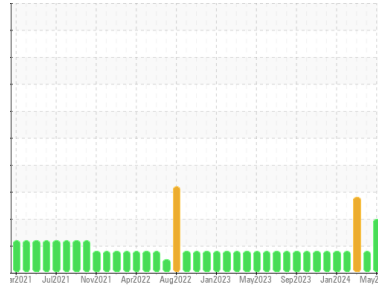


# OIL ANALYSIS REPORT

## Sample Rating Trend



## VISUAL METAL



Area  
**Irrington**  
 Machine Id  
**Unit 02 DB060102E**  
 Component  
**Natural Gas Engine**  
 Fluid  
**PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)**

### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor. ( Customer Sample Comment: Top Up Amount: 6 GAL )

#### Wear

Moderate concentration of visible metal present. All component wear rates are normal.

#### Contamination

There is a moderate amount of fuel present in the oil.

#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid.

### SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0105158</b>	PCA0105160	PCA0105162
Sample Date	Client Info	<b>06 May 2024</b>	11 Apr 2024	25 Mar 2024
Machine Age	hrs	<b>28397</b>	28208	0
Oil Age	hrs	<b>19969</b>	19780	0
Oil Changed	Client Info	<b>Oil Added</b>	Oil Added	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

### CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.1	<b>NEG</b>	NEG	NEG

### WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >50	<b>15</b>	15	16
Chromium	ppm ASTM D5185m >4	<b>&lt;1</b>	<1	<1
Nickel	ppm ASTM D5185m >2	<b>0</b>	<1	<1
Titanium	ppm ASTM D5185m	<b>0</b>	<1	0
Silver	ppm ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >9	<b>&lt;1</b>	2	1
Lead	ppm ASTM D5185m >30	<b>12</b>	15	14
Copper	ppm ASTM D5185m >35	<b>12</b>	14	12
Tin	ppm ASTM D5185m >4	<b>2</b>	4	3
Vanadium	ppm ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm ASTM D5185m	<b>0</b>	<1	0

### ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	<b>12</b>	14	13
Barium	ppm ASTM D5185m	<b>&lt;1</b>	0	0
Molybdenum	ppm ASTM D5185m	<b>4</b>	5	5
Manganese	ppm ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185m	<b>730</b>	878	819
Calcium	ppm ASTM D5185m	<b>1033</b>	1291	1121
Phosphorus	ppm ASTM D5185m	<b>848</b>	1047	942
Zinc	ppm ASTM D5185m	<b>1020</b>	1307	1205
Sulfur	ppm ASTM D5185m	<b>2132</b>	2622	2488

### CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >+100	<b>2</b>	7	3
Sodium	ppm ASTM D5185m	<b>7</b>	5	7
Potassium	ppm ASTM D5185m >20	<b>&lt;1</b>	2	2
Fuel	% ASTM D3524 >4.0	<b>▲ 4.6</b>	▲ 5.2	▲ 4.4

### INFRA-RED

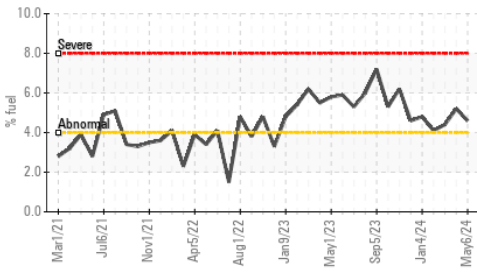
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	<b>0.1</b>	0.1	0.1
Nitration	Abs/cm *ASTM D7624 >20	<b>6.9</b>	6.9	6.9
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>17.1</b>	17.3	17.5

### FLUID DEGRADATION

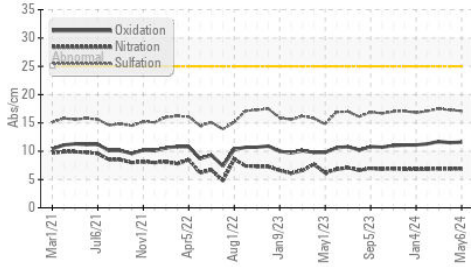
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>11.6</b>	11.5	11.7
Acid Number (AN)	mg KOH/g ASTM D8045	<b>1.24</b>	1.24	1.24
Base Number (BN)	mg KOH/g ASTM D2896 8.5	<b>6.04</b>	7.46	7.80

# OIL ANALYSIS REPORT

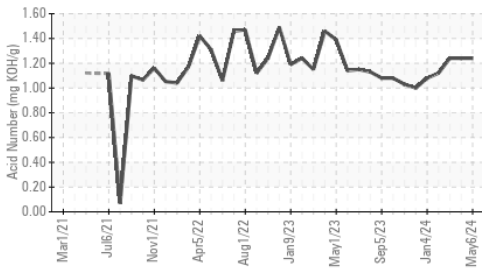
## Fuel Dilution



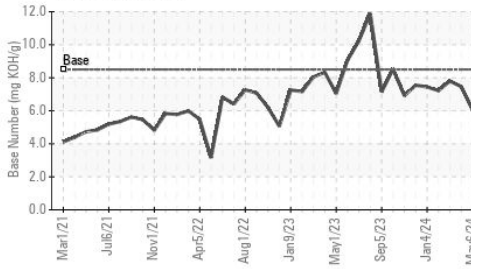
## FT-IR (Direct Trend)



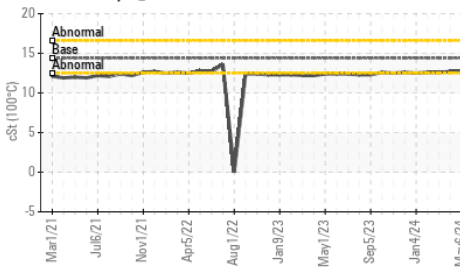
## Acid Number



## Base Number



## Viscosity @ 100°C



## VISUAL

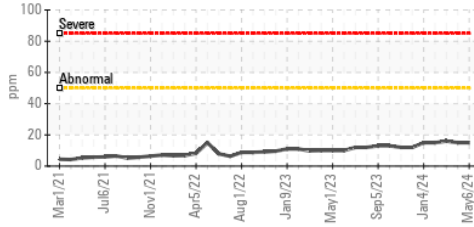
	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	▲ MODER	▲ MODER
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar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

## FLUID PROPERTIES

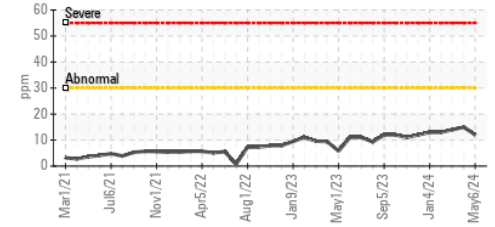
	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.8	12.7

## GRAPHS

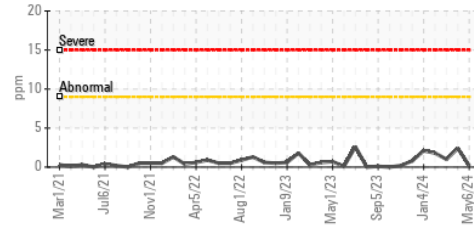
### Iron (ppm)



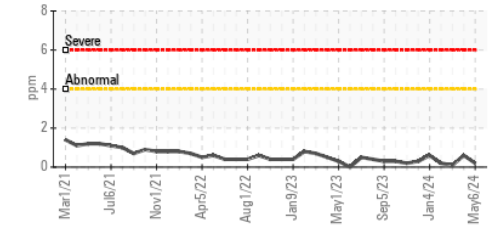
### Lead (ppm)



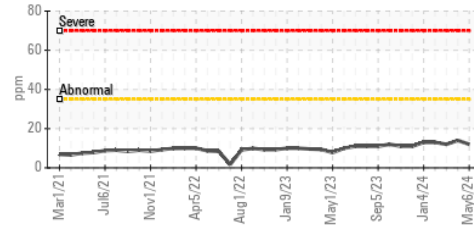
### Aluminum (ppm)



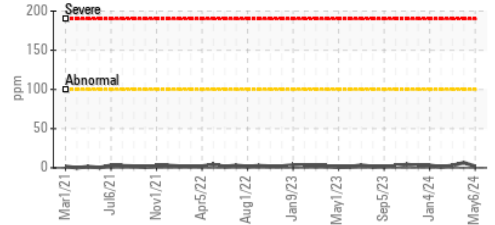
### Chromium (ppm)



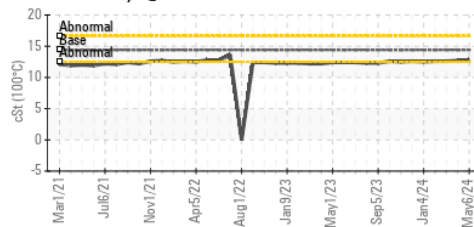
### Copper (ppm)



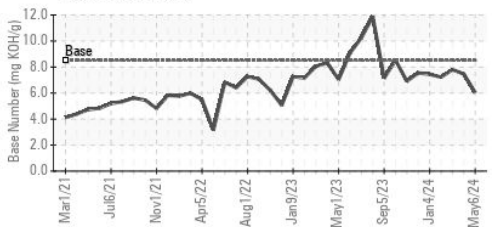
### Silicon (ppm)



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : PCA0105158

**Lab Number** : 06175693

**Unique Number** : 11021746

**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel )

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)

**Received** : 10 May 2024

**Tested** : 15 May 2024

**Diagnosed** : 15 May 2024 - Sean Felton

**Magellan Midstream LP - Omaha**

9405 Bennington Road

Omaha, NE

US 68122

Contact: Zach Jones

zach.jones@magellanlp.com

T:

F: