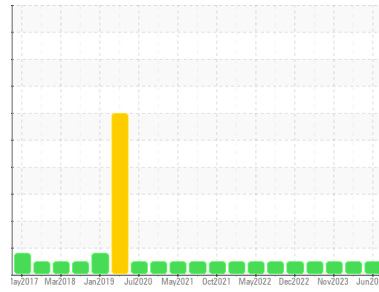


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
WESTERN STAR 155-21
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (12 GAL)

DIAGNOSIS

Recommendation

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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PCA0121248	PCA0114635	PCA0089561
Sample Date	Client Info		20 Jun 2024	08 Mar 2024	01 Nov 2023
Machine Age	mls	Client Info	269115	253880	239947
Oil Age	mls	Client Info	10000	10000	10000
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	39	36	50
Chromium	ppm	ASTM D5185m >20	3	2	4
Nickel	ppm	ASTM D5185m >4	<1	0	0
Titanium	ppm	ASTM D5185m	1	<1	<1
Silver	ppm	ASTM D5185m >3	<1	0	0
Aluminum	ppm	ASTM D5185m >20	22	21	14
Lead	ppm	ASTM D5185m >40	<1	0	0
Copper	ppm	ASTM D5185m >330	9	6	8
Tin	ppm	ASTM D5185m >15	1	0	<1
Vanadium	ppm	ASTM D5185m	<1	<1	<1
Cadmium	ppm	ASTM D5185m	<1	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	6	0	0
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 60	56	60	58
Manganese	ppm	ASTM D5185m 0	1	<1	<1
Magnesium	ppm	ASTM D5185m 1010	1018	1044	926
Calcium	ppm	ASTM D5185m 1070	1176	1111	1070
Phosphorus	ppm	ASTM D5185m 1150	1079	1064	956
Zinc	ppm	ASTM D5185m 1270	1362	1310	1142
Sulfur	ppm	ASTM D5185m 2060	3223	3711	2706

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	19	14	19
Sodium	ppm	ASTM D5185m	4	3	5
Potassium	ppm	ASTM D5185m >20	6	4	2

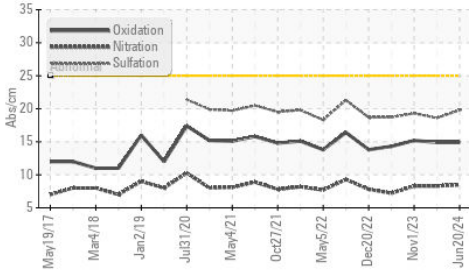
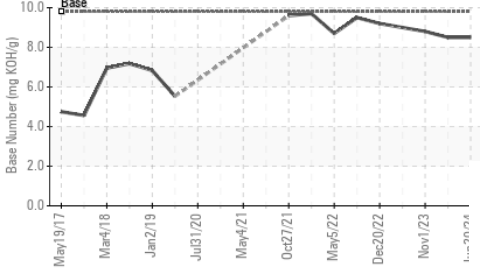
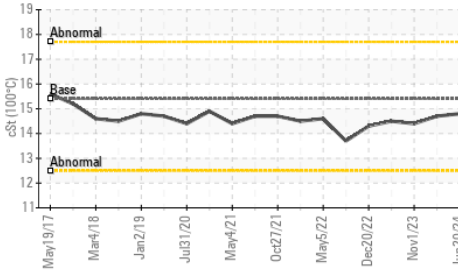
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.7	0.6	0.7
Nitration	Abs/cm	*ASTM D7624 >20	8.5	8.3	8.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.8	18.6	19.3

FLUID DEGRADATION

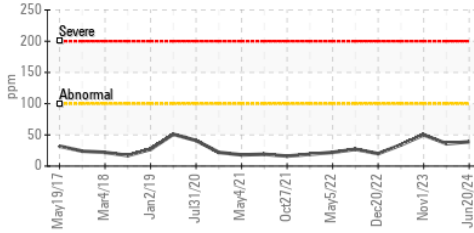
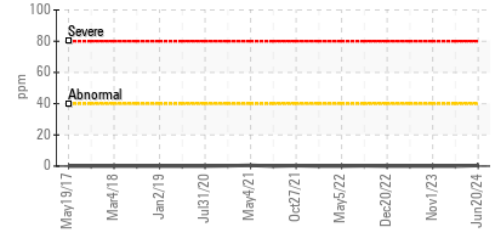
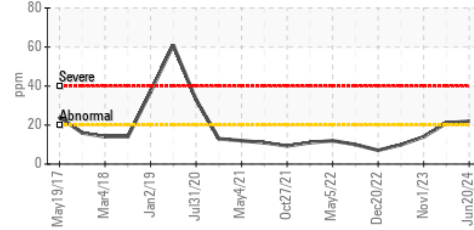
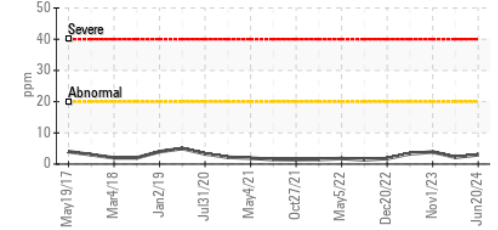
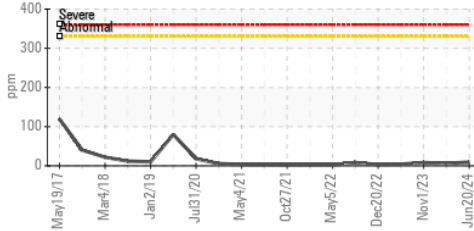
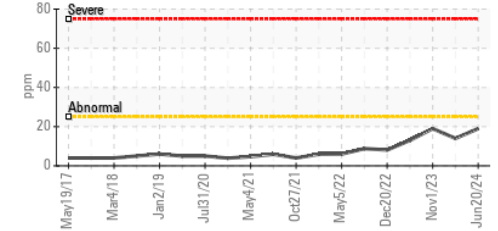
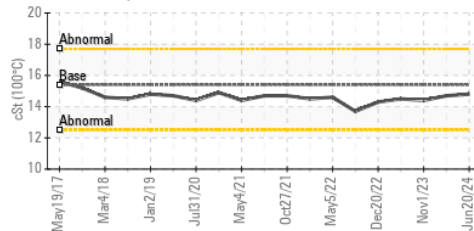
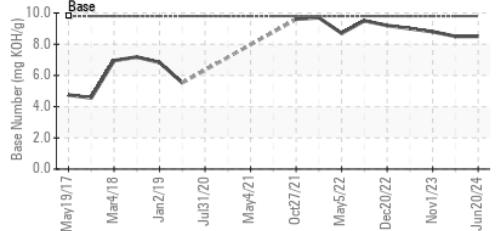
	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	14.9	14.9	15.2
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	8.5	8.5	8.8

OIL ANALYSIS REPORT

FT-IR (Direct Trend)

Base Number

Viscosity @ 100°C


PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.8	14.7

GRAPHS
Iron (ppm)

Lead (ppm)

Aluminum (ppm)

Chromium (ppm)

Copper (ppm)

Silicon (ppm)

Viscosity @ 100°C

Base Number


Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0121248 **Received** : 08 Jul 2024
Lab Number : 06229929 **Tested** : 09 Jul 2024
Unique Number : 11113422 **Diagnosed** : 09 Jul 2024 - Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

GE MARSHALL EXCAVATION
 1351 JOLIET RD
 VALPARAISO, IN
 US 46385
 Contact: MARK STEFFEL
 mark.steffel@gemarshall.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)