



May 3, 2021

Office of the Regulator of Oil and Gas Operations
Government of the Northwest Territories
4th Floor Northwest Tower
5201 – 50th Avenue
Yellowknife NT X1A 3S9
Sent via email only to: OROGO@gov.nt.ca

RE: Information Request No. 2: Application to Abandon the North Liard C-31A Well (ACW-2019-006-OBS-C-31A-WID1907)

Ms. Pauline de Jong

Obsidian Energy Ltd (“Obsidian”, “we”, “our”) is in receipt of the IR No. 2 letter from OROGO dated April 12, 2021 related to the Application to Abandon the North Liard C-31A Well (ACW-2019-006-OBS-C-31A-WID1907).

Obsidian is providing our response to the IR No. 2 requests as listed below:

2.1 Well Classification

REQUEST: Please submit an updated Well Abandonment Program that includes the following information:

- Correctly identifies the North Liard C-31A well as an acid gas well with a Level I Risk Classification.

RESPONSE: Please see the attached updated Well Abandonment Program that identifies C-31A with a Level 1 Risk Classification.

2.2 Regulatory Contacts

REQUEST: Please include the correct contact information for the relevant regulatory agencies and the appropriate contacts within those agencies in the updated Well Abandonment Program.

RESPONSE: Please see the attached updated Well Abandonment Program for C31A that includes the additional relevant regulatory agencies and contact information.

2.3 Proposed Final Wellbore Diagram

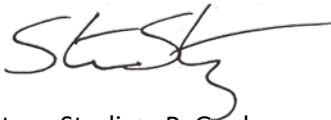
REQUEST: Please include an updated proposed final wellbore diagram that reflects the placement of 30 m cement plugs and the use of cement retainer(s) in the updated Well Abandonment Program.

RESPONSE: Please see the attached Well Abandonment Program for C31A with an updated final wellbore diagram that reflects the placement of 30 m cement plugs and the use of cement retainer(s).

If you require any additional information or clarification to support this request, I can be contacted directly at (403) 539-6454 at any time convenient for you.

Respectfully,

OBSIDIAN ENERGY LTD.

A handwritten signature in black ink, appearing to read "Steve Sterling", with a long horizontal flourish extending to the right.

Steve Sterling, P. Geol.,
Manager, Environment & Regulatory

cc. Aaron Smith, Senior Vice President, Development & Operations
Cliff Swadling, Senior Director, Production & Operations



200, 207 9th Avenue S.W.
Calgary , Alberta T2P 1K3
Phone : (403)777-2500
Fax: (403) 777-2699

Abandonment Information Package

Obsidian et al North Liard C-31A

Prepared By: Clive Mountford, P. Eng.
May 3, 2021

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1. DETAILED WELL HISTORY

Well Name: CDN FOREST ET AL NORTH LIARD C -31A

UWID: 300/C -31 -6040 – 12330/0

Licence #: N1907

A. Drilling

This well was drilled to a total depth of 2941.0mKB in August 4, 2000. It has PBDT of 2255.0mKB in April 3, 2001. Three sidetracks were conducted during the drilling as follows:

- Sidetrack No. 1
2366.8 mKB (TVD 2361.0mKB) – 2450.0mKB (TVD 2444.1mKB), majorly penetrated shales In Fort Simpson and Horn River formations
- Sidetrack No. 2
2300.0mKB (TVD 2294.3mKB) -2330.0mKB (TVD 2324.3mKB) majorly penetrated Shales in Fort Simpson formation
- Sidetrack No. 3
2300.0mKB (TVD 2294.3mKB) -2941.0mKB (TVD 2865.3mKB) majorly penetrated Shales in fort Simpson Horn Rover formations.

These three horizontal sections were fully abandoned with cement plugs due to no reservoir rock being penetrated. No coring and DST were performed.

B. Completion

Vertical section was re-completed from January 15 to February 6, 2002. The well was perforated in the Fort Simpson and Exshaw formations and followed by swab/flow tests. The perforation interval as follows:

<i>Perforation interval</i>	<i>Formation</i>	<i>Status</i>
1697.0 -1703.0mKB	Exshaw	Current
1762.0 – 1768.0mKB	Exshaw	Current, fracd
1730.0 - 1736.0mKB	Exshaw	Current
1967.0 – 1973.0mKB	Fort Simpson	ABD, fracd twice (BP @1800mKB)

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C. Swab and Flow Test Summary

- 1760.0 -01768.0 mKB (Exshaw formation)
 - Swab Test (01/24/2002) 9 swabs recovered 7.91m³ 100% water
 - Flow Test 901/25-01/31/2002) recovered 32.4m³ water +116m³ gas

- 1630.0 -1703.0mKB(Exshaw Formation)
 - Swab Test (02/07/2002) 23 swabs recovered 30.8m³ 100% water
 - Swab Test (02/08/2002) 35 swabs recovered 21.8m³ 100% water
 - Swab Test (02/09/2002) 36 swabs recovered 8.6m³ 100% water
 - Swab Test (02/10/2002) 12 swabs recovered 1.8m³ 100% water

Please see attached Latest Well Diagram, Well Data and History.

Abandonment Information Package

Penn West Energy Trust Well Data and History

August 13, 2008

C-31A-60-40-123-30

By: Denis Yang

General Data

Well Name :	CDN FOREST et al North Liard C-31A		
Surface Location:	60°30'00.3158" N 123°36'36.1336" W	Spud Date :	Aug 04, 2000
Bottom Location:	60°30'02.7440" N 123°36'30.5449" W	Rig Rel Date :	Jan 05, 2001
Well Status :	Completed	License # :	1900
Zone :	Exshaw	Surf Lse (\$/Yr) :	
		KB (m) :	488.0
		GL (mKB) :	481.3
		MD	2,941.0
		PBTD (mKB) :	2,255.0

Participants

Company	WI (%)

Surface Casing

Aug 10, 2000	15 jts, 508.0mm conductor, 195.0kg/m, 56 @ 190.0mKB Cemented w/ 80.0t 0-1-0 G + 1.0% CaCl2, no cmt returns
Aug 21, 2000	55 jts, 339.7mm casing, 101.0kg/m, K-55 @ 710.3mKB Cemented w/ 105.0t 0-1-0 G + 0.5% CFR + 0.3% LTR, 11.0 m3 good cmt returns

Production Casing

Dec 20, 2000	189 jts, 244.5mm casing, 80.0kg/m, HCL-80, BT&C @ 2629.6mKB Cemented w/ 20.0t 0-1-0 G + 0.75% CFR + 0.4% CFL-1 + 0.2% LTR, filled w/ 30.0t Thermal 40 + 1.0% CFR + 0.35% CFL-H + 0.15% HTR-2 with 6L FA-1/m3, tailed in w/ 53.0t Thermal 40 + 0.7% CFR + 0.7% CFL-2 + 0.2% LTR. Calculated cmt top @ 1100.0mKB
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DSTs

	None
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Perforations

Date	Depth (mKB)		Status	Comments
	From	To		
Feb 06, 2002	1,697.0	1,703.0	Current	7sh/m, Exshaw
Feb 06, 2002	1,698.0	1,702.0	Current	7sh/m, Exshaw
Feb 06, 2002	1,730.0	1,736.0	Current	7sh/m, Exshaw
Jan 27, 2002	1,762.0	1,768.0	Fractured	w/ 35.0 t of 20/40 sand
Jan 25, 2002	1,762.0	1,765.0	Current	7sh/m, Exshaw
Jan 25, 2002	1,764.0	1,768.0	Current	7sh/m, Exshaw
Jan 24, 2002	1,800.0	1,800.0	Bridge plug	Schlumberger's WR plug capped with sand
Jan 17, 2002	1,967.0	1,973.0	Fractured	w/ 35.0 t of 20/40 sand
Jan 17, 2002	1,967.5	1,972.5	Suspended	7sh/m, re-perforated, Fort Simpson
Jan 15, 2002	1,967.0	1,973.0	Fractured	w/ 35.0 t of 20/40 sand
Jan 15, 2002	1,967.0	1,973.0	Suspended	7sh/m, Fort Simpson

Production String Details

Feb 11, 2002	1-PX plug in XN nipple, 1-244.5mm x 88.9mm tubing hanger, 1-88.9mm x 60.3mm XO, 1 jt-60.3mm x 9.5m tubing, 1-60.3mm x 3.0m pup, 182 jts-60.3mm tubing(1740.9m), 7.0kg/m, J55, EUE, 1-60.3mm XN nipple c/w 47.8mm profile & 45.4mm no/go @ 1759.3mKB, 1jt-60.3mm x 9.6m tubing, 1-sawtooth collar, Tubing bottom @1769.3mKB
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Rod String Details

	None
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Report Date : Jul 23, 2007 1:54 PM

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Penn West Energy Trust Well Data and History

August 13, 2008

C-31A-60-40-123-30

By: Denis Yang

Well History

Feb 06, 2002	Perforated Exshaw 1730.0~1736.0mKB, 1697.0~1703.0mKB, 1698.0~1702.0mKB @ 7sh/m w/101mm ERHSC, 60 degree phasing, 23 gram charges. Swab test till Feb 11(see attached test data).
Jan 25, 2002	Perforated Exshaw 1762.0~11765.0mKB, 1764.0~1768.0mKB @ 7sh/m w/101mm ERHSC, 60 degree phasing, 23 gram charges. Fracd w/ 35.0t of 20/40 sand.
Jan 24, 2002	Suspended Fort Simpson perforations: set Schlumberger WR plug at 1800.0mKB and capped with sand.
Jan 22, 2002	Static Gradient:BHP=2896.5kPa @ MPP 1970.0mKB, BHT=106°C, fluid level @ 1850mKB.
Jan 17, 2002	Re-perforated Fort Simpson 1967.5~1972.5mKB @ 7sh/m w/101mm ERHSC, 60 degree phasing, 23 gram charges. Fracd w/ 35.0t of 20/40 sand. Swab test(see attached test data).
Jan 15, 2002	Perforated Fort Simpson 1967.0~1973.0mKB @ 7sh/m w/101mm ERHSC, 60 degree phasing, 23 gram charges. Fracd w/ 35.0t of 20/40 sand.
Apr 02, 2001	Ran cement plug #2 2400~2280mKB with 244.5mm cast iron bridge plug at 2370.0mKB. Final cement plug back depth @ 2255.0mKB.
Apr 01, 2001	Ran cement plug #1 2941~2841mKB with 244.5mm cast iron bridge plug at 2622.0mKB.
Mar 30, 2001	Completed sidetrack No 3 drilling at TD 2941.0mKB(TVD 2865.3mKB).
Jan 27, 2001	Started sidetrack No 3 drilling at kick-off point 2300.0mKB(TVD 2294.3mKB).
Jan 24, 2001	Completed sidetrack No 2 drilling at TD 2330.0mKB(TVD 2324.3mKB), and abandoned.
Jan 12, 2001	Started sidetrack No 2 drilling at kick-off point 2300.0mKB(TVD 2294.3mKB).
Jan 08, 2001	Completed sidetrack No 1 drilling at TD 2450.0mKB(TVD 2444.1mKB), and abandoned.
Jan 05, 2001	Started sidetrack No 1 drilling at kick-off point 2366.8mKB (TVD 2361.0mKB).
Dec 20, 2000	Drilled to 2629.6mKB. Ran and cemented 244.5mm casing @ 2629.6mKB.
Aug 21, 2000	Ran and cemented 339.7mm casing @ 710.3mKB.
Aug 04, 2000	Spud.

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EXISTING WELL DIAGRAM

2. ABANDONMENT PROGRAM



OBSIDIAN ET AL NORTH LIARD C – 31A

Wellbore Abandonment Program

Original

WID : 1907

Bottomhole Location: 300/C -31 – 6040 -12330

Surface Location: C-41-6030-12330

NON-CONFIDENTIAL

AFE # TBA

Obsidian Energy

200, 207 - 9 Avenue S.W.

Calgary, Alberta T2P 1K3

Phone: (403) 777 - 2500

Fax: (403) 777 - 2699

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OBJECTIVE

The subject location is a gas well abandonment.

This well was originally drilled in 2000 to TD of 2941.0mKB and measured depth of 2730 mKB and was originally completed in the Nahanni formation as a gas producer. Three sidetracks were conducted during drilling and were fully abandoned with cement plugs. Vertical section was re-completed from Jan.11 to Feb. 10, 2002. It was perforated in the Fort Simpson from 1967.0 – 1973.0mKB in Jan. 15, 2002 and reperforated after 2 days from 1967.5 – 1972.5 mKB and then fractured twice. Retrievable bridge plug was set at 1800 mKB with 1.5m sand on top of it. The well was then perforated in the Exshaw formation from 1762.0 -1768.0mKB; 1730.0 -1736.0 and 1697.0 -1703.0mKB in Feb. 2002. The did not have cement returns to surface during the drilling operations and no surface casing vent flow exists.

A service rig will be brought to location to pull the tubing and release WR plug. A bridge plug will be set and pressure tested to 7 MPa for 10 minutes and capped with 30 m of circulated Class 'G' cement. A cement retainer squeeze will be completed on the Exshaw perforations. The cement retainer will be set at 1692 mKB, pressure tested to 7 MPa for 10 minutes and capped with 30 m of circulated class 'G' cement. The well will then be cut and capped. The above procedure will be performed to provide isolation of gas bearing zone, discrete pressure zones and prevent any formation fluid from flowing through or escaping from the wellbore (Canada Oil and Gas Drilling and Production Regulations -SOR/2009-315)

II WELL DATA

Well Name: CDN FOREST ET AL NORTH LIARD C-31

License Number:	N1900	U.W.I.:	300/C-31-6040-12330
License Date:	July, 14, 2000	Lahee Class:	EXP
Spud Date:	Aug. 4, 2000	Rig Released:	Jan. 05, 2001
AFE Number:		Working Interest:	100%
AFE Amount:		Main Hole Mud:	
Elevations:	KB: 488.5m	GL: 481.3m	KB-CF: 5.9 m
Depths:	TVD: 2941.0mKB	PBTD: 2255.0mKB	BGWP:
	MD: 2730.0m		
ERP: Corporate	Current Status: Shut In		
OROGO Level:	Level I Well		

III TUBULAR & WELLHEAD DATA

Conductor Casing 1 : set @ 31.7mKB
(914.4mm hole size)

Conductor Casing 2: 15 jts. , 508mm, 195kg/m, grade 56 set @190.0mKB
Cemented w/ 60m3 0-1-0 "G" +1% CaCl₂. No cement returns at tank but cement was found at ground level when 762mm pipe was cut off
(660mm hole size)

Surface Casing: 55 jts. , 339.70mm, 101 kg/m, K-55 , BT& C set @ 710.3mKB

Cemented w/ 80.40m3 of 0:1:0 w/0.5 % CFR +0.3% LTR 80m3 Slurry
@1901kg/m3 + cellophane to the first 40m3 with 11m3 of good cement returns
(444.50 hole size)

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Collapse: 13400 Kpa Burst: 23800 Kpa
Drift I.D.: 311.379 mm Capacity: 0.078100 m³/m

Intermediate Casing: 143 jts. , 244.50mm, 80kg/m, HCl 80, BT&C, set @ 2629.57m
Cemented w/ 22.5m³ Thermal 40 +1% CFR, 0.35% CFL-2, + 0.35% CFL-H, 0.15% HTR-2, 6L FA-1 /m³ Tail w/ 37.51m³ Thermal 40 +0.7% CFR, .7% CFL-2 , 0.2% LTR.
Additional Comment: mixed 20 sacks of MICA to the first 20 tonnes of "G" cement. Mixed 10 sacks of mica and 10 sacks of cellophane to the first 20 tonnes of thermal 40. Full returns while cementing. Calculated cement top @ 1100mKB **(311.00 hole size)**

Collapse: 46000 Kpa Burst: 55000 Kpa
Drift I.D.: 212.83 mm Capacity: 0.036912 m³/m

Note: No need to cement squeeze un-cemented interval. Please see Appendix A for the Geologist review report)

Production Casing: set @ 2730mKB
(215.9mm hole size)

Tubing String: Sawtooth collar
(Bottom up) 1*60.3mm J-55, EUE, 6.99kg/m joint tubing
 60.3mm "XN" nipple c/w 47.6mm profile, 45.4mm nogo
 182 * 60.3mm J-55 ,EUE, 6.99kg/m ,tubing
 1* 60.3mm J-55 ,EUE, 6.99kg/m , pup joint
 1*60.3mm J-55 ,EUE, 6.99kg/m , joint tubing
 88.9mm *60.3mm crossover
 244.5 * 88.9mm tubing hanger
 "PX" plug in "XN" nipple
Tubing bottom landed @ 1769.26mKB

Collapse: 55800 Kpa Burst: 53100 Kpa
Drift I.D.: 48.285 mm Capacity: 0.002017m³/m

Note: Please see well detailed report for Latest Schematic Diagram

Rod String: none

Other Downhole:

Wellhead: 35 MPa Vetco Gray flanged wellhead

Abandonment Information Package

IV RESERVOIR PROPERTIES

Formation: Horn River

Fluid Type: Gas

Status: open hole / Abandoned

Cement: 1) 4.73m³ Thermal 40 + Additives 2) Cement: 7.5m³ Thermal 40 + Additives

Cement Top = 2841mKB

Cement top = 2255mKB

Cement Base = 2400 mKB

3) 244.5 mm cast iron Bridge Plug set 2255mKB, pressure tested to 7MPa

Formation: Fort Simpson

Fluid Type: Gas

Status: isolated with Retrievable Bridge Plug set @ 1800mKB

Interval (mKB): 1967.0 -1973.0

Length (m): 6

Formation: Exshaw

Fluid Type: Gas

Status: existing open perforation

Interval (mKB): 1762.0 -1768.0 / 1730.0 – 1736.0 / 1697.0 -1703.0

Length (m): 6/6/6; total: 18

BHP (kPa): 18100 kPa (well file recompletion dated 1/23/2002)

Temperature (°C): 106 well file recompletion dated 1/23/2002)

H₂S / CO₂ (%): 2 / 18 – well file info. dated Oct. 2, 2000 (always check and confirm H₂S on location)

V COORDINATES & DIRECTIONS

Coordinates (NAD 83)

Latitude 60.50053° N Longitude 123.61476° W

Directions: as per scouting and construction

Abandonment Information Package

VI **OBSIDIAN REQUIREMENTS**

HEALTH AND SAFETY MANAGEMENT

Obsidian Energy (Obsidian) is committed to protecting, its personnel, property and the public from accidents or incidents resulting from any of its operations. Obsidian shall meet these obligations by providing resources and taking the appropriate measures to protect and promote the health and safety of its employees, and to ensure operations do not adversely affect the environment and the general public.

HEALTH, SAFETY & ENVIRONMENT REQUIREMENTS

The Well site Supervisor will have reviewed the contents & requirements of;

- The Obsidian Policies & Procedures CD*-2008 and completed the required acknowledgements as it applies to all Obsidian well servicing operations.
- The Obsidian Health & Safety Management Policy
- The Obsidian Safely Managing Accidents Reduction Tactics Management System (SMART)
- The Obsidian Wellsite Supervisor "To Do" Checklist & Documentation Requirements*.

GENERAL REQUIREMENTS

The Wellsite Supervisor will;

Conduct operations in accordance with Territorial Acts & Regulations (OROGO), industry recommend practices (IRP's), Oil and Gas Drilling and Production Regulation, and Obsidian codes of practice.

Review the contents, requirements and have onsite the following documentation;

The well servicing program & AFE cost estimate for the operations to be undertaken.

- ◇ The Obsidian Corporate or Site Specific Emergency Response Plan (ERP) & required permits.
Complete a review of the procedures outlined in the ERP with all onsite Supervisors.
- ◇ The Obsidian Field Operations ERP Guide.
- ◇ The Energy Safety Canada Well Servicing Blowout Prevention Manual.
- ◇ The Obsidian Employer/Contractor Basic Safety Orientation Handbook.

OPERATIONAL & REPORTING REQUIREMENTS

The Wellsite Supervisor will;

- ◇ Complete the required Obsidian notifications.
- ◇ Complete & report completion of the Obsidian Wellsite Handover Forms
- ◇ Complete the regulatory (OROGO) notification requirements 24 hours;
 1. Prior to the beginning of any well servicing operations.
 2. Prior to the beginning of Flaring, Incinerating & venting as per regulatory (OROGO)
- ◇ Complete & post the Obsidian Notice of Supervisor Form
- ◇ Complete & post an Emergency Response Contact List.
- ◇ Complete & post a Fire & Explosion Prevention Plan.

Abandonment Information Package

- ◇ Review and confirm any/all changes in operations with the Well Servicing Coordinator or their alternate.
- ◇ Complete daily the worker Sign-in/Sign-out form.
- ◇ Complete & report daily the Obsidian – Hazard Assessment Safe Work Agreement
 1. Pre-Job Safety Meeting operations to be undertaken at the beginning of the day & whenever a change in the scope of operations occurs.
 2. Review the requirements for the Obsidian - Codes of Practice & Rules.
 3. Ensure all onsite personnel are IRP 16 compliant and can make available the required safety & well operations certifications (H₂S Alive, First Aid, WHMIS & TDG etc).
 4. Make all onsite personnel aware of their responsibilities should an incident occur as per the ERP.
 5. Make it known to all onsite personnel for the requirement to wear & utilize the appropriate personnel protective equipment (PPE) as per Obsidian Standards.
 6. Make it known to contractors their responsibilities for the compliance of any subcontractors.
 7. Maintain and make available Material Safety Data Sheets for the Obsidian & contractor materials.
 8. Make available & complete Obsidian HSE Opportunity & Worker Observation Cards.
 9. Ensure that the appropriate WARNING/HAZARD signs are positioned at the lease entrance.
 10. Designate appropriate SMOKING AREA(s) as per regulations.
- ◇ Complete & report a Site Safety Orientation for workers arriving after the issue of the Safe Work Agreement.
- ◇ Read & report daily tubing & casing pressures.
- ◇ Complete & report all pressure & function testing associated with service rig, coil tubing rig & BOP system inspections requirements & frequency as specified by CAODC.
 - Inspection certificates must be provided for all third party equipment on site.
- ◇ Complete & document the required BOP & man down practice drills Obsidian standard practice.
 1. Review & discuss daily well control processes.
 2. For sites where the presence of H₂S has been identified all personnel should be familiar with the onsite SCBA's and as a minimum complete a 'mask up' operation.
- ◇ Immediately notify the Well Servicing Coordinator or their designate of ALL incidents and OROGO. (Up to and including "unsafe acts & near misses" that could have or did result in someone being injured, equipment damage, spills & releases) & complete the Obsidian Incident Reports.
- ◇ Complete & submit at the end of operations all material and equipment transfers.

Field Tickets:

Ensure that the well name, location, AFE number, cost coding, and Completions Superintendent are correct on all field tickets prior to signing and the information is entered into WellView. Without this information on all tickets the vendor may experience difficulty in receiving payment. Review the ticket to verify the charges are fair and accurate; if the Wellsite Supervisor feels that the charges are not correct do not sign the ticket and contact the Calgary office with the details. Have the vendor send the invoice into:

Obsidian Energy

200, 207 9th Avenue SW
Calgary, Alberta T2P 1K3

Attention: Completions Engineering

Abandonment Information Package

VII CONTACTS

Obsidian

Name	Title	Office	Cellular
Craig Langford	Environmental Coordinator	403-597-0428	

All other contacts will be confirmed 30 days prior to commencement of operations

REGULATORY, HEALTH, & SAFETY AGENCIES

Name	Location	Office
OROGO	Yellowknife	867-767-9097 – Main Switchboard 867-445-8551 – Incident Reporting 867-920-8130 – Spill Response Line

GNWT Department of Lands,

Decho Regional Office

867-695-2626

Fort Nelson General Hospital Forth Nelson, BC

250-774-8100

Emergency

911

Forth Liard Emergency Response Team Forth Liard, NWT

R.C.M.P

770-1111-phone # 770-4224-fax

Resource Wildlife

770-4300 –phone # 770-4600-fax

Fire Emergency (Safety and Protective Officer)

867- 770-4104 Ext. 116 – phone #

867- 770-4004 – fax #

SERVICE COMPANY:

Service Rig - still determining specific service Rig Company

Important information regarding Back- up Rig - There are service rigs available to us in NE BC in the event that the primary service rig suffers catastrophic failure, one of these would be mobilized to the C31-A location should it be required

Note: Certification of above services will be available onsite. Copy will be submitted to OROGO prior to commencing operations

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VIII PROCEDURE

- Note: Copy of Operations Authorization, Well approval and operating manuals and other procedures to execute the work activity should be available all the time in the location**
- : All depths in the program are measured depths.**
 - : “Oil and Gas Occupational Health and Safety Regulations”, “Oil and Gas Drilling and Production Regulations” and “Oil and Gas Operations Act” Copies should be followed and available on site all the time**
 - : Personnel and equipment certificates should always be available during operation**

1. Notify the Obsidian field office and OROGO at least 24 hours before commencing well site operations. Ensure the following documentation is completed prior to commencing wellsite operations:
 - Obsidian *Wellsite Hazard Assessment Plot Plan*; scout the location for construction requirements, hazard identification, and wellhead specification.
 - Obsidian *Notice of Supervision* form.
 - Obsidian *Well Site / Facility Handover Form* with the Obsidian production staff.
 - Obsidian ‘Ground Disturbance’ requirements.
 - Obsidian **Flaring / Venting / Incinerating Resident Notification Form**; deliver to all the applicable residents and document the date and time of delivery in Wellview - confirm with the Calgary office that the resident notification has been conducted.

Note: Refer to the key contacts in the program for names and numbers.

2. No flaring is anticipate on this wellbore
3. Perform a surface casing vent flow and gas migration test. Ensure the *Obsidian Surface Casing Vent Flow/Gas Migration Data Sheet* is completed and sent in with the final report.
4. Rig in free standing Class III rig and associated equipment in accordance with which OROGO, Obsidian Exploration and OH&S specifications. Complete CAODC service rig inspection, and rectify any deficiencies before continuing. Function test crown saver and all diesel engine ‘kills’.

Note: Ensure the Unit and associated equipment can handle 2000 metres of 60.3 mm, J55 tubing

5. Rig in the following safety services as required:

Service	Condition
ETV	Travel time from wellsite to health care facility > 40 minutes
Medic	Number of workers on location > 19
Air Trailer	H ₂ S > 0 ppm
Safety Supervisor	H ₂ S > 1.0%
Fire Protection	Heating or high pressure pumping of flammable fluids
Shower unit	Potential of body exposure to injurious materials

6. Sweep area for ‘LEL’. Check wellhead for H₂S and shut in pressures.
7. Hold a safety and procedural meeting; conduct a pre-job hazard assessment with all onsite Personnel and document in the Wellview report.

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Note: Ensure the Directive 033 - Explosive Mixture and Ignition Potential Identification Sheet is filled out, discussed, and posted in the doghouse.

8. Stump test the BOP equipment, manifold, and lines. Ensure the well is dead; kill well by circulating well over to fresh water. Remove wellhead, install the BOPs and pressure test the ring groove connection. Perform all pressure and function tests.

Note: Low pressure test: 1400 kPa.
High pressure test: 21 000 kPa (Or Max. capability of wellhead)

Note: water will be used as a kill fluid since Hydrostatic Pressure of water @ deepest existing open perforation is higher than the determined BHP @ that depth. Please see below calculations:

Data: P @ 1768mKB = 10995 KPa

H (depth) of deepest open perms. = 1973.0mKB

Therefore: P @ 1973.0 mKB: $10995/1768 = X / 1973.0$

$$X = \text{Pressure} = 12270 \text{ Kpa}$$

Hydrostatic Pressure of water @ deepest open perms. = $10\text{Kpa/m} * 1768\text{m} = 17680 \text{ Kpa}$

Therefore water as a kill fluid will be enough to suppress the pressure of formation fluids

9. Pull tubing out of hole in the derrick

Details: Sawtooth collar
(Bottom up) 1*60.3mm J-55, EUE, 6.99kg/m joint tubing
60.3mm "XN" nipple c/w 47.6mm profile, 45.4mm nogo
182 * 60.3mm J-55, EUE, 6.99kg/m, tubing
1* 60.3mm J-55, EUE, 6.99kg/m, pup joint
1*60.3mm J-55, EUE, 6.99kg/m, joint tubing
88.9mm *60.3mm crossover
244.5 * 88.9mm tubing hanger
"PX" plug in "XN" nipple
Tubing bottom landed @ 1769.26mKB

Collapse: 55800 Kpa Burst: 53100 Kpa
Drift I.D.: 48.285 mm Capacity: 0.002017m³/m

NOTE: additional 60.3mm tubing needed to set bridge plug @ 1960mKB

10. Run in hole with Schlumberger "WR" retrieving tool on 60.3 mm tubing. Circulate sand off of the "WR" plug. Latch on to plug and open equalizing valve. Unset "WR" plug and let elements relax for 10 minutes. Pull and stand 60.3 mm tubing. Lay down "WR" plug.
- **Contingency:** If unable to pull the Schlumberger "WR" plug, contact the OROGO regulator and seek permission to set the 10K permanent bridge plug to abandon the Fort Simpson at 1796 mKB instead of 1960 mKB. The bridge plug should be capped with 30 m of circulated cement.
11. Run in hole with bit and 244.5 mm scraper while circulating **with fresh water** within 5 m of lowest perforation to clean the hole before setting a bridge plug.
12. Run hole with 60.3 mm tubing complete with hydraulic setting tool, 10K permanent bridge plug, and 244.5 mm packer. Set 10K permanent bridge plug at 1960 mKB (sweep the setting area with the MCCL prior to setting to ensure there are no nearby collars). Set packer less than 1 m above the bridge plug and pressure test bridge plug to 7 MPa for 10 minutes. Unset packer, pull and stand tubing. Lay down packer

Abandonment Information Package

13. Run in with 60.3 mm tubing open ended and tag bridge plug at 1960 mKB. Circulate at least a 30 mTVD cement plug on to the bridge plug. Pull and stand tubing.
14. Conduct injectivity test in to the Exshaw perforations with at least 2.0 m³ of fresh water. Design a cementing program based on the injectivity test results. Record the Initial Shutin Pressure.
15. Run in with a 244.5 mm cement retainer on hydraulic setting tool on 60.3 mm tubing and set the cement retainer at approximately 1692.0 mKB (sweep the setting area with the MCCL prior to setting to ensure there are no nearby collars). Pressure test cement retainer to 7 MPa for 10 minutes.
16. Move in C&A unit, bulker and vacuum truck. Conduct slow rate cement squeeze through the cement retainer in to the Exshaw perforations.
 - The cement volume squeezed must be at least equal to the casing volume from the bottom of the retainer to the bottom perforations plus 0.5 m³. This volume should be greater than or equal to 3.31 m³
 - The final squeeze pressure must be a minimum of 7 MPa above the current reservoir pressure of the Exshaw.
17. Sting out of the retainer and balance a 30 m cement cap on the retainer
18. Pull and lay down tubing.
19. Move in and rig up wireline unit. Run radial cement bond log from cement cap to surface. Correlate to open hole logs.
20. **Contingency:** Should the cement bond log indicate cement top below the Exshaw formation top a second cement retainer cement squeeze should be completed.
 - **Perforate the Exshaw formation top with a 127 mm x 1 m ERHSC (25 Gram GH, 20 SPM, 60 Deg) from 1543.0 – 1544.0 mKB.**
 - Conduct injectivity test in to the Exshaw perforations with at least 2.0 m³ of fresh water. Design a cementing program based on the injectivity test results. Record the Initial Shutin Pressure.
 - Run in with a 244.5 mm cement retainer on hydraulic setting tool on 60.3 mm tubing and set the cement retainer at approximately 1692.0 mKB (sweep the setting area with the MCCL prior to setting to ensure there are no nearby collars). Pressure test cement retainer to 7 MPa for 10 minutes.
 - Move in C&A unit, bulker and vacuum truck. Conduct slow rate cement squeeze through the cement retainer in to the Exshaw perforations.
 - i. The cement volume squeezed must be at least equal to the casing volume from the bottom of the retainer to the bottom perforations plus 0.5 m³. This volume should be greater than or equal to 3.31 m³
 - ii. The final squeeze pressure must be a minimum of 7 MPa above the current reservoir pressure of the Exshaw.
 - Sting out of the retainer and balance a 30 m cement cap on the retainer
 - Pull and lay down tubing.
21. NOTE: As per the geological review there is no effective porosity to isolate above the Exshaw.
22. Conduct surface casing vent flow test to confirm the wellbore can be cut and capped. Fill out and sign the Surface Casing Vent Flow data sheet. Also ensure there is no pressure on the wellbore. If no evidence of gas migration or surface casing vent flow exits, proceed with cut and cap operation.
23. Excavate a ditch / hole around the wellhead down to a depth of 2.5 m.

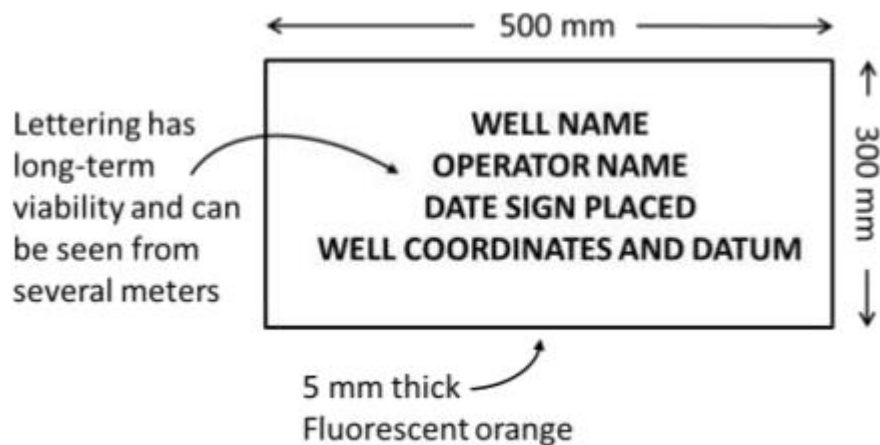
Abandonment Information Package

24. Ensure no wellhead pressure has built up by opening the casing or tubing valve. Perform a LEL atmospheric measurement in the excavation to ensure cutting operations are safe. Secure the wellhead with overhead rigging. Cut two windows into the production casing – **DO NOT EXCEED 1/3 CASING CIRCUMFERENCE WITH EITHER WINDOW**. Cut off both casings so that the production casing is recessed lower than the surface casing and that both casing strings are at least 2.0 meters below ground level when capped. Ensure all workers are fully prepared for well head and casing movement during this operation and are protected accordingly.
25. TACK Weld a metallurgic ally compatible steel plate across the production casing, using non continuous fillet welds to allow the production string to vent. Weld a separate steel plate in a similar fashion onto the surface casing. Weld the first two numbers of the location onto the top of the surface casing plate for future identification (i.e. – LSD-SECTION).

NOTE: All steel plates must be compatible with the production casing to avoid corrosion.

26. Fill in the excavation above the casings. Remove all debris and move off location. Install post and sign at casing stub location with the following information:

NOTE: Not fluid or solids waste is anticipated during the operations.



27. Inform the field foreman that the job is complete.
28. Rig out and release all equipment. Note: All waste should be handled in accordance with Obsidian NWT Waste Management Plan document.
29. Prepare a sketch of the lease, including surplus equipment, contaminated area, etc. and forward to Calgary.

APPENDIX A

Abandonment Information Package

Assessment of Porous Intervals in Liard C-31 For Obsidian Energy December 4, 2020

Raw Data

Spud: Aug 4, 2000, December 27, 2000 Drilled to 2730 m Logged to 2630 m KB
KB: 487.99

Total Depth: 2730.75 m KB
PBD of 2255.0mKB April 3, 2001.

Three hz sidetracks were conducted:

- **Sidetrack No. 1**
2366.8 mKB (TVD 2361.0mKB) – 2450.0mKB (TVD 2444.1mKB),
penetrated Fort Simpson and Horn River formations shales (from
mudlog).
- **Sidetrack No. 2**
2300.0mKB (TVD 2294.3mKB) -2330.0mKB (TVD 2324.3mKB)
penetrated Fort Simpson formation shales (from mudlog).
- **Sidetrack No. 3**
2300.0mKB (TVD 2294.3mKB) -2941.0mKB (TVD 2865.3mKB)
penetrated Fort Simpson/Horn River formation shales (from mudlog).

In the vertical well, post abandonment of the sidetracks, a cement plug was run 2400-2280 metres with a 244.5 mm cast iron bridge plug at 2370 m and cement plugged back to 2255 mKB.

Vertical Completions

The vertical well re-completed from January 15 to February 6, 2002. The well was perforated in the Fort Simpson and Exshaw formations and followed by swab/flow tests. The perforation interval as follows:

Exshaw:
1697.0 -1703.0mKB
1762.0 – 1768.0mKB, fractured 35 tonnes of 20/40 sand
1730.0 - 1736.0mKB

Fort Simpson:
1967.0 – 1973.0mKB, fractured 70 tonnes of 20/40 sand (fraced 2 times)

The Fort Simpson did not respond to the two fracs and was not swabbed. A bridge plug was placed at 1,800 metres above the Fort Simpson perforations and capped with sand.

Abandonment Information Package

Swab and Flow Tests for the Exshaw were as follows:

1762-1768m (Exshaw)
Swab Test – 9 swabs recovered 7.91 m³ water
Flow Test – recovered 32.4 m³ water and 116 m³ gas

1630-1703m (Exshaw)
1) Swab test – 23 swabs recovered 30.8 m³ water
2) Swab test – 35 swabs recovered 21.8 m³ water
3) Swab test – 36 swabs recovered 8.6 m³ water
4) Swab test – 12 swabs recovered 1.8m³ water

Casing:

Surface casing, 339 mm, set at 710.3 mKB and cemented with good cement returns.

Intermediate casing, 244 mm, set at 2629.6 mKB and the estimated cement top is ~1,110 m KB. Very poor cement job, due to hold conditions throughout the entire string.

Hole Quality

Through the 660 mm surface hole, spud to 710 m the hole was drilled and in good shape, there are a number of intervals of filter cake build up and minor amounts of hole over gauge.

Through the 311 mm intermediate hole, the wellbore was severely over gauge, to the point where the well logs are unable to reliably determine porosity (from the neutron-density) for porosity determination. Case hole neutron log would not be helpful due to the distance between the casing, cement and the formation wall being too far removed to provide an accurate porosity measurement.

Geology – Potential Unconventional Reservoir Intervals

The tops for the well are as follows:

Triassic ?	Spud	Limestone/shale Marls, in ground water system.
Yohin	94 m	Sandstones , minor limestones, no fluoresce, no shows no gas
Besa River	352 m	Shale and Marlstone, consistent drilling liberated hydrocarbons, non-reservoir
<i>Well Deviation begins</i>		
Banff	1320 m md	Shale dark to very dark grey minor consistent drilling liberated

Abandonment Information Package

dryer gas than Besa River, *non-reservoir*

Exshaw	1543m md	Shale dark grey to black, organic rich petroliferous, minor consistent drilling liberated gas, <i>non-reservoir</i>
Fort Simpson	1900 m md	Shale med-grey to dark grey, minor siltstone, dolomitic, consistent drilling liberated gas, richer than Banff or Exshaw formation, <i>non-reservoir</i>
	2030 m md	Sandstone quartz fine to medium grained, reduction in drilling liberated gas, no shows, no staining (<i>cannot assess porosity due to poor hole conditions</i>), <i>most likely non-reservoir</i>
	2125 m md	Shale as above, Fort Simpson
Horn River	2375 m md	Shale dark grey to black, bituminous, micro-fractured, rare marlstone, lower amounts of liberated drilling gas than Fort Simpson, <i>non-reservoir</i>
Final Total Depth	2730.75 m md	

Drilling Kicks

There was a gas kick at ~1069 metres measured depth within the Besa River shales. The corresponding gas spike included C1 to C5+ and was described as a fracture zone by the wellsite geologist who observed crystalline calcite in the samples.

My opinion is that this fracture system was small and not connected to a larger zone that may host a continuous feed of hydrocarbons for the following reasons:

- 1) Once liberated, the zone did not continue to add to the overall total gas count and mud weight was not increased
- 2) There was no drilling fluid lost recorded during drilling the zone
- 3) Only dead oil was seen in the sample, no fluorescence or cut would imply it was only a gas filled fracture.

For the abandonment of Liard C-31 this zone, even though above the cement top should not be considered a porous interval.

Even with the lack of a neutron-density log, there are no porous zones below the cement top of ~1,100 metres that appear to contain conventional formation reservoir. There are no gas kicks that would indicate any fracture zones that may be an intra-formation issue.

Abandonment Information Package

Surface Casing Interval

Within the Surface Casing there are three zones that appear porous.

194 to 197m (sandstone),
225 to 232 m (sandstone) and,
266 to 273 m (limestone)

All three of these zones appear to be wet, most like fresh water or slightly brackish waters that are part of the ground water system. There is no evidence of hydrocarbon from the sample logs and a very minor C1 gas reading while drilling these zones most likely resulting from biogenic methane.

Conclusions:

There appears to be no porous reservoir intervals within this wellbore containing hydrocarbons. The Fort Simpson, in the vertical well, would not flow after two small fracture stimulations. The Exshaw intervals would not flow, or recovered fracture stimulation waters and a very small quantity of natural gas.

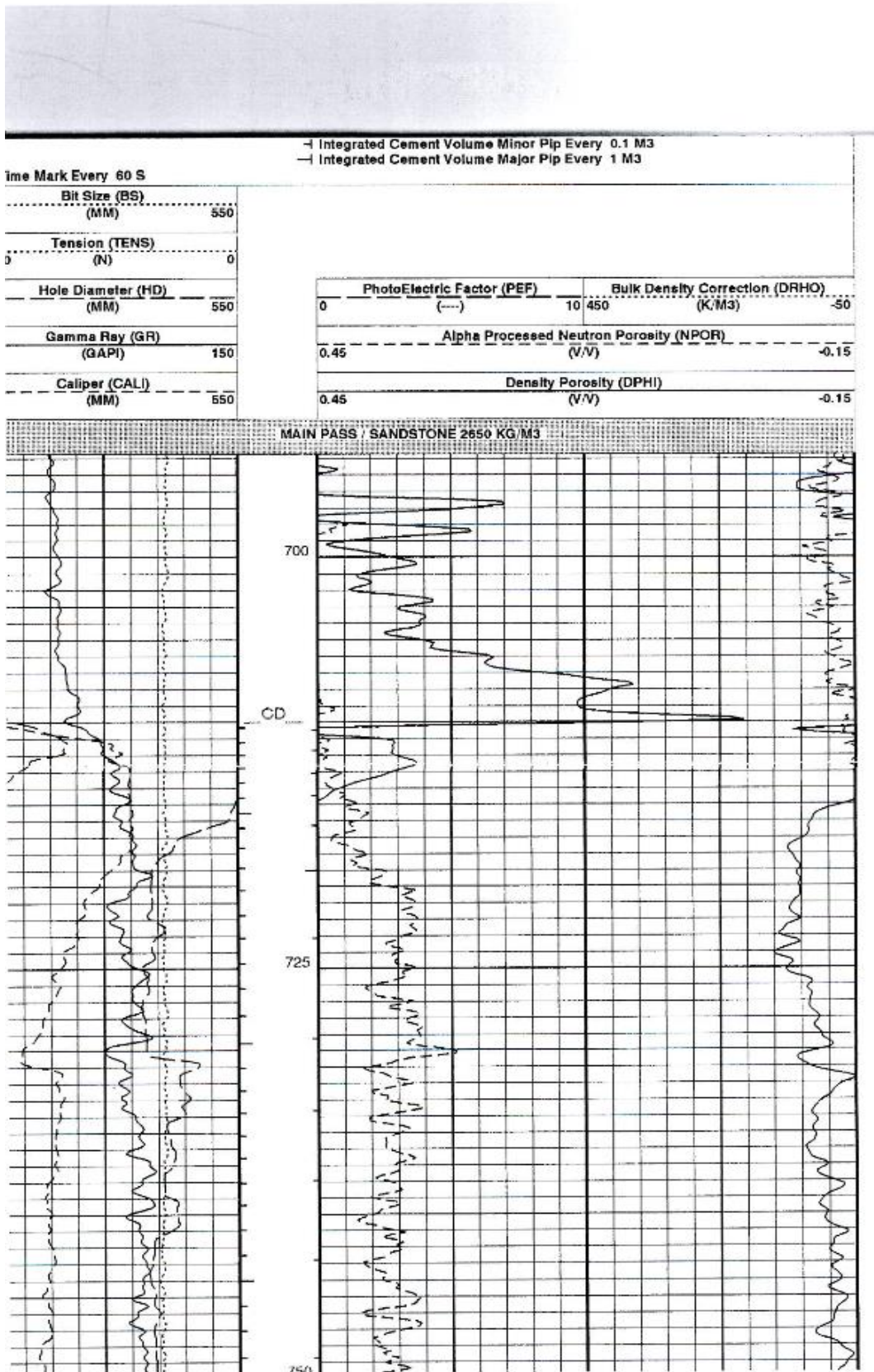
John Hogg, P.Geol. (NAPEG)

Abandonment Information Package

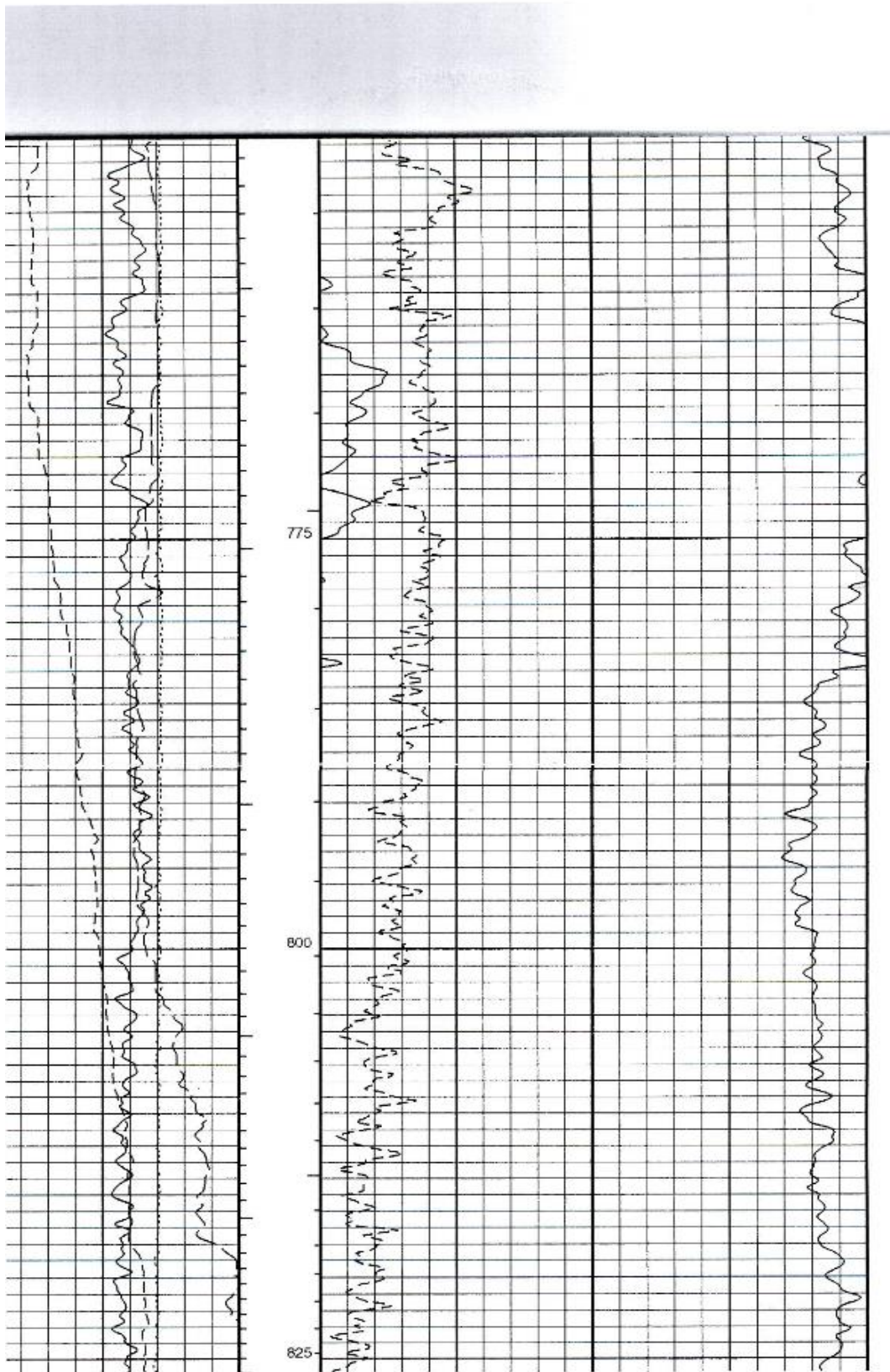
COMPANY: CANADIAN FOREST OIL LTD.			
WELL: CDN FOREST et al NORTH LIARD C-31			
FIELD: NORTH LIARD			
PROVINCE: NORTHWEST TERRITORIES			
PROVINCE: NORTH-WEST TERRITORIES Field: NORTH LIARD Location: C-31-60-40-123-30 Well: CDN FOREST et al NORTH LIARD C-31 Company: CANADIAN FOREST OIL LTD.	Schlumberger		COMPENSATED NEUTRON LITHODENSITY LOG
	C-31-60-40-123-30 LATITUDE: 60 DEG. 40 MIN LONGITUDE: 123 DFG. 30 MIN		Elev.: K.B. 487.89 m G.L. 481.32 m D.F. 488.29 m
Permanent Datum: GROUND LEVEL Log Measured From: KELLY BUSHING Drilling Measured From: KELLY BUSHING		Elev.: 481.32 m 5.7 m above Perm. Datum	
API Serial No. 1900			
MUD	Logging Date	14-DEC-2000	
	Run Number	TWO	
	Depth Driller	2629.5 m	
	Schlumberger Depth	2630.5 m	
	Bottom Log Interval	2619 m	
	Top Log Interval	710 m	
	Casing Driller Size @ Depth	339.700 mm @ 710 m	
	Casing Schlumberger	710 m	
	Bit Size	311.000 mm	
	Type Fluid In Hole	K2904	
	Density	1640 kg/m ³	112 s
	Fluid Loss	PHI	10 cm ³ 10.5
	Source Of Sample	FLOWLINE	
	RM @ Measured Temperature	0.190 ohm.m @ 16 degC	@
	RMF @ Measured Temperature	0.070 ohm.m @ 15 degC	@
RMG @ Measured Temperature	0.090 ohm.m @ 16 degC	@	
Source: IMF	IMC	MEASURED MEASURED	
RM @ MRT	RMF @ MRT	0.053 @ 112 0.019 @ 112	@ @
Maximum Recorded Temperatures	112 degC		
Circulation Stopped	Time	13-DEC-2000 23:15	
Logger On Bottom	Time	14-DEC-2000 22:30	
Unit Number	Location	3025 GRANDE PRAIRIE	
Recorded By	GREG STEWART		
Witnessed By	BRYAN BELLMAN		

WELL FILE
COPY

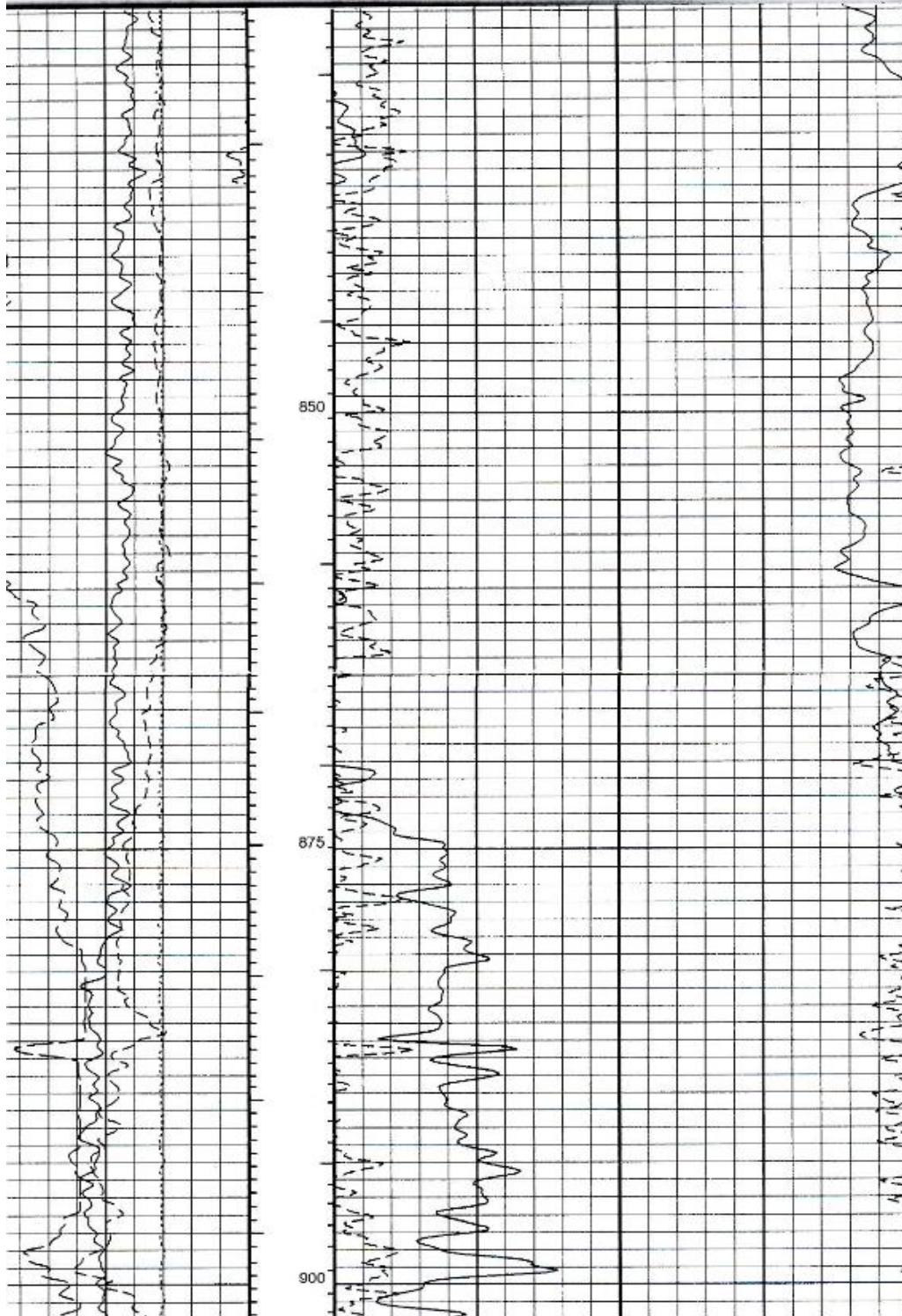
Abandonment Information Package



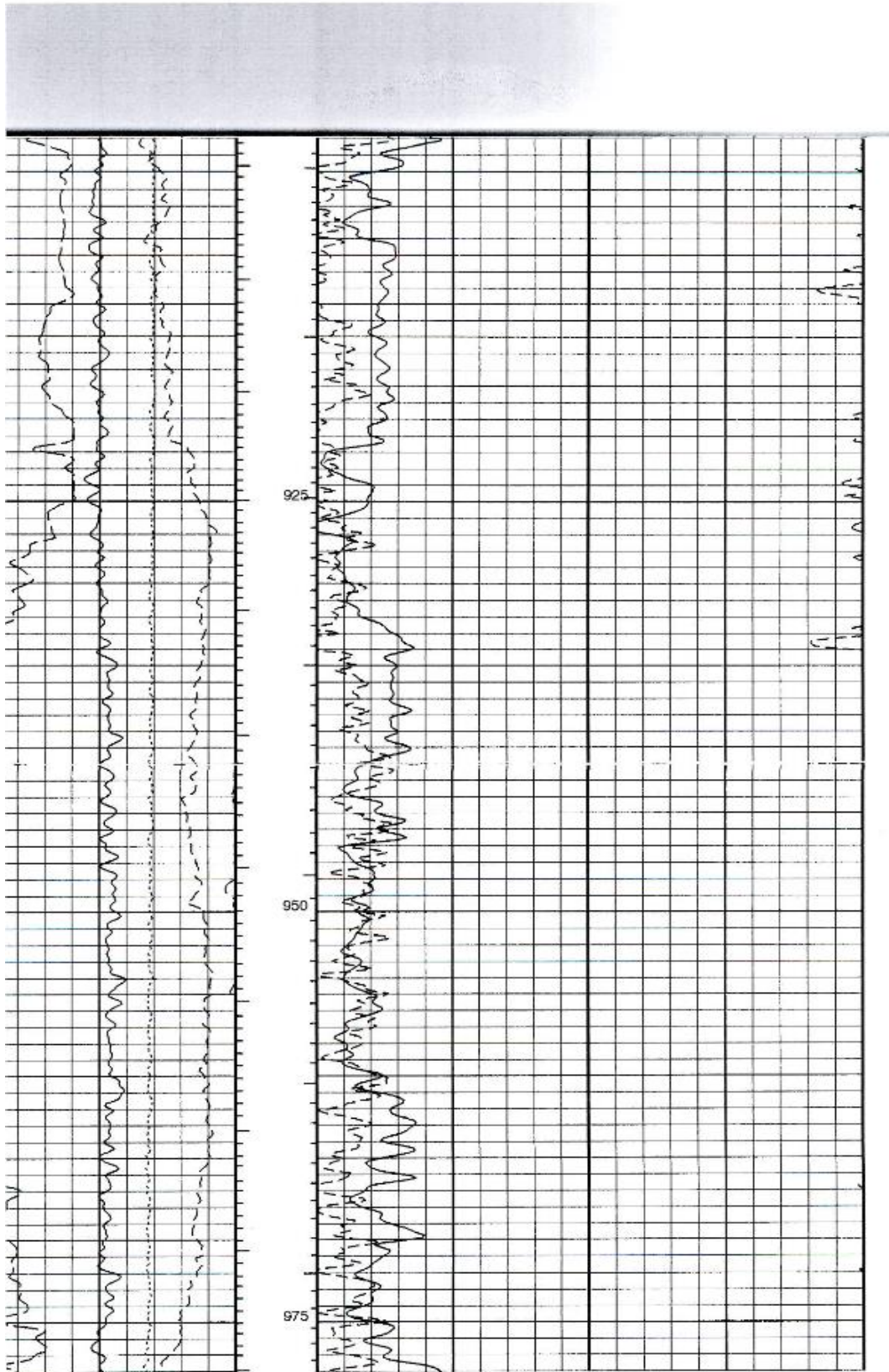
Abandonment Information Package



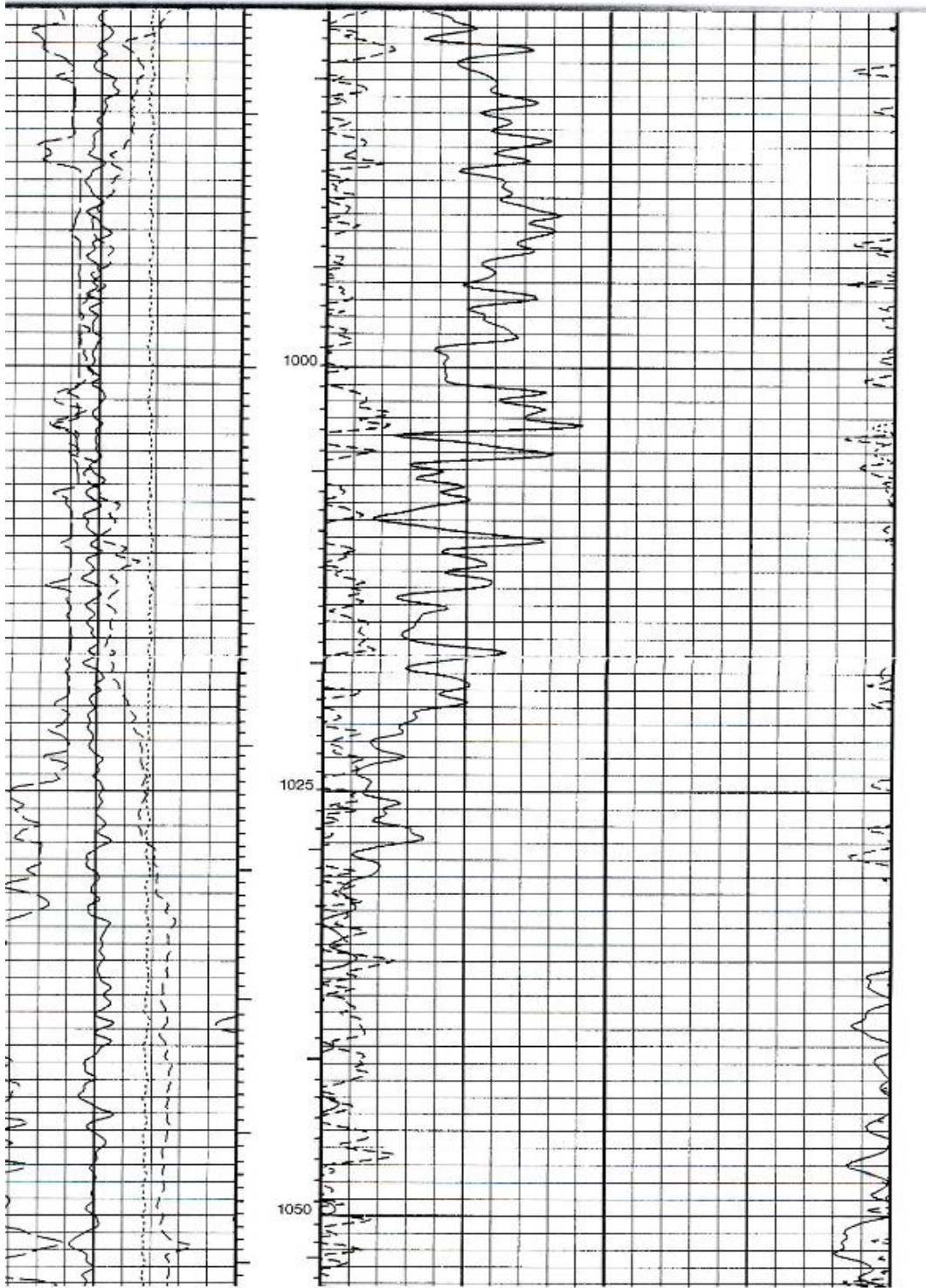
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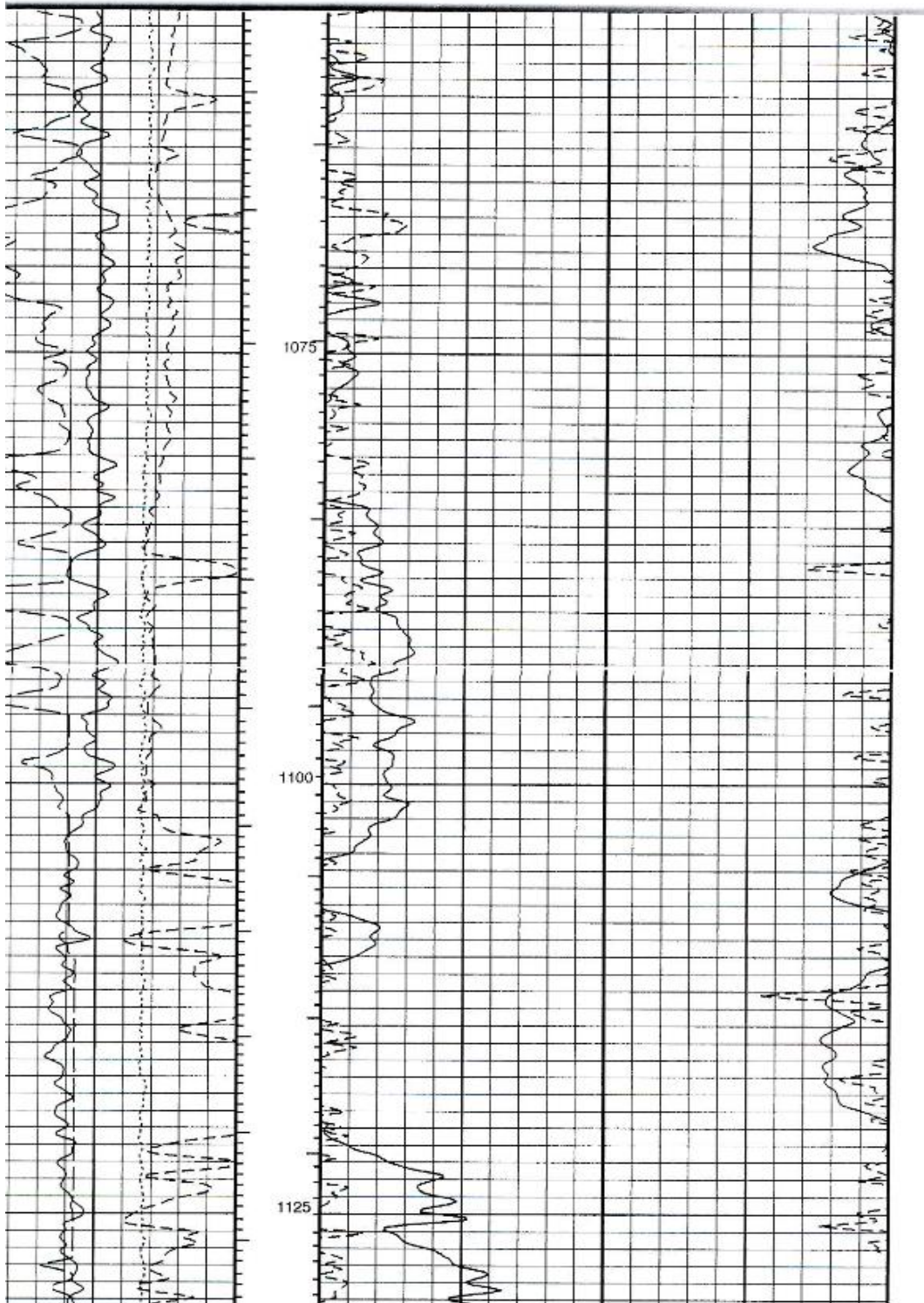
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APPENDIX B

APPENDIX C



OBSIDIAN ENERGY

WELL CONTROL EQUIPMENT REQUIREMENTS

OBSIDIAN ET AL NORTH LIARD C-31A

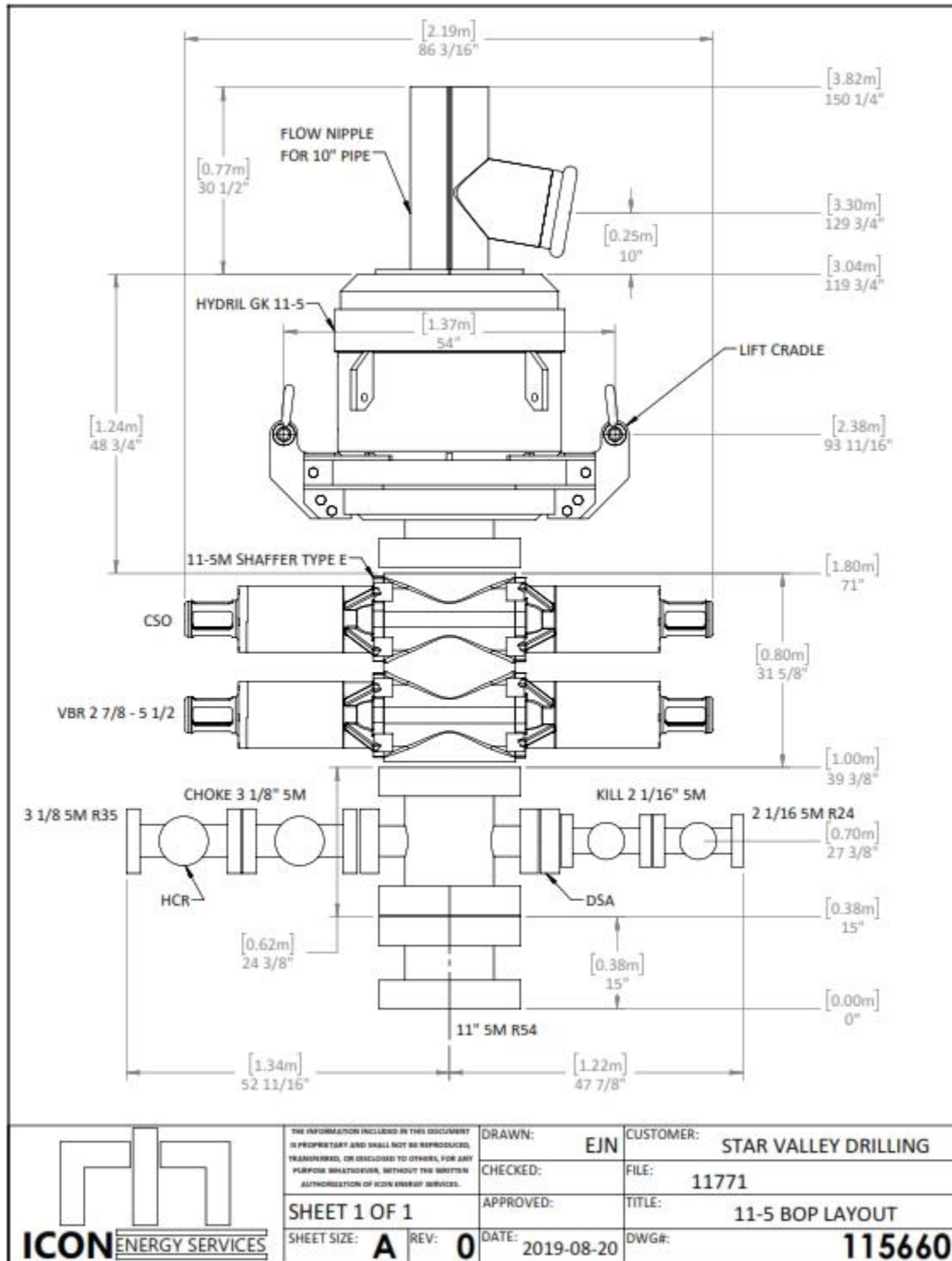
VERTICAL WELL

APPROVAL TO ALTER CONDITION OF A WELL DOCUMENTS

Well Control Equipment Requirements

- A well servicing 21 MPa blowout preventer (BOP) stack will be used for well control (see schematic below
 - o The BOP stack will consist of
 - Work spool
 - Pipe rams (sized tubing installed in the C-31A wellbore – 60.3 mm tubing)
 - Blind rams
 - Annular Preventer
 - Remote Controls
- The BOP stack was chosen for two reasons:
 - o The working pressure of the stack is well above the expected bottomhole pressure (Fort Simpson bottomhole pressure = 2896 KPa) and/or expected surface pressures seen on the C-31A well
 - o The addition of the Annular Preventer allows for an additional level of backup for the pipe rams when tripping tubing, pumping kill fluid, etc.
- An appropriately size 35 MPa pump will be mobilized to the location with the service rig for well kill operations
- Enough kill fluid for 2 times the hole volume will be mobilized to location for well kill operations.

Abandonment Information Package



	<small>THE INFORMATION INCLUDED IN THIS DOCUMENT IS PROPRIETARY AND SHALL NOT BE REPRODUCED, TRANSMITTED, OR DISCLOSED TO OTHERS, FOR ANY PURPOSE WHATSOEVER, WITHOUT THE WRITTEN AUTHORIZATION OF ICON ENERGY SERVICES.</small>		DRAWN: EJN	CUSTOMER: STAR VALLEY DRILLING
	SHEET 1 OF 1		CHECKED:	FILE: 11771
	SHEET SIZE: A REV: 0		APPROVED:	TITLE: 11-5 BOP LAYOUT
	DATE: 2019-08-20		DWG#:	115660

APPENDIX D

Abandonment Information Package

Obsidian Et Al North Liard C-31A Abandonment Schedule

Day	Description Of Operations
	Build Ice Road to Location
1	Mobilize service rig
2	Rig up and prepare for abandonment operations
3	Pull WR Plug and run bit /scraper
4a	Set bridge plug and circulate 30 m cement cap on bridge plug
4b	Conduct injectivity test in to Exshaw perforations and run cement retainer
5	Conduct cement squeeze on Exshaw perforations leaving a 30 m circulated cement cap on the cement retainer
6	Run radial cement bond log
7	Rig out service rig
6	Demobilize service rig
7	Cut and cap well

APPENDIX E

Abandonment Information Package

Version: February 9, 2017



WELL INSPECTION REPORT

INSTRUCTIONS:

1. Complete both pages.
2. Send one electronic copy of this form and supporting technical documentation by email to orogo@gov.nt.ca.
3. Send one signed hard copy of this form and supporting technical documentation by courier to:
 Chief Conservation Officer
 Office of the Regulator of Oil and Gas Operations
 4th floor Northwest Tower
 5201 50th Avenue
 Yellowknife NT X1A 3S9

WELL INFORMATION

Well Name: OBSIDIAN ET AL FORT LIARD C-31

Coordinates: <i>(verify onsite)</i>	Lat: 60° 0' 30"	Long: 123° 36' 36"
	Datum: NAD83	

Well Operator: Obsidian Energy Status: Suspended

Current Inspection Date: July 29, 2020 WID:

Previous Inspection Date: August 17, 2019 Completed in H₂S zone? No; % of H₂S: 0

EVALUATION

Site

Accessible for inspection and monitoring? Yes;

Equipment or debris on site? No;

Additional clean up required? No;

Any environmental or safety concerns? (see Note 1) No;

Number of photos attached? (required) 10 (wellhead, valves, signage and site area, other)

Wellhead

Wellhead accessible for inspection and monitoring? Yes; Helicopter/winter access

Brush cleared 10m around wellhead? Yes;

Visible well marker in place? No; No wellhead sign

Wellhead chained and locked? Yes;

Pumpjack secure? Select

Wellhead valves operate freely? Yes; Casing valve and master valves operate freely to get pressure readings

Surface casing vent open? Yes;

Pressure test well head seal assembly? No; Tested and passed in 2019

Pressure rating of all components: 35 MPa

Wellhead schematic attached? (required) Yes;

Page 1 of 3
Please print double-sided.

Abandonment Information Package

Version: February 9, 2017

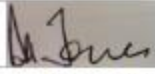


SCVF / Gas Migration	
Evidence of SCVF? <small>Note 1</small>	<u>No; Passed bubble test</u>
SCVF test conducted?	<u>No;</u>
Signs of gas migration outside surface casing? <small>Note 1</small>	<u>No;</u>
Gas migration test conducted?	<u>No;</u>
Well	
Does well contain tubing?	<u>Yes;</u>
Does well contain pump and rods?	<u>No;</u>
Is there a packer/plug above the perms?	<u>No;</u>
Are tapped bull plugs in place?	<u>Yes;</u>
Shut in production casing pressure: <u>13405 kPa</u> <small>Note 2</small>	Shut in intermediate casing pressure: <u>13405 kPa</u> <small>Note 2</small>
Shut in production tubing pressure: <u>13385 kPa</u> <small>Note 2</small>	
Include any other readings taken: (Use separate page(s) if needed) _____	
Note 1: As per Section 75 of the Oil and Gas Drilling and Production Regulations, it is the responsibility of the operator to notify OROGO of any pollution incident as soon as possible.	Note 2: Indicate any change in pressure since last inspection.

COMMENTS:

Water well located on the east side of lease

"I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate."

Name	<u>Desmond Jones</u>	Phone	<u>(250) 263-6528 Ext</u>
Title	<u>Production Tech</u>	E-Mail	<u>desmond.jones@cnrl.com</u>
Operator	<u>CNRL</u>	Inspected by	<u>Desmond Jones</u>
Signature		Date	<u>August 18, 2020</u>
	<i>Responsible Officer of Company</i>		

Page 2 of 3
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Abandonment Information Package

Version: February 9, 2017



OROGO use only	
The details of this document have been examined and verified by:	
	Job Designation _____
Well Identifier _____	Signature _____ <i>Approval Authority</i>
Unique Well Identifier 30 / ____ - ____ - ____ / ____ <small>(eg. 300 / A01 60-00 120-00 / 0)</small>	Date _____

Page 3 of 3
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Abandonment Information Package



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APPENDIX F

Abandonment Information Package

INFORMATION DISCLOSURE CONSENT FORM

Pursuant to subsection 91(3) of the *Petroleum Resources Act (PRA)*

Subject to its obligations under section 91 of the PRA and the objectives expressed by the Government of the Northwest Territories Oil and Gas Regulator (Regulator) in its *Information Disclosure Guidelines*, issued under section 18 of the *Oil and Gas Operations Act (OGOA)* on May 10, 2016, the Regulator wishes to facilitate public access to information about the regulation of oil and gas works and activities under OGOA, while protecting an applicant's right to maintain privilege over certain information.

_____ (the Applicant), requires authorizations, approvals, orders, or other consents from the Regulator in respect of the following works or activities: _____.

The Applicant (please mark box or boxes):

- Does not consent** to the public disclosure of any information with respect to the above-noted works or activities, other than information or documentation that the Regulator is already permitted to disclose under section 91 of the PRA, and has provided a rationale for non-disclosure in the space provided on the reverse of this form.

or

Consents to the public disclosure of all the information indicated by the Applicant below with respect to the above-noted works or activities, with the exception of any information noted in the space provided on the reverse of this form where accompanied by a rationale for non-disclosure:

- This completed *Information Disclosure Consent* form
- A brief project description (approximately 1-5 pages) that includes the name of the applicant, the scope, purpose, location, timing and nature of the proposed work or activity. This project description may be used for the purposes of a preliminary screening under Part V of the *Mackenzie Valley Resource Management Act*.
- The contents of an application for an Authorization under section 10(1)(b) of OGOA, including but not limited to:
- The completed application for the Authorization;
 - All required documentation supporting the application, including the safety plan and environmental protection plan where applicable;
 - Correspondence and Information Requests between the Regulator and the Applicant;



Page 1 of 2

APPENDIX G

DAILY DRILLING REPORT

WELL NAME: CDN FOREST ET AL NORTH LIARD C-31 DATE: 00/08/23
LOCATION: 300-C31-6040-12330-0 U.W.I.: 300-C31-6040-12330-0
DAY: 19 DEPTH: 711.00 m PROGRESS: 0.00 m CPA NO.: 300C316040123300
WEATHER: CLEAR TEMP: 11 °C
8:00 a.m. OPERATION: Drilling out 339.7mm float shoe.

DRILLING & GEOLOGICAL REMARKS (Cont'd)

Note 3: Cemented 339mm casing annulus with 5 tonnes 0:1:0 Class "G" + 3% CaCl₂, 3.8m³ slurry at 1901 kg/m³ down 15 metres of 25mm stinger. Cement returns to surface and held stable.
Note 4: Safety Topics: Nippling up and pressure testing.
Note 5: Stripped 15m³ of mud.

REPORTED BY: Solberg/Sandquist

PHONE #: (600) 701-3227
CALLING CARD #:

CASING SUMMARY REPORT

WELL NAME: CDN FOREST ET AL NORTH LIARD C-31	DATE: 00/08/21
LOCATION: 300-C31-6040-12330-0	G.L. ELEVATION: 481.30 m
	K.B. ELEVATION: 488.00 m
	KB TO GROUND: 6.70 m
SURFACE (X) INTERMEDIATE () PRODUCTION ()	

SIZE: 339.70 mm	WEIGHT: 101 kg/m	GRADE: k55
MAKE: Tamsa	THREAD: BT&C	CONDITION: NEW
FLOAT/GUIDE SHOE - MAKE: Davis	FLOAT COLLAR - MAKE: Davis, Tag in	
HANGER - TYPE:		
RAN: 55 js. 339.70 mm OD CASING SET @ 710.30 m (by pipe tally)		

Casing String Details

ITEM	LENGTH (m)	DEPTH LANDED (mKB)	ITEM	LENGTH (m)	DEPTH LANDED (mKB)
FLOAT SHOE	0.48	709.82			
TAG IN FLOAT C	0.62	696.52			

CASING BOWL

SIZE: 339 x 346 mm
SERIAL #: 25891-02
TYPE: VGCHL
API: 35000 kPa

CENTRALIZERS

NO: 17
INTERVALS: 24.66 - 702.00
MAKE: Import
TYPE: Bowspring

CASING HANGER

SIZE: X mm
MAKE:
TYPE:
API: kPa

SCRATCHERS

NO:
INTERVALS:
MAKE:
TYPE:

RECIPROCATED/ROTATE CASING IN	m/rpm	STROKES/RPM	mins. PRIOR TO CEMENTING
RECIPROCATED/ROTATE CASING IN	m/rpm	STROKES/RPM	mins. WHILE CEMENTING
SURPLUS:			

REMARKS: (Circ. pressures, mud properties, additional equip., etc.)

SUPERVISOR: Carmon Sandquist

PHONE #: (600) 701-9462

CCARD #:

CASING TALLY

WELLNAME: CDN FOREST ET AL NORTH LIARD C-31 DATE: 00/08/21
 LOCATION: 300-C31-6040-12330-0
 SUPERVISOR: Carmon Sandquist PHONE#: (600) 701-9462 CCARD#:
 SIZE: 339.70mm WEIGHT: 101 kg/m THREAD: BT&C GRADE: K55 MAKE: Tamsa

JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH
1	13.78	31	13.14	61		91		121			
2	12.73	32	12.78	62		92		122			
3	13.39	33	12.74	63		93		123			
4	13.94	34	12.87	64		94		124			
5	12.77	35	12.74	65		95		125			
6	13.04	36	12.81	66		96		126			
7	12.57	37	12.92	67		97		127			
8	12.64	38	12.76	68		98		128			
9	12.65	39	13.28	69		99		129			
10	13.25	40	12.94	70		100		130			
TOTAL	130.76	TOTAL	128.98	TOTAL		TOTAL		TOTAL			
JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH		
11	12.85	41	12.60	71		101		131			
12	12.53	42	13.23	72		102		132			
13	13.08	43	12.91	73		103		133			
14	12.74	44	13.23	74		104		134			
15	12.80	45	12.70	75		105		135			
16	12.80	46	13.05	76		106		136			
17	12.73	47	13.13	77		107		137			
18	12.75	48	13.67	78		108		138			
19	12.75	49	13.05	79		109		139			
20	12.80	50	12.72	80		110		140			
TOTAL	127.83	TOTAL	130.29	TOTAL		TOTAL		TOTAL			
JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH	JT. #	LENGTH		
21	12.94	51	12.80	81		111		141			
22	13.00	52	13.23	82		112		142			
23	12.71	53	12.66	83		113		143			
24	12.80	54	12.94	84		114		144			
25	12.96	55	12.80	85		115		145			
26	12.80	56	12.96	86	1	116		146			
27	12.97	57	13.26	87	1	117		147			
28	12.98	58	13.33	88	1	118		148			
29	12.72	59		89		119		149			
30	12.99	60		90		120		150			
TOTAL	128.87	TOTAL	103.98	TOTAL		TOTAL		TOTAL			

GROUP #	LENGTH	GROUP #	LENGTH	GROUP #	LENGTH	JTS.	LENGTH
1- 10	130.76	51- 60	103.98	101- 110			
11- 20	127.83	61- 70		111- 120		58	750.71
21- 30	128.87	71- 80		121- 130		58	750.71
31- 40	128.98	81- 90		131- 140		3	39.55
41- 50	130.29	91- 100		141- 150		55	711.16
				TOTAL			

REMARKS
 3 SURPLUS JTS 101.2 KG/M K-55 BT+C LEFT OUT TO BE RETURNED TO STOCK



PAJAK ENGINEERING LTD.

DAILY DRILLING REPORT

WELL NAME: CDN FOREST ET AL NORTH LIARD C-31 DATE: 00/12/21
 LOCATION: 300-C31-6040-12330-0 U.W.I.: 300-C31-6040-12330-0
 DAY: 139 DEPTH: 2629.57 m PROGRESS: 0.00 m CPANO.: 300C316040123300
 WEATHER: Clear TEMP: -12 °C
 8:00 a.m. OPERATION: Making up new 215.9mm BHA.

DRILLING & GEOLOGICAL REMARKS (Cont'd)

flow was a 1/4" stream, placed a gauge on one the valves and it held at 300 psi. After setting casing slips, cut 244.5mm casing and laid it down. Nippled up BOPS. Started pressure testing at 17:00hrs, while pressure testing prepared new BHA for 215.9mm hole. Cleaned mud tanks to 24:00 hours 2000.12.20.

Notes:

- *Checked wear bushing that it fit properly in the intermediate spool and the dog nuts turned in evenly.
- *Finished pressure testing BOP stack with good results.
- *Safety topic: Communication when lifting BOPs.
- *As of 24:00hrs the flow coming out of valve on casing bowl, has decreased to a seeping flow.
- *Restall wear bushing with no problems.
- *At 04:45 hrs 2000.12.21: finished laying down 178mm drill collars and began picking up new BHA. Pressure testing on the BOP, manifold and surface equipment completed at 02:15hrs 2000.12.21. Details on pressure testing and intermediate spool description will follow on next report.
- * Details on the casing and cement job will also follow on the next report.

REPORTED BY: PICHE' /LEBEUF

PHONE #: (600) 701-3227
CALLING CARD #:



PAJAK ENGINEERING LTD.

CEMENTING REPORT

WELL NAME: CDN FOREST ET AL NORTH LIARD C-31	DATE: 00/12/20	RPT #: 3	(*) STRING IDENTIFIERS C = Conductor S = Surface I = Intermediate P = Production L = Liner (**) JOB IDENTIFIERS P = Primary S = Squeeze
LOCATION: 300-c31-6040-12330-0	AFE #:	DFS: 138	
SUPERVISOR: Cal Piche	CEMENT JOB ID (**): P	STRING IDENTIFIER (*): I	
PHONE #: (600) 701-3227	CALLING CARD #:		

Summary				ANNULAR VOLUME (m3)	
1st STAGE	0.0	m KB	710.3	m KB	CALIPER 58.30
2nd STAGE	2100.0	m KB	2629.2	m KB	GAUGE 15.40
3rd STAGE		m KB		m KB	SLURRY (actual) 185.90

Job Details	Comments
HOLE SIZE: 311.00 mm CASING O.D.: 244.50 mm SHOE DEPTH: 2629.20 m KB MAX. RECORDED BHT: 123 deg C JOB TYPE (**): 1 PROPOSED CEMENT TOP: 2100.00 m KB MAXIMUM DEVIATION: 7.10 deg @ 2629.57 m KB	During the last hr of circulating started to lose volume. Mixed 20 sacks of mica to the first 20 tonnes of "G" cement Mixed 10 sacks of mica and 10 sacks of cellophane to the first 20 tonnes of thermal 40. Full returns while cementing. Float held. No gain in volumes, annulus remained static.

Mud Data (prior to cementing)	Plug Type	Pipe Movement												
TYPE: K-Minus DENSITY: 1610.00 kg/m3 VISCOSITY: 70.00 sec/l YIELD POINT: 20.00 Pa WATER LOSS: 9.60 ml/30 min P.V.: 24.00 mPa-sec GELS: 15.00 / 16.00 Pa	TOP: BOTTOM: OTHER:	<table border="1"> <thead> <tr> <th>WHILE:</th> <th>CONDITIONING</th> <th>CEMENTING</th> </tr> </thead> <tbody> <tr> <td>TYPE</td> <td>None</td> <td>None</td> </tr> <tr> <td>STROKE (m)</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>RATE (stks/min)</td> <td>1.3</td> <td>1.0</td> </tr> </tbody> </table>	WHILE:	CONDITIONING	CEMENTING	TYPE	None	None	STROKE (m)	0.0	0.0	RATE (stks/min)	1.3	1.0
WHILE:	CONDITIONING	CEMENTING												
TYPE	None	None												
STROKE (m)	0.0	0.0												
RATE (stks/min)	1.3	1.0												
	Cement Head	Stage Tools												
	TYPE:	TYPE												
		DEPTH (m KB)												

Mix Water
Well water/400 bbl

Services & Equipment
CEMENT COMPANY: Sanjel REPRESENTATIVE: Richard Harasen EQUIPMENT: Twin, CNA, Bulker

STAGE ONE

A. Cement Blend Description			PREFLUSH	
CEMENT TYPE	ADDITIVES	TYPE	VOL (m3)	
SCAVENGER	Class "G"0-1-0	Inhibited water	4.00	
FILL	Thermal 40	Vis sweep spacer	4.00	
TAIL	Thermal 40			
OTHER				

B. Cement Data										
	CEMENTED INTERVAL (m) to (m)	ANNULAR VOLUME (m3)	EXCESS USED (%)	SLURRY VOLUME (m3)	BULK WEIGHT (tonnes)	YIELD (m3/t)	SLURRY DENSITY (kg/m3)	THICK TIME (mins)	MIX WATER	
									RATIO (m3/t)	TEMP (deg C)
SCAVENGER	2100.0 - 2200.0	12.96	30	16.85	20.00	0.760	1901.00	450	0.440	20.00
FILL	2200.0 - 2350.0	22.50	0	22.50	30.00	0.750	1885.00	370	0.410	20.00
TAIL	2350.0 - 2629.2	28.85	30	37.51	53.00	0.750	1885.00	340	0.410	20.00
OTHER	-			0.00						



PAJAK ENGINEERING LTD.

CEMENTING REPORT

WELL NAME: CDN FOREST ET AL NORTH LIARD C-31	DATE: 00/12/20	RPT #: 3	(*) STRING IDENTIFIERS C = Conductor S = Surface I = Intermediate P = Production L = Liner (**) JOB IDENTIFIERS P = Primary S = Squeeze
LOCATION: 300-C31-6040-12330-0	AFE #:	DFS: 138	
SUPERVISOR: Cal Piche	CEMENT JOB ID (**): P	STRING IDENTIFIER (*): I	
PHONE #: (600) 701-3227	CALLING CARD #:		

C. Record of Operations

OPERATION DESCRIPTION	START TIME (day / hr:min)	FINISH TIME (day / hr:min)	ELAPSED TIME	VOLUME (m3)	RATE (m3/min)	PRESSURE (kPa)	
						MAX.	MIN.
MUD CONDITIONING	17 / 08 : 15	17 / 15 : 30	7.25	94.4	2.3	15700	15250
POOH W/ DRILL PIPE	17 / 15 : 30	18 / 01 : 45	10.25				
RIH W/ CASING	18 / 09 : 30	19 / 15 : 30	6.00				
CIRCULATION	19 / 13 : 45	19 / 21 : 00	7.25	66.0	1.3	2930	2840
CEMENTING - PREFLUSH	19 / 21 : 48	19 / 21 : 55	0.12	4.0	1.0	5000	
- SCAVENGER	19 / 22 : 00	19 / 22 : 05	0.08	4.0	1.0	6000	
- FILL	/ :	/ :					
- TAIL	19 / 22 : 05	19 / 23 : 01	0.93	76.2	0.8	10000	8000
- OTHER	/ :	/ :					
RLSE TOP PLUG & PO LINES	19 / 23 : 44	19 / 23 : 50	0.10				
DISPLACEMENT	19 / 23 : 50	20 / 01 : 27	1.62	96.5	1.0	3000	
BUMP PLUG & BLEED OFF	20 / 01 : 27	20 / 01 : 29	0.03			8000	
CEMENT RETURNS	TYPE: no		VOLUME: m3				
FLOAT HELD	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						

STAGE TWO

A. Cement Blend Description			PREFLUSH	
	CEMENT TYPE	ADDITIVES	TYPE	VOL (m3)
SCAVENGER				
FILL				
TAIL				
OTHER				

B. Cement Data

	CEMENTED INTERVAL (m) to (m)	ANNULAR VOLUME (m3)	EXCESS USED (%)	SLURRY VOLUME (m3)	BULK WEIGHT (tonnes)	YIELD (m3/t)	SLURRY DENSITY (kg/m3)	THICK TIME (mins)	MIX WATER	
									RATIO (m3/t)	TEMP (deg C)
SCAVENGER	-									
FILL	-									
TAIL	-									
OTHER	-									

C. Record of Operations

OPERATION DESCRIPTION	START TIME (day / hr:min)	FINISH TIME (day / hr:min)	ELAPSED TIME	VOLUME (m3)	RATE (m3/min)	PRESSURE (kPa)	
						MAX.	MIN.
MUD CONDITIONING	/ :	/ :					
POOH W/ DRILL PIPE	/ :	/ :					
RIH W/ CASING	/ :	/ :					
CIRCULATION	/ :	/ :					
CEMENTING - PREFLUSH	/ :	/ :					
- SCAVENGER	/ :	/ :					
- FILL	/ :	/ :					
- TAIL	/ :	/ :					
- OTHER	/ :	/ :					
RLSE TOP PLUG & PO LINES	/ :	/ :					
DISPLACEMENT	/ :	/ :					
BUMP PLUG & BLEED OFF	/ :	/ :					
CEMENT RETURNS	TYPE:		VOLUME: m3				
FLOAT HELD	YES <input type="checkbox"/> NO <input type="checkbox"/>						