

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# NOVA EQ60073

#### Rear Diesel Engine Fluid VALVOLINE 15W40 (23 LTR)

#### 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 condition of the oil is acceptable for the time in service.

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#### Iec2017 Jul2018 Jan2019 Feb2020 Oct2020 May2021 May2022 Dec2022 Aug2023

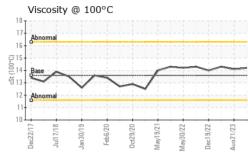
SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0809111	WC0809096	WC0770737
Sample Date		Client Info		23 Oct 2023	21 Aug 2023	12 Apr 2023
Machine Age	kms	Client Info		442646	430168	404144
Oil Age	kms	Client Info		10000	10000	10000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	22	28	11
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	<1
Silver	ppm	ASTM D5185(m)	>2	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>15	2	2	3
Lead	ppm	ASTM D5185(m)	>25	0	0	0
Copper	ppm	ASTM D5185(m)	>100	2	2	2
Tin	ppm	ASTM D5185(m)	>4	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
				-	-	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	ppm	ASTM D5185(m) method	limit/base	0 current	0 history1	0 history2
	ppm		limit/base 39			-
ADDITIVES		method ASTM D5185(m)	39	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	39	current 3	history1 1	history2 2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	39 1	current 3 <1	history1 1 0	history2 2 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49	current 3 <1 70	history1 1 0 61	history2 2 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1	current 3 <1 70 0	history1 1 0 61 <1	history2 2 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1 616	current 3 <1 70 0 1132	history1 1 0 61 <1 1018	history2 2 0 60 <1 968
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1 616 1554	current           3           <1           70           0           1132           1236	history1 1 0 61 <1 1 1018 1085	history2 2 0 60 <1 968 1134
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1 616 1554 899	current           3           <1           70           0           1132           1236           1139	history1 1 0 61 1 1018 1085 1092</th <th>history2 2 0 60 &lt;1 968 1134 1100</th>	history2 2 0 60 <1 968 1134 1100
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624	current           3           <1           70           0           1132           1236           1139           1411	history1 1 0 61 1 1018 1085 1092 1272</th <th>history2 2 0 60 &lt;1 968 1134 1100 1248</th>	history2 2 0 60 <1 968 1134 1100 1248
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624	current           3           <1           70           0           1132           1236           1139           1411           2771	history1	history2 2 0 60 <1 968 1134 1100 1248 2569
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624	Current 3 1 70 0 1132 1236 1139 1411 2771 <1	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1	history2 2 0 60 <1 968 1134 1100 1248 2569 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 Jimit/base	Current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 Jimit/base	current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1         7	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 <b>limit/base</b> >25	Current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1         7         8	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2         4         6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 2624 <b>imit/base</b> >25 >20	Current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9         <1	history1         1         0         61         <1         1085         1092         1272         2494         <1         history1         7         8         1	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2         4         6         <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 <b>imit/base</b> >25 >20 <b>imit/base</b>	current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9         <1         current         0.3	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1         7         8         1         history1	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2         4         6         <1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm i ppm i	method           ASTM D5185(m)	39 1 49 1 616 1554 899 1069 2624 2624 <b>imit/base</b> >25 >20 <b>imit/base</b>	Current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9         <1         current         8         9         <1	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1         7         8         1         history1         0.3	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2         4         6         <1         history2         4         0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)           ASTM D7844*           ASTM D7624*	39 1 49 1 616 1554 899 1069 2624 2624 <i>limit/base</i> >25 <i>limit/base</i> >20	current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9         <1         current         0.3         9.2	history1         1         0         61         <1         1085         1092         1272         2494         <1         history1         7         8         1         history1         0.3         10.0	history2         2         0         60         <1         968         1134         1248         2569         <1         history2         4         6         <1         history2         4         6         <1         history2         4         6         <1         history2         0.1         8.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)           ASTM D7844*           ASTM D7624*           ASTM D74115*	39 1 49 1 616 1554 899 1069 2624 <b>imit/base</b> >25 <b>imit/base</b> >20 <b>imit/base</b> >20	Current         3         <1         70         0         1132         1236         1139         1411         2771         <1         current         8         9         <1         0.3         9.2         20.7	history1         1         0         61         <1         1018         1085         1092         1272         2494         <1         history1         7         8         1         history1         0.3         10.0         23.9	history2         2         0         60         <1         968         1134         1100         1248         2569         <1         history2         4         6         <1         history2         0.1         8.6         19.7

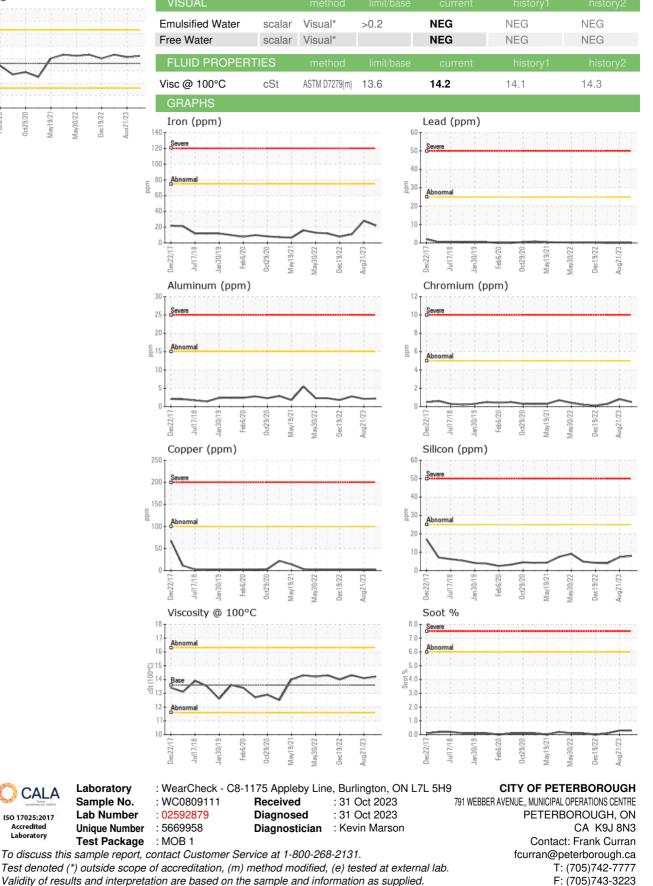
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Contact/Location: Frank Curran - CITPET



## **OIL ANALYSIS REPORT**





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