

## **OIL ANALYSIS REPORT**

Sample Rating Trend

# VISCOSITY

Machine Id

### STRETCHER

Hydraulic System Fluid PETRO CANADA HYDREX AW 68 (500 GAL)

#### DIAGNOSIS

#### Recommendation

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

#### Wear

All component wear rates are normal.

#### Contamination

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

#### Fluid Condition

Viscosity of sample indicates oil is within ISO 100 range, advise investigate. 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 INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0920608	WC936011	
Sample Date		Client Info		05 Apr 2024	20 Mar 2018	
Machine Age	yrs	Client Info		1000	2	
Oil Age	yrs	Client Info		1000	0	
Oil Changed		Client Info		Filtered	Not Changd	
Sample Status				ABNORMAL	SEVERE	
CONTAMINATION	١	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	3	4	
Chromium	ppm	ASTM D5185(m)	>20	0	0	
Nickel	ppm	ASTM D5185(m)	>20	0	0	
Titanium	ppm	ASTM D5185(m)		0	0	
Silver	ppm	ASTM D5185(m)		0	0	
Aluminum	ppm	ASTM D5185(m)	>20	0	0	
Lead	ppm	ASTM D5185(m)	>20	1	2	
Copper	ppm	ASTM D5185(m)	>20	6	5	
Tin	ppm	ASTM D5185(m)	>20	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	<1	
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	nnm	method ASTM D5185(m)	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	<1	0	
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	0	<1 6	0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0	<1 6 0	0 6 0	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0	<1 6 0 0	0 6 0 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 0	<1 6 0 0 25	0 6 0 <1 23	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 0 50	<1 6 0 25 118	0 6 0 <1 23 118	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330	<1 6 0 25 118 283	0 6 0 <1 23 118 275	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 0 50 330 430	<1 6 0 25 118 283 361	0 6 0 <1 23 118 275 349	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330	<1 6 0 25 118 283 361 761	0 6 0 <1 23 118 275 349 760	     
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330 430 760	<1 6 0 25 118 283 361 761 <1	0 6 0 <1 23 118 275 349 760 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330 430 760	<1 6 0 25 118 283 361 761	0 6 0 <1 23 118 275 349 760 <1 history1	     
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330 430 760	<1 6 0 25 118 283 361 761 <1 current 0	0 6 0 <1 23 118 275 349 760 <1 history1 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 0 50 330 430 760	<1 6 0 25 118 283 361 761 <1 current	0 6 0 <1 23 118 275 349 760 <1 history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 Iimit/base >15	<1 6 0 25 118 283 361 761 <1 current 0	0 6 0 <1 23 118 275 349 760 <1 history1 <1	       history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 Iimit/base >15	<1 6 0 25 118 283 361 761 <1 current 0 2	0 6 0 <1 23 118 275 349 760 <1 +istory1 <1 2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 Iimit/base >15 >20	<1 6 0 25 118 283 361 761 <1 current 0 2 <1	0 6 0 <1 23 118 275 349 760 <1 *1 history1 <1 2 <1	       history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 Iimit/base >15 >20 Iimit/base	<1 6 0 25 118 283 361 761 <1 current 0 2 <1 current	0 6 0 <1 23 118 275 349 760 <1 <b>history1</b> <1 2 <1 2 <1 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 Iimit/base >15 >20 Iimit/base >20	<1 6 0 25 118 283 361 761 <10 Current 0 2 <1 Current 0 2 <1 Current 0 2 <1 Current 0 2 <1 Current 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 6 0 23 118 275 349 760 <1 • history1 2 <1 2 <1 2 <1 2 <1 2 <1 2 4 76953	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 50 330 430 760 10 10 10 10 10 20 10 10 20 10 10 20 20 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 6 0 25 118 283 361 761 <1 0 2 1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 <1 0 2 39284 ▲ 39284 <	0 6 0 <1 23 118 275 349 760 <1 <1 <1 2 <1 2 <1 2 <1 2 <1 <i>history1</i> 2 <1 <i>history1</i>	
Boron           Barium           Molybdenum           Manganese           Magnesium           Calcium           Phosphorus           Zinc           Sulfur           Lithium           CONTAMINANTS           Sodium           Potassium           FLUID CLEANLIN           Particles >4μm           Particles >14μm	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D76477 ASTM D7647	0 0 0 50 330 430 760 10 10 10 10 10 20 10 10 20 10 10 20 20 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 6 0 25 118 283 361 761 <10 Current 0 2 <1 Current 0 39284 3964 127	0 6 0 <1 23 118 275 349 760 <1 <1 <1 2 <1 2 <1 2 <1 2 <1 history1 2 <1 2 <1 2 <1 5 3 4 9 760 <1 2 <1 2 <1 2 <1 2 3 4 9 3 4 9 760 <1 4 9 760 4 4 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	0 0 0 50 330 430 760 10 10 10 10 10 20 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 6 0 25 118 283 361 761 <1 current 0 2 <1 current 0 2 <1 39284 ▲ 3964 127 32	0 6 0 23 118 275 349 760 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium PtUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm   ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 0 0 50 330 430 760 760 515 >15 >15 >20 <b>Iimit/base</b> >5000 >1300 >160 >40 >40 >10	<1 6 0 25 118 283 361 761 <1 current 0 2 <1 current 0 2 <1 39284 ▲ 39284 ▲ 39284 ▲ 3964 127 32 4	0 6 0 23 118 275 349 760 <1 history1 <1 2 <1 history1 ▲ 76953 ▲ 6056 ■ 188 45 1	

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# **OIL ANALYSIS REPORT**

80k -	Particle Trend			FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
_70k.	4μm 6μm			Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	0.34	0.376	
- 60k ·	14μm			VISUAL		method	limit/base	current	history1	history2
fle 40k -				White Metal	aaalar	Visual*	NONE		NONE	
jo 30k ·				Yellow Metal	scalar scalar	Visual*	NONE	NONE NONE	NONE	
20k	Abnormal			Precipitate	scalar	Visual*	NONE	NONE	NONE	
0k -	L		54	Silt	scalar	Visual*	NONE	NONE	NONE	
	Mar20/18		Apr5/24	Debris	scalar	Visual*	NONE	NONE	VLITE	
	2			Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	
100	Viscosity @ 40°	°C		Appearance	scalar	Visual*	NORML	NORML	NORML	
				Odor	scalar	Visual*	NORML	NORML	NORML	
90-				Emulsified Water	scalar	Visual*	>0.05	NEG	NEG	
(40°C) 80.	Abnormal			Free Water	scalar	Visual*		NEG	NEG	
3 70-	Base			FLUID PROPER	<b>FIES</b>	method	limit/base	current	history1	history2
60.	Abnormal			Visc @ 40°C	cSt	ASTM D7279(m)	67.4	<b>96.4</b>	97.7	
50-	Mar20/18		Apr5/24 -	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
80k - 70k -	Particle Trend		P	Color						no image
60k • 50k • 40k • 30k • 20k •	14μm			Bottom						no image
- 10k - 0k -	Abnormal			GRAPHS						
U.	Mar20/18 -		te a	Ferrous Alloys				A Particle Count		
	Mar		Λ	10 iron 1			491,5	20		1 <sup>26</sup>
	Acid Number			E 5-			122,8	80 - Smian		-24
0.70	Base						30,7	20		-22
0.60	0						= 7,6	80 Abnormal		-20
0.30				Mar20/18			Apr5/24 (per 1 ml) 6'1	20		-18
0.30										
0.20				Non-ferrous Meta	ls		4 of particles	80		-18 -16 -14
0.20				copper			1 mper	20 -		
0.00-	- 81/(		V.C.	ā 5-			a	30 -		-12
	Mar20/18		ΛΓ	**************************************				8-		10
				0			/24	2		-
				Mar20			Apr5/24	0		6
				Viscosity @ 40°C				<sup>6</sup> 4µ Acid Number	14μ 21μ	38µ 71µ
							(B, C,	<sup>80</sup> T L		
				90			y p	60 - Base	*****	
			1J=U17) 45-	70 - Base			a U.	40 -		
				60 Abnormal			~ ~	20		
				50 Li			Acid	00. <del>1</del> 81/(		Ani5/24 +
				Mar20/18			Apr5/24	Mar20/18		Apr5
			Sample No. Lab Number Unique Number Test Package is sample report, of	5761012	Rece Teste Diagr	ved : 10 d : 11 nosed : 11	) Apr 2024 Apr 2024 Apr 2024 - Ke 1. sted at exte	win Marson rnal lab.	draymond@	on Metals Inc PO BOX 7 Arnprior, ON CA K7S 3V8 bbie Raymono nutechpm.com (613)623-6544

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