



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

WILLARD HAMMOND

Machine Id

[WILLARD HAMMOND] 001 587215-1

Component

Port Main Engine

Fluid

CHEVRON DELO 400 MULTIGRADE 15W40 (36 GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0064386	MW0058396	MW0051345
Sample Date		Client Info		01 Jan 2024	29 Nov 2023	02 Oct 2023
Machine Age	hrs	Client Info		10902	10134	8749
Oil Age	hrs	Client Info		546	3056	1705
Filter Age	hrs	Client Info		546	1550	89
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		N/A	Not Changd	N/A
Sample Status				ABNORMAL	SEVERE	ABNORMAL

WEAR

The lead level has decreased, but is still abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	9	23	12
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>3	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	3	2
Lead	ppm	ASTM D5185m	>18	▲ 27	● 86	8
Copper	ppm	ASTM D5185m	>80	▲ 37	▲ 119	▲ 87
Tin	ppm	ASTM D5185m	>14	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

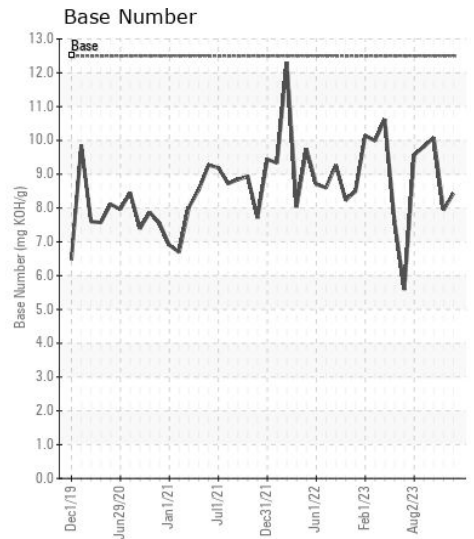
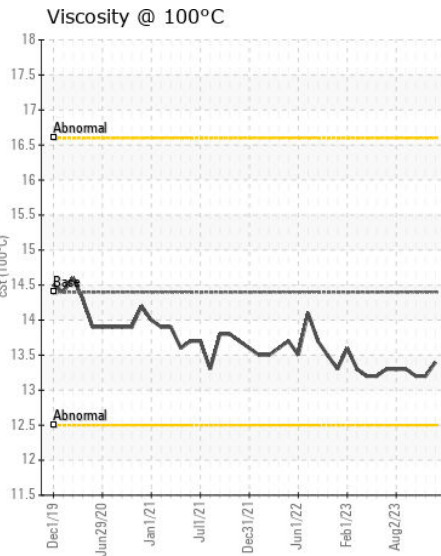
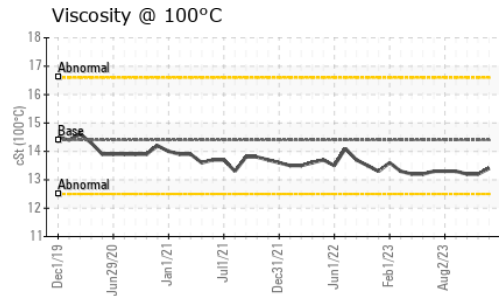
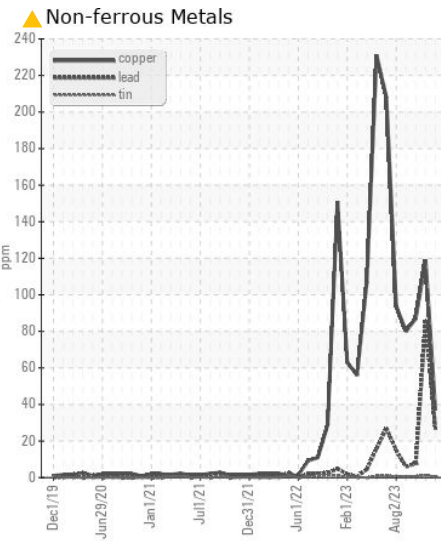
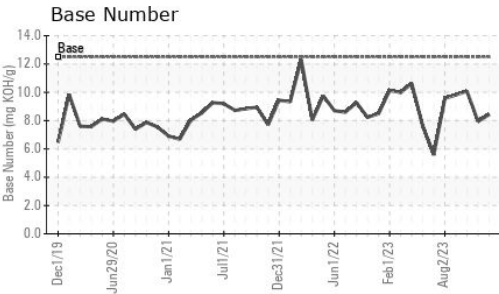
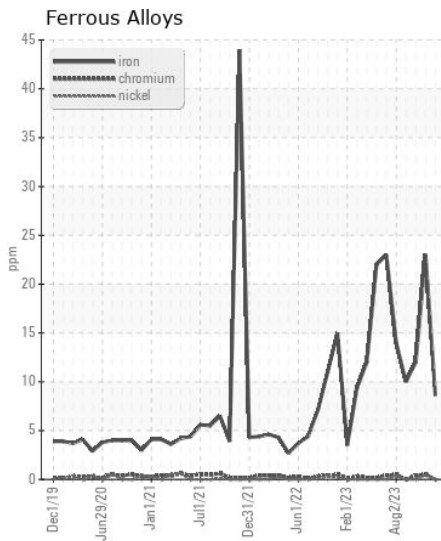
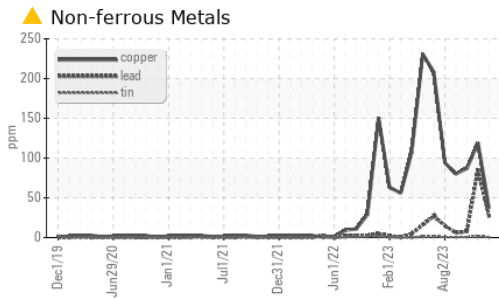
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	7	9	7
Potassium	ppm	ASTM D5185m	>20	1	3	1
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
Soot %	%	*ASTM D7844		0.2	0.5	0.2
Nitration	Abs/cm	*ASTM D7624	>20	6.5	9.0	7.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.5	24.2	22.2
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

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	<1	4	<1
Boron	ppm	ASTM D5185m	151	314	184	224
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	120	103	97
Manganese	ppm	ASTM D5185m		<1	2	<1
Magnesium	ppm	ASTM D5185m	0	685	638	548
Calcium	ppm	ASTM D5185m	2046	1531	1548	1371
Phosphorus	ppm	ASTM D5185m	1043	746	734	621
Zinc	ppm	ASTM D5185m	943	860	876	770
Sulfur	ppm	ASTM D5185m	5012	2557	2652	2545
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.2	18.2	15.2
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.43	7.94	10.08
Visc @ 100°C	cSt	ASTM D445	14.4	13.4	13.2	13.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0064386 **Received** : 12 Jan 2024
Lab Number : 06060431 **Diagnosed** : 16 Jan 2024
Unique Number : 10831813 **Diagnostician** : Don Baldrige
Test Package : MAR 2

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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)