

# STRATEGIC OIL & GAS LTD. c/o ALVAREZ & MARSAL CANADA INC

STRATEGIC ET AL CAMERON

I-74 60-10N 117-15W

Wellbore Abandonment

July 4, 2022

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## CONTACTS:

Engineering:	Ken Nikiforuk	Cell 403 804-2510
Field Consultant:	To be determined	Cell
Production Foreman:	To be determined	Cell
Construction:	To be determined	Cell
Facilities :	Kurt Hewitt	Cell 780 830-8303
Director, A&M:	Duncan MacRae 403 538-7514	Cell 403 815-0297

## ATTACHMENTS:

## OBJECTIVES:

To abandon the Sulphur Point, Slave Point and cut and cap the wellbore

## SAFETY:

SOG Completions safety guidelines given in the "Employee Safety Manual", the "Contractor's HSE Pamphlet" and the "SOG Cameron Hills HSE Assurance plan" will be followed during all completion activities. Discuss the contents of the Contractor's HSE Pamphlet with the rig crew plus all service company personnel prior to the commencing work. Conduct a service rig safety inspection. Fill out the "Service Rig Safety Inspection" sheets; discuss and remedy all unsatisfactory comments and document when follow-up is completed on the daily reports. **Safety meetings are to be held with all on site personnel prior to each event. The wellsite supervisor must notify all personnel of potential hazards and ensure workers are aware of the responsibilities and duties in accordance with the SOG and OROGO regulations and that all workers comply with these regulations. A record of all safety meeting minutes and hazard assessments should be kept on site and submitted along with the daily reports to the Calgary Office at the end of the job. All service companies supplying materials will review Material Safety Data Sheets at the safety meetings and keep the MSDS papers posted on site.**

Contact the lead operator 48 hours prior to moving on to the lease. If this is an existing lease with production equipment, one of the operators should provide site-specific safety concerns and isolate the production equipment as required.

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**UWI:** 300I746010117150

**OROGO Well ID:** 1792

**AFE:** to be determined

**WORKING INTEREST:** 88%

**ELEVATIONS:** KB: 782.6 m  
GL: 777.8 m

**TD:** 1644.0 mKB

**TVD:** 1644.0 mKB

**PBTD:** 1464.5 mKB ( cement )

**DEVIATION:** Vertical wellbore.

**SURFACE CASING:** 244.5 mm, 53.6 kg/m, J-55, LT&C. Landed @ 396.0 m KB. Cemented with 30.0 tonnes 0:1:0 G + 2.0% CaCl<sub>2</sub> + 2 sacks celloflake. 4 m<sup>3</sup> good cement returns.

**PRODUCTION CASING:** 177.8 mm, 34.2 kg/m, LS-65, LT&C. Landed at 1644.0 mKB. Cemented with 18.5 tonnes 0:1:0 G + 13.7 m<sup>3</sup> cement returns to surface. There was a cement bond log run over the length of the liner on March 16, 19 33.3% Microcil + 0.5% T-10 + 9.0% CaCl<sub>2</sub> followed by 20.0 tonnes Thixmix + 0.5% D-23 + 1.0% CaCl<sub>2</sub> + 0.1% SPC-12000. Good returns until plug drop. No returns on displacement.

## TUBULAR DATA:

	<u>Casing</u>	<u>Tubing</u>
Size (mm)	177.8	73.0
Weight (kg/m)	34.2	9.67
Grade	LS-65	J-55
Connections	LT&C	EUE
Drift I.D. (mm)	158.52	59.61
Collapse (kPa)	24410	52950
Burst (kPa)	35510	50060
Capacity (m <sup>3</sup> /m)	0.020535	0.003019

**PRODUCTION TUBING:** see attached wellbore schematic dated March 28, 2001

**PERFORATIONS:**

Sulphur Point	1418.0 to 1423.9 mKB ( suspended )
Sulphur Point	1409.0 to 1414.0 mKB ( suspended )
Sulphur Point	1404.5 to 1406.0 mKB ( suspended )
Slave Point	1367.5 to 1369.0 mKB ( suspended )
Slave Point	1356.0 to 1360.5 mKB ( suspended )
Slave Point	1353.0 to 1356.0 mKB ( suspended )

**H<sub>2</sub>S:** 0.77% - from gas analysis dated January 13, 2000

**RESERVOIR PRESSURE:** 9610 kPa – Sulphur Point Static Gradient dated March 23, 2000

**MAX FLARE VOLUME:** 3.0 e3m<sup>3</sup> – 1.5 times hole volume at 10,000 kPa

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1. Contact the on shift Area Foreman – to be determined - 48 hours prior to moving rig to location.
2. Hold and record a safety and procedural meeting with all personnel on location. Review and confirm safety certificates of all workers. Job hazard analysis is to be performed on all critical tasks. Complete a site specific ERP form and review it at the safety meeting if required.
3. A sweep of the wellsite shall be performed to confirm the presence or absence of LEL and H2S.
4. MIRU service rig complete with pump, tank and Class III BOP's. Rig up all equipment to SOG and OROGO requirements. RU P-tank, safety services and an air trailer. Conduct a walk around lease inspection and hazard assessment. Ensure all necessary safety equipment is strategically positioned on site and tested to ensure proper operating condition prior to commencing the zonal abandonment operations. Document all controls initiated to mitigate identified hazards.
5. Read and record SITP and SICP.
6. Conduct a 10 minute bubble test on the surface casing vent using the procedure found in OROGO's Well Suspension and Abandonment Guidelines section 4B. Ensure that the wellhead and SCV piping is not in a frozen state. Check and monitor LEL and H2S levels at wellhead and investigate for evidence of gas migration at surface. Report the results on the daily report and the AER form "Surface Casing Vent Flow FAC-38". Ensure that the vent stays open and clear of obstructions throughout all operations and note any subsequent flows on the daily report. **Contact Ken Nikiforuk with the results of the bubble test.**
7. Tie in circulating lines with a return line tied into P-tank. Properly stake surface lines and pressure test lines and manifold to 1,400 kPa ( low ) and 14,000 kPa ( high ) and hold each for 10 minutes.
8. The reservoir is underpressured ( less than 10 kPa/m ) so fresh water will suffice to kill the well. Ensure there is at least 2.5 times hole volume on location prior to commencing kill operations.
9. Bleed off tubing to P-tank.
10. Pressure test the tubing to 7000 kPa for ten minutes.
11. Bleed off casing to P-tank.
12. Pressure test the casing to 7000 kPa for ten minutes.
13. Install the working spool and BOP's onto the BOP test stump. If required, warm up the BOP stack with steam. Function test the blind rams and pipe rams on the test stump. Close the blind rams and pressure test the working spool, the blind rams and BOP flange 1400 kPa and 21 MPa for 10 minutes each. Install a ported tubing pup and stabbing valve through the BOP's on the BOP test stump. Pressure test the pipe rams and stabbing valve to 1400 kPa and 21 MPa for 10 minutes each. Pressure test the annular preventer to low of 1400 kPa and high of 7000 kPa.
14. Conduct an accumulator function test as per the attached procedure from the WSBOP manual.

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15. Ensure the well is dead and remove wellhead top section.
16. Install a 73.0 mm landing pup with an open stabbing valve. Strip the BOP's over the landing pup and nipple up the stack. Close the pipe rams on the landing pup and pressure test the BOP connection to the wellhead for 1400 kPa and 21 MPa for 10 minutes each.
17. BOP drills will be performed at the start of wellbore operations and then weekly if required and are to be recorded on the daily reports. BOP equipment will be function tested at least once daily and any equipment found defective will be made serviceable before operations are resumed.
18. MIRU slickline unit. Conduct a walk around lease inspection and hazard assessment. Ensure all necessary safety equipment is strategically positioned on site and tested to ensure proper operating condition prior to commencing the plug recovery operations. Document all controls initiated to mitigate identified hazards.
19. Perform a risk assessment and hazard analysis for the tubing plug removal operation ( see OROGO safety bulletin OROGO-SB-1 ). This shall be documented and submitted to [orogo@gov.nt.ca](mailto:orogo@gov.nt.ca) a minimum of one hour prior to commencement of plug removal operations.
20. Fill up tubing with fresh water and pressure up the tubing to 9500 kPa.
21. RIH with retrieving tool and retrieve the FSG plug from the F nipple at 53.4 mKB.
22. A summary of plug removal operations must be submitted to [orogo@gov.nt.ca](mailto:orogo@gov.nt.ca) within one hour of plug removal operations.
23. Ensure the tubing is full of fresh water.
24. RIH with retrieving tool and retrieve the FSG plug from the F nipple at 1392.7 mKB.
25. Rig out and release slickline.
26. Fluid levels ( ie. losses to formation ) are to be continually monitored as both the Sulphur Point and Slave Point will be open to the wellbore for extended periods during tubing tripping operations. Fluid volume on surface is to be closely monitored. If surface volumes drop below 1.5 times hole volume, additional fresh water shall be delivered to location to ensure adequate volumes for kill fluid.
27. Unset the upper packer at 1342.3 mKB ( right hand release ). Allow 15 minutes for the elements to relax.
28. Pull and stand the 73.0 mm tubing. Inspect the 73.0 mm tubing on the way out of the hole. Lay down any red, blue or green joints.
29. RIH with extended neck overshot and latch on to the lower packer at 1394.2 mKB. Unset the packer ( right hand release ). Allow 15 minutes for the elements to relax.

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30. Pull and stand the 73.0 mm tubing.
31. Pick up and RIH with 177.8 mm casing scraper and bit. Run in to a depth of 1410 mKB. Ensure the following intervals of the wellbore have had the scraper oscillated multiple times ( 1410 to 1385 mKB and 1350 to 1325 mKB ).
32. Pick up and RIH with 177.8 mm permanent bridge plug and packer assembly on 73.0 mm tubing. Position and land the BP at 1398.0 mKB. Refer to Norwest Shooters Cement Bond Log dated March 1, 1994. Ensure the BP is not set within 5 meters of a casing collar. Collars located at 1374.5, 1377.1 and 1389.0 mKB.
33. Fill the tubing with fresh water and pressure up to 14,000 kPa to set the bridge plug.
34. Fill the annulus with fresh water.
35. Set the packer.
36. Pressure test the bridge plug to 7000 kPa for 15 minutes ( if the bridge plug does not hold a pressure test, a second packer run will be required to set at +/- 1390 mKB to pressure test the PBP and casing (down tubing) to confirm integrity. A second bridge plug may be required to be run and set at a to be determined depth. OROGO approval will be required to confirm setting depth.
37. Unset the packer.
38. Pull and stand the 73.0 mm tubing.
39. RIH with 73.0 mm tubing open ended
40. Batch mix 0.5 m3 Class G cement slurry and pump down tubing to set as a balanced plug. See attached cementing procedure.
41. Displace with 4.23 m3 fresh water.
42. Slowly pull out and lay down two joints of tubing while rotating pipe.
43. Reverse circulate fresh water at least two tubing volumes or until returns are clean.
44. Pick up and RIH with 177.8 mm permanent bridge plug on 73.0 mm tubing. Position and land the BP at 1348.0 mKB. Refer to Norwest Shooters Cement Bond Log dated March 1, 1994. Ensure the BP is not set within 5 meters of a casing collar. Collars located at 1325.6, 1337.1 and 1338.5 mKB.
45. Fill the tubing with fresh water and pressure up to 14,000 kPa to set the bridge plug ( if the bridge plug does not hold a pressure test, a packer will be run and set at +/- 1340 mKB to pressure test the PBP and casing (down tubing) and pressure test the casing above (annulus) to confirm

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integrity. A second bridge plug may be required to be run and set at a to be determined depth. OROGO approval will be required to confirm setting depth.

46. Fill the annulus with fresh water.
47. Pressure test the bridge plug to 7000 kPa for 15 minutes.
48. Rotate to release off of the setting tool and pull up two joints.
49. Establish circulation with fresh water.
50. Batch mix 0.5 m<sup>3</sup> Class G cement slurry and pump down tubing to set as a balanced plug. See attached cementing procedure.
51. Displace with 4.05 m<sup>3</sup> fresh water.
52. Slowly pull out and lay down two joints of tubing while rotating pipe.
53. Reverse circulate fresh water at least two tubing volumes or until returns are clean.
54. Pull and stand the 73.0 mm tubing. Prior to pulling the last joint out of the hole, circulate over to fresh water.
55. MIRU electric line truck.
56. Perform cement bond log from PBTD to surface. Ensure data is transferred for evaluation communications allow. Evaluation results to be forwarded to Ken Nikiforuk and OROGO as soon as they are available.
57. Depending on the results of the cement bond log evaluation, the decision will be made to go forward with setting the bridge plug above the liner hanger ( proceed to step 74 ) or to perform remedial cementing operations on the 177.8 mm casing ( proceed to step 58 ).
58. Correlate all perforating operations to the recently performed cement bond log. Pick up and RIH with 101.6 mm ERHSC perf guns loaded with 39 gram charges spaced at 17 spm and 60 degree phasing. Position and perforate 1.0 meters at a depth to be determined. POOH and inspect guns to ensure all shots fired.
59. Rig out electric line.
60. Pick up and RIH with 177.8 mm cement retainer on 73.0 mm tubing.
61. Set cement retainer at a depth to be determined.
62. Sting out of retainer and pressure test to 7000 kPa for fifteen minutes.

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63. Sting back in to retainer and establish feed rate.
64. Based on the feed rate, the cement blend and volumes will be determined.
65. Sting out of retainer.
66. MIRU cement pumper. Rig up all equipment to SOG and OROGO requirements. RU P-tank, safety services and an air trailer. Conduct a walk around lease inspection and hazard assessment. Document all controls initiated to mitigate identified hazards.
67. Establish circulation between tubing and casing.
68. Batch mix a to be determined volume of a to be determined cement blend.
69. Circulate a to be determined volume of cement down the tubing and sting back in to retainer.
70. Squeeze a to be determined volume of cement into the formation and sting out of retainer.
71. Slowly pull and lay down two joints of the 73.0 mm tubing while rotating and ensure 15 lineal meters of cement has been circulated on top of the cement retainer.
72. Reverse circulate fresh water at least two tubing volumes or until returns are clean.
73. Pull and stand 73.0 mm tubing.
74. Ensure the well is dead and remove BOP's.
75. Install wellhead. Ensure that bull plugs and needle valves are installed where required and the wellhead valves have been chained and locked.
76. Rig out service rig. Ensure lease is clean and free of debris.
77. MIRU NuWave Industries and cut and cap wellbore as per attached procedure. Ensure pictures are taken.
78. Install abandoned well sign as per attached OROGO specifications.
79. Ensure lease is clean and free of debris.

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Upon completion of field work the Wellsite Supervisor shall complete the following:

- Prepare a complete set of downhole and wellhead diagrams showing all serial numbers, pressure ratings, sizes, setting depths, etc.
- A complete lease clean-up shall be conducted. All garbage shall be picked up from the lease, all surplus material shall be transferred to proper storage locations and all rental equipment shall be returned.
- Ensure a sign has been installed.
- Ensure that all field-generated PO.'s MT's etc. are filled out vendor's name and address, a brief description of the work performed and a rough estimate of the final expected costs involved.

**MORNING REPORTS:** All morning reports are to be e-mailed to the following:

Ken Nikiforuk at [kanikiforuk@icloud.com](mailto:kanikiforuk@icloud.com)

Kurt Hewitt at [kurtw.hewitt@gmail.com](mailto:kurtw.hewitt@gmail.com)

Duncan MacRae at [dmacrae@alvarezandmarsal.com](mailto:dmacrae@alvarezandmarsal.com)

OROGO at [orogo@gov.nt.ca](mailto:orogo@gov.nt.ca)

**FIELD TICKETS/INVOICES:**

Field tickets are to be completed in detail with the **Well Location, AFE Number, Codes** and details of the service work. **Tickets are to be signed by the on site representative. These tickets and all invoices must be made out to Strategic Oil & Gas Ltd. c/o Alvarez & Marsal Canada INC**

Invoices are to be mailed to:

**STRATEGIC OIL & GAS LTD. C/O ALVAREZ & MARSAL CANADA INC**

**#1110, 250 – 6th Avenue SW**

**Calgary, AB**

**T2P 3H7**

**ATTENTION: KEN NIKIFORUK**

**Prepared By:** Ken Nikiforuk  
Operations Consultant: \_\_\_\_\_ Date \_\_\_\_\_

**Approved By:** Duncan MacRae  
Director, Alvarez & Marsal: \_\_\_\_\_ Date \_\_\_\_\_