

OIL ANALYSIS REPORT

Area Kenova [Kenova] Oil - Port Genset

Port Genset Fluid **DIESEL ENGINE OIL SAE 15W40 (8 GAL)**

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: ADAM Fields)

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.



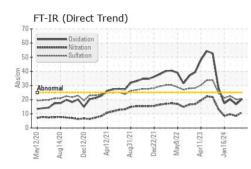
y2020 Aug2020 Dec2020 Apr2021 Aug2021 Dec3021 Mac/022 Aug2020

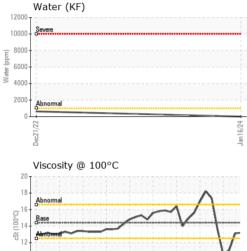
Sample Rating Trend

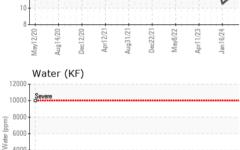
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0874912	WC0859749	WC0805211
Sample Date		Client Info		05 Jun 2024	10 Apr 2024	11 Mar 2024
Machine Age	hrs	Client Info		1997	1481	1000
Oil Age	hrs	Client Info		1000	482	1000
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINATIO	N	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	6	1	12
Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	<1	0
Aluminum	ppm	ASTM D5185m	>12	4	3	<1
Lead	ppm	ASTM D5185m	>17	2	0	2
Copper	ppm	ASTM D5185m	>70	5	2	22
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	113	174	190
Boron Barium	ppm ppm		250 10	113 <1		
		ASTM D5185m		-	174	190
Barium	ppm	ASTM D5185m ASTM D5185m	10	<1	174 0	190 0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	10	<1 126	174 0 119	190 0 203
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100	<1 126 <1	174 0 119 <1	190 0 203 0
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450	<1 126 <1 662	174 0 119 <1 628	190 0 203 0 791
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000	<1 126 <1 662 1586	174 0 119 <1 628 1498	190 0 203 0 791 1419
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150	<1 126 <1 662 1586 685	174 0 119 <1 628 1498 693	190 0 203 0 791 1419 698
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350	<1 126 <1 662 1586 685 855	174 0 119 <1 628 1498 693 787	190 0 203 0 791 1419 698 894
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	10 100 450 3000 1150 1350 4250 limit/base	<1 126 <1 662 1586 685 855 3007	174 0 119 <1 628 1498 693 787 3350	190 0 203 0 791 1419 698 894 3106
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	10 100 450 3000 1150 1350 4250 limit/base >25	<1 126 <1 662 1586 685 855 3007 current	174 0 119 <1 628 1498 693 787 3350 history1	190 0 203 0 791 1419 698 894 3106 history2
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 method ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25	<1 126 <1 662 1586 685 855 3007 current 5	174 0 119 <1 628 1498 693 787 3350 history1 4	190 0 203 0 791 1419 698 894 3106 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	<1 126 <1 662 1586 685 855 3007 current 5 3	174 0 119 <1 628 1498 693 787 3350 history1 4 2	190 0 203 0 791 1419 698 894 3106 history2 5 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	<1 126 <1 662 1586 685 855 3007 current 5 3 2	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1	190 0 203 0 791 1419 698 894 3106 history2 5 2 2 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >0.1	<1 126 <1 662 1586 685 855 3007 <u>current</u> 5 3 2 NEG	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1 NEG	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 1 NEG
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >0.1	<1 126 <1 662 1586 685 855 3007 current 5 3 2 NEG current	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1 8 NEG history1	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 1 NEG history2
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 D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >0.1	<1 126 <1 662 1586 685 855 3007 current 5 3 2 NEG current 0.1	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1 8 NEG history1 0.1	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 1 NEG history2 0.1
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 D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >0.1 limit/base	<1 126 <1 126 <1 662 1586 685 855 3007 current 5 3 2 NEG 0.1 11.1	174 0 119 <1 628 1498 693 787 3350 history1 4 2 2 1 NEG NEG history1 0.1 8.5	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 NEG NEG history2 0.1 9.7
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 D5185m	10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 >0.1 imit/base >20 >20 >0.1	<1 126 <1 662 1586 685 855 3007 current 5 3 2 NEG current 0.1 11.1 20.7	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1 NEG history1 0.1 8.5 20.1	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 1 NEG history2 0.1 9.7 22.5
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 D7844 *ASTM D7414	10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >0.1 limit/base >20 >30 limit/base >20	<1 126 <1 126 <1 662 1586 685 855 3007 current 5 3 2 NEG current 0.1 11.1 20.7	174 0 119 <1 628 1498 693 787 3350 history1 4 2 1 NEG history1 0.1 8.5 20.1 history1	190 0 203 0 791 1419 698 894 3106 history2 5 2 1 NEG history2 0.1 9.7 22.5



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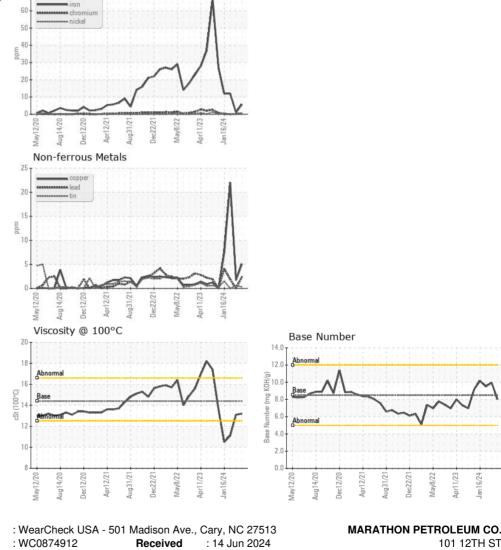
4000 200

Dec21/

NONE NONE NONE *Visual NONE White Metal scalar Yellow Metal *Visual NONE NONE NONE NONE scalar NONE Precipitate scalar *Visual NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE Debris *Visual NONE NONE NONE NONE scalar Sand/Dirt NONE NONE NONE NONE scalar *Visual scalar NORML NORML NORML NORML Appearance *Visual Odor *Visual NORML NORML NORML NORML scalar **Emulsified Water** scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG FLUID PROPERTIES Visc @ 100°C cSt ASTM D445 14.4 13.2 13.1 11.1

GRAPHS





Laboratory MARATHON PETROLEUM CO. Sample No. 101 12TH ST Lab Number : 06210381 Tested : 18 Jun 2024 CATLETTSBURG, KY US 41169 Unique Number : 11083245 Diagnosed : 18 Jun 2024 - Don Baldridge Test Package : IND 2 (Additional Tests: KF) Contact: CORY GUMBERT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. cagumbert@marathonpetroleum.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (606)585-3950 F: x:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: MARCAT [WUSCAR] 06210381 (Generated: 06/22/2024 19:36:09) Rev: 1

Submitted By: M/V KENOVA

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