

December 12th, 2022

Office of the Regulator of Oil and Gas Operations
PO Box 1320
Yellowknife NT, X1A 2L9

By Email: orogo@gov.nt.ca

RE: Abandonment of the Cameron L-29 Well (ACW-2021-SOG-L-29-WID 2041)

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 L-29 well.

ELM requests to use a new program to carry out the abandonment of this well. The program fundamentally remains the same, with the changes summarized below.

1. Change the order of operations. We propose to run the cement bond log before drilling out the cement on top of the WR plug. This will allow sufficient time to have the log analyzed and a plan in place for any remedial work that is needed before moving to location with the service rig. This will reduce time spent waiting on a plan to be prepared and optimize operations by planning out cementing work on multiple wells at a time.
2. Include contingency plans for multiple methods of remedial cementing. The existing abandonment program only had a process for remedial cementing with a cement retainer. The new program has processes for remedial cementing using both a cement retainer and a balanced plug (braidenhead squeeze). This allows for operational flexibility when carrying out remedial work.
3. Remove references to specific vendors. The existing abandonment program references using a specific vendor for cut and cap operations. As part of the project, ELM is implementing a competitive bidding process to choose vendors to carry out the work.
4. Changes for ELM to carry out program. Phone numbers, invoicing instructions, references to ELM specific documents, ect.

Furthermore, OROGO requires that this well undergo gas migration testing in July and September of 2023 to ensure that there is no gas migration. ELM requests that the cut and cap of this well be delayed until after that testing, as this would avoid having to reinstall a wellhead should a gas migration be



ELM Inc
Bow Valley Square II
Suite 1000, 205 – 5th Ave SW
Calgary AB, T2P 2V7

found. If there is a winter 2024 program, the well can be cut and capped then. If not, the well can be cut and capped after the gas migration testing by a labour crew transported by helicopter.

Should you have any questions or require further information, please contact the undersigned at christopher@elminc.ca

Sincerely,

Christopher Gagnon, EIT

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



ELM
Environmental Liability Management

Routine Well Abandonment Program

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

STRATEGIC ET AL CAMERON L-29
300/L29 60-10N 117-30W

Elm Inc. Project Number: STRA050

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

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ROUTINE ABANDONMENT PROGRAM

BACKGROUND:

- Suspended gas well
- Well completed in the Sulphur Point Limestone and Dolomite formations
- Suspended with a retrievable bridge plug capped with “Chicken Grit” and cement on top.
- Well filled with fresh water mixed with BJ Techni-Hib 606W at 5000 ppm

ABSTRACT:

- Move on wireline to run cement bond log
- Move on service rig to drill cement off WR plug
- Set permanent bridge plug and circulate cement in place
- Circulate well to fresh water
- Perforate and cement squeeze as required to isolate porosity
- Cut and cap the well

CONTACTS:

Elm Inc. Calgary Office

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

Elm Inc. Field Staff

Elm Inc. Field Staff		
To be determined	To be determined	To be determined

Client Contact

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

Regulator Contact

Regulator Contact		
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 L-29
UNIQUE ID: 300/L29 60-10N 117-30W
SURFACE LOCATION: 60.144993, -117.594502
LICENSE #: 2041
STATUS: Suspended
TOTAL DEPTH: 1515 mKB
ELEVATIONS: **GL:** 754.11 m **KB:** 759.51 m
BGWP: 600.0 mKB
PLUG BACK: 1387 mKB (Cement on top of “Grit” and WR plug)
H₂S DATA: No gas analysis, or reports during completion. Assume worst case of 2%
SCVF: None, last tested September 17, 2022
GAS MIGRATION: None, G-Chem Inspection September 17, 2022 found no evidence of Gas Migration
SITP: 0 kPa
SICP: 9 kPa
RESERVOIR PRESSURE: Not measured. Assume worst case 10 MPa
MAX FLARE VOLUME: 1.5 x wellbore volume at 10 MPa = 2.58 e3m³
Significant flare volumes are not expected during this operation

LANDOWNER: Crown

DIRECTIONS:

Refer to maps

COMPLETION:

Sulphur Point Dolomite: 1423.0 – 1426.5 mKB (suspended)
 Sulphur Point Dolomite: 1418.5 – 1420.5 mKB (suspended)
 Permanent Bridge Plug: 1418 mKB
 Sulphur Point Limestone: 1412.5 – 1414.0 mKB (suspended)
 Sulphur Point Limestone: 1409.5 – 1410.5 mKB (suspended)
 Weatherford WR Bridge Plug: 1402 mKB
 “Chicken Grit” (CaCO₃ sand), 5 meters: 1397 – 1402 mKB
 Class G Cement, 10 meters: 1387 – 1397 mKB

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FORMATIONS:

Formation	MD (m)
Wabamun	530.5
Fort Simpson	733.5
Beaverhill Lake	1333.0
Slave Point	1356.5
F 4	1397.0
Watt Mountain	1408.5
Sulphur point Limestone	1410.0
Sulphur Point Dolomite	1419.5
Muskeg	1432.5
TOTAL DEPTH	1515.0

TUBULARS:

SURFACE CASING: 219.1 mm, 35.72 kg/m, J-55, ST&C. Casing landed at 435 mKB. Cemented with 31 T 0-1-0 Class G + 1.5% CaCl₂, **5 m³ cement Returns**

PRODUCTION CASING: 139.7mm, 23.07 kg/m, J-55, LT&C
 Casing landed at 1515 mKB
 Cemented with 21.0 T Thixlite + 1% SMS and 12.5 T Expandomix LWL + 0.1% CFL-3 + 0.2% LTR + 0.2% LTR + 0.2% SPC-II
No cement returns to surface.
Cement bond log was run in 1991 – Questionable bond over certain parts of well, will pull new log.

PRODUCTION STRING: NONE

Casing size and weight	Casing ID (mm)	Casing Drift (mm)	Casing Capacity (m3/m)	Top of Plugback	Casing Capacity to Plugback (m3)
219.1 mm 35.72 kg/m	205.66	202.49	0.033221	N/A	N/A
139.7mm 23.07kg/m	125.73	122.56	0.012416	1387	17.22

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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

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 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.
9. Rig out the wireline unit and all services.
10. Calgary office will review the logs and determine if any remedial work is necessary.

Drill cement off the WR plug

11. Mobilize and move in a double 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.
12. 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.
13. Transfer minimum 10 m³ of water to rig tank. Mix H₂S scavenger into the water as per the manufacturer's directions.
 - NOTE: Formations are under pressured, water will be adequate for well kills. Ensure 1.5 times hole volume is on location for well kill. Well is currently full.
14. 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.
15. Bleed off any well pressure to the pressure tank and flare.
16. Stump test the BOP. Test the ram preventors 1.4 Mpa low and 21 Mpa high for 10 minutes per test. Test the annular preventor to 1.4 Mpa low and 7 Mpa high, 10 minutes per test. Review and function test all components and the accumulator system.

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17. Break down the wellhead, if necessary, install a landing pup and stabbing valve, then strip on the BOP stack. Pressure test the connections to 1.4 mPa low and 21 Mpa high for 10 minutes per test.
18. Pressure test the wellbore as is to 7 MPA for 10 minutes. Contact Calgary office if wellbore does not pressure test.
19. Move on tool company representative with tools to make up the drilling assembly.
20. Make up and run in the hole with the drilling assembly. Trip in slowly for the last 2 joints until PBTD is felt at +/- 1387 mKb.
21. Rig in the power swivel and the rig's circulating equipment. Begin drilling on the cement, using scavenged water as the drilling fluid. Monitor returns while drilling.
22. Exercise extreme caution once through the cement. Continue drilling through the "Chicken Grit" to 1401 mKB. If there is any indication that you are drilling on the fish neck of the WR Plug, stop immediately.
23. Circulate all debris out of well by circulating a hole volume.
24. Pull out of hole with drilling assembly. Stand tubing in the derrick, lay down drilling assembly.
25. Pressure test wellbore to 7 MPA for 10 minutes. Contact Calgary office if wellbore does not pressure test.

Abandon Production Zone with Permanent Bridge Plug

26. Pick up 10K 139.7mm HM type permanent bridge plug and setting tool. Run in hole with plug.
27. Set plug at 1400 mKb. Use setting procedure provided by the tool company.
 - NOTE: A bridge plug must not be set within 5 meters of a casing collar. The collars are at 1394.5 mKb and 1408.0 mKb.
28. Fill annulus with fresh water. Close pipe rams and pressure test the bridge plug to 7000 kPa for 10 minutes.
29. Rotate off the bridge plug as per tool company procedure.
30. Mix 500L of cement in barrel. Circulate cement down tubing using attached procedure. Pull tubing above cement as per attached procedure.

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31. Establish circulation with fresh water. Circulate well over to fresh water with a hole volume (17.7 m³)
32. Pull out of hole with tubing. Stand enough tubing for next operations, lay down remaining tubing.

Remedial Perforation (as required by Calgary)

33. Move on wireline unit.
34. 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.
35. Rig in wireline lubricator and full opening valve for well control.
36. 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.
 - NOTE: Wireline company to confirm availability of perforating gun. Contact Calgary and OROGO if substituting for another perforating gun.
37. 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 “Remedial Cementing Option 1 – Cement Retainer” or “Remedial Cementing 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.
38. Rig out the wireline unit.

Remedial Cementing Option 1 – Cement Retainer

39. Pick up a cement retainer for 139.7mm casing and setting tool.
40. 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.

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41. Sting out of cement retainer and pressure test down casing to 7 Mpa for 10 minutes.
42. Sting into retainer and confirm feed rates and pressures for cementing company to prepare a treatment program.
43. 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.
44. Move on remedial cementing crew and vacuum truck.
45. 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.
46. Mix cement as per cementing program.
47. 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 m³ of cement has returned to surface.
48. Squeeze cement to final pressure as per cementing program. If cement was circulated to surface, shut in the vent for the squeeze.
49. Sting out of retainer and balance remaining cement on the retainer.
50. 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.
51. Pull out tubing to recover stinger. Stand enough tubing in the derrick for the next operation.
52. Calgary office and OROGO to determine if another perforation and cement squeeze is required. If so, go back to the “Remedial Perforation” section. If not, go to the “Rig out the service rig” section.

Remedial Cementing Option 2 – Balanced Plug

53. Run in hole with tubing open ended and land 16 meters below the perforations.

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54. Move on remedial cementing crew and vacuum truck.
55. 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.
56. Mix cement as per cementing program.
 - NOTE: Minimum cement plug volume is 1 m³
57. Pump cement down tubing and balance in well as per cementing program.
58. Slowly pull tubing above estimated cement top and reverse circulate 2 tubing volumes of fresh water to clean up tubing.
59. Squeeze cement into formation as per cementing program. Final squeeze pressure must exceed 7 Mpa.
60. 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.
61. After cement has set up (overnight at minimum) run in with tubing and probe cement plug. Apply 1800 decanewtons to confirm top of plug.
62. Pressure test plug and casing to 7 MPA for 10 minutes.
63. Pull tubing and stand enough in derrick for next operation.
64. Calgary office and OROGO to determine if another perforation and cement squeeze is required. If so, go back to the “Remedial Perforation” section. If not, go to the “Rig out the service rig” section.

Rig out the service rig

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. Remove BOP stack and re install wellhead.
67. Rig out the service rig. Clean the rig tank and take to slop tank at battery or to next location to use as kill fluid.
68. Ensure location is cleaned of all garbage and debris.

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69. Proceed to “Wellhead cut and cap” section.

Wellhead Cut and Cap

70. Move in waterjet cut and cap crew and equipment.
71. 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.
72. 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.
73. 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.
74. Backfill open excavation. Photograph the backfill.
75. Install abandoned well sign 1 meter north of the well. Sign is to meet the requirements as outlined in the attachment.
76. Release all services. Field operations are complete.

Final Reporting

77. Prepare a final downhole diagram showing the final well configuration
78. 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.
79. 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
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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.

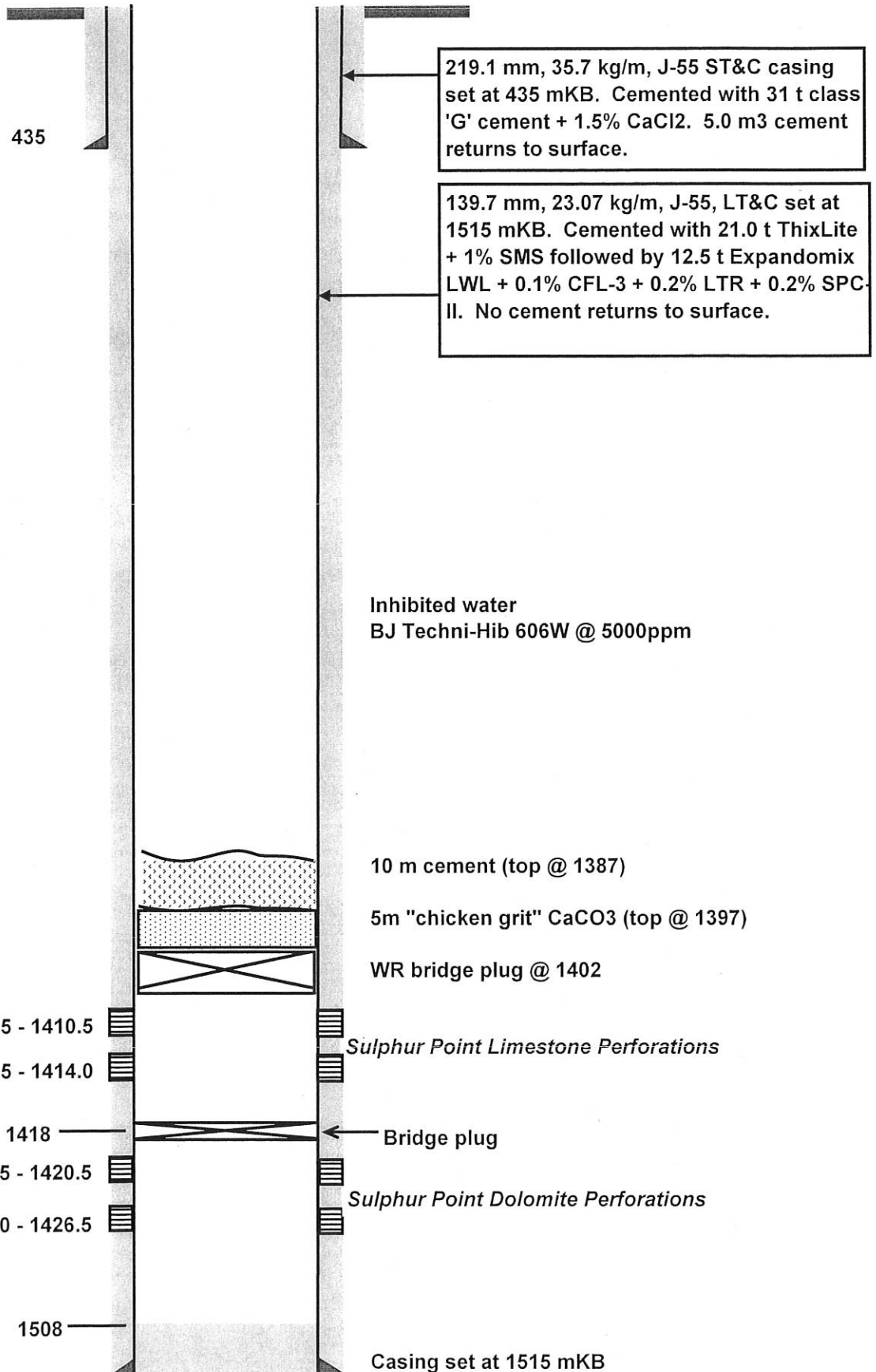
Elm's objective is to offer the safest and most efficient abandonment while saving the operator both time and money. We feel that by working with you on this project, we can achieve our goals and maintain the high level of professionalism that is reflected in the end product.

PARA ET AL CAMERON L-29

60° 10' N, 117° 30' W WID: 2041

As suspended 20100305

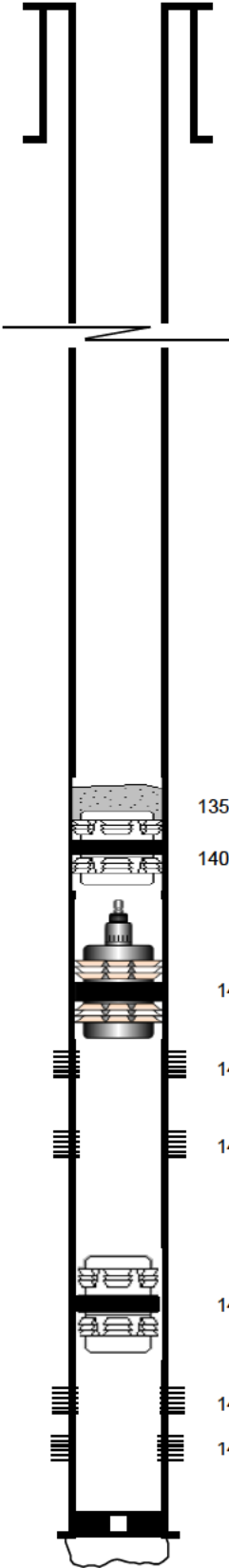
KB: 759.51 m
GL: 754.11 m



Total Depth = 1515

PROPOSED WELL DIAGRAM

ALL DEPTHS ARE mKB



WELL NAME:		Strategic et al Cameron L-29		
PREPARED BY:		Christopher Gagnon, ELM Inc	DATE: December 12, 2022	
ELEVATIONS (meters):			Licence #: 2041	
TD	1,535.00	KB Elev.	759.50	KB to CF
PBTD	1,387.00	Ground Elev.	754.10	KB to Ground
				5.40
CASING/TUBING	SIZE (mm)	WEIGHT (Kg/m)	GRADE	DEPTHS (m)
Surface	219.10	35.72	J-55	435.00
Production	139.70	20.83	J-55	1,515.00

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 Dolomite - 1423.0 to 1426.5 mKB and 1418.5 to 1420.5 mKB		
	Bridge Plug coe at 1418.0 mKB		
	Sulphur Point Limestone - 1412.5 to 1414.0 mKB and 1409.5 to 1410.5 mKB		
	WR plug - coe at 1402.0 mKB		
	Permanent BP and cement - 1359.7 to 1400.0 mKB		

NOTE: Diagram does not include potential perforations and cement squeezes that may be required to isolate porosity