

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Diesel Engine

FLEETLINE SUPERFLEET XHD 15W40 (3 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

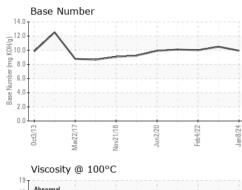
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

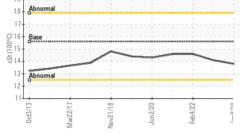
SAMPLE INFORMATION method limit/base current history1 Phistory2 Sample Date Client Info 08 Jan 2024 31 Mar 2023 04 Feb 2022 Machine Age hrs Client Info 260 331 264 Oil Changed Client Info 260 331 264 Oil Changed Client Info 260 331 264 Oil Changed Client Info Changed Changed Changed Sample Status Info 1mit/base current history1 history2 Fuel WC Method >0 <1.0 <1.0 <1.0 Water WC Method >0 <1 1 1 Nickel ppm ASTM 0568m >20 <1 1 1 Nickel ppm ASTM 0568m >20 0 <1 1 Silver ppm ASTM 0568m >20 3 3 2 Itanium ppm ASTM 0568m >20 <			0012010	Mai2017 1002010	OBNEGEO PODEGEE	OUNLOL I	
Sample Date Client Info 06 Jan 2024 31 Mar 2023 04 Feb 2022 Machine Age hrs Client Info 3600 3330 2999 Oil Age hrs Client Info 260 331 264 Oil Changed Client Info Changed Chang	SAMPLE INFORM	MATION	method				history2
Machine Age hrs Client Info 3600 3330 2999 Oil Ghanged Nis Client Info 260 331 264 Oil Ghanged Client Info 260 331 264 Oil Ghanged Client Info 260 331 264 Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Ottomium ppm ASTM05165m >150 5 7 7 Ortromium ppm ASTM05165m >20 0 0 <1 Nickel ppm ASTM05165m >20 0 0 <1 Silver ppm ASTM05165m >30 <1 <1 <1 Titanium ppm ASTM05165m 30 <td< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>PCA0110118</th><th>WC0569901</th><th>WCDB2123</th></td<>	Sample Number		Client Info		PCA0110118	WC0569901	WCDB2123
Oil Age Ins Client Info 260 331 264 Oil Changed Client Info Changed Changed<	Sample Date		Client Info		08 Jan 2024	31 Mar 2023	04 Feb 2022
Oil Age Ins Client Info 260 331 264 Oil Changed Client Info Changed Changed<	Machine Age	hrs	Client Info		3600	3330	2999
Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL CONTAMINATION method linit/base current history1 history2 Fuel WC Method >5 <1.0	0	hrs	Client Info		260	331	264
Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 1 1 1 Nickel ppm ASTM D5185m >20 0 0 0 Aluminum ppm ASTM D5185m >20 3 3 2 1 Copper ppm ASTM D5185m >20 3 3 2 1	-		Client Info		Changed	Changed	Changed
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1 1 Nickel ppm ASTM D5185m >20 0 <1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >20 0 <1 1 Aluminum ppm ASTM D5185m >30 <1 <1 <1 <1 Antimony ppm ASTM D5185m 0 0 0 0 Antimony ppm ASTM D5185m 0 0 0 0	-				-	NORMAL	NORMAL
Fuel WC Method >5 <1.0	CONTAMINAT		method	limit/base	current	historv1	history2
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >20 0 0 <1 Silver ppm ASTM D5185m >20 0 0 <1 Copper ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >20 3 0 <1 Copper ppm ASTM D5185m >30 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Manganees ppm ASTM D5185m 566 622 63 <							
Głycoł WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >150 5 7 7 Chromium ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 Nickel ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >30 <1 <1 <1 Tin ppm ASTM D5185m 10 0 <1 <1 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Notadium ppm ASTM D5185m 0 0 0 0 Van							
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >40 <1 0 <1 Tin ppm ASTM D5185m >30 <1 <1 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Addium ppm ASTM D5185m 0 0 0 0 Addium ppm ASTM D5185m 0 0 0 0				>0.2			
Iron ppm ASTM D5185m >150 5 7 7 Chromium ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >2 0 0 <1 Titanium ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >30 <1 <1 <1 Antimony ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 10 14 16 Barium ppm ASTM D5185m 56 62 63 Magnesium ppm ASTM D5185m 970 1014 Calcium ppm <th>-</th> <th></th> <th>WC Welliod</th> <th></th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	-		WC Welliod		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 0 0 <1	Iron	ppm	ASTM D5185m	>150	5	7	7
Titanium ppm ASTM D5185m >2 0 0 <1	Chromium	ppm	ASTM D5185m	>20	<1	1	1
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >30 <1 0 <1 Copper ppm ASTM D5185m >30 <1 <1 <1 Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 14 16 Barium ppm ASTM D5185m 936 970 1014 Galaium ppm ASTM D5185m 936 970 1014 Magnesiu	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum ppm ASTM D5185m >20 3 3 2 Lead ppm ASTM D5185m >40 <1 0 <1 Copper ppm ASTM D5185m >30 <1 <1 <1 Tin ppm ASTM D5185m >30 <1 <1 <1 Antimony ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDTIVES method imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnaese ppm ASTM D5185m 56 62 63 Marganese ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 936 970 1014 Calc	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Lead ppm ASTM D5185m >40 <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >30 <1	Aluminum	ppm	ASTM D5185m	>20	3	3	2
Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	<1	0	<1
Antimony ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>30	<1	<1	<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 10 14 16 Barium ppm ASTM D5185m 0 0 0 Magnaese ppm ASTM D5185m 56 62 63 Magnaese ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 930 1076 1160 Phosphorus ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1	Tin	ppm	ASTM D5185m	>15	<1	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 14 16 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 56 62 63 Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 936 970 1014 Sulfur ppm ASTM D5185m 93024 3687 2874 Sulfur ppm ASTM D5185m 20 2 6 8 Sodium ppm ASTM D5185m 20 2 1 </th <th>Antimony</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th></th> <th></th> <th><1</th>	Antimony	ppm	ASTM D5185m				<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 14 16 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 56 62 63 Manganese ppm ASTM D5185m 56 62 63 Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 936 1076 1160 Phosphorus ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 10 14 16 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 56 62 63 Manganese ppm ASTM D5185m 56 62 63 Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 Soot % % *ASTM D7624 >20	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 56 62 63 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % <td< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 56 62 63 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 Soot % % *ASTM D7844 <th>Boron</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>10</th> <th>14</th> <th>16</th>	Boron	ppm	ASTM D5185m		10	14	16
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 936 970 1014 Calcium ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 <	Molybdenum	ppm	ASTM D5185m		56	62	63
Calcium ppm ASTM D5185m 946 1076 1160 Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 NFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2	Manganese	ppm	ASTM D5185m		<1	<1	<1
Phosphorus ppm ASTM D5185m 1000 1019 1080 Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.tmm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1	Magnesium	ppm	ASTM D5185m		936	970	1014
Zinc ppm ASTM D5185m 1219 1254 1318 Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7	Calcium	ppm	ASTM D5185m		946	1076	1160
Sulfur ppm ASTM D5185m 3024 3687 2874 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1	Phosphorus	ppm	ASTM D5185m		1000	1019	1080
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 2 <1 2 Potassium ppm ASTM D5185m >20 2 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg K0H/g ASTM	Zinc	ppm	ASTM D5185m		1219	1254	1318
Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m < <1 2 2 Potassium ppm ASTM D5185m >20 2 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg K0H/g ASTM D2896 9.93 10.49 10.0	Sulfur	ppm	ASTM D5185m		3024	3687	2874
Sodium ppm ASTM D5185m <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 <1	Silicon	ppm	ASTM D5185m	>25	5	6	8
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0	Sodium	ppm	ASTM D5185m		<1	2	2
Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0	Potassium	ppm	ASTM D5185m	>20	2	<1	2
Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 6.1 6.3 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0	Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 17.5 17.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0		Abs/cm		>20		6.3	6.6
Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0							
Oxidation Abs/.1mm *ASTM D7414 >25 13.7 14.0 14.9 Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0	FLUID DEGRAD	DAT <u>ION</u>	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.93 10.49 10.0							
				200			
		ing coning					

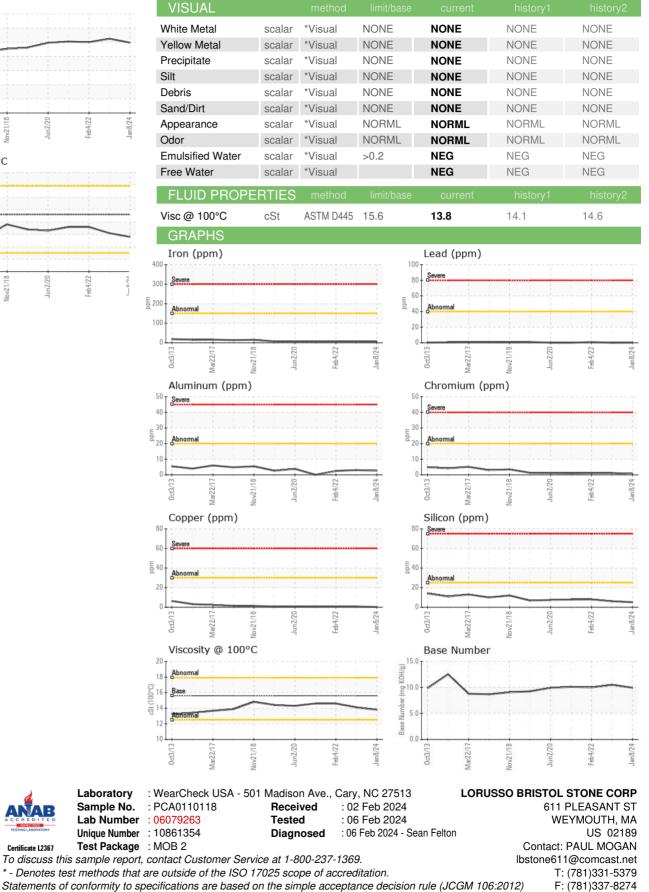
Contact/Location: PAUL MOGAN - LORWEYMA



OIL ANALYSIS REPORT







Certificate L2367

Laboratory

Contact/Location: PAUL MOGAN - LORWEYMA