

## **OIL ANALYSIS REPORT**

#### Area NOG SON [CONHER] Machine Id 2014 KENWORTH TRC-2018 AMSA Component

Front Diesel Engine Fluid CHEVRON 15W40 (42 LTR)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

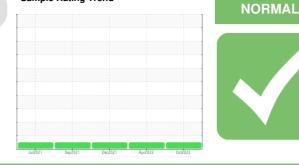
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

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



Sample Rating Trend

SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		KL0010200	KL0010175	KL0009060
Sample Date		Client Info		03 Oct 2022	25 Apr 2022	24 Dec 2021
Machine Age	mls	Client Info		912270	892918	873884
Oil Age	mls	Client Info		82652	63300	44266
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	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 D5185m	>90	55	20	39
Chromium	ppm	ASTM D5185m	>20	3	1	3
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	5	3	1
Lead	ppm	ASTM D5185m	>40	2	2	7
Copper	ppm	ASTM D5185m	>330	2	<1	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Antimony	ppm	ASTM D5185m				<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 7	history1 4	history2 8
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	7	4	8 0 5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	7 0	4 0 3 <1	8 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 0 6 <1 129	4 0 3 <1 112	8 0 5 <1 1034
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 0 6 <1 129 3643	4 0 3 <1	8 0 5 <1 1034 1902
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 0 6 <1 129 3643 939	4 0 3 <1 112 3777 1061	8 0 5 <1 1034 1902 996
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 0 6 <1 129 3643 939 1186	4 0 3 <1 112 3777 1061 1280	8 0 5 <1 1034 1902 996 1280
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		7 0 6 <1 129 3643 939	4 0 3 <1 112 3777 1061 1280 3867	8 0 5 <1 1034 1902 996 1280 2578
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 0 6 <1 129 3643 939 1186	4 0 3 <1 112 3777 1061 1280	8 0 5 <1 1034 1902 996 1280
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	limit/base	7 0 6 <1 129 3643 939 1186 3810 current 21	4 0 3 <1 112 3777 1061 1280 3867 history1 9	8 0 5 <1 1034 1902 996 1280 2578 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	limit/base >25 >50	7 0 6 <1 129 3643 939 1186 3810 <u>current</u> 21 3	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20	7 0 6 <1 129 3643 939 1186 3810 <u>current</u> 21 3 3	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2	8 0 5 <1 1034 1902 996 1280 2578 <b>history2</b> 6 8 8 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	limit/base >25 >50 >20	7 0 6 <1 129 3643 939 1186 3810 <u>current</u> 21 3	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20	7 0 6 <1 129 3643 939 1186 3810 <u>current</u> 21 3 3	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20 >0.2	7 0 6 <1 129 3643 939 1186 3810 <u>current</u> 21 3 3 NEG	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2 NEG	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20 >0.2 limit/base	7 0 6 <1 129 3643 939 1186 3810 current 21 3 3 3 NEG current	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2 NEG history1	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20 >0.2 limit/base >6	7 0 6 <1 129 3643 939 1186 3810 current 21 3 3 3 NEG current 1.1	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2 2 NEG history1 0.6	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1 NEG history2 1.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20 >0.2 limit/base >6 >20	7 0 6 <1 129 3643 939 1186 3810 Current 21 3 3 3 NEG Urrent 1.1 10	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2 NEG NEG history1 0.6 7.0	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1 NEG NEG history2 1.4 1.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >50 >20 >0.2 limit/base >6 >20 >30	7 0 6 <1 129 3643 939 1186 3810 current 21 3 3 NEG current 1.1 10 22.4	4 0 3 <1 112 3777 1061 1280 3867 history1 9 2 2 2 NEG history1 0.6 7.0 18.5	8 0 5 <1 1034 1902 996 1280 2578 history2 6 8 <1 NEG history2 1.4 10.6 25.1

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Base Number (BN) mg KOH/g ASTM D2896

Submitted By: EDUARDO GARCIA

10.3

9.3

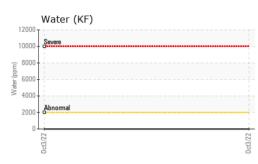


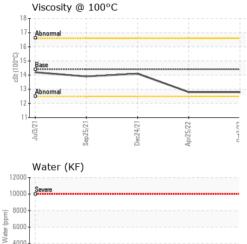
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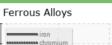
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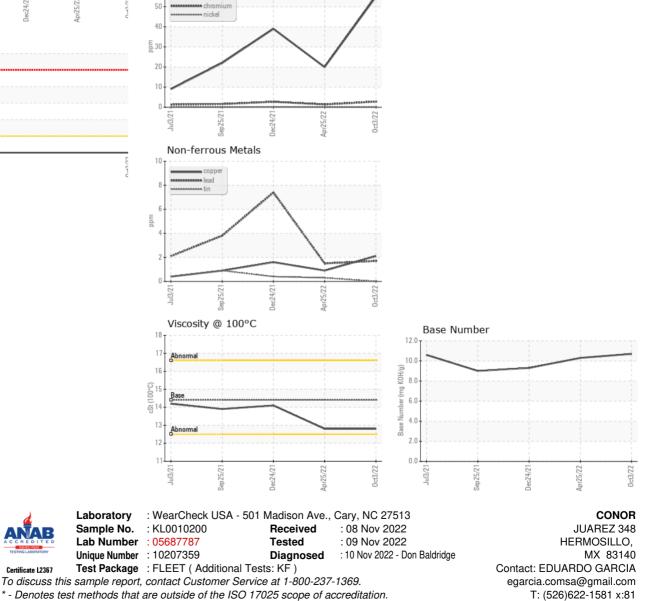




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.8	12.8	14.1
GRAPHS						



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\* - 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)

Certificate L2367

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