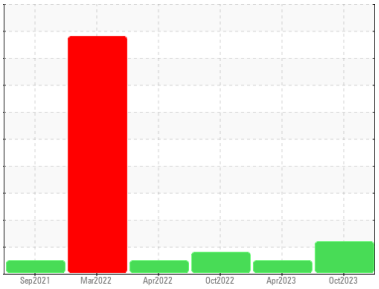
OIL ANALYSIS REPORT

Machine Id
831029
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON GEO LD 15W40 (--- GAL)

Sample Rating Trend



PH

DIAGNOSIS

Recommendation
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The i-pH level is abnormally low. The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The oil is no longer serviceable.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0091566**	GFL0077565	GFL0060270
Sample Date		Client Info		**04 Oct 2023**	10 Apr 2023	31 Oct 2022
Machine Age	hrs	Client Info		**5750**	4663	3564
Oil Age	hrs	Client Info		**0**	1101	1349
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>50	**15**	13	20
Chromium	ppm	ASTM D5185(m)	>4	**2**	1	3
Nickel	ppm	ASTM D5185(m)	>2	**<1**	<1	1
Titanium	ppm	ASTM D5185(m)		**0**	<1	<1
Silver	ppm	ASTM D5185(m)	>3	**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>9	**6**	5	▲ 10
Lead	ppm	ASTM D5185(m)	>30	**9**	6	12
Copper	ppm	ASTM D5185(m)	>35	**3**	4	4
Tin	ppm	ASTM D5185(m)	>4	**<1**	1	2
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
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)	50	**5**	6	4
Barium	ppm	ASTM D5185(m)	5	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	50	**56**	55	59
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	2
Magnesium	ppm	ASTM D5185(m)	560	**593**	579	616
Calcium	ppm	ASTM D5185(m)	1510	**1636**	1737	1748
Phosphorus	ppm	ASTM D5185(m)	780	**725**	774	819
Zinc	ppm	ASTM D5185(m)	870	**947**	929	975
Sulfur	ppm	ASTM D5185(m)	2040	**1953**	2072	2096
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

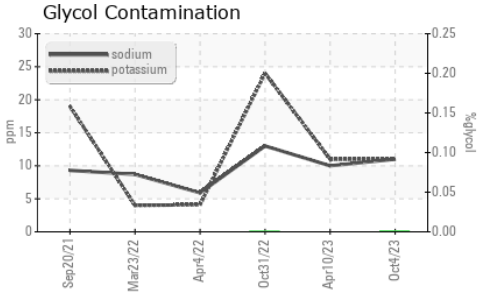
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>+100	**5**	4	6
Sodium	ppm	ASTM D5185(m)		**11**	10	13
Potassium	ppm	ASTM D5185(m)	>20	**11**	11	24
Glycol	%	ASTM D7922*		**0.0**	---	0.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	0	0
Nitration	Abs/cm	ASTM D7624*	>20	**11.8**	11.7	13.8
Sulfation	Abs/.1mm	ASTM D7415*	>30	**26.7**	26.2	30.5

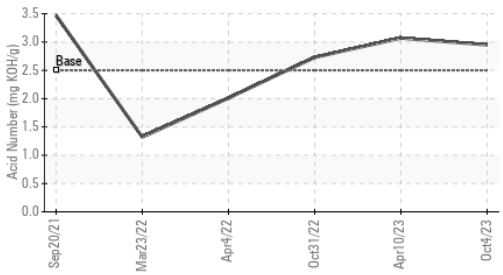
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**22.7**	21.6	27.9
Acid Number (AN)	mg KOH/g	ASTM D974*	2.5	**2.95**	3.07	2.73
Base Number (BN)	mg KOH/g	ASTM D2896*	10.2	**4.61**	5.20	4.59
i-pH	Scale 0-14	ASTM D7946*	<4.5	▲ **4.26**	4.53	4.65

OIL ANALYSIS REPORT

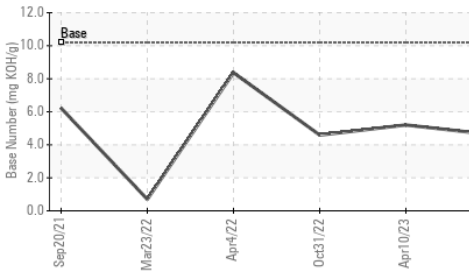
Glycol Contamination



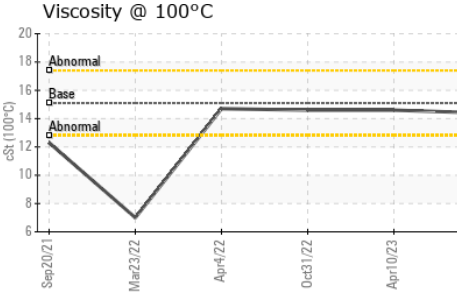
Acid Number



Base Number



Viscosity @ 100°C

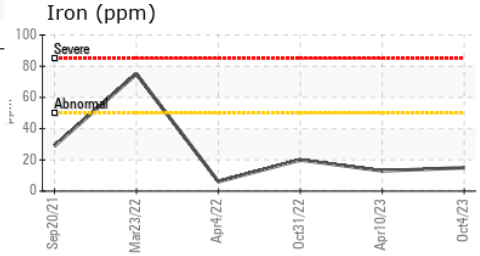


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	---	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	---
Precipitate	scalar	Visual*	NONE	**NONE**	---	---
Silt	scalar	Visual*	NONE	**NONE**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	**NORML**	---	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

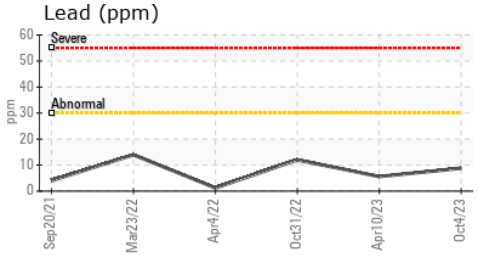
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.1	**14.4**	14.6	14.6

GRAPHS

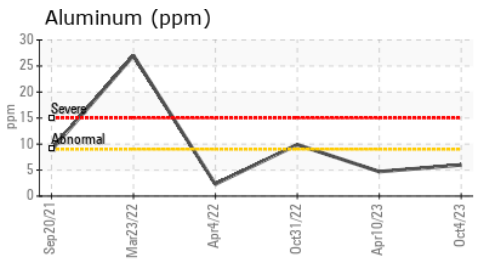
Iron (ppm)



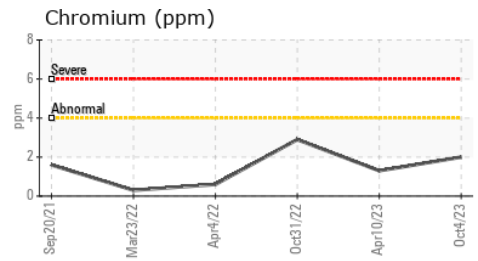
Lead (ppm)



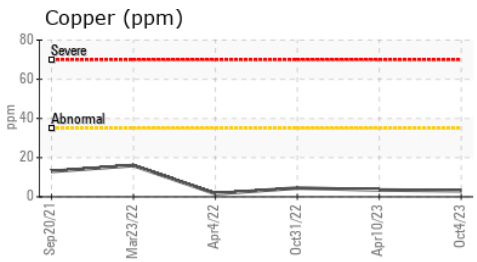
Aluminum (ppm)



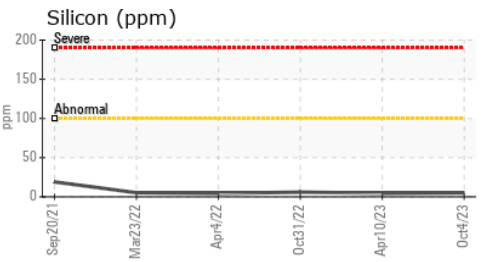
Chromium (ppm)



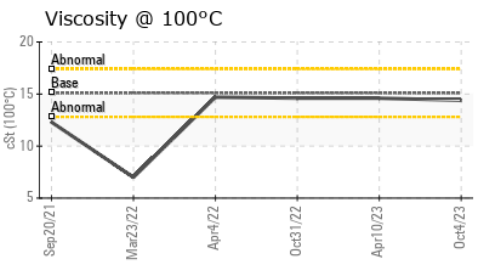
Copper (ppm)



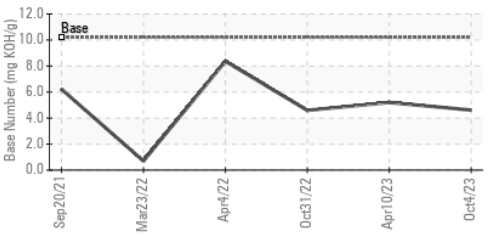
Silicon (ppm)



Viscosity @ 100°C



Base Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 550 - Rocky View County**
Sample No. : GFL0091566 **Received** : 11 Oct 2023 220 Carmek Blvd
Lab Number : 02588266 **Diagnosed** : 16 Oct 2023 Rocky View County, AB
Unique Number : 5657332 **Diagnostician** : Kevin Marson CA T1X 1X1
Test Package : MOB 2 (Additional Tests: Glycol, i-pH, TAN Auto, TAN Man, Visual) Contact: GFL Calgary

To discuss this sample report, contact Customer Service at 1-800-268-2131. calgarymaintenance@gflenv.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T:
Validity of results and interpretation are based on the sample and information as supplied. F: (403)369-6163