

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Machine Id Or562 Component **Hydraulic System** PETRO CANADA HYDREX AW 46 (75 LTR)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where dirt can enter the system. 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. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation. Please specify the component make and model with your next sample.

Wear

The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate aluminasilicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

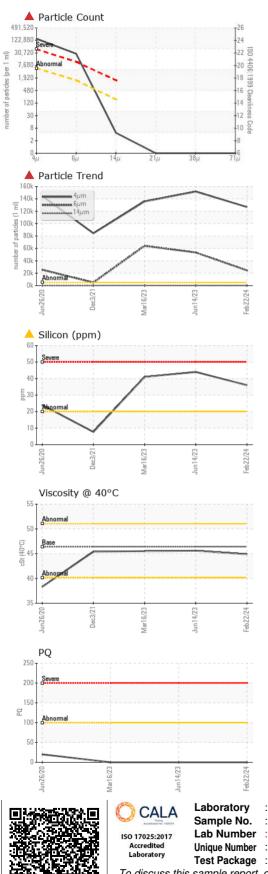
Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

		Jun2020	Dec2021	Mar2023 Jun2023	Feb 2024	
SAMPLE INFOR	RMATIO	N method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0113376	GFL0056409	GFL0056464
Sample Date		Client Info		22 Feb 2024	14 Jun 2023	16 Mar 2023
Machine Age	hrs	Client Info		21863	20535	19981
Oil Age	hrs	Client Info		1328	1554	1500
Oil Changed		Client Info		Filtered	Changed	Not Changd
Sample Status				SEVERE	SEVERE	SEVERE
CONTAMINA	TION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR META	LS	method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>20	27	<mark>▲</mark> 36	<mark>▲</mark> 38
Chromium	ppm	ASTM D5185(m)	>10	4	7	8
Nickel	ppm	ASTM D5185(m)	>10	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	<1	<1
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	15	<u> </u>	1 8
Lead	ppm	ASTM D5185(m)	>10	0	2	<1
Copper	ppm	ASTM D5185(m)	>75	14	12	11
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Antimony	ppm	ASTM D5185(m)		0	<1	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	<1	6	8
Barium	ppm	ASTM D5185(m)	0	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	<1	0
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	9	8	8
Calcium	ppm	ASTM D5185(m)	50	172	190	186
Phosphorus	ppm	ASTM D5185(m)	330	589	670	655
Zinc	ppm	ASTM D5185(m)	430	767	769	750
Sulfur	ppm	ASTM D5185(m)	760	1375	1525	1464
Lithium	ppm	ASTM D5185(m)		<1	<1	<1
CONTAMINA	NTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	A 36	4 4	4 1
Sodium	ppm	ASTM D5185(m)		11	14	18
Potassium	ppm	ASTM D5185(m)	>20	5	6	6



OIL ANALYSIS REPORT



Particles >6µmASTParticles >14µmASTParticles >21µmASTParticles >38µmASTParticles >71µmASTOil CleanlinessISCVISUALmWhite MetalscalarYellow MetalscalarPrecipitatescalarSiltscalarDebrisscalarSiltscalarVisSand/DirtAppearancescalarOdorscalarFree WaterscalarVisScalarFree WaterscalarVisc @ 40°CcStAST	STM D7647 >5000 STM D7647 >1300 STM D7647 >160 STM D7647 >40 STM D7647 >10 STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas /isual* NONE /isual* NONE		 151754 53337 38 4 0 0 24/23/12 history1 NONE 	 135683 64150 169 4 0 0 24/23/15 history2 NONE
Particles >14µmASTParticles >21µmASTParticles >38µmASTParticles >371µmASTOil CleanlinessISCVISUALmWhite MetalscalarYellow MetalscalarYellow MetalscalarVisScalarVisscalarSiltscalarSand/DirtscalarAppearancescalarOdorscalarFree WaterscalarVisScalarFree WaterscalarVisc @ 40°CcStSAMPLE IMAGESm	STM D7647 >160 STM D7647 >40 STM D7647 >10 STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas /isual* NONE	4 0 0 24/22/9 e current NONE NONE NONE VLITE NONE VLITE NONE	38 4 0 0 24/23/12 <u>history1</u> NONE NONE NONE NONE NONE NONE	169 4 0 0 24/23/15 history2 NONE NONE NONE NONE NONE
Particles >21µmASTParticles >38µmASTParticles >71µmASTOil CleanlinessISCVISUALmWhite MetalscalarYellow MetalscalarYellow MetalscalarSiltscalarVisScalarVisscalarVisscalarSiltscalarVisscalarVisscalarVisscalarVisscalarOdorscalarSiltscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarVisscalarMathematical StatevisSand/DirtscalarVisscalarVisscalarVisscalarStatescalarVisscalarMathematical StatevisStatescalarVisc @ 40°CcStSAMPLE IMAGESm	STM D7647 >40 STM D7647 >10 STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas /isual* NONE	0 0 24/22/9 24/22/9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 24/23/12 NONE NONE NONE NONE NONE NONE NONE	4 0 0 24/23/15 NONE NONE NONE NONE NONE NONE
Particles >38µmASTParticles >71µmASTOil CleanlinessISCVISUALmWhite MetalscalarYellow MetalscalarYellow MetalscalarYisScalarYisscalarSiltscalarSand/DirtscalarAppearancescalarOdorscalarFree WaterscalarVisscalarVisscalarVisscalarOdorscalarVisscalarVisscalarVisscalarNodorscalarSand/DirtscalarVisscalarMathematical StatescalarSand/DirtscalarSand/DirtscalarSand/DirtscalarSand/DirtscalarSand/DirtscalarSandrscalarVisscalarSandrscalar </td <td>STM D7647 >10 STM D7647 >3 STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas risual* NONE /isual* NONE</td> <td>0 0 24/22/9 e Current NONE NONE VLITE NONE NONE</td> <td>0 0 24/23/12 NONE NONE NONE NONE NONE NONE</td> <td>0 0 24/23/15 NONE NONE NONE NONE</td>	STM D7647 >10 STM D7647 >3 STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas risual* NONE /isual* NONE	0 0 24/22/9 e Current NONE NONE VLITE NONE NONE	0 0 24/23/12 NONE NONE NONE NONE NONE NONE	0 0 24/23/15 NONE NONE NONE NONE
Particles >71μmASTOil CleanlinessISOVISUALmWhite MetalscalarVisYellow MetalscalarVisPrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisFree WaterscalarVisFree WaterscalarVisVisc @ 40°CcStASTSAMPLE IMAGESm	STM D7647 >3 SO 4406 (c) >19/17/14 method limit/bas /isual* NONE	0 24/22/9 e current NONE NONE NONE VLITE NONE NONE NONE	0 24/23/12 history1 NONE NONE NONE NONE NONE	0 24/23/15 history2 NONE NONE NONE NONE
Oil CleanlinessISCVISUALmWhite MetalscalarVisYellow MetalscalarVisPrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisFree WaterscalarVisFree WaterscalarVisVisc @ 40°CcStASTSAMPLE IMAGESm	SO 4406 (c)>19/17/14methodlimit/bas/isual*NONE/isual*NONE/isual*NONE/isual*NONE/isual*NONE/isual*NONE/isual*NONE/isual*NONE	A 24/22/9 Current NONE NONE NONE VLITE NONE NONE NONE	24/23/12 history1 NONE NONE NONE NONE NONE NONE	 24/23/15 history2 NONE NONE NONE NONE
VISUALmWhite MetalscalarVisYellow MetalscalarVisPrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisFree WaterscalarVisFree WaterscalarVisVisc @ 40°CcStASTSAMPLE IMAGESm	method limit/bas /isual* NONE /isual* NONE /isual* NONE /isual* NONE /isual* NONE /isual* NONE	e current NONE NONE NONE VLITE NONE NONE	history1 NONE NONE NONE NONE NONE	history2 NONE NONE NONE NONE
White MetalscalarVisYellow MetalscalarVisPrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisVisc @ 40°CcStASTSAMPLE IMAGESm	/isual* NONE /isual* NONE /isual* NONE /isual* NONE /isual* NONE /isual* NONE	NONE NONE VLITE NONE NONE	NONE NONE NONE NONE	NONE NONE NONE NONE
Yellow MetalscalarVisPrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTSAMPLE IMAGESm	/isual* NONE /isual* NONE /isual* NONE /isual* NONE /isual* NONE	NONE NONE VLITE NONE NONE	NONE NONE NONE NONE	NONE NONE NONE
PrecipitatescalarVisSiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTSAMPLE IMAGESm	/isual* NONE /isual* NONE /isual* NONE /isual* NONE	NONE VLITE NONE NONE	NONE NONE NONE	NONE NONE
SiltscalarVisDebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTISAMPLE IMAGESm	/isual* NONE /isual* NONE /isual* NONE	VLITE NONE NONE	NONE NONE	NONE
DebrisscalarVisSand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTSAMPLE IMAGESm	/isual* NONE /isual* NONE	NONE NONE	NONE	
Sand/DirtscalarVisAppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESVisc @ 40°CcStSAMPLE IMAGESm	/isual* NONE	NONE		NONE
AppearancescalarVisOdorscalarVisEmulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTSAMPLE IMAGESm		-	NONE	
Odor scalar Vis Emulsified Water scalar Vis Free Water scalar Vis FLUID PROPERTIES m Visc @ 40°C cSt ASTI SAMPLE IMAGES m	isual* NORML	NORML		NONE
Emulsified WaterscalarVisFree WaterscalarVisFLUID PROPERTIESmVisc @ 40°CcStASTISAMPLE IMAGESm			NORML	NORML
Free Water scalar Vis FLUID PROPERTIES m Visc @ 40°C cSt ASTI SAMPLE IMAGES m	/isual* NORML	NORML	NORML	NORML
FLUID PROPERTIES m Visc @ 40°C cSt AST SAMPLE IMAGES m	/isual* >0.1	NEG	NEG	NEG
Visc @ 40°C cSt AST SAMPLE IMAGES m	/isual*	NEG	NEG	NEG
SAMPLE IMAGES m	method limit/bas	e current	history1	history2
	STM D7279(m) 46.4	44.9	45.6	45.5
Color	method limit/bas	e current	history1	history2
Bottom				

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 720 - Lafleche - Landfill : GFL0113376 Received : 21 Mar 2024 17125 Lafleche Road, Lab Number : 02623758 Tested : 22 Mar 2024 Moose Creek, ON Unique Number : 5748877 Diagnosed : 22 Mar 2024 - Kevin Marson CA K0C 1W0 Test Package : MOB 1 (Additional Tests: PQ, PrtCount) Contact: Charles Bergeron To discuss this sample report, contact Customer Service at 1-800-268-2131. cbergeron@gflenv.com T: (613)538-4853 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. F: