

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# **CUMMINS CAPTAIN JEFF IRBY**

Port Main Engine

KENDALL SUPER-D XA 15W40 (--- GAL)

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

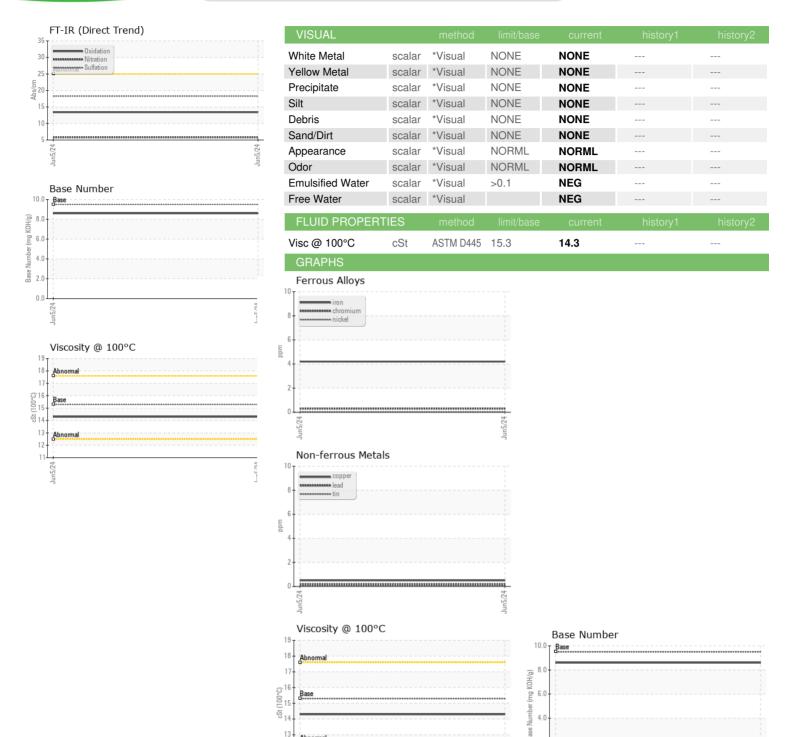
### **Fluid Condition**

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

SAMPLE INFORMATION   method   limit/base   current   history1   history2					Jun 2024		
Sample Number   Client Info   HRE0000271					Jun2024		
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Client Info	Sample Number		Client Info		HRE0000271		
Oil Age	Sample Date		Client Info		05 Jun 2024		
Colient Info   Not Changd   Colient Info   Not Changd   NORMAL   Colient Info   NORMAL   Colient Info   NORMAL   Colient Info   NORMAL   Colient Info   Colient Info   NORMAL   Colient Info   Colient	•	hrs	Client Info		33292		
CONTAMINATION   method   mill/base   current   history1   history2	Oil Age	hrs	Client Info		250		
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Not Changd		
Water   WC Method   So.1   NEG   So.1   So.1   NEG   So.1   So.1   NEG   So.1	Sample Status				NORMAL		
Water Glycol         WC Method WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         4             Chromium         ppm         ASTM D5185m         >8         <1	CONTAMINATION	V	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>4.0	<1.0		
WEAR METALS	Water		WC Method	>0.1	NEG		
ASTM D5185m	Glycol		WC Method		NEG		
Chromium   ppm   ASTM D5185m   >8   <1           Nickel   ppm   ASTM D5185m   >2   0         Titanium   ppm   ASTM D5185m   >2   0         Silver   ppm   ASTM D5185m   >2   0         Silver   ppm   ASTM D5185m   >2   0         ASTM D5185m   >15   3         Lead   ppm   ASTM D5185m   >18   <1         Copper   ppm   ASTM D5185m   >18   <1         Copper   ppm   ASTM D5185m   >14   <1         Cadmium   ppm   ASTM D5185m   >14   <1         Cadmium   ppm   ASTM D5185m   0         ADDITIVES   method   limit/base   current   history1   history2       Boron   ppm   ASTM D5185m   0         Barium   ppm   ASTM D5185m   0         Molybdenum   ppm   ASTM D5185m   34           Magnesium   ppm   ASTM D5185m   34           Magnesium   ppm   ASTM D5185m   270   344           Calcium   ppm   ASTM D5185m   1900   1919           Phosphorus   ppm   ASTM D5185m   1260   1193           Sulfur   ppm   ASTM D5185m   3400   3936           CONTAMINANTS   method   limit/base   current   history1   history2       NFRA-RED   method   limit/base   current   history1   history2       NFRA-RED   method   limit/base   current   history1   history2       FLUID DEGRADATION   method   limit/base   current   history1   history2       FLUID DEGRADATION   method   limit/base   current   history1   history2       Potassidation   Abs/.1mm   "ASTM D7415   >30   18.3             FLUID DEGRADATION   method   limit/base   current   history1   history2       Potassidation   Abs/.1mm   "ASTM D7415   >30   18.3	WEAR METALS		method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>75	4		
Silver	Chromium	ppm	ASTM D5185m	>8	<1		
Silver	Nickel	ppm	ASTM D5185m	>2	0		
Astroper	Titanium	ppm	ASTM D5185m	>3	63		
Lead	Silver	ppm	ASTM D5185m	>2	0		
Copper	Aluminum	ppm	ASTM D5185m	>15	3		
State	Lead	ppm	ASTM D5185m	>18	<1		
Vanadium         ppm         ASTM D5185m         <1             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         159             Barium         ppm         ASTM D5185m         0              Molybdenum         ppm         ASTM D5185m         34              Manganese         ppm         ASTM D5185m         270         344              Magnesium         ppm         ASTM D5185m         1900         1919              Calcium         ppm         ASTM D5185m         1000         931              Phosphorus         ppm         ASTM D5185m         1260         1193              Sulfur         ppm         ASTM D5185m         3400         3936 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;80</td><th>&lt;1</th><td></td><td></td></t<>	Copper	ppm	ASTM D5185m	>80	<1		
ADDITIVES	Tin	ppm	ASTM D5185m	>14	<1		
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1		
Boron	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         34             Manganese         ppm         ASTM D5185m         <1	Boron	ppm	ASTM D5185m	50	159		
Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         270         344             Calcium         ppm         ASTM D5185m         1900         1919             Phosphorus         ppm         ASTM D5185m         1000         931             Zinc         ppm         ASTM D5185m         1260         1193             Sulfur         ppm         ASTM D5185m         3400         3936             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         7             Sodium         ppm         ASTM D5185m         >75         4             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20	Barium	ppm	ASTM D5185m		0		
Magnesium         ppm         ASTM D5185m         270         344             Calcium         ppm         ASTM D5185m         1900         1919             Phosphorus         ppm         ASTM D5185m         1000         931             Zinc         ppm         ASTM D5185m         1260         1193             Sulfur         ppm         ASTM D5185m         3400         3936             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         7             Sodium         ppm         ASTM D5185m         >75         4             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7414 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>34</th> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m		34		
Calcium         ppm         ASTM D5185m         1900         1919             Phosphorus         ppm         ASTM D5185m         1000         931             Zinc         ppm         ASTM D5185m         1260         1193             Sulfur         ppm         ASTM D5185m         3400         3936             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         7             Sodium         ppm         ASTM D5185m         >75         4             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>&lt;1</th><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m		<1		
Phosphorus	Magnesium	ppm	ASTM D5185m	270	344		
Zinc   ppm   ASTM D5185m   1260   1193       Sulfur   ppm   ASTM D5185m   3400   3936             CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >20   7         Sodium   ppm   ASTM D5185m   >75   4         Potassium   ppm   ASTM D5185m   >20   4         INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   0         Nitration   Abs/cm   *ASTM D7624   >20   5.8         Sulfation   Abs/.1mm   *ASTM D7415   >30   18.3         FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   13.4	Calcium	ppm	ASTM D5185m	1900	1919		
Sulfur         ppm         ASTM D5185m         3400         3936             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         7             Sodium         ppm         ASTM D5185m         >75         4             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0             Nitration         Abs/cm         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	Phosphorus	ppm	ASTM D5185m	1000	931		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         7             Sodium         ppm         ASTM D5185m         >75         4             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0             Nitration         Abs/cm         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	Zinc	ppm	ASTM D5185m	1260	1193		
Silicon   ppm   ASTM D5185m   >20   7	Sulfur	ppm	ASTM D5185m	3400	3936		
Sodium	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0             Nitration         Abs/cm         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	Silicon	ppm	ASTM D5185m	>20	7		
INFRA-RED	Sodium	ppm	ASTM D5185m	>75	4		
Soot %         %         *ASTM D7844         0             Nitration         Abs/cm         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	Potassium	ppm	ASTM D5185m	>20	4		
Nitration         Abs/cm         *ASTM D7624         >20         5.8             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.4	Soot %	%	*ASTM D7844		0		
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 13.4	Nitration	Abs/cm	*ASTM D7624	>20	5.8		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3		
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.4		
		mg KOH/g					



## **OIL ANALYSIS REPORT**







Certificate 12367

Laboratory Sample No.

Lab Number : 06203835 Unique Number : 11071296 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : HRE0000271

Received : 07 Jun 2024 **Tested** : 12 Jun 2024

: 12 Jun 2024 - Angela Borella Diagnosed

0.0

CHESAPEAKE, OH US 45619 Contact: DARRELL KEARNS darrellkearns@superiormarineinc.com

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)

Report Id: SUPCHEOH [WUSCAR] 06203835 (Generated: 06/12/2024 12:19:40) Rev: 1

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**SUPERIOR MARINE** 

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