Sample Rating Trend

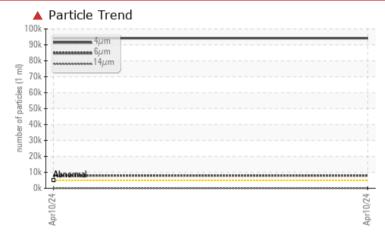


PROBLEM SUMMARY



Machine Id **1300-5** Component Hydraulic System Fluid PETRO CANADA HYDREX AW 46 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS							
Sample Status		SEVERE					
Particles >4µm	ASTM D7647 >5000	4 94162					
Particles >6µm	ASTM D7647 >1300	A 7981					
Oil Cleanliness	ISO 4406 (c) >19/17/	14 🔺 24/20/13					

Customer Id: MARPUL Sample No.: KFS0004973 Lab Number: 06146568 Test Package: IND 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: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS						
Action	Status	Date	Done By	Description		
Change Filter			?	We recommend you service the filters on this component.		
Resample			?	Resample in 30-45 days to monitor this situation.		
Information Required			?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.		
Check Breathers			?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.		
Check Seals			?	Check seals and/or filters for points of contaminant entry.		

HISTORICAL DIAGNOSIS



Sample Rating Trend



Machine Id 1300-5 **Hydraulic System** PETRO CANADA HYDREX AW 46 (--- GAL)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

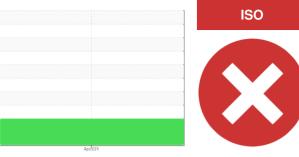
Fluid Condition

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

Sample Number Client Info KFS0004973 Sample Date Client Info 10 Apr 2024 Machine Age hrs Client Info 0 Oil Age hrs Client Info 0 Oil Changed Client Info N/A Sample Status Client Info N/A CONTAMINATION method limil/base current history1 history2 Water WC Method >0.05 NEG Nickel ppm ASTM 05185m >20 3 Nickel ppm ASTM 05185m >20 1 Auminum ppm ASTM 05185m >20 1 Auminum ppm ASTM 05185m >20 1 Auminum ppm ASTM 05185m >20 <			L		Apr2024		
Sample Date Client Into 10 Apr 2024 Machine Age hrs Client Into 0 Oil Age hrs Client Into 0 Sample Status Client Into N/A CONTAMINATION method Imit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >20 -1 Nickel ppm ASTM 05185m >20 -1 Inauminum ppm ASTM 05185m 20 1 Lead ppm ASTM 05185m 20 1 Auminum ppm ASTM 05185m 20 1 Vanadium ppm	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Client Info 10 Apr 2024 Machine Age hrs Client Info 0 Oil Age hrs Client Info 0 Sample Status Client Info N/A CONTAMINATION method Imit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >20 -1 Nickel ppm ASTM 05185m >20 -1 Iminum ppm ASTM 05185m >20 1 Iminum ppm ASTM 05185m >20 1 <t< td=""><td>Sample Number</td><td></td><td>Client Info</td><td></td><th>KFS0004973</th><td></td><td></td></t<>	Sample Number		Client Info		KFS0004973		
Machine Age Dil Age Dil Age Dil Age Dil Age Dil Age Dil Changed Sample Status Client Info 0 COI Changed Sample Status Client Info N/A CONTAMINATION method limit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >20 <1			Client Info		10 Apr 2024		
Oil Changed Client Info N/A Sample Status Imit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185n >20 3 Nickel ppm ASTM D5185n >20 <1	-	hrs			-		
Oil Changed Client Info N/A Sample Status Imit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185n >20 3 Nickel ppm ASTM D5185n >20 <1	0		Client Info		0		
Sample Status SEVERE CONTAMINATION method limit/base current history1 history2 Water WC Method >0.05 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1	-		Client Info		N/A		
Water WC Method >0.05 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 3 Nickel ppm ASTM D5185m >20 <1	-				SEVERE		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5165m >20 3 Nickel ppm ASTM D5165m >20 <1 Nickel ppm ASTM D5165m >20 <1 Aluminum ppm ASTM D5185m >20 1 Aluminum ppm ASTM D5185m >20 1 Lead ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m >20 1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 Magnasium ppm ASTM D5185m 0	CONTAMINATIO	N	method	limit/base	current	history1	history2
Iron ppm ASTM D5185m >20 3 Nickel ppm ASTM D5185m >20 <1 Nickel ppm ASTM D5185m >20 <1 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >20 1 Lead ppm ASTM D5185m >20 1 Copper ppm ASTM D5185m >20 1 Cadmium ppm ASTM D5185m >20 1 Cadmium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m 0 <1 ADDITVES method Imit/base current history1 history2 Barium ppm ASTM D5185m 0	Water		WC Method	>0.05	NEG		
Dromium ppm ASTM D5185m >20 <1 Nickel ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >20 <1 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >20 1 Copper ppm ASTM D5185m >20 3 Copper ppm ASTM D5185m >20 1 Cadmium ppm ASTM D5185m >20 1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 -1 Magaanese ppm ASTM D5185m 0 <1	Iron	ppm	ASTM D5185m	>20	3		
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1		
Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >20 1 Auminum ppm ASTM D5185m >20 3 Copper ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m >20 1 Additum ppm ASTM D5185m >20 1 ADDITIVES method limit/base current history1 history2 Barum ppm ASTM D5185m 0 12 Maganese ppm ASTM D5185m 0 12 Phosphorus ppm ASTM D5185m 30 340	Vickel	ppm	ASTM D5185m	>20	<1		
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Lead ppm ASTM D5185m >20 1 Copper ppm ASTM D5185m >20 3 Vanadium ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m <1	Aluminum		ASTM D5185m	>20	1		
Copper ppm ASTM D5185m >20 3 Vanadium ppm ASTM D5185m >20 1 Aanadium ppm ASTM D5185m <1				>20	1		
Tin ppm ASTM D5185m >20 1 Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>20	3		
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m <1	Tin		ASTM D5185m	>20	1		
Cadmium ppm ASTM D5185m <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Malganese ppm ASTM D5185m 0 <1	Vanadium		ASTM D5185m		<1		
Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 <1	Cadmium		ASTM D5185m		<1		
Barium ppm ASTM D5185m 0 •••• •••• Molybdenum ppm ASTM D5185m 0 <1 •••• •••• Manganese ppm ASTM D5185m 0 <1 •••• •••• Magnesium ppm ASTM D5185m 0 12 •••• •••• Calcium ppm ASTM D5185m 50 53 •••• •••• Calcium ppm ASTM D5185m 50 53 •••• •••• Calcium ppm ASTM D5185m 50 53 •••• •••• Sulfur ppm ASTM D5185m 330 340 •••• •••• Sulfur ppm ASTM D5185m 760 1109 •••• •••• Solfum ppm ASTM D5185m >15 <1 •••• •••• Solfum ppm ASTM D5185m >20 1 •••• •••• Potassium ppm ASTM D7647 >50	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 <1 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	0		
Marganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 0 12 Calcium ppm ASTM D5185m 50 53 Phosphorus ppm ASTM D5185m 330 340 Zinc ppm ASTM D5185m 430 408 Sulfur ppm ASTM D5185m 760 1109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Barium	ppm	ASTM D5185m	0	0		
Magnesium ppm ASTM D5185m 0 12 Calcium ppm ASTM D5185m 50 53 Phosphorus ppm ASTM D5185m 330 340 Zinc ppm ASTM D5185m 430 408 Sulfur ppm ASTM D5185m 760 1109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Volybdenum	ppm	ASTM D5185m	0	<1		
Calcium ppm ASTM D5185m 50 53 Phosphorus ppm ASTM D5185m 330 340 Zinc ppm ASTM D5185m 430 408 Sulfur ppm ASTM D5185m 760 1109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Vanganese	ppm	ASTM D5185m	0	<1		
Phosphorus ppm ASTM D5185m 330 340 Zinc ppm ASTM D5185m 430 408 Sulfur ppm ASTM D5185m 760 1109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Magnesium	ppm	ASTM D5185m	0	12		
Zinc ppm ASTM D5185m 430 408 Sulfur ppm ASTM D5185m 760 1109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Calcium	ppm	ASTM D5185m	50	53		
SulfurppmASTM D5185m7601109CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>15<1	Phosphorus	ppm	ASTM D5185m	330	340		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Zinc	ppm	ASTM D5185m	430	408		
Silicon ppm ASTM D5185m >15 <1 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 ● 94162 Particles >6µm ASTM D7647 >1300 7981 Particles >14µm ASTM D7647 >160 65 Particles >21µm ASTM D7647 >10 0 Particles >38µm ASTM D7647 >3 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Sulfur	ppm	ASTM D5185m	760	1109		
Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m<>20 1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 ♦ 94162 Particles >6µm ASTM D7647 >1300 7981 Particles >6µm ASTM D7647 >160 65 Particles >14µm ASTM D7647 >160 65 Particles >21µm ASTM D7647 >40 8 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 94162 Particles >6µm ASTM D7647 >1300 7981 Particles >6µm ASTM D7647 >160 65 Particles >14µm ASTM D7647 >100 65 Particles >21µm ASTM D7647 >40 8 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Silicon	ppm	ASTM D5185m	>15	<1		
Potassium ppm ASTM D5185m >20 1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 94162 Particles >6µm ASTM D7647 >1300 7981 Particles >6µm ASTM D7647 >160 65 Particles >14µm ASTM D7647 >100 65 Particles >21µm ASTM D7647 >10 0 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Particles >71µm ISO 4406 (c) >19/17/14 24/20/13 Dil Cleanliness ISO 4406 (c) 19/17/14 24/20/13	Sodium				0		
Particles >4µm ASTM D7647 >5000 ▲ 94162 Particles >6µm ASTM D7647 >1300 ▲ 7981 Particles >14µm ASTM D7647 >160 65 Particles >14µm ASTM D7647 >10 65 Particles >21µm ASTM D7647 >40 8 Particles >38µm ASTM D7647 >10 0 Particles >38µm ASTM D7647 >3 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Potassium		ASTM D5185m	>20	1		
Particles >6µm ASTM D7647 >1300 ▲ 7981 Particles >14µm ASTM D7647 >160 65 Particles >21µm ASTM D7647 >40 8 Particles >21µm ASTM D7647 >40 8 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >160 65 Particles >21μm ASTM D7647 >40 8 Particles >21μm ASTM D7647 >10 0 Particles >38μm ASTM D7647 >10 0 Particles >38μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647	>5000	4 94162		
Particles >14µm ASTM D7647 >160 65 Particles >21µm ASTM D7647 >40 8 Particles >38µm ASTM D7647 >10 0 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	<u> </u>		
Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >19/17/14 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>160	65		
Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >19/17/14 ▲ 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>40	8		
Particles >71μm ASTM D7647 >3 0 Dil Cleanliness ISO 4406 (c) >19/17/14 ▲ 24/20/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>10	0		
FLUID DEGRADATION method limit/base current history1 history2			ASTM D7647	>3	0		
			ISO 4406 (c)	>19/17/14	4 24/20/13		
Acid Number (AN) mg KOH/g ASTM D8045 0.70 0.34	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.70	0.34		

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ISO



OIL ANALYSIS REPORT

)k _T		VISUAL		method	limit/base	current	history1	history2
4μm 6μm		White Metal	scalar	*Visual	NONE	NONE		
**************************************		Yellow Metal	scalar	*Visual	NONE	NONE		
0k -		Precipitate	scalar	*Visual	NONE	NONE		
)k -		Silt	scalar	*Visual	NONE	NONE		
)k -		Debris	scalar	*Visual	NONE	NONE		
		Sand/Dirt	scalar	*Visual	NONE	NONE		
	0/24	Appearance	scalar	*Visual	NORML	NORML		
Apr10/24	Apr10/24	Odor	scalar	*Visual	NORML	NORML		
		Emulsified Water	scalar	*Visual	>0.05	NEG		
Particle Trend		Free Water	scalar	*Visual		NEG		
4μm 6μm					11 1. 1	_		
k =		FLUID PROPER		method	limit/base	current	history1	history2
		Visc @ 40°C	cSt	ASTM D445	46.4	46.0		
k		SAMPLE IMAGE	S	method	limit/base	current	history1	history2
April 1024	Apr10/24	Color					no image	no image
Acid Number	Ap	Bottom					no image	no image
0		GRAPHS						
		Ferrous Alloys				Particle Count		
□+ -¦		10 _T			491,520			T ²
)+		8 - iron						
and a	V CI CI	E 6			122,880	Severe		-24
Apr1 0/2 [,]	1A	ä 4.			30,720			-22
V/1		2-			7.000			
Viscosity @ 40°C		01.				Abnormal		+20 +18 +16
Abnormal		Apr10/24			Apr10/24 - (per 1 ml)	· · · · · ·		-18
					- Cless		Ť	
Base		Non-ferrous Meta	als		911 480	1		-16
		8 copper			jo jo 120	-	N I	-14
		= 6 + tin			in the second se			-12
Abnormal					30			
54	r C	2				-		-10
Apr10/24	0/01	0						
4	~	Apr10/24			Apr10/24			∖ ^{†°}
					Ap (4u 6u	14µ 21µ	38µ 71µ
		Viscosity @ 40°C				Acid Number	- 'p	s spe
		Abnormal			([©] 0.80	Base		
		50+			Q.60			
		Base Base Abnormal			(B)HO3 0.60 (B)HO3 0.60 (B)HO3 0.60 (B) as 0.40 (B) as 0.40 (C) PO (C) P			
		40 - Abnormal			- P 0 20			
		35			Acid			
						9/24		
		Apr1 0/24			Apr10/24	Apr10/24		
			Recei Teste	ived :11 d :12	Apr 2024 2 Apr 2024		181	MAREL BENNETT D PULASKI, T
Testic Laboratory	Unique Number Test Package		Diagr		2 Apr 2024 - W	es Davis	Contact: Se	US 3847 ervice Manage

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