



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

Area  
**BRIAN RAFFERTY**  
Machine Id  
[BRIAN RAFFERTY] 001 566616-1  
Component  
Port Main Engine  
Fluid  
CHEVRON DELO 710 LE (300 GAL)

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0062795</b>	MW0062803	MW0062786
Sample Date		Client Info		<b>01 May 2024</b>	01 Apr 2024	01 Feb 2024
Machine Age	hrs	Client Info		<b>23689</b>	22945	21481
Oil Age	hrs	Client Info		<b>23689</b>	22945	21481
Filter Age	hrs	Client Info		<b>351</b>	22945	0
Oil Changed		Client Info		<b>N/A</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Changed</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>23</b>	17	29
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	1	2
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>18	<b>9</b>	8	11
Copper	ppm	ASTM D5185m	>80	<b>28</b>	42	29
Tin	ppm	ASTM D5185m	>14	<b>8</b>	6	8
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<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.

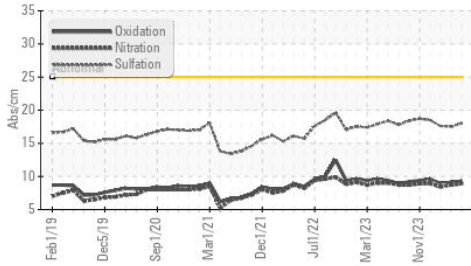
Silicon	ppm	ASTM D5185m	>20	<b>7</b>	6	11
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	1	3
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.6</b>	0.8	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.9</b>	8.7	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.0</b>	17.5	17.6
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	>0.1	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

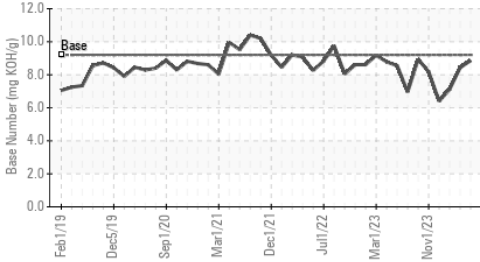
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>44</b>	4	67
Boron	ppm	ASTM D5185m		<b>53</b>	40	48
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>51</b>	48	52
Manganese	ppm	ASTM D5185m		<b>3</b>	2	2
Magnesium	ppm	ASTM D5185m		<b>31</b>	14	18
Calcium	ppm	ASTM D5185m		<b>3549</b>	3387	3397
Phosphorus	ppm	ASTM D5185m		<b>21</b>	0	5
Zinc	ppm	ASTM D5185m	10	<b>28</b>	12	6
Sulfur	ppm	ASTM D5185m		<b>2704</b>	2166	2429
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>9.3</b>	9.1	8.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	<b>8.86</b>	8.43	7.12
Visc @ 100°C	cSt	ASTM D445	15.5	<b>14.5</b>	14.5	14.2

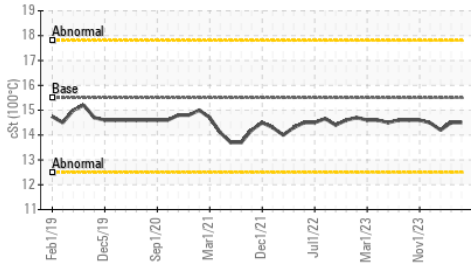
**FT-IR (Direct Trend)**



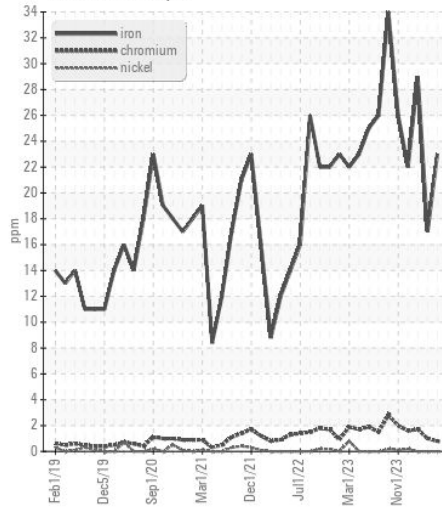
**Base Number**



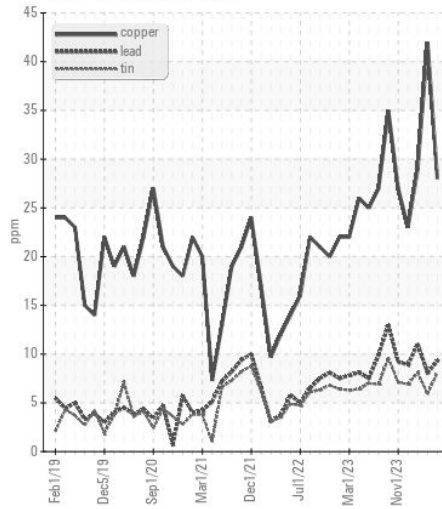
**Viscosity @ 100°C**



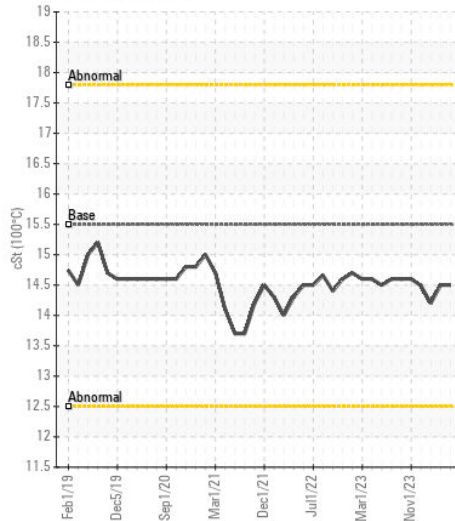
**Ferrous Alloys**



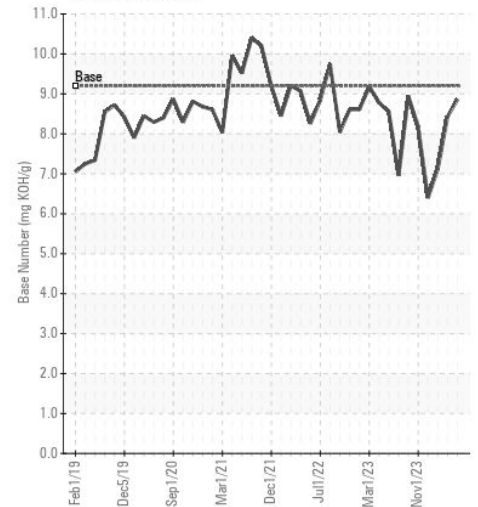
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : MW0062795

**Lab Number** : 06176235

**Unique Number** : 11022288

**Test Package** : MAR 2

**Received** : 10 May 2024

**Tested** : 13 May 2024

**Diagnosed** : 13 May 2024 - Wes Davis

**INGRAM BARGE**

900 S 3RD ST

PADUCAH, KY

US 42003

Contact: RANDAL KEEN

randal.keen@ingrambargo.com

T:

F: (615)695-3697

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)