

## **OIL ANALYSIS REPORT**



#### 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 Rating Trend



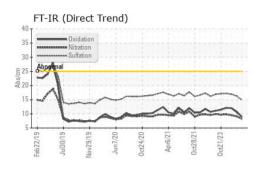
NORMAL

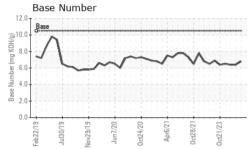
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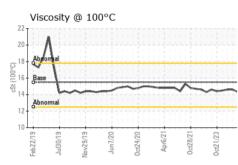
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		MW0060733	MW0060735	MW0060726
Sample Date		Client Info		16 Jun 2024	08 Feb 2024	08 Jan 2024
Machine Age	hrs	Client Info		13982	13834	13556
Oil Age	hrs	Client Info		166	292	300
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method	,	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	4	4	6
Chromium	ppm	ASTM D5185m		0	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	_	0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>12	2	2	2
Lead	ppm	ASTM D5185m	>17	<1	<1	<1
Copper	ppm	ASTM D5185m		1	0	0
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 48	history1 35	history2 40
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	48	35	40
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	48 0	35 0	40 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	48 0 46	35 0 47	40 2 48
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	48 0 46 <1	35 0 47 <1	40 2 48 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	48 0 46 <1 21	35 0 47 <1 13	40 2 48 0 6
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	48 0 46 <1 21 3610	35 0 47 <1 13 3330	40 2 48 0 6 3211
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	48 0 46 <1 21 3610 10	35 0 47 <1 13 3330 4	40 2 48 0 6 3211 39
Boron 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	limit/base	48 0 46 <1 21 3610 10 12	35 0 47 <1 13 3330 4 3	40 2 48 0 6 3211 39 0
Boron 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		48 0 46 <1 21 3610 10 12 2607	35 0 47 <1 13 3330 4 3 1967	40 2 48 0 6 3211 39 0 2146
Boron 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	limit/base	48 0 46 <1 21 3610 10 12 2607 current	35 0 47 <1 13 3330 4 3 1967 history1	40 2 48 0 6 3211 39 0 2146 history2
Boron 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 <b>method</b> ASTM D5185m	limit/base	48 0 46 <1 21 3610 10 12 2607 current 3	35 0 47 <1 13 3330 4 3 1967 history1 2	40 2 48 0 6 3211 39 0 2146 history2 2
Boron 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 <b>method</b> ASTM D5185m ASTM D5185m	limit/base	48 0 46 <1 21 3610 10 12 2607 <u>current</u> 3 4	35 0 47 <1 13 3330 4 3 1967 history1 2 0	40 2 48 0 6 3211 39 0 2146 history2 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	48 0 46 <1 21 3610 10 12 2607 <u>current</u> 3 4 5	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0	40 2 48 0 6 3211 39 0 2146 history2 2 0 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	48 0 46 <1 21 3610 10 12 2607 current 3 4 5 5	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0 0 0	40 2 48 0 6 3211 39 0 2146 history2 2 0 1 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	48 0 46 <1 21 3610 10 12 2607 current 3 4 5 current 0.2	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0 0 bistory1 0.4	40 2 48 0 6 3211 39 0 2146 history2 2 0 1 1 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	48 0 46 <1 21 3610 10 12 2607 <i>current</i> 3 4 5 <i>current</i> 0.2 8.2	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0 0 history1 0.4 9.1	40 2 48 0 6 3211 39 0 2146 history2 2 0 1 history2 0.4 9.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >20 20	48 0 46 <1 21 3610 10 12 2607 <u>current</u> 3 4 5 <u>current</u> 0.2 8.2 14.8	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0 0 <b>history1</b> 0.4 9.1 16.3	40 2 48 0 6 3211 39 0 2146 history2 2 0 1 history2 0.4 9.5 16.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	limit/base >25 >20 limit/base >20 >30 limit/base	48 0 46 <1 21 3610 10 12 2607 current 3 4 5 current 0.2 8.2 14.8 current	35 0 47 <1 13 3330 4 3 1967 history1 2 0 0 0 history1 0.4 9.1 16.3 history1	40 2 48 0 6 3211 39 0 2146 history2 2 0 1 history2 0.4 9.5 16.9 history2

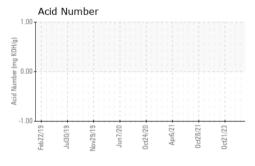


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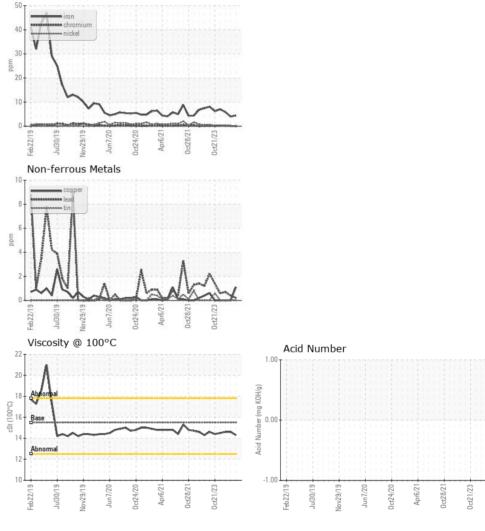




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	14.3	14.6	14.6

GRAPHS





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 AMERICAN RIVER TRANSPORTATION CO. : MW0060733 Sample No. Received : 17 Jun 2024 P.O. BOX 2889 Lab Number : 06211341 Tested : 19 Jun 2024 ST. LOUIS, MO Unique Number : 11084205 Diagnosed : 19 Jun 2024 - Don Baldridge US 63111 Test Package : MAR 2 (Additional Tests: TAN Man) Contact: BRIAN GRIEWING Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. brian.griewing@adm.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (314)481-5278

Report Id: AMESAI [WUSCAR] 06211341 (Generated: 06/21/2024 18:34:39) Rev: 1

Contact/Location: BRIAN GRIEWING - AMESAI

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