



## Well Operations Report

**Well Name:** ARROWHEAD RIVER K-35  
**UWI:** 300/K-35-60.40-122.45/00  
**License #:** WID1991  
**Field:** FT LIARD (5501)  
**Profile:** Vertical  
**Zone:** Slave Point  
**Class:** Level I

CNRL has performed the well abandonment operations within the last 30 days for this well as outlined in the approved program. Included in this document are the daily reports, and a wellbore schematic of the current state of the well. Additional documentation will follow in the summer once a gas migration test is complete with a change of well status form, and pictures of the cut and capped wellbore.

Please advise if any additional information is required

Thank you,

Canadian Natural Resources Limited

A handwritten signature in black ink, appearing to read "Terran Bernhard".

Terran Bernhard, P.Eng.

Abandonment Engineer

**Canadian Natural Resources Limited**

Suite 2100, 855 - 2 Street SW, Calgary, Alberta, T2P 4J8 T 403.517.6700 F 403.514.7677 [www.cnrl.com](http://www.cnrl.com)

**Canadian Natural****Downhole Schematic (Gov't Submission)****DIMS ANADARKO ARROWHEAD RIVER K-35**

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location		License # NT001991		Field Name FT LIARD				Province N.W.T															
Well Profile Vertical		Fluid Type Deep Gas	Original KB Elevation (m) 546.20		KB-Ground Distance (m) 5.00	KB-Casing Flange Distance (m) 5.41		KB-Tubing Head Distance (m) 546.20																	
Latitude (°) 60° 34' 38.093" N	Longitude (°) 122° 51' 47.178" E	Orig Spud Date 2/7/2004	Orig RR Date 2/28/2004	C&C Date 1/22/2023	GW Protected? Yes	BGWP (mKB) 605.00	Oilsand Area No																		
Directions To Well											H2S Classification Sour														
Vertical - Original Hole, 2/17/2023 10:33:24 AM						SCVF & GM Tests (Last 2 Records)																			
MD (mKB)	TVD (mKB)	Vertical schematic (actual)				Test Date 1/22/2023	Test Type SCVF	Failed? No																	
5.0	0.0					1/22/2023	Gas Migration	No																	
Openhole Information																									
Section Des		Size (mm)		Top (mKB)		Bottom (mKB)																			
Surface		311.2		5.00		652.00																			
Intermediate 1		215.9		652.00		2,439.50																			
Main 1		155.6		2,439.50		2,812.00																			
Casing Strings																									
Csg Des				OD (mm)	Wt/Len (kg/m)	Grade	Top (mKB)	Set Depth (MD) (mKB)																	
Surface				244.5	59.527	L-80	7.00	654.00																	
Intermediate				177.8	38.692	L-80	7.00	2,441.50																	
Cement Stages																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Surface Cement		3/26/2003		7.00		652.00	6.00																		
Comment																									
39.0m3 G, 6.0m3 cement returns																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Intermediate Cement		2/19/2004		860.70		2,439.50	0.00																		
Comment																									
31.4m3 1-1-2 G tailed with 3.6m3 Gasbond LT Thermal, 0.5m3 spacer returns																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Thermal 40 Cement Plug		1/17/2023		2,366.80		2,416.80																			
Comment																									
1 m3 (50 Lineal Meters) Thermal 40 Cement Plug Layered On BP																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Remedial Cement Squeeze		1/18/2023		687.00		688.00																			
Comment																									
10m3 Pumped																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Thermal 40 Cement Plug		1/18/2023		664.80		679.80																			
Comment																									
300L (15m) Thermal 40 Cement Plug Circulated On Retainer																									
Description		Cementing Start Date		Top Depth (mKB)		Btm (mKB)	Vol Cement Re...																		
Remedial Cement Squeeze		1/20/2023		7.00		654.00	1.00																		
Comment																									
10m3 circulation, 1m3 cement returns																									
Perforations																									
Zone		Top (mKB)		Btm (mKB)		Current Status																			
Remedial, Original Hole		653.00		654.00		Squeezed																			
Remedial, Original Hole		687.00		688.00		Squeezed																			
Landry, Original Hole		2,728.00		2,787.00		Abandoned																			
Tubing Strings																									
Tubing - Production set at 2,433.84mKB on 2/27/2004 00:00																									
Tubing Description		String Max N...		Wt (kg/m)		String Grade																			
Tubing - Production		60.3		6.990																					
Comment																									
Packer pressure tested to 7000 kPa for 10 minutes - 2/26/2004.																									
Wellhead installed and pressure tested seals to 35 MPa - 2/28/2004.																									
Installed G pack off at 52 mCF and BPV in tubing hanger - 4/1/2004.																									
Tubing Components																									
Item #	Jts	Item Des	OD (mm)	ID (mm)	Len (m)	Top (mKB)	Btm (mKB)																		
1-1	1	Tubing - Hydril 533CB	88.9	76.0	0.55	2,418.50	2,419.05																		
1-2	1	On/Off (47.62mm F) - coated	139.7	47.6	0.15	2,419.05	2,419.20																		
1-3	1	Howco BWC Perm Packer - coated	155.0	69.9	1.30	2,419.20	2,420.50																		
1-4	1	Adaptor - Impregnol coated	88.9	50.7	0.26	2,420.50	2,420.76																		
1-5	1	Tubing Pup Joint - Impregnol coated	60.3	50.7	2.99	2,420.76	2,423.75																		
Open Hole; 2,728.00-2,787.00 mKB; Zone: Landry, Original Hole																									
Current Status: Abandoned																									
Shot Dens: Calculated Shot Total: 1																									
Phasing:																									



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**Downhole Schematic (Gov't Submission)  
DIMS ANADARKO ARROWHEAD RIVER K-35**

Current Event (UWI) 300/K-35-60.40-122.45/00	Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T	
Well Profile Vertical	Fluid Type Deep Gas	Original KB Elevation (m) 546.20	KB-Ground Distance (m) 5.00	KB-Casing Flange Distance (m) 5.41	KB-Tubing Head Distance (m) 546.20



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## Daily Service Report (Gov't Submissions)

DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 1.0

1/11/2023 07:00 to 1/11/2023 12:00

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa)	Tubing Pressure (kPa)
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

SR: MIRUSR

Daily Operations Summary

Move wellhead crew to location. Swept location with 4 head gas monitor with no LEL'S or H2S detected. Bubble test SCV = No Bubbles. SITP 23 KpaDW. Rig in wellhead equipment pulled BPV from tbg hanger. Slickline pull G Pack-off plug from 52 mGL (no change in pressure) Pull Slip stop. Secured well. Rig out all equipment. Move to next well C55.

## Time Log

Start Time	Dur (hr)	Com
07:00	1.00	Travel from camp to location. Move in Stream Flo, United Safety air hand, Reliance Slickline unit HD0164. Move in Poorboy Picker
08:00	0.50	Review CNRL hazard assessment and TIW plan. Service providers complete HA & JSA for tasks today. Held safety meeting with all personal reviewed hazards of spotting equipment and pulling BPV. Slips, trips, line to fire, pinch points, backing up using spotters,
08:30	1.00	Moved in and spotted Stream flo unit. Check for hazards around wellhead. Bubble test SCV = No bubbles, monitor throughout job. Had safety hand don air pack and checked for any H2S on tbg. No H2S. SITP 23 KpaDW. Make up 88.9mm Lubricator & screw into BPV. Screw out BPV from dognut & Lubricate out 88.9mm back pressure valve from tbg hanger. Shut in & secure well. Rig out Stream Flo crew
09:30	0.25	Held safety meeting with Reliance slickline crew & Poorboy Picker. Filled out JSA and reviewed hazards of slickline operations and procedures for pulling plug at 52 mGL.
09:45	2.25	MIRU Reliance slickline unit, BOP's and lubricator purged and pressure tested lubricator with N2 to 7 Mpa (good) RIH with equalizing prong to 52 mGL. Jar down many times with no pressure change. RIH GS pulling tool to 52 mGL. Latch and pull G Pack-off plug. POOH with plug to surface. Found Kobe's knockout still intact. RIH RB pulling tool & latch Slip Stop. POOH Slip Stop. Shut in & secure well with double master valves. Rig out Reliance Slickline unit & Travel to next well C55.

## Perforations Summary

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
				Jeffrey Willick	Abandonment Ops Mgr.
				Dale Duffy	Superintendent
				Phil Millard	Wellsite Supervisor
				Contractor Reliance Oilfield Services	Rig Number HD0164
				Rig Manager Brent Belanger	



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## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 2.0

1/13/2023 09:00 to 1/13/2023 20:30

Current Event (UWI) 300/K-35-60.40-122.45/00	Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective			Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Tubing Pressure (kPa) 0

## Daily Activities

Morning Ops @ 7am

SR: Circulate Well To Fresh

Daily Operations Summary

Move in rig and equipment from O-38 Pad. Spotted 400 bbl tank, testers, tubing catwalk and boiler. Spot rig matting and spot PD 829 service rig to well on jacks, Rig in pump / tank and testers. Unloaded 60 m3 fresh water in 400 bbl tank. Remove 11" Wellhead And Install 11" BOP stack on well with picker. Stand and rig up rig. Install BPV. Check precharge pressures on accumulator and booster pack. Function test BOPs. Complete PT on all BOP components.

## Time Log

Start Time	Dur (hr)	Com
09:00	0.75	09:00 - 09:45 - Move rig and equipment from O-38 Pad, spot equipment at lease entrance, complete lease walk around and check for hazards (Good). Tally from well center and move in 1 piece of equipment at a time. Spot doghouse and WSS shack, move in and spot pump / tank and 400 bbl, spot boiler, P-tank and flare stack.
09:45	8.25	09:45 - 18:00 Hrs - Pack up qualified worker and air hand, check well pressures ( 0 kpa tbg - 0 kap csg) No signs of H2S. Spot tubing catwalk and rig matting. Break apart 11" wellhead and remove with PoorBoy picker. Install 11" BOPs and Annular with picker. Rig in pump & tank, boiler, P-tank and flare stack. Back in and spot rig 829 on jacks. Complete level 1 inspection on mast raising components, stand and scope mast. Rig in working floor, stairs and handrails. Ensure all OROGO, CNRL, OHS and company specific regulations are followed. Rig in accumulator, spare bottles and booster pack. Install BPV in tubing.  OROGO officers made a rig visit for a couple hours today, they will return tomorrow once rig is fully rigged up and also join in on our morning safety meeting.
18:00	2.00	18:00 - 20:00 Hrs - Check pre-charge pressures on all bottles in system: Bottle # 1 = 6800 kpa - Bottle # 2 = 6800 kpa - Bottle # 3 = 6800 kpa - Bottle # 4 = 6800 kpa - Bottle # 5 = 6800 kpa - Bottle # 6 = 6800 kpa - Bottle # 7 = 6800 kpa - Bottle # 8 = 6800 kpa - Bottle # 9 = 6500 kpa - Bottle # 10 = 6100 kpa.  N2 Bottles as follows: Bottle # 1 = 14,000 kpa - Bottle # 2 = 14,000 kpa - Bottle # 3 = 15,200 kpa - Bottle # 4 = 13,800 kpa.  Start pressure for accumulator = 14,000 kpa, After closing pipe rams, blind rams and annular a final pressure of 9500 kpa remained. Recharge time was 1 min 32 seconds. Tie in pump line to working spool, pressure test pipe rams and blind rams (1.4 Mpa low - 34 Mpa high) 10 min test good. Pressure test Annular (1.4 Mpa low - 7 Mpa high) 10 min test good. Rig out pump lines.
20:00	0.50	20:00 - 20:30 Hrs - Shut cap and secure well, drain pump lines and winterize. Plug in all equipment. Hang tarps around BOPs and heater. SDFN.

## Perforations Summary

## Daily Fluids Summary

Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Fresh Water				Jeffrey Willick	Abandonment Ops Mgr.
				Dale Duffy	Superintendent
				Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



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## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 3.0

1/14/2023 07:00 to 1/14/2023 19:00

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

SR: POOH Production Tubing

Daily Operations Summary

Attempted Multiple Times To Come Off Of On-Off Without Success, Decision Made To Jet Cut Tubing, Approval Granted By OROGO Officer, MIRUWL, RIH 70 mm Gauge Ring To On/Off @ 2419 mkb, POOH, MU And RIH Jet Cutter, Coorolate Onto Depth And Cut Tubing @ 2418.50 mkb, Surface Wireline, ROMOWL, Pull On Tubing (Free). Pull Hanger And Forward Circulate 50 m3 Fresh Water Through P-Tank To Tankers.

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline, and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LEls and H2S, lease clear.
07:30	2.50	07:30 - 10:00 Hrs - Remove leg screws. Pre-heat pump lines and spot tanker trucks. Hold pre-job meeting with Dans Toolhand, Work tubing string and make multiple attempts to come off of On-Off without success. Called Calgary with findings. OROGO chief safety officer was on location. Approval to jet cut tubing above On-Off was granted. Continue to work string and attempt to release on/off while waiting on Wireline unit.
10:00	5.00	10:00 - 15:00 Hrs - Complete rig inspection and hold meeting with OROGO reps with all services on location, complete lease walk around, check crews tickets, function accumulator and complete a BOP drill. Hold PJSM with Eclipse Wireline. MU 70 mm gauge ring, lower blocks and pull 2 dan over string (36 Dan total) rig in wireline, BOP and lube. RIH gauge ring to 2419 mkb, ( On - Off ). Surfaced wireline and gauge ring. MU 60.3 mm jet cutter, Pickup, RIH and coorolate onto depth @ 2419 mkb, Pick up 0.5 m and Set cutter @ 2418.50 mkb. Set off charges and cut tubing @ 14:20 hrs. Surface wireline and cutter, rig out lube and BOP laying out on catwalk. ROMOWL. Pull up on tubing string, pulling free at 33 dan.
15:00	3.50	15:00 - 18:30 Hrs - Rig pump line onto tubing and return line to P-tank. Break forward circulation, pumped 5 m3 through P-Tank to tanker @ 250L/min then up rate to 500 L/min. Rig pump overheated multiple times and could only pump around 200 - 250L/min. Pumped a total of 50 m3 circulating well clean to fresh water. Rig out pump lines and tankers. Completed 10 min bubble test during circulation, no bubbles detected. Perform GM testing as per CNRL procedure. No GM detected at time of testing.  ***Very Slow Pumping Due To Overheating Issues, Parts Ordered To Repair***
18:30	0.50	18:30 - 19:00 Hrs - Blow down pump lines, shut, cap and secure well. Winterize equipment. SDFN.

## Perforations Summary

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Fresh Water	50.00	0.00	50.00	Jeffrey Willick	Abandonment Ops Mgr.
Other	0.00	50.00	-50.00	Dale Duffy	Superintendent
				Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



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## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 4.0

1/15/2023 07:00 to 1/15/2023 19:30

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

WL: Complete CBL

Daily Operations Summary

POOH 254X88.9 mm Hydril Tubing To Catwalk, Complete Tubing Swap, MIRUWL, RT 148 mm Gauge Ring To Cut Tubing Top @ 2418.50 mkb, MU HM2 10k Permanent BP, RIH And Corolate Onto Depth, Set BP CE @ 2417 mkb. Surface Wireline, ROMOWL. Fill Hole With 6m3 Fresh Water And PT BP To 7 Mpa For 10 Mins. Good Test (Start 7188 kpa - Finish 7105 kpa). Winterize Equipment.

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline, and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LEls and H2S, lease clear.
07:30	0.50	07:30 - 08:00 Hrs - Pack up qualified worker and air hand. Check pressures on well. (0 kpa tbg - 0 kpa csg) No signs of H2S, Function test ram saver, crown saver, air horn and e-kills. Heat up wellhead and pump lines. Install catwalk stairs and prep to POOh production tubing.
08:00	6.00	08:00 - 14:00 Hrs - Change over to 88.9 mm slip type elevators, Pull tubing hanger and break out. POOH production tubing string as follows: 1X88.9 mm Hydril Bit Sub, 1X88.9 mm Hydril tubing, 2X88.9 mm Hydril pups, 1X88.9 mm Hydril tubing, 1X88.9 mm Hydril pup, 252X88.9 mm Hydril tubing (9.15 m to cut). All tubing looks to be in good shape. Hold pre-job safety meeting with Poorboy Picker & Bed trucks, complete tubing swap unloading 250X73 mm tubing work string on catwalk.
14:00	1.00	14:00 - 15:00 Hrs - Wait on wireline unit to arrive.
15:00	3.50	15:00 - 18:30 Hrs - Hold pre-job safety meeting with Eclipse wireline. Spot equipment. install flange and BOPs. Make up 148 mm Gauge ring. Pick up, place in hole and Install lubricator. Flag and cone off No Go zones. RIH gauge ring, CCL, gamma to 2418.50 mkb (cut tubing top), Log well 500m. Surface gauge ring, break out lube and lay out BHA to ground. Make up, arm and RIH 142.8 mm DM2 Permanent 10k BP. RIH to 2418.50 mkb, Pull pass and Corolate plug onto depth with gauge ring run, set BP with CE @ 2417 mkb, surface wireline, Rig out BOP, lube wireline unit.
18:30	1.00	18:30 - 19:30 Hrs - Tie pump line into working spool, fill hole with 6m3 fresh water. Pressure up to 7 MPa for 10 mins. Start 7188 kpa - finish 7105 mkb. Good test. Bleed back pressure, remove pump line. blow lines dry, shut cap and secure well. Winterize equipment. SDFN.

## Perforations Summary

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Fresh Water	6.00	0.00	56.00	Jeffrey Willick	Abandonment Ops Mgr.
Other	0.00	0.00	-50.00	Dale Duffy	Superintendent
				Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



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## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 5.0

1/16/2023 07:00 to 1/16/2023 18:30

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

SR: Circulate Cement Cap

Daily Operations Summary

Check Well Pressures, MIRUWL, Complete RBL Log From 2417 mkb To Surface, ROMOWL, Send Logs To Calgary, Change Over Tubing Handling Equipment And Pipe Rams To 73 mm, PT Pipe Rams, Talley And RIH 245X73 mm Tubing Off Catwalk. Tag Bridge Plug, Space Out And Land Tubing 0.50 m Above. Winterize Equipment.

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline, Eclipse and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LEls and H2S, lease clear.
07:30	0.50	07:30 - 08:00 Hrs - Pack up qualified worker and air hand. Check pressures on well. (0 kpa tbg - 0 kpa csg) No signs of H2S, Function test ram saver, crown saver, air horn and e-kills. Heat up wellhead and pump lines..
08:00	4.00	08:00 - 12:00 Hrs - Back in and spot wireline unit. Install XO flange and lube. Make up multiplex RBL tool. Pick up, place in hole and Install lubricator. Flag and cone off No Go zones. RIH RBL tool high speed pass to 2417 mkb (top of Bridge plug), pull pass and correlate to Borehole gamma CCL log dated Feb 17 2004. Perform main pass out of hole from 2417 mkb to surface @ 13 m/min. BH Temp is 145 degrees. Rig out XO flange, lube and wireline unit. Logs sent to Calgary for Interpretation.
12:00	0.50	12:00 - 12:30 Hrs - Install crash plate on annular, change pipe rams to 73 mm and handling equipment to 73 mm, Rig in pump line to working spool. Land hanger c/w pup joint and PT pipe rams for 10 min each (low 1.4 mpa - high 14 mpa). Good tests. Rig out pump lines.
12:30	6.00	12:30 - 18:30 Hrs - Talley work string off catwalk. RIH open ended with 254X73 mm tubing. Started displacing on joint 25, tie in pump line and suck back while tripping remaining 229 tubing. Tag and confirm bridge plug depth, space out and land tubing 0.5 m above. Install TIW valve, shut cap and secure well, winterize equipment and clean tools. SDFN.

## Perforations Summary

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Fresh Water			56.00	Jeffrey Willick	Abandonment Ops Mgr.
Other	0.00	0.00	-50.00	Dale Duffy	Superintendent
				Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



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## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 6.0

1/17/2023 07:00 to 1/17/2023 19:30

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

SR: RIH Set Retainer

Daily Operations Summary

Check Well Pressures, MIRU C&A Unit. Pre-Flush 1m3 Fresh Water To Break Circulation And Heat Lines, Pressure Test Surface Equipment to 15 Mpa, Batch Mix 1m3 Thermal 40 Blend @ 1800 kg/m3. Circulated To Bottom With 6.5 m3 Fresh Water To Balance Plug. (50 Lineal meters) TOC = 2366.80 mkb, Pulled 8 Joints And Backwash Tubing With 1.5XTubing Volume. POOH 184X73 mm Tubing To Catwalk and stood 35 stands. MIRUWL, RIH 1m 20spm 25grm Perf Gun To 700 mkb, Pull Pass And Corolate To RBL Log, Shoot Interval 687 mkb - 688 mkb, Surface Wireline. Rig in Pump Line, Filled Casing With 2.5 m3 Fresh Water, Monitored SCV, Steady Bubbles While Pumping.

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LELs and H2S, lease clear.
07:30	1.00	07:30 - 08:30 Hrs - Pack up qualified worker and air hand. Check pressures on well. (0 kpa tbg - 0 kpa csg) No signs of H2S, Function test ram saver, crown saver, air horn, e-kills and all safety equipment. Heat up wellhead and pump lines. Prep equipment for cement job.
08:30	3.00	08:30 - 11:30 Hrs - Hold PJSM with Charger Cementers. Rig in C&A Unit, bulkier and pump lines, batch mix 1m3 Thermal 40 Blend @ 1800 kg/m3, preflush and heat pump lines with 1m3 fresh water, pressure test surface lines to 15 Mpa, pump 1 m3 Thermal cement blend and displace plug with 6.5 m3 fresh water to balance plug. Rig out cementers. TOC is @ 2366.80 mkb , pull and lay out 8 tubing to catwalk. Tie in rig pump and line, backwash tubing with 10 m3 fresh water. Rig out pump lines and winterize.
11:30	5.00	11:30 - 16:30 Hrs - POOH 73 mm work string, lay out sideways 184 tubing on catwalk, Rig in escape line and anchor, finish pulling remaining 35 stands to tubing board. Change over equipment and prep for wireline.  Performed slip and cut on drill line (1.75 hours).
16:30	2.50	16:30 - 19:00 Hrs - Hold PJSM with Eclipse wireline. Back in and spot wireline unit. Rig in sheaves, flange BOPs and lube. Arm and RIH with 1m 20 spm 25 gram perf gun to 700 mkb, pull pass and corolate to RBL log, log onto depth and shoot interval from 687 mkb - 688 mkb, surface wireline. Rig out lube, BOP and wireline truck. SCV on slight vac.
19:00	0.50	19:00 - 19:30 Hrs - Close blind rams, tie in pump line. Begin pumping to fill casing while monitoring SCV, steady bubbles. Pumped 2.5 m3 total. Still steady bubbles on SCV, Rig out pump lines. Shut cap and secure well. Winterize equipment. SDFN.

## Perforations Summary

Date	Zone	Top (mKB)	Btm (mKB)	Type	Com
1/17/2023 00:00	Remedial, Original Hole	687.00	688.00	Perforation	All Shots Fired

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Fresh Water	18.00	18.00	56.00	Jeffrey Willick	Abandonment Ops Mgr.
Other			-50.00	Dale Duffy	Superintendent
				Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



Canadian Natural

## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 7.0

1/18/2023 07:00 to 1/18/2023 15:30

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location		License # NT001991		Field Name FT LIARD		Province N.W.T
WL (%) 100.00	Objective						Plug Back Depth (mKB)	
Job Start Date 1/11/2023		Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0	Set Depth (MD) (mKB) 2,441.50	
Job End Date 1/22/2023		Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Weather Cloudy	Temperature (°C) -22	

## Daily Activities

Morning Ops @ 7am

WL: Perforate 2nd Interval

Daily Operations Summary

RIH Retainer. Set @ 680 mkb. Established feed-rate 180 liters/min @ 4.5 Mpa. Pressured Tested Retainer 7380 Kpa - 7365 Kpa. (Good). Pressure Tested Tubing To 14 Mpa, Attempted Circulation 10 m3, No Returns, Increase In Bubbles On SCV, Surging. RU C&A Unit, Pumped 1m3 Fresh Water, 1m3 SMS With Dye and 1m3 Scavenger, followed with 9.5 m3 Thermal Cement (1800 kg/m3) , Shut SCV And Squeezed Additional 0.5 m3 Below Retainer To Flatline @ 4 Mpa, Spotted 15 m TVD Above Retainer (TOC=664.80 mkb), Reverse Circulated 3m3 Fresh Water, POOH With 35 Stands,

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LELs and H2S, lease clear.
07:30	0.50	07:30 - 08:00 Hrs - Pack up qualified worker and air hand. Check pressures on well. (0 kpa tbg - 0 kpa csg) No signs of H2S, Function test ram saver, crown saver, air horn, e-kills and all safety equipment. Heat up wellhead and pump lines. Prep to RIH.
08:00	2.00	08:00 - 09:30 Hrs - Hold PJSM with Dans Rental toolhand. MU cement retainer. RIH with retainer 70 tubing, 2X 10 foot pups. Picked casing collars @ 669.5 mkb and 682.5 mkb. Pulled up and set retainer @ 680 mkb. Tie in pump line, pressure test retainer to 7 Mpa. (start - 7380 mkb - finish 7365 mkb). Good test.
10:00	1.00	09:30 - 10:30 Hrs - RU tubing swivel, Rig in pump line, pressure tested tubing to 14 Mpa, stung into retainer, established 10 m3 feedrate 180 L/min @ 4500 Kpa. monitored scv, slight build on vent with lots of bubbles, no circulation. Rig out pump lines.
11:00	3.50	10:30 - 14:00 Hrs - Spot and RU equipment as per CNRL, OROGO and OH&S requirements. RU SCV for returns. Pumped 1m3 fresh water, 1m3 preflush with dye and 1m3 scavenger. Pumped @ 250 liters/min @ 5 Mpa. Mixed and pumped OWG blend CaCL2 - 1.2% + CHFL-1 0.15% + CHFR-1 - 0.05% + CHDF-P - 0.2% + CHGC-2 - 2% density 1800 kg/m3 pumped 9.5m3, shut down pressure 1.5 Mpa. RU slow-rate, Shut SCV, started slow rate 50 liters/min for 0.5m3, dropped to 15 liters/min final pressure 4 Mpa flatline, pulled to neutral, bled off pressure, stung out of retainer, balanced cement, pulled 1 joint, 2X10 foot pups, spotted 15m TVD cement plug (300L). Reverse circulated tubing clean. 9.5 m3 cement below retainer,
14:30	1.00	14:00 - 15:00 Hrs - Prep equipment to POOH. POOH with 35 stands (70 tubing) to tubing board. Break out and lay down setting tool.
15:30	0.50	15:00 - 15:30 Hrs - Shut, cap and secure well. Clean up tools, blow down pump lines and winterize equipment. SDFN.

## Perforations Summary

Date	Zone	Top (mKB)	Btm (mKB)	Type	Com
1/17/2023 00:00	Remedial, Original Hole	687.00	688.00	Perforation	All Shots Fired

## Daily Fluids Summary

Fluid	To well (m <sup>3</sup> )	From well (m <sup>3</sup> )	Left to recover (m <sup>3</sup> )	Operational Supervisors	
				Contact	Title
Cement	10.00	0.00	10.00	Jeffrey Willick	Abandonment Ops Mgr.
Fresh Water	14.00	0.00	70.00	Dale Duffy	Superintendent
Other	0.00	0.00	-50.00	Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



Canadian Natural

## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 8.0

1/19/2023 07:00 to 1/19/2023 13:30

Current Event (UWI) 300/K-35-60.40-122.45/00	Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective			Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Tubing Pressure (kPa) 0

## Daily Activities

Morning Ops @ 7am  
SR: Remedial Squeeze

## Daily Operations Summary

MIRUWL, RIH 1m 20spm 25grm GH Perf Gun To Cement Top @ 664 mkb, Pull Pass And Corolate To RBL Log, Shoot Interval 653 mkb - 654 mkb, SCV On Vac. Surface And Rig Out Wireline. Rig in Pump Line To Casing, Pumped 1m3, Pressured Up Solid @ 4 Mpa, Up Pressure To 6.5 Mpa, Pressure Dropped To 0 Mpa, Pumped Additional 1m3 300L/Min @ 0.5 Mpa To Gain Circulation Up SCV. Circulated 10m3 Drilling Mud Up Vent, MU And RIH Cement Retainer, Set @ 648 mkb. Pressured Tested Retainer 7110 Kpa - 7100 Kpa. (Good). Pressure Tested Tubing To 14 Mpa, Established feed-rate 450 liters/min @ 0.5 Mpa.

\*\*\*Shut Down, Cement Will Not Be Infield Till Approx 17:30 Tonight\*\*\*

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline and United safety. Review CNRL, PWS, Skyline, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on working on sour wells, crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LELs and H2S, lease clear.
07:30	0.50	07:30 - 08:00 Hrs - Pack up qualified worker and air hand. Check pressures on well. (0 kpa tbg - 0 kpa csg) No signs of H2S, SCV on slight vac, Function test ram saver, crown saver, air horn, e-kills and all safety equipment. Heat up wellhead and pump lines. Prep for wireline.
08:00	1.00	08:00 - 09:00 Hrs - Hold PJSM with Eclipse wireline. Back in and spot wireline unit. Rig in sheaves, flange, BOPs and lube. Arm and RIH with 1m 20 spm 25 gram GH perf gun to cement top @ 664 mkb, pull pass and corolate to RBL log, log onto depth and shoot interval from 653 mkb - 654 mkb, surface wireline. Rig out lube, BOP and wireline truck. SCV still on slight vac.
09:00	1.00	09:00 - 10:00 Hrs - Rig in Pump Line To Casing, Pumped 1m3, Pressured Up Solid @ 4 Mpa, Up pump Pressure To 6.5 Mpa, Pressure Quickly Dropped To 0 Mpa and SCV began to blow, Pumped Additional 1m3 - 300L/Min @ 0.5 Mpa To Gain Circulation Up SCV. Circulated 10m3 Fresh Water down casing and returned 10m3 Drilling Mud Up Vent to rig tank. Rig out pump lines.
10:00	1.50	10:00 - 11:30 Hrs - Hold PJSM with Dans Rental toolhand. MU cement retainer. RIH with retainer 68 tubing, 8 foot pup. Picked casing collars @ 626 mkb and 640.5 mkb. Meter down and set retainer @ 648 mkb. Tie in pump line, pressure test retainer to 7 Mpa. (start - 7110 mkb - finish 7100 mkb). Good test. Pull to natural, pressure test tubing to 14 Mpa, Good test. Sting back in to break circulation up SCV, pumped 200L to break circ, Circulating pressure is 450 L/min @ 0.5 Mpa. Pull to natural.
11:30	2.00	11:30 - 13:30 Hrs - Waited on Charger Cementers. Upon calling operator we found out they were still in Fort Nelson loading bulk cement. ETA to camp was approx. 17:30 hrs. Shut cap and secure well, winterize equipment. SDFN. Perform Squeeze In Morning.

## Perforations Summary

Date	Zone	Top (mKB)	Btm (mKB)	Type	Com
1/19/2023 00:00	Remedial, Original Hole	653.00	654.00	Perforation	All Shots Fired
1/17/2023 00:00	Remedial, Original Hole	687.00	688.00	Perforation	All Shots Fired

## Daily Fluids Summary

Fluid	To well (m <sup>3</sup> )	From well (m <sup>3</sup> )	Left to recover (m <sup>3</sup> )	Operational Supervisors	
				Contact	Title
Cement	0.00	0.00	10.00	Jeffrey Willick	Abandonment Ops Mgr.
Fresh Water	13.00	0.00	83.00	Dale Duffy	Superintendent
Other	0.00	10.00	-60.00	Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



Canadian Natural

## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 9.0

1/20/2023 07:00 to 1/20/2023 19:30

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991		Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)	
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa) 0	Set Depth (MD) (mKB) 2,441.50
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Weather Clear	Temperature (°C) -6

## Daily Activities

Morning Ops @ 7am  
C&C: Well Ready To Cut And Cap  
Daily Operations Summary  
Break Circulation Up SCV With Rig Pump, 450L/min @ 0.5 Mpa. RU C&A Unit, Pumped 1m3 Fresh Water, Pressure Test Surface Lines, Follow With 1m3 SMS (Pre-flush) With Dye and 1m3 Scavenger, followed with 10.2 m3 Thermal Cement (1800 kg/m3), Cement Returns Up Surface Casing After 9 m3 Pumped, Returned 1m3 Up SCV Then Shut In Vent, Apply 2Mpa Then Rotated Out Of Retainer, Spotted 15 m TVD Above Retainer (TOC=632.80 mkb), Pull 3 Joints And Backwash With 3m3 Fresh Water, POOH With 68 Tubing To Catwalk, Top Filled Hole With 10 Joints Left. ROSR And Equipment, ND BOPs And Annular, Move And Spot Equipment On I-75 Pad.

## Time Log

Start Time	Dur (hr)	Com
07:00	0.50	07:00 - 07:30 Hrs - Complete a detailed Safety MTG with PWS (Service Rig Crew), Skyline, Cordova and United safety. Review CNRL, PWS, Skyline, Cordova, United Safety Policy's & Procedures, Review Transportation of injured worker Plan. Fire & Explosion Plan, Medic Locations, Ensure OROGO, OHS, CNRL, Policies are followed. Review CNRL 4-Pillars/KPI's, Review site specific Job details/JSA's, Detailed discussion on crew positioning, critical tasks and emergency muster points. Sweep lease and wellhead area for LEls and H2S, lease clear.
07:30	0.50	07:30 - 08:00 Hrs - Check pressures on well. (0 kpa tbq - 0 kpa csg) No signs of H2S, SCV dead, Function test ram saver, crown saver, air horn, e-kills and all safety equipment. Heat up wellhead and pump lines. Tie in pump line, break circulation up SCV after 200L pumped. Establish pump rate of 450L/min @ 0.5 Mpa. Shut down pump.
08:00	1.50	08:00 - 09:30 Hrs - Spot and RU C&A unit, bulkier and vac truck as per CNRL, OROGO and OH&S requirements. RU SCV for returns. Pumped 1m3 fresh water, Shut in and PT surface lines to 14 Mpa, (Good), continued pumping 1m3 preflush with dye and 1m3 scavenger. Pump rate 420L/min @ 1.2 Mpa. Mixed and pumped OWG Thermal blend CaCL2 - 1.2% + CHFL1 - 0.3% + CHFR-1 - 0.05% + CHDF-P - 0.1% + CHGC-2 - 1% density 1800 kg/m3 pumped 10.2m3 (Total), Cement Returns Up Surface Casing After 9 m3 Pumped, Returned 1m3 Up SCV Then Shut In Vent, Apply 2Mpa Then Rotated Out Of Retainer, Spotted (200L) 15 m TVD Above Retainer (TOC=632.80 mkb), Pull 3 Joints And Backwash With 3m3 Fresh Water,
09:30	2.00	09:30 - 11:30 Hrs - POOH with 55X73 mm tubing to catwalk, tie in pumping equipment, top fill hole with 460L fresh water. Rig out pumping equipment. POOH remaining 10X73 mm tubing to catwalk.
11:30	5.00	10:00 - 15:30 Hrs - Rig out stairs, tubing catwalk and working floor. Remove rig BOPs with PoorBoy picker, winterize and install wellhead c/w chain and lock. Complete visual inspection of mast lowering equipment. Lower mast, take rig off jacks, rig out service rig, boiler, testers and all support equipment. Break apart pump lines and load rig tank. Complete tubing cleanup, load 400 bbl on bed truck, Hook up to doghouse. Complete wellhead cleanup. Prep equipment for rig move.
16:30	4.00	15:30 - 19:30 Hrs - Made multiple trips moving to Pad I-75, Moved P-tank, flare stack, catwalk, 400 bbl tank, tubing trailer, rig matting, combo unit, 11" BOPs, handling equipment and shacks with picker and bed truck. Move in rig, pump / tank and doghouse. Space out and spot all equipment. Spot rig matting to well. Winterize equipment. SDFN.

## Perforations Summary

Date	Zone	Top (mKB)	Btm (mKB)	Type	Com
1/19/2023 00:00	Remedial, Original Hole	653.00	654.00	Perforation	All Shots Fired
1/17/2023 00:00	Remedial, Original Hole	687.00	688.00	Perforation	All Shots Fired

## Daily Fluids Summary

Fluid	To well (m <sup>3</sup> )	From well (m <sup>3</sup> )	Left to recover (m <sup>3</sup> )	Operational Supervisors	
				Contact	Title
Cement	10.00	0.00	20.00	Jeffrey Willick	Abandonment Ops Mgr.
Fresh Water	27.00	0.00	110.00	Dale Duffy	Superintendent
Other			-60.00	Mike Hamer	Wellsite Supervisor
				Contractor Precision Well Servicing	Rig Number 829
				Rig Manager Anthony Klimm	



Canadian Natural

## Daily Service Report (Gov't Submissions)

## DIMS ANADARKO ARROWHEAD RIVER K-35

Job: Abandonment  
Report #: 10.0

1/22/2023 13:30 to 1/22/2023 18:00

Current Event (UWI) 300/K-35-60.40-122.45/00		Surface Legal Location	License # NT001991	Field Name FT LIARD	Province N.W.T
WI (%) 100.00	Objective				Plug Back Depth (mKB)
Job Start Date 1/11/2023	Ground Elevation (m) 541.20	Tubing Head Elevation (m) 0.00	KB-TH (m) 546.20	Casing Pressure (kPa) 0	Tubing Pressure (kPa)
Job End Date 1/22/2023	Original KB Elevation (m) 546.20	Casing Flange Elevation (m) 540.79	KB-Casing Flange Distance (m) 5.41	Road Condition Rough	Set Depth (MD) (mKB) 2,441.50

## Daily Activities

Morning Ops @ 7am

RR: Ready for Reclamation

Daily Operations Summary

Conduct SCV/ GM test, both good. Dig up 2.5 M around well & separate any dirty dirt from good dirt. Welder cut off wellhead. Weld vented plate between Surface & Production Casings. Weld on vented cap with ID #1991. Push in 5 M 73mm Jnt 1 M North of well centre. Back-fill hole with clean dirt. Make up sign with ID #, Company name, Date of Cut & Cap, Coordinates with NAD 83. Production casing cut 2 M below original ground level, Lease is ready for reclamation.

## Time Log

Start Time	Dur (hr)	Com
13:30	0.50	Checked with GM tester no ppm's. Conduct Gas Migration test; Take 4 readings at 90° around casing, at a 2 meter radius and at a 6 m radius around well as per CNRL SCVF & GM Testing - Operational Procedures (July 2011). Recorded 0 ppm readings at all locations.  SCVF/GM testing done as per CNRL SCVF & GM Testing – Operational Procedure: No issues.  Ensure vent is clear. Bubble test SCV for 15 min (No Bubbles)
14:00	4.50	Travel to location Sweep work area with bump tested LEL monitor 0 - LEL's & 0 - PPM H2S. Conduct pre job safety meeting with services complete and review, Hazard Assessment, TIW and OROGO Regulations. Ensure all personnel have had CSO or PST Orientation. Review Beaver Enterprises & Nahanni Hazard Assessment. Dig down 2.5 M below GL & Separate any contaminated dirt from good dirt. Weld vented plate between Surface & Production Casings. Weld on 177.8mm vented cap with ID #1991. Push in 5 M 73mm Jnt 1 M North of well centre. Back-fill hole with clean dirt. Make up sign with ID #, Company name, Date of Cut & Cap, Coordinates with NAD 83. Spray paint Sign & post Orange. Well cut 2 M below original ground level  Ensure pictures of operations are in attachments. No Grd Dist as confirm no under ground lines in this field. Lease has wellhead & dirty dirt pile off to the side. Well is Cut & Capped Jan 22 2023 Well is now ready for reclamation.

## Perforations Summary

Date	Zone	Top (mKB)	Btm (mKB)	Type	Com
1/19/2023 00:00	Remedial, Original Hole	653.00	654.00	Perforation	All Shots Fired
1/17/2023 00:00	Remedial, Original Hole	687.00	688.00	Perforation	All Shots Fired

## Daily Fluids Summary

Daily Fluids Summary				Operational Supervisors	
Fluid	To well (m³)	From well (m³)	Left to recover (m³)	Contact	Title
Cement	0.00	0.00	20.00	Jeffrey Willick	Abandonment Ops Mgr.
Fresh Water	0.00	0.00	110.00	Dale Duffy	Superintendent
Other	0.00	0.00	-60.00	Phil Millard	Wellsite Supervisor
				Contractor	Rig Number
				Rig Manager	