



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area  
**YARD FERROUS**  
Machine Id  
**SENNEBOGEN 830M C196**  
Component  
**Diesel Engine**  
Fluid  
**SHELL 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0916582</b>	WC0902263	WC0870245
Sample Date		Client Info		<b>07 Jun 2024</b>	08 Mar 2024	19 Jan 2024
Machine Age	hrs	Client Info		<b>5865</b>	5538	5305
Oil Age	hrs	Client Info		<b>327</b>	233	247
Filter Age	hrs	Client Info		<b>327</b>	233	247
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>7</b>	9	4
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>74</b>	95	61
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>1</b>	2	<1
Lead	ppm	ASTM D5185m	>40	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	1	0
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

There is no indication of any contamination in the oil.

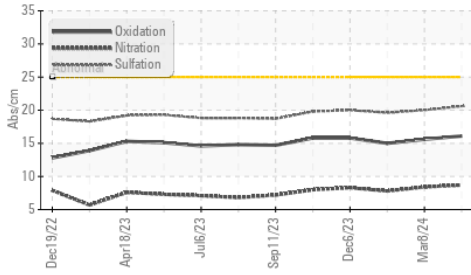
Silicon	ppm	ASTM D5185m	>25	<b>4</b>	7	4
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	7	1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.7</b>	8.4	7.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.6</b>	20.0	19.6
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
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	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

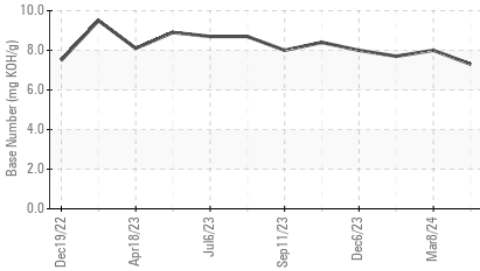
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>150	<b>2</b>	3	1
Boron	ppm	ASTM D5185m		<b>93</b>	148	92
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>10</b>	5	16
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>487</b>	438	536
Calcium	ppm	ASTM D5185m		<b>1638</b>	1785	1391
Phosphorus	ppm	ASTM D5185m		<b>990</b>	954	987
Zinc	ppm	ASTM D5185m		<b>1211</b>	1223	1173
Sulfur	ppm	ASTM D5185m		<b>4094</b>	3996	3370
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.1</b>	15.6	15.0
Base Number (BN)	mg KOH/g	ASTM D2896		<b>7.3</b>	8.0	7.7
Visc @ 100°C	cSt	ASTM D445		<b>13.6</b>	13.9	13.7

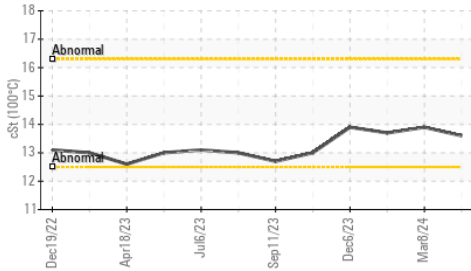
**FT-IR (Direct Trend)**



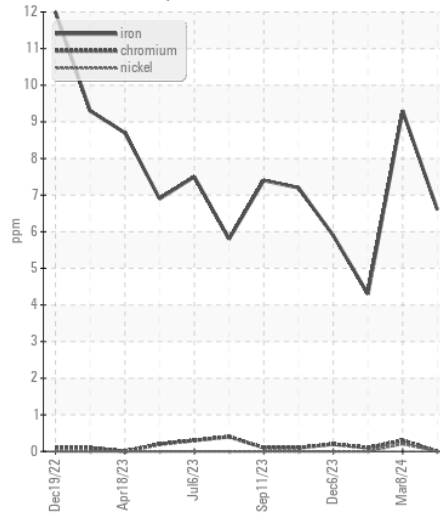
**Base Number**



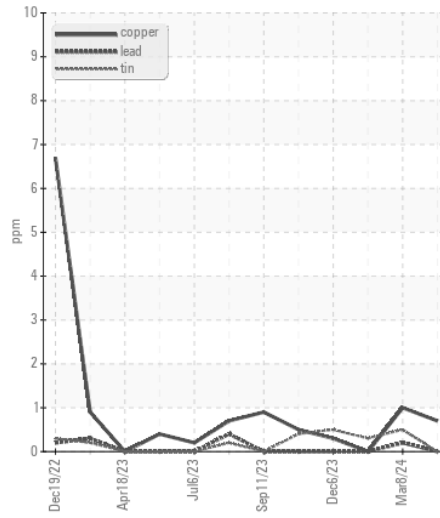
**Viscosity @ 100°C**



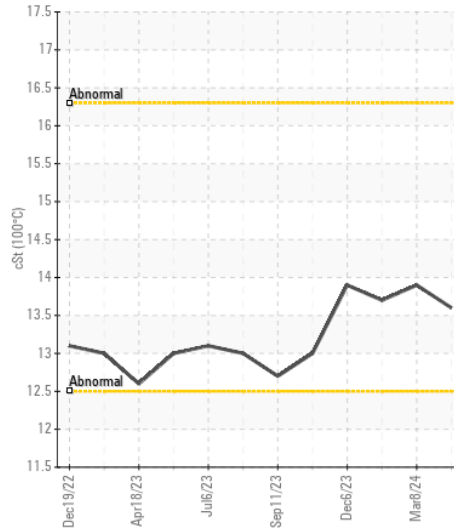
**Ferrous Alloys**



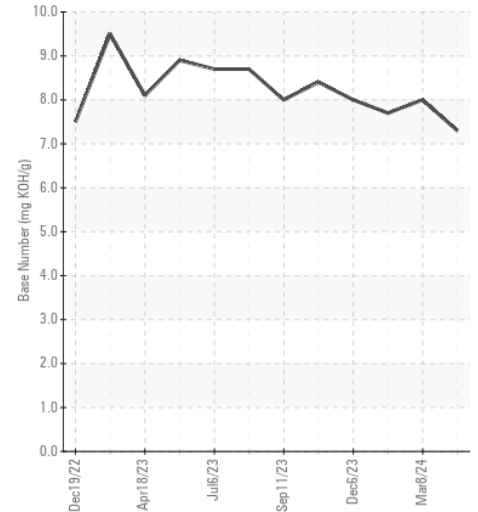
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0916582 **Received** : 26 Jun 2024  
**Lab Number** : 06220661 **Tested** : 27 Jun 2024  
**Unique Number** : 11098858 **Diagnosed** : 27 Jun 2024 - Wes Davis  
**Test Package** : CONST ( Additional Tests: TBN )

**METRO METALS NORTHWEST INC**  
 2202 EAST RIVER ST  
 TACOMA, WA  
 US 98421  
 Contact: MICHELE MARTINEZ  
 mmartinez@metrometalswa.com  
 T: (800)562-8464  
 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)