

OIL ANALYSIS REPORT

Findlay [Findlay] Oil - Starboard Genset

Starboard Genset

MOBIL 15W40 (8 GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

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

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

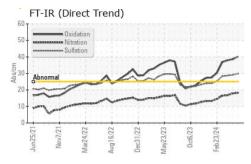
Fluid Condition

The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

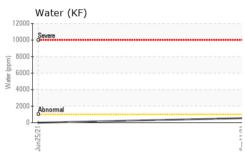
SAMPLE INFORMA	ΔΤΙΟΝ	method	limit/base	current	history1	history2
	711011		III III Daoc			WC0874728
Sample Number		Client Info		WC0874642 18 Jun 2024	WC0874729	
Sample Date	laua	Client Info			14 May 2024 10832	23 Apr 2024
3-	hrs			10991		10533 3709
Oil Age	hrs	Client Info		3110	3008	
Oil Changed		Client Info		Filtered	Filtered	Not Changd
Sample Status				ABNORMAL	ABNORMAL	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	>50	23	35	21
Chromium	ppm	ASTM D5185m	>4	<1	2	1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	<1	<1
Aluminum	ppm	ASTM D5185m	>12	2	3	2
Lead	ppm	ASTM D5185m	>17	0	1	2
	ppm	ASTM D5185m	>70	4	5	4
	ppm	ASTM D5185m	>15	0	<1	2
	ppm	ASTM D5185m		0	<1	<1
	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
		IIIeliioa	IIIIIII/Dase	Current	HISTOLAT	
_	nnm		IIIIII/Dase			
Boron	ppm	ASTM D5185m	IIIIII/Dase	26	41	28
Boron Barium	ppm	ASTM D5185m ASTM D5185m	iiiiii/base	26 0	41	28
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	IIIIII/Dase	26 0 55	41 0 85	28 0 60
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iiiiii/base	26 0 55 <1	41 0 85 <1	28 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iiiiii/base	26 0 55 <1 1374	41 0 85 <1 2034	28 0 60 <1 1362
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iiiiii/base	26 0 55 <1 1374 1470	41 0 85 <1 2034 2138	28 0 60 <1 1362 1507
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 ASTM D5185m	IIIIII DASE	26 0 55 <1 1374 1470 1146	41 0 85 <1 2034 2138 1598	28 0 60 <1 1362 1507 1198
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 ASTM D5185m	IIIIII DASE	26 0 55 <1 1374 1470 1146	41 0 85 <1 2034 2138 1598 1998	28 0 60 <1 1362 1507 1198 1373
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		26 0 55 <1 1374 1470 1146	41 0 85 <1 2034 2138 1598	28 0 60 <1 1362 1507 1198
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 ASTM D5185m	limit/base	26 0 55 <1 1374 1470 1146	41 0 85 <1 2034 2138 1598 1998	28 0 60 <1 1362 1507 1198 1373
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25	26 0 55 <1 1374 1470 1146 1384 3754	41 0 85 <1 2034 2138 1598 1998 4955	28 0 60 <1 1362 1507 1198 1373 3312
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 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 ASTM D5185m	limit/base >25	26 0 55 <1 1374 1470 1146 1384 3754 current	41 0 85 <1 2034 2138 1598 1998 4955 history1	28 0 60 <1 1362 1507 1198 1373 3312 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20	26 0 55 <1 1374 1470 1146 1384 3754 current	41 0 85 <1 2034 2138 1598 1998 4955 history1	28 0 60 <1 1362 1507 1198 1373 3312 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20	26 0 55 <1 1374 1470 1146 1384 3754 current 4	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11	28 0 60 <1 1362 1507 1198 1373 3312 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5
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	limit/base >25 >118 >20 >0.1	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3 NEG	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot %	ppm	ASTM D5185m ASTM D6304	limit/base >25 >118 >20 >0.1 limit/base	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3 NEG	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG history1	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration	ppm	ASTM D5185m	limit/base >25 >118 >20 >0.1 limit/base	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3 NEG current 0.4	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG history1 0.3	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5 NEG history2 0.3
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 >25 >118 >20 >0.1 limit/base	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3 NEG current 0.4 18.3	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG history1 0.3 17.9	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5 NEG history2 0.3 16.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation FLUID DEGRADAT	ppm	ASTM D5185m ASTM D6304 method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base	26 0 55 <1 1374 1470 1146 1384 3754	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG history1 0.3 17.9 29.1 history1	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5 NEG history2 0.3 16.8 28.7 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation FLUID DEGRADAT Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 method *ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base	26 0 55 <1 1374 1470 1146 1384 3754 current 4 9 3 NEG current 0.4 18.3 29.8	41 0 85 <1 2034 2138 1598 1998 4955 history1 6 11 5 NEG history1 0.3 17.9 29.1	28 0 60 <1 1362 1507 1198 1373 3312 history2 5 5 NEG history2 0.3 16.8 28.7

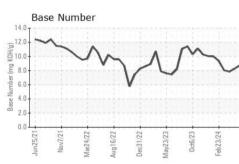


OIL ANALYSIS REPORT



12000	Water (KF)
10000	Samuel Control
€ 8000	
Water (ppm))+
× 4000)+
2000	Abnormal
(
	Jun25/21
	7

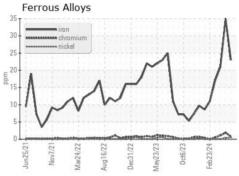


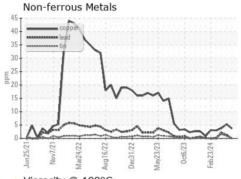


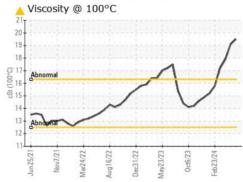
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

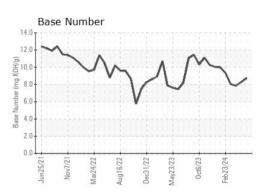
FLUID PROPER	RILES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	_	19.5	19.1	17.9

GRAPHS













Certificate 12367

Laboratory

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. Lab Number : 06219917

: WC0874642 Unique Number : 11098114

Test Package : IND 2 (Additional Tests: KF)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Received : 25 Jun 2024 **Tested** Diagnosed

: 26 Jun 2024 : 26 Jun 2024 - Sean Felton MARATHON PETROLEUM CO. 101 12TH ST CATLETTSBURG, KY US 41169

Contact: SHAWN MCCLASKEY 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)

Report Id: MARCAT [WUSCAR] 06219917 (Generated: 06/30/2024 15:39:43) Rev: 1

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