" hole:

9023	9048	13	hard sandy shale
9048	9067	19	sandy shale
9067	9086	19	hard shale
9086	9099	13	no formation logged
9099	9116	17	shale
9116	9179	63	sandy shale

Cored, 6" hole:

9179	9194	15	recovered 9'
9179	9180	1	1' dark gray hard silty shale
9180	9187	7	7' coarse firm, but friable massive brown OIL SAND with an occasional spot of dark gray shale. Dip 14°. Looks good.
9187	9188	1	1' pieces of dark gray hard sandy and silty shale and igneous pebbles up to 1" in diameter.
9188	9194	6	6' no recovery, drilled like hard shale
9194	9196	2	recovered 1'
9194	9195	1	1' gray hard sandstone with a thin streak of OIL SAND. (Actual recovery 2")
9195	9196	1	1' no recovery

Drilled, 6" hole:

9196	9202	6	hard shale and conglomerate

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From	To	Feet	Formation Drilled and Cored
			Cored, 6" hole:
9202	9219	17	recovered 12'
9202	9213	11	11' coarse firm but friable brown to light brown massive OIL SAND, good odor and looks good. Three scattered 6" streaks of dark gray hard silty and sandy shale and igneous pebbles up to 1-1/2" in diameter.
9213	9214	1	1' dark gray and purplish gray hard silty and sandy bedded shale. Few igneous pebbles. Dip 5°.
9214	9219	5	5' no recovery, drilled like hard shale
9219	9226	7	recovered 1'
9219	9220	1	1' grey hard sandstone shell
9220	9226	6	6' no recovery--hard shell. (Actual recovery 2").
			Drilled, 6" hole:
9226	9230	4	no formation logged
9230	9238	8	conglomerate
9238	9243	5	hard sand and shale
9243	9250	7	hard shale
9250	9256	6	hard sandy shale
			Cored, 6" hole:
9256	9257	1	recovered 0'
9256	9257	1	1' no recovery, drilled like hard sand
9257	9258	1	recovered 0'
9257	9258	1	1' no recovery, hard sand

Lost side cutter and shank from 6" core head while coring at 9257'. Recovered cutter in barrel from cored interval 9257-9258', leaving shank in hole.

			Drilled, 6" hole, thus sidetracking shank:
9258	9262	4	conglomerate

February 19, 1944, ran Schlumberger electric log and recorded 8854-9261'.

Reamed 6" hole 8854-9262' with 6" bit.

			Cored, 6" hole:
9262	9264	2	recovered 1'
9262	9263	1	1' few igneous pebbles. (Actual recovery 2".) Drilled "rough."
9263	9264	1	1' no recovery

March 11, 1944, found had left all cones from 6" rock core head in hole while coring at 9264'.

March 11 & 12, 1944, ran 6" bit and drilled on cones at 9264'. Ran 6" Globe basket to 9264' but no recovery.

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From	To	Feet	Formation Drilled and Cored
			Drilled, 6" hole, thus sidetracking cones from 6" core head at 9264'.
9264	9277	13	conglomerate
			Cored, 6" hole:
9277	9278	1	recovered 0'
9277	9278	1	1' no recovery
			Drilled, 6" hole:
9278	9280	2	conglomerate
9280	9288	8	no formation logged
9288	9292	4	conglomerate
9292	9295	3	no formation logged
9295	9304	9	conglomerate
			Cored, 6" hole:
9304	9321	17	recovered 0'
9304	9321	17	17' no recovery
9321	9331	10	recovered 8'
9321	9322	1	1' dark gray very hard massive silty shale. Sandy in spots. Good dip, 26-29°
9322	9329	7	7' gray fine to medium grain firm slightly friable massive sand. A few scattered small spots of gray shale. Bottom 6" dark gray very hard silty shale. Fair dip - 10°. Eocene age.
9329	9331	2	2' no recovery
9331	9332	1	recovered 0'
9331	9332	1	1' no recovery
			Drilled, 6" hole:
9332	9335	1	hard conglomerate
9335	9337	4	conglomerate
9337	9339	2	no formation logged

March 21, 1944, ran Schlumberger electric log and recorded 9261-9537'.

March 22, 1944, pumped in 15 sacks of Victor high temperature cement mixed to a 116# slurry, through open end pipe hung at 9336', (bottom 95', 2½" tubing and balance 5½" drill pipe) 37 minutes mixing and pumping cement to place. Equalized cement with 354 cu. ft. of mud. Used International Cementers power equipment and bulk cement.

March 23, 1944, drilled out cement 9270-9291' with 6" bit.

March 25, 1944, ran 477' of 5½" liner at 7780' and slipped to 7760'. Would not go below so pulled same.

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March 26, 1944, hung 473' of 4-3/4" liner at 9290'. Perforated 9179-9290'. Cemented through ports at 9178' with 50 sacks Victor high temperature cement mixed to an average slurry of 116#. Pumped in 10 cu. ft. of water ahead of cement. 30 minutes mixing and pumping cement to place. Displaced cement with 368 cu. ft. of mud. 800# working pressure and 900# final pressure. Left 75' of cement in liner. Circulation to surface good throughout job. Used International Cementers power and bulk cement.

<u>Liner and Perforation Detail:</u>

Top	12 joints	360'	are 4-3/4" OD, 16#, 45-Y, Range 2, seamless with Hydrill 2-step threads flush jointed, second hand, make unknown, blank, fitted on top or at 8817' with a 4-3/4" x 7" Burns plain liner hanger, grooved for cementing.
Bottom	4 "	113'	are 4-3/4" OD, 16#, 45-Y, Range 2, seamless, Hydrill 2-step threads flush jointed, second-hand, make unknown, Bottom 111' perforated with 12 rows, 2 x 100 mesh, 6" centers, 6" undercut, Kobe torchcut slots fitted on top or at 9177' with a 4-3/4" OD Baker cement down Whirler with C.P. ports 1' from top or at 9178', and fitted on bottom or at 9290' with a 4-3/4" OD. Baker solid cement bull plug shoe.
Total	16 joints	473'	

- -

Cleaned out cement in 7" casing 8612-8817' with a 6" bit and 7" casing scraper.

March 27, 1944, drilled out cement 8817-8841'. Cleaned out to 9176' in 4-3/4" liner. Found no cement below 8841'.

March 29, 1944, ran <u>Johnston Water Shut-off Test on 4-3/4" x 7" splice at 8817'.</u> Set packer in 7" casing at 8777' with 1800' water cushion used. <u>Valve did not open.</u> <u>No test.</u>

March 30, 1944, <u>Johnston Water Shut-off retest on 4-3/4" x 7" splice at 8817'.</u> Set packer in 7" casing at 8777' with 1800' water cushion used. <u>Open 1 hour.</u> Good, steady decreasing blow for 50 minutes, then dead for 10 minutes. Recovered 8050' gross rise - Top 1800' fresh water, next 1100' rotary mud, next 1000' watery mud and bottom 4150' water. Sample 4800' above tool tested 96 G/G. Sample 1000' above tool 315 G/G. Sample at tool tested 479 G/G. <u>Test witnessed and water shut-off at splice not approved by Inspector E. H. Rook of the Division of Oil and Gas.</u>

<u>Tool Assembly:</u> 7" Olympic packer, 3/8" bean, 2-7/8" x 12' tail (top 6' perforated, bottom 6' pressure recorders.

Pumped in 10 sacks Colton slow construction cement through 3½" drill pipe, including 216' of 2" tubing on bottom, hanging at 9000'. 116# slurry. Equalized cement with mud. Pulled up to 8700' and circulated. Used Halliburton power equipment.

<u>Located top of cement at 8957'.</u>

March 31, 1944, ran Baker cement retainer on 5½" drill pipe, including 185' of 2⅜" tubing on bottom. Retainer would not go below 8762'. Set retainer in 7" casing at 8742'. Formation would not take fluid under 4000#.

April 1 and 2, 1944, drilled out Baker cement retainer 8742-8745' with a 6" bit and 7" casing scraper and cleaned out to 8817'.

April 3, 1944, Johnston Water Shut-off retest on 4-3/4" x 7" splice at 8817'. Set packer in 7" casing at 8781'. Used 1200' water cushion above tool. Open 40 minutes. Weak initial puff then dead for one minute, weak steady blow for 5 minutes, then dead. Recovered 40' net rise in 3½" drill pipe, all medium drilling fluid. Sample from just above tool would not filter. Test witnessed and water shut-off at splice approved by Inspector J. H. Show of the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer, 5/8" bean, 3-7/8" x 14' tail (top 6' perforated, bottom 8' pressure recorder).

April 4, 1944, drilled out cement in 4-3/4" liner 8957-8967' and 9045-9090' and cleaned out to 9178' (top of baffle plate) with 3-7/8" bit. Found no cement 9090-9178'.

April 4, 1944, set Halliburton Squeeze tool in 4-3/4" liner at 9166'. Broke formation down under 2500#. Formation held 2500# for 5 minutes, then broke down.

April 4, 1944, cemented 4-3/4" liner through C.P. ports at 9178'. Pumped in 15 sacks of Victor high temperature cement mixed to a 111# slurry. Displaced cement with 344 cu. ft. of mud. 45 minutes mixing and pumping cement to place. 2200# final pressure. Squeezed away 14 sacks of cement. Pulled pipe up to 8900' and tried to circulate through by-pass in tool, but could not break circulation at 2600#. Pipe was free in hole. Used Halliburton power equipment and bulk cement.

Cleaned out 8929-9175' with 3-7/8" bit. Found no cement to 9175'.

April 6, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9174'.

April 6, 1944, ran Johnston Water Shut-off test through holes in 4-3/4" liner at 9174'. Set packer in 4-3/4" liner at 9147'. Open 41 minutes. (Pressure chart indicated valve opened momentarily at time packer pulled loose but not open when reset thus 465' net rise obtained probably leaked in when packer came loose at start of test.) Packer came loose when bar hit trip valve. Packer was reset and held. Weak steady blow for 1 minute and dead for balance of test. 1200' of water cushion used. Recovered 465' of new fluid in 3½" drill pipe (this is equivalent to the 400' of 2" drill pipe on bottom and 261' of 5½" drill pipe). From 660' to 835' above tool, pipe was dry; pipe from 260' to 660' above tool had water (part of cushion); from tool to 260' was rotary mud. No evidence of oil or gas. Water sample 200' above tool tested 14 grains of salt per gallon. Water sample at tool 34 grains per gallon of salt. No free water at tool. Test witnessed and considered a mis-run by Inspector J. H. Show of the Division of Oil and Gas, but made no decision.

Tool Assembly: 4-3/4" Olympic packer with a 5½" x 1-5/8 tail (top 2' blank, next 6' perforated and bottom 7' recorder 1) 3/8" bean.

April 8, 1944, ran Johnston Water Shut-off retest through holes at 9174'. Ran tester on 3½" drill pipe including 394' of 2-3/8" drill pipe on bottom. (1000' mud cushion above tool). Set packer in 4-3/4" liner at 9147'. Open 1 hour 5 minutes. Medium blow for 1 minute. Dead for 2 minutes. Medium strong blow for balance of test. Recovered 8328' gross rise (7328' net). Top 1000' mud, bottom 7325' muddy water. Sample at tool tested 345 G/G. Water not shut-off through holes at 9174'. Not witnessed by Division of Oil and Gas.

Tool Assembly: 4-3/4" Olympic packer, 3/8" bean, 2-7/8" x 20' tail. Top 4' blank, next 6' perforated, bottom 10' pressure recorders.

April 8, 1944, recemented 4-3/4" liner through gun holes at 9174'. Set Halliburton squeeze tool in 4-3/4" liner at 9140'. Broke formation down with mud under 2750#; formation took fluid under 2350#. Pumped in 25 sacks Victor high temperature cement mixed to 110-118# average slurry. Preceded cement with 10 cu. ft. of water. Closed in and forced 19 sacks cement into formation through perforations at 9174', under 2350# maximum pressure. Held pressure on tool for 5 minutes before releasing. Displaced and squeezed cement with total 330 cu. ft. mud. 2 minutes mixing, 23 minutes displacing, 15 minutes squeezing. 41 minutes overall. Used Halliburton power and bulk cement.

April 9, 1944, drilled out cement 9132-9175' with 5-7/8" bit.

April 10, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9173'.

April 10, 1944, ran Johnston Water Shut-off test through gun holes in 4-3/4" liner at 9173'. Set packer in 4-3/4" liner at 9147'. Open for 40 minutes. Weak steady blow for 25 minutes, then weak heads for balance of test. (995' mud cushion). Recovered 6150' gross rise in 394' of 2" drill pipe on bottom and balance 3½" drill pipe. Top 870' rotary mud and bottom 5280' gassy salty slightly muddy water with a trace of oil. Sample 4110' above tool tested 752 G/G. Sample at tool tested 807 G/G. Test witnessed and Water Shut-off through holes at 9173' not approved by Inspector J. L. White of the Division of Oil and Gas.

Tool Assembly: 4-3/4" Olympic packer, 3½" x 20' tail (top 2' blank, 6' perforated and bottom 12' recorders (2)), 3/8" bean.

April 11, 1944, ran Halliburton Squeeze Tool and set in 4-3/4" liner at 9132'. Broke formation down under 2700#. Formation took fluid under 1900#. Pumped in 10 cu. ft. of water ahead of cement. Pumped in 50 sacks of Victor high temperature cement mixed to a 113# slurry. Displaced cement with 300 cu. ft. of mud. 36 minutes mixing and pumping cement to place. 4000# final pressure. Squeezed an estimated 15 sacks of cement through holes in 4-3/4" liner at 9173'. Used Halliburton power equipment and bulk cement.

April 12, 1944, drilled out cement in 4-3/4" liner 8890-9175' with 5-7/8" bit.

April 13, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9172'.

April 13, 1944, Johnston Water Shut-off Test through holes in 4-3/4" liner at 9172'. Set packer at 9152'. Tail to 9166'. Open 37 minutes. Weak slightly heading

blow for 7 minutes and dead for 30 minutes. 995' mud cushion. Recovered no rise. Bottom part of fluid in drill pipe was a little lighter in weight than regular rotary mud. No free water. Test witnessed and Water shut-off through holes at 9172' approved by Inspector J. L. White of the Division of Oil and Gas.

Tool Assembly: 4-3/4" Olympic packer with a 2-7/8" x 14' tail (top 2' blank, 6' perforated and bottom 6' recorder (1)), 5/8" bean.

April 14, 1944, drilled out cement and baffle plate 9175-9179' and cleaned out to 9289' with 5-7/8" bit.

April 15, 16, 17, 1944, hung 2½" tubing at 8776' with 7" Lane Wells circulating type packer set at 8748'. Opened ports in packer and circulated mud out of tubing with water. Closed valve, but water flowed back into tubing and pulled a vacuum on 7" casing indicating valve was leaking. Pulled tubing and packer and found circulating valve cut - out and rubbers torn off packer.

Circulated at 9289' and wall scraped 7" casing 6200-6400' and 7700-7800' with a 7" scraper.

April 18, 1945, hung 2½", 6.5# tubing at 8779' with 7" Lane Wells, circulating type long stroke Olympic packer set at 8748'. Tubing fitted on bottom with a 2.09" I.D. swab shoe.

Annulus between tubing and casing held 800# pressure.

Swabbed mud from 0-3000'. Fluid level remained at 3000' with continuous swabbing.

April 19 and 20, 1944, continued swabbing fluid level remained at 3000' to 3500' until 4 AM. Fluid level from 4 AM to 6 AM rose from 3500' to 400' with continuous swabbing. Water sample at 7:30 AM from 1200' tested 890 C/C. First salt water was recovered at 6 AM. Previously only mud was recovered. At 10:15 AM with fluid level at 700', let set for 1 hour. At 11:15 AM fluid level was at 240'. Recovered a fair oil showing with some gas on next 2 runs of swab. Recovery was mainly salt water. Water sample at 9:30 AM from 500' tested 923 C/C. Swabbed from 11:15 AM to 1:00 AM. Fluid salt water showing a little oil and gas.

Fluid level 4 PM 1075'
" " 6 PM 900'
" " 10 PM 1000'
Water sample at 6 PM from 800' tested 992 C/C
" " at 11 PM from 800' tested 992 C/C.

Well started to flow at 1 AM by weak heads which were nearly continuous at times and never more than 1 minute apart. Sometimes heads would blow up to 10' high and other times just boil over top. Fluid was salty water with a little oil and gas. Water sample at 9:30 AM from surface tested 978 grains of salt per gallon. Oil sample skimmed from cellar tested 25.7° gravity, and 0.6% cut (water). With well flowing (through tubing) approximately 8½ barrels per hour salt water with trace oil and gas. Ran Ennis device. Water reported entering below 9275'. Hole open to 9276' at time of survey (Ennis line measurements). Opened circulating ports in Lane Wells packer and circulated salt water and oil out of tubing with mud. Killed well. Pulled tubing and packer.

April 21, 1944, drilled out shoe and cement 9280-9338' with a 5-7/8" bit.

Hall scraped 9290-9338' with 6" wall scraper.

April 22, 1944, ran Lane-Wells gun perforator and shot four 9/16" holes per foot 9288-9276'.

April 23, 1944, ran Lane Wells gun perforator, but gun would not go below 8878'.

Cleaned out 8878-9337' with 3-7/8" bit.

April 25, 1944, raran Lane Wells gun perforator and shot four 9/16" holes per foot 9276-9260'.

Pumped in 15 sacks Victor high temperature cement through 2⅜" tubing, hanging at 9333'. Displaced cement with 297 cu. ft. mud. 25 minutes mixing and displacing cement. Good circulation. Used Halliburton power equipment.

April 24, 1944, drilled out cement in 4-3/4" liner 9252-9255' with 3-7/8" bit.

April 25, 1944, ran Johnston Formation Tester and set packer in 4-3/4" liner at 9155'. Packer would not hold.

April 26, 1944, hung 2⅜" tubing at 8749' with 7" Lane Wells circulating type Olympic packer set at 8716'.

Swabbed mud from surface to 3000'.

April 27, 1944, well started to flow to sump at 7 AM. Turned to tanks at 1:40 PM. for 26 hours producing 80 barrels oil, 363 barrels water, 25.4° gravity, 1" bean, tubing pressure 0#, estimated 50 M.C.F. per day rate gas. Water tested 937 C/C.

With well flowing, ran Ennis device; water reported entering at 9250'.

Opened circulating ports in Lane Wells packer and circulated salt water and oil out of tubing with mud. Killed well. Pulled tubing and packer.

April 29, 1944, drilled out cement plug 9255-9338' with 3-7/8" bit.

Hall scraped 6" hole 9290-9337' with 6⅛" wall scraper.

April 30, 1944, ran Lane Wells perforator and shot four 9/16" holes per foot 9290-9260'.

Letter dated 10/15/45

Washed perforations 9290-9211'.

May 1, 1944, pumped in 20 sacks Victor high temperature cement through 2⅜" tubing hanging at 9235'. Displaced cement with 296 cu. ft. of mud. 20 minutes mixing and displacing cement. Closed well in and applied 1100# pressure for 5 minutes then circulated through bean with 500# to 700# back pressure for 1½ hours. Used Halliburton power equipment.

May 2, 1944, drilled out cement in 4-3/4" liner 9187-9255' with 3-7/8" bit.

Hall scraped 7" casing 8750-8817' with 7" casing scraper.

May 4, 1944, Johnston Formation Test on perforations in 4-3/4" liner 9179-9255'. Set packer in 7" casing at 8794'. Tail to 8814'. Used 820' of mud as a cushion. Open 6 hours. Weak steady slightly decreasing blow for 6 hours. Recovered 8670' rise in 3-1/2" drill pipe. (7850' net rise.) Top 820' rotary mud, balance gassy salt water, somewhat muddy and oily. Water samples tested as follows:

7850' above tool - 410 C/C
7000' above tool - 568 C/C
750' above tool - 741 C/C

Tool Assembly: 7" Olympic packer, 3/8" bean, 3-7/8" x 20' tail (Top 3' blank, next 7' perforated, bottom 10' recorders (2))

May 5, 1944, drilled out cement plug 9256-9338' with 3-7/8" bit.

Wall scraped 6-1/2" hole 9290-9337' with 6-1/2" wall scraper.

May 6, 1944, ran Lane Wells gun perforator and shot four 9/16" holes per foot 9290-9290'.

Wall scraped 4-3/4" liner 8817-9290' with 4-3/4" casing scraper and circulated down to 9337'.

Displaced mud with water.

May 7, 1944, set Baker cement retainer in 4-3/4" liner at 9132' with 2-3/8" Seeuraloy aluminum tail to 9320'. Forced away 20 cubic feet of water in 5 minutes under 1800#. Pumped in 36 sacks Victor high temperature cement mixed to a 105# slurry. Displaced cement with 230 cubic feet of mud, closed ports and squeezed 34 sacks of cement below retainer under 3500#. 54 minutes mixing and displacing cement. Used Halliburton power equipment and sacked cement.

May 8, 9, 10, 1944, drilled out cement in 4-3/4" liner 9105-9110' and drilled up cement retainer, 2-3/8" aluminum tail pipe and cement 9129-9199' with a 3-7/8" bit.

Bit plugged while drilling out cement at 9199'. Pulled up to 4900' and reversed circulation to unplug bit. Got mud back through fill-up line in 13-3/8" casing, thus indicating hole in 7" casing.

Removed blow out preventors and cellar connections and found 7" casing worn through and split for 20" immediately below landing head in cellar.

Displaced mud in hole with water through 2½" tubing hanging at 700'.

May 11, 1944, ran Whittaker Dia-log to 501' to check inside diameter of 7" casing and indicated wall thickness of 7" casing varied between ¼" to 3/16". No evidence of casing failure other than 20" split immediately below landing head.

May 12, 1944, ran 7" casing spear and set in 7" casing at 58'. Took strain on 7" casing. Backed off and recovered 35' of 7" casing from 47'. Found top 2' of 7" casing split and badly worn. Ran 1 joint or 35' of 7" casing and screwed on stub at 47'. Relanded 7" casing.

Casing Detail: All 1 joint or 35' is 7" OD, 26#, N-80, Range 3, 8-round thread, new Jones and Laughlin seamless casing.

May 14 and 15, 1944, drilled out cement and aluminum "stinger" 9199-9250' with 5-7/8" bit.

Circulated and conditioned mud.

May 17, 1944, ran Lane Wells gun perforator and same stopped at 8623'. Worked gun down to 8668' where same began to stick.

Cleaned out to 9249' with 5-7/8" bit and ran 3½" drill pipe including 468' of 2" tubing on bottom to 8850' and circulated. Pulled up to 8200' and back, scuttled out aluminum shavings and mud. Then ran in 3½" drill pipe including 528' of 2-3/8" drill pipe on bottom to 8700'. Circulated and conditioned mud.

Scraped 4-3/4" liner 8817-9250' with 4-3/4" casing scraper.

May 20, 1944, ran Lane Wells gun perforator and shot four ½" holes in 4-3/4" liner at 9247'.

May 20, 1944, Johnston Water Shut-off test around bottom cement plug (9250-9339') through four ½" holes at 9247'. Set packer in 7" casing at 8771'. Tail to 8789'. Open 5 hours and 40 minutes. Light steady blow gradually decreasing to very light blow. 2040' mud cushion used. Recovered 6200' net rise of new fluid in 2½" tubing. Top 870' mud with a little oil, next 3100' oily gassy muddy water, next 465' gassy oil, next 1400' muddy gassy water with a little oil and bottom 365 heavy mud. Water sample 5020' above tool tested 458 C/C. Water sample 400' above tool tested 793 C/C. Test not witnessed by the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer, 2-7/8" x 18' tail (top 2' blank, next 6' perforated, and bottom 10' recorders (2)), no beam.

Scraped 4-3/4" liner 8817-9250' with 3-7/8" bit and circulated and conditioned mud.

May 22, 1944, set Halliburton squeeze tool at 9153'. Spotted 25 cu. ft. of water to 9153'. Closed tool and broke down formation under 2500# pressure, after which formation took water under 1700# pressure. Forced 14 cu. ft. of water away through holes at 9247' in 3 minutes, under 1700#. Pumped in 50 sacks Victor high temperature cement mixed to an average slurry of 116# per cu. ft. Preceded cement with 40 cu. ft. of water. Displaced cement with 214 cu. ft. of mud. Closed squeeze tool and squeezed estimated 7 sacks cement through holes at 9247' under 4500# final pump pressure. 37 minutes displacing and squeezing cement to place. Showed slight suction when connections were broken. Used Halliburton power equipment and bulk cement.

May 23, 1944, cleaned out soft cement stringers and scraper 7" casing 8450-8817' with 7" scraper and 6" bit.

Circulated and conditioned mud at 8817'.

May 24, 1944, drilled out cement 8817-9220' with 5-7/8" bit. Cement soft 8817-9000' and hard 9000-9220'.

Circulated and conditioned mud at 9220'.

May 25, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9215'.

May 25, 1944, Johnston Water Shut-off test through holes at 9215'. Set packer in 7" casing at 8788'. Tail to 8810'. Open 8 hours 50 minutes. First 3 hours-light steady blow gradually decreasing to very light blow. No gas to surface. 2000' mud cushion used. 5½ hours swabbed heavy slightly gassy mud with colors of oil. Recovered 8325' fluid in 2⅜" tubing. Top 2050' heavy slightly gassy mud with trace of oil, some of which blew out; next 95' frothy oily water; next 4275' heavy frothy gassy mud with a little oil; next 280' frothy gassy muddy water with a little oil; next 1200' heavy fluffy oily mud with some cement; next 180' frothy oily water. Bottom 245' heavy foamy oily mud. Water sample 6420' above tool tested 793 C/C. Water sample 2050' above tool tested 814 C/C. Water sample 270' above tool tested 828 C/C. Test not witnessed by the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer, 3½" x 22' tail (top 2' blank, next 7' perforated and bottom 13' recorders (2)), no bean - Maximum opening - 5/8".

May 26, 1944, drilled out cement in 4-3/4" liner 9220-9245' with 3-7/8" bit.

May 27, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9240'. While pulling out gun same stuck at 9229'. Shot one one-half-inch hole at 9229' and pulled gun loose.

May 27, 1944, Johnston Water Shut-off test through four 1/2" holes at 9215', one 1/2" hole at 9229' and four 1/2" holes at 9240'. Set packer in 7" casing at 8788'. Tail to 8806'. (2000' mud cushion). When valve opened fluid dropped approximately 30' at surface. Reset packer and held O.K. Open 9 hours. Got weak steady decreasing blow for 3 hours. Swabbed mud from tubing for 5 hours. Got weak steady decreasing blow for one hour. Let set for last hour. Recovered 8600' of oily gassy salt water. 1650' to 1800' above tool was oil. Test not witnessed by the Division of Oil and Gas. Water sample 5950' above tool tested 854 C/C. Water sample at tool tested 855 C/C.

Tool Assembly: 7" Olympic packer, no bean, 2-7/8" x 18' tail (Top 2' blank, next 6' perforated, bottom 10' recorders (2)).

May 29, 1944, set Halliburton Squeeze tool in 4-3/4" liner at 9145'. Spotted 50 cu. ft. of water at 9145' and broke formation down under 3200#. Formation took 32 cu. ft. water in 9 minutes under 2600# pressure. Pumped in 35 cu. ft. water ahead of cement. Pumped in 20 sacks Victor high temperature cement mixed to a 105# slurry. Displaced cement with 265 cu. ft. mud. Closed tool and forced away an estimated 12 sacks of cement through four 1/2" holes at 9215', 1 hole at 9229', and four holes at 9240' under 4000# final pressure. 32 minutes mixing and pumping cement to place. Used Halliburton power equipment and bulk cement. Found 42 joints of 2⅜" and 15 joints of 2" tubing filled with cement.

May 30, 1944, drilled out cement 9125-9187' with 3-7/8" bit and circulated down to 9244'. No cement 9187-9244'.

May 31, 1944, set Baker retrievable retainer in 4-3/4" liner at 9150' and broke down formation with water under 3600# pressure. Forced 42 cu. ft. of water into formation through gun holes in 4-3/4" casing in 20 minutes under 2300# pressure. Pumped

in 30 sacks Victor high temperature cement mixed to an average slurry of 106#. Displaced cement with 280 cu. ft. of mud (15 cu. ft. short of cement reaching tool). Attempted to close retainer but would not take hold. Had to break connections at surface and a little mud estimated 20 cu. ft. circulated out between tubing and 7" casing. 22 minutes mixing and displacing cement. Attempted to reset tool. Pumped in 20 cu. ft. mud pressure built up momentarily to 1000# and circulated between 2½" tubing and 7" casing, indicating tool not set. Pulled tubing to 7050' and circulated out cement. Used Halliburton power equipment and sacked cement.

June 1, 1944, drilled out soft cement 8792-9245' with 3-7/8" bit and 4-3/4" casing scraper.

June 2, 1944, set Halliburton Squeeze tool in 4-3/4" liner at 9150'. Displaced mud in tubing with water. Broke formation down under 2500#. Formation took 34 cu. ft. water in 11 minutes under 2000# pressure. Pumped in 20 sacks Victor high temperature cement mixed to an average slurry of 110#. Displaced cement with 285 cu. ft. of mud (15 cu. ft. short of having cement to tool). Closed tool and forced away an estimated 15 sacks of cement through four 1/2" gun holes at 9215', 1 at 9229', and four at 9240'. Working pressure 2000#, and final pressure 4500#. 30 minutes mixing and pumping cement to place. Used Halliburton power equipment and bulk cement.

June 3, 1944, drilled out cement 9050-9206' with 3-7/8" bit.

June 4, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9204'.

June 4, 1944, Johnston Water Shut-off test through four 1/2" holes at 9204'. Set packer in 7" casing at 8777' (2000' mud cushion). Open 17½ hours. Light steady blow for 4½ hours. No gas to surface. Started to swab 4½ hours after opening valve. Swabbed mud, from cushion, then oily mud and emulsion and a little water for 8 hours. Let stand 1-3/4 hours and started to flow. Flowed oil and emulsion for 4½ hours then flowed oil, emulsion and some water for 8 hours. Estimated 100 barrels per day rate (2 hour period). A little gas. Recovered 8777' of fluid in 2½" tubing. Top 7100' oil, greasy emulsion and a little water. Balance heavy oily greasy mud, no free water. Test not witnessed by Division of Oil and Gas. Water sample taken after 7½ hours (while swabbing) tested 760 G/G. Water sample taken after 12½ hours (while flowing) tested 790 G/G. Water sample taken 1700' above tool tested 800 G/G.

Tool Assembly: 7" Olympic packer, 20' x 2-7/8" tail (top 2' blank, next 6' perforated and bottom 12' recorders (2)). No bean, 5/8" opening.

June 5, & 6, 1944, ran Lane Wells gun perforator to 9205'; gun would not go off. Reran Lane Wells gun perforator and shot four 1/2" holes per foot 9150-9238'.

June 6, 1944, hung 2½", 6.5#, tubing at 8784' fitted at 8750' with a 7" Lane Wells circulating type long stroke Olympic packer and fitted on bottom or at 8784' with a 2.05" I.D. Swab shoe.

Applied 1000# between tubing and casing for 5 minutes with no loss.

Swabbed mud, then oil, emulsion and water from surface to 3000.

June 7, 8, 9, 10, 1944, well started flowing to sump at 5 A.M., June 7, 1944. Flowed for 4 hours at an estimated 8 barrels per hour gross rate (approximately 50% oil, 10% emulsion, 40% water). Water tested 787 G/G. Well died at 9 A.M. Swabbed for 7½ hours at estimated 4 barrels per hour gross rate (22° gravity, 40% final cut. Water

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sample tested 834 B/D. Unable to lower fluid level below 8000'. Swabbed from 4000'. Lane Wells packer failed and fluid dropped between tubing and casing. Filled hole with mud and pulled tubing and packer.

Rehung 2½", 6.5# tubing at 8784' fitted at 8752' with a 7" Lane Wells circulating type long stroke Olympic packer and fitted on bottom or at 8784' with a 2.09" I. D. swab shoe. Put 1000# between tubing and casing. Held O. K. for 10 minutes. Swabbed mud, then oil, mud and emulsion from surface to 3000'. Fluid level rose to 2000' while swabbing at 3000'. Well started flowing to sump at 1:30 A.M., 6-9-45. Flowed oil, emulsion and about 50% water, then emulsion and about 10% water. Turned to tanks at 8:00 A.M., 6-9-45 and produced as follows:

Hour Period Ending	Barrels Gross Production	Net Gravity of Oil-°API	Total Cut-%	Itemized Cut - % Water	Emulsion	Mud
9 AM - 6-9-45	1	24.8°	9	6.8	2.0	0.5
10	1½	22.1°	24	20	3.5	0.5
11	2½	21.2°	30	26	3.5	0.5
12 N	2½	21.8°	28	24	3.6	0.4
1 PM	5	26.0°	4	0	4	0
2	3½	-	-	-	-	-
3	2½	-	14	2	12	0
4	3	-	-	-	-	-
5	2½	24.4°	13	2	10	0
6	2½	24.4°	17	0.2	16.8	0
7	6	21.4°	30	17	13	0
8	2½	21.7°	24	22	2	0
9	2½	24.3°	14	10	4	0
10	2½	24.0°	16	12	4	0
11	2½	21.0°	30	28	2	0
12 N	2½	20.7°	32	30	2	0
1 AM - 6-10-45	2½	20.8°	34	26	8	0
2	4	23.1°	52	38	14	0
3	2.9	16.0°	60	40	20	0
4	2.5	14.9°	62	42	20	0
5	5.0	19.7°	56	28	8	0
6	0	21.1°	50	24	6	0
7	0	19.5°	52	46	6	0
8	2.5	-	-	-	-	-
9	1.0	-	-	-	-	-
10	1.5	-	-	-	-	-
11	2.5	-	-	-	-	-
12 N	6.0	-	-	-	-	-

20/64" bean at surface. Water samples - 820 B/D.

Shut well in 12 Noon, 6-10-45, and killed with mud.

Pulled tubing and packers.

June 11, 1944, ran Lane Wells gun perforator and reperforated 4-3/4" liner 9190-9206' with four 1/2" holes per foot.

June 11, 1944, set Baker model K Aluminum cement retainer in 4-3/4" liner at 8950'. Backed off from retainer and pumped in 10 sacks Victor high temperature cement mixed to an average slurry of 118#. Equalized cement with 288 cu. ft. mud. 19 minutes mixing and pumping to place. Used Halliburton power equipment and mixed cement.

Located top of cement at 8904'.

June 12, 1944, Johnston Water Shut-off retest on four 1/2" holes in 7" casing at 8243'. Set packer in 7" casing at 8211'. Open 3 hours and 20 minutes. 950' water cushion used. Weak steady blow for 15 minutes; then dead for balance of test. No gas to surface. Ran swab to trip valve, but recovered no fluid. Recovered 650' net rise in 2⅞" tubing. All rotary mud with trace of oil. No free water. Test not witnessed by Division of Oil and Gas.

Tool Assembly: 7" Olympic packer next 5/8" bean, 3½" x 14' tail (top 2' blank, next 6' perforated, bottom 6' one pressure recorder.)

June 12, 1944, ran Lane Wells gun perforator and reshot four 1/2" holes at 8243'.

June 13, 1944, tried to set Johnston packer at 8211', but slips failed. Pulled out same.

June 13, 1944, Johnston Water Shut-off retest through gun holes in 7" casing at 8243'. Set packer at 8213'. Open 5 hours, 15 minutes. Weak steady blow for 10 minutes, then dead for balance of test. No cushion used. After one hour ran swab to 8000', but recovered no fluid, on two runs. Let set. Recovered 280' rise in 2⅞" tubing. All heavy rotary mud. No free water. Water shut-off by company test. Test not witnessed by the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer, 3½" x 16' tail (top 2' junk basket, 6' perforated, 1 recorder), no bean, 5/8" opening.

June 14, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 8805'.

June 14, 1944, Johnston Water Shut-off test through gun holes at 8805'. Set packer in 7" casing at 8772'. Chart showed tool opened and plugged immediately. Packer was set 2 hours and 20 minutes. One light puff, then dead. 990' water cushion used. Ran swab to 7782' once, no recovery. Recovered 60' of new fluid in 2⅞" tubing. All heavy rotary mud. No free water. Division of Oil and Gas waived witnessing.

Tool Assembly: 7" Olympic packer with 16' tail (top 2' blank, next 2' junk basket, next 6' perforated and bottom 5' recorder (1)), no bean, 5/8" opening.

June 15, 1944, Johnston Water Shut-off retest through gun holes in 7" casing at 8805'. Set packer at 8770'. Open 1 hour and 20 minutes. No cushion. Few weak puffs for 10 minutes, then weak steady blow of air for 30 minutes, then dead for balance of test. Recovered 815' rise in 2⅞" tubing. Top 475' light rotary mud and bottom 340' slightly muddy water. Water sample 340' above tool tested 575 C/C. Water sample at tool tested 650 C/C. Division of Oil and Gas waived witnessing.

Tool Assembly: 7" Olympic packer with 20' tail (top 3' blank, next 2' junk basket, next 6' perforated, next 3' shock absorber and 6' recorder (1)), no bean, 5/8" opening.

June 16, 1944, set Halliburton Squeeze Tool in 7" casing at 8785' and injection down through four holes at 8805' with water under 3200#. Pumped water away under 2100#. Pumped in 20 sacks Victor high temperature cement 20 cu. ft. short of squeeze tool at 8785'. Mixed cement to 114-115# average slurry. Set squeeze tool and applied squeeze. Tool leaked slightly. Pulled to 8780' and reset tool. Held O. K. Squeezed cement to top of tool under 4000# maximum pressure. Estimate 16 sacks away through gun holes at 8805'. 8 minutes mixing. 17 minutes displacing. 15 minutes squeezing. 41 minutes overall. Used Halliburton power equipment and sacked cement.

June 17, 1944, drilled out cement 8742-8814' with 6" bit.

June 17, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 8804'.

June 17, 1944, Johnston Water Shut-off test through four 1/2" holes in 7" casing at 8804'. Set packer at 8770' with tail to 8787'. Medium steady blow for 4½ hours or until swabbing began. Valve open 11 hours 17 minutes. Swabbed 6 hours. Let stand 1 hour. Recovered 6200' in 2½" tubing. All salty water. Sample 6200' above tool tested 547 C/C. Sample 8000' above tool tested 752 C/C. Sample at tool tested 800 C/C. Division of Oil and Gas did not witness test.

Tool Assembly: 7" Olympic packer, 1/2" bean, 17' tail.

June 18, 1944, drilled out cement 8817-8852' and cleaned out 8852-8870' with 3-7/8" bit and 4-3/4" casing scraper.

June 18, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 8860'.

June 19, 1944, set Halliburton Squeeze Tool in 7" casing at 8810'. Displaced mud in tubing with water. Closed tool and pumped in water under 750# but got returns of mud to surface. Repeated this procedure with tool set at 8812'; 8814'; 8808', but each time got returns to surface. Pulled tubing to 8796' and set tool. Formation broke down with water under 2300# and then took water through gun holes at 8804' (in 7" casing) and through gun holes at 8860' (in 4-3/4" casing) under 1600#. Reset Halliburton squeeze tool in 7" casing at 8795' and formation broke down with water under 2500# and then took water through gun holes at 8804' and at 8860' under 2100#. Pumped in 25 sacks Victor high temperature cement mixed to 106# slurry through 2½" tubing and Halliburton squeeze tool set in 7" casing at 8795'. Displaced cement with 230 cu. ft. of mud (25 cu. ft. short of cement reaching tool). Closed in and squeezed all cement to tool at 8795'. Estimated 23 sacks forced away through gun holes at 8804' and 8860' under working pressure 1200# and final pressure at 2600#. 36 minutes mixing, displacing and squeezing cement to place. Used Halliburton power equipment and sacked cement.

June 20, 1944, drilled out cement 8703-8758' with 6" bit, and cleaned out to 8817'.

June 20, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 8803'.

June 20, 1944, Johnston Water Shut-off test through gun holes at 8803'. Set packer in 7" casing at 8772'. Tail to 8789'. Open 2½ hours. Medium steady air blow throughout test. Recovered 3889' rise in 2½" tubing. Top 930' mud, and bottom 2959' salty water. Sample 2950' above tool tested 534 C/C. Sample 1500' above tool tested 718 C/C. Sample at tool tested 738 C/C. Division of Oil and Gas did not witness test.

Tool Assembly: 7" Olympic packer with 17' tail (top 2' blank, next 2' basket, next 6' perforated and bottom 7' recorder (1)), no bean, 5/8" opening.

June 21, 1944, drilled out cement 8817-8870' with 3-7/8" bit and 4-3/4" casing scraper.

June 22, 1944, set Halliburton Squeeze tool in 7" casing at 8814'. Spotted 25 cu. ft. water and closed tool. Forced away water through holes in 4-3/4" casing at 8860', under 2200#. After pumping in 5 cu. ft. obtained circulation between tubing and casing at surface and circulated freely under 500# pressure (indicating water circulating out through holes at 8860' and back in through holes in 7" casing at 8802'.) Set squeeze tool at 8775'. Displaced mud in tubing with water and squeezed away water through holes at 8802', and or 8860', under breakdown pressure of 2500#. Forced 20 cu. ft. water away under 2200#. Pumped in 25 sacks Victor high temperature cement mixed to average slurry of 107#. Displaced cement with 235 cu. ft. mud (20 cu. ft. short of cement reaching tool). Closed tool and squeezed an estimated 23 sacks cement below squeeze tool and 19 sacks through holes at 8802' under 1600# working pressure and 2600# final pressure. 55 minutes mixing, displacing and squeezing cement to place. Used International Cementers power equipment and sacked cement.

June 22, 1944, drilled out cement 8749-8786' and 8794-8807' with 6-1/8" bit. No cement 8807-8817'.

June 23, 1944, cleaned out 8817-8860' and drilled out cement 8860-8870' with 3-7/8" bit.

June 23, 1944, set Halliburton Squeeze tool in 7" casing at 8814'. Applied 3000# pressure to test holes at 8860'. Held without loss.

Reset Halliburton Squeeze tool in 7" casing at 8785'. Applied 3000# pressure to test holes at 8802'. Pressure dropped to 2500# in 3 minutes. Squeezed 15 cu. ft. of mud away under 2500# pressure.

June 24, 1944, set Baker Model K (cast iron) cement retainer in 7" casing at 8775'. Applied squeeze with water and broke formation down through holes at 8802' under 2700-2800#. Pumped 10 cu. ft. water through shot holes (8802') under 2700 to 3500#. Pumped 20 sacks Victor high temperature cement mixed to 114-115# estimated average slurry to top of retainer at 8775'. Closed circulating ports and forced estimated 19 sacks cement below retainer under 4000# maximum pressure, 2100-3500# working pressure. Estimate 15 sacks cement away through shot holes at 8802'. Backed out of retainer. 2 minutes mixing, 17 minutes displacing, 20 minutes squeezing. 41 minutes overall. Used Halliburton power equipment and sacked cement.

June 25, 1944, drilled out cement and retainer 8775-8817' with 6" bit.

June 26, 1944, set Halliburton Squeeze tool in 7" casing at 8785'. Applied 3000# pressure on holes at 8802' and held for 10 minutes without pressure loss.

June 26, 1944, ran Lane Wells gun perforator and reshot four 1/2" holes at 8802'.

June 26, 1944, Johnston Water Shut-off test through gun holes at 8802'. Set packer in 7" casing at 8770' (1500' water cushion). Open 50 minutes. Weak to very weak steady blow for 7 minutes and dead for balance of test. Recovered 35' of new fluid in 2½" tubing, all light drilling mud. Water sample 35' above tool tested 13 G/G.

DIVISION OF OIL AND GAS
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OCT 2 1945
LOS ANGELES, CALIFORNIA

No free water at tool. Test not witnessed by the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer, 2⅞" x 15' tail (top 2' blank, next 5' perforated, next 3' absorber and bottom 5' recorder (1)), no bean, 5/8" opening.

Left one slip from Olympic packer in hole.

Ran Lane Wells gun perforator to 7614' where same stopped. Reran and stopped at 7604'.

June 27, 1944, reran Lane Wells gun perforator and shot four 1/2" holes per foot in 7" casing from 8265'-8275'.

June 27, 1944, Johnston Water Shut-off test through gun holes in 7" casing from 8265-8275'. Set packer at 8239'. Valve open 2½ hours. Weak steady blow for 3 minutes, then an occasional weak to moderate puff of air for balance of test. Recovered 1580' rise in 2⅞" tubing, all light drilling mud. Sample at tool tested 54 G/G. No free water. Test not witnessed by the Division of Oil and Gas.

Tool Assembly: 7" Olympic packer with 2⅞" x 16' tail (top 2' blank, next 6' perforated, next 3' absorber and bottom 5' recorder (1)), no bean, 5/8" opening.

Scraped 7" casing 7575-7625' with 6" bit and 7" casing scraper.

Changed mud in hole to new Gel mud.

June 28 and 29, 1944, ran Lane Wells gun perforator and shot four 1/2" holes per foot 8265-8275', 8315-8335', 8360-8375', 8385-8405', 8430-8450', 8465-8475', 8490-8500', 8545-8560', 8580-8595' and 8610-8655'

Scraped 7" casing 8315-8655'.

Ran Yowell washer to 6725' and reran to 8550' but same stuck in each instance.

Reran Yowell washer and washed perforated intervals in 7" casing from 8655-8315'.

- -

July 1, 1944, hung 2⅞" tubing at 8593' fitted with a 2⅞" x 7" Lane Wells packer at 8209' and fitted with a 2.09" I.D. swab shoe on bottom or at 8593'.

Tubing Detail: All 8593' or 275 joints are 2⅞" U.E., 6.5#, H-40, 8-round thread, new Pittsburgh seamless tubing, fitted 12 joints from bottom or at 8209' with a 2⅞" x 7" Lane Wells Olympic packer, and fitted on bottom or at 8593' with a 2⅞" O.D. x 2.09" I.D. swab shoe.

- -

July 2, 1944, swabbed mud to 2300' and well started flowing 3:30 A.M. and turned to tanks at 5 A.M. Well produced as follows:

PRODUCTION TREND

1944 Date	Hrs. Flwg.	Bbls. Oil	Bbls. Wtr.	# C.P.	# T.P.	Gas M.C.F.	A.P.I.@ Grav.	% Cut	Hours. On Gge.	Bean
7/2	24	377	18	Pck.	300	224	20.5	3.0		8/64
7/3	24	251	4	"	410	97	20.7	1.5		4/64
7/4	24	228	2	"	465	117	21.0	1.0		
7/5	24	316	4	"	125	13.8	20.6	1.4		6/64
7/6	16	257	3	"	330	63	20.7	1.1	8	
to 7/11	Shut-in - Static test.									
7/12	9	65	1							4/64
7/13	24	338	2	0#	500	121	22.1	0.7		5/64

During July, 1944, well averaged 301 barrels oil, 5 barrels water, gravity 21.1°, 112 M.C.F./D gas, and 373 tubing pressure for 25 days (Pro 20 figures).

Frew 1-#2 Standard Oil Company of California

SUMMARY

Total Depth: 9559'. **Plugs:** 8904-8950'; 9206-9536'.

Casing:
- 26" cemented 42'. Not tested.
- 13-3/8" " 501'. Pressure tested O.K.
- 7" " 8850'. C.P. 8250' and C.P. through gun holes at 8802, 8804', 8805' and 8360'. Deferred decision on holes at 8245'. W.S.O. on holes and 8802'. Perforated with gun holes at intervals 8265' to 8655'. (See history)
- 473' - 4-3/4" lauded 9290'. Perforated 9179-9290'. C.P. 9178' (recemented). C.P. through gun holes 9173' and 9174'. W.S.O. on splice at 8817' and through gun holes at 9178'.

Perforation Detail: 7" casing at 8250' - four 1/2" holes - Lane Wells gun.
at 8245' - eight " " - " " "
at 8802' - eight " " - " " "
at 8804' - four " " - " " "
at 8805' - four " " - " " "

8515-8535'; 8560-8575'; 8585-8608' - four 1/2" holes per foot.
8630-8650'; 8665-8675'; 8690-8700' - " " " " "
8645-8660'; 8680-8695'; 8610-8655' - " " " " "
8265-8275' - eight 1/2" holes per foot.

(All shot by Lane Wells gun perforator.)

4-3/4" liner - perforated 9179-9290' with 12 rows, 2" x 100 mesh, 6" centers, 8° undercut Kobe torch cut slots. at 8860' - four 1/2" holes - Lane Wells Gun
at 9172' - four 1/2" holes - " " "
at 9173' - four 1/2" holes - " " "
at 9174' - four 1/2" holes - " " "
at 9288' - eight 9/16" holes per foot - Lane Wells Gun
9288-- 9260' - twelve 9/16" " " " - " " "
at 9204' - four 1/2" holes " " - " " "
at 9215' - four 1/2" holes " " - " " "
at 9240' - four 1/2" holes " " - " " "
at 9247' - four 1/2" holes " " - " " "
at 9259' - one 1/2" hole " " - " " "
9180 - 9203' - eight 1/2" holes " " - " " "
9203-9206' - four 1/2" holes " " - " " "

Electric Log Markers:
Top Sesnon Zone - 8265'.
Base of Sesnon Zone - 8657'.
Top Eocene Oil sand - 9180'.
Base Eocene Oil Sand - 9292'.

Schlumberger Dip Meter Readings: 8200-8220'; 8210-8220'; 8350-8350'; 8540-8550'; 8780-8800'; 8790-8800'; 8740-8760'; 8744-8764'.

Junk: Lost shank from 6" core head at 9257' and sidetracked at 9257'.
Lost cones from 6" rock core head and sidetracked at 9264'.
Left one slip from Olympic packer at 8770'.

Contractor: Rocky Mountain Drilling Company

Prov 1-/2

Standard Oil Company of California

RECEIVED
OCT 2 1945
LOS ANGELES, CALIFORNIA

Contractor's Drilling Foremen: R. L. Maxwell, A. D. Rushing, H. L. Roberts and H. H. Rushing.

Drillers: P. A. Thompson
W. C. Kirby
H. H. Rushing
Reece Pearce
H. C. Long
R. C. Reed
L. B. Dickenson
R. E. Farrell
J. E. Fuller

L. J. Merkin

LJM:yjb
July 31, 1946

MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
					y

629 South Hill Street,
Los Angeles 14, California,
July 7, 1944.

Mr. J. E. Gosline, Manager,
Producing Department,
Standard Oil Company of California,
Box 2237 Terminal Annex,
Los Angeles 54, California.

Dear Sir:

I have received your letter of July 5 giving a corrected location for well No. "Drew 1" 2, Sec. 29, T. 3 N., R. 16 W., S. B. B. & M., Aliso Canyon Field, as follows:

> From Point No. 19 on Ex Mission San Fernando Rancho line; 2[illegible].5' Southerly along Rancho line, thence 410.8' Westerly at rt. angles.

My records have been corrected accordingly.

Yours truly,

E. A. Mussett

Deputy Supervisor.

cc - U. S. G. S.
- P. A. W.
- Mr. J. E. Toussaint
- Mr. W. C. Johnson
- Mr. R. D. Bush (2)

my

Corrections Made as Follows:	By Whom
Form 113	
" 115	
" 121	
" 148	
Cards	
Production Records	
Well Records	
Field Maps	18-A SHR
Map Book	18-A-SHR 7-10-44

STANDARD OIL COMPANY OF CALIFORNIA

STANDARD OIL BUILDING

LOS ANGELES, 54, CAL.

PRODUCING DEPARTMENT

J. E. GOSLINE
MANAGER—SOUTHERN DISTRICT

July 5, 1944

Mr. E. H. Musser, Deputy Supervisor
Division of Oil and Gas
629 South Hill Street
Los Angeles, California

Dear Sir:

Please refer to our "Notice of Intention to Drill", Frew 1, Well #2, Section 29, Township 3 North, Range 16 West, S. B. B. and M., Aliso Canyon Field, Los Angeles County, dated October 15, 1943 and correct location to read as follows:

> From Point No. 19 on Ex Mission San Fernando Rancho Line; 522.8' Southerly along Rancho line, thence 410.8' Westerly at right angles.

This correction is a result of a recent resurvey.

Kindly change your records to agree.

Yours very truly,

J. E. Gosline

Newer Report

perf. 8590-8545
8500-8313
completed 7/3/44 - 698 B/D - 20.7 gr. 40 Cut

MEMORANDUM GO-144

TO: MR. RJN Feb 1962

FROM: MR. RCB

SUBJECT: Std - Frew 1-2 (29-3N-16W) OUR FILE:

Review of interval around 8600' YOUR FILE:

8585' Core non-diagnostic collophane pellets & shark teeth - gy Ss.

8595-8605' Core 1st green gy hd Ss.

8640-48' Core Epon 766 etc (Santa Susana forams)

8653' down - lithology typical of lowermost tertiary section - eg. greenish, gy siltst, Ss etc w/ multicolored grains

Possibly top of Santa Susana - Martinez units (contact w/ Luisian - Sesnon zone) in core 8595-8605'

or forams in 8640-48 overworked!!

IBM

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GO-144 (6,000M-5-60)

Folder 0

MEMORANDUM GO-144

GTB

TO 11/10 1943

FROM

SUBJECT: FILE: Aliso Canyon

Frew No. 1-2

S.O. Elev. 280'

Sec 29 - T3N - R16W

SAMPLES Room 673 File

(Note: "Fesco-Jel" (bentonitic mud) used for drilling fluid)

Ditch samples: lt tan. white color

520 - 580 (Not washed) 60% V. cs loose sd, 40% White rotary mud.

580 - 680 (Washed) 80% Black. gy hd sh (chewed fine) 20% cs loose sd. Much pyrite.

680 - 700 90% dk gy silt 10% cs sd

700 - 1140 Gy cs loose sd

1140 - 1620 90-95% gy cs loose sd

Balance black gy hd sh, small fragments

1620 - 1800 Gy sl. fn sdy sh, becoming br gy + med. br, fn mic, fn sdy (only sl.) sh. (this sh. makes mud). 5-10% med - cs loose sd.

1800 - 1840 50% Dk br. lam. rather sh

50% Rotary mud - lt. gy

1840 - 1880 Dk br sh + dk formational mud.

1880 - 2040 Cs loose sd.

2040 - 2680 60% Lt br to dk br or br gy. fn sdy sh.

30% Formational + rotary mud

10% Sd.

@ 2400 + 2600 Mega fossil frags. IBM

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: Standard Oil Co
Frew #1-2

FILE:

washed after tourly examination

Ditch 520-580 Abundant cement cuttings & grey aphanitic ign rock - cuttings grey tuff on +20

580-1240 Abundant grey shale cuttings - negligible cement cuttings, abundant cuttings qz arkosic ss w/ abundat pyrite with increasing abundance of grey sd.

1240-1580 Cuttings of rounded ss pebbles, cuttings of punky silic shale, mostly sd as above

1340- apparently first appear - grey grn silt cuttings otherwise sd as above

IBM

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: SOCs FILE:

FREW #1-2

DITCH

1580-1620 Loose, csc poorly sorted qy sd.

1620-60 Brn-qy sdy Rotary mud w/ occ frags molluscs - indet.

1660-1740 DK brn sdy silt frags & Dry Rotary mud of similar color - almost greenish-brown.

1740-60 Clean Sample - 60% loose qy sd - Rem. essentially Brn Miocene Sh. cuttings - (fine cuttings)

1760-1860 Essentially larger cuttings Brn. siltstone w/ occ small pcs white cement & very occ sd grains.

1860-1880 Rotary mud w/ shale cuttings apparently as above
Similar to above w/ ± 25% sd.

1880-2040 Loose csc qy sd -

2040-2200 Practically all of sample small to lge rounded cuttings cement which mask formation of interval - Very occ small frags dK brn Miocene Shale w/ crushed forams.

2200-2360 As Above w/ very few pcs showing up indicating Topanga S.S. - these are occ small frags hd s.s. - w/ pyrite & occ softer pcs green clayey silt -

2360-80 60% lge cuttings cement. Rem. part dK brn Mio. Siltstone & part indurated s.s. - csc qy & green (wet) = Topanga -

2380-2400 As above w/ very occ small frags DK fine grained Basalt.

2400-2540 ±60% Rounded Cuttings Cement, ±20% DK brn Mio. Shale & Remainder csc pebbly sd, occ frags dK greenish BLK Basalt, Green argill. siltstone

MEMORANDUM GO-144

TO _____ 194___

FROM _____

SUBJECT: Frew #1-2 FILE:

2400-2540 (cont) & Indurated gy csc ss. frags (Csc cuttings)

2540-2680 F. 70% fine cuttings Cement - Remainder Predominately soft gy Siltstone → Part w/ RC Glauconite grains - also occ. dk brn. sh. - S. Eocene forams Dent or Nod-L & Costate & Also cf 255 - Also scattered small Mollusc frags indet. - Also occ lac filled Ech - spines -

2680-2800 Essentially Rotary mud - grey w/ gy silt chips -

2800-2940 Soft gy siltstone - w/ occ hd. frags dk brn & gy sh. - Occ forams & Mollusc frags as 2600 -

2940-3140 Principally bry & greenish gy rotary mud w/ siltstone chips - (gray), due to Glauconite? Very occ chocolate brn clay sh. - & Scattered green silt - UA Glauconite grains -

IBM

MEMORANDUM GO-144

TO _____ 194___

FROM _____

SUBJECT: Standard Oil Co FILE: Aliso Canyon

Frew #1 - 2

Ditch

3140 - 80 Chips primarily gry siltstone with forams, pelec & coq. Dark gry shale, s cuttings calc sh w/ calc masses of 230 but solid

3180 - 3280 5% gr sd & pebbles Mud cake cuttings grn silt with glauconite grns micac gry silt w/ carb forams

Washed clean of mud → 15% dark br sh w/ aren forams 25% friable micac br sh, 5% gr glauconitic sd 35% hrd gry siltstone, 10% cement cuttings, 10% sd & pebbles

3280 - 3380 Appears as above, not mud caked -

+20 Washed free of mud → 25% gr sd & gr ss cuttings, 50% gr friable sh 25% cement cuttings small sample +20

3380 - 3560 Mud cake. cuttings appear as above -

+20 washed free of mud → samples washed without exam.

3600 - 3700 proportion of sd increased - not examined in detail

IBM

MEMORANDUM GO-144

G.T.B.

TO _____ 11/23 1943

FROM _____

SUBJECT: Frew #1-2 FILE:

Ditch samples:

3730-70 95% Gy cs loose sd
5% Dk sh.

3770-4268 Gy cs loose sd w/ dk green & black grains

BM

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GO-144 (5-43)

MEMORANDUM GO-144 GTB

TO _____ 11/18 1943

FROM _____

SUBJECT: FILE:

Frew #1-2, S.O.

Cores 3713-18 1' Gy cs congl. frble sd, consisting of following: Top 2" Green cs fairly hd glauconitic sd w/ black + dk green grains (some pyrite) + green silt matrix. Probably a section of a pebble.

2" Dk gy mic rather soft silt

2" Dk gy v. hd. Ls pebbles up to ¾" in diam. Many small buff calc. concretions up to ¼" long

Lithothamnia?

6" Gy loose med-cs sd w/ red, yel, green + black grains

3718-24 ½' Same congl. sd:

Top 2" Gy mic firm silt (small pieces)

2" lgn? gy pebbles up to ¾" dia.

2" Gy congl. cs sd w/ pebbles up to ½" in dia.

3724-30 5' Top 3' Alternate 4" to 6" bds fn gy frble sd + well bedded dk gy + br gy fn sdy silty sh, fractured locally

Dip 40°-50°

LBM

2' Gy med grain frble sd w/ 5" hd ss shell at top

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: Standard Oil Co. FILE:

Frew # 1-2

Cores 4906-16 Drk gry shale dip 35°± w/ VA worm casts;
gry arkosic sd

4916-23. Sh as above but more distinctly bedded
worm casts occasional

4921 Core Rock Orientation

7635-45 Cut gr semifriable gry arkosic sd w/ biotite
Two included black shale pebbles.
PLIOCENE or MIOCENE heavy min/s.

IBM

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MEMORANDUM GO-144

TO _____ G.T.B. 12/12 1943

FROM _____

SUBJECT: Frew #1-2 FILE:

Ditch samples:

4268 - 4890	Gy cs loose sd
4890 - 4990	10 - 50% Same sd
4908-V3 Cored	Balance Lt gy clay sh. (made mud) (4908 - 4923' cored)
4990 - 5210	Gy cs loose sd.
5210 - 5430	10 - 40% sd
	Balance Gy sh + gy formational mud
5430 - 5670	80% Gy cs loose sd
	Bal. Dk gy hd sh (small pieces)
5670 - 6300	80 - 90% Gy cs sd
No samples 6200-6280	Bal. Dk gy to black gy hd sh.
6300 - 6560	50 - 70% Dk gy sh + formational mud 6000 - 6320 clean sd.
	Bal. Gy sd 6320 - 6380 Gy. mud w/ sd. 6400+ Dk gy. mud w/ sd.
6560 - 6700	60 - 80% Gy cs sd
	Bal. Dk gy to black gy hd sh.
6700 - 6900	Gy cs loose sd
6900 - 7000	Gry cs loose sd w/ scattered pebbles
7000 - 7200	Crs sd & pebbles as above + Minor gry Sh & gry green siltstone cuttings.
7200 - 7280	Gry Crs loose sd & scattered pebbles-up to 3/8" diam
7280 - 7300	As Above
7300 - 40	+30% sd - Rem. Dk mud.
7340 - 7440	Essentially mud - minor amt. sd. IBM
7440 - 60	50% sd & 50% Mud

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: SOCo Frew #1-2 FILE:

Ditch

7460-80 Essentially gy clayey mud w/ minor amt sd.

7480-7500 Ditto - but increase in sd.

7500-80 Principally gy poorly sorted sd w/ some mud & occ frags gy siltstone & dk gy hd shale.

7580-7620 As Above but somewhat more mud.

7620-60 As Above w/ ± 30% rounded frags dk gy siltstone.

7635-45 Core "Gray rather friable arkosic sd. biotite, two pebbles LtK. sh. PLIOCENE or Miocene

7660-7700 Ditto - but more of the siltstone

7700-80 Essentially sd - Some samples quite muddy

7780-7840 Principally rounded frags gy siltstone ↑ & very occ. Small frags dk brn siltst. - Some sd & mud.

7840-80 Med to fine loose sd w/ minor amt. dk gy & dk brn. siltstone - small cuttings.

7880-7900 60% loose sd - 40% cuttings gy, greenish gy & dk brn siltstone to silty shale - one pc containing small but phosphatic "nodule".

7900-70 As above - varying amts of sd & w/ occ small frags. dk brn, brittle shale containing crusted forams in det.

7960-8020 Essentially brittle dk brn shale - w/ considerable amt. gy siltstone

CORE

8022-32 Hd dk brn to blk sh. - fetid bituminodor - RC fish Rams

8032-35 CORE Shale as above.

8035-55, 55-75, 75-95; 8100-20, 20-40, 40-60, 60-80, 8180-8200 Ditch

Predom. dk brn sh. - phosph. sh. w/ minor ls. at 8120 becomes 5% sd. " 8160 considerable silty sh " 8180 few pcs. gy fk.

8210-20 Core Med dk gy to slightly br. gy mass argill.

Stks. + RC forams 417, R06, Bolivina, velv. ornata, 365, Bulimina

WHEN REPLY IS REQUIRED, FORWARD ORIGINAL AND ONE COPY.

friable, but firm, siltstone; less argill. parts stain w/ oil

GO-144 (5-43)

MEMORANDUM GO-144

TO _____ 194___

FROM _____

SUBJECT: S.O. Co. Frew No 1-2 SAMPLETS

8220-30 Core Med. dk br oil stain mass fine firm sd.

8230-40 " no rec.

8240-45 " Grey massive silty tough sh. + VR forams:—
Robulus, 3 sp, Valv. sp.

8245-55 " no rec.

8255-65 " ditto 8240-45 & Robulus, & Valv. ornata, R Uvig. or Angulo.

8265-75 " Med dk gy tough argill mass siltstone
stks + R forams:— Robulus; Valv. ornata, V. calif.
+ frag. yellow platy lamellar shell,
at 8271 sample med dk br oil stain
massive fine firm sd. good odor

-3M

MEMORANDUM GO-144

TO _______________ 194__

FROM _______________

SUBJECT: SOC. Frew 1-2 FILE:

Core

8220-30 Fine grained silty oil-stained sd - Rc forams - Valv.-s, Nlon 362 Angulo?, Nod. 8, Bol. = striatella?, x Mud Pecten frag -

8230-40 - No Rec.

8275-92 - Hd gy fine grained s.s. shell - Scattered forams as above

8282-92 Part of sample s.s. as above - part fine gy silty sd - mottled oil-stains to completely oil-stained - forams Dito.

8375-85 S.S. Shell & silty fine gy sd - mottled oil-st. forams do

8405-15 Very fine grained - silty oil-stained sd - good odor

8435-45 Dk bluish gy. hard fine-grained ls

45-55 Brown oil stain fine firm mass. sd.

" " " cse. less " " " porous

55-65 " " " Very fine more firm " " S frag. Valv.

65-75 ditto barren

75-85 Lighter br oil stain very fine mass. sd. w/ barren occas. bluish gy. mottling in generally hard matl.

85-95 ditto x valv. frag R pcs. cellophane and fish bone

8495-8505 ditto 8465-75

8505-15 ditto 8485-95 x frag. small thin shell

8515-25 ½ Sample ditto, ½ of sample gy. - bluish gy. massive argill. firm siltstone w/ mottled stains oil. S small pcs. cellophane S frags. thin small shell.

8525-35 Gray massive fine firm sd. and silt IBM Your core Minor mottled stains oil the most friable sd. is gray. x Valv ornata?, x Ht. br. O cellophane, S frags. small thin shell

WHEN REPLY IS REQUIRED, FORWARD ORIGINAL AND ONE COPY.

GO-144 (5-43)

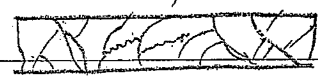
MEMORANDUM GO-144

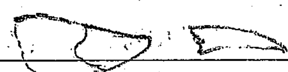
TO ______________________ ______________________ ______________________ 194___

FROM ______________________ ______________________ ______________________

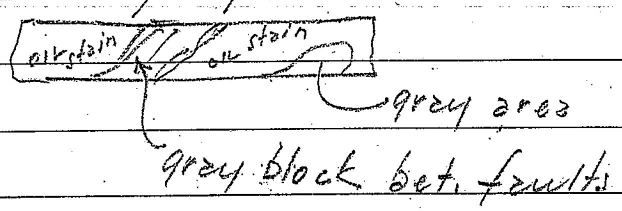
SUBJECT: S. O. Co. – Frew No 1-2 FILE:

Description of samples

8535-45 Gray massive uniform very fine firm ss w/ numerous shear planes shown by thin dark lines of gouge: 

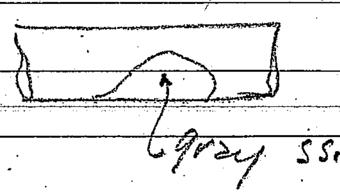
8545-55 lt br oil stain fine firm ss. – abt. same texture as above massive has shear planes irreg. pattern as above.
Also lt br oil stain csc friable mass. ss.
frag. of shark tooth 

8555-65 Mostly fine firm oil stain ss. as above w/ gray areas and blocks between faults



8565-75 Ditto one pc. + several small frags small thin shell mollusk

8575-85 Brown oil stained fine firm ss. w/ very hard gray areas + small frags. mollusk



8585-95 Gy. fine grain very hd. ss. w/ occasional frags. thin shell mollusk X 3/4" frag. Pecten andersoni

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: Soco Frew #1-2 Samples FILE:

8595-8605 Several ±1" pcs. broken cobbles pink feldspathic granite, occa. pcs. dk green basalt?, greenish-gy. hd. ss. matrix lt. br. oil stain poorly sort. sd.

8605-07 Dk gy mottled argill. conglomeratic ss. w/ pebbles up to ± ½" dia. dk gy. - dk greenish gy. sh. and occasionally dk greenish gy. ss. Many lt. br. sd. grains, sub-translucent qtz. and feldspar(?).

8633-34 few small nubbins - apparently cavings - dk brn sh & Brn ls.

8634-40 Firm fine grained oil-sd. - shot w/ mud.

8640-48 Firm fine grained oil-sd. - silty. No forams noted

8649-53 Few trays hd Pebbles - hd dense s.s., Jasper etc.

8653-56 1½' Rec Top ½' Med tocse gy sd - mottled oil-stain
Bot. 1' dk green-gy to green massive silty shale - parts quite Argillaceous - occ. irreg "inclusion" sd - vari-colored grains - Red etc - No forams noted.

8656-58 Shale as above; sort of mixture of sdy argillaceous silt w/ variolored sd grains - principally reddish color & grains reddish or purple hue to part of sdy portion - And irreg. chunky "inclusions" dk green clay -

8658-68 Shale similar to above Banded in part w/ light gy silty stks - Dip 55° to 60°

8668-78 Shale as above plus one hd limey shell having dip of ±85°

IBM

MEMORANDUM GO-144

TO ______________________________ 194__

FROM ______________________________

SUBJECT: SOCo Frew #1-2 FILE:

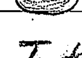
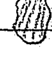
8678-88 Green sh. & argill. silt as above - Some faint maroon mottling.

8688-90 As above -

8730-35 Dk gy gritty shale - occ inclusions fine sd - w/ reddish grains interbedded w/ sdy stks - vari-colored grains - Part of gy sh. w/ faint maroon tint.

8735-45 Dip 45° - 3 Types s.s.

1 - Firm, but somewhat friable, fine grained greenish-grey s.s. - one pce w/ very faint reddish tint rather than greenish - Scattered "inclusions" or pebbles greenish-gy argill. siltstone - Variation of green tint over red due to varying amts chlorite? as reddish sd grains vc throuout.

2 - Hd, med. grained fossiliferous s.s. - grey w/ slight greenish tint. Reddish grains & small flecks of hematite? - vc. Molluscs badly leached - indet. Most appear to be small Pelecypods  so - also occ. ~~frag~~ w/ radial ribs  + Shark Tooth - 

3 - Sandstone similar to above, but very hd & limey - Occ Calcite veins - RR Molluscs as above -

8755-60 Dip 35°-40° Bedded to somewhat laminated dK gy silty shale & light grey silt - C. Carbonaceous matl. No forams noted

8787-92 Dip 40°-45° Med-grey siltstone w/ dK gy shaley ptgs to stks. S - Small leached indet. mollusc frags C. Reddish grains in siltstone -

8897-8909 Med. gy. ~~massive~~ silty fine firm sd. and argill. silt numerous shell frags., incl. Turritella. C reddish grains.

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: L.O.-Frew No 1-2 (8930-50 Cement and extraneous cav. sd. FILE:

8950-9020 Ditch samples each 20-ft. intervals
± ½-3mm. flaky cuttings dk gy hd sh.
9035-9115 ditto, w/ 2bt. 40% B.S.Sd. possibly
not derived from fm. drilled 9025-9115
9115-75 ditto, minus Sd.
9230-50 ±30% med gy very silty m. - hd. argill/siltst.
Same w/ pinkish cast
±50% pcs. red and pink porphyry
few " green "
±10% Ss. - part white + pink and green
grains.
±10% Quartzose rock frags. green, pink, clear etc.

TBM

WHEN REPLY IS REQUIRED, FORWARD ORIGINAL AND ONE COPY. GO-144 (5-43)

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: Frew 14° 1-2 SAMPLES FILE:

9023-35 Intb. dk gy sh and argill siltstone well laminated, part hard calc., part shwg. worm trails of dark dense matl. Dip ± 20° and ± 17° stk. + occ. minute frgd. shell ind. gastropod, a yellowish iridescent frag., a dull yellow frag.

9028 ORIENT 6" section shale shwg. thin laminae silt (Eocene - Llajas fm?)

9179-94 8½' Rec Entire core essentially oil sd - firm, esp. porous sd w/ C Red grains & occ flattened sh pebbles and 1" to 2" stks of hd gray argillaceous siltstone (larger pebbles?) - No forams noted One Nuculana or Yoldia sp

← 3/8" →

Bottom portion of core contains few igneous pebbles - also some of gy sh. The siltstone stks mentioned above show laminations, in some pcs, of light gy silt & irreg. stks finer grained sd containing vc Red & green grains.

9202-19 Rec. 12". Sample = dk gy silty sh, thinly bedded siltstone, and lt. br oil stained massive fine friable SS. w/ many reddish grains. Dip ± 11° IBM

9230-50 Ditch See preceding page

MEMORANDUM GO-144

TO _____ 194__

FROM _____

SUBJECT: SOCo Frew #1-2 FILE: Sample descriptions

Dtch

9238-48 Frags indurated s.s. - w/ veri-colored grains &
occ. pcs sh. w/ red, green grains etc.

Core

9321-32 8' Rec.

Top 1½' hd, dense gy shale - w/ occ fine sdy stks.
Remainder uniform firm fine grained grey Sd -
Sd appears to be rather porous - OC Veri-colored sd
grains - Red, green, yellow etc -

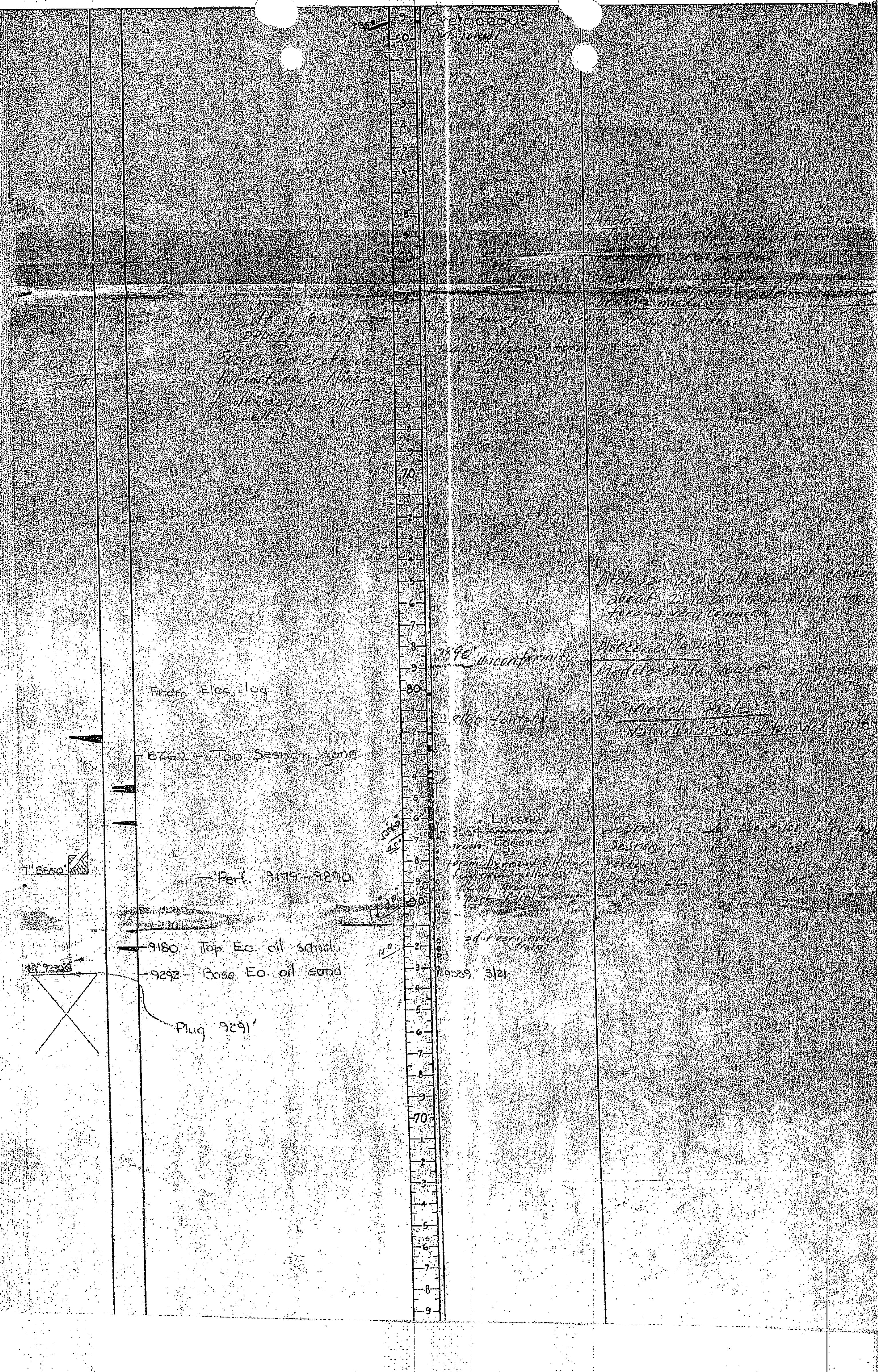
IBM

Well Frew #1-2
Company S.O.
Sec 29 T. 3N R. 16W
District W. Aliso Canyon Field, L.A. County

Elevation 2802
Date Spudded Oct 19, 1943
Date Finished
Date of Report

Casing	Log	Oil Zones	Depth 100'	Core	Faunal Zones	Remarks
13 3/8 501		Class- Restricted Tests - J.F.T. - 8210-8275: Recov. 8210' fluid. Top 270' oily rotary mud, balance rotary mud. 8210' above tool 24 GG. 7700' " " 27 GG. Johnson F.T. 8255-8435. No gas to surface. HFT 8255-8435, 5100' rise in 4½" d.p. - top 2200 gassy mud next 1400' oily mud, next 1400' emulsion, bottom 60' oily mud & wtr. 21 G/G Form. Test, 8265-8435. Oil sample 400' above tool tested 17.3° grav cut 8% mud. Johnson tester: 4 ½" holes at 8239 - 6075' rise in 3½" d.p. Top 1500 drilling mud, next 1100' gas-cut mud w/ trace oil, next 2500' gassy-oily mud, bottom 915' oily gas-cut mud w/ strks clean oil. Sample 4600 above tool 38 G/G.			-60 [illegible] Siphogenerina Sp. ↓ -1180 Topanga / Miocene (lower Mohnian) -1500 Top upper Miocene -1620 } e.s. sand -1800 } [illegible] ss. sh. - Luisian Miocene -1830 sand (Pliocene?) and shale (Luisian Miocene) -2480 Eocene Santa Susana, lower division of upper Santa Susana fauna -/ Spiroplectammina [illegible] -3720 Eocene / Cretaceous (4900) F. ?	Orientation 4921 Dip 39° N 30° W Good 8215 35° S 22° W Fair± 9028 13° N 61° E Poor Top ditch sample 520 Santa Susana Thrust Zone of Faulting contact as used in Frew 1-1 ± 3295

40°50'


Cretaceous
From Elec log
8262 - Top Sesnon sand
Perf. 9179-9290
9180 - Top Eo. oil sand
9292 - Base Eo. oil sand
Plug 9291'
T.D. 8550'
7890' unconformity
Pliocene (lower)
Modelo shale
Luisian
9039 3/21

in 20 sacks Victor high temperature cement mixed to an average slurry of 106#. Displaced cement with 250 cu. ft. of mud (15 cu. ft. short of cement reaching tool). Attempted to close retainer but would not take hold. Had to break connections at surface and a little mud estimated 20 cu. ft. circulated out between tubing and 7" casing. 22 minutes mixing and displacing cement. Attempted to reset tool. Pumped in 20 cu. ft. mud pressure built up momentarily to 1000# and circulated between 2½" tubing and 7" casing, indicating tool not set. Pulled tubing to 7950' and circulated out cement. Used Halliburton power equipment and sacked cement.

June 1, 1944, drilled out soft cement 8992-9245' with 3-7/8" bit and 4-3/4" casing scraper.

June 2, 1944, set Halliburton Squeeze tool in 4-3/4" liner at 9160'. Displaced mud in tubing with water. Broke formation down under 2500#. Formation took 34 cu. ft. water in 11 minutes under 2000# pressure. Pumped in 20 sacks Victor high temperature cement mixed to an average slurry of 110#. Displaced cement with 225 cu. ft. of mud (15 cu. ft. short of having cement to tool). Closed tool and forced away an estimated 13 sacks of cement through four 1/2" gun holes at 9215', 1 at 9229', and four at 9240'. Working pressure 2000#, and final pressure 4500#. 32 minutes mixing and pumping cement to place. Used Halliburton power equipment and bulk cement.

June 3, 1944, drilled out cement 9090-9206' with 3-7/8" bit.

June 4, 1944, ran Lane Wells gun perforator and shot four 1/2" holes at 9204'.

June 4, 1944, Johnston Water Shut-off test through four 1/2" holes at 9204'. Set packer in 7" casing at 8777' (2000' mud cushion). Open 17½ hours. Light steady blow for 4½ hours. No gas to surface. Started to swab 4½ hours after opening valve. Swabbed mud, from cushion, then oily mud and emulsion and a little water for 5 hours. Let stand 1-3/4 hours and started to flow. Flowed oil and emulsion for 4½ hours then flowed oil, emulsion and some water for 2 hours. Estimated 100 barrels per day rate (2 hour period). A little gas. Recovered 8777' of fluid in 2½" tubing. Top 7100' oil, gassy emulsion and a little water. Balance heavy oily gassy mud, no free water. Test not witnessed by Division of Oil and Gas. Water sample taken after 7½ hours (while swabbing) tested 750 C/C. Water sample taken after 12½ hours (while flowing) tested 990 C/C. Water sample taken 1700' above tool tested 800 C/C.

Tool Assembly: 7" Olympic packer, 20' x 2-7/8" tail (top 8' blank, next 6' perforated and bottom 12' recorders (2)). No bean, 5/8" opening.

June 5, & 6, 1944, ran Lane Wells gun perforator to 9203'; gun would not go off. Reran Lane Wells gun perforator and shot four 1/2" holes per foot 9190-9203'.

June 6, 1944, hung 2½", 6.5#, tubing at 8784' fitted at 8750' with a 7" Lane Wells circulating type long stroke Olympic packer and fitted on bottom or at 8784' with a 2.09" I.D. Swab shoe.

Applied 1000# between tubing and casing for 5 minutes with no loss.

Swabbed mud, then oil, emulsion and water from surface to 3000.

June 7, 8, 9, 10, 1944, well started flowing to sump at 5 AM., June 7, 1944. Flowed for 4 hours at an estimated 3 barrels per hour gross rate (approximately 50% oil, 10% emulsion, 40% water). Water tested 787 C/C. Well died at 9 A.M. Swabbed for 7½ hours at estimated 4 barrels per hour gross rate (22° gravity, 40% final cut. Water

sample tested 834 G/G. Unable to lower fluid level below 2000'. Swabbed from 4000'. Lane Wells packer failed and fluid dropped between tubing and casing. Filled hole with mud and pulled tubing and packer.

Rehung 2½", 6.5# tubing at 8784' fitted at 8752' with a 7" Lane Wells circulating type long stroke Olympic packer and fitted on bottom or at 8784' with a 2.09" I. D. swab shoe. Put 1000# between tubing and casing. Held O. K. for 10 minutes. Swabbed mud, then oil, mud and emulsion from surface to 3000'. Fluid level rose to 2000' while swabbing at 3000'. Well started flowing to sump at 1:30 A.M., 6-9-45. Flowed oil, emulsion and about 30% water, then emulsion and about 10% water. Turned to tanks at 8:00 A.M., 6-9-45 and produced as follows:

Hour Period Ending	Barrels Gross Production	Wet Gravity of Oil-°API	Total Cut-%	Itemized Cut - %		
				Water	Emulsion	Mud
9 AM - 6-9-45	1	24.8°	9	6.5	2.0	0.5
10	1½	22.1°	24	20	3.5	0.5
11	2½	21.2°	30	26	3.5	0.5
12 N	2⅝	21.8°	28	24	3.6	0.4
1 PM	5	26.0°	4	0	4	0
2	2½	-	-	-	-	-
3	2⅝	-	14	2	12	0
4	3	-	-	-	-	-
5	2½	24.4°	12	2	10	0
6	2⅝	24.4°	17	0.2	16.8	0
7	6	21.4°	30	17	13	0
8	2½	21.7°	24	22	2	0
9	2½	24.3°	14	10	4	0
10	2½	24.0°	16	12	4	0
11	2½	21.0°	30	28	2	0
12 M	2½	20.7°	32	30	2	0
1 AM - 6-10-45	2⅝	20.8°	34	26	8	0
2	4	23.1°	52	38	14	0
3	2.5	16.0°	60	40	20	0
4	2.5	14.9°	62	42	20	0
5	5.0	19.7°	36	28	8	0
6	0	21.1°	30	24	6	0
7	0	17.3°	52	46	6	0
8	2.5	-	-	-	-	-
9	1.0	-	-	-	-	-
10	1.5	-	-	-	-	-
11	2.5	-	-	-	-	-
12 N	5.0	-	-	-	-	-

20/64" bean at surface. Water samples - 820 G/G.

Shut well in 12 Noon, 6-10-45, and killed with mud.

Pulled tubing and packers.

June 11, 1944, ran Lane Wells gun perforator and reperforated 4-3/4" liner 9160-9206' with four 1/2" holes per foot.

FORM 170. 96230 9-63 5M ⓒ SPO

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
RECEIVED
JUN 9 1964
INGLEWOOD, CALIFORNIA

NOTICE OF RECORDS DUE

830 N. La Brea
Inglewood California

June 3, 1964

MR. J. T. Crooker
P. O. Box 748
Santa Barbara, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

Dear Sir:

In accordance with Division 3 of the Public Resources Code of California the following records are due, covering the altering of casing of your well (~~s~~) No. "Frew 1" 2 Sec. ____, T. ____, R. ____, ____ B. & M., ____ (Field or County)

- ☐ Well summary (Form 100)
- ☐ Drillers log (Form 101) NOTE: Not required if electric log is filed.
- ☐ Core record (Form 101)
- ☒ History (Form 103)
- ☐ Electric log: One copy each, 1" = 50 ft. and 1" = 100 ft.
- ☐ Production report (Form 110) for months of ____
- ☐ Other: ____

We have decided not to do this work and hereby cancel our notice dated May 23, 1963.

J. T. Crooker

J. T. CROOKER, Mgr., Prod. Dept., So. Div.

These records should be submitted *in duplicate* as soon as possible.

Please be sure that the records are signed in the spaces provided.

JLZ:rk
cc Div. Engr.

WM. C. BAILEY
Deputy Supervisor

John L. Zulberti
Senior Oil and Gas Engineer

JLZ 6-9-64

FORM 111

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 163-584

Mr. J. T. Crooker
P. O. Box 1309 Inglewood, Calif. 90302
Oxnard, California CANCELLED May 27, 1963
Agent for STANDARD OIL COMPANY OF CALIFORNIA

DEAR SIR:

Your proposal to alter casing in Well No. "Frew 1" 2, Section 29, T. 3 N., R. 16 W., S B B. & M., Aliso Canyon Field, Los Angeles County, dated May 23, 1963 received May 24, 1963, has been examined in conjunction with records filed in this office. Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES
"The present condition of the well is as follows:
1. Total depth. 9339' Effective Depth: 8904'
2. Complete casing record, including plugs:
13-3/8" cemented 501'
7" cemented 8850' CP'd. 8250', 8804', 8805', and 8545-8560'
Perforated at intervals 8265-8655'.
473' of 4-3/4' landed 9290' Top at 8817'. CP'd. 9178', 9173', and 9174'.
Perforated 9177-9290', all plugged with cement.
3. Last produced. Nov. 1962 (Date) 114 B/D (3840 GOR) (Net Oil) 21.0° (Gravity) 6.6% (Cut)"

PROPOSAL
"The proposed work is as follows:
1. Move in, kill well, install B.O.P., and pull tubing.
2. Clean out to 8817' and set magnesium bridge plug in blank at 8600'.
3. Re-cement blank section and squeeze holes at 8545-8595' and 8430-8500' with cement.
4. Drill out cement and bridge plug and clean out to 8817'. If necessary, because of cement below bridge plug, reperforate interval 8610-8655' with 2 jet holes per foot.
5. Rerun tubing and place well on production."

DECISION
THE PROPOSAL IS APPROVED.

JLZ:omh

cc Division Engineer
United States Geological Survey

Blanket Bond

E. R. MURRAY-AARON, State Oil and Gas Supervisor

By _____, Deputy

79186 1-63 50M SPO

FORM 107

DIVISION OF OIL AND GAS
RECEIVED
MAY 24 1963
INGLEWOOD, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to ~~Deepen, Redrill, Plug or~~ Alter Casing in Well

This notice must be given before work begins; one copy only

Oxnard Calif. May 23 19 63

DIVISION OF OIL AND GAS

Inglewood, Calif. CANCELLED

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of ~~deepening, redrilling, plugging or~~ altering casing at Well No. Frew 1 #2
(Cross out unnecessary words)

_____, Sec. 29, T. 3N, R. 16W, S. B. B. & M.

Aliso Canyon Field, Los Angeles County.

The present condition of the well is as follows:

1. Total depth. 9339' Effective Depth: 8904'

2. Complete casing record, including plugs:

13-3/8" cemented 501'
7" cemented 8850' CP'd. 8250', 8804', 8805', and 8545-8560'
Perforated at intervals 8265-8655'.
473' of 4-3/4' landed 9290' Top at 8817'. CP'd. 9178', 9173', and 9174'.
Perforated 9177-9290', all plugged with cement.

Alec Canon

MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
			Blanket		

3. Last produced. Nov. 1962 (Date) 114 B/D (3840 GOR) (Net Oil) 21.0° (Gravity) 6.6% (Cut)

The proposed work is as follows:

1. Move in, kill well, install B.O.P., and pull tubing.
2. Clean out to 8817' and set magnesium bridge plug in blank at 8600'.
3. Re-cement blank section and squeeze holes at 8545-8595' and 8430-8500' with cement.
4. Drill out cement and bridge plug and clean out to 8817'. If necessary, because of cement below bridge plug, reperforate interval 8610-8655' with 2 jet holes per foot.
5. Rerun tubing and place well on production.

Standard Oil Company of California
Western Operations, Incorporated
(Name of Operator)

By J. T. CROOKER, ~~Mgr. Prod. Dept.~~, So. Div.

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

49127 9-61 10M ② SPO

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 1-42212

Los Angeles 14, Calif. October 27, 1943.

Mr. W. C. Johnson,
Los Angeles 54, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

121

DEAR SIR:

Operations at your well No. "FREW 1" 2 Sec. 29, T. 3 N., R. 16 W., S.B. B. & M., Aliso Canyon Field, in Los Angeles County, were witnessed by S. H. Rook, Inspector, representative of the supervisor, on October 25, 1943. There was also present H. H. Rushing, Driller, and R. Pearce, Derrickman.

Casing Record 13-3/8" cem. 501'. T. D. 707'. | Junk xxx

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

The inspector arrived at the well at 11:10 a. m. and ~~MX~~ noted that the well was equipped with the following blowout prevention equipment:

1. A Shaffer gate for closing in the well with the drill pipe out of the hole.
2. A Regan blowout preventer for closing around the 4-1/2" drill pipe.
3. The controls for the above equipment were located outside the derrick.
4. A 2" mud fill-up line, with a 2" high pressure stopcock and gate into the 13-3/8" casing below the above equipment.
5. A high pressure stopcock on the stand pipe.
6. A steel mud hose.
7. An 8" Hughes gate on the mud discharge line.

The inspection was completed at 11:30 a. m.

THE BLOWOUT PREVENTION EQUIPMENT AND INSTALLATION ARE APPROVED.

Geo Collins - [illegible] 1/14/44. Present T.D. 8649'
This well went into cretaceous & then back into Miocene.
Sesnon zone 8265' - 8615' looks good.
Hole is now in hard, chert like stuff
Co. now wants to prospect ahead to 10,500 ±
or to Eocene & see what's down there before
cementing casing. This csg will probably be
cem'td over Sesnon zone at 8265'.
[initials]

cc- Company
J. E. Toussaint
U. S. G. S.
SHR:OH
R/S

Bob Russell - 1/18/44 (Sesnon zone 8265' - 8656')
Will file notice to land 7" @ 8550 ±
cem @ 8850 w/ sufficient cement to reach
base of Sesnon (8656'). C.p. thru 4 holes
at 8250' w/ 250 sx.
Test S.O. thru 4 holes 8240'. Prospect ahead
Will later perf 7" opposite Sesnon zone Erma

R. D. BUSH
State Oil and Gas Supervisor
By E. H. Musser Deputy

6538 10-41 15M
STATE PRINTING OFFICE

FORM 109-A

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
(FORMATION TESTER)

No. T 1-42776

Los Angeles 14, Calif. April 19, 1944

Mr. W. C. Johnson
Los Angeles 54, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

121

DEAR SIR:

Your well No. "Frew 1" 2, Sec. 29, T. 3 N., R. 16 W., S.B. B. & M.
Aliso Canyon Field, in Los Angeles County, was tested for water shut-off on April 13, 1944. Mr. J. L. White, Inspector, designated by the supervisor, was present as prescribed in Sec. 3222 and 3223, Ch. 93, Stat. 1939; there were also present G. E. Bowen, Engineer, and H. H. Mushing, Drilling Foreman.

Shut-off data: 4-3/4 in. 16 lb. casing was ~~re-~~ cemented through perforations at 9173 ft. on April 11, 1944 in 6" hole with 50 sacks of cement of which 22 sacks was left in casing.

Casing record of well: 13-3/8" cem. 501'; 7" cem. 8850', c.p. 8250', perf. 4 holes 8243', def. dec.; 4-3/4" (corrected) ld. 8817'-9290', c.p. 9179', 9174', 9173' and 9172', N.S.C., perf. 9180'-9290', plugged with cement 9336'-9291' and baffle.

Reported total depth 9339 ft. Bridged with cement from 9179 ft. to 9175 ft. Cleaned out to 9175 ft. for this test.

A pressure of xxx lb. was applied to the inside of casing for xxx min. without loss after cleaning out to xxx ft.

A Johnston tester was run into the hole on 3½ & 2-3/8 in. drill pipe, with 995 ft. of ~~water~~ drilling fluid cushion, and packer set at 9152 ft. with tailpiece to 9166 ft. Tester valve, with 3/8" bean, was opened at 2:12 p.m. and remained open for xxx hr. and 37 min. During this interval there was a weak steady blow for 7 minutes and no blow for the balance of the test.

INSPECTOR J. W. SHOW VISITED THE WELL FROM 10:35 P.M., APRIL 6, 1944, TO 2:15 A.M., APRIL 7, 1944, AND MR. BOWEN REPORTED:

1. Cement was drilled out of the 4-3/4" casing from 8957' to 9090', (equivalent to 10 sacks) and the casing was cleaned out to 9178'.
2. On April 4, 1944, with Halliburton squeeze tool set at 9166' on 3-1/2" and 2-3/8" drill pipe, 15 sacks of cement was pumped into the hole of which 14 sacks was forced away at a final pressure of 2200 lb.
3. Cement was cleaned out of the 4-3/4" casing from 9166' to 9175' (equivalent to 1 sack of cement).
4. The 4-3/4" casing was gun-perforated with four, 1/2-inch, holes at 9174'.
5. A Johnston tester was run into the hole on 3-1/2" and 2-3/8" drill pipe with 1800' of water cushion.
6. The wall packer was set at 9147'.
7. The tester valve was opened at 7:55 p.m. and remained open 1 hr. During this interval there was an initial one-minute blow only.

THE INSPECTOR NOTED:

1. The net rise was 465' (in 3-1/2" drill pipe) of medium to thick drilling fluid, equivalent to 3.9 bbl.
2. The recording pressure bomb failed to function properly. The chart indicated that the tester valve may have plugged.

INSPECTOR J. L. WHITE VISITED THE WELL FROM 9:40 TO 10:40 P.M., APRIL 10, 1944, AND MR. BOWEN REPORTED:

1. On April 8, 1944, the Johnston tester was run into the hole on 3-1/2" and 2-3/8" drill pipe and the wall packer was set at 9147'.
2. The tester valve was open for 65 minutes. During this interval there was a medium blow for 1 minute, no blow for 2 minutes, a medium strong blow for 45 minutes, a light blow for 10 minutes, and no blow for 7 minutes. There was a recovery of 7328' of gassy salt water, equivalent to 52.8 bbl.

R. D. BUSH, State Oil and Gas Supervisor

By (CONTINUED ON PAGE 2), Deputy

Geo. Collins (6/13/44) Tested thru holes @ 8240' - practically no fluid - seemed suspicious in view of high rise when previously tested. Are running tubing to perf's. We will not witness. Will test at 8805' (below Sesnon) for S.A. from below. We will not witness

21027 2-43 7500
STATE PRINTING OFFICE

FORM 109-X. 91197 9-40 8M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
OR
Special Report on Operations Witnessed

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STANDARD OIL COMPANY OF CALIFORNIA

Well No. "Frew 1" 2, Sec. 29, T. 3 N., R. 16 W., S.B. B. & M.,

3. On April 8, 1944, a Halliburton squeeze tool was set at 9140' and 19 sacks of cement was squeezed away at a final pressure of 2350 lb.
4. Cement was drilled out of the 4-3/4" casing from 9132' to 9175' (equivalent to 3 sacks of cement).
5. The 4-3/4" casing was perforated with four, 1/2-inch, holes at 9173'.
6. The Johnston tester was run into the hole on 3-1/2" and 2-3/8" drill pipe and the wall packer was set at 9147'.
7. The tester valve was opened at 6:46 p.m. and remained open 40 minutes. During this interval there was a weak blow for 25 minutes and weak heads for 15 minutes.

THE INSPECTOR NOTED:

1. When the drill pipe was removed 270' of drilling fluid and 5880' of gassy, salty water, slightly muddy and with a slight trace of oil, was found in the drill pipe above the tester, equivalent to 0.9 and 41.2 bbl., respectively.
2. Water filtered from fluid sample taken from 4110' above the bottom of the drill pipe tested 752 grains of salt per gallon.

INSPECTOR WHITE ARRIVED AT THE WELL AT 5:30 P.M., AND MR. BOWEN REPORTED:

1. On April 11, 1944, a Halliburton squeeze tool was set at 9132' and an estimated 15 sacks of cement was squeezed away at a final pressure of 4000 lb.
2. Cement was drilled out of the 4-3/4" casing from 8890' to 9175' (equivalent to 22 sacks of cement).
3. The 4-3/4" casing was perforated with four, 1/2-inch, holes at 9172'.

THE INSPECTOR NOTED:

1. When the drill pipe was removed, the first fluid was found 60' below the trip valve indicating that an air pocket existed in the drilling fluid cushion, so no estimate could be made of the fluid recovery.
2. There was no free water.
3. The recording pressure bomb chart showed that the tester valve was open throughout the test.

The test was completed at 7:40 p.m.

THE WATER SHUT-OFF ABOVE THE PERFORATIONS AT 9172' IS APPROVED.

cc- U. S. G. S.
Company
J. E. Toussaint
JEW:GH

R. D. BUSH
State Oil and Gas Supervisor

By _____ Deputy

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 1-42733

Los Angeles 14, Calif. April 12, 1944.

Mr. W. C. Johnson,
Los Angeles 54, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

DEAR SIR:

Operations at your well No. "Frew 1" 2 Sec. 29, T. 3 N., R. 16 W., S. B. B. & M., Aliso Canyon Field, in Los Angeles County, were witnessed by J. H. Show, Inspector, representative of the supervisor, on April 3, 1944. There was also present G. T. Bowen, Engineer, and H. H. Bushing, Drilling Foreman.

Casing Record 13-3/8" cem. 501'; 7" cem. 8850', c.p. 8250', perf. 4 holes 8243', def. dec.; 4-3/4" ld. 8817'-9290', c.p. 9179', perf. 9180'-9290'; T.D. 9339', plugged with cement 9336'-9291' and 9000'-8957'.

Junk None

The operations were performed for the purpose of demonstrating that no fluid has access to the well between the 7" and 4-3/4" casings.

~~The inspector arrived at the well at ... and Mr. ... reported:~~

INSPECTOR S. H. ROOK VISITED THE WELL FROM 6:15 P.M. TO 10:15 P.M., MARCH 29, 1944, AND MR. BOWEN REPORTED:

1. A 6" rotary hole was drilled from 8850' to 9339'.
2. Electrical core readings showed the top of Nocene oil sand at 9180'.
3. On March 22, 1944, 15 sacks of cement was pumped into the hole through 3-1/2" drill pipe hanging at 9336'. The top of the set cement was located at 9270', and the plug was drilled out to 9291'.
4. On March 26, 1944, 473' of 4-3/4", 16 lb. casing including 110' of perforated, was landed at 9290' and was cemented through perforations at 9179' with 50 sacks of cement.
5. Cement was drilled out of the 7" casing from 8650' to 8817' (equivalent to 13 sacks), and the casing was cleaned out to 9178'.
6. The Johnston tester was run into the hole on 3-1/2" drill pipe with 1800' of water cushion.
7. The wall packer was set at 8777' with tailpiece to 8789'.
8. The tester valve was opened at 4:49 p.m. and remained open 36 minutes. During this interval there were occasional weak puffs for 2 minutes, after which there was no blow.

THE INSPECTOR NOTED THAT the tester valve failed to open.

INSPECTOR SHOW VISITED THE WELL AT 1:25 P.M., APRIL 3, 1944, AND MR. BOWEN REPORTED:

1. On March 31, 1944, the 7" and 4-3/4" splice was retested as follows:
2. The Johnston tester was run into the hole on 3-1/2" drill pipe with 1800' of water cushion, and the wall packer was set at 8777'.
3. The tester valve was opened at 4:30 a.m. and remained open 1 hr. During this interval there was a steady decreasing blow for 40 minutes, and no blow for 20 minutes.
4. The net rise was 6250' consisting of 1100' of mud, 1000' of watery mud and 4150' of water.
5. On March 31, 1944, with 3-1/2" and 2-3/8" drill pipe hanging at 9000', 10 sacks of cement was pumped into the hole, filling to 8957'.

R. D. BUSH
State Oil and Gas Supervisor

(CONTINUED ON PAGE 2)

By ... Deputy

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FORM 109-X. 91197 9-40 6M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
OR
Special Report on Operations Witnessed

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STANDARD OIL COMPANY OF CALIFORNIA

Well No. "Frew 1" 2, Sec. 29, T. 3 N., R. 16 W., S.B. B. & M.,

6. A Baker cement retainer was set at 8742' on 3-1/2" and 2-3/8" drill pipe. No fluid could be forced away at 4000 lb. pressure.
7. The cement retainer was drilled out, and the 7" casing was cleaned out to 8817'.
8. The Johnston tester was run into the hole on 3-1/2" drill pipe with 1767' of water cushion.
9. The wall packer was set at 8781' with tailpiece to 8795'.
10. The tester valve was opened at 10:20 a.m. and remained open 40 minutes. During this interval there was a weak initial puff, no blow for one minute a weak blow for 3 minutes, and no blow for the remainder of the test.

THE INSPECTOR NOTED:

1. When the drill pipe was removed there was a net rise of 40' of medium drilling fluid found in the drill pipe above the tester, equivalent to 0.3 bbl.
2. There was no free water.
3. The recording pressure bomb chart showed that the tester valve was open 40 minutes.

The test was completed at 4:25 p.m.

THE OPERATIONS AS WITNESSED AND REPORTED ARE APPROVED AS INDICATING THAT NO FLUID HAS ACCESS TO THE WELL BETWEEN THE 7" AND 4-3/4" CASINGS.

cc- U. S. G. S.
Company
J. E. Toussaint
JHS:GH
S/R.

R. D. BUSH
State Oil and Gas Supervisor

By E. H. Musser Deputy

FORM 109-A

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
(FORMATION TESTER)

No. T 1-42549

Los Angeles 14, Calif. February 4, 1944.

121

Mr. W. C. Johnson,
Los Angeles 54, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

DEAR SIR:

Your well No. "Frew 1" 2, Sec. 29, T. 3 N., R. 16 W., S. B. B. & M.
Aliso Canyon Field, in Los Angeles County, was tested for water shut-off on Jamary 30, 1944. Mr. S. H. Rook, Inspector, designated by the supervisor, was present as prescribed in Sec. 3222 and 3223, Ch. 93, Stat. 1939; there were also present H. L. Roberts, Drilling Foreman, Rocky Mountain Drilling Co.
R. Pearce, Driller. 28 & 30

Shut-off data: 7 in. 23, 26 lb. casing was cemented at 8850 ft. on January 23, 1944 in 10-5/8" hole with 95 sacks of cement of which - sacks was left in casing.
Casing record of well: 13-3/8" cem. 501'; 7" cem. 8850', c.p. 8250', perf. 4, 1/2" holes at 8243', def. dec.
plugged with undetermined amount of cement at 7" shoe

Reported total depth 8854 ft. ~~Bridged with cement from ft. to ft.~~ Cleaned out to 8255 ft. for this test.
A pressure of - lb. was applied to the inside of casing for - min. without loss after cleaning out to - ft.
A Johnston tester was run into the hole on 3-1/2 in. drill pipe, with - ft. of water cushion, and packer set at 8229 ft. with tailpiece to 8239 ft. Tester valve, with 3/8" bean, was opened at 2:20 p.m. and remained open for 1 hr. and - min. During this interval there was a light steady blow for 40 minutes and a weak steady blow for 20 minutes.

THE INSPECTOR ARRIVED AT THE WELL AT 3:55 P.M. AND MR. ROBERTS REPORTED:

1. A 10-5/8" rotary hole was drilled from 501' to 8854'.
2. Cores and electrical log showed the following:
   Top of Seenon zone at 8265'; base of Seenon zone and top of Eocene at 8657'; and blue shale with streaks of hard barren gray sand from 8657' to 8854'.
3. The 7" casing was cemented at 8850' as noted above and was cemented through perforations at 8250' with 300 sacks of cement.
4. Cement was drilled out of the 7" casing from 8134' to 8243', equivalent to 31 sacks, and the casing was found to be open to at least 8255'.
5. The 7" casing was perforated with 4, 1/2" holes at 8243'.

THE INSPECTOR NOTED:

1. When the drill pipe was removed 1080' of medium drilling fluid, 1890' of medium drilling fluid with a scum of oil and 3105' of muddy oil and oil, was found in the drill pipe above the tester, equivalent to 7.9 bbl., 13.9 bbl., and 22.9 bbl., respectively.
2. There was no free water noted.
3. Water filtered from fluid samples taken from 5985' and 5535' above bottom of drill pipe tested 38 grains and 38 grains of salt per gallon, respectively. No water could be filtered from fluid samples taken from below 5535' above the tester.
4. The pressure bomb chart indicated that the tester valve opened but did not show the time the valve was open because the clock stopped at the time of the opening of the valve and started again at the time of closing of the valve.

The test was completed at 10:30 p.m.

The test indicates that the 7" shut-off above the perforations at 8243' is probably effective, but is not conclusive because of the high fluid rise. A decision is therefore deferred pending the receipt of production data after completion of the well.

cc- U.S.G.S.
Company
J. E. Toussaint
SHR:ehh

R. D. BUSH, State Oil and Gas Supervisor
By [signature], Deputy

21027 2-43-1500
STATE PRINTING OFFICE

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 1-39289

Los Angeles 14, Calif. February 2, 1944.

121

MR. W. C. Johnson,
Los Angeles 54, Calif.
Agent for STANDARD OIL COMPANY OF CALIFORNIA

DEAR SIR:

Your supplementary proposal to drill Well No. "Frew 1" 2, Section 29, T. 3 N., R. 16 W., S.B. B. & M., Aliso Canyon Field, Los Angeles County, dated Jan. 25, 1944, received Jan. 28, 1944, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"Present Condition of Hole:

Depth: 8854' Plugs: None

Casing: 26" cemented 42'; Not tested
13-3/8" cemented 501'; Pressure tested O.K. under 1000#.

Geological Data:
Top of Sesnon Zone - 8265'.
Base of Sesnon Zone and top of Eocene - 8657'.
Cored blue shale with streaks of hard barren gray sand from 8657 to 8854'."

PROPOSAL:

"We now propose (confirming conversation Arron-Russell, January 18, 1944):

1. Cement 7" casing at 8850' with sufficient cement around shoe to reach 8655' (Base of Sesnon Zone).
2. After bumping plugs at 7" shoe, gun perforate 7" casing at 8250' with four 1/2" holes.
3. Cement through holes at 8250' with 250 sacks cement.
4. Shoot four holes above perforations at 8250' and test water shut off. Division of Oil and Gas to witness.
5. Shoot four holes at base of Sesnon at 8660' and test for WSO. Division of Oil and Gas to witness.
6. Clean out 5' below 7" shoe at 8850' and test water shut off, Division of Oil and Gas to witness.
7. Prospect ahead."

DECISION:

THE PROPOSAL IS APPROVED.

NOTE: The United States Supervisor requests that you be informed that notice to and approval of the United States Geological Survey is required by the Survey before the above operations are commenced.

cc- P.A.W.
U.S.G.S.
Company
J. E. Toussaint
ERMA: ehh
W/2119/5

R. D. BUSH
State Oil and Gas Supervisor
By E. H. Musser Deputy

Blanket bond No. 101906.

FORM 123. 55609 3-38 10M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

Los Angeles, Calif. January 25, 1944

DIVISION OF OIL AND GAS

Los Angeles, Calif.

Our notice to you dated October 15, 1943, stating our intention to

Drill (Drill, deepen, redrill, abandon) well No. Frew 1 No. 2,

Sec. 29, T. 3-N, R. 16-W, S.B. B. & M. Aliso Canyon Field,

Los Angeles, County, must be amended on account of changed or recently discovered conditions.

MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
			Blanket 101906	Encl	Encl

~~The new conditions are as follows:~~
Present Condition of Hole:

Depth: 8854' Plugs: None

Sup. drill

Casing: 26" cemented 42'; Not tested
13-3/8" cemented 501'; Pressure tested O.K. under 1000#.

Geological Data:

Top of Sesnon Zone - 8265'.
Base of Sesnon Zone and top of Eocene - 8657'.
Cored blue shale with streaks of hard barren gray sand from 8657 to 8854'.

We now propose (confirming conversation Arron-Russell, January 18, 1944):

1. Cement 7" casing at 8850' with sufficient cement around shoe to reach 8655' (Base of Sesnon Zone).
2. After bumping plugs at 7" shoe, gun perforate 7" casing at 8250' with four 1/2" holes.
3. Cement through holes at 8250' with 250 sacks cement.
4. Shoot four holes above perforations at 8250' and test water shut off. Division of Oil and Gas to witness.
5. Shoot four holes at base of Sesnon at 8660' and test for WSO. Division of Oil and Gas to witness.
6. Clean out 5' below 7" shoe at 8850' and test water shut off, Division of Oil and Gas to witness.
7. Prospect ahead.

cc-DOG
USGS
PAW
JET
CEP
FILE

STANDARD OIL COMPANY OF CALIFORNIA
(Name of Operator)

By J.E.Gosline
J.E.Gosline, Mgr. Prod. Dept. So. Dist.

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 1-38954

Los Angeles 14, Calif. October 21, 1943.

Mr. W. C. Johnson,

Los Angeles 54, Calif.

Agent for STANDARD OIL COMPANY OF CALIFORNIA

Dear Sir:

Your proposal to drill Well No. "FREW 1" 2,

Section 29, T. 3 N., R. 16 W., S.B.B. & M., Aliso Canyon Field, Los Angeles County,

dated Oct. 15, 1943, received Oct. 20, 1943, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES: Point No. 19 on Ex Mission San Fernando Rancho Line; 522.8' S'ly along Rancho line, thence 410.8' W'ly at rt. angles.

"The well is from ~~the Ex Mission San Fernando Rancho line point #19, Southerly 470' along the Rancho line, thence 415' Westerly at right angles.~~ (final)

The elevation of the derrick floor above sea level is 2804.3 feet (final)

We estimate that the first productive oil or gas sand should be encountered at a depth of about 8600 ± feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing	Weight	Grade and Type	Depth	Landed or Cemented
18-5/8"	76#	double & gauge stovepipe	30'	Cemented
11-3/4"	47#	J-55	500'	Cemented
7"	23, 26, & 29#	J-55 & N-80	8600'±	Cemented
5-1/2"	17#	J-55	8850'±	Landed (Liner)

Well is to be drilled with rotary tools.

Plan to remove derrick after completion if feasible and service well with portable mast.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Mud fluid consistent with good drilling practice shall be used and the column of mud fluid maintained at all times to the surface, particularly while pulling the drill pipe.
2. Blowout prevention equipment, sufficient to provide a complete close-in of the well under pressure at any time, shall be installed.
3. Any hole to be sidetracked in any oil zone shall be filled with cement, if possible.
4. This division shall be consulted before running the 7" casing.
5. THIS DIVISION SHALL BE NOTIFIED AS FOLLOWS:
   (a) To inspect the installed blowout prevention equipment before drilling below 1500'.
   (b) To witness a test of the effectiveness of the 7" shut-off.

cc- U. S. G. S.
P. A. W.
Company
J. E. Toussaint
ERMA:OH

R. D. BUSH
State Oil and Gas Supervisor

By E. H. Musser Deputy

Blanket bond No. 101,906

FORM 105
CALIFORNIA STATE PRINTING OFFICE

037-00665

Division of Oil & Gas
RECEIVED
OCT 20 1943
LOS ANGELES, CALIFORNIA

9

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

F-2

Los Angeles, Calif. October 15, 1943

DIVISION OF OIL AND GAS

Los Angeles, Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. "Frew 1" #2, Sec. 29, T.3-N, R.16-W, S.B. B. & M., Aliso Canyon Field, Los Angeles County.

~~Lease consists of~~ From Point No. 19 on Ex Mission San Fernando Rancho Line; 522.8' Southerly along Rancho line, thence 410.8' Westerly at rt. angles.**

The well is ~~from the ExMission San Fernando Ranch line point #19, Southerly 470' feet N. or S., and feet E. or W. from~~ (Give location in distance from section corners or other corners of legal subdivision) ~~along the Rancho line, thence 415' Westerly at right angles. (final)~~

The elevation of the derrick floor ~~ground~~ above sea level is 2804.3 feet. (final)

**Correction letter 7-7-44. my

We estimate that the first productive oil or gas sand should be encountered at a depth of about 8600 ± feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
18-5/8"	76#	double 8 gauge stovepipe	30'	Cemented
11-3/4"	47#	J-55	500'	Cemented
7"	23, 26, & 29#	J-55 & N-80	8600' ±	Cemented
5-1/2"	17#	J-55	8850' ±	Landed (Liner)

Well is to be drilled with rotary ~~cable~~ tools.

Plan to remove derrick after completion if feasible and service well with portable mast.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address 605 W. Olympic Blvd.
Los Angeles, California

Telephone number Michigan 2711

STANDARD OIL COMPANY OF CALIFORNIA
(Name of Operator)

By J. E. Gosline
J.E.GOSLINE, Mgr.Prod.Dept.So.Dist

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

DOG
PAW
JET
CEP
USGS
FILE

MAP	CARDS	BOND	FORMS
18-A SHR	~~SHR~~ 10-20-43	Blanket 101,906	Ems

Don't type { * Point (Station) 19 Ro. ExMSF is station nearest to E ¼ cor. of Sec. 29 3/16 SB. Erma

~~2905' S, 690' W fr. NE cor. Sec. 29~~ (Approx)
Corr. in book 6-14-(?)