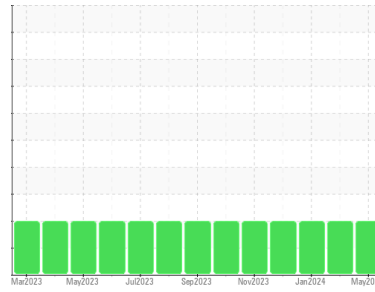




# OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Area  
**Huntington**  
 Machine Id  
**[Huntington] Oil - Port Main Engine**  
 Component  
**Port Main Engine**  
 Fluid  
 **DIESEL ENGINE OIL SAE 15W40 (165 GAL)**

## DIAGNOSIS

### ▲ Recommendation

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

### ▲ Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

### Contamination

Sodium and/or potassium levels are high. Test for glycol is negative.

### ● 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		<b>WC0874558</b>	WC0874742	WC0804931
Sample Date	Client Info		<b>08 May 2024</b>	19 Mar 2024	21 Jan 2024
Machine Age	hrs	Client Info	<b>22033</b>	20995	19837
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>Not Changed</b>	Not Changd	Not Changed
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0

## WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>75	<b>17</b>	19	14
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	3
Lead	ppm	ASTM D5185m	>18	<b>4</b>	5	7
Copper	ppm	ASTM D5185m	>80	<b>▲ 254</b>	▲ 310	▲ 367
Tin	ppm	ASTM D5185m	>14	<b>&lt;1</b>	<1	1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	250	<b>23</b>	27	30
Barium	ppm	ASTM D5185m	10	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>83</b>	86	87
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	2
Magnesium	ppm	ASTM D5185m	450	<b>1083</b>	1063	955
Calcium	ppm	ASTM D5185m	3000	<b>1261</b>	1294	1209
Phosphorus	ppm	ASTM D5185m	1150	<b>932</b>	1016	887
Zinc	ppm	ASTM D5185m	1350	<b>1127</b>	1153	1088
Sulfur	ppm	ASTM D5185m	4250	<b>2605</b>	2913	2492

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>20	<b>7</b>	6	4
Sodium	ppm	ASTM D5185m	>158	<b>● 59</b>	● 71	● 79
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	3	5
Water	%	ASTM D6304	>0.1	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG

## INFRA-RED

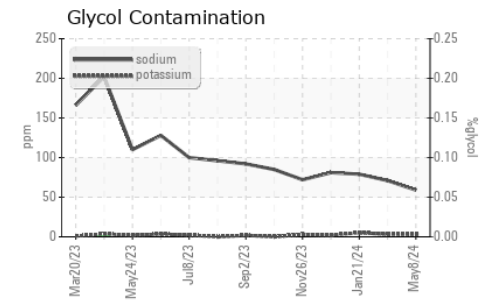
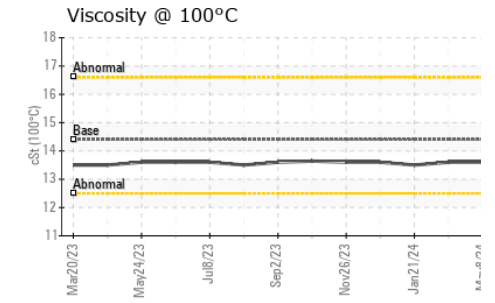
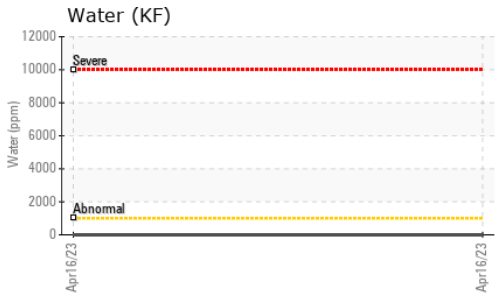
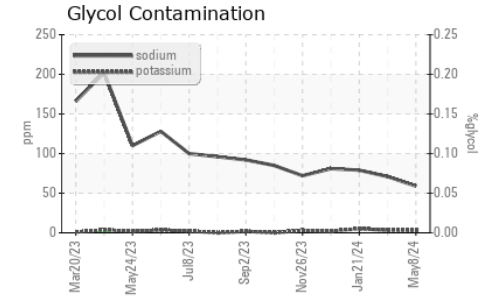
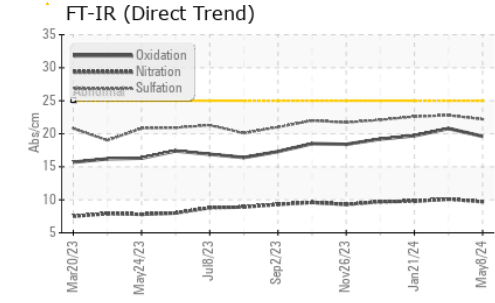
	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		<b>0.3</b>	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.7</b>	10.1	9.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.2</b>	22.8	22.6

## FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>19.6</b>	20.8	19.7
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>9.27</b>	9.88	8.27



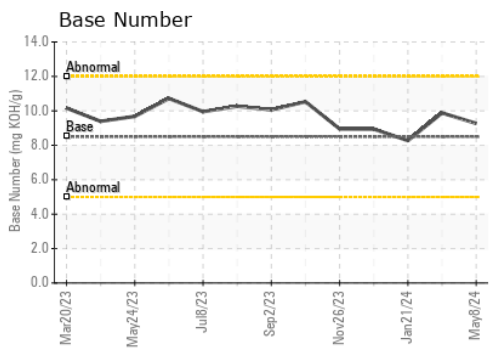
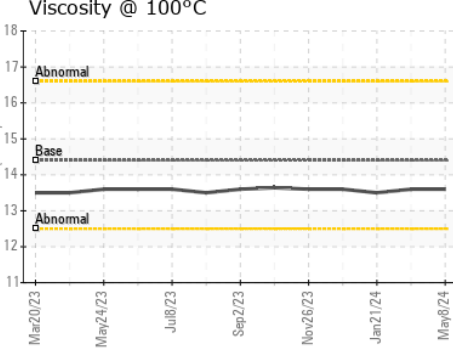
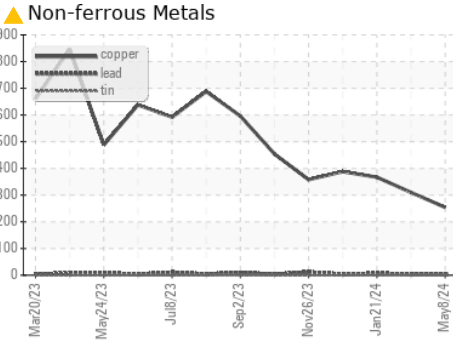
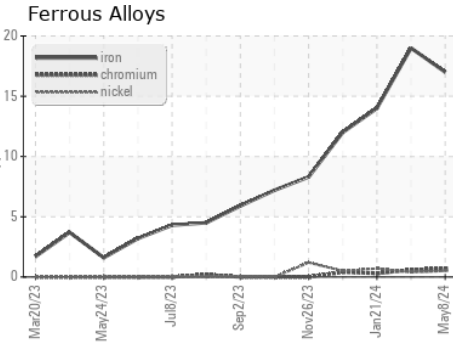
# OIL ANALYSIS REPORT



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	13.6	13.5

### GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0874558  
**Lab Number** : 06181543  
**Unique Number** : 11032869  
**Test Package** : IND 2 ( Additional Tests: Glycol, KF )  
**Received** : 16 May 2024  
**Tested** : 20 May 2024  
**Diagnosed** : 20 May 2024 - Sean Felton

**MARATHON PETROLEUM CO.**  
 101 12TH ST  
 CATLETTSBURG, KY  
 US 41169  
 Contact: CORY GUMBERT  
 cagumbert@marathonpetroleum.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)

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F: x: