

OIL ANALYSIS REPORT



ADDITIVES

Machine Id OR904

Component Hydraulic System Fluid PETRO CANADA ENVIRON MV 46 (--- GAL)

DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. 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 moderate amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

				1002.02.1			
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		PC0080528	PC0052171		
Sample Date		Client Info		20 Feb 2024	21 Sep 2021		
Machine Age	hrs	Client Info		5555	4320		
Oil Age	hrs	Client Info		0	0		
Oil Changed		Client Info		Changed	Not Changd		
Sample Status				ABNORMAL	ATTENTION		
CONTAMINAT			limit/base	current	historv1	history2	
Water		WC Method	>0.1	NEG	NEG		
WEAR METALS		method	limit/base	current	history1	history2	
Iron	maa	ASTM D5185(m)	>20	3	2		
Chromium	mag	ASTM D5185(m)	>10	0	0		
Nickel	maa	ASTM D5185(m)	>10	<1	<1		
Titanium	mag	ASTM D5185(m)		0	0		
Silver	ppm	ASTM D5185(m)		<1	<1		
Aluminum	ppm	ASTM D5185(m)	>10	<1	<1		
Lead	ppm	ASTM D5185(m)	>10	1	3		
Copper	ppm	ASTM D5185(m)	>75	10	30		
Tin	maa	ASTM D5185(m)	>10	0	<1		
Antimony	mag	ASTM D5185(m)		0	0		
Vanadium	ppm	ASTM D5185(m)		0	0		
Bervllium	mag	ASTM D5185(m)		0	0		
Cadmium	ppm	ASTM D5185(m)		0	0		
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	maa	method ASTM D5185(m)	limit/base	current	history1 107	history2	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base 0 0	current 17 0	<mark>history1</mark> 107 0	history2	
ADDITIVES Boron Barium Molvbdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0	current ▲ 17 0 0	history1 107 0 <1	history2 	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0 0	Current ▲ 17 0 0 0	history1 107 0 <1 <1	history2 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0 0 0	Current ▲ 17 0 0 0 2	history1 107 0 <1 <1 10	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0 0 0 0	Current ▲ 17 0 0 0 2 ▲ 244	history1 107 0 <1 <1 10 1214	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosohorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 0 0 0 0 0	Current ▲ 17 0 0 0 2 ▲ 244 ▲ 415	history1 107 0 <1 <1 10 1214 741	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 650 0	current ▲ 17 0 0 2 ▲ 244 ↓ 415 ↓	history1 107 0 <1 <1 10 1214 741 801	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 650 0 0 1420	Current ▲ 17 0 0 0 2 ▲ 244 ▲ 415 ▲ 442 1073	history1 107 0 <1 <1 10 1214 741 801 2066	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 650 0 1420	Current ▲ 17 0 0 0 2 ▲ 244 ▲ 415 ▲ 442 1073 <1	history1 107 0 <1 <1 10 1214 741 801 2066 <1	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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)	limit/base 0 0 0 0 0 0 0 650 0 1420	Current ▲ 17 0 0 0 2 ▲ 244 ▲ 415 ▲ 442 1073 <1	history1 107 0 <1 <1 10 1214 741 801 2066 <1	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 650 0 1420 1420	current ▲ 17 0 0 2 ▲ 415 ▲ 1073 <1 current	history1 107 0 <1 <1 10 1214 741 801 2066 <1 history1	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 650 0 1420 1420 limit/base >20	current ▲ 0 0 0 2 ▲ 415 ▲ 1073 <1 current <1	history1 107 0 <1 <1 10 1214 741 801 2066 <1 history1 2	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Dedeocion	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 650 0 1420 1420 1 1420	current 17 0 0 0 2 244 415 442 1073 <1 current <1 <1	history1 107 0 <1 <1 10 1214 741 801 2066 <1 history1 2 2	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 0 0 0 0 0 0	current ↓ 17 0 0 2 ↓ 244 ↓	history1 107 0 <1 <1 10 1214 741 801 2066 <1 history1 2 2 4	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 0 650 0 1420 limit/base >20 limit/base	current 17 0 0 2 244 415 442 1073 <1 current <1 1073 <1 current 1 1 0 0	history1 107 0 <1 <1 10 1214 741 801 2066 <1 history1 2 4 history1	history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 650 0 1420 limit/base >20 limit/base >20	current 17 0 0 2 244 415 415 415 415 415 21 1073 <1 current <1 1073 <1 current 1 1 current 13871	history1 107 0 <1	history2 history2 history2 history2 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185(m)	limit/base 0 0 0 0 0 0 650 0 1420 1420 limit/base >20 limit/base >20 limit/base >20	current 17 0 0 2 244 415 415 442 1073 <1 current <1 current 1 current 1 current 1 current 840	history1 107 0 <1 10 1214 741 801 2066 <1 10 1214 741 801 2066 <1 1 1 1 2 4 history1 1 5882 1365	history2 history2 history2 history2 history2 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	limit/base 0 0 0 0 0 0 0 650 0 1420 1420 limit/base >20 limit/base >20 limit/base >20 limit/base >20	current ↓	history1 107 0 <1 10 1214 741 801 2066 <1 10 1214 741 801 2066 <1 1 1 2 4 history1 4 5882 1365 139	history2 history2 history2 history2 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	limit/base 0 0 0 0 0 0 0 6 5 0 1 420 1 4 4 4 4 4 4 4 4 4 4 4 4 4	current 17 0 0 2 244 415 442 1073 <1 current <1 1073 <1 1073 <1 21 32 33871 840 24 6	<pre>history1 107 0 </pre> 107 101 110 10 1214 741 801 2066 2066 1 16 10 1214 10 1214 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	history2 history2 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	limit/base 0 0 0 0 0 0 0 650 0 1420 1420 limit/base >20 limit/base >20 limit/base >5000 >1300 >160 >40 >10	Current 17 0 0 2 244 415 442 1073 <1 <1 <1 <1 11 Current 13871 840 24 6 1	history1 107 0 <1 10 1214 741 801 2066 <1 2066 <1 801 2066 <1 801 2066 <1 801 2066 <1 805 139 36 0	history2 history2 history2 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >14µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	limit/base 0 0 0 0 0 650 0 1420 limit/base >20 limit/base >20 140 >10 >10 >100 >10 >3	Current 17 0 0 2 244 415 442 1073 <1 current <1 current 1 current 1 current 43871 840 24 6 1 0	history1 107 0 <1 10 1214 741 801 2066 <1 bistory1 2 4 bistory1 5882 1365 139 36 0 0	history2 history2 history2 <	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium FLUID CLEANI Particles >4µm Particles >4µm Particles >5µm Particles >14µm Particles >71µm Oil Cleanliness	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	method ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	limit/base 0 0 0 0 0 650 0 1420 limit/base >20 limit/base >20 limit/base >5000 >1300 >160 >40 >10 >3 >19/17/14	current 17 0 0 2 244 415 415 415 415 415 1073 <1 current <1 1 current 1 current 43871 840 24 6 1 0 21/17/12	<pre>history1 107 0 </pre> 107 107 107 107 110 11214 741 801 2066 41 12066 10 5882 1365 139 36 0 0 20/18/14	history2 history2 history2 history2	



cSt (100°C) Base Abnorma

1.2 4.0 Number (mg KOH/g) 4.0 A KOH/g) 4.0 A KOH/g)

cSt (100°C) Base 8

OIL ANALYSIS REPORT

16k-	Particle Trend	FLUID DEGRAD		method	limit/base	current	history1	history2
14k •	4μm 6μm	Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	0.52	1.35	
12k • 10k •	14μm	VISUAI		method	limit/base	current	history1	history2
8k-		White Motal	coalar	Vieual*	NONE	NONE		
6k • 4k •	Abnormal D	Vollow Motal	scalar	Visual*	NONE	NONE	NONE	
2k ·	********	Precipitate	scalar	Visual*	NONE	NONE	NONE	
0k -		Silt	scalar	Visual*	NONE	NONE	NONE	
	ep 21/5	Debris	scalar	Visual*	NONE	NONE	NONE	
	S	Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	
	Additives	Appearance	scalar	Visual*		NORM	NORM	
1400-	calcium	Appearance	Scalar	Visual*	NORIVIL	NORML	NORML	
1200.	The phosphorus	Emulcified Water	scalar	Visual*		NEC	NEG	
1000 -		Eree Water	scalar	Visual*	>0.1	NEG	NEG	
800-	Additional and a second s		Scalal	visuai		NEG	NEG	
600.		FLUID PROPE	RTIES	method	limit/base	current	history1	history2
400.		Visc @ 40°C	cSt	ASTM D7279(m)	45.0	46.7	57.1	
200-	1/21	Visc @ 100°C	cSt	ASTM D7279(m)	8.2	7.6	8.8	
	Sep 21 Feb 20	Viscosity Index (VI)	Scale	ASTM D2270*	158	128	130	
	Viscosity @ 100%C	SAMPLE IMAG	ES	method	limit/base	current	history1	history2
11-								-
10-		Calar						
ē 9.	Abnormal	COIOF						no image
	Base							
3 8-							0	
7.	Abnormal - D	Bottom						no image
6-								-
	eb 21/2	CDADUS						
	er de	Earrous Allovs				A Darticla Count		
1.4	Acid Number	¹⁰			491,52			T ²⁶
_1.2		iron			122,88	0		-24
2 1.0		e. 5 -			30.72	Severe		+22
0.8					★ 〒 7.68	Allormal		20 8
0.6•		p21/2			620/2 eer 1 n			4406
0.4		8			Cles (b		••••••	10 1999
0.2	Base	Non-ferrous Metal	s		48 guilt			-16 Clean
0.0	1/21	20+ copper			12 12			-14 =
	Sep2	E 10 + to the test test test test test test test			unu 3	0 -		-12 Oc
	Viscosity @ 100°C	0				8-		-10
11-		21/21			20/24	2-		-8
10-		Sep			Feb	040 60	1411 2111	38/ 71/
5.0	Abnormal	Viscosity @ 40°C			(B/	Acid Number	tip. Lips	oopt rijk
1-001) -	Base	Abnormal			HO1	5		
3 8		Horse Base			E 1.	0		
7.	Abnomal D	- Abnormal			tuny 1	5 - Base		
6.		30			Acid	2		/24 +
	5/12 rc.uc.	Sep 2.			Feb 20	Sep 2		Feb 20
	Image: Strain of the strain	: WearCheck - C8-1175 : PC0080528 : 02617415 : 5734525 : IND 2 (Additional Tes contact Customer Servi e of accreditation, (m) me ation are based on the s	5 Appleby Recei Teste Diagn ts: KV10 ice at 1-8 ethod mo sample a	/ Line, Burlin ved : 22 d : 23 losed : 23 0, VI) 200-268-213 budified, (e) te nd informatio	gton, ON L7 2 Feb 2024 3 Feb 2024 Feb 2024 - Ke 1. sted at exter on as supplie	L 5H9 Green Infrastru vin Marson rnal Iab. ed.	cture and Partners Inc (GIPI) - 22 151 Ra S Cont bac	6-Shoring & Foundations am Forest Rd, Stouffville, ON CA L4A 2G8 act: Bill Acton ton@gipi.com T: F: