

## **OIL ANALYSIS REPORT**

## Ohio Valley Machine Id [Ohio Valley] Oil - Port Genset Component

Port Genset

DIESEL ENGINE OIL SAE 15W40 (8 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 acceptable for the time in service.



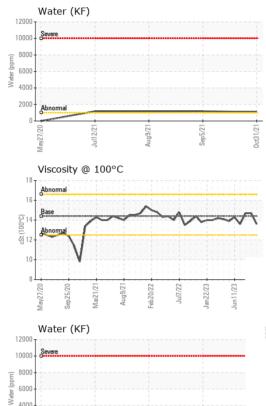
## y2020 Sep2020 Mar2021 Aug2021 Feb2022 Jul2022 Jan2023 Jun2023

Sample Rating Trend

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0621922	WC0621919	WC0735548
Sample Date		Client Info		26 Oct 2023	03 Sep 2023	05 Aug 2023
Machine Age	hrs	Client Info		12432	11673	11573
Oil Age	hrs	Client Info		407	91	503
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	6	9	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>12	2	<1	4
Lead	ppm	ASTM D5185m	>17	0	1	1
Copper	ppm	ASTM D5185m	>70	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 64	history1 54	history2 47
	ppm ppm					
Boron		ASTM D5185m	250	64	54	47
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	64 <1	54 0	47 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	64 <1 30	54 0 33	47 0 34
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	64 <1 30 0	54 0 33 <1	47 0 34 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	64 <1 30 0 919	54 0 33 <1 1058	47 0 34 <1 1022
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	64 <1 30 0 919 1525 806 1000	54 0 33 <1 1058 1825	47 0 34 <1 1022 1765
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	64 <1 30 0 919 1525 806	54 0 33 <1 1058 1825 847	47 0 34 <1 1022 1765 851
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	64 <1 30 0 919 1525 806 1000	54 0 33 <1 1058 1825 847 1081	47 0 34 <1 1022 1765 851 1123
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	64 <1 30 0 919 1525 806 1000 3696	54 0 33 <1 1058 1825 847 1081 4041	47 0 34 <1 1022 1765 851 1123 3651
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	64 <1 30 0 919 1525 806 1000 3696 current	54 0 33 <1 1058 1825 847 1081 4041 history1	47 0 34 <1 1022 1765 851 1123 3651 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	64 <1 30 0 919 1525 806 1000 3696 current 3	54 0 33 <1 1058 1825 847 1081 4041 <u>history1</u> 4	47 0 34 <1 1022 1765 851 1123 3651 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	64 <1 30 0 919 1525 806 1000 3696 <u>current</u> 3 3	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	64 <1 30 0 919 1525 806 1000 3696 current 3 3 4	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3 4	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b>	64 <1 30 0 919 1525 806 1000 3696 current 3 3 3 4	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3 4 <b>history1</b>	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5 3 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b>	64 <1 30 0 919 1525 806 1000 3696 <u>current</u> 3 3 4 <u>current</u>	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3 4 <b>history1</b> 0.2	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5 3 3 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b>	64 <1 30 0 919 1525 806 1000 3696 current 3 3 4 current 0.1 10.9	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3 4 <b>history1</b> 0.2 13.3	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5 3 history2 0.2 13.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b>	64 <1 30 0 919 1525 806 1000 3696 <u>current</u> 3 3 4 <u>current</u> 0.1 10.9 21.5	54 0 33 <1 1058 1825 847 1081 4041 <b>history1</b> 4 3 4 <b>history1</b> 0.2 13.3 24.4	47 0 34 <1 1022 1765 851 1123 3651 history2 4 5 3 history2 0.2 13.6 24.6



# **OIL ANALYSIS REPORT**



Aug9/21.

Sep5/21

Jul12/21

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	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 PROPERT		method	limit/base	ourropt	history1	bioton/2
FLUID FNOFENI	IES	method	IIIIII/Dase	current	nistory i	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.6	14.7	14.7
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

45

10

8

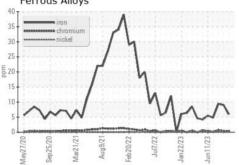
Unique Number : 10724243

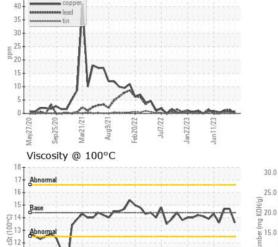
Laboratory

Sample No.

Lab Number

Mav27/20





CC/0240

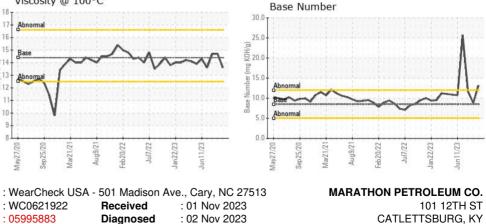
Received

Diagnosed

Jun11/23 -

Jan 22/23

Diagnostician : Sean Felton



CATLETTSBURG, KY US 41169 Contact: CORY GUMBERT cagumbert@marathonpetroleum.com T: (606)585-3950 F: x:



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Mav27/20

Test Package : IND 2 (Additional Tests: KF) Certificate L2367 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)

Mar21/21 Aug9/21

Sep25/20

: WC0621922

: 05995883