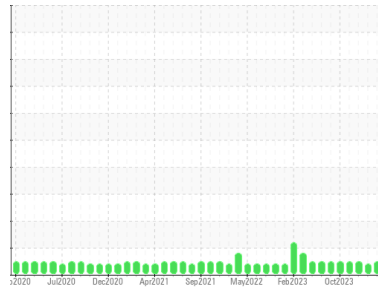




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Kentucky
 Machine Id
[Kentucky] Oil - Port Genset
 Component
Port Genset
 Fluid
DIESEL ENGINE OIL SAE 15W40 (7 GAL)

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			WC0845802	WC0874825	WC0859935
Sample Date	Client Info			25 Apr 2024	16 Mar 2024	20 Jan 2024
Machine Age	hrs	Client Info		19646	19011	18580
Oil Age	hrs	Client Info		184	49	49
Oil Changed	Client Info			Not Chngd	Changed	Not Chngd
Sample Status				NORMAL	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	4	3	2
Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>5	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>12	2	2	1
Lead	ppm	ASTM D5185m	>17	2	<1	3
Copper	ppm	ASTM D5185m	>70	1	<1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	15	7	18
Barium	ppm	ASTM D5185m	10	<1	0	0
Molybdenum	ppm	ASTM D5185m	100	97	61	59
Manganese	ppm	ASTM D5185m		<1	<1	2
Magnesium	ppm	ASTM D5185m	450	2324	▲ 1392	1247
Calcium	ppm	ASTM D5185m	3000	1932	1189	1160
Phosphorus	ppm	ASTM D5185m	1150	1767	1187	1047
Zinc	ppm	ASTM D5185m	1350	2082	1298	1239
Sulfur	ppm	ASTM D5185m	4250	5698	3963	3251

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	5	4	4
Sodium	ppm	ASTM D5185m	>158	3	1	4
Potassium	ppm	ASTM D5185m	>20	2	2	3
Fuel	%	ASTM D3524	>4.0	<1.0	<1.0	<1.0
Water	%	ASTM D6304	>0.1	NEG	NEG	NEG

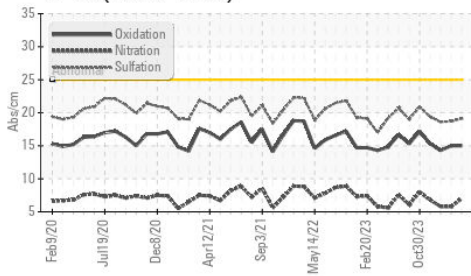
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.0	5.8	5.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	18.7	18.6

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.0	15.0	14.3
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	12.42	11.83	11.82

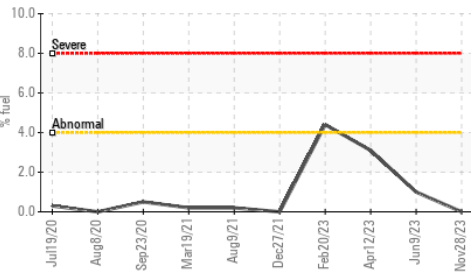


OIL ANALYSIS REPORT

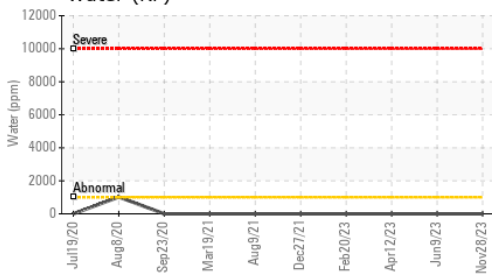
FT-IR (Direct Trend)



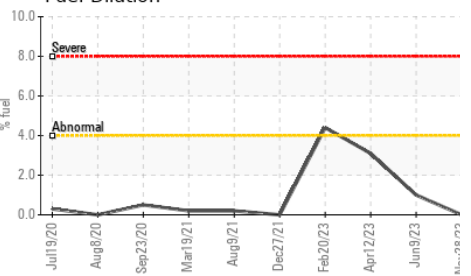
Fuel Dilution



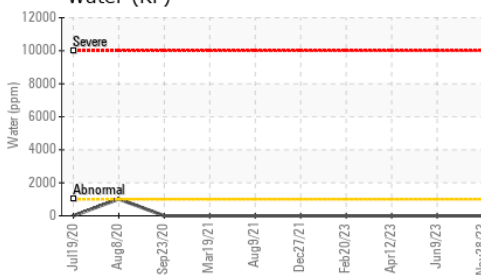
Water (KF)



Fuel Dilution



Water (KF)

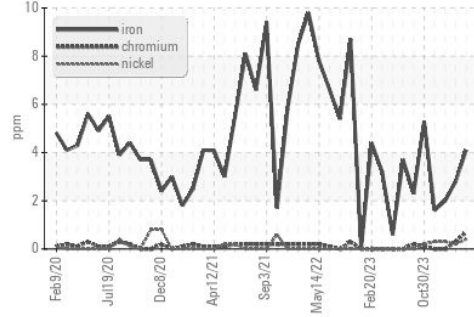


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

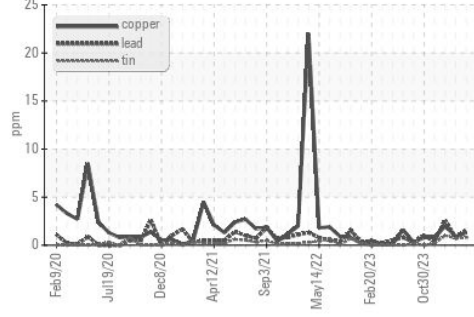
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.2	12.5

GRAPHS

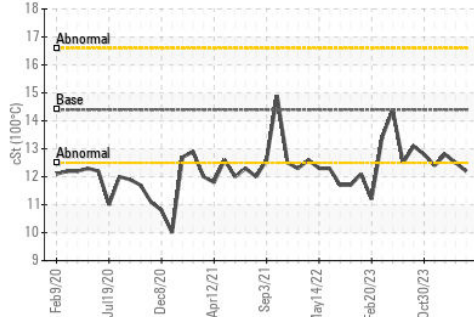
Ferrous Alloys



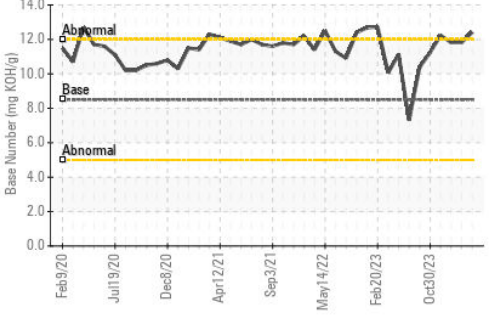
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0845802 **Received** : 16 May 2024
Lab Number : 06181554 **Tested** : 17 May 2024
Unique Number : 11032880 **Diagnosed** : 17 May 2024 - Jonathan Hester
Test Package : IND 2 (Additional Tests: FuelDilution, 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)