

December 2, 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 J-04 Well (ACW-2021-SOG-J-04-WID 2034)**

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 J-04 well.

An inspection carried out on this well on October 12, 2022, has identified a gas migration on this well, in the form of methane and small amounts of C2+ gas in the soils on the south side of the well.

ELM has prepared a new abandonment program to address the gas migration issue in this well. The proposed procedure is to run a high-resolution noise-temperature log and a cement bond log. Based on these logs, choose a spot to perforate and cement squeeze. If the logs suggest the gas is coming from below the existing plug back, then drill out the abandonment and cement squeeze the production zone (sulphur point). Then perforate and squeeze any other potential gas sources.

ELM suggests that the wellhead cut and cap is delayed until gas migration testing can be re done on this well in the frost-free months of 2023. This would avoid having to re install a new wellhead if it was found that the gas migration had not been repaired. Currently the L-29 well requires gas migration testing in July 2023, this well can be tested at the same time. If there is to be a winter 2024 program, the well will be cut and capped then, if there is no winter program it can be cut and capped summer 2023 by a labour crew transported by helicopter.

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 J-04  
300/J04 60-10N 117-30W

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Elm Inc. Project Number: STRA050

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

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**ROUTINE ABANDONMENT PROGRAM**

**BACKGROUND:**

- Zonal abandoned vertical well
- Well produced from Sulphur Point formation
- Abandoned with Permanent Bridge Plug and 10 meters of cement
- Well filled with inhibited water (0.5% Baker Petrolite CRW 9935) and topped up with 50 liters of diesel fuel for freeze protection.
- Well has a low level gas migration

**ABSTRACT:**

- Move on wireline to run cement bond log and high-resolution noise temperature log
- If logs indicate GM could be from production zone, then drill out existing bridge plug, set cement retainer, and squeeze production zone.
- If logs indicate GM is from an up hole source, proceed to up hole perforating
- Circulate well to fresh water
- Perforate and cement squeeze as required to repair gas migration or protect ground water
- Cut and cap the well

**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 J-04  
UNIQUE ID: 300/J04 60-10N 117-30W  
SURFACE LOCATION: Lat: 60° 3' 31" Long: 117° 30' 47" (60.05877, -117.51469)  
LICENSE #: 2034  
STATUS: Suspended  
TOTAL DEPTH: 1449 mKB  
ELEVATIONS: **GL:** 764.6 m **KB:** 769.0 m  
BGWP: 600.0 mKB  
PLUG BACK: 1396 mKB (BP and 10m cement)  
H<sub>2</sub>S DATA: 2% H<sub>2</sub>S – last tested Sept 28, 2018  
SCVF: None, last tested September 16, 2022  
GAS MIGRATION: Low level GM to south of well  
SITP: 10 kPa – Inspected Sept 27, 2018  
SICP: 10 kPa – Inspected Sept 27, 2018  
RESERVOIR PRESSURE: 7396 kPa – from well test dated February 08, 2008  
MAX FLARE VOLUME: 1.5 x wellbore volume at 10 MPa = 2.8 e3m3

*Significant flare volumes are not expected during this operation*

LANDOWNER: Crown

DIRECTIONS: Refer to maps

**COMPLETION:**

Sulphur Point: 1418.0 – 1421.0 mKB (abandoned)  
 Sulphur Point: 1413.5 – 1417.0 mKB (abandoned)  
 BP and cement: 1396.0 – 1406.0 mKB

**FORMATIONS:**

<b>Formation</b>	<b>MD (m)</b>
Wabamun	551.0
Fort Simpson	717.5
Beaverhill Lake	1319.7
Slave Point	1342.8
F 4	1383.7
Watt Mountain	1389.0
Sulphur point Limestone	1394.0
Sulphur Point Dolomite	1406.7
Muskeg	1424.0
TOTAL DEPTH	1449.8

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**TUBULARS:**

**SURFACE CASING:** 219.1 mm, 35.72 kg/m, J-55, ST&C. Casing landed at 430.0 mKB. Cemented with 36.5 T 0-1-0 Class G + 2.0% CaCl<sub>2</sub>, 8 m<sup>3</sup> of Good Cement Returns.

**PRODUCTION CASING:** 139.7mm, 23.07 kg/m, J-55, ST&C. Casing landed at 1449.0 mKB. 2 stage cement job with external casing packer at 566.86 mKB and stage tool at 550.1 mKB. Stage 1 cemented with 6.0 T Thixlite + 1.0% SMS followed by 13.0 T Expandomix LWL + 1.0% CFL-3 + 0.2% LTR + 0.2% SPC-II. 2 m<sup>3</sup> Scavenger returns only. Stage 2 cemented with 11.0 T Thixlite + 1.0% SMS. No cement returns to surface.

**Cement bond log ran March 16, 2007, only ran over zones on interests, found probable cement top at 462 mKB. (CBL Interpretation attached)**

**PRODUCTION STRING:** NONE

Casing size and weight	Casing ID (mm)	Casing Drift (mm)	Casing Capacity (m <sup>3</sup> /m)	Top of Plugback	Casing Capacity to Plugback (m <sup>3</sup> )
219.1 mm 35.72 kg/m	205.66	202.49	0.033221	N/A	N/A
139.7mm 23.07 kg/m	125.73	122.56	0.012416	1396 mKB	17.34

NOTE: Encountered significant lost circulation issues while drilling, first being encountered in the Wabamun formation. Despite using lost circulation materials and balancing several cement plugs and re drilling, the lost circulation issues were never fully solved.

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## **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 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

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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.

### **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.

### **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 wireline mast unit, mobile boiler, and pressure tank with flare.
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.

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## Run Logs

6. Read and record shut in pressures. If necessary, rig in the pressure tank, stake circulating lines, pressure test each to 1400 kPa low and 21,000 kPa high, and bleed pressure through pressure tank and to flare stack.
7. Rig up the wireline unit with lubricator and bench tested valve for well control.
8. Run in with the high-resolution noise – temperature tool. Pull log from PBTD to surface, taking a 30 second recording every 5 meters. Send completed logs to wireline company for analysis, and to OROGO and Calgary office.
  - NOTE: wireline company may recommend a change to this step. Contact Calgary and OROGO if a change is necessary.
9. Run in with 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.
10. Rig out the wireline unit and all services.
11. Calgary office will review the log and determine which of the next options will be taken.
  - OPTION 1: Gas migration appears to be from production zone
    - i. Mobilize service rig to well
    - ii. Drill out the existing PBP
    - iii. Set a cement retainer and squeeze the production zone
    - iv. Perforate and squeeze up-hole as required
  - OPTION 2: Gas migration appears to be from an up-hole source
    - i. Mobilize service rig to well
    - ii. Circulate out inhibited fluids
    - iii. Perforate and squeeze up-hole as required

Each step above corresponds to a section of program below. Use the appropriate sections to carry out the work as directed by Calgary. Any change in scope must be pre-approved by Calgary and OROGO.

### Mobilize service rig to well

12. Mobilize and move in a service rig with Class III BOP system, doghouse, pump and tank, mobile boiler, pressure tank with flare, work string with +/- 1500 meters of 73mm tubing, and air safety hand.



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13. 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.
14. Transfer minimum 26 m<sup>3</sup> of fresh water to rig tank.
  - NOTE: Formations are under pressured, fresh water will be adequate for well kills. Ensure 1.5 times hole volume is on location for well kill.
15. Lay circulating lines from wellhead to pressure tank and to the rig tank. Stake lines and pressure test to 1.4 mPa low and 21 Mpa high for 10 minutes per test.
16. Bleed off any well pressure to the pressure tank and flare.
17. Stump test the BOP stack. Test the ram preventors to 1400 kPa low and 21,000 kPa high for 10 minutes each. Test the annular preventor to 1400 kPa low and 7000 kPa high, 10 minutes each. Review and function test the accumulator system.
18. Break down the wellhead, if necessary, install a landing pup and stabbing valve, then install the BOP stack. Pressure test the connections to 1.4 mPa low and 21 Mpa high for 10 minutes per test.

### **Drill out the existing PBP**

19. Pressure test the wellbore as is to 7 Mpa for 10 minutes. Contact Calgary if wellbore does not pressure test.
20. Mix H<sub>2</sub>S scavenger in rig tank as per manufacturers recommendations.
21. Move on tool company representative with tools to make up drilling assembly.
22. Make up and run in with the drilling assembly. Trip in slowly for the last 2 joints until PBTB is felt at +/- 1396.0 mKB
23. Rig in the power swivel and the rig's circulating equipment. Begin drilling on the cement and plug using scavenged water as the drilling fluid.
24. Exercise extreme caution while drilling through the bridge plug. Monitor for any signs of a kick.
  - NOTE: Formation pressure is 7.4 Mpa. With well full of water the pressure is overbalanced.

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25. Once through the plug, push the remaining debris to below the bottom of the perforations at 1418 mKb.
26. Rig out the power swivel. Pull out the tubing and stand, lay down the drilling assembly.
27. Proceed to “Set a cement retainer and squeeze production zone” section

**Set a cement retainer and squeeze production zone**

28. Pickup a cement retainer and setting tool for 139.7 mm casing.
29. Run in hole with retainer on 73 mm tubing.
30. Set cement retainer at 1404 mKb. Use setting procedure provided by tool company.
  - NOTE: A cement retainer may not be placed within 5 meters of a casing collar. The casing collars on this well are at 1397.5 and 1410 mKb.
31. Sting out of the retainer and pressure test down casing to 7 Mpa for 10 minutes.
32. Sting into retainer and confirm feed rates and pressures for cementing company to prepare a treatment program.
33. Pull into neutral and pressure test the tubing to 5 Mpa above the pressure established during the feed rate in the previous step. Do not exceed 21 Mpa.
34. Move on remedial cementing crew and vacuum truck.
35. 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.
36. Mix cement as per cementing program.
37. Pump cement down tubing and through retainer. Squeeze cement into formation as per cementing program.
38. Squeeze cement to final pressure as per cementing program.
39. Sting out of retainer and balance remaining cement on the retainer.
40. 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

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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.

41. Pull tubing out of well and stand enough in well for next operation. Proceed to the “Remedial Perforation” section.

### **Circulate out inhibited fluids (only used if GM is from up hole source)**

42. Pick up tubing off trailer and run-in hole open ended. Find PBTD at +/- 1396 mKb, then pull up 1 meter.
43. Forward circulate well over to fresh water, over displace by 2 m<sup>3</sup> to ensure that well is all fresh water.
44. Pull out of hole with tubing. Stand enough tubing for next operations, lay down remaining tubing.
45. Close in blind rams. Pressure test the well to 7 Mpa for 10 minutes. Bleed off pressure and open the blind rams.
46. Proceed to the “Remedial Perforation” section.

### **Remedial perforation**

47. Move on wireline unit.
48. 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.
49. Rig in wireline lubricator and full opening valve for well control.
50. 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 gun and inspect to ensure all shots have fired.
51. 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”.

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- 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.

52. Rig out the wireline unit.

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

53. Pick up a cement retainer for 139.7mm casing and setting tool.

54. Run in hole with retainer on 73 mm tubing and set as per Calgary's direction.

- 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.

55. Sting out of cement retainer and pressure test down casing to 7 Mpa for 10 minutes.

56. Sting into retainer and confirm feed rates and pressures for cementing company to prepare a treatment program.

57. Pull into neutral and pressure test tubing to 5 Mpa above the pressure established during the feed rate. Do not exceed 21 Mpa.

58. Move on remedial cementing crew and vacuum truck.

59. 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.

60. Mix cement as per cementing program.

61. 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.

62. Squeeze cement to final pressure as per cementing program. If cement was circulated to surface, shut in the vent for the squeeze.

63. Sting out of retainer and balance remaining cement on the retainer.

64. 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

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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.

65. Pull tubing and lay down, stopping with 5 joints left for a final circulation to fresh water. Pull out last 5 joints but do not top up to prevent wellhead from freezing solid.
66. Depending on the log analysis and the previous cementing operations, Calgary may order another zone to be perforated. If so, return to the “Remedial Perforation” section and contact OROGO for permission to proceed.
67. Remove BOP stack and re install wellhead.
68. Rig out the service rig. Clean the rig tank and take to slop tank at battery, or to the next site to be used as kill fluid.
69. Ensure location is cleaned of all garbage and debris.
70. Proceed to “Wellhead cut and cap” section.

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

71. Run in hole with tubing open ended and land 16 meters below the perforations.
72. Move on remedial cementing crew and vacuum truck.
73. 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.
74. Mix cement as per cementing program.
  - NOTE: Minimum cement plug volume is 1 m<sup>3</sup>
75. Pump cement down tubing and balance in well as per cementing program.
76. Slowly pull tubing above estimated cement top and reverse circulate 2 tubing volumes of fresh water to clean up tubing.
77. Squeeze cement into formation as per cementing program. Final squeeze pressure must exceed 7 Mpa.
78. 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.

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79. After cement has set up (overnight at minimum) run in with tubing and probe cement plug. Apply 1800 decanewtons to confirm top of plug.
80. Pressure test plug and casing to 7 MPA for 10 minutes.
81. Pull tubing and lay down, stopping with 5 joints left for a final circulation to fresh water. Pull out last 5 joints but do not top up to prevent wellhead from freezing solid.
82. Depending on the log analysis and the previous cementing operations, Calgary may order another zone to be perforated. If so, return to the “Remedial Perforation” section and contact OROGO for permission to proceed.
83. Remove BOP stack and re install wellhead.
84. Rig out the service rig. Clean the rig tank and take to slop tank at battery, or to the next site to be used as kill fluid.
85. Ensure location is cleaned of all garbage and debris.
86. Proceed to “Wellhead cut and cap” section.

### **Wellhead Cut and Cap**

87. Move in waterjet cut and cap crew and equipment.
88. 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.
89. 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.
90. 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.
91. Backfill open excavation. Photograph the backfill.
92. Install abandoned well sign 1 meter north of the well. Sign is to meet the requirements as outlined in the attachment.

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93. Release all services. Field operations are complete.

### **Final Reporting**

94. Prepare a final downhole diagram showing the final well configuration

95. 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.

96. Tickets are to be coded with the well name, AFE number, date, and field supervisor's signature. Ensure vendors 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.





Schematic - Current

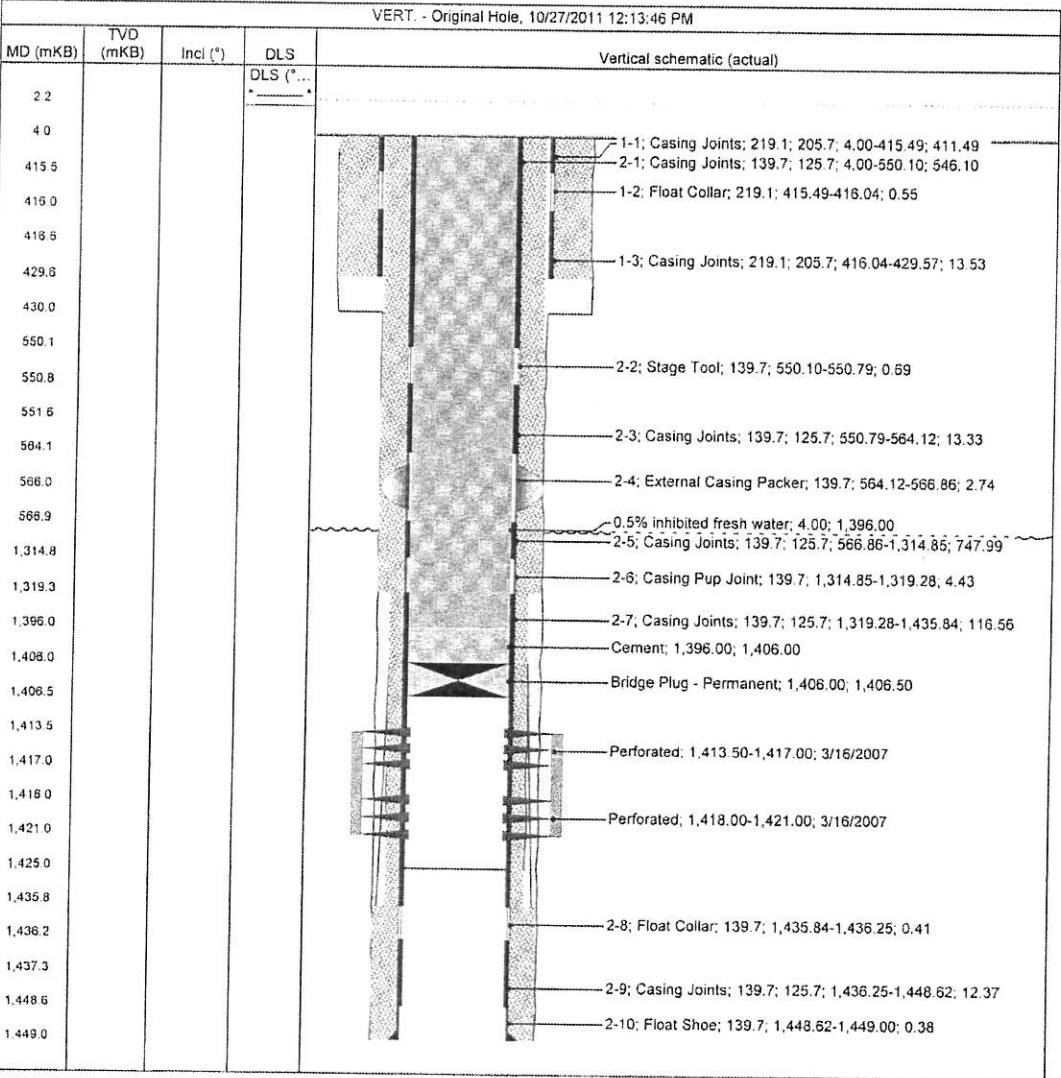
**Paramount**  
resources Ltd.

Well Name: PARA ET AL CAMERON J-04

API/URN 300J046010117300	Surface Legal Location 60 331.3" 117 3047 8"	License # 1159	Field Name Cameron Hills	State/Province N.W.T
Well Configuration Type VERT.	Original RB Elevation (m) 769.20	RB-Ground Distance (m) 4.00	RB-Casing Flange Distance (m) 4.00	KB-Tubing Head Distance (m) 3.50

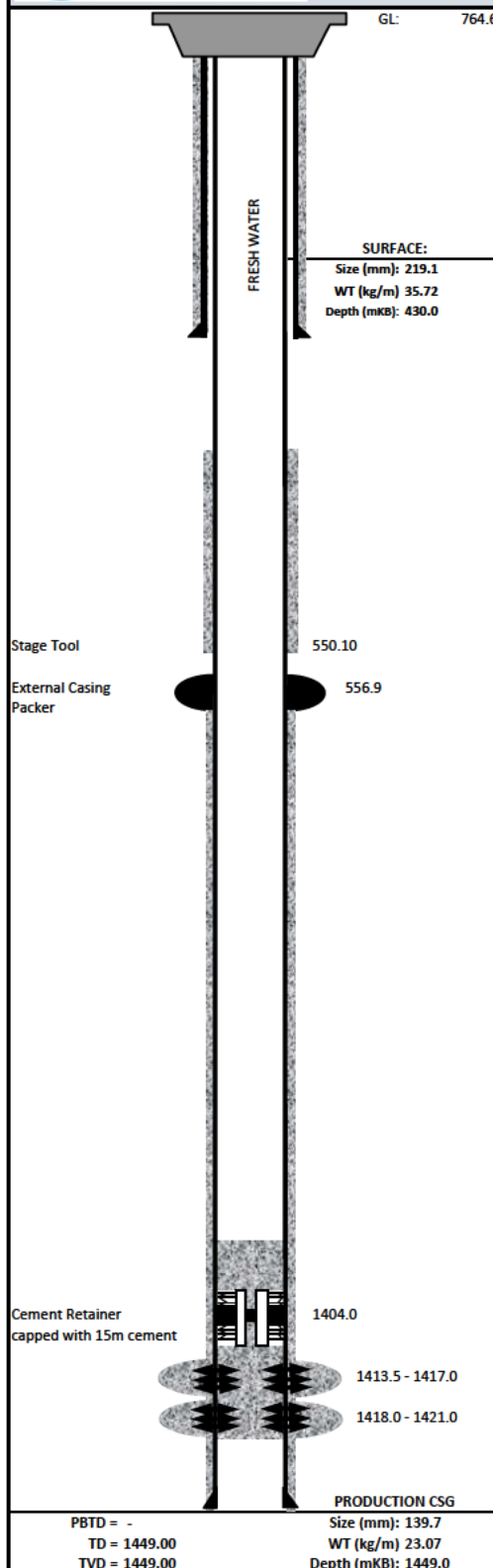
Most Recent Job				
Job Category Abandon	Primary Job Type Abandon Well	Secondary Job Type Suspend well	Start Date 1/25/2011	End Date 1/28/2011

TD: 1,449.00





PROPOSED WELL DIAGRAM



GENERAL DETAILS				REV # 1.0			
WELL NAME: Strategic et al Cameron J-04		FIELD: Cameron Hills					
UWI: 300/J04 60-10N 117-30W		LICENSE: 2034					
SURFACE:		LATITUDE: 60.05877		LONGITUDE: -117.51469			
COMPANY: Strategic Oil And Gas Ltd		DRAWN BY: C. Gagnon		DATE: 01 Dec 2022			
DEVIATION: Vertical		WELL STATUS: Abandoned					
ELEVATIONS & DEPTHS							
KB (mKB)	GL (m)	KB-SCF (m)	KB-GR (m)	BGWP (mKB)	PBTD (mKB)	TD (mKB)	TVD (mKB)
769	764.6		4.40	600.00		1449	1449
CASING STRINGS							
STRING	SIZE (mm)	WEIGHT (kg/m)	GRADE	CPLG	DRIFT I.D. (mm)	SHOE DEPTH (mKB)	
Surface:	219.1	35.72	J-55			430	
Intermediate:							
Production:	139.7	23.07	J-55			1449	
Liner:							
Open Hole:							
CEMENTING							
STRING	DETAIL			Returns (m <sup>3</sup> )	Log Cmt Top (mKB)	Calc'd Top (mKB)	
Surface:	36 T 0-1-0 Class G + 2% CaCl <sub>2</sub>			8 m <sup>3</sup>			
Intermediate:	Stage 1: 6.0 T Thixlite + 1% SMS + 13T Expandomix LWL + 1% CFL-3 + 0.2% LTR + 0.2% SPC-II Stage 2: 11.0 T Thixlite + 1% SMS						
COMPLETION DATA							
ITEM		DEPTH (mKB)		STATUS			
Stage Tool		550.1					
External Casing Packer (between casing and formation)		566.86					
Cement Retainer capped with 15 meters cement		1389 - 1404					
<i>Cement squeeze volume to be determined</i>							
Sulphur Point Perforations - cement squeezed		1413.5 - 1417.0		Abandoned			
Sulphur Point Perforations - cement squeezed		1418.0 - 1421.0		Abandoned			
LANDOWNER		LANDOWNER #		OCCUPANT		OCCUPANT #	
DIRECTIONS:				Sign Off			

REMARKS:  
 Diagram does not include potential perforations and cement squeezes to isolate porosity / repair uphole gas migration sources.  
 Further perforations and squeezes to be determined based on logs that will be ran during abandonment operations.