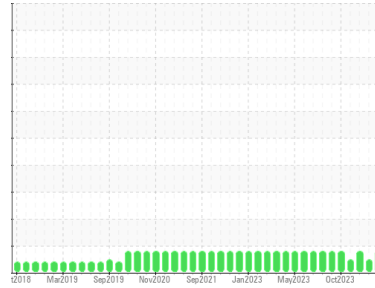


# OIL ANALYSIS REPORT

Sample Rating Trend



**FUEL**



Area  
**MARSHALL**  
Machine Id  
**[MARSHALL] DB100101E Unit 01**  
Component  
**Natural Gas Engine**  
Fluid  
**PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)**

## DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

Light fuel dilution occurring.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0114492</b>	PCA0073216	PCA0073215
Sample Date	Client Info	<b>29 Feb 2024</b>	30 Jan 2024	29 Dec 2023
Machine Age	hrs	<b>788694</b>	15539	15175
Oil Age	hrs	<b>15774</b>	15539	15175
Oil Changed	Client Info	<b>Filtered</b>	Filtered	Filtered
Sample Status		<b>MARGINAL</b>	NORMAL	MARGINAL

## 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>2</b>	3	3
Chromium	ppm ASTM D5185m >4	<b>0</b>	0	0
Nickel	ppm ASTM D5185m >2	<b>0</b>	0	0
Titanium	ppm ASTM D5185m	<b>0</b>	0	<1
Silver	ppm ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >9	<b>1</b>	2	1
Lead	ppm ASTM D5185m >30	<b>0</b>	<1	1
Copper	ppm ASTM D5185m >35	<b>&lt;1</b>	<1	1
Tin	ppm ASTM D5185m >4	<b>0</b>	<1	<1
Vanadium	ppm ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm ASTM D5185m	<b>0</b>	0	<1

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	<b>0</b>	1	2
Barium	ppm ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185m	<b>0</b>	2	2
Manganese	ppm ASTM D5185m	<b>&lt;1</b>	0	<1
Magnesium	ppm ASTM D5185m	<b>884</b>	871	905
Calcium	ppm ASTM D5185m	<b>1012</b>	998	1059
Phosphorus	ppm ASTM D5185m	<b>1091</b>	1051	1055
Zinc	ppm ASTM D5185m	<b>1280</b>	1239	1234
Sulfur	ppm ASTM D5185m	<b>2949</b>	2947	2884

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >+100	<b>2</b>	3	2
Sodium	ppm ASTM D5185m	<b>&lt;1</b>	<1	2
Potassium	ppm ASTM D5185m >20	<b>0</b>	1	0
Fuel	% ASTM D3524 >4.0	<b>▲ 2.1</b>	1.8	<b>▲ 2.2</b>

## INFRA-RED

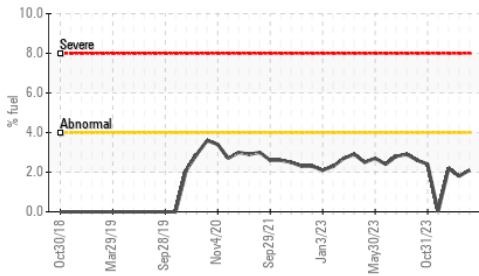
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	<b>0</b>	0	0
Nitration	Abs/cm *ASTM D7624 >20	<b>4.4</b>	4.3	4.4
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>13.5</b>	13.7	13.6

## FLUID DEGRADATION

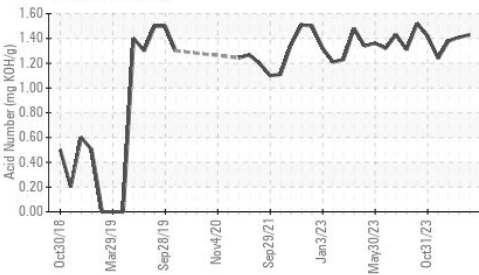
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>7.7</b>	7.5	7.6
Acid Number (AN)	mg KOH/g ASTM D8045	<b>1.43</b>	1.41	1.38
Base Number (BN)	mg KOH/g ASTM D2896 8.5	<b>8.61</b>	8.21	8.18

# OIL ANALYSIS REPORT

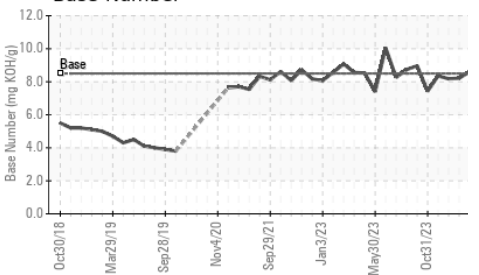
### ▲ Fuel Dilution



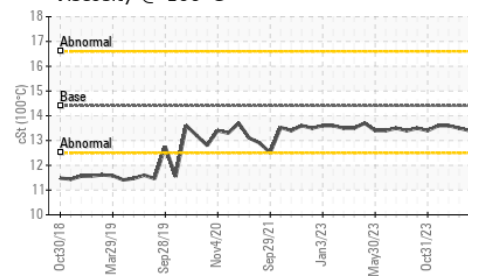
### Acid Number



### Base Number



### Viscosity @ 100°C

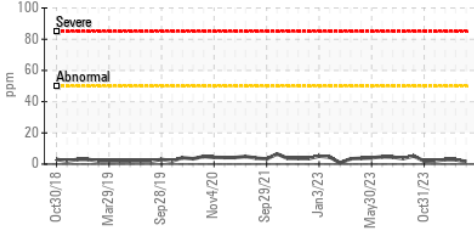


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

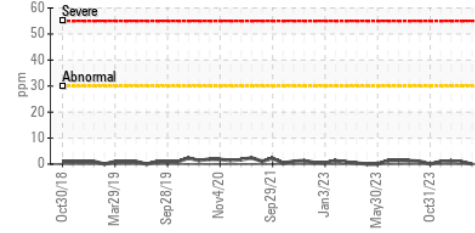
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.4</b>	13.5	13.6

### GRAPHS

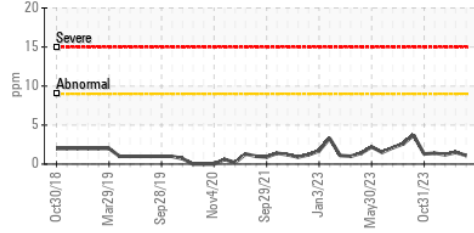
#### Iron (ppm)



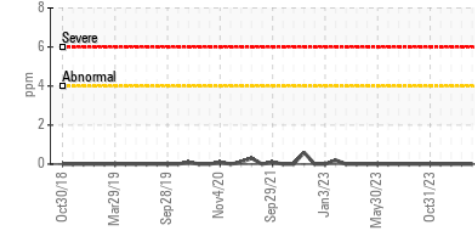
#### Lead (ppm)



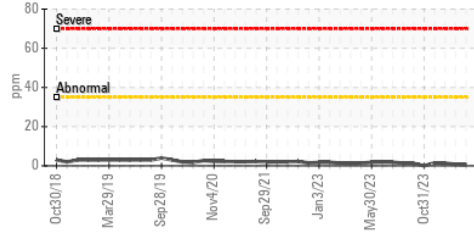
#### Aluminum (ppm)



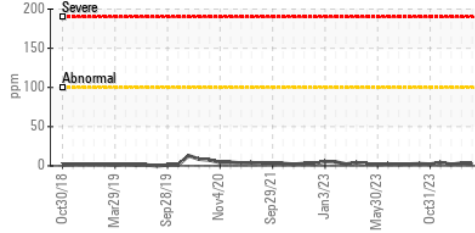
#### Chromium (ppm)



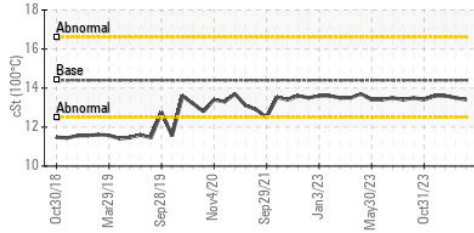
#### Copper (ppm)



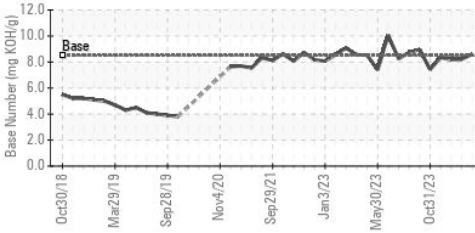
#### Silicon (ppm)



#### Viscosity @ 100°C



#### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0114492 **Received** : 04 Mar 2024  
**Lab Number** : **06107623** **Tested** : 06 Mar 2024  
**Unique Number** : 10911120 **Diagnosed** : 06 Mar 2024 - Sean Felton  
**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel )

**Magellan Midstream LP - Marshall**  
 1601 West College Drive  
 Marshall, MN  
 US 56258  
 Contact: Brett Erickson  
 brett.erickson@magellanlp.com  
 T: (519)822-1260  
 F:

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)