

# **OIL ANALYSIS REPORT**

KENWORTH 427204-SW4830

Component

**Diesel Engine** 

**MOBIL DELVAC ELITE 15W40 (--- GAL)** 

# Sample Rating Trend



## **DIAGNOSIS**

### Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

### Wear

All component wear rates are normal.

### Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

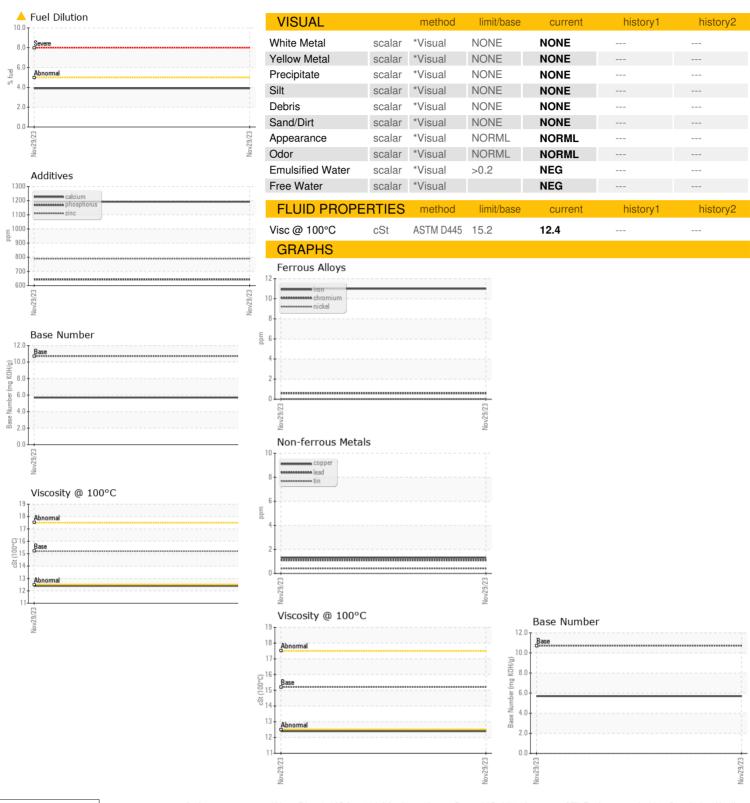
### ▲ Fluid Condition

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

Sample Date Client Info 29 Nov 2023					Nov2023		
Sample Date   Client Info   29 Nov 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   14518	Sample Number		Client Info		GFL0095441		
Oil Age         hrs         Client Info         500	Sample Date		Client Info		29 Nov 2023		
Contamped   Client Info   Changed   Contample Status   Contample St	Machine Age	hrs	Client Info		14518		
MARGINAL	Oil Age	hrs	Client Info		500		
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Changed		
Water Glycol         WC Method         >0.2         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         11             Chromium         ppm         ASTM D5185m         >20         <1             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >20         2             Silver         ppm         ASTM D5185m         >40         1             Aluminum         ppm         ASTM D5185m         >40         1             Copper         ppm         ASTM D5185m         >15         <1             ASTM D5185m         >15         <1        <	Sample Status				MARGINAL		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         11             Chromium         ppm         ASTM D5185m         >20         <1             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >30         0             Aluminum         ppm         ASTM D5185m         >40         1             Lead         ppm         ASTM D5185m         >40         1             Copper         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         <1             Cadmium         ppm         ASTM D5185m         <1             Barium         ppm         ASTM D5185m         125	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         11             Chromium         ppm         ASTM D5185m         >20         <1	Water		WC Method	>0.2	NEG		
Iron	Glycol		WC Method		NEG		
Chromium   Dpm   ASTM D5185m   >20   <1             Nickel   Dpm   ASTM D5185m   >4   0           Titanium   Dpm   ASTM D5185m   >3   0           Silver   Dpm   ASTM D5185m   >3   0           ASTM D5185m   >20   2           Lead   Dpm   ASTM D5185m   >40   1           Copper   Dpm   ASTM D5185m   >40   1           Copper   Dpm   ASTM D5185m   >40   1           Cadmium   Dpm   ASTM D5185m   >41           Vanadium   Dpm   ASTM D5185m   <1           ADDITIVES   Dpm   ASTM D5185m   <1           ADDITIVES   Dpm   ASTM D5185m   <1           ADDITIVES   Dpm   ASTM D5185m	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	11		
STILIANIUM   DPM	Chromium	ppm	ASTM D5185m	>20	<1		
Silver	Nickel	ppm	ASTM D5185m	>4	0		
Aluminum         ppm         ASTM D5185m         >20         2             Lead         ppm         ASTM D5185m         >40         1             Copper         ppm         ASTM D5185m         >330         1             Tin         ppm         ASTM D5185m         >15         <1	Titanium	ppm	ASTM D5185m		<1		
Lead	Silver	ppm	ASTM D5185m	>3	0		
Copper         ppm         ASTM D5185m         >330         1             Tin         ppm         ASTM D5185m         >15         <1	Aluminum	ppm	ASTM D5185m	>20	2		
Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	1		
Vanadium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         ♠ 92             Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         125             Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         <1192             Calcium         ppm         ASTM D5185m         <643             Phosphorus         ppm         ASTM D5185m         <790             Sulfur         ppm         ASTM D5185m         3501             Sulfur         ppm         ASTM D5185m         >25         5             Solicon         ppm         ASTM D5185m         >25         5             Solicon         ppm         ASTM D5185m <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;330</td><td>1</td><td></td><td></td></th<>	Copper	ppm	ASTM D5185m	>330	1		
Cadmium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         4         92             Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         125             Manganese         ppm         ASTM D5185m         4         636             Magnesium         ppm         ASTM D5185m         1192             Calcium         ppm         ASTM D5185m         4         643             Phosphorus         ppm         ASTM D5185m         3501             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium	Tin	ppm	ASTM D5185m	>15	<1		
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         ▲ 92             Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         125             Manganese         ppm         ASTM D5185m         <1	Vanadium	ppm	ASTM D5185m		<1		
Boron ppm ASTM D5185m	Cadmium	ppm	ASTM D5185m		<1		
Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         125             Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         ▲ 636             Calcium         ppm         ASTM D5185m         ■ 1192             Phosphorus         ppm         ASTM D5185m         ▲ 643             Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         >0             Potassium         ppm         ASTM D5185m         >0         2            Fuel         %         ASTM D5185m         >0 <td< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         125             Magnesium         ppm         ASTM D5185m         < 1             Calcium         ppm         ASTM D5185m         ▲ 636             Calcium         ppm         ASTM D5185m         ▲ 1192             Phosphorus         ppm         ASTM D5185m         ▲ 643             Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history1         history2           Sout %         *ASTM D784	Boron	ppm	ASTM D5185m		<b>92</b>		
Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         ▲ 636             Calcium         ppm         ASTM D5185m         ▲ 1192             Phosphorus         ppm         ASTM D5185m         ▲ 790             Zinc         ppm         ASTM D5185m         3501             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         >20         2             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history1         history2           Soot %	Barium	ppm	ASTM D5185m		0		
Magnesium         ppm         ASTM D5185m         ▲ 636             Phosphorus         ppm         ASTM D5185m         ▲ 643             Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2            Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         3.9             Soot %         %         *ASTM D7844         >3         0.9             Sulfation         Abs/:1m	Molybdenum	ppm	ASTM D5185m		125		
Calcium         ppm         ASTM D5185m         1192             Phosphorus         ppm         ASTM D5185m         ▲ 643             Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         >20         2             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >0         9             Soot %         %         *ASTM D7844         >3         0.9        <	Manganese	ppm	ASTM D5185m		<1		
Phosphorus         ppm         ASTM D5185m         ▲ 643             Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         >20         2             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1 </td <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td><b>636</b></td> <td></td> <td></td>	Magnesium	ppm	ASTM D5185m		<b>636</b>		
Zinc         ppm         ASTM D5185m         ▲ 790             Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2            Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.1             Sulfation<	Calcium	ppm	ASTM D5185m		1192		
Sulfur         ppm         ASTM D5185m         3501             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/.1mm         *ASTM D7415         >30         18.6	Phosphorus	ppm	ASTM D5185m		<b>▲</b> 643		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         ▲ 3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Zinc	ppm	ASTM D5185m		<b>A</b> 790		
Silicon         ppm         ASTM D5185m         >25         5             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Sulfur	ppm	ASTM D5185m		3501		
Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         ▲ 3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2             Fuel         %         ASTM D3524         >5         ▲ 3.9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Silicon	ppm	ASTM D5185m	>25	5		
Fuel	Sodium	ppm	ASTM D5185m		0		
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Potassium	ppm	ASTM D5185m	>20	2		
Soot %         %         *ASTM D7844         >3         0.9             Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Fuel	%	ASTM D3524	>5	<u>A</u> 3.9		
Nitration         Abs/cm         *ASTM D7624         >20         9.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3	Soot %	%	*ASTM D7844	>3	0.9		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Nitration	Abs/cm	*ASTM D7624	>20	9.1		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3		



# **OIL ANALYSIS REPORT**





Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** 

: GFL0095441 : 06037360 : 10792589

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 18 Dec 2023 Diagnosed : 21 Dec 2023

Diagnostician : Wes Davis Test Package : FLEET ( Additional Tests: FuelDilution, PercentFuel )

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)

GFL Environmental - 981 - Port Arthur Hauling

1000 S Business Park Dr Port Arthur, TX US 77640

Contact: MICHAEL KAY mkay@gflenv.com T: (336)660-9331