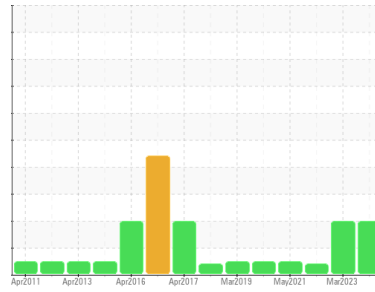




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area  
**[IVY CITY]**  
 Machine Id  
**ALSTOM 3217**  
 Component  
**Front Hydraulic System**  
 Fluid  
**ESSO UNIVIS N 32 (55 GAL)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is a high amount of particulates present in the oil.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0798926</b>	WC0649673	WC0643790
Sample Date	Client Info		<b>26 Mar 2024</b>	26 Mar 2023	03 Apr 2022
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>20	<b>1</b>	<1	1
Chromium	ppm	ASTM D5185m	>10	<b>&lt;1</b>	1	1
Nickel	ppm	ASTM D5185m	>10	<b>11</b>	18	12
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>2</b>	0	<1
Lead	ppm	ASTM D5185m	>10	<b>4</b>	8	6
Copper	ppm	ASTM D5185m	>75	<b>2</b>	3	3
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	<1
Antimony	ppm	ASTM D5185m		<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	.1	<b>0</b>	0	0
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	.3	<b>0</b>	0	0
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185m	0	<b>&lt;1</b>	0	0
Calcium	ppm	ASTM D5185m	74	<b>58</b>	54	57
Phosphorus	ppm	ASTM D5185m	266	<b>372</b>	371	393
Zinc	ppm	ASTM D5185m	338	<b>472</b>	475	443
Sulfur	ppm	ASTM D5185m		<b>2223</b>	2569	2174

## CONTAMINANTS

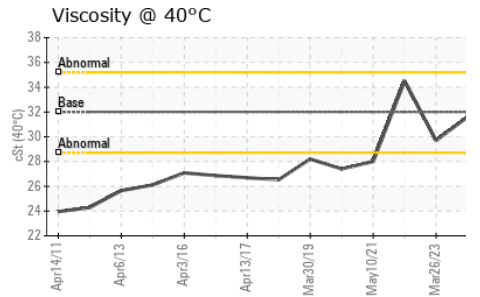
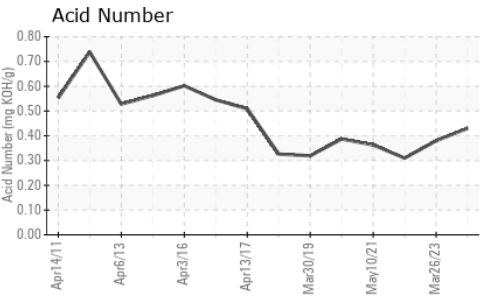
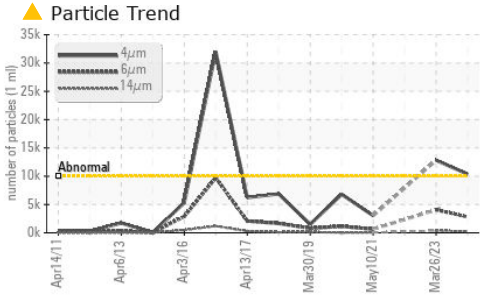
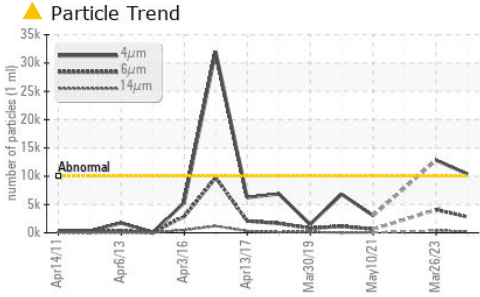
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	2
Sodium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	0

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	<b>▲ 10371</b>	● 12822	---
Particles >6µm	ASTM D7647	>1300	<b>▲ 2807</b>	▲ 4064	---
Particles >14µm	ASTM D7647	>160	<b>▲ 259</b>	▲ 355	---
Particles >21µm	ASTM D7647	>40	<b>▲ 62</b>	● 79	---
Particles >38µm	ASTM D7647	>10	<b>4</b>	7	---
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	---
Oil Cleanliness	ISO 4406 (c)	>20/17/14	<b>▲ 21/19/15</b>	▲ 21/19/16	---



# OIL ANALYSIS REPORT

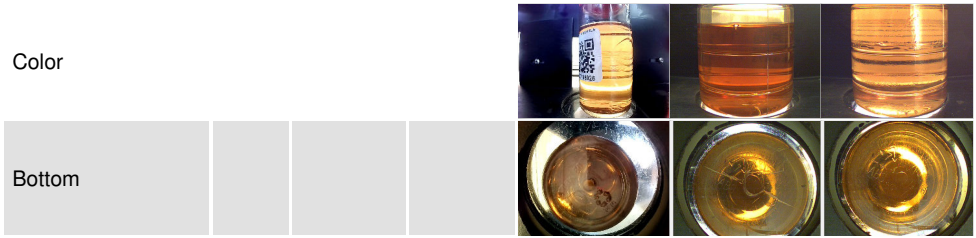


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.43</b>	0.38	0.31

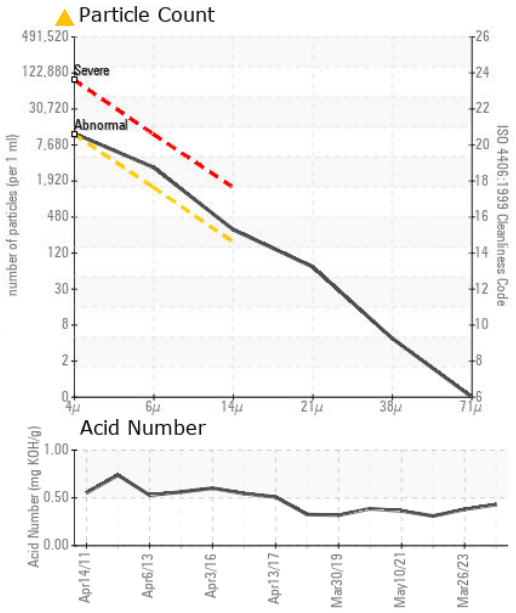
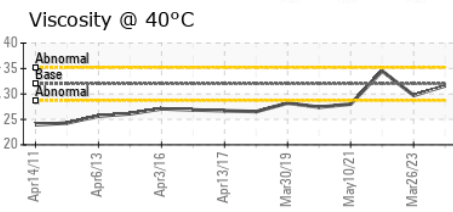
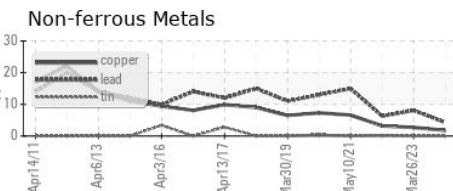
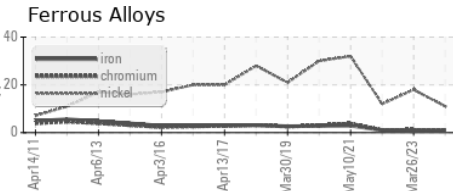
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	▲ MODER
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	<b>31.6</b>	29.7	34.5

### SAMPLE IMAGES



### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0798926  
**Lab Number** : 06137353  
**Unique Number** : 10956818  
**Test Package** : MOB 2  
**Received** : 03 Apr 2024  
**Tested** : 04 Apr 2024  
**Diagnosed** : 05 Apr 2024 - Jonathan Hester

**AMTRAK**  
 1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR  
 WASHINGTON, DC  
 US 20018  
 Contact: MICHAEL PORTER  
 michael.porter@amtrak.com  
 T: (202)870-1399  
 F:

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)