

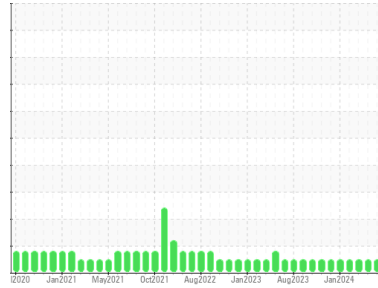


OIL ANALYSIS REPORT



Area
Map Runner
 Machine Id
[Map Runner] Oil - Aft Genset
 Component
Aft Genset
 Fluid
DIESEL ENGINE OIL SAE 15W40 (5 GAL)

Sample Rating Trend



NORMAL



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

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		WC0874589	WC0874623	WC0859918
Sample Date	Client Info		28 May 2024	22 Apr 2024	20 Mar 2024
Machine Age	hrs	Client Info	0	9459	9094
Oil Age	hrs	Client Info	0	288	152
Oil Changed	Client Info		Changed	Changed	Changed
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	4	3	4
Chromium	ppm	ASTM D5185m >4	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	0	0	<1
Titanium	ppm	ASTM D5185m	0	<1	<1
Silver	ppm	ASTM D5185m >5	0	<1	<1
Aluminum	ppm	ASTM D5185m >12	<1	2	2
Lead	ppm	ASTM D5185m >17	3	4	2
Copper	ppm	ASTM D5185m >70	2	2	1
Tin	ppm	ASTM D5185m >15	0	1	<1
Vanadium	ppm	ASTM D5185m	<1	<1	<1
Cadmium	ppm	ASTM D5185m	0	<1	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	7	14	4
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	65	70	65
Manganese	ppm	ASTM D5185m	<1	0	<1
Magnesium	ppm	ASTM D5185m 450	1467	1510	1415
Calcium	ppm	ASTM D5185m 3000	1183	1236	1144
Phosphorus	ppm	ASTM D5185m 1150	1060	1205	1067
Zinc	ppm	ASTM D5185m 1350	1312	1353	1225
Sulfur	ppm	ASTM D5185m 4250	3787	3555	3387

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	3	7	4
Sodium	ppm	ASTM D5185m >158	<1	0	<1
Potassium	ppm	ASTM D5185m >20	0	3	2
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	9.6	9.4	7.8
Sulfation	Abs/.1mm	*ASTM D7415 >30	20.0	19.9	20.0

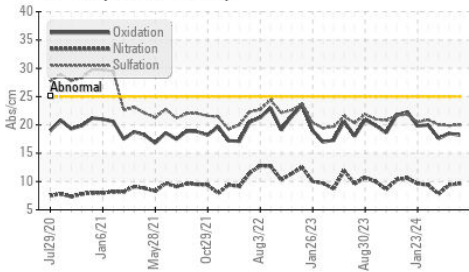
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	18.2	18.5	17.6
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	13.00	12.98	13.37

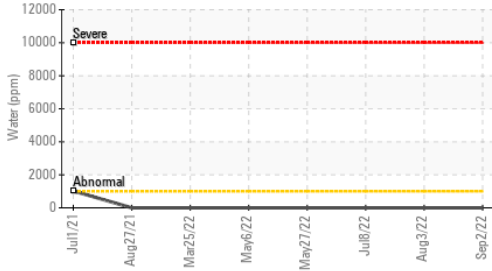


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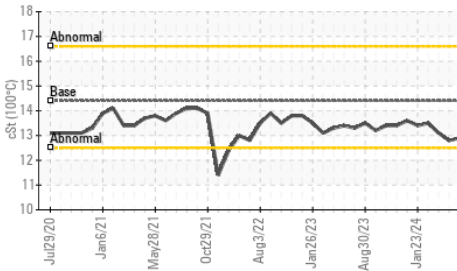
FT-IR (Direct Trend)



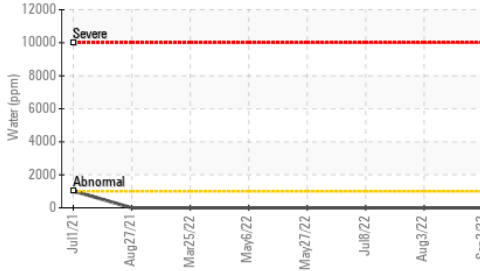
Water (KF)



Viscosity @ 100°C



Water (KF)

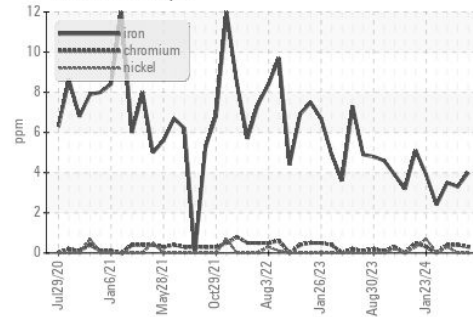


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

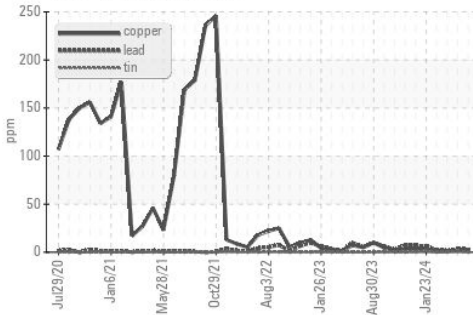
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.9	12.8

GRAPHS

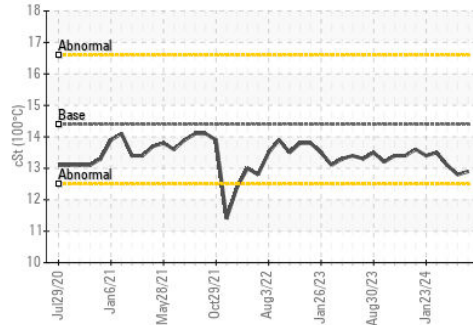
Ferrous Alloys



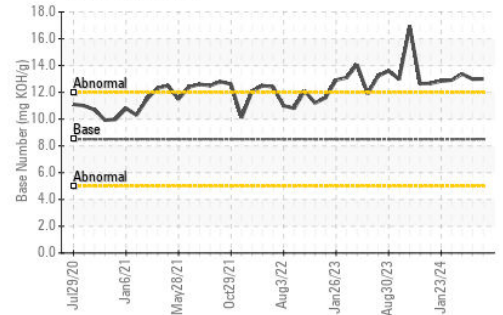
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0874589

Lab Number : 06202974

Unique Number : 11070435

Test Package : IND 2 (Additional Tests: KF)

Received : 07 Jun 2024

Tested : 11 Jun 2024

Diagnosed : 11 Jun 2024 - Sean Felton

MARATHON PETROLEUM CO.

101 12TH ST

CATLETTSBURG, KY

US 41169

Contact: CORY GUMBERT

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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)