

December 9, 2022

**Office of the Regulator of Oil and Gas Operations**

PO Box 1320  
Yellowknife NT, X1A 2L9

By Email: [orogo@gov.nt.ca](mailto:orogo@gov.nt.ca)

**RE: Abandonment of the Cameron N-06 Well (ACW-2021-SOG-N-06-WID 2067)**

ELM Inc, acting on behalf of Alvarez & Marsal Canada Inc in their capacity as the receiver for Strategic Oil and Gas Ltd requests a variation to the well approval for the Cameron N-06 well.

ELM Inc has reviewed the existing program and has identified the following issues:

1. If the pressure test on the lower bridge plug is successful, there are no steps to circulate a cement cap on top of the plug.
2. If the pressure test on the lower bridge plug is successful, the proposed plug setting position of the upper bridge plug is not compliant with the requirements to avoid a casing collar by 5 meters.
3. If the pressure test on the lower bridge plug is unsuccessful, the program calls to batch mix 1.25 m<sup>3</sup> of cement. Batch mixing this much cement by hand is not practical and should be instead done by a remedial cementing crew.
4. If the pressure test on the lower bridge plug is unsuccessful and a cement plug is balanced on the failed plug and across any potential failures as well as the upper perforations, the program calls for the cement plug top to be found with slickline. This is noncompliant with the current regulations, and it is also operationally easier to probe the cement top with tubing.

ELM has prepared a new abandonment program to meet the updated abandonment guidelines issued May 25, 2022, and to make the safety requirements and document submissions consistent with the rest of the operations being carried out by ELM.

Should you have any questions or require further information, please contact the undersigned at [christopher@elminc.ca](mailto:christopher@elminc.ca)

Sincerely,

Christopher Gagnon, EIT

ELM Inc, acting as a consultant to Alvarez & Marsal Canada Inc



**ELM**  
Environmental Liability Management

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# Routine Well Abandonment Program

Strategic Oil and Gas Ltd. C/O Alvarez & Marsal Canada  
Inc.

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STRATEGIC ET AL CAMERON N-06  
300/N06 60-10N 117-15W

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Elm Inc. Project Number: STRA050

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Prepared by: Christopher Gagnon EIT  
Reviewed by: Malcolm McKean P.Eng

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**ROUTINE ABANDONMENT PROGRAM**

**BACKGROUND:**

- Suspended vertical well
- Well completed in the Sulphur Point and Slave Point
- Slave Point suspended with packer and tubing plug, Sulphur Point with bridge plug
- Well has casing that may contain metallurgical defects

**ABSTRACT:**

- Move on service rig and slickline unit
- Pull tubing plug, unset packer and pull tubing
- Pressure test bridge plug for Sulphur Point.
- If pressure test is good, cap plug with cement, abandon the Slave Point with bridge plug and cement
- If pressure test failed, balance cement plug across the casing failure and the Slave Point
- Run bond log. Perforate and cement squeeze as necessary.
- Cut and cap the well
- If well has a casing failure above the Slave Point, run casing inspection log and work with OROGO on a new program.

**CONTACTS:**

**Elm Inc. Calgary Office**

<b>Elm Inc. Calgary Office</b>		
Malcolm McKean P.Eng, Vice President Liability	██████████ – Cell	Malcolm@elminc.ca
Christopher Gagnon EIT, Operations Engineer	██████████ – Cell	Christopher@elminc.ca

**Elm Inc. Field Staff**

<b>Elm Inc. Field Staff</b>		
To be determined	To be determined	To be determined

**Client Contact**

<b>Client Contact</b>		
Duncan MacRae – Director, A&M	██████████ - Cell	dmacrae@alvarzeandmarsal.com

**Regulator Contact**

<b>Regulator Contact</b>		
OROGO - Office	867-767-9097	orogo@gov.nt.ca
OROGO - 24-hour emergency line	1-867-445-8551	
NWT Spill Line	1-867-920-8130	

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**WELL INFORMATION:**

WELL NAME: STRATEGIC ET AL CAMERON N-06  
UNIQUE ID: 300/M74 60-10N 117-15W  
SURFACE LOCATION: Lat: 60.097077 Long: -177.521844  
LICENSE #: 2067  
STATUS: Suspended  
TOTAL DEPTH: 1450 mKB  
ELEVATIONS: **GL:** 712.5 m **KB:** 717.2 m  
BGWP: 600.0 mKB  
PLUG BACK: 1357.0 mKB (Permanent bridge plug)  
H<sub>2</sub>S DATA: Slave Point: 1.29% - March 18, 2010  
Sulphur Point: Not Measured, assume 2%  
SCVF: None, last tested September 25, 2022  
GAS MIGRATION: None, last tested October 29, 2022.  
SITP: 0 kPa  
SICP: 0 kPa  
RESERVOIR PRESSURE: Slave Point: 10085 kPa  
Sulphur Point: 2345 kPa  
MAX FLARE VOLUME: 1.5 x wellbore volume at 10 MPa = 2.59 e3m<sup>3</sup>

LANDOWNER: Crown

DIRECTIONS:

Refer to maps

COMPLETION:

Sulphur Point	1421.0 to 1424.0 mKB (Suspended)
Sulphur Point	1392.0 to 1396.5 mKB (Suspended)
Sulphur Point	1382.0 to 1385.0 mKB (Suspended)
Permanent Bridge Plug	1379.0 mKB
Sulphur Point	1370.5 to 1371.5 mKB (Suspended)
Sulphur Point	1365.0 to 1366.0 mKB (Suspended)
Permanent Bridge Plug	1357.0 mKB
Slave Point	1283.0 to 1286.0 mKB

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**FORMATIONS:**

No geology data in well file.

**TUBULARS:****SURFACE CASING:**

219.1 mm, 35.7 kg/m, J-55, ST&C. Casing landed @ 377.0 mKB. Cemented with 38.0 tonnes 0:1:0 'G' + 1.5% CaCl<sub>2</sub>. Pre flush returns only. Topped up annular between conductor and surface casing with 18 sacks class G cement

**PRODUCTION CASING:** 139.7 mm, 20.83 kg/m, J-55, ST&C. Landed at 1499.0 mKB. Cemented with 27.0 tonnes Thixlite + 0.4% LTR followed by 9.0 tonnes Expandomix LWL + 0.15% LTR + 0.15% CFL-3. "3 m3 cement returns to surface".

**Reports state a bond log was ran March 10, 2010 and showed cement to surface, but that log is not in the well files.**

**PRODUCTION STRING:** 60.3mm tubing with profiles and packer as per the attached wellbore schematic.

Casing size and weight	Casing ID (mm)	Casing Drift (mm)	Casing Capacity (m3/m)	Top of Plugback (mKB)	Casing Capacity to Plugback (m3)
219.1 mm 35.7 kg/m	205.66	202.49	0.033221	N/A	N/A
139.7mm 20.83kg/m	127.30	124.13	0.012729	1357	17.3
60.3 mm 6.99 kg/m	50.67	48.29	0.002019	1268	2.56

**DOCUMENTATION & REPORTING:**

Daily operation reports are to be emailed prior to 7:00 am the next day following operations. They are to be sent to the ELM Inc office via [ElmDownholeOffice@elminc.ca](mailto:ElmDownholeOffice@elminc.ca)

Daily reports are to include a detailed description of the day's events along with all third party services that were utilized and their respective billing charges. These billing charges are to be added and represented by a daily operational cost. These total daily operational costs are to be reflected in a to-date accumulative cost. Along with the daily report the email must include a brief

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description of the work that was done that day, as well as a 24 hour forecast for the work to be done the following day.

Any incident or injury is to be reported immediately, after appropriate first- and/or medical-aid has been administered to the Elm Inc. office staff in Calgary. After the situation has been placed under control and all affected parties have been aided or corrected, an incident investigation is to take place and attempt to gather all necessary information via written witness statements and summarized in an incident investigation form. Elm Inc. Calgary office staff will then inform the appropriate client representatives of what has taken place.

After the abandonment has been completed, the well site supervisor is to provide the office staff in Calgary with all third-party purchase orders and field tickets/service reports, material transfers, waste manifests along with all appropriate field safety documents. This needs to be completed immediately following the job.

### **SAFETY:**

A safety meeting is to be held with all service company personnel prior to each job. Wellsite supervisor must notify contractors of known hazards of which contractor(s) may be unaware. Wellsite supervisor must ensure that workers are aware of their responsibilities and duties under OH&S regulations and that worker comply with regulations. All service companies supplying materials will review Safety Data Sheets at this meeting for all products supplied and maintain these Safety Data Sheets available for worker's examination on location in compliance with WHIMIS regulations. All Safety meetings will be recorded on the daily reports.

Whenever possible, plan and conduct all workover procedures in a manner which will avoid the mixing of air & hydrocarbons in the well bore and connected surface piping. If mixing does occur, purge prior to pressurizing or exposing mixture to any other possible source of ignition.

All applicable regulations, including, but not limited to the NWT Office of the Regulator of Oil and Gas Operations (OROGO) and Occupational Health and Safety regulations, are to be strictly adhered to. Written instructions must be posted in the doghouse or other conspicuous area prior to the wellsite supervisor leaving the lease. Wellsite supervisor must designate, in writing, a competent person to carry out principal contractor's responsibilities. All verbal notifications and approvals from government regulatory agencies will be recorded on the daily report. The name of the individual contacted, and the subject matter of approval or notification should be recorded on the same.

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**REGULATORY:**

OROGO regulations require that the Well Approval as signed by the regulator must be posted in a clearly visible location on the work site. The well approval, its additional terms, and this well abandonment program must be precisely followed. Any deviations from the program must be approved by OROGO and clearly documented on the morning report. Include the time, name of person approving changes, and the important points of the phone conversation.

**PREAMBLE:**

The M-74 well experienced a casing failure in August of 2014 that led to a surface casing vent flow that released sour gas and a mist of oil. The resulting investigation determined that certain joints of casing had a manufacturing defect, specifically the seam weld was not properly heat treated after welding. The M-74 well did not have a packer, so these seam welds were exposed to H<sub>2</sub>S gas and developed sulphide stress cracking which ultimately led to the seam welds failing.

This well was drilled the same year as M-74 and the casing came from the same manufacturer. It is possible that this well contains casing with the same manufacturing defect. As a result, additional precautions have been added to this program as a contingency if the casing has failed, or if it fails during the abandonment process. If a failure is found, contact Calgary office and OROGO as soon as possible to activate the contingency measures, or modify the program as necessary.

**ABANDONMENT PROGRAM:****Pre-Operations Notifications:**

1. Notify the Area Foreman 48 hours before operations to begin.

**Mobilize and Inspections:**

2. Mobilize to location and inspect access. Ensure that access is clear to allow two-way traffic in and out of the site.
3. Mobilize and move in a service rig with Class III BOP system, doghouse, pump and tank, mobile boiler, pressure tank with flare, and air safety hand.

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4. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on the site. Document meeting topics and prepare a site-specific ERP.
5. Disassemble the SCVF piping and ensure that it is not blocked. Re assemble the piping and install a bottle and hose type tester. Watch tester and ensure there are no bubbles in 10 minutes. Document test on daily report and on the “Surface Casing Vent Flow” form. If using a non-freezing liquid (example windshield washer fluid) for the test, document the liquid used and the density.

### **Rig up service rig**

6. Read and record shut in pressures.
7. Transfer 26 m<sup>3</sup> of water to the rig tank.
  - NOTE: Reservoir is under pressured and can be controlled with fresh water
8. Lay circulating lines from wellhead to pressure tank and to the rig tank. Stake lines and pressure test to 1400 kPa low and 21,000 kPa high for 10 minutes per test.
9. As a contingency if the casing busts during operations, lay an additional line with a check valve, and tie it into the surface casing and the pressure tank manifold. Pressure test this line to 1400 kPa low and 21,000 kPa or the rated working pressure of the surface casing vent piping. Each pressure test is 10 minutes long.
10. Pressure test the tubing to 7000 kPa or to the necessary pressure to active a HM type bridge plug setting tool. Pressure test for 10 minutes.
11. Pressure test the casing to 7000 kPa for 10 minutes.
  - NOTE: if the pressure test fails then contact Calgary office and OROGO. A modification to the program will be necessary, so rig out equipment and go to another well.
12. Stump test the BOP stack. Test the ram preventors to 1400 kPa low and 21,000 kPa high for 10 minutes each test. annular preventor to 1400 kPa low and 7000 kPa high, 10 minutes each. Review and function test the accumulator system.
13. Remove the wellhead top section. Install pup joint and stabbing valve to the tubing hanger.
14. Strip the BOP stack onto the wellhead. Pressure test the connections to 1400 kPa low and 21,000 kPa high for 10 minutes each.



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### **Recover Tubing Plug**

15. Mobilize and move on a slickline truck. Spot unit on location.
16. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on site. Document meeting topics and modify the site-specific ERP if necessary.
17. Rig up the slickline lubricator and pressure test as per slickline company policy.
18. Run in hole with a gauge ring to the tubing plug 1262 mKB. Pull out of hole with gauge ring.
19. Run in hole with tool to remove prong from FSG plug. Pull out of hole with the prong.
20. Run in hole with tool to pull the FSG plug. Pull out of hole with the plug.
21. Rig out and release slickline truck.
22. Pump down tubing with water to kill well.

### **Pull out of hole with tubing**

23. Unset packer with right hand release. Wait 15 minutes for the packer elements to relax.
  - NOTE: Packer was set with 2000 daN compression.
24. Pull out of hole with tubing. If tubing pressure test held, stand tubing in the derrick. If tubing pressure test failed, lay down tubing and move on work string.

### **Abandon Sulphur Point**

25. Run in hole with packer and 6 joints (+/- 57 meters) of tail pipe below packer.
26. Set packer at 1295 mKB. (Tail pipe at +/- 1352 mKB). Pressure test the bridge plug at 1357 mKB to 7000 kPa for 10 minutes.
27. If the pressure test holds, continue with this section. If pressure test fails contact Calgary, skip the remaining steps in this section and proceed to the “Contingency – Pressure test failed” section.

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28. Unset the packer and slowly lower tubing until the tail joint touches the bridge plug at 1357 mKB. Pull tubing up enough for next step.
29. Mix 500 L of cement in mixing barrel. Circulate cement down tubing as per attached procedure. Pull tubing out of cement plug as per attachment and reverse circulate.
30. Pull out of hole with tubing and stand in derrick.

### **Abandon Slave Point**

31. Make up and run-in hole with a 139.7mm permanent bridge plug and HM style setting tool on tubing.
32. Position the bridge plug at 1274.0 mKb. Set bridge plug as per manufacturer's procedure.
  - NOTE: A bridge plug must not be set within 5 meters of a casing collar. The casing collars are at 1269.0 and 1281.5 mKb.
33. Close pipe rams and pressure test the plug and casing to 7000 kPa for 10 minutes.
  - NOTE: If pressure test fails, the casing has most likely failed. Contact Calgary office and OROGO for permission to use the “Contingency – Casing failed” section. Continue with this section.
34. Disconnect from the bridge plug as per manufacturer's instructions.
35. Mix 500 L of cement in mixing barrel. Circulate cement down tubing as per attached procedure. Pull tubing out of cement plug as per attachment and reverse circulate.
36. Pull out of hole with tubing and stand in derrick.
37. Proceed to “Bond Log” section.

### **Contingency – Pressure test failed**

This section is only to be used if the pressure test during the “Abandon Sulphur Point” section was unsuccessful.

38. Pull out of hole with tubing and packer. Stand tubing in derrick

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39. Pump down casing and evaluate feed rate into failure / perforations. Contact cementing company to prepare cementing program.
40. Run in with tubing open ended. Land tubing just off the bridge plug at 1356.5 mKB.
41. Move on remedial cementing crew and vacuum truck.
42. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on the site. Document meeting topics and modify site specific ERP if necessary.
43. Mix cement as per cementing program.
  - NOTE: Objective is to have a final cement top at +/- 1225 mKB after squeeze.
44. Pump cement down tubing and balance in well as per cementing program.
45. Slowly pull tubing above estimated cement top and reverse circulate 2 tubing volumes of fresh water to clean up tubing.
46. Squeeze cement into formation as per cementing program. Final squeeze pressure must exceed 7 Mpa.
47. Once cement has flat lined, close in well with pressure and rig off cementers. Clean up equipment into vacuum truck and mix sugar in truck to prevent cement from setting up.
48. After cement has set up (overnight at minimum) run in with tubing and probe cement plug. Apply 1800 decanewtons to confirm top of plug. Cement plug must be above 1268 mKB. Contact Calgary and OROGO if it is not.
49. Pressure test plug and casing to 7 MPA for 10 minutes.
50. Proceed to "Bond Log" section.

### **Bond Log**

51. Mobilize and move to location a wireline unit. Spot unit on location.
52. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on site. Document meeting topics and modify the site-specific ERP if necessary.

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53. Rig in wireline lubricator and full opening valve for well control.
54. Run in radial bond tools and record a high-speed log on trip in to PBTD. Run a full radial bond log from PBTD to surface. Send completed logs to wireline company for analysis, and to OROGO and Calgary office.
55. Calgary office to advise of next steps. Depending on isolation needed, proceed to the “Ground Water Perforation”, “Contingency – Casing Failed”, or to “Rig out” section.

### **Contingency – Casing Failed**

56. Run a MIT-MTT casing inspection log from PBTD to surface. Send completed logs to wireline company for analysis, and to OROGO and Calgary office.
57. Rig out the wireline unit.
58. Proceed to “Rig out service rig” section. Calgary office will have to prepare a new program and have it approved by OROGO prior to returning to this well.

### **Ground water perforation**

59. Run in hole with a 1 meter, 86mm ERHSC perforating gun loaded with 25-gram charges at 17 shots per meter and 60-degree phasing. Correlate gun based on previous bond log. Perforating depth to be determined by Calgary office. Pull out spent guns and inspect to ensure all shots have fired.
60. Close blind rams. Pump down the casing and evaluate feed rate into the perforations. Attempt to establish circulation to surface. Contact Calgary office to confirm cementing plan. Options will be “Option 1 – Cement Retainer” or “Option 2 – Balanced Plug”.
  - NOTE: If a feed rate is not established Calgary will have to confirm further operational plans with OROGO, with potential for further up hole isolations.

61. Rig out the wireline unit.

### **Remedial Cementing Option 1 – Cement Retainer**

62. Pick up a cement retainer for 139.7mm casing and setting tool.
63. Run in hole with retainer on tubing and set as per Calgary’s direction.

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- NOTE: Check Calgary's order against the collar log from the bond log. A cement retainer must not be placed within 5 meters of a casing collar. If required, contact Calgary to adjust retainer depth.
64. Sting out of cement retainer and pressure test down casing to 7 Mpa for 10 minutes.
  65. Sting into retainer and confirm feed rates and pressures for cementing company to prepare a treatment program.
  66. Pull into neutral and pressure test tubing to 5 Mpa above the pressure established during the feed rate in previous step. Do not exceed 21 Mpa.
  67. Move on remedial cementing crew and vacuum truck.
  68. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on the site. Document meeting topics and modify site specific ERP if necessary.
  69. Mix cement as per cementing program.
  70. Pump cement down tubing and through retainer. Squeeze cement into formation / circulate to surface as per cementing program.
    - NOTE: if circulating cement to surface, do not shut-in surface casing vent until minimum 0.5 m<sup>3</sup> of cement has returned to surface.
  71. Squeeze cement to final pressure as per cementing program. If cement was circulated to surface, shut in the vent for the squeeze.
  72. Sting out of retainer and balance remaining cement on the retainer.
  73. Slowly pull out 2 joints of tubing and tie in circulating equipment. Reverse circulate excess cement out of well, leaving at least 15 lineal meters of cement on top of the retainer. Circulate minimum 2 tubing volumes of fresh water and continue circulating with fresh water until returns are clean. Direct returns to vacuum truck and mix with sugar in truck to prevent cement from setting up.
  74. Calgary will advise if there is another zone to perforate and squeeze, or if there are no further operations pending. Pull out of hole and stand tubing if there is further work. Otherwise proceed to "rig out" section

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## **Remedial Cementing Option 2 – Balanced Plug**

75. Run in hole with tubing open ended and land 16 meters below the perforations.
76. Move on remedial cementing crew and vacuum truck.
77. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on the site. Document meeting topics and modify site specific ERP if necessary.
78. Mix cement as per cementing program.
  - NOTE: Minimum cement plug volume is 1 m<sup>3</sup>
79. Pump cement down tubing and balance in well as per cementing program.
80. Slowly pull tubing above estimated cement top and reverse circulate 2 tubing volumes of fresh water to clean up tubing.
81. Squeeze cement into formation as per cementing program. Final squeeze pressure must exceed 7 Mpa.
82. Once cement has flat lined, close in well with pressure and rig off cementers. Clean up equipment into vacuum truck and mix sugar in truck to prevent cement from setting up.
83. After cement has set up (overnight at minimum) run in with tubing and probe cement plug. Apply 1800 decanewtons to confirm top of plug.
84. Pressure test plug and casing to 7 MPA for 10 minutes.
85. Calgary will advise if there is another zone to perforate and squeeze, or if there are no further operations pending. Pull out of hole and stand tubing if there is further work. Otherwise proceed to “rig out” section

## **Rig Out**

86. Circulate well over to fresh water
87. Pull tubing and lay down, stopping with 10 joints left for a final circulation to fresh water. Pull out last 10 joints but do not top up to prevent wellhead from freezing solid.
88. Remove BOP stack and re install wellhead.

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89. Rig out the service rig. Clean the rig tank and send the fluid to the next well for re use, or to the slop tank at the battery to be taken to disposal.
90. Ensure all garbage and debris has been removed from location.
91. Proceed to “Wellhead Cut and Cap” section, unless the “Contingency – casing failed” section was used. If it was, wait on further orders, do not cut and cap the well.

### **Wellhead Cut and Cap**

92. Move in waterjet cut and cap crew and equipment.
93. Hold and record a safety and procedure meeting with all personnel on location. Perform a walk around inspection to ensure no hazards on the site. Document meeting topics and prepare a site-specific ERP.
94. Install a bottle and hose type tester on the vent assembly. Watch tester and ensure there are no bubbles in 10 minutes. Document test on daily report and on the “Surface Casing Vent Flow” form. If using a non-freezing liquid (example windshield washer fluid) for the test, document the liquid used and the density.
95. Rig in the waterjet cut and cap crew. Cut and cap the well 1.5 meters below ground level following the waterjet company procedures. Take pictures of the well before the cut, with the wellhead removed, the cut surface, and the vented cap before and during instillation.
96. Backfill open excavation. Photograph the backfill.
97. Install abandoned well sign 1 meter north of the well. Sign is to meet the requirements as outlined in the attachment.
98. Release all services. Field operations are complete.

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## **Final Reporting**

99. Prepare a final downhole diagram showing the final well configuration
100. Ensure that all tickets and costs are recorded on the morning reports. If a vendor has not submitted their tickets, then put in an estimated cost.
101. Tickets are to be coded with the well name, AFE number, date, and field supervisor's signature. Ensure vendors electronically send all invoices to

**ELM Inc**  
**#1000, 205 – 5<sup>th</sup> Ave SW**  
**Calgary AB T2P 2V7**  
**AP@Elminc.ca**



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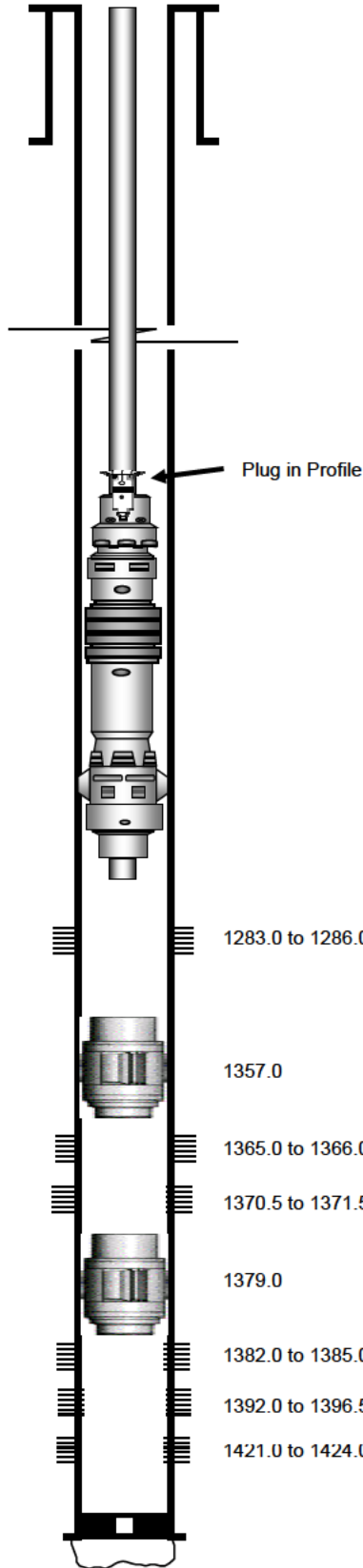
**Elm Inc. Terms of Service:**

1. The price estimate for this well is presented as a most probable cost based on similar repair operations and is to be used for AFE purposes only. This estimate is only as good as the information provided to Elm. Elm will co-ordinate and supervise the entire operation, pay all third party services and submit a final invoice based on actual costs incurred for equipment and services. Depending on the complexity of the abandonment, location and age of the well, Elm recommends adding 10-25% contingency to the estimates attached.
2. This estimate does not contain any lease clean up costs other than back filling around the wellhead after it has been cut off. If requested Elm's Reclamation Division will perform a site assessment that will be used to determine a cost estimate for surface reclamation. A preferential price to do the site assessment will be given if done in conjunction with the downhole abandonment.
3. Elm does not accept any liability for the well, lease, facility and or property it is working on. Elm acts as an independent consultant, providing mainly consulting and supervision services, with some specialized equipment included.
4. Elm will accept liability for the proper placement of bridge plugs and / or cement plugs that we set, however we do not accept liability for any unforeseen or unmentioned down hole problems. This would include failure of the casing to pressure test, collapsed casing, stuck pipe, tubing or rods, scale and or wax build up, surface casing vent flows, gas migration etc.
5. Elm does accept the responsibility of Prime Contractor for sites that have an agreement assigning the Prime Contractor Status.
6. The cost estimate included services and third party costs as listed, if other services are required they will be billed as per our cost schedule. The client will be informed of any costs to be incurred outside of this summary prior to the work being done. These services usually include: disposal costs, stuck and towing or cat work for access, rental and / or trucking of work strings, trucking of tubing, rods, and / or well heads, sour service, required safety equipment and extra charges associated working in hot or cold temperatures.

Elm's objective is to offer the safest and most efficient abandonment while saving the operator both time and money. We feel that by working with you on this project, we can achieve our goals and maintain the high level of professionalism that is reflected in the end product.

**PROPOSED WELL DIAGRAM**

ALL DEPTHS ARE mKB



<b>WELL NAME:</b>		<b>Strategic et al Cameron N-06</b>		
<b>PREPARED BY:</b>		Ken Nikiforuk	<b>DATE:</b> Mar 14, 2016	
<b>ELEVATIONS (meters):</b>		Licence #: 2067		
TD	1,450.00	KB Elev.	717.20	KB to CF
PBTD	1,347.00	Ground Elev.	712.50	KB to Ground
				4.70
<b>CASING/TUBING</b>	<b>SIZE (mm)</b>	<b>WEIGHT (Kg/m)</b>	<b>GRADE</b>	<b>DEPTHS (m)</b>
Surface	219.10	35.72	J-55	377.00
Production	139.70	20.83	J-55	1,449.00
Tubing	60.30	6.99	J-55	1,268.36

<b>BOTTOM HOLE ASSEMBLY:</b>				
ITEM	DESCRIPTION	LENGTH (m)	Top at (m KB)	
1	Wireline re-entry guides	0.12	1,268.24	
2	R nipple c/w 43.89 mm no/go	0.26	1,267.98	
3	60.3 mm pup joint	3.08	1,264.90	
4	60.3 mm x 73.0 mm crossover	0.25	1,264.65	
5	Tryton TX-8 double grip retrievable packer	2.11	1,262.54	
6	On/Off tool c/w 46.2 mm TF profile --- FSG Plug in Profile	0.55	1,261.99	
7	73.0 mm x 60.3 mm crossover	0.07	1,261.92	
8	60.3 mm pup joint	3.08	1,258.84	
9	130 joints 60.3 mm tubing	1,241.88	16.96	
10	60.3 mm pup joint	3.08	13.88	
11	60.3 mm tubing joint	9.61	4.27	
12	Dognut / Tubing hanger	0.22	4.05	
	<b>TUBING BOTTOM</b>	1,268.36		

<b>PUMP AND ROD ASSEMBLY</b>	

<b>PERFORATION INTERVALS</b>	
Sulphur Point -	1421.0 to 1424.0 mKB
Sulphur Point -	1392.0 to 1396.5 mKB
Sulphur Point -	1382.0 to 1385.0 mKB
Permanent BP - coe at	1379.0 mKB
Sulphur Point -	1370.5 to 1371.5 mKB
Sulphur Point -	1365.0 to 1366.0 mKB
Permanent BP - coe at	1357.0 mKB
Slave Point -	1283.0 to 1286.0 mKB

