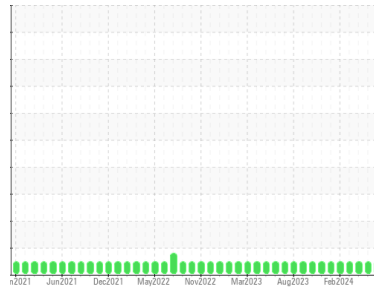




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

Paul G. Blazer

Machine Id

[Paul G. Blazer] Oil - Starboard Genset

Component

Starboard Genset

Fluid

DIESEL ENGINE OIL SAE 15W40 (8 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Kirk James)

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 suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0845821	WC0719261	WC0845828
Sample Date	Client Info		10 Jun 2024	14 May 2024	14 Apr 2024
Machine Age	hrs	Client Info	14432	13907	13614
Oil Age	hrs	Client Info	500	1	271
Oil Changed	Client Info		Changed	N/A	Not Chngd
Sample Status			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 D5185m	>50	13	2	4
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>12	2	<1	2
Lead	ppm	ASTM D5185m	>17	0	0	0
Copper	ppm	ASTM D5185m	>70	1	0	0
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	250	19	15	38
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	69	57	66
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m	450	1685	1474	1426
Calcium	ppm	ASTM D5185m	3000	1319	1164	1254
Phosphorus	ppm	ASTM D5185m	1150	1161	1035	1005
Zinc	ppm	ASTM D5185m	1350	1406	1233	1200
Sulfur	ppm	ASTM D5185m	4250	3907	3903	3539

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	3	4	3
Sodium	ppm	ASTM D5185m	>158	5	0	2
Potassium	ppm	ASTM D5185m	>20	2	0	1
Water	%	ASTM D6304	>0.1	NEG	NEG	NEG

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	11.3	6.0	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	18.0	20.4

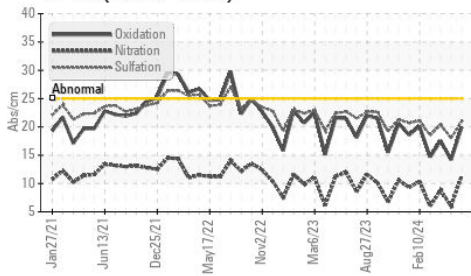
FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.9	14.2	17.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	13.10	12.49	12.79

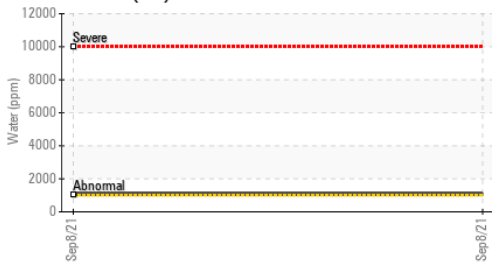


OIL ANALYSIS REPORT

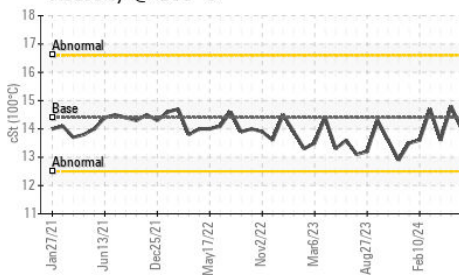
FT-IR (Direct Trend)



Water (KF)



Viscosity @ 100°C



Water (KF)

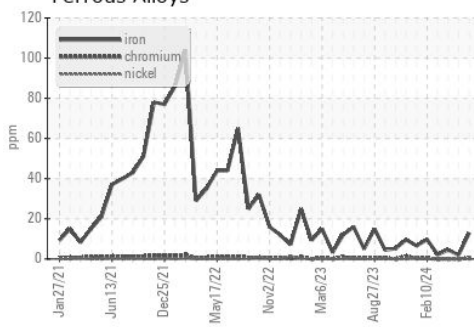


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

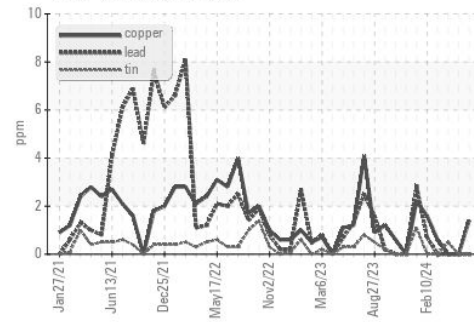
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	14.0	14.8

GRAPHS

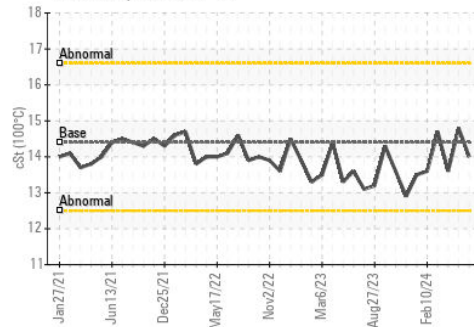
Ferrous Alloys



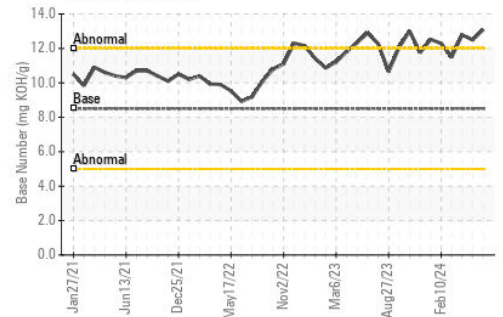
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0845821 **Received** : 25 Jun 2024
Lab Number : 06219915 **Tested** : 26 Jun 2024
Unique Number : 11098112 **Diagnosed** : 26 Jun 2024 - Sean Felton
Test Package : IND 2 (Additional Tests: KF)

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)

T: (606)585-3950

F: x: