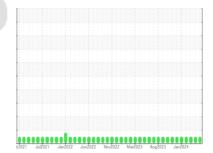


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Detroit

[Detroit] Oil - Starboard Main Engine

Starboard Main Engine

MOBIL 15W40 (150 GAL)

-DI	A /	~ 1	10	\circ	
DI	Аι	1	JC.	.51	5
		-	4		

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Completed by Jeff Baldwin)

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

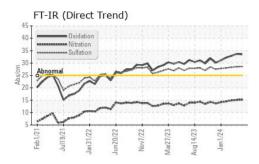
Fluid Condition

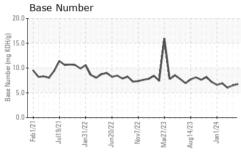
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

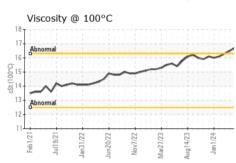
SAMPLE INFORMATION method limit/base current history1 history2							
Sample Date Client Info 20 May 2024 22 Apr 2024 25 Mar 2024 Machine Age hrs Client Info 20695 20093 19474 2014 20695 20093 19474 2016 20695 20093 19474 2016 20695 20093 19474 2016 20695 20093 19474 2016 2016 20095 20093 19474 2016 2016 20095 20093 19474 2016 2016 20095 20093 19474 2016 2016 20095 20093 19474 2016 2016 20095 20093 19474 2016 2016 20095 20093 19474 2016 201	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 20695 20093 19474 Oil Age hrs Client Info 20695 20093 19474 Oil Changed Client Info Not Changd N/A Not Changd Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION 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 DS185m >75 73 77 66 Chromium ppm ASTM DS185m >2 4 4 3 Iron ppm ASTM DS185m >2 0 <1 0 Aluminum ppm ASTM DS185m >15 1 1 0 Aluminum ppm ASTM DS185m <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>WC0804743</th> <th>WC0804786</th> <th>WC0804776</th>	Sample Number		Client Info		WC0804743	WC0804786	WC0804776
Oil Age	Sample Date		Client Info		20 May 2024	22 Apr 2024	25 Mar 2024
Oil Changed Sample Status	Machine Age	hrs	Client Info		20695	20093	19474
Sample Status	Oil Age	hrs	Client Info		20695	20093	19474
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 <1.0 Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 73 77 66 Chromium ppm ASTM D5185m >8 1 2 <1 Nickel ppm ASTM D5185m >2 4 4 3 Silver ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >15 2 4 3 Lead ppm ASTM D5185m >15 15 11 0 Copper ppm ASTM D5185m >80 50 58 43 Tin ppm ASTM D5185m >1 1 1 0 <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Not Changd</th> <th>N/A</th> <th>Not Changd</th>	Oil Changed		Client Info		Not Changd	N/A	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS method Imitibase current history1 history2 Iron ppm ASTM D5185m >75 73 77 66 Chromium ppm ASTM D5185m >8 1 2 <1	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 73 77 66 Chromium ppm ASTM D5185m >8 1 2 <1 Nickel ppm ASTM D5185m >2 4 4 3 Titanium ppm ASTM D5185m >3 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >18 15 15 11 Lead ppm ASTM D5185m >18 15 15 11 Copper ppm ASTM D5185m >80 50 58 43 Tin ppm ASTM D5185m >14 1 3 1 Vanadium ppm ASTM D5185m >1 1 1 0 Vanadium ppm ASTM D5185m 55 57 50	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >8 1 2 1 Nickel ppm ASTM D5185m >2 4 4 3 Titanium ppm ASTM D5185m >2 4 4 3 Silver ppm ASTM D5185m >2 0 <1 0 0 Aluminum ppm ASTM D5185m >2 0 <1 0 0 Aluminum ppm ASTM D5185m >15 2 4 3 1 Lead ppm ASTM D5185m >80 50 58 43 1 Copper ppm ASTM D5185m >80 50 58 43 1 Vanadium ppm ASTM D5185m >80 50 58 43 1 Vanadium ppm ASTM D5185m >14 1 3 1 1 1 0 0 0 0 0 0 0 0 0 0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	73	77	66
Titanium ppm ASTM D5185m >3 0 <1	Chromium	ppm	ASTM D5185m	>8	1	2	<1
Silver	Nickel	ppm	ASTM D5185m	>2	4	4	3
Aluminum ppm ASTM D5185m >15 2 4 3 Lead ppm ASTM D5185m >18 15 15 11 Copper ppm ASTM D5185m >80 50 58 43 Tin ppm ASTM D5185m >14 1 3 1 Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 55 57 50 Boron ppm ASTM D5185m 55 57 50 Barium ppm ASTM D5185m 45 50 44 Manganese ppm ASTM D5185m 1 <1 1 <td< th=""><th>Titanium</th><th>ppm</th><th>ASTM D5185m</th><th>>3</th><th>0</th><th><1</th><th>0</th></td<>	Titanium	ppm	ASTM D5185m	>3	0	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m ≥80 50 58 43 Tin ppm ASTM D5185m >14 1 3 1 Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 55 57 50 Barium ppm ASTM D5185m <1 0 0 Molybdenum ppm ASTM D5185m 45 50 44 Manganese ppm ASTM D5185m 760 785 750 Calcium ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 3730 3490 3566 Coltium ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current	Aluminum	ppm	ASTM D5185m	>15	2	4	3
Tin ppm ASTM D5185m >14 1 3 1 Vanadium ppm ASTM D5185m <1	Lead	ppm	ASTM D5185m	>18	15	15	11
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>80	50	58	43
Cadmium ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>14	1	3	1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 55 57 50 Barium ppm ASTM D5185m <1 0 0 Molybdenum ppm ASTM D5185m 45 50 44 Manganese ppm ASTM D5185m 760 785 750 Calcium ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m <	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m <1							
Molybdenum ppm ASTM D5185m 45 50 44 Manganese ppm ASTM D5185m 1 <1 1 Magnesium ppm ASTM D5185m 760 785 750 Calcium ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 894 1001 846 Zinc ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D6185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method<	ADDITIVES		method	limit/base	current	history1	history2
Manganese ppm ASTM D5185m 1 <1		ppm		limit/base			· ·
Magnesium ppm ASTM D5185m 760 785 750 Calcium ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 894 1001 846 Zinc ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >20 2 6 2 Water % ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % </th <th>Boron</th> <th>• •</th> <th>ASTM D5185m</th> <th>limit/base</th> <th>55</th> <th>57</th> <th>50</th>	Boron	• •	ASTM D5185m	limit/base	55	57	50
Calcium ppm ASTM D5185m 2053 2062 1891 Phosphorus ppm ASTM D5185m 894 1001 846 Zinc ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >20 2 6 2 Water % ASTM D5185m >118 6 5 6 2 INFRA-RED method limit/base current history1 history2 <tr< th=""><th>Boron Barium</th><th>ppm</th><th>ASTM D5185m ASTM D5185m</th><th>limit/base</th><th>55 <1</th><th>57 0</th><th>50 0</th></tr<>	Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	55 <1	57 0	50 0
Phosphorus ppm ASTM D5185m 894 1001 846 Zinc ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2<	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45	57 0 50	50 0 44
Zinc ppm ASTM D5185m 1083 1130 1051 Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 0.6 Nitration Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45 1	57 0 50 <1	50 0 44 1
Sulfur ppm ASTM D5185m 3730 3490 3566 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45 1 760	57 0 50 <1 785	50 0 44 1 750
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45 1 760 2053	57 0 50 <1 785 2062	50 0 44 1 750 1891
Silicon ppm ASTM D5185m >20 4 6 3 Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45 1 760 2053 894	57 0 50 <1 785 2062 1001	50 0 44 1 750 1891 846
Sodium ppm ASTM D5185m >118 6 5 6 Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	55 <1 45 1 760 2053 894 1083	57 0 50 <1 785 2062 1001 1130	50 0 44 1 750 1891 846 1051
Potassium ppm ASTM D5185m >20 2 6 2 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	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		55 <1 45 1 760 2053 894 1083 3730	57 0 50 <1 785 2062 1001 1130 3490	50 0 44 1 750 1891 846 1051 3566
Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	55 <1 45 1 760 2053 894 1083 3730 current	57 0 50 <1 785 2062 1001 1130 3490 history1	50 0 44 1 750 1891 846 1051 3566 history2
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20	55 <1 45 1 760 2053 894 1083 3730 current	57 0 50 <1 785 2062 1001 1130 3490 history1	50 0 44 1 750 1891 846 1051 3566 history2
Soot % % *ASTM D7844 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118	55 <1 45 1 760 2053 894 1083 3730 current 4 6	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2
Nitration Abs/cm *ASTM D7624 >20 15.2 15.1 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118 >20	55 <1 45 1 760 2053 894 1083 3730 current 4 6	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2
Sulfation Abs/.1mm *ASTM D7415 >30 28.6 28.5 28.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118 >20 >0.1	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304	limit/base >20 >118 >20 >0.1	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG current	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG
Oxidation Abs/.1mm *ASTM D7414 >25 33.5 33.7 32.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 method *ASTM D7844	limit/base >20 >118 >20 >0.1 limit/base	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG current 0.6	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG history1 0.6	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 method *ASTM D7844 *ASTM D7844	limit/base >20 >118 >20 >0.1 limit/base >20	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG current 0.6 15.2	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG history1 0.6 15.1	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG history2 0.6 14.9
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 method *ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >20 >118 >20 >0.1 limit/base >20 >0.3	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG current 0.6 15.2 28.6	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG history1 0.6 15.1 28.5	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG history2 0.6 14.9 28.3
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >20 >118 >20 >0.1 limit/base >20 >30 limit/base	55 <1 45 1 760 2053 894 1083 3730 current 4 6 2 NEG current 0.6 15.2 28.6 current	57 0 50 <1 785 2062 1001 1130 3490 history1 6 5 6 NEG history1 0.6 15.1 28.5	50 0 44 1 750 1891 846 1051 3566 history2 3 6 2 NEG history2 0.6 14.9 28.3 history2



OIL ANALYSIS REPORT



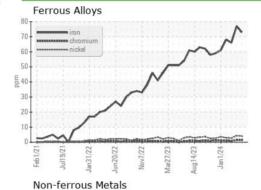


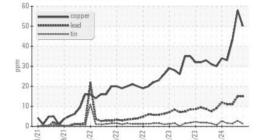


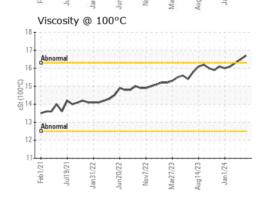
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

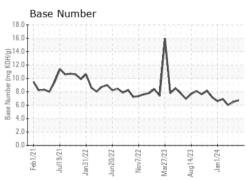
FLUID PROPE	RIIES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445		16.7	16.5	16.3

GRAPHS













Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0804743 Lab Number : 06202975 Unique Number : 11070436

Received **Tested** Diagnosed

: 07 Jun 2024 : 11 Jun 2024

: 11 Jun 2024 - Sean Felton

101 12TH ST CATLETTSBURG, KY US 41169 Contact: SHAWN MCCLASKEY

MARATHON PETROLEUM CO.

Test Package : IND 2 (Additional Tests: KF) Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

stmcclaskey@marathonpetroleum.com T: (606)739-2416

* - 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)

F: x: Submitted By: M/V DETROIT