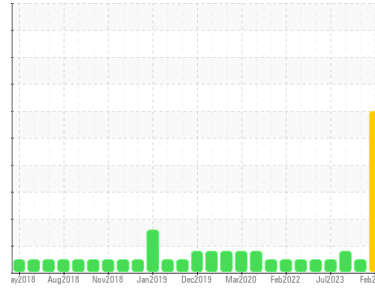


Area  
**Plymouth & Brockton**  
Machine Id  
**11413**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON SHP 15W40 (39 QTS)**



## DIAGNOSIS

### ▲ Recommendation

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

### ▲ Wear

Bearing and/or bushing wear is indicated.

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

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0090545</b>	PCA0104409	PCA0104405
Sample Date	Client Info	<b>21 Feb 2024</b>	03 Nov 2023	13 Sep 2023
Machine Age	mls	<b>547352</b>	581107	571789
Oil Age	mls	<b>24000</b>	12000	24000
Oil Changed	Client Info	<b>Changed</b>	Not Changd	Changed
Sample Status		<b>SEVERE</b>	NORMAL	ABNORMAL

## CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >200	<b>61</b>	28	86
Chromium	ppm ASTM D5185m >10	<b>2</b>	1	3
Nickel	ppm ASTM D5185m >4	<b>&lt;1</b>	0	<1
Titanium	ppm ASTM D5185m >2	<b>0</b>	0	0
Silver	ppm ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >30	<b>7</b>	2	5
Lead	ppm ASTM D5185m >30	<b>▲ 105</b>	4	▲ 33
Copper	ppm ASTM D5185m >30	<b>16</b>	<1	5
Tin	ppm ASTM D5185m >4	<b>7</b>	1	4
Vanadium	ppm ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>5</b>	7	7
Barium	ppm ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185m 60	<b>64</b>	66	68
Manganese	ppm ASTM D5185m 0	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185m 1010	<b>1066</b>	1039	1132
Calcium	ppm ASTM D5185m 1070	<b>1189</b>	1165	1244
Phosphorus	ppm ASTM D5185m 1150	<b>1020</b>	1138	1175
Zinc	ppm ASTM D5185m 1270	<b>1318</b>	1387	1460
Sulfur	ppm ASTM D5185m 2060	<b>3196</b>	3115	2984

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >30	<b>12</b>	6	9
Sodium	ppm ASTM D5185m	<b>5</b>	2	5
Potassium	ppm ASTM D5185m >20	<b>0</b>	0	0

## INFRA-RED

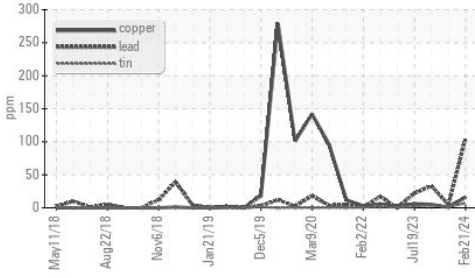
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	<b>2.2</b>	1.6	2.9
Nitration	Abs/cm *ASTM D7624 >20	<b>15.4</b>	12.6	17.4
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>31.1</b>	25.6	34.6

## FLUID DEGRADATION

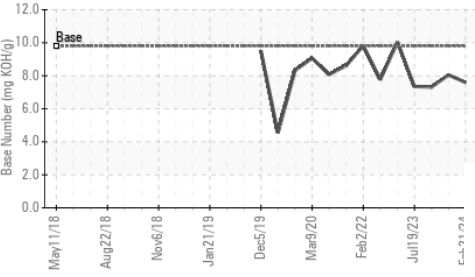
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>29.6</b>	22.8	32.4
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>7.59</b>	8.05	7.31

# OIL ANALYSIS REPORT

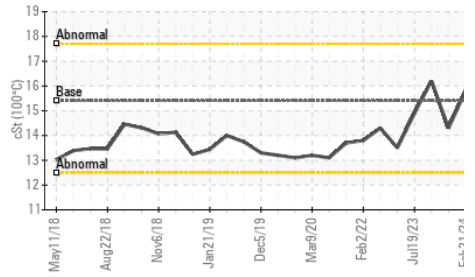
**▲ Non-ferrous Metals**



**Base Number**



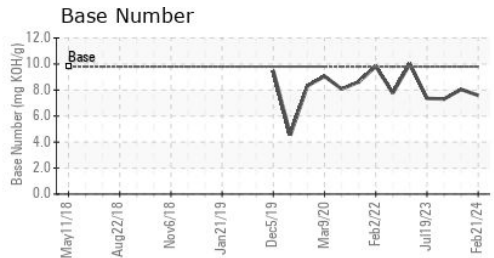
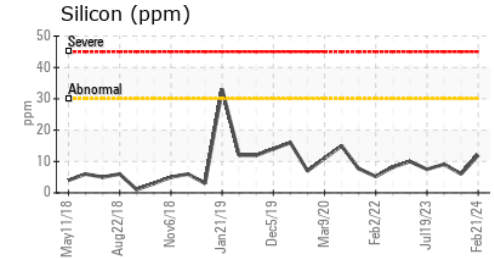
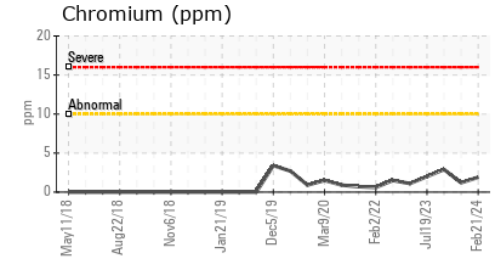
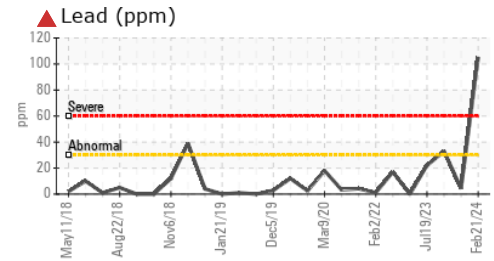
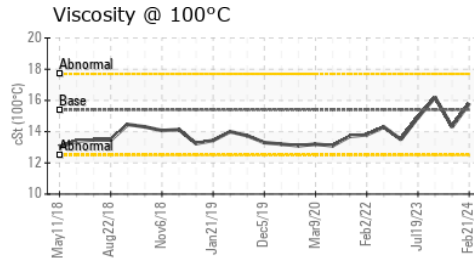
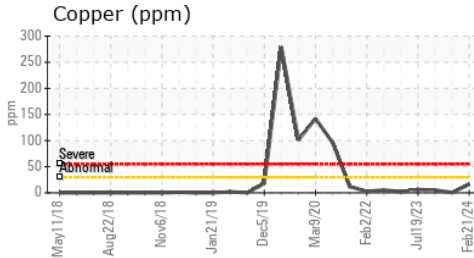
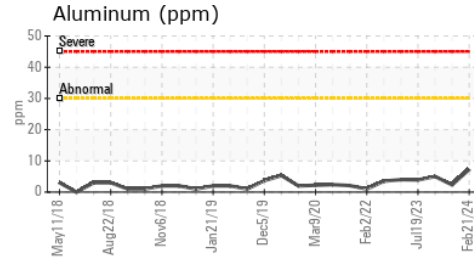
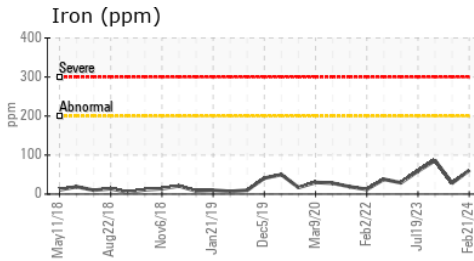
**Viscosity @ 100°C**



VISUAL	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	15.8	14.3	16.2

**GRAPHS**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0090545  
**Lab Number** : 06132249  
**Unique Number** : 10951714  
**Test Package** : MOB 2

**PLYMOUTH & BROCKTON**  
 8 INDUSTRIAL PARK RD  
 PLYMOUTH, MA  
 US 02360  
 Contact: Donald Pelquin  
 Dpelquin@P-B.com  
 T: (508)732-6039  
 F: (508)732-6091

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)