

APPROVAL TO ALTER THE CONDITION OF A WELL

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

INSTRUCTIONS:

- | | | |
|-------------------------|--|---|
| 1. Complete both pages. | 2. Send one electronic copy of this form and supporting technical documentation by email to orogo@gov.nt.ca . | 3. Send two signed hard copies 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	SUNCOR et al BELE 0-35	Operator	Suncor Energy
Well Type	Exploratory Well (if Other, specify _____)	Contractor	_____

RELATED LICENCES, PERMITS, AND AUTHORIZATIONS

Operating Licence No.	NWT-OL-2014-008	Operations Authorization	OA-2021-003-SUN
PRA Licence No.	Select <input type="text"/>	Station Keeping	Not Applicable
		Land Structure	Conventional Land
Land Use Permit No.	_____	Issued by:	Select Mackenzie Valley Land and Water Board
Water Licence No.	_____	Issued by:	Select Mackenzie Valley Land and Water Board

ACTIVITY INFORMATION

Current Well Status	Standing	Anticipated Well Status	Abandoned
Well Path	Vertical	Elevation KB/RT	397.76 m
Approximate Start Date	Feb 1/22	Ground Level / Seafloor	393.26 m
Est. Days on Location	15 days	Anticipated Total Depth	1384 m KB

WELL OPERATION PROGRAM

Activity Type	Top to Bottom Interval (m KB)	Comments
Abandonment	117-615	Squeezeing Water zones, abandon wellbore to OGDPR
Select	-	section 56 and OROGO Well Suspension and
Select	-	Abandonment Guidelines and Interpretation Notes.
Select	-	

Additional Information

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

Name	Greg Heffel	Phone	(403) 816-2422 Ext
Title	Specializes Completion	E-Mail	gheffel@suncor.com
Operator	Suncor Energy		
Signature	 Responsible Officer of Company	Date	July 1 / 21

OROGO use Only ACW _____ - _____ OA _____ - _____



**NWT Facility
SUNCOR et al BELE 0-35
Abandonment Program**

Bottom Hole Location: 300O356640126150

Click here to enter text.

**Project Name:
IO #:
AFE Amount: \$**

Rev #0

Corporate Head Office
Suncor Energy Inc.
P.O. Box 2844, 150 - 6 Avenue S.W.
Calgary, Alberta
Canada T2P 3E3
T: 403-296-8000

I. OBJECTIVE

The objective is to abandon the well. A bond log will be run to find the cement top on the production casing. From that information the production casing will be cut and pulled. Another bond log will be run on the surface casing to find the free pipe. Casing will be perforated to cover off the water zones. A cement plug or wells will be placed to squeeze of the water zones. The well will be turned over to logistics to be cut and capped.

II. WELL DATA

Well Name: SUNCOR et al BELE 0-35

Permit Number:	N85A469	U.W.I:	3000356640126150
AFE Number:		Working Interest %	100%
AFE Amount:	\$		
Spud Date:	Feb 14/86	Rig Release:	Apr 2/86
Elevations:	KB: 397.76 m	GL: 393.26 m	CF: N/A
Depths:	TD: 1384.00 mKB	PBTD: ?? mKB	BGWP: m
Directional:	TVD: Vertical	Angle: n/a	KOP: n/a
Latitude:	66° 34' 58.1357" N	Longitude:	126° 21' 32.1083" W

III. TUBULAR & WELLHEAD DATA

Conductor:	5 jts – 339.7 mm, 101.2 kg/m, K-55, BT&C csg set @ 63.0 mKB Cemented w/pumped 1.6 m ³ of water followed by 8.3 m ³ (10.8 tonne) of G + 3.0% CaCl ₂ @ 1890 kg/m ³ cement, float not holding. ?? m³ good cement returns to surface
Surface Casing:	3 jts – 244.5 mm, 59.53 kg/m, K-55, LT&C set @ 777.0 mKB 19 jts – 244.5 mm, 59.53 kg/m, T-95, LT&C set @ 739.03 mKB 42 jts – 244.5 mm, 59.53 kg/m, K-55, LT&C set @ 515.66 mKB ECP & DV toolset at 37.97 mKB Cemented w/ 1 stage 10 tonne “G” + 2.0% CaCl ₂ @ 1895 kg/m ³ 2 stage 4.4 tonne of “G” + 2.0% CaCl ₂ @ 1895 kg/m ³ . 2.0 m³ good cement returns to surface

Production Casing: 117 jts – 177.8 mm, 43.16 kg/m, MN-80, LT&C csg set @ **1384.33 mKB**

Cemented w/ 4.8 m³ water, lead 30.0 tonne (39.6 m³) of “G” + 0.5% D65 @ 1890 kg/m, bumped plug with 18 MPa. Bleed off float held.

Cement top calculated to be at 500 mKB. Bond log that was run on Feb 6/86 indicates cement top at approximately 676.0 mKB

0.0 m3 of cement returns to surface

Wellhead:

279.4 mm x 245 mm Casing Bowl, 21 MPa, McEvoy

279.4 mm x 179.4 mm Tubing Head, 21 MPa Cameron

179.4 mm x 65.1 mm, Tubing Head Adapter Flange, 21 MPa

65.1 mm, 35 MPa, Master Valve, Cameron

65.1 mm x 52.4 mm 21 MPa Flow Tee

52.4 mm, 21 MPa, Wing Valve

IV. ATTACHMENTS

- Wellbore diagram

Well History

Feb 1986 DRILLING HISTORY

This well was spud on February 14, 1986 and drilled as follows

Conductor 1

- Drilled 445 mm conductor hole to 63 mKB with
- Ran 5 joints 340 mm 101 kg/m K-55 BT&C casing
- Landed at 63.0 mKB.
- Cemented in place with 10.8 tonnes G w/ 3% CaCl₂, float did not hole.

Surface Hole

- Tagged cement at 52.0 m drilled out.
- Switched to air drilling at 163.0 m.
- No water inflow encountered at 333.0 m
- 362 m string weight dropped to 12,000 daN. Fished BHA out. Ran in with new DC.
- Finish drilling to 777.00
- Logged (DIL-GR, CHL, LDT- MGR-Dual Caliper, BHCS, HDT-Cal) open hole to 777 mKB; casing shoe at 63 mKB
- Ran 245 mm 60 kg/m K-55 LT&C casing (see casing record attached)
- Cemented with 10 tonnes class G cement (stage 1);
- Cemented with 4.4 tonnes class G + 2% CaCl₂ (stage 2); stage tool at 45 mKB
- 2.0 m³ good cement returns to surface
- Weld on casing bowl (10 3000# x 9 5/8); pressure tested weld to 21 MPa.
- RIH with 216 mm bit and tagged DV closing plug at 37.97 m.
- Drilled out DV tool plug then continued to drill out float with 216 mm bit.

Surface Section

Day 9 started to drill surface hole, drilled to 85 m with water based mud

Day 10 Drilled to 163 m with water/air. Switched to air at 100 m. No fluid inflow, lost circulation problems apparent.

Day 11	Drilled to 270 m with air. Twisted off at collar.
Day 12	Drilled to 333 m with air. Fished BHA. Drilling ahead and noted mist in returns.
Day 13	Drilled to 362 m with air. Twisted off again. Fished BHA again. Waiting on DC inspections.
Day 14	Drilled to 362 m with air. Finished DC and BHA inspection.
Day 15	Drilled to 401 m with air. Changed direction of Blue line to off lease making 12 m ³ /hr of fresh water with 125 mg/L at 363 m.
Day 16	Drilled to 468 m with air.
Day 17	Drilled to 585 m with air.
Day 18	Drilled to 590 m with air.
Day 19	Drilled to 639 m with air.
Day 20	Drilled to 692 m with air.
Day 21	Drilled to 718 m with air.
Day 22	Drilled to 768 m with air.
Day 23	Drilled to 777 m with air.

Main Hole

- Displaced hole to mud.
- Cored 1330.5-1340.6, 1340.6 – 1353.0, and 34 sidewall cores
- Logged (DLL-MSFL, CNL-LDT-NGT-AMS, BHCS, HDT, MEL, SNL-LDT, WST)
- Performed DSTs over Mt Clark and Mt Cap formations
- Ran 117 joints 178 mm 43.16 kg/m MN-80 LT&C casing
- Casing landed at 1384.33 mKB
- Cemented with 30 tonnes class G with 0.5 % D65
- Displaced cement with drilling mud; Bump Plug w/ 18 MPa.

Sept 2009	Did a lease inspection. Flew to location. Did a bubble test on vent no issues. Serviced the wellhead. Pressure tested the casing to 1.0 MPa for 10 minutes, good. Filled the casing up with 200 l of Nalco R-7390 corrosion inhibitor. Rigged out.
Sept 2013	Did a lease inspection. Flew to location. Did a bubble test on vent no issues. Serviced the wellhead. Rigged out.

Aug 2019 A OROGO inspection report was done by Barlon Engineering. Did a bubble test which was negative and did a gas migration test which was negative. Serviced the wellhead.

V. TUBULAR PROPERTIES

O.D. (mm)	Weight (kg/m)	Grade	Thread	I.D. (MIN) (Pin) (mm)	Drift Diameter (MIN) (mm)	Coupling O.D. (S&B) (mm)	Capacity (MAX) (m ³ /m)	Collapse (MPa)	Burst Body Connection (MPa)	Tensile (1000daN)
339.7	101.2	K-55	BT&C	315.3	311.4	365.1	0.07726	13.44	23.79	319.4
244.5	59.53	K-55	LT&C	224.4	218.4	269.9	0.039559	17.72	27.23	249.5
244.5	59.53	T-95	LT&C	224.4	218.4	269.9	0.039559	22.96	47.02	326.8
177.8	43.16	L-80	LT&C	157.1	153.9	194.5	0.019569	48.4	56.26	265.6

VI. LANDING DEPTHS

Description	Landing Depth, mKB
Conductor	63.0
Surface Casing	777.0
Production Casing	1384.33

VII. FORMATION TOPS

Formation Top	mSS	mKB	mTVD
Franklin Mountain	393	6.0	
Thrust / Bear Rock	353	46	
Franklin Mountain	277.76	120.0	
Saline River Salt	-364.74	762.5	
Saline River Salt Member	-402.99	800.75	
Shale Marker	-414.24	812.0	
Lower Salt	-419.24	817.0	
Mount Cap	-722.49	1120.25	
Mount Clark	-945.94	1343.7	
Proterozoic	-964.74	1362.5	

RESERVOIR PROPERTIES

Formation:**Fluid Type:****Interval (mKB):****Length (m):****TVD (m):****Pressure (kPa):****Temperature (°C):****Max H₂S / CO₂ (%):**

VIII. SUNCOR REQUIREMENTS

General:

This well is part of a project which is proprietary to Suncor Energy Inc., Information is to be held strictly confidential, document not to be copied.

Well site Supervisors must ensure that the applicable Suncor Safe Work Practices are observed, including the following:

- Safety Orientation - All Onsite personnel must be oriented to site hazards and signed in on the sign-in log.
- All personnel performing work must have a valid Completions Work Permit prior to commencing work.
- Ground Disturbance deeper than 30 cm (including rig anchors) is not to be carried out without the direction of a Logistics representative.
- Hydrocarbon Exposure LEL monitors will be used by all personnel on any job where hydrocarbon vapors may be present.
- H2S Safe Work Practice will be observed by providing H2S detection equipment, trained personnel, and specified safety equipment when required.
- Ensure a Field Level Hazard Assessments (FLHA) to identify and document site specific hazards are completed prior to commencing work, before all critical tasks and at any change in scope during the task as per the Suncor Completions SWP.
- Directive 33 Well Servicing and Completions Operations—Requirement Regarding the Potential for Explosive Mixtures and Ignition in Wells – have documented practices available at the well site for the safe management of the potential for explosive mixtures and ignition in wells and associated surface equipment. A Fire and Explosion Hazard Management Plan is to be posted at the work site.

Ensure current MSDS sheets are onsite for all controlled products including produced fluids. Ensure that workers are made aware of the Hazards and safeguards.

All unplanned events that occur that cause or could have caused loss are to be reported to the Completions Superintendent immediately. Incidents with or without loss must reports must be utilized as directed by the Completions Superintendent.

All wastes must be manifested and tracked when leaving the facility, to a non-Suncor owned disposal site, as per AER Directive 58. A fully completed AER Alberta Environment Waste Manifest is to be submitted with the final report for all Dangerous Oilfield Wastes (DOWs).

Conduct all operations in accordance with applicable IRP's, provincial acts and regulations pertaining to the AER.

Ensure a copy of the Suncor Corporate ERP is available on site. Complete and post the Suncor Completions Site Specific ERP.

An Assignment of Supervisor form must be completed and posted at location.

An injured worker transportation form must be posted on location. If the work site is greater than 40 minutes from an approved medical facility an alternate form of injured worker transportation with qualified emergency medical personnel must be present on location. Note: Suncor medic clinics qualify as an approved medical facility.

All employees and contractors certification of First Aid, H₂S, WHMIS and TDG etc. must be verified before they are allowed access to work on site.

All contractors' competency must be verified before they are allowed access to work onsite. Frequent, task-specific, on-going competency assessments must also be conducted for the duration of a contractor's term in a specific position.

A site walk inspection must be conducted every day in conjunction with a morning operational / safety meeting outlining all safety hazards and planned procedures for the day. This must be recorded on the daily tour report.

Road use and pipeline crossing agreements and Temporary Diversion Licenses, when required, must be in place prior to commencing any operations.

Any operation outlined in this program or otherwise implied by the nature of the work to be conducted that requires clarification shall be discussed with Operations.

Calgary office, Completions Analyst, Completions@Suncor.com will submit required AER DDS notifications.

IX. CONTACTS**SUNCOR PRIMARY CONTACTS**

Name	Title/Location	Office	Cellular
Greg Heffel	Completions Engineer	403-296-5549	403-816-2422
Jonathan Koteles	Completions Supt.	403-296-8916	403-510-7217

REGULATORY, HEALTH, & SAFETY AGENCIES

Name	Emergency #	Emergency #	
SEC Calgary	403-296-3000		
Air Ambulance Service	1-800-661-3822		
RCMP – Fort McMurray	780-799-8888 (24hr)		
Regional Hospital			
W.C.B.	1-866-922-9221		
FOREST FIRE NWT	1-877-698-3473 (1-877-NWTFIRE)		
GNWT (Office of the Regulator of Oil and Gas Operations)	1-867-920-8130 (24hr) (Spill Response) 1-867-445-8551 (Incident Response) 1-867-767-9067	310-3473 Emergency Reporting Line	
Sathu Land and Water Board (SLWB)	1-867-598-2413		
Mackenzie Valley Land and Water Board (MVLWB)	1-867-669-0506		
NWT – Environment and Natural Resources Sahtu Regional Office	1-867-587-2422 (General) 1-867-587-2422 (Wildfire)	403-297-8311 (24hr) Calgary Office	
NWT – Environment and Natural Resources Decho Regional Office	1-867-695-7450 (General) 1-867-695-7433 (Wildfire)		

SERVICE COMPANY CONTACTS

Service Type	Company	Contact Name	Office Number	Cellular

X. PROCEDURE

This program is to be used as a guide only. Field conditions and engineering decisions may change throughout the course of the job. However, do not change or deviate from this procedure without approval from the responsible Completions Superintendent.

1. Review the previous WellView report for this well. Flag any potential issues and discuss with the Calgary Superintendent.
2. Inspect the wellhead valves for sign of damage and discuss with the Permit Issuer before signing off on the permit. Obtain work permits (e.g. Hot Work Permit) and approvals to begin well work.
3. Follow all the current Covid-19 cleaning, physical distancing, mask, and FLHA protocols. Hold a safety orientation with a procedural meeting and conduct a pre-job hazard assessment with all onsite personnel and document in the Daily Report. Scout the location for construction requirements and confirm wellhead specifications.
4. If applicable ensure the Well Abandonment/Flaring notifications have been submitted at least 24 hours prior to the respective operations to the Calgary office, c/o Completions Analyst – completions@Suncor.com
5. Monitor LEL and H₂S with personal monitors throughout the program.
6. Perform a 10-minute Surface Casing Vent Flow bubble test as per the outlined procedures in Well Suspension and Abandonment Guidelines and Interpretation Notes Section 4B. Notify the Operations Supervisor of the results and document the results in the Day #1 daily report. In the event of a positive gas flow, see Section 4B “Testing For SCVF” of OROGO Well Suspension and Abandonment Guidelines and Interpretations Notes.
7. Measure and record casing pressure. Notify Calgary operations if pressure exists.
8. Rig in the Precision service rig and equipment to OROGO, O.H. & S., and Suncor specifications. Stump test the annular BOP, double gate pipe rams, manifold, and lines to 1400 kPa low and 7 MPa high for 10 minutes each.
9. Check pressures on wellhead. Kill the well with fresh water if required.
10. Remove the wellhead top section. Install and function test BOP's. Pressure test the ring groove connection. Perform all pressure and function tests to OROGO and Suncor specifications.

11. Run in with landing joint with a pressure tested safety valve (7 MPa) and screw into tubing hanger. Disengage the lag screws and pull out of the hole with the pup joint and tubing hanger. Laydown the hanger and pup joint.
12. Fill casing and pressure test the casing to 7 MPa for 15 minutes.
13. Pick up, pin drift, and run in the hole with the following tubing configuration:
 - 1 – 152.0 mm EG3G retip tricone bit from J&L
 - 1 - 153.9 mm casing scraper
 - 1 - 88.9 mm REG to 88.9 mm EUE crossover
 - X – 88.9 mm, 13.84 kg/m, J-55, EUE tubing to surface
14. Run in the hole and tag plug back at ~1375.0 mKB. Work the scraper over the plug setting interval from 700 mKB to 650 mKB. Pull out of the hole with the tubing and lay down 500 mKB.
15. Move in rig up Reliance wireline unit. Run in the hole with a 153.9 mm gauge ring. Run in the hole with a RBL/GR/CCL and log from PB to surface. Correlate to the **Weatherford Photo Density Dual Spaced Neutron** log. Send the results to Greg gheffel@suncor.com and Jonathan Koteles jkoteles@suncor.com. A 7 MPa pressure pass may be required depending on cement quality. Send log to Becky Harish (bharish@suncor.com) to fill out DDS submission.
 - Pressure test lubricator and wellhead connections to 1.4 MPa (low) and 7.0 MPa (high) using water/methanol prior to every run or nitrogen.
16. Pressure test the casing to 7 MPa if a 7 MPa pressure pass was not performed during the bond log.
17. Make up and run in the hole with a Weatherford 177.8 mm permanent bridge plug and running tools. Correlate to the CCL log just run. Log the bridge plug onto depth and land the top of the plug at 685.0 mKB or approximately 10 meters below the cement top. Come off the plug and pull out of the hole.
18. Pressure test the bridge plug to 7 MPa for 10 minutes. Rig out wireline and pressure truck.
19. Move in rig up Weatherford. Make up and run in the hole to cut the casing. (Need to add in all the tools and running depth.) Assume the cut will be at 670 mKB.

20. Pull cutting tools out of the hole.
21. Rig in return lines from to production annuls valve to the rig tank. Pump fluid down the casing through the casing cut to circulate out the drilling mud.
22. Pull the casing. (Need to add in all the tools.)
23. Move in rig up Reliance wireline unit. Run in the hole with a 218.4 mm gauge ring. Run in the hole with a RBL/GR/CCL and log from PB to surface. Correlate to the **Weatherford Photo Density Dual Spaced Neutron** log. Send the results to Greg gheffel@suncor.com and Jonathan Koteles jkoteles@suncor.com. A 7 MPa pressure pass may be required depending on cement quality. Send log to Becky Harish (bharish@suncor.com) to fill out DDS submission.
 - Pressure test lubricator and wellhead connections to 1.4 MPa (low) and 7.0 MPa (high) using water/methanol prior to every run or nitrogen.

Interval 515 to 616 mKB

24. Move in rig up Lee Energy. Make up and run in the hole with the following assembly. Use the gator tool to cut each free joint of casing. The bottom most cut will be determine from the bond logging results. Top perf will be made at mKB.
25. Run in the hole with 88.9 mm, 13.84 kg/m, J-55 EUE tubing open end and land tubing xx mKB.
26. Rig up Sanjel cement pumper Suncor, AER, and OH&S regulations. Prepare to cement the well with ?? tonne (m³) of "G" + 0.5% CFR-2 + 0.3% CFL-3 + 0.5% CaCl₂ + 0.15% CDF-6P as per the attached program PRG2003855 Rev 0. Assume job from 625 to 400 mKB
27. Confirm that there is zero pressure on the casing and record in Wellview.
28. Connect the cementing unit treating line to the tubing and pressure test the treating line and the tubing valve to 14 MPa for 10 minutes with fresh water and methanol.
29. With the tubing landed at 2.0 m from plug depth, circulate 2.0m³ ±20°C fresh water.
30. Continuously mix and displace the cement plug.

NOTE: The approximate volume required is m³. Open hole volume is m³ with 30% excess.

NOTE: At 200 L/min it will take approximately 100 minutes to circulate the cement in. Well may go on vacuum. Allow the cement plug to find its balance.

NOTE: Have Sanjel provide 2 cement samples at surface to monitor on location. Ensure they are kept in the heated environment and monitor that the samples gel and set up in a reasonable time.

31. Once the plug has been placed for the full length of the plug weight, which should bring the plug top to 400 mKB. Pull the tubing up to 380 mKB and wash out the tubing with 1.5x tubing volume $\pm 20^{\circ}\text{C}$ fresh water. If unable to gain circulation during cementing operations do not attempt to back wash, continue with pulling and standing tubing.

32. Next day Run in the hole and tag for the cement top. Report results to Calgary.

Interval 240 to 380

33. Perforate the next intervals.

34. Rig up Sanjel cement pumper Suncor, AER, and OH&S regulations. Prepare to cement the well with ?? tonne (m^3) of "G" + 0.5% CFR-2 + 0.3% CFL-3 + 0.5% CaCl_2 + 0.15% CDF-6P as per the attached program PRG2003855 Rev 0. Assume the job is from 400 to 200 mKB.

35. Confirm that there is zero pressure on the casing and record in Wellview.

36. Connect the cementing unit treating line to the tubing and pressure test the treating line and the tubing valve to 14 MPa for 10 minutes with fresh water and methanol.

37. With the tubing landed at 2.0 m from top of the first plug, circulate $2.0\text{m}^3 \pm 20^{\circ}\text{C}$ fresh water.

38. Continuously mix and displace the thermal cement plug.

NOTE: The approximate volume required is m^3 . Open hole volume is m^3 with 30% excess.

NOTE: At 200 L/min it will take approximately 77 minutes to circulate the cement in. Well may go on vacuum. Allow the cement plug to find its balance.

NOTE: Have Sanjel provide 2 cement samples at surface to monitor on location. Ensure they are kept in the heated environment and monitor that the samples gel and set up in a reasonable time.

39. Once the plug has been placed for the full length of the plug weight, which should bring the plug top to 200 mKB, rig out cement equipment. Pull the tubing up to 180 mKB and wash out the tubing with 1.5x tubing volume $\pm 20^{\circ}\text{C}$ fresh water. If unable to gain circulation do not attempt to back wash just proceed with pulling tubing.
40. Next day run in the hole and tag for the cement top. Report results to Calgary. Pull out of the hole.

Interval 117 to 193

41. Perforate the next intervals
 42. Rig up Sanjel cement pumper Suncor, AER, and OH&S regulations. Prepare to cement the well with tonne (m^3) of "G" + 0.5% CFR-2 + 0.3% CFL-3 + 0.5% CaCl_2 + 0.15% CDF-6P as per the attached program PRG2003855 Rev 0. Assume job from 200 to 30 mKB
 43. Confirm that there is zero pressure on the casing and record in Wellview.
 44. Connect the cementing unit treating line to the tubing and pressure test the treating line and the coil to 14 MPa for 10 minutes with fresh water and methanol.
 45. With the tubing landed at 2.0 m from plug depth, circulate $2.0\text{m}^3 \pm 20^{\circ}\text{C}$ fresh water.
 46. Continuously mix and displace the cement plug.
- NOTE:** The approximate volume required is m^3 . Open hole volume is m^3 with 30% excess.
- NOTE:** At 200 L/min it will take approximately 66 minutes to circulate the cement in. Well may go on vacuum. Allow the cement plug to find its balance.
- NOTE:** Have Sanjel provide 2 cement samples at surface to monitor on location. Ensure they are kept in the heated environment and monitor that the samples gel and set up in a reasonable time.
47. Once the plug has been placed for the full length of the plug weight, which should bring the plug top to 30 mKB. Pull the tubing up to 25 mKB and wash out the tubing with 1.5x tubing volume $\pm 20^{\circ}\text{C}$ fresh water. If unable to gain circulation during cementing operations do not attempt to back wash, continue with pulling and standing tubing.
 48. Next day Run in the hole and tag for the cement top. If the cement is above the top perforation by 10 m then we will pressure to 7 MPa for 15 minutes. Report results to Calgary.

NOTE: Plan B

If the casing was not successfully pulled due to some issue that was not anticipated the perforation will be made through both the production and surface casing in a similar depth as planned previously.

Interval 515 to 616 mKB

Interval 240 to 380

Interval 117 to 193

Perforation placement need to be determined within each of the interval but will be the same as for the removal of the casing string. Cementing operations will be similar, but chemical loading might need to be adjusted.

49. Fill out the attached "Surface Abandonment Handover Form" and turn the well over to logistics for cut and cap. Note the date of the gas migration test in the document. Send form to Greg gheffel@suncor.com & Jonathan jkoteles@suncor.com.
50. Winterize the well and wellhead to ensure no freezing issues will occur. Rig out and release all services. Leave wellhead in D13 compliance. Rig out and release all services
Move all equipment off location.
51. Finalize Documentation
 - Ensure tubing tallies are entered and correct in Wellview.
 - Ensure WellView schematic is accurate, as built, drawing.
 - Take a picture of final wellhead and add as WellView attachment.
 - Attach electronic copies of well related information to WellView file, if applicable.
 - Well Site Supervisor emails Project Engineer of the end date of the operation in Wellview and files end of well (EOW) documentation in the Completion Microsoft Teams EOW WSS Entry
 - Completion Teams Folder>General> EOW> End of Well WSS Entry
 - License # _ Well Name_ EOW
 - Issue Work Orders to vendors - following completion of the requested work, field operations will confirm that the field ticket is complete and accurate in writing, by signing the field ticket and providing a separate work order.

END OF PROGRAM

XI. PROGRAM SIGN OFF

PREPARED BY:

Greg Heffel
Engineer, Completions Eng

Date

APPROVED BY:

Tier 1:

Jonathan Koteles
Superintendent, Completions

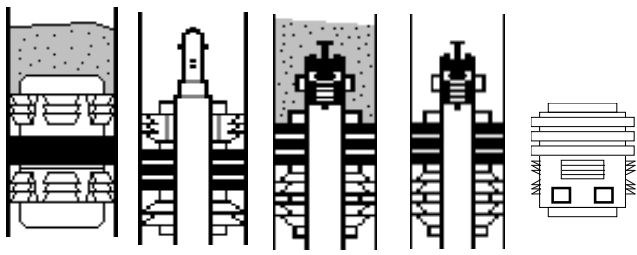
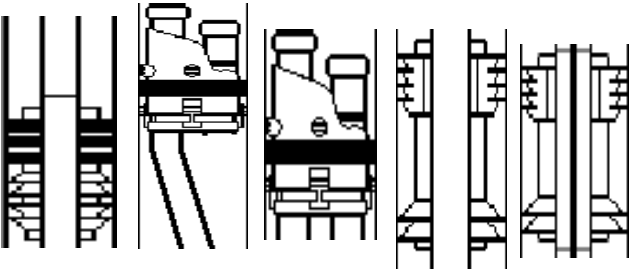
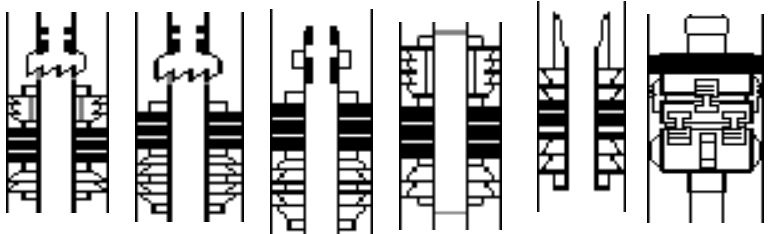
Date

APPROVED BY:

Tier 1:

Dean Tymko
Director, Completions

Date





Oil and Gas

Well Name SUNCOR et al BELE O-35

SUNCOR et al BELE O-35

Date Apr 10/20

UWI 300O356640126150

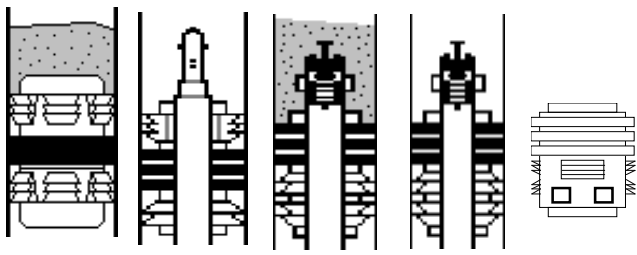
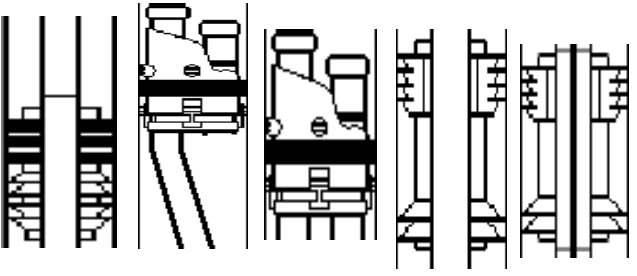
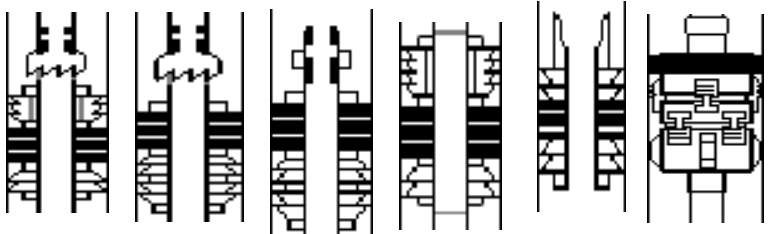
WA / Licence # N85A469

Surface Location

Latitude 56° 34' 58.1357"N

Longitude 26° 21' 32.1083"W

Elevations											
KB Elevation	397.76 m				KB-THF	m		TD	1384.0 mKB		
GL Elevation	393.26 m				KB-CF	m		PBTD	mKB		
					KB-GL	4.50 m					
Wellhead:		Size and Rating									
Manufacturer	mm	x	mm	MPa	x	mm	MPa	x	mm	MPa	
Cameron	245	x	279	21	x	179	21	x	65	21	
Casing	Hole	Jts	OD	Wt.	Grade	Thread	Top	Bottom			
	mm	#	mm	kg/m							
Conductor	444	5	339.7	101.2	K-55	BT&C	surface	63.0	mKB		
Surface	311	42	244.5	59.5	K-55	LT&C	surface	515.7	mKB		
	311	19	244.5	59.5	T-95	LT&C	515.66	739.0	mKB		
	311	62	244.5	59.5	K-55	LT&C	739.03	777.0	mKB		
Production	216	117	177.8	43.2	MN-80	LT&C	surface	1384.3	mKB		
Stage Collar								On the surface casing string	37.97	mKB	
Heat / Siphon String									mKB		
Annular Fluid								10% NaCl water w/ 0.9 % inhibitor & topped w/ 1.6 m ³ diesel		m ³	
Perforations / Open Hole					Top	Bottom	BHP	BHT	H ₂ S	CO ₂	
Date	Formation				(mKB)	(mKB)	(kPa)	(°C)	(%)	(%)	
Bottomhole Equipment Description (from top down) depth in mKB											
Item	Jts	Description	Length	Top							
Remarks											





**SUNCOR ENERGY
INSPECTION REPORT AUGUST 2019**

SUNCOR BELE O-35

Prepared by: _____

Clive Mountford, P. Eng.
The Barlon Engineering Group Ltd.

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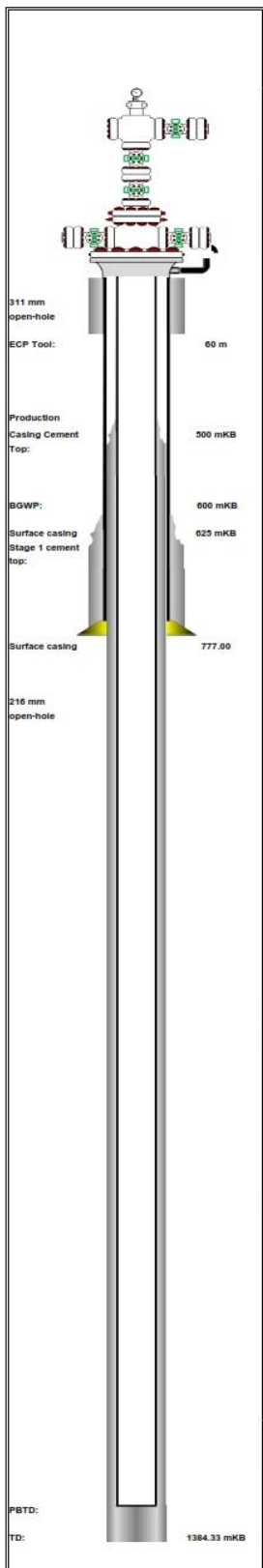
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Suncor Bele O-35 Well Information

Elevations:	KB: 397.76 m	KB – GL: 4.50 m
	GL: 393.26 m	
	PBTD: 1371.23 mKB MD	
	TD: 1384.33 mKB MD	
Surface Casing:	244.5 mm, 59.5 kg/m, K-55, LT&C landed at 777.0 mKB MD 311 mm hole size Stage 1: 10 Tonnes 0:1:0 “G” + 2% CaCl ₂ , Stage 2 – 4.4 Tonnes 0:1:0 “G” + 2% CaCl ₂ (2 m ³ cement returns to surface on second stage)	
Production Casing:	177.8 mm, 43.15 kg/m, MN-80, LT&C landed at 1384.33 mKB MD 216 mm hole size 30 Tonnes Class “G” + 0.5% D-65 (estimated cement top 500m)	
Perforations:	None	
Wellhead:	245 mm x 279.4 mm 21 MPa McEvoy casing bowl c/w McEvoy 21 MPa flowing top section (see attached schematic)	
Base of Groundwater Protection:	600 mKB	

Table 1 – Tubular Data

	Surface Casing	Production Casing		Tubing
Size OD [mm]	244.5	177.8		N/A
Size ID [mm]	224.4	157.1		
Weight [kg/m]	59.53	43.15		
Grade	L-80	N-80		
Drift [mm]	220.4	153.9		
Capacity [m ³ /m]	0.0395	0.0194		
Annular Capacity [m ³ /m]		0.01472 (244.5 mm)		
Collapse [MPa]	21.30	48.47		
Burst [MPa]	39.64	56.26		
Tension [1000 daN]	415.5	306.6		

WELLBORE PROFILE		Suncor Resources Corp Suncor Bele O-35		 <small>A DIVISION OF VERTEX RESOURCE GROUP LTD.</small>	
		UWI: _____ Licence: _____ DATE: July 9, 2019			
ELEVATIONS (meters)					
TMD	1304.33	KB ELEV	397.76	KB TO BCF	
TVD	1304.33	GL ELEV	393.20	KB TO THF	
PBSD	1371.23	KB - GL	4.50	Well Status	
CASING DESCRIPTION & GRADE		OD (mm)	WEIGHT (kg/m)	TOP LOCATION	LANDED DEPTH (m)
Surface casing; K-55 LT&C (2 m ³ cement returns to surface)		244.5	59.5	Surface	777.00
Production casing; MN-80 LT&C (No cement returns to surface) (estimated cement top 500m)		177.8	43.2	Surface	1304.33
Pert Date	Zones	Top Shot	Bottom Shot	Status	Gun Data
DOWNHOLE DESCRIPTION FROM BOTTOM UP (Tubing String)					
ITEM #	DESCRIPTION	LENGTH (m)	TOP OF (mKB)		
	Well filled with fresh water				
	Surface Casing Drilling Summary (Water Flows):				
	Nov 13, 1985 - 05:00 Well spent				
	Nov 15, 1985 - 41 m - Lost circ				
	Nov 17, 1985 - 65 m - 250 m ³ lost to formation				
	Nov 18, 1985 - 65 m - cement conductor				
	Nov 22, 1985 - 151 m - Making some water while drilling from 145 m (too small to measure)				
	Nov 23, 1985 - 217 m - Blew hole dry. Making water from 140 m (Fresh)				
	Nov 24, 1985 - 312 m - Hole making approx. 23 m ³ fresh water per hour				
	Nov 26, 1985 - 471 m - Well is making approx. 50 m ³ fresh water (Surface casing cement conductor - 244.5 mm)				
	Nov 27, 1985 - 528 m - Well is making approx. 50 m ³ fresh water				
	Nov 28, 1985 - 613 m - Well is making approx. 50 m ³ fresh water				
	Nov 29, 1985 - 658 m - Well is making approx. 50 m ³ fresh water				
	Dec 2, 1985 - 754 m - Rain and cemented surface casing				
Date Completed: _____					
Abandonment program summary: _____					
WEIGHT OF TUBING STRING (daN)		TOTAL STRING LENGTH			
TENSION/COMPRESSION (+/- daN)		STRETCH/SLACKOFF (+/- m)			
LANDED STRING WEIGHT (daN)		TUBING BOTTOM (mKB)			
DOWNHOLE DESCRIPTION FROM BOTTOM UP (Rod String)					
AMOUNT	DESCRIPTION	LENGTH (m)	TOTAL (m)		
POLISH ROD STICK-UP (m)		TOTAL ROD STRING LENGTH			
PUMP DESCRIPTION		PUMP/JACK DESCRIPTION			
WELLHEAD DESCRIPTION					
ITEM #	DESCRIPTION	SERIAL #	MWP (MPa)	SIZE (mm)	
	245 x 279.4 mm 21 MPa McEvoy casing bowl c/w McEvoy 21 MPa bowing top section				
REMARKS					
Surface casing cement: Stage 1: 10 Tonnes 0:1:0 "G" + 2% CaCl ₂ Stage 2 - 4.4 Tonnes 0:1:0 "G" + 2% CaCl ₂ (2 m ³ cement returns to surface on second stage) Production casing cement: 30 Tonnes Class "G" + 0.5% D-05 (estimated cement top 500m)					
PBSD:		Well status changes: _____			
TD:	1384.33 mKB	Prepared by: Clive Mountford			

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:	Suncor Bele O-35		
Coordinates: <i>(verify onsite)</i>	Lat: 66° 34' 58"	Long: 126° 21' 32"	
	Datum: NAD27		
Well Operator:	Suncor Energy	Status:	Suspended
Current Inspection Date:	August 10/2019	WID:	1600
Previous Inspection Date:	July 20/2016	Completed in H ₂ S zone?	No; % of H ₂ S: 0

EVALUATION

Site	
Accessible for inspection and monitoring?	Yes; Lease in good condition to land helicopter.
Equipment or debris on site?	No; Only wellhead.
Additional clean up required?	No; Lease visually looks in good condition.
Any environmental or safety concerns? (see Note 1)	No; Sump has settled but appears stable.
Number of photos attached? (required)	9 (wellhead, valves, signage and site area, other)
Wellhead	
Wellhead accessible for inspection and monitoring?	Yes; By helicopter in summer time.
Brush cleared 10m around wellhead?	Yes; No brush within 10 m of wellhead.
Visible well marker in place?	Yes; Hanging on wellhead.
Wellhead chained and locked?	Yes; With combination lock.
Pumpjack secure?	No; No pumpjack on location.
Wellhead valves operate freely?	Yes; Wellhead valves were greased.
Surface casing vent open?	Yes; In the open position.
Pressure test well head seal assembly?	Yes; Pressure tested to 19 MPa for 15 minutes. Tested good.
Pressure rating of all components:	21 MPa
Wellhead schematic attached? (required)	Yes; Attached with wellfile.

Page 1 of 3
Please print double-sided.

Version: February 9, 2017



SCVF / Gas Migration	
Evidence of SCVF? <i>Note 1</i>	<u>No; No evidence of SCVF.</u>
SCVF test conducted?	<u>Yes; Zero bubbles in 15 min bubble test.</u>
Signs of gas migration outside surface casing? <i>Note 1</i>	<u>No; Checked with soil gas monitor and had 0 ppm.</u>
Gas migration test conducted?	<u>Yes; Conducted a soil gas monitor and had 0 ppm gas.</u>
Well	
Does well contain tubing?	<u>No; As per current schematic.</u>
Does well contain pump and rods?	<u>No; Flowing style wellhead.</u>
Is there a packer/plug above the perms?	<u>No; Well has not been perforated.</u>
Are tapped bull plugs in place?	<u>Yes; 2 new bull plugs and 2 new 35 MPa gauges installed.</u>
Shut in production casing pressure: <u>0 kPa</u> <i>Note 2</i>	Shut in intermediate casing pressure: <u>0 kPa</u> <i>Note 2</i>
Shut in production tubing pressure: <u>0 kPa</u> <i>Note 2</i>	
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:

Did a 15 minute bubble on the surface casing vent and had zero bubbles in a 15 minute test. Test was negative for vent flow.

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

Name	<u>Ralph Lamontagne</u>	Phone	<u>(403) 318-1572 Ext</u>
Title	<u>Wellsite Supervisor</u>	E-Mail	<u>raedinc@tclus.net</u>
Operator	<u>Suncor Energy</u>	Inspected by	<u>Ralph Lamontagne</u>
Signature	_____	Date	_____

Responsible Officer of Company

Page 2 of 3
Please print double-sided.

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 00-00 120-00 / 0)</small>	Date _____



Surface Casing Vent Flow/ Gas Migration Data Sheet

You must complete a separate form for each well and submit the form to the appropriate AER Area Office. The Well Abandonment Guide comes with a pad of additional data sheets; more copies are available from AER Information Services.

The licensee certifies that the information on this sheet is correct and that the vent flow or gas migration repair will be done according to regulatory requirements or as directed by the AER.

Day / Month / Year
10 08 2019

YOUR FILE NUMBER

1. GENERAL INFORMATION AND CERTIFICATION

LICENSEE	COMPANY NAME	LICENSEE CODE
	Suncor Energy	
AGENT	COMPANY NAME	AGENT CODE
N/A	<input type="checkbox"/>	
CONSULTANT	COMPANY NAME	CONSULTANT CODE
N/A	<input checked="" type="checkbox"/> Barlon Engineering Group	
CONTACT PERSON	LAST NAME	FIRST NAME
	Lamontagne	Ralph
TELEPHONE	BUSINESS	FAX
	403-318-1572	
		EMAIL
		raedinc@telus.net

2. WELL TEST INFORMATION

LICENSE NO.:	UNIQUE IDENTIFIER:	DATE TESTED
LE LSD	SEC TWP RGE M	Day / Month / Year
O-35		10 08 2019

3. SURFACE CASING VENT FLOW TEST DATA

3.1 Vent flow Exist YES NO 3.2 Test Type (e.g., bubble test, other):

If YES, complete the rest of this section.

3.3 Type of Flow: Gas Oil Salt Water Other (please specify): Conducted bubble test on SCV
The flow is: Sweet Sour and had 0 bubbles in 15 min bubble test.

3.4 Casing Information:
Surface Casing Depth: 777 m Size: 244.5 mm Grade: K-55 Weight: 59.5 kg/m3
Production Casing Depth: 1384.33 m Size: 177.8 mm Grade: MN-80 Weight: 43.2 kg/m3

3.5 Cementing Details:
Cement Top 500 m Logged: YES NO Estimated (from logs, tour reports) YES NO

Describe cementing detail (e.g., type, blend, specifications):
Surface casing cement: Stage 1: 10 Tonnes 0:1:0 "G" + 2% CaCl2,
Production casing cement: 30 Tonnes Class "G" + 0.5% D-65

3.6 Vent Flow Data:
Leak-off Pressure Gradient _____ kPa/m Flow Rate: _____ m3/d (if flow not measured, fill in TSM, (too small to measure))
Stabilized Build-up Pressure _____ kPa/m Duration: _____ hrs.
Source of Flow _____ m (depth)
Determined by (log type, etc.) _____

3.6 Groundwater Information:
Depth of Usable Water Aquifers 600 m Nearest Water Well _____ km

Tested by Ralph Lamontagne _____
PLEASE PRINT NAME SIGNATURE

ADAPTED FROM ALBERTA ENERGY AND UTILITIES BOARD

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General Information and Certification

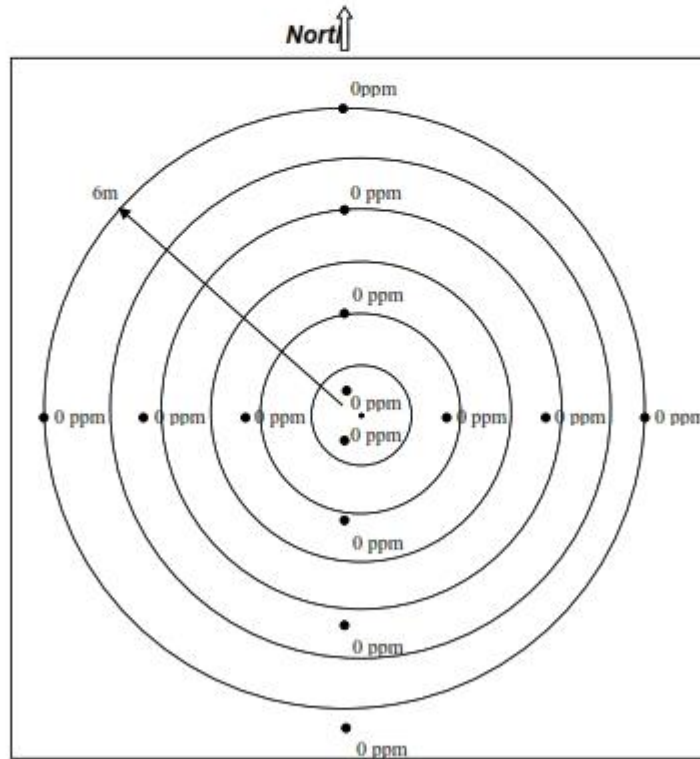
Licensee: **Suncor Energy**
Agent: Barlon Engineering
Consultant: Ralph Lamontagne
Contact Person: Clive Mountford
Phone Number: (403) 999-5606
Fax Number:


Well Test Information

License Number: Unique Identifier: Date Tested:

Soil Gas Survey Data

The center dot in the diagram represents the wellbore / casing. NOTE: samples were taken EVERY METER OUTWARDS to 6 m.



 <p>BARLON ENGINEERING A DIVISION OF VERTEX RESOURCE GROUP LTD.</p>	<p>BARLON ENGINEERING DAILY RECORD</p>	<p>Suspension _____</p>	
WELL: <u>Suncor Bele O-35</u>	DATE OF OPERATIONS: <u>August 9 2019</u>		
UWI: <u>Suncor Bele O-35</u>	AFE / JOB NO.: _____		
OBJECTIVE: <u>Conduct lease and wellbore inspections.</u>	DAY NO.: <u>1</u>		
FORMATION: <u>None</u>	PERFORATIONS: <u>None</u>		
FORMATION: _____	PERFORATIONS: _____		
FORMATION: _____	PERFORATIONS: _____		
FORMATION: _____	PERFORATIONS: _____		
DESCRIPTION OF OPERATIONS CONDUCTED			
<p>05:30 hrs - Drove from Ponoka AB to the Edmonton International Airport. Offloaded equipment for upcoming wellbore inspections and boarded plane for Norman Wells NWT.</p> <p>12:00 hrs - Arrived in Norman Wells. Transported wellhead tools to Slave helicopters for morning operations.</p>	COST SUMMARY		
	Description	Code	Amount
	Location		
	Service Rig		
	Coiled Tubing		
	Cementing		
	Stimulation		
	Snubbing		
	Fishing		
	Boiler / Steamer		
	Safety		
	Production Testing		
	Wellhead Equipment		
	Service Trucks		
	Fluids & Materials		
	Wireline / Slickline		
	Equipment Rental		375
	Downhole Equipment		
	Artificial Lift		
	Supervision & Engineering		1633
	Misc Services		
	Safety Tracking	Today	Cumulative
	Workers Oriented		
	Contractor Hours Worked		
	Supervisor Hours Worked	6.5	7
	Kilometers Driven	180	180
OPERATION PLANNED FOR: <u>10-Aug-19</u> Conduct wellhead inspection.			
CONTRACTOR: _____	RIG NO: _____	WEATHER: <u>Clear</u>	TEMP °C HI / LO: <u>H+20/L-8</u>
FORMATION: _____		DAILY COST:	\$ 2,028
FLUID TYPE: _____		PREVIOUS COST:	
FLUID PUMPED TODAY (m ³): _____		TOTAL COST TO DATE:	\$ 2,028
CUMMULATIVE FLUID PUMPED (m ³): _____		AFE ESTIMATE:	\$ -
NON REC. ANNULAR FLUID (m ³): _____		WELLSITE SUPERVISOR	REPORT TAKEN BY
FLUID RECOVERED TODAY (m ³): _____		Ralph Lamontagne	Clive Mountford
FLUID LEFT TO RECOVER (m ³): _____		403-318-1572	cmountford@barlon.ca

v2.10

THE BARLON ENGINEERING GROUP LTD. DAILY RECORD - CONTINUED			
WELL	Suncor Bele O-35	UWI	Suncor Bele O-35
DATE	August 10/2019	DAY NO.	2
ADDITIONAL REMARKS:			
<p>Pressure tested the primary and secondary wellhead seals to 19 MPa for 15 minutes. Tested good. Bled pressure off seals.</p> <p>Installed new 50.8 mm bull plugs with needle valves on the casing valve and wing valve. Removed the needle valve and the pressure gauge off the top of the hammer cap. Installed a new needle valve on the hammer cap with new 35 MPa gauges on the tubing and the casing valve.</p> <p>Shut in and secured wellhead valves with a new chain and a combination masterlock with a "2019" combination.</p> <p>Conducted a soil gas survey around the wellhead on location. Had 0 ppm readings in a 6 m circle around the wellhead. No gas readings were recorded on gas detector.</p> <p>12:45 hrs - Loaded equipment in the helicopter and flew to the Suncor M-47 well.</p> <p>Actual wellhead equipment cost's will be added in when the 4 wellhead inspections are completed.</p>			

v2.10



Lease Picture



Seal Test



Completed Inspection #1



Completed Inspection #2



Completed Inspection #3



Aerial View of Lease



Settled Sump #1



Settled Sump #2



Settled Sump #3

