

PROBLEM SUMMARY

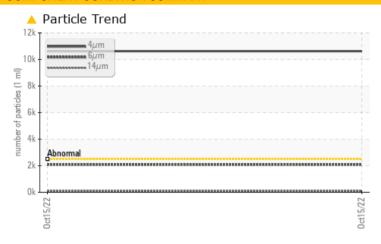
Steering Gears Steering Gear Starboard

Rear Right Steering

PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)

Sample Rating Trend ISO

COMPONENT CONDITION SUMMARY



RECOMMENDATION

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS							
Sample Status			ABNORMAL				
Particles >4µm	ASTM D7647	>2500	10627				
Particles >6µm	ASTM D7647	>640	2081				
Particles >14μm	ASTM D7647	>80	4 90				
Oil Cleanliness	ISO 4406 (c)	>18/16/13	21/18/14				

Customer Id: VMASSEY Sample No.: WC0707623 Lab Number: 02519390 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

RECOMMENDED A	CTIONS			
Action	Status	Date	Done By	Description
Resample	MISSED	Jan 13 2023	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

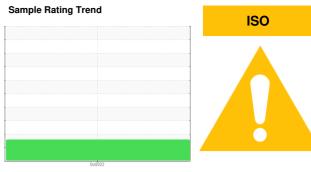


OIL ANALYSIS REPORT

Steering Gears Steering Gear Starboard

Rear Right Steering

PETRO CANADA HYDREX XV ALL SEASON H



DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

All component wear rates are normal.

Contamination

Oil Cleanliness are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high.

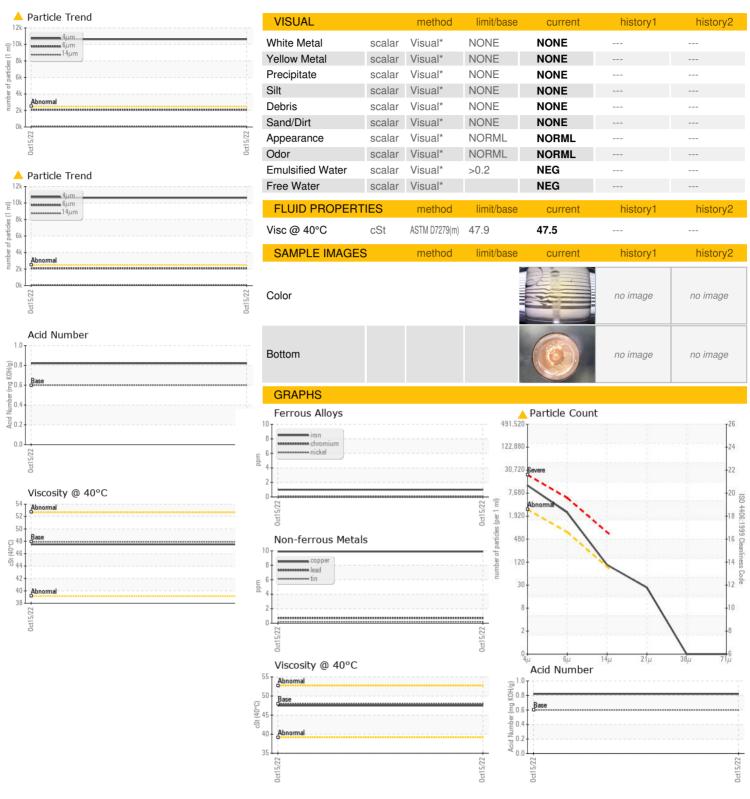
Fluid Condition

The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Sample Number Sample Date Client Info 15 Oct 2022	DRAULIC OIL (-	GAL)			Oct2022		
Sample Date Client Info 0 15 Oct 2022	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0	Sample Number		Client Info		WC0707623		
Machine Age hrs Client Info 0	Sample Date		Client Info		15 Oct 2022		
Dil Age	·	hrs	Client Info		0		
Dil Changed Client Info N/A ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL	Oil Age	hrs	Client Info		0		
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185(m) >50 1	-		Client Info		N/A		
Post	Sample Status				ABNORMAL		
Chromium ppm ASTM D5185(m) >15 0 Nickel ppm ASTM D5185(m) >5 0 Sitiver ppm ASTM D5185(m) 0 Aluminum ppm ASTM D5185(m) >5 0 Lead ppm ASTM D5185(m) >50 10 Lead ppm ASTM D5185(m) >50 10 Appear ASTM D5185(m) >50 10 Antimony ppm ASTM D5185(m) 0 Aratinadium ppm ASTM D5185(m) 0 Aratinadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 0 Beryllium ppm ASTM D5185(m) 0	WEAR METALS		method	limit/base	current	history1	history2
ASTM D5185(m) >5 0	ron	ppm	ASTM D5185(m)	>50	1		
ASTM D5185(m) D	Chromium	ppm	ASTM D5185(m)	>15	0		
Silver ppm ASTM D5185(m) >5 0	Nickel	ppm	ASTM D5185(m)	>5	0		
Autuminum ppm ASTM D5185(m) >5 0	- itanium	ppm	ASTM D5185(m)		0		
December Decembe	Silver	ppm	ASTM D5185(m)		0		
December Part December	Aluminum		ASTM D5185(m)	>5	0		
Description Description	ead		()		<1		
Sample							
Antimony ppm ASTM D5185(m) 0	• •		` '				
Aranadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 Cadmium ppm ASTM D5185(m) 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 0 Asarium ppm ASTM D5185(m) 0 0 Anaganese ppm ASTM D5185(m) 0 <-1 Anaganesium ppm ASTM D5185(m) 0 <-1 Phosphorus ppm ASTM D5185(m) 100 105 Billicum ppm ASTM D5185(m) 670 711 Cinc ppm ASTM D5185(m) 850 839 Silicon ppm ASTM D5185(m) 1600 1667			. ,				
Decyllium	•		, ,		-		
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 Magnaese ppm ASTM D5185(m) 1 0 Magnesium ppm ASTM D5185(m) 10 105 Alcicium ppm ASTM D5185(m) 100 105 Phosphorus ppm ASTM D5185(m) 670 711 Pinc ppm ASTM D5185(m) 670 711 Sulfur ppm ASTM D5185(m) 60 839 Silicon ppm ASTM D5185(m) <1			` '				
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 0 Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 Manganese ppm ASTM D5185(m) 1 0 0 Manganese ppm ASTM D5185(m) 0 <1 Manganesum ppm ASTM D5185(m) 100 105	•		` '		-		
Soron ppm ASTM D5185(m) O O O O O O		ppm	ASTM D5185(m)		U		
Sarium				limit/base		history1	history2
Molybdenum ppm ASTM D5185(m) 0 0 Manganese ppm ASTM D5185(m) 1 0 Magnesium ppm ASTM D5185(m) 0 <1 Calcium ppm ASTM D5185(m) 100 105 Phosphorus ppm ASTM D5185(m) 670 711 Zinc ppm ASTM D5185(m) 850 839 Sulfur ppm ASTM D5185(m) 1600 1667 Sulfur ppm ASTM D5185(m) <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 <1 Contassium ppm ASTM D5185(m) >20 <1 Potassium ppm ASTM D7647		ppm	` '	0			
Manganese ppm ASTM D5185(m) 1 0 Magnesium ppm ASTM D5185(m) 0 <1 Calcium ppm ASTM D5185(m) 100 105 Phosphorus ppm ASTM D5185(m) 670 711 Zinc ppm ASTM D5185(m) 850 839 Sulfur ppm ASTM D5185(m) 1600 1667 Lithium ppm ASTM D5185(m) 1600 1667 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 <1 Goldium ppm ASTM D5185(m) >20 <1 Potaticles >4µm ASTM D5185(m) >20 <1 Particles >4µm ASTM D	Barium	ppm	. ,	0	-		
Magnesium ppm ASTM D5185(m) 0 <1 Calcium ppm ASTM D5185(m) 100 105 Phosphorus ppm ASTM D5185(m) 670 711 Cinc ppm ASTM D5185(m) 850 839 Sulfur ppm ASTM D5185(m) 1600 1667 cithium ppm ASTM D5185(m) <1	Nolybdenum	ppm	. ,	0			
Calcium ppm ASTM D5185(m) 100 105	Manganese	ppm	ASTM D5185(m)	1	0		
Phosphorus ppm ASTM D5185(m) 670 711	/lagnesium	ppm	ASTM D5185(m)	0	<1		
Solitor So	Calcium	ppm	ASTM D5185(m)	100	105		
Sulfur ppm ASTM D5185(m) 1600 1667	hosphorus	ppm	ASTM D5185(m)	670	711		
Silicon ppm ASTM D5185(m) >15 <1 Silicon ppm ASTM D5185(m) >15 <1 Sodium ppm ASTM D5185(m) >20 <1 Sodium ppm ASTM D5185(m) >20 <1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >2500 △ 10627 Particles >6μm ASTM D7647 >640 △ 2081 Particles >21μm ASTM D7647 >80 △ 90 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Particles SO 4406 (c) >18/16/13 △ 21/18/14 FLUID DEGRADATION method limit/base current history1 history2 history3 history2 history2 history3 history3 history4 history	linc	ppm	ASTM D5185(m)	850	839		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 <1	Sulfur	ppm	ASTM D5185(m)	1600	1667		
Silicon ppm ASTM D5185(m) >15 <1 Sodium ppm ASTM D5185(m) 0 Sodium ppm ASTM D5185(m) >20 <1 Sodium ppm ASTM D7647 >2500 ▲ 10627 Sodium Particles >6µm ASTM D7647 >640 ▲ 2081 Sodium Particles >14µm ASTM D7647 >80 ▲ 90 Sodium Particles >21µm ASTM D7647 >20 23 Sodium Particles >38µm ASTM D7647 >4 0 Sodium Particles >71µm ASTM D7647 >3 0 Sodium Particles >71µm ASTM D7647 >3 0 Sodium Particles Particles >71µm ASTM D7647 >3 0 Sodium Particles Particl	ithium	ppm	ASTM D5185(m)		<1		
Sodium ppm ASTM D5185(m) 0	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 <1 FLUID CLEANLINESS method limit/base current history1 history2 carticles >4μm ASTM D7647 >2500 ▲ 10627 Particles >6μm ASTM D7647 >640 ▲ 2081 Particles >14μm ASTM D7647 >80 ▲ 90 Particles >21μm ASTM D7647 >20 23 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0	ilicon	ppm	ASTM D5185(m)	>15	<1		
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >2500 ▲ 10627 Particles >6μm ASTM D7647 >640 ▲ 2081 Particles >14μm ASTM D7647 >80 ▲ 90 Particles >21μm ASTM D7647 >20 23 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0	Sodium	ppm	ASTM D5185(m)		0		
Particles >4μm	otassium	ppm	ASTM D5185(m)	>20	<1		
Particles >6μm ASTM D7647 >640 2081 Particles >14μm ASTM D7647 >80 90 Particles >21μm ASTM D7647 >20 23 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Pil Cleanliness ISO 4406 (c) >18/16/13 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >80 Φ 90 Particles >21μm ASTM D7647 >20 23 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >18/16/13 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	articles >4µm		ASTM D7647	>2500	10627		
Particles >21μm ASTM D7647 >20 23 Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >18/16/13 ▲ 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	articles >6µm		ASTM D7647	>640	<u>^</u> 2081		
Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >18/16/13 ▲ 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	<u> </u>		
Particles >38μm ASTM D7647 >4 0 Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >18/16/13 ▲ 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	23		
Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >18/16/13 ▲ 21/18/14 FLUID DEGRADATION method limit/base current history1 history2	•		ASTM D7647	>4	0		
Dil Cleanliness ISO 4406 (c) >18/16/13 ▲ 21/18/14			ASTM D7647	>3	0		
	•						
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/a	ASTM D974*	0.60	0.82		



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number **Unique Number**

: WC0707623 : 02519390

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received Diagnosed : 5476370

Diagnostician Test Package : MAR 2 (Additional Tests: PrtCount)

: 31 Oct 2022 : Wes Davis

: 28 Oct 2022

CCGS Vincent Massey, 101 Boul. Champlain Quebec, QC CA G1K 7Y7

Contact: Vincent Massey vincentmasseyse@ccgs-ngcc.gc.ca T: (418)573-7423

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Canadian Coast Guard

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