



Canadian Petroleum Engineering Inc.

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February 9, 2023

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

**Re: Application for a Well Authorization to Alter the Condition of a Well (ACW)
Aurora College Training Well G-04 (WID1915) Abandonment
File Number OA-2022-001-AC**

Dear Ms. de Jong:

Canadian Petroleum Engineering on behalf of Aurora College is submitting an application for a well approval to Alter the Condition of a Well for the above noted well.

The training well is located in the town of Inuvik. The well was drilled in 2001 to a total depth of 401m. Casing was run and cemented full length. The well was never completed and the casing never perforated. A wellhead was installed on the surface casing bowl and the well was suspended.

CPE is submitting this document to OROGO to obtain a well approval from the regulator to proceed with the surface abandonment. The document describes the current well status, provides a drilling summary and an operations plan for the abandonment of the well. The OROGO Application Guidelines and Interpretation Notes –Well Suspensions and Abandonments were used to prepare the abandonment program. Aurora College is seeking a Well Authorization approval to complete the surface abandonment of this well at the end of March 2023.

We trust the information provided in this package will meet the requirements of the ACW. Should any additional information be required please do not hesitate to contact me directly.

Sincerely

Lorne Hammer
Director
Canadian Petroleum Engineering

APPROVAL TO ALTER THE CONDITION OF A WELL

This form is an application for a Well Approval under Section 10 of the *Oil and Gas Drilling and Production Regulations*.

INSTRUCTIONS:

1. Complete both pages.
2. Send one electronic copy of this form and supporting technical documentation by email to orogo@gov.nt.ca. If you wish to communicate with OROGO in hard copy, please do so using the courier address found at www.orogo.gov.nt.ca.

WELL INFORMATION

Well Name	Aurora College Training Well G-04	Operator	Aurora College
Well Type	Other (if Other, specify _____ Training_____)	Contractor	Akita Equatak

RELATED LICENCES, PERMITS, AND AUTHORIZATIONS

Operating Licence No.	NWT OL 2014-019	Operations Authorization	_____
PRA Licence No.	Other <input type="checkbox"/>	Station Keeping Land Structure	Not Applicable Conventional Land
Land Use Permit No.	n/a	Issued by:	Select
Water Licence No.	n/a	Issued by:	Select

ACTIVITY INFORMATION

Current Well Status	Suspended	Anticipated Well Status	Abandoned
Well Path	Vertical	Elevation KB/RT	25.3 m
Approximate Start Date	2023/03/27	Ground Level / Seafloor	20.21 m
Est. Days on Location	3 days	Anticipated Total Depth	401 m KB

WELL OPERATION PROGRAM

Activity Type	Top to Bottom Interval (m KB)	Comments
Abandonment	-	Surface cut and cap program
Select	-	
Select	-	
Select	-	

Additional Information

The surface abandonment of the well will begin at the beginning of the last week of March, 2023. All of the abandonment operation will be completed during that week.

The first step in the abandonment to occur will be moving in an E-log truck and running a cement valuation log to determine the quality of cement and casing. It is anticipated that good cement will be present in the well as all casing strings were cemented full length once run and good cement returns at surface were observed while cementing each casing string.

Following the e-logging, a pressure truck will go to the location and the production casing will be pressure tested as per OROGO's Well Suspension and Abandonment Guidelines and Interpretation Notes. This will require the casing to be pressured up to 7000 kPa and held for 10 minutes with less than 10% leak off.

Cut and Cap:

A bulldozer and an excavator will be used to excavate around the casing to a depth of about two meters below ground level to provide access for cutting off the casing strings. The conductor casing, surface casing and production casing will be cut by a certified welder. Once the casing is cut, the wellhead and cut of casing will be removed using either the excavator or a picker truck. A vented cap will then be installed, and the cellar backfilled using the material on site that was previously excavated. The vented cap is installed onto the well to prevent any pressure from building up inside the well and to restrict access to the casings.

OROGO cut and cap requirements as referred to in the Well Suspension and Abandonment Guidelines and Interpretation Notes will be adhered to.

Signage Installation:

After completing the cut and cap, the abandoned well will be marked with a durable post and sign in accordance with OROGO's Well Suspension and Abandonment Guidelines and Interpretation Notes. The post will be installed 1 meter directly North of the abandoned well and is typically cemented in the ground. The sign will be installed at a 45-degree angle from the post. Scope of Work

"I certify that the information provided on this form is true and correct"

Name	<u>Jonathon Michel</u>	Phone	<u>(867) 777 Ext 7878</u>
Title	<u>Head Administyrator</u>	E-Mail	<u>jmichel@auroracollege.nt.ca</u>
Operator	<u>Aurora College</u>		
Signature	<u><i>for Jonathon Michel</i></u> Responsible Officer of Company	Date	<u>2023/02/10</u>

Application for Approval to Alter the Condition of a Well

Aurora College G-04 Training Well – Abandonment Project

Application OA 2022-001-AC

Detailed Well History

Aurora College drilled a Training Well G-04 to provide a training facility in the town site of Inuvik that would be used for training of Northwest Territories residents in safe oilfield practices. Stakeholders from Inuvik, PITS, CAPP, Aurora College and Akita Drilling were in support of the test well. Aurora College approached stakeholders in the oil and gas industry and government and received wholehearted support from all groups.

The well was drilled on a site located within the town boundaries of Inuvik on Lot # 1001, Quad The 400 meter well was spudded on July 30, 2001 and was completed on August 4, 2001. The drilling contractor was Akita Equatak based out of Inuvik. Akita Equatak was a joint venture between the Inuvialuit Regional Corporation and Akita Drilling Ltd. The drilling rig used was Akita Rig # 15, the rig was rated to drill to 2000 meters.

107 Bn LTO 1227. The lot was leased to Aurora College for a ten (10) year period by the Municipal Corporation of the town of Inuvik for the training facility.

Akita Rig #15 was moved onto the location on 07/29/01 following the setting of a 406 mm refrigerated conductor to a depth of 16 meters. The conductor casing was cemented with good mud and cement returns throughout the job with cement to surface. The diverter was nipped up and pressure tested, as was the remainder of the well control equipment.

The refrigeration unit was run continuously until the 244 mm permafrost casing was set at 155 meters. No evidence of permafrost was seen, and the mud cooler was not run for the main section of the well.

The conductor shoe was drilled out with a 311 mm bit and the 311 mm surface hole was control drilled to 155 meters at a penetration rate of 15 m/hr. The permafrost protection string made up of 11 joints of Siderco 244 mm, 71.62 kg/m, DST 80 LT, BT&C casing was run to 155 meters and cemented with 13 tonnes of permafrost cement. The casing was rotated and reciprocated during cementing and good cement returns, approximately 0.5 m³, were circulated out at surface. The plug was bumped with 3000 kPa and the pressure held. The plug was down at 0522 on 8/1/01.

The BOP's were installed and the annular preventor pressure tested to 1400 and 10,000 kPa. The pipe rams, HCR, Choke manifold, kelly cock, stabbing valve, and kill lines were all tested to 1400 kPa and 10,000 kPa high. All equipment tested with no bleed off seen.

The float collar and shoe were drilled out on 8/1/2001. A formation leak off test was not done due to the soft formation and 18 kPa/m was used for all well control calculations. The 216 mm hole was drilled from 155 meters to 340 meters without incident. At 340' meters, the penetration rate slowed from 10 meters/hr to approximately 5 to 6 meters /hr. Bit # 2 was tripped out at 349 meters and Bit # 3 run in. Bit # 3 drilled from 349 meters to 401 meters at 5.1 m/hr.

After total depth was reached at 401 meters, Schlumberger logged the open hole. One log run was made, and the following logs obtained from 401 m to 155 m: Temperature Log, Platform Express Array. Induction - SP, Platform Express Compensated Neutron- LithoDensity, and a caliper-cement volume log.

Following the log run, a wiper trip was made in preparation for running casing. Thirty (30) Joints of Siderco 178 mm, 47.62 kg/m, DST - 80 LT, BT&C casing was run to 397.5 meters. The casing was rotated and reciprocated while cementing and was cemented with 9 tonnes of permafrost cement with good cement returns to surface. The plug was bumped with 5000 kPa at 0930 on 8/4/01.

The rig was released at 1200 hours on 8/4/01 for use as the training facility. Aurora College in conjunction with PITS conducted 4 introductory courses for floor hands and 76 personnel from the Northwest Territories successfully completed the course. Akita Rig #15 was released by Aurora College on 8/25/01 at the completion of the floor hand training courses. The well was suspended with a FMC wellhead installed on the 178 mm casing to facilitate a service rig training course. The service rig training course started 08/30/01 and was completed 09/8/01.

Aurora College Training Well Data

Location Co-ordinates:

Latitude	68 ° 23'25.9 N	Longitude	68 ° 23'25.9 133 ° 045' 42.7' W
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Well Casing:

	Depth (m)	Size (mm)	Weight (kg/m)	Grade	Couplings
Surface	155	244.5	71.62	DST 80	BTC
Production	397.5	177.8	47.62	DST 80	BTC

Tubular Data:

	Production Casing	Work string	Tubing
Size OD (mm)	177.8	N/A	N/A
Weight (kg/m)	47.62		
Grade	DST 80		
Drift ID (mm)	151.6		
Capacity (m ³ /m)	0.0188		
Collapse Rating	59366 kPa		
Burst Rating	62469 kPa		
Joint Strength	35900 daN		

Elevations:

Total Depth	401.0 m KB	Ground Level	20.21 m	PBTD	397.5 m KB
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Geological Horizons:

	<u>Subsea Depth (m)</u>	<u>Measured Depth</u>	<u>TVD. (m) (Est.)</u>
KB		25.3	
GL		20.2	
TD		401	
PBTD		397.5	
SURFACE CSG		155	
PRODUCTION		397.5	
PERFS (open)		N/A	
PERFS (abandoned)		N/A	

Note: MD & TVD are based on original KB elevation of 25.3 m.

Low Risk Low Hazard Well

This well is defined as a low risk, low hazard type of well. The well was drilled to total depth of 401m. Hydrocarbons or porous zones were not encountered during drilling operations. At TD the production casing (177.8mm) was cemented full length with cement returns to surface. A wellhead c/w a master valve and side outlets was installed on the casing bowl. The training well was never completed and the well was not perforated. The well has been suspended since 2001.

Safety

The safety plan prepared for this well abandonment will be used as a guide for safety meetings to be held prior to each well activity. Safety hazards will be identified and discussed prior to any work being done. Well operations will be conducted in a safe and efficient manner.

A pre job safety meeting will be held with all workers prior to each well activity. The well operations supervisor will outline details of the planned work activity. Safety hazards will be identified and discussed. Contractors will identify safety hazards associated with their equipment and operations. Workers will discuss how to safely complete the planned well operations. Well operations safety hazards will be identified and recorded in the safety meeting notes. The meeting notes will be included in the daily activity report and the final well report.

Wellsite supervisor to contact Inuvik hospital to ensure medical transport and EMS are available prior starting well operations.

Supervisor to contact local "call before you dig" locating service to confirm there are no buried lines in the area. (867-777-3422) Contact a minimum of 2 working days ahead of well operations.

Abandonment Program - Operations Summary

1. Wellsite review.
2. Run cement bond log to confirm cement quality around the 177.8mm casing.
3. Pressure test the 177.8mm casing to confirm casing integrity. (7000kPa for 10mins)
4. Excavate around the wellhead to a depth of approximately 2.5m below ground.
5. Securely tie off wellhead with certified sling/chains to the backhoe/picker truck.
6. Cut the conductor, surface and production casing strings at least 1m below ground level.
7. Remove the wellhead and casing. Dispose of components in an approved site.
8. Cap casing stubs with vented plates to prevent access and pressure build-up.
9. Backfill the bell hole over the cut casing and return area to existing ground level.
10. Install abandonment sign as per the OROGO abandonment guidelines.
11. Gas Migration testing to be done in the summer of 2023

Regulatory Requirements to Abandon the Aurora College G=04 Training Well

Canadian Petroleum Engineering is seeking operations approval from the regulator to abandon the Aurora College training well G-04.

The OROGO Application Guidelines and Interpretation Notes – Well Suspensions and Abandonments has been used as a guide to prepare this application. The well will be abandoned as per sections 6A, 6Ai and 6E of this guide.

A well Operations Authorization (OA) is required prior to any work taking place at the wellsite. CPE on behalf of Aurora College are seeking a Well Approval from the Regulator in the form of an Approval to Alter the Condition of a Well to allow the well to be abandoned. The detailed well abandonment program provides the technical and operational details of how CPE is proposing to abandon this well.

The Aurora College training well is classified as a Non Oil and Gas type well and with a risk of Level II. The well was drilled, cemented full length and never completed. Hydrocarbons were not encountered when the well was drilled to a total depth of 401m. The well will be abandoned as per section 6A of the abandonment guide.

A final well report will be submitted to OROGO within 30 days of the well abandonment operations.

Abandonment of this well is scheduled for the end of March 2023 subject to receiving a Well Approval from the Regulator.

Project Management and Supervision

The wellsite supervisor will be responsible for all activities at the site.

Wellsite supervisor will prepare a daily well activity report at the end of each operating day. The report will be emailed to Canadian Petroleum Engineering. Wellsite supervisor will begin each operating day with a telephone call to the Operations Superintendent to discuss work activity from the previous day and the operations planned for the current day. Safety hazards associated with the planned well operations will be identified and discussed. Lessons learned from previous operations will be applied to the work going forward.

Canadian Petroleum Engineering Contacts

Operations Superintendent

Ron McCosh: rmccosh@cpe.ab.ca
Cell 403-861-8050

Project Manager

Lorne Hammer: lhammer@cpe.ab.ca
Cell 403-813-0718

ABANDONMENT PROGRAM

1. Review wellsite area. Remove fencing and set off to side of location. Visually inspect wellhead equipment and confirm all equipment in place. Gas detectors will monitor for LEL gas and H₂S throughout all well operations. Ground around well should be undisturbed. Take a picture of the wellsite and include it in the daily activity report.
2. Read and record wellhead Shut in Pressures (SIP). Monitor LEL and H₂S levels around the wellhead. Examine surface casing vent for blow or suction. Contact CPE office if gas monitoring and well pressure results are not zero. Record all well information and include on the daily activity report.

Note: It is possible the fluid in the upper portion of the well may be frozen. A steamer may be required to thaw the well before continuing operations. Monitor the well for gas and internal casing pressure after steaming the well.

3. Investigate for evidence of gas migration. If gas migration is present, stop work and contact CPE Calgary office. Gas migration testing will be completed in the summer of 2023 when the ground is not frozen
4. Field verify the coordinates of the well centre using NAD 83 system to 4 decimal places. Well coordinates to be included on the abandonment sign and in the daily report.
5. Move in e-line logging truck. Rig up lubricator on top of wellhead and pressure test lubricator with N₂. Run cement evaluation tool and log the full length of the casing. Rig out loggers. Review cement bond log results and discuss with Calgary Office.
6. Move in pressure test truck and rig into wellhead. Pressure test all connections to wellhead prior to conducting the casing pressure test. Pressure test casing string to 7000kPa for 10 minutes. Record all pressures. The test pressure should not bleed off more than 10% during the 10 minute test period.
7. Function test all wellhead valves to confirm there is no pressure built up in the wellhead or casing. Monitor LEL and H₂S levels at the wellhead. Disassemble the SCV piping assembly and visually inspect that the vent is not plugged with cement or ice.
8. Move in 'B'- ticket welder and backhoe. Depending on frozen ground conditions, a dozer may be required to assist in the excavation around the well casing.
9. Review corporate ground disturbance package and policies with all on-site personnel prior to commencing excavation around the wellhead. Excavate a

6.0m x 2.5m bell hole around the wellhead. Ensure that the walls of the bell hole are properly sloped to prevent sloughing. The excavation must provide for safe entry and egress for the welder and equipment to access the casing in the bell hole. Soil removed from the bell hole will be reused to backfill after the well abandonment is complete. Continue to check and monitor LEL and H₂S levels and investigate for evidence of gas migration.

10. A hot work permit will be issued by the operations supervisor prior to cutting the three casing strings. See CPE HSE Manual for permit.
11. While exercising caution, weld cut a small hole in the surface casing about 30 cm below the surface casing bowl to investigate for trapped gas and fluids. Check and monitor LEL and H₂S gas levels. Using closed hooks and shackles, connect backhoe bucket to wellhead and pull into tension slightly more than the weight of the wellhead. Keep the wellhead in slight tension as the casing is cut.
12. Cut the conductor casing. Remove as long a section as possible to expose the surface casing string. Set cut conductor casing off to the side or remove from the well area.
13. Weld cut three (3) windows in the surface casing to access the innermost casing string. Ensure that at least 50% of the circumferential casing metal remains to prevent possible collapse of the surface casing from the weight of the wellhead. Maintain slight tension on the wellhead. While exercising caution, weld cut the innermost casing string.

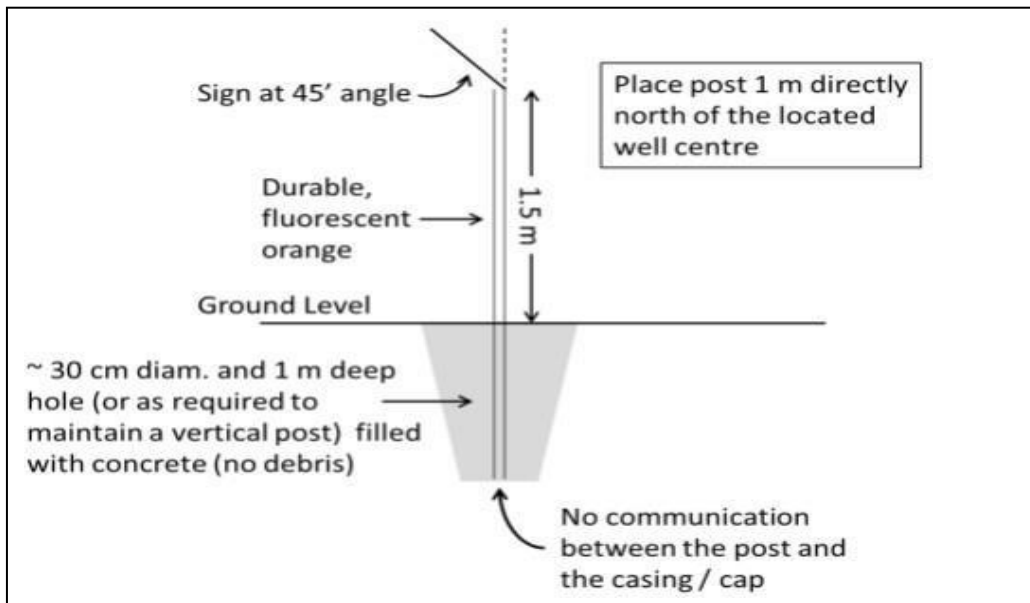
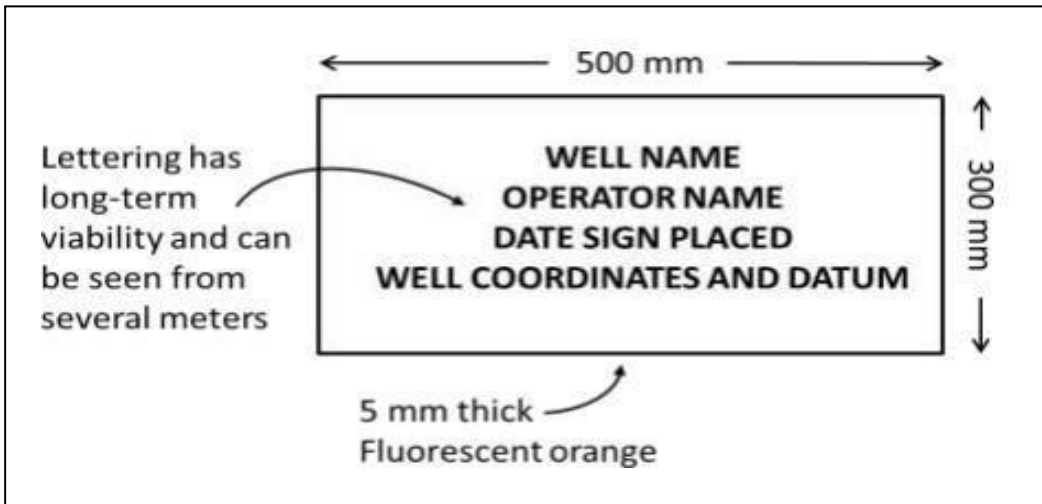
NOTE: Innermost string should not drop as it is cemented full length. Be aware that it could drop once completely cut. Do not place pry bars, hands or fingers in the windows.
14. Complete weld cut of the surface casing. Lift and remove wellhead and cut casing from bell hole with backhoe.
15. Cut off the casing strings so that the top of the cut and capped casings will be a minimum of 1.5 meters below the surveyed ground elevation. Fabricate the protective cap and slip-on collar.
16. Dress the casing stubs. Install and seal weld a 12.7 mm vented steel plate “donut” assembly over the surface casing and production casing annulus. Install the previously fabricated vented steel plate assembly over the inner most casing string.

17. Install and weld the Protective Cap to the surface casing.
18. Document the cut and cap details on the daily report. Take a picture of the completed cut and capped casing assembly and include in the daily operations report.
19. Excavator to backfill bell hole using the previously removed soil. Compact the backfilled soil at the wellsite and return the area to the existing ground level.
20. Install the abandoned well sign as indicated in description and diagrams below.

Weld a steel rod extension 2.5 metres long on to a plate. Weld the plate to the top of the rod at a 45 degree angle. Install the rod/plate assembly at a depth of 1 metre below ground level. The rod/plate is to be located 1metre due North of the well centre.

The rod/plate assembly is to extend to 1.5 metres above surface and the well location is to be weld inscribed on the steel plate as per the OROGO Abandonment Guidelines listed below.

Include a photograph of the abandonment sign in the Daily Report.

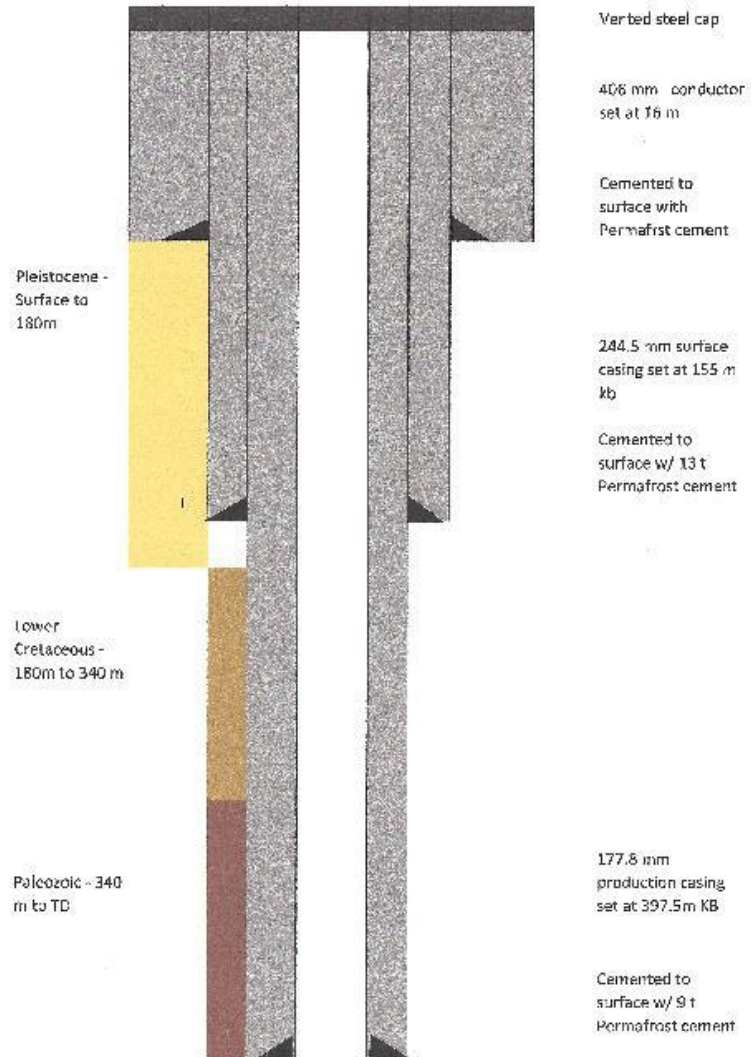


21. Clean up lease. Dispose of wellhead and components in an approved site. Remove fencing and return to owner. Rig out and release all services.

Photograph the abandonment site. Submit with daily report.

22. Gas Migration monitoring will be completed in the summer of 2023

Final Cut and Capped Well Diagram



Aurora College Training Well G-04 Application for Approval to Alter the Condition of a Well.

ABANDONMENT PROGRAM APPROVAL

Application for Approval to Alter the Condition of a Well (ACW)

Canadian Petroleum Engineering

Application prepared by:

R M McCosh

Ron McCosh
Operation Superintendent

Application Approved by:

L G Hammer

Lorne Hammer
Operations Manager