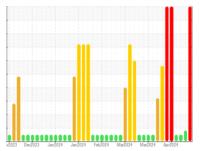


OIL ANALYSIS REPORT





Sample Rating Trend



DIAGNOSIS

▲ Recommendation

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

▲ Wear

The tin level is severe.

Contamination

Elemental level of silicon (Si) above normal.

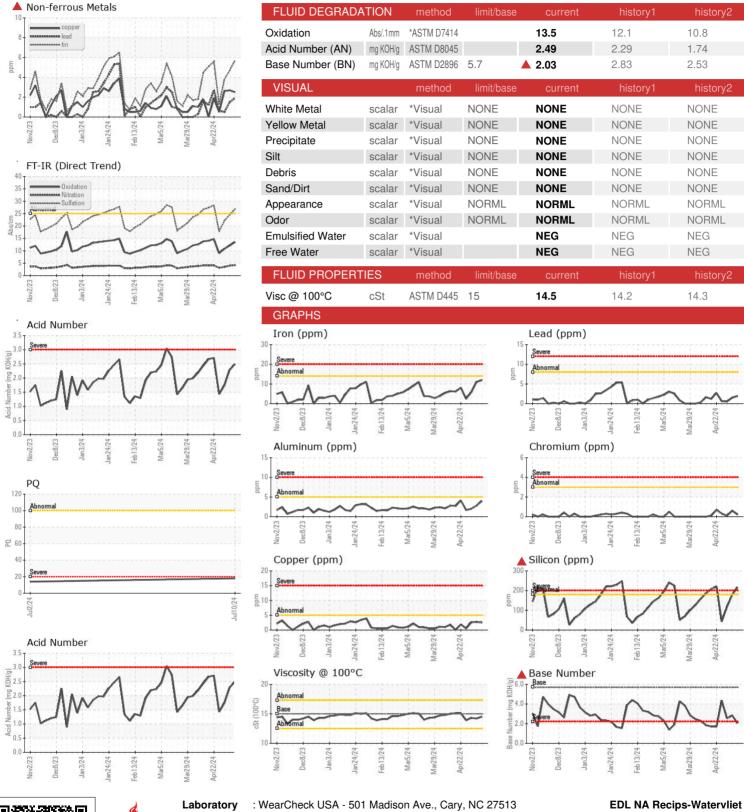
▲ Fluid Condition

The BN level is low. The AN level is acceptable for this fluid.

SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info WC0839352 WC0839329 WC0839329 Sample Date Client Info 117483 117297 115972 Oil Age hrs Client Info 690 591 302 Oil Changed Client Info Changed Not Changd Not Changd Sample Status SEVERE ABNORMAL NORMAL CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D6186m 14 12 11 6 Chromium ppm ASTM D6185m 3 <1 <1 <1 Nickel ppm ASTM D6185m 0		_,					
Sample Date Client Info 10 Jul 2024 02 Jul 2024 06 May 2024 Machine Age hrs Client Info 117483 117297 115972 Oil Age hrs Client Info 690 591 115972 Oil Changed Client Info Changed Not Changd Not Changd Sample Status Changed Not Changd Not Changd Severe ABNORMAL NORMAL CONTAMINATION method Ilmit/base current history1 history2 Fuel WC Method NEG NEG NEG NEG Water WC Method NEG NEG NEG Mycar NEG NEG NEG NEG WEAR METALS method Ilmit/base current history2 history2 PQ ASTM D5185m >14 12 11 6 Chromium pm ASTM D5185m 0 <1 0 <1 0 <1 0 <1 0 <	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 117483 117297 115972 Oil Age hrs Client Info 690 591 302 Oil Changed Client Info Changed Not Changed Not Changed Sample Status SEVERE ABNORMAL Not Changed CONTAMINATION method Ilmit/base current history1 history2 Fuel WC Method A-0 <1.0	Sample Number		Client Info		WC0839352	WC0839332	WC0839329
Oil Age hrs Client Info 690 591 302 Oil Changed Client Info Changed Not Changd Not Changd	Sample Date		Client Info		10 Jul 2024	02 Jul 2024	06 May 2024
Oil Changed Sample Status Client Info Changed SEVERE Not Changd ABNORMAL Not Changd NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >4.0 <1.0	Machine Age	hrs	Client Info		117483	117297	115972
SEVERE ABNORMAL NORMAL	Oil Age	hrs	Client Info		690	591	302
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >4.0 <1.0	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Fuel	Sample Status				SEVERE	ABNORMAL	NORMAL
Water Glycol WC Method WC Method NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D8184 18 14 Iron ppm ASTM D5185m >14 12 11 6 Chromium ppm ASTM D5185m 3 <1 <1 <1 Nickel ppm ASTM D5185m 0 <1 0 <1 Siliver ppm ASTM D5185m 0 <1 0 <1 0 Aluminum ppm ASTM D5185m >5 4 3 2 <1 0 Aluminum ppm ASTM D5185m >5 4 3 2 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 <	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 PQ ASTM D8184 18 14 Iron ppm ASTM D5185m >14 12 11 6 Chromium ppm ASTM D5185m >3 <1	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 PQ ASTM D8184 18 14	Water		WC Method		NEG	NEG	NEG
PQ ASTM D8184 18 14	Glycol		WC Method		NEG	NEG	NEG
Iron	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >3 <1 <1 <1 Nickel ppm ASTM D5185m 0 <1 0 Titanium ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m 0 <1 0 Aluminum ppm ASTM D5185m >5 4 3 2 Lead ppm ASTM D5185m >8 2 2 <1 0 Copper ppm ASTM D5185m >5 2 3 3 3 3 3 3 3 3 4 4 3 2 2 <1 0 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0	PQ		ASTM D8184		18	14	
Nickel ppm ASTM D5185m 0 <1 0 Titanium ppm ASTM D5185m 0 <1	Iron	ppm	ASTM D5185m	>14	12	11	6
Titanium ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m 0 <1 0 Aluminum ppm ASTM D5185m >5 4 3 2 Lead ppm ASTM D5185m >8 2 2 <1 Copper ppm ASTM D5185m >5 2 3 3 Tin ppm ASTM D5185m >3 4 6 5 4 Vanadium ppm ASTM D5185m 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 Barium ppm ASTM D5185m 0 0 <1 <1 Manganesium pp	Chromium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver ppm ASTM D5185m 0 <1 0 Aluminum ppm ASTM D5185m >5 4 3 2 Lead ppm ASTM D5185m >8 2 2 <1 Copper ppm ASTM D5185m >5 2 3 3 Tin ppm ASTM D5185m >3 6 4 5 4 Vanadium ppm ASTM D5185m 3 6 5 4 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 <1 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 0 <1 <1 <1 <1 <tr< td=""><td>Nickel</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>0</th><td><1</td><td>0</td></tr<>	Nickel	ppm	ASTM D5185m		0	<1	0
Aluminum ppm ASTM D5185m >5 4 3 2 Lead ppm ASTM D5185m >8 2 2 <1 Copper ppm ASTM D5185m >5 2 3 3 Tin ppm ASTM D5185m >3 ▲ 6 ▲ 5 4 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1 1 Molybdenum ppm ASTM D5185m 8 9 4 Manganese ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m <th< td=""><td>Titanium</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>0</th><td><1</td><td>0</td></th<>	Titanium	ppm	ASTM D5185m		0	<1	0
Lead ppm ASTM D5185m >8 2 2 <1 Copper ppm ASTM D5185m >5 2 3 3 Tin ppm ASTM D5185m >3 ▲ 6 ▲ 5 4 Vanadium ppm ASTM D5185m 0 <1	Silver	ppm	ASTM D5185m		0	<1	0
Copper ppm ASTM D5185m >5 2 3 3 Tin ppm ASTM D5185m >3 ▲ 6 ▲ 5 4 Vanadium ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>5	4	3	2
Tin ppm ASTM D5185m >3 ▲ 6 ▲ 5 4 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1 Molybdenum ppm ASTM D5185m 8 9 4 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m >180 216 179	Lead	ppm	ASTM D5185m	>8	2	2	<1
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1 Molybdenum ppm ASTM D5185m 0 <1 <1 Molybdenum ppm ASTM D5185m 0 <1 <1 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m >180 216 179 118<	Copper	ppm	ASTM D5185m	>5	2	3	3
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>3	6	<u>^</u> 5	4
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 28 39 51 Barium ppm ASTM D5185m 0 0 <1 Molybdenum ppm ASTM D5185m 8 9 4 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 2 0 INFRA-RED method limit/base current	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 8 9 4 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 216 179 118 Sodium ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 2 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624	Boron	ppm	ASTM D5185m		28	39	51
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 216 179 118 Sodium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m		0	0	<1
Magnesium ppm ASTM D5185m 58 60 32 Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 216 179 118 Sodium ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 2 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	Molybdenum	ppm	ASTM D5185m		8	9	4
Calcium ppm ASTM D5185m 1746 1674 1612 Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 216 179 118 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus ppm ASTM D5185m 421 407 383 Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 216 179 118 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m		58	60	32
Zinc ppm ASTM D5185m 651 635 552 Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 ▲ 216 179 118 Sodium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m		1746	1674	1612
Sulfur ppm ASTM D5185m 6231 4850 5301 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 ▲ 216 179 118 Sodium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m		421	407	383
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >180 ▲ 216 179 118 Sodium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m		651	635	552
Silicon ppm ASTM D5185m >180 ▲ 216 179 118 Sodium ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	Sulfur	ppm	ASTM D5185m		6231	4850	5301
Sodium ppm ASTM D5185m >20 <1	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	Silicon	ppm	ASTM D5185m	>180	216	179	118
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	Sodium	ppm	ASTM D5185m	>20	<1	0	0
Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	Potassium	ppm	ASTM D5185m	>20	<1	2	0
Nitration Abs/cm *ASTM D7624 4.2 4.0 3.5	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	*ASTM D7844		0.1	0.1	0
Sulfation Abs/.1mm *ASTM D7415 26.8 24.5 22.1	Nitration	Abs/cm	*ASTM D7624		4.2	4.0	3.5
	Sulfation	Abs/.1mm	*ASTM D7415		26.8	24.5	22.1



OIL ANALYSIS REPORT







Certificate 12367

Sample No.

Unique Number : 11123952

: WC0839352 Lab Number : 06235118

Test Package : MOB 2 (Additional Tests: PQ)

Received Tested Diagnosed

: 12 Jul 2024 : 15 Jul 2024 : 15 Jul 2024 - Sean Felton

Watervliet Powerstation, 3563 Hennessey Road Watervliet, MI

US 49098 Contact: Scott Eastman scott.eastman@edlenergy.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:

F: