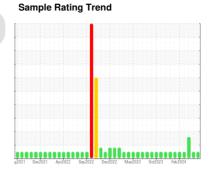


OIL ANALYSIS REPORT

Area **Findlay** [Findlay] Oil - Port Main Engine

Port Main Engine

MOBIL 15W40 (220 GAL)





Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

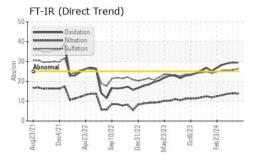
Fluid Condition

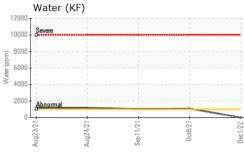
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

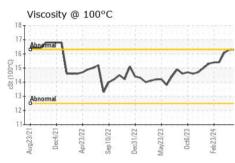
Sample Number Client Info WC0874641 WC0874646 WC0874678 Sample Date Client Info 18 Jun 2024 14 May 2024 23 Apr 2024 Machine Age hrs Client Info 10918 10582 10129 Oil Age hrs Client Info 10918 10582 10129 Oil Changed Client Info Filtered NORMAL NORMAL ABNORMAL CONTAMINATION method Immitblase current history1 history2 Fuel WC Method NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method Immitblase current history1 history1 Iron ppm ASTM 05185m >8 <1 <1 <1 WEAR METALS method Immitblase current history1 history1 Iron ppm ASTM 05185m >8 <1 <1 <1 Chromium </th <th>SAMPLE INFORM</th> <th>ΛΑΤΙΩΝ</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	ΛΑΤΙΩΝ	method	limit/base	current	history1	history2
Sample Date Client Info 18 Jun 2024 14 May 2024 23 Apr 2024 Machine Age hrs Client Info 14075 13739 13316 Oil Age hrs Client Info 10918 10582 10129 Oil Changed Client Info Filtered Filtered Not Changd Sample Status Contract Filtered Filtered Not Changd CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >4.0 <1.0		717 (11101)		mmobase		•	
Machine Age hrs Client Info 14075 13739 13316 Oil Age hrs Client Info 10918 10582 10129 Oil Changed Client Info Filtered Filtered Not Changd Sample Status NORMAL NORMAL NORMAL NORMAL A8NORMAL CONTAMINATION method Immit base current history1 history2 Fuel WC Method 44.0 <1.0 <1.0 <1.0 <1.0 Glycol WC Method WC Method NEG NEG NEG NEG WEAR METALS method Iimit base current history1 history2 Iron ppm ASTM 05185m >8 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	·						
Oil Age nrs Client Info 10918 10582 10129 Oil Changed Client Info Filtered Filtered Not Changd Sample Status NoRMAL NoRMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 <1.0 Glycol WC Method ASTM D6185m <4.0 <1.0 <1.0 <1.0 WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >75 13 13 21 Chromium ppm ASTM D5185m >2 1 <1 <1 Silver ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 <1 <1 Lead ppm ASTM D5185m >18 15 16 ≥2	•	hre				,	
Oil Changed Sample Status Client Info Filtered NORMAL Filtered NORMAL Filtered NORMAL NORMAL ABNORMAL 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 D5185m >75 13 13 21 Chromium ppm ASTM D5185m >8 <1 <1 1 Nickel ppm ASTM D5185m >2 1 <1 <1 Nickel ppm ASTM D5185m >2 0 0 <1 Itanium ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >18 15 16 25 Copper ppm ASTM D5185m >14 0 2 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Sample Status	-	1113					
CONTAMINATION			Oliciti IIIIo				Ü
Fuel		VI.	method	limit/base			
WEAR METALS		N .				•	
WEAR METALS				>4.0			
Iron			WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >8 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 1 <1 <1 Titanium ppm ASTM D5185m >3 0 <1	Iron	ppm	ASTM D5185m	>75	13		
Titanium ppm ASTM D5185m >3 0 -1 -1 Silver ppm ASTM D5185m >2 0 0 <1	Chromium	ppm	ASTM D5185m	>8		<1	1
Stiver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >15 2 3 5 Lead ppm ASTM D5185m >18 15 16 △ 25 Copper ppm ASTM D5185m >80 35 57 △ 100 Tin ppm ASTM D5185m >14 0 2 3 Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 26 39 39 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus	Nickel	ppm	ASTM D5185m	>2	-	<1	
Aluminum ppm ASTM D5185m >15 2 3 5 Lead ppm ASTM D5185m >18 15 16 ▲ 25 Copper ppm ASTM D5185m >80 35 57 ▲ 100 Tin ppm ASTM D5185m >14 0 2 3 Vanadium ppm ASTM D5185m 0 <1		ppm		>3	-		
Lead ppm ASTM D5185m >18 15 16 △ 25 Copper ppm ASTM D5185m >80 35 57 ▲ 100 Tin ppm ASTM D5185m >14 0 2 3 Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 26 39 39 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Sulfur ppm ASTM D5185m </td <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>2</td> <th></th> <td></td> <td></td>	Silver	ppm	ASTM D5185m	>2			
Copper ppm ASTM D5185m >80 35 57 ▲ 100 Tin ppm ASTM D5185m >14 0 2 3 Vanadium ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>15	2	3	5
Tin	Lead	ppm	ASTM D5185m	>18		16	<u>^</u> 25
Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 26 39 39 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3	Copper	ppm			35	57	
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 26 39 39 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >20	Tin	ppm	ASTM D5185m	>14	0	2	3
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >20 3 9 7 Water % ASTM D5185m >20 3 9 7 Water % ASTM D5185m							
Molybdenum ppm ASTM D5185m 52 68 81 Manganese ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED	ADDITIVES		method	limit/base	current	history1	history2
Manganese ppm ASTM D5185m <1		ppm		limit/base			
Magnesium ppm ASTM D5185m 1359 1271 1993 Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/c	Boron		ASTM D5185m	limit/base	26	39	39
Calcium ppm ASTM D5185m 1615 1545 2492 Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 13.8 13.9 13.7 Su	Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	26 0	39 0	39 0
Phosphorus ppm ASTM D5185m 1154 1070 1854 Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 <tr< td=""><td>Boron Barium Molybdenum</td><td>ppm ppm</td><td>ASTM D5185m ASTM D5185m ASTM D5185m</td><td>limit/base</td><th>26 0 52</th><td>39 0 68</td><td>39 0 81</td></tr<>	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	26 0 52	39 0 68	39 0 81
Zinc ppm ASTM D5185m 1434 1356 2115 Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	26 0 52 <1	39 0 68 <1	39 0 81 <1
Sulfur ppm ASTM D5185m 3356 3192 4542 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4<	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	26 0 52 <1 1359	39 0 68 <1 1271	39 0 81 <1 1993
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	26 0 52 <1 1359 1615	39 0 68 <1 1271 1545	39 0 81 <1 1993 2492
Silicon ppm ASTM D5185m >20 3 3 7 Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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 ASTM D5185m	limit/base	26 0 52 <1 1359 1615 1154	39 0 68 <1 1271 1545 1070	39 0 81 <1 1993 2492 1854
Sodium ppm ASTM D5185m >118 4 3 4 Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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	26 0 52 <1 1359 1615 1154 1434	39 0 68 <1 1271 1545 1070 1356	39 0 81 <1 1993 2492 1854 2115
Potassium ppm ASTM D5185m >20 3 9 7 Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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		26 0 52 <1 1359 1615 1154 1434 3356	39 0 68 <1 1271 1545 1070 1356 3192	39 0 81 <1 1993 2492 1854 2115 4542
Water % ASTM D6304 >0.1 NEG NEG NEG INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	26 0 52 <1 1359 1615 1154 1434 3356 current	39 0 68 <1 1271 1545 1070 1356 3192 history1	39 0 81 <1 1993 2492 1854 2115 4542
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	26 0 52 <1 1359 1615 1154 1434 3356 current	39 0 68 <1 1271 1545 1070 1356 3192 history1 3	39 0 81 <1 1993 2492 1854 2115 4542 history2
Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >20 >118	26 0 52 <1 1359 1615 1154 1434 3356 current 3	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 3	39 0 81 <1 1993 2492 1854 2115 4542 history2 7
Nitration Abs/cm *ASTM D7624 >20 13.8 13.9 13.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7
Sulfation Abs/.1mm *ASTM D7415 >30 26.3 25.8 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG history1	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG
Oxidation Abs/.1mm *ASTM D7414 >25 29.4 29.5 29.1	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	limit/base >20 >118 >20 >0.1 limit/base	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG current 0.1	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG history1 0.1	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG history2 0.1
	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	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG current 0.1 13.8	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG history1 0.1 13.9	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG history2 0.1 13.7
	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	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG current 0.1 13.8 26.3	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG history1 0.1 13.9 25.8	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG history2 0.1 13.7 25.6
Dase Multiper (DIM) Highory Astivi D2030 0.00 0.75 0.21	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 ASTM D6304 method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base >20 >118 >20 >0.1 limit/base >20 >0.1 limit/base	26 0 52 <1 1359 1615 1154 1434 3356 current 3 4 3 NEG current 0.1 13.8 26.3 current	39 0 68 <1 1271 1545 1070 1356 3192 history1 3 9 NEG history1 0.1 13.9 25.8 history1	39 0 81 <1 1993 2492 1854 2115 4542 history2 7 4 7 NEG history2 0.1 13.7 25.6 history2

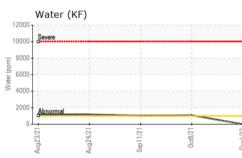


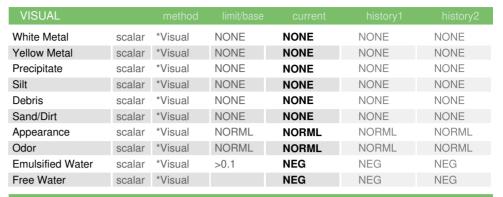
OIL ANALYSIS REPORT





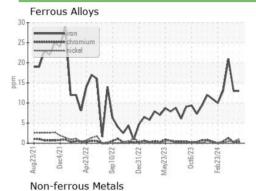


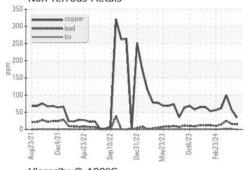


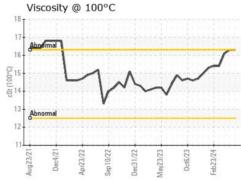


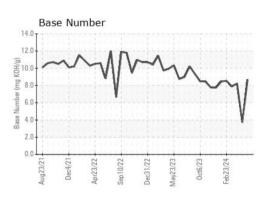
FLUID PROPER	RTIES	method			history2
Visc @ 100°C	cSt	ASTM D445	16.3	16.3	16.1

GRAPHS













Certificate 12367

Laboratory

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No.

Lab Number : 06219918

: WC0874641 Unique Number : 11098115

Received **Tested**

: 25 Jun 2024 : 26 Jun 2024 Diagnosed Test Package : IND 2 (Additional Tests: KF)

: 26 Jun 2024 - Sean Felton

101 12TH ST CATLETTSBURG, KY US 41169 Contact: CORY GUMBERT

MARATHON PETROLEUM CO.

To discuss this sample report, contact Customer Service at 1-800-237-1369. st - 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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Report Id: MARCAT [WUSCAR] 06219918 (Generated: 06/30/2024 15:39:52) Rev: 1

Submitted By: M/V FINDLAY