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

**STRATEGIC ET AL CAMERON**

**M-74 60-10N 117-15W**

**Wellbore Abandonment**

**August 2, 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 perform operations on the previously abandoned Sulphur Point wellbore and cut and cap

**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:** 300M746010117150 **OROGO Well ID:** 2063

**AFE**: to be determined **WORKING INTEREST:** 100%

**ELEVATIONS:** KB: 782.6 m
GL: 777.9m

**TD:** 1473.0 mKB **TVD**: 1473.0 mKB **PBTD**: 367.0 mKB ( retainer and cement )

**DEVIATION**: Vertical wellbore

**SURFACE CASING**: 219.1 mm, 35.72 kg/m, K-55, ST&C. Landed @ 378.0 m KB. Cemented with 33.0 tonnes 0:1:0 'G' + 1.5% CaCl2. 7.5 $m^3$ of good cement returns to surface.

**PRODUCTION CASING:** 139.7 mm, 20.83 kg/m, J-55, ST&C. Landed at 1473.0 mKB. Cemented with 28.0 tonnes Thix-Lite + 0.4% LTR followed by 9.0 tonnes Expandomix LWL. No cement returns to surface. Logged cement top at 403 mKB ( Feb 19, 2022 )

**REMEDIAL CEMENT:** Remedial perfs at 390.0 to 391.0 mKB. Cemented with 9.4 tonnes Mag G 1900. No die or cement returns to surface.

**TUBULAR DATA:**

| | Casing | Tubing |
|---|---|---|
| Size (mm) | 139.7 | 73.0 |
| Weight (kg/m) | 23.07 | 9.67 |
| Grade | J-55 | J-55 |
| Connections | ST&C | EUE |
| Drift I.D. (mm) | 122.56 | 59.61 |
| Collapse (kPa) | 27860 | 52950 |
| Burst (kPa) | 33160 | 50060 |
| Capacity ($m^3$/m) | 0.012416 | 0.003019 |

**PRODUCTION TUBING: none**

**PERFORATIONS:**

**Sulphur Point : 1421.5 to 1425.0 mKB**
**Sulphur Point : 1414.0 to 1419.0 mKB**
**Sulphur Point : 1407.0 to 1408.0 mKB**
**WR plug: coe at 1400.0 mKB**
**PBP and Cement : 1385.0 to 1393.0 mKB**
**Remedial Perfs: 390.0 to 391.0 mKB**
**Cement retainer capped with cement: 367.0 to 383.0 mKB**

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**H2S:** **No analysis available ( assume 2% )**

**RESERVOIR PRESSURE:** **Sulphur Point – 5469 kPa – Feb 28, 2010**

**MAX FLARE VOLUME:** **1.5 times wellbore volume at 10 MPa = 2.5 e3m3**
**Note that any significant flare volume in this operation is unexpected**

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 Read and record SICP.

5 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.**

6 MIRU service rig and rig assist snubbing unit 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.

7 The reservoir is underpressured ( less than 10 kPa/m ) so fresh water will suffice to kill the well. Ensure there is at least 1.5 times hole volume on location prior to commencing kill operations.

8 Pressure test the casing to 7000 kPa for ten minutes.

9 Bleed off casing to P-tank.

10 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.

11 Conduct an accumulator function test as per the attached procedure from the WSBOP manual.

12 Ensure the well is dead and remove the orbit valve.

13 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.

14 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.

15 Pick up drilling BHA and RIH on 73.0 mm tubing. Tag cement top at 367.0 mKB.

16 Rig up power swivel.

17 Drill out cement and cement retainer. Ensure a minimum back pressure of 2000 kPa is held on the casing while circulating down the tubing during drilling operations.

18 At a depth of 400 mKB, perform a pressure test on the casing to 7000 kPa for fifteen minutes.

19 Push all debris to bottom ( 1385.0 mKB ).

20 Circulate the wellbore over to clean fresh water ( 17.2 m3 ).

21 Rig out power swivel.

22 Pull and lay down tubing and drilling BHA.

23 Rig out snubbers.

24 Pick up and perform casing scraper run from PBTD to surface.

25 MIRU electric line.

26 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.

27 Depending on the results of the cement bond log evaluation, the decision will be made to go forward to set a permanent bridge plug above the existing remedial perfs ( proceed to step 45 ) or to perform remedial cementing operations ( proceed to step 28 ). Note the order will be dependent on log evaluation and the proposed depth for remedial perforations.

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28 MIRU electric line truck. Conduct walk around lease inspection and hazard assessment. Document all controls initiated to mitigate identified hazards. Hold and record safety meeting with all personnel on location.

29 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.

30 Rig out electric line.

31 Pick up and RIH with 139.7 mm cement retainer on 73.0 mm tubing.

32 Set cement retainer at a depth to be determined.

33 Sting out of retainer and pressure test to 7000 kPa for fifteen minutes.

34 Sting back in to retainer and establish feed rate.

35 Based on the feed rate, the cement blend and volumes will be determined.

36 Sting out of retainer.

37 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.

38 Establish circulation between tubing and casing.

39 Batch mix a to be determined volume of a to be determined cement blend.

40 Circulate a to be determined volume of cement down the tubing and sting back in to retainer.

41 Squeeze a to be determined volume of cement into the formation and sting out of retainer.

42 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.

43 Reverse circulate fresh water at least two tubing volumes or until returns are clean.

44 Pull and stand 73.0 mm tubing.

45 Pick up and RIH with 139.7 mm permanent bridge plug on 73.0 mm tubing. Position and land the BP at +/- 385.0 mKB. Ensure the BP is not set within 5 meters of a casing collar.

46 Fill the tubing with fresh water and pressure up to 14,000 kPa to set the bridge plug.

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47 Fill the annulus with fresh water.

48 Pressure test the bridge plug to 7000 kPa for 15 minutes. If the bridge plug does not hold a pressure test, 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.

49 Batch mix 0.5 m3 Class G cement slurry and pump down tubing to set as a balanced plug. See attached cementing procedure. Backwash tubing to ensure cement top is at 365.0 mKB.

50 Displace with 1.1 m3 fresh water.

51 Slowly pull out and lay down two joints of tubing while rotating pipe.

52 Reverse circulate fresh water at least two tubing volumes or until returns are clean

53 Pull and lay down tubing. Prior to pulling the last joint out of the hole, circulate over to fresh water.

54 Ensure the well is dead and remove BOP's.

55 Rig out service rig. Ensure lease is clean and free of debris.

56 MIRU NuWave Industries and cut and cap wellbore as per attached procedure. Ensure pictures are taken.

57 Install abandoned well sign as per attached OROGO specifications.

58 Ensure lease is clean and free of debris.

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

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**2F-73 60-10N 117-15W**
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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
Kurt Hewitt at kurtw.hewitt@gmail.com
Duncan MacRae at dmacrae@alvarezandmarsal.com
OROGO at 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 ULC**

Invoices are to be mailed to:

**STRATEGIC OIL & GAS LTD. C/O ALVAREZ & MARSAL CANADA ULC**
**#1110, 250 – 6th Avenue SW**
**Calgary, AB**
**T2P 3H7**

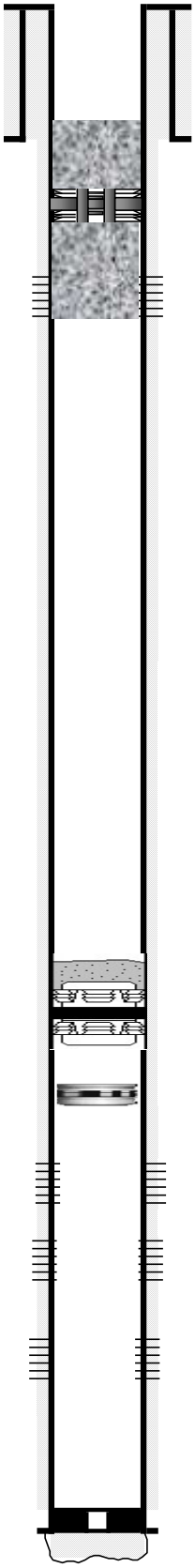
**ATTENTION: KEN NIKIFORUK**

**Prepared By:** Ken Nikiforuk
Operations Consultant: _____ Date Aug 2/22

**Approved By:** Duncan MacRae
Director, Alvarez & Marsal: _____ Date Aug 2, 2022

## EXISTING WELL DIAGRAM

**ALL DEPTHS ARE mKB**




| | | | | |
|---|---|---|---|---|
| **WELL NAME:** | | **Strategic et al Cameron M-74** | | |
| PREPARED BY: | Ken Nikiforuk | | DATE: Mar 8, 2015 | |
| **ELEVATIONS (meters):** | | | Licence #: 2063 | |
| TD 1,473.00 | KB Elev. 782.60 | | KB to CF | |
| PBTD 367.00 | Ground Elev. 777.90 | | KB to Ground | 4.70 |

| CASING/TUBING | SIZE (mm) | WEIGHT (Kg/m) | GRADE | DEPTHS (m) |
|---|---|---|---|---|
| Surface | 219.10 | 35.72 | J-55 | 378.00 |
| Production | 139.70 | 20.80 | J-55 | 1,473.00 |

**BOTTOM HOLE ASSEMBLY:**

| ITEM | DESCRIPTION | LENGTH (m) | Top at (m KB) |
|---|---|---|---|
| | **TALLY** | | |
| | **KB TO TUBING HEAD** | | |
| | **TUBING BOTTOM** | | |

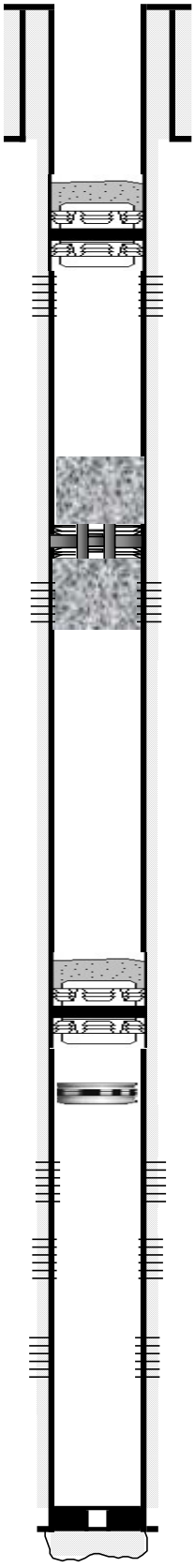
**PUMP AND ROD ASSEMBLY**

**PERFORATION INTERVALS**

Sulphur Point - 1421.5 to 1425.0 mKB
Sulphur Point - 1414.0 to 1419.0 mKB
Sulphur Point - 1407.0 to 1408.0 mKB
WR plug - coe at 1400.0 mKB
PBP and cement - 1385.0 to 1393.0 mKB
Remedial perfs - 390.0 to 391.0 mKB
Cement retainer capped with cement - 367.0 to 383.0 mKB

## PROPOSED WELL DIAGRAM

**ALL DEPTHS ARE mKB**




**WELL NAME:** **Strategic et al Cameron M-74**

| | | | |
|---|---|---|---|
| PREPARED BY: | Ken Nikiforuk | DATE: Sept 21, 2022 | |
| **ELEVATIONS (meters):** | | Licence #: 2063 | |
| TD 1,473.00 | KB Elev. 782.60 | KB to CF | |
| PBTD 367.00 | Ground Elev. 777.90 | KB to Ground | 4.70 |

| CASING/TUBING | SIZE (mm) | WEIGHT (Kg/m) | GRADE | DEPTHS (m) |
|---|---|---|---|---|
| Surface | 219.10 | 35.72 | J-55 | 378.00 |
| | | | | |
| Production | 139.70 | 20.80 | J-55 | 1,473.00 |
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**BOTTOM HOLE ASSEMBLY:**

| ITEM | DESCRIPTION | LENGTH (m) | Top at (m KB) |
|---|---|---|---|
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| | | | |
| | | | |
| | | | |
| | **TALLY** | | |
| | **KB TO TUBING HEAD** | | |
| | **TUBING BOTTOM** | | |

**PUMP AND ROD ASSEMBLY**

**PERFORATION INTERVALS**

Sulphur Point - 1421.5 to 1425.0 mKB
Sulphur Point - 1414.0 to 1419.0 mKB
Sulphur Point - 1407.0 to 1408.0 mKB
WR plug - coe at 1400.0 mKB
PBP and cement - 1385.0 to 1393.0 mKB
Remedial perfs - depth to be determined
Cement retainer capped with cement - depth to be determined
PBP and cement - 370.0 to 385.0 mKB