

## **OIL ANALYSIS REPORT**

Sample Rating Trend

NORMAL

### [450267836] CV-00001 PORT HOSE RELL Component

**Unknown Component** {not provided} (--- GAL)

#### DIAGNOSIS

#### Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. Please provide more complete information on your next sample.

#### Wear

Component wear rates appear to be normal (unconfirmed).

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### Fluid Condition

Viscosity of sample indicates oil is within ISO 22 range, advise investigate. The AN level is acceptable for this fluid. The condition of the sample is acceptable for the time in service (unconfirmed).

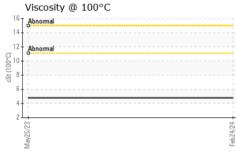
Sample Date         Client Info         24 Feb 2024         25 May 2023            Machine Age         hrs         Client Info         0         0            Oil Age         hrs         Client Info         0         0            Sample Status         Client Info         N/A         N/A            Sample Status         Client Info         N/A         NORMAL         NORMAL            CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG         NEG            VEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D5185(m)         0         0             Itrainum         ppm         ASTM D5185(m)         0         0            Sliver         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0							
SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         24 Feb 2024         25 May 2023            Machine Age         hrs         Client Info         0         0            Oil Age         hrs         Client Info         0         0            Oil Changed         Client Info         0         0             Sample Status         NORMAL         NORMAL         NORMAL             CONTAMINATION         method         imit/base         current         history1         history2           Water         WC Method         NEG         NEG             WEAR METALS         method         imit/base         current         history1         history2           PQ         ASTM D5185(m)         0         0              Normium         ppm         ASTM D5185(m)         0         0             Normium         ppm         ASTM D5185(m)         0         0             Noresite							
Sample Number         Client Info         PC0052498         PC0052558            Sample Date         Client Info         24 Feb 2024         25 May 2023            Machine Age         hrs         Client Info         0            Oil Age         hrs         Client Info         N/A         N/A            Sample Status         Client Info         N/A         N/A            CONTAMINATION         method         Imit/base         current         history1         history2           Water         WC Method         NEG         NEG             VEAR METALS         method         Imit/base         current         history1         history2           PQ         ASTM DB184/         0         0             Vickel         ppm         ASTM DB185/m         0         0            Titanium         ppm         ASTM DB185/m         0         0            Auminum         ppm         ASTM DB185/m         0         0            Auminum         ppm         ASTM DB185/m         0         0            Coppe				May2023	Feb2024		
Sample Date         Client Info         24 Feb 2024         25 May 2023            Machine Age         hrs         Client Info         0         0            Oil Age         hrs         Client Info         0         0            Oil Changed         Client Info         N/A         N/A            Sample Status         Imit/base         current         history1         history2           Water         WC Method         NEG         NEG            VEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D8184*         0         0             Nickel         ppm         ASTM D6185(m)         0         0            Silver         ppm         ASTM D6185(m)         0         0            Aluminum         ppm         ASTM D6185(m)         0         0            Aluminum         ppm         ASTM D6185(m)         0         0            Aluminum         ppm         ASTM D6185(m)         0         0            Copper         pp	SAMPLE INFOR	RMATION	ethod	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0         0            Oil Age         hrs         Client Info         N/A         N/A            Sample Status         Image         N/A         N/A         N/A            CONTAMINATION         method         imit/base         current         history1         history2           Water         WC Method         NEG         NEG            WEAR METALS         method         imit/base         current         history1         history2           PQ         ASTM D8184*         0         0             Nickel         ppm         ASTM D5185(m)         0         0            Nickel         ppm         ASTM D5185(m)         0         0            Auminum         ppm         ASTM D5185(m)         0         0            Autimony         ppm         ASTM D5185(m)         0         0            Autimony         ppm         ASTM D5185(m)         0         0            Autimony         ppm         ASTM D5185(m)         0         0 </td <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <td>PC0052498</td> <td>PC0052558</td> <td></td>	Sample Number		Client Info		PC0052498	PC0052558	
Oil Age         hrs         Client Info         0            Oil Changed         Client Info         N/A         N/A            Sample Status         Imit/base         current         NISONAL            CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D8185(m)         0            instrory2           PQ         ASTM D8185(m)         0         0              Itanium         ppm         ASTM D5185(m)         0         0            Silver         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0	Sample Date		Client Info		24 Feb 2024	25 May 2023	
Oil Changed     Client Info     N/A     N/A        Sample Status     NORMAL     NORMAL     NORMAL        CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     NEG     NEG        WEAR METALS     method     limit/base     current     history1     history2       PQ     ASTM D8184*     0     0        Iron     ppm     ASTM D5185(m)     0     0        Nickel     ppm     ASTM D5185(m)     0     0        Aluminum     ppm     ASTM D5185(m)     0     0        Aluminum     ppm     ASTM D5185(m)     0     0        Auminum     ppm     ASTM D5185(m)     0     0        Auminum     ppm     ASTM D5185(m)     0     0        Antimony     ppm     ASTM D5185(m)     0     0        Vanadium     ppm     ASTM D5185(m)     0     0        Astm D5185(m)     0     0         Astm D5185(m)     0     0         Manganese     ppm	Machine Age	hrs	Client Info		0		
Sample Status         NORMAL         NORMAL         NORMAL            CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D5185(m)         0          listory1         history2           PQ         ASTM D5185(m)         0          listory1         history2           PQ         ASTM D5185(m)         0          listory1         history2           PQ         ASTM D5185(m)         0         0          listory1         history2           PQ         ASTM D5185(m)         0         0             Nickel         ppm         ASTM D5185(m)         0         0            Silver         ppm         ASTM D5185(m)         0         0            Copper         ppm         ASTM D5185(m)         0         0            Copper         ppm         ASTM D5185(m)         0         0 </td <td>Oil Age</td> <td>hrs</td> <td>Client Info</td> <td></td> <td>0</td> <td>0</td> <td></td>	Oil Age	hrs	Client Info		0	0	
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM 08184*         0         0             Iron         ppm         ASTM 05185(m)         0             Chromium         ppm         ASTM 05185(m)         0         0            Nickel         ppm         ASTM 05185(m)         0         0            Silver         ppm         ASTM 05185(m)         0         0            Aluminum         ppm         ASTM 05185(m)         0         0            Copper         ppm         ASTM 05185(m)         0         0            Antimony         ppm         ASTM 05185(m)         0         0            Copper         ppm         ASTM 05185(m)         0         0            Copper         ppm         ASTM 05185(m)         0         0	Oil Changed		Client Info		N/A	N/A	
Water         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D8184*         0         0             Iron         ppm         ASTM D8185(m)         0         <1	Sample Status				NORMAL	NORMAL	
WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D8184*         0         0             Iron         ppm         ASTM D5185(m)         0         <1	CONTAMINA	ΓΙΟΝ	method	limit/base	current	history1	history2
PQ         ASTM D8184*         0         0            Iron         ppm         ASTM D5185(m)         0         <1            Chromium         ppm         ASTM D5185(m)         0         0         <1            Nickel         ppm         ASTM D5185(m)         0         0         <1            Titanium         ppm         ASTM D5185(m)         0         0         <1            Silver         ppm         ASTM D5185(m)         0         0         0            Auminum         ppm         ASTM D5185(m)         0         0         0            Copper         ppm         ASTM D5185(m)         0         0             Antimony         ppm         ASTM D5185(m)         0         0             Astmositis(m)         pm         ASTM D5185(m)         0         0            Cadmium         ppm         ASTM D5185(m)         0         0	Water		WC Method		NEG	NEG	
Iron         ppm         ASTM D5185(m)         0         <1            Chromium         ppm         ASTM D5185(m)         0         0            Nickel         ppm         ASTM D5185(m)         0         <1	WEAR METAI	LS	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185(m)         0         0            Nickel         ppm         ASTM D5185(m)         0         <1	PQ		ASTM D8184*		0	0	
Nickel         ppm         ASTM D5185(m)         0         <1            Titanium         ppm         ASTM D5185(m)         0         0            Silver         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0            Lead         ppm         ASTM D5185(m)         0         0            Copper         ppm         ASTM D5185(m)         <1	Iron	ppm	ASTM D5185(m)		0	<1	
Titanium         ppm         ASTM D5185(m)         0         0            Silver         ppm         ASTM D5185(m)         0         0            Aluminum         ppm         ASTM D5185(m)         0         0            Lead         ppm         ASTM D5185(m)         0         0            Copper         ppm         ASTM D5185(m)         <1	Chromium	ppm	ASTM D5185(m)		0	0	
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Aluminum       ppm       ASTM D5185(m)       0          Lead       ppm       ASTM D5185(m)       0       0          Copper       ppm       ASTM D5185(m)       0       0          Tin       ppm       ASTM D5185(m)       0       0          Antimony       ppm       ASTM D5185(m)       0       0          Vanadium       ppm       ASTM D5185(m)       0       0          Vanadium       ppm       ASTM D5185(m)       0       0          Cadmium       ppm       ASTM D5185(m)       0       0          ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185(m)       0       0       0          Malganese       ppm       ASTM D5185(m)       0       0       0          Malganesium       ppm       ASTM D5185(m)       0       0       0          Galcium       ppm       ASTM D5185(m)       318       361          Sulfur       ppm       ASTM D5185(m)       393       <	Titanium	ppm	ASTM D5185(m)		0		
Lead         ppm         ASTM D5185(m)         0         0            Copper         ppm         ASTM D5185(m)         <1	Silver	ppm	ASTM D5185(m)		0	0	
Copper         ppm         ASTM D5185(m)         <1         <1         <1            Tin         ppm         ASTM D5185(m)         0         0         0            Antimony         ppm         ASTM D5185(m)         0         0         0            Vanadium         ppm         ASTM D5185(m)         0         0         0            Beryllium         ppm         ASTM D5185(m)         0         0         0            Cadmium         ppm         ASTM D5185(m)         0         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         0         0            Calcium         ppm         ASTM D5185(m)         318         361            Calcium         ppm         ASTM D5185(m)         318         361            Sulfur	Aluminum	ppm	ASTM D5185(m)				
Tin         ppm         ASTM D5185(m)         0         0            Antimony         ppm         ASTM D5185(m)         0         0            Vanadium         ppm         ASTM D5185(m)         0         0            Beryllium         ppm         ASTM D5185(m)         0         0            Cadmium         ppm         ASTM D5185(m)         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         0         0            Calcium         ppm         ASTM D5185(m)         46         48            Calcium         ppm         ASTM D5185(m)         318         361            Sulfur         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819	Lead	ppm	( <i>i</i>		-		
Antimony         ppm         ASTM D5185(m)         0         0            Vanadium         ppm         ASTM D5185(m)         0         0            Beryllium         ppm         ASTM D5185(m)         0         0            Cadmium         ppm         ASTM D5185(m)         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         0            Barium         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Maganese         ppm         ASTM D5185(m)         <1		ppm					
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BerylliumppmASTM D5185(m)00CadmiumppmASTM D5185(m)00ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)00BariumppmASTM D5185(m)00MolybdenumppmASTM D5185(m)00ManganeseppmASTM D5185(m)00MagnesiumppmASTM D5185(m)<10CalciumppmASTM D5185(m)318361ZincppmASTM D5185(m)393395SulfurppmASTM D5185(m)731819LithiumppmASTM D5185(m)<1<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)00SodiumppmASTM D5185(m)00	,						
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Boron         ppm         ASTM D5185(m)         0            Barium         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         <1		ppm	ASTM D5185(m)		0	0	
Barium         ppm         ASTM D5185(m)         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         <1         0            Calcium         ppm         ASTM D5185(m)         <1         0            Calcium         ppm         ASTM D5185(m)         318         361            Calcium         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1         <1            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         0         0             Sodium         ppm         ASTM D5185(m)         0         0	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         0         0            Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         <1	Boron	ppm			0	0	
Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         <1	Barium	ppm			0		
Magnesium         ppm         ASTM D5185(m)         <1         0            Calcium         ppm         ASTM D5185(m)         46         48            Phosphorus         ppm         ASTM D5185(m)         318         361            Zinc         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1		ppm	( )				
Calcium         ppm         ASTM D5185(m)         46         48            Phosphorus         ppm         ASTM D5185(m)         318         361            Zinc         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1         <1            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         0         0            Sodium         ppm         ASTM D5185(m)         0         0	-	ppm	. ,		0	0	
Phosphorus         ppm         ASTM D5185(m)         318         361            Zinc         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1	0	ppm					
Zinc         ppm         ASTM D5185(m)         393         395            Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1		ppm			-		
Sulfur         ppm         ASTM D5185(m)         731         819            Lithium         ppm         ASTM D5185(m)         <1	•						
Lithium     ppm     ASTM D5185(m)     <1     <       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185(m)     0     0        Sodium     ppm     ASTM D5185(m)     0     0							
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185(m)     0     0        Sodium     ppm     ASTM D5185(m)     0     0							
Silicon         ppm         ASTM D5185(m)         0            Sodium         ppm         ASTM D5185(m)         0	Lithium	ppm	ASTM D5185(m)		<1	<1	
Sodium         ppm         ASTM D5185(m)         0	CONTAMINA	NTS	method	limit/base	current	history1	history2
	Silicon	ppm	ASTM D5185(m)		0	0	
Potassium         ppm         ASTM D5185(m)         >20         <1	Sodium	ppm	ASTM D5185(m)		0	0	
	Potassium	ppm	ASTM D5185(m)	>20	<1	<1	

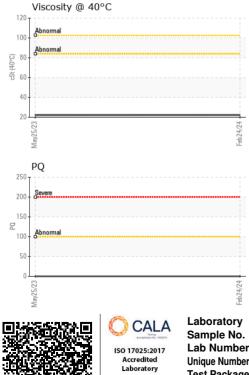


# **OIL ANALYSIS REPORT**

	ticle Cou	int			
491,520 T					T <sup>26</sup>
122,880 Severe					-24
00 700 9					-22 8
(m 130,720 - 7,680 Abnom 1,920 - 480 - 120 - 30 - 8	nal				20 40
1,920		1.0			18 19
10 480					-16 0
5 120-					-22 ISO 4406:1999 Cleanliness Code -18 999 Cleanliness Code -14 12 code -10 de
-0E 30-					-12 8
8-		-	_		10 8
2 -					-8
0 4µ	6µ	14µ	21µ	38µ	71µ
	d Numbe	er			
0.60 T					
₽0.48 ¥					
(b) 0.48 HOX bu) 10.36 Jaquin 0.24					
L					
e 0.24					
2					







FLUID CLEANL	INESS	method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	695		
Particles >6µm		ASTM D7647	>1300	69		
Particles >14µm		ASTM D7647	>160	9		
Particles >21µm		ASTM D7647	>40	4		
Particles >38µm		ASTM D7647	>10	1		
Particles >71µm		ASTM D7647	>3	0		
Oil Cleanliness		ISO 4406 (c)	>19/17/14	17/13/10		
FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.43	0.50	
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	
Precipitate	scalar	Visual*	NONE	NONE	NONE	
Silt	scalar	Visual*	NONE	NONE	NONE	
Debris	scalar	Visual*	NONE	NONE	NONE	
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	
Appearance	scalar	Visual*	NORML	NORML	NORML	
Odor	scalar	Visual*	NORML	NORML	NORML	
Emulsified Water	scalar	Visual*		NEG	NEG	
Free Water	scalar	Visual*		NEG	NEG	
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)		22.2	22.1	
Visc @ 100°C	cSt	ASTM D7279(m)		4.8	4.8	
Viscosity Index (VI)	Scale	ASTM D2270*		142	143	
SAMPLE IMAG	ES	method	limit/base	current	history1	history2
Color						no image
Bottom						no image
Bottom						no image





Suncor - Terra Nova Projects Scotia Centre, 235 Water Strret St. John`s, NL CA A1C 1B6 Contact: Josh Hynes joshynes@suncor.com T: (709)778-3575 F: (709)724-2835