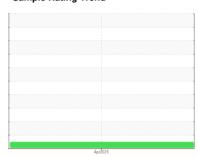


# **OIL ANALYSIS REPORT**

Sample Rating Trend







437
Component

Machine Id

**Diesel Engine** 

SHELL ROTELLA T 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal. No abnormal wear or visible metal detected.

## Contamination

There is no indication of any contamination in the

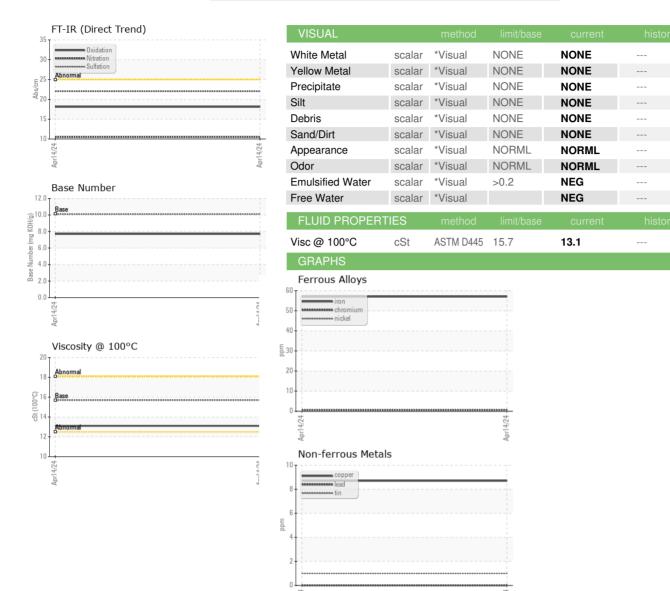
#### **Fluid Condition**

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					Apr2024		
Sample Number   Client Info   PE0003416					<b>н</b> рггогч		
Sample Date   Client Info   14 Apr 2024	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   mls   Client Info   17240	Sample Number		Client Info		PE0003416		
Oil Age         mIs         Client Info         17240             Oil Changed Sample Status         Client Info         Changed             Sample Status         Normal             Ned         Image: Control of Sample Status         William             Water         WC Method         5         <1.0             Water         WC Method         >5         <1.0             Water         WC Method         NEG             Wear METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         57             Chromium         ppm         ASTM D5185m         >20         <1             Nickel         ppm         ASTM D5185m         >20         <1             Silver         ppm         ASTM D5185m         >3         <1             Calcad         ppm         ASTM D5185m         >40         0	Sample Date		Client Info		14 Apr 2024		
Contained   Client Info   Changed   Normal   Contained   Normal   Contained   Normal   Contained   C	Machine Age	mls	Client Info		342762		
NORMAL	Oil Age	mls	Client Info		17240		
CONTAMINATION	Oil Changed		Client Info		Changed		
Fuel   WC Method   So	Sample Status				NORMAL		
Water	CONTAMINATION	1	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0		
WEAR METALS	Water		WC Method	>0.2	NEG		
Control   Cont	Glycol		WC Method		NEG		
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>100	57		
Silver	Chromium	ppm	ASTM D5185m	>20	<1		
Silver	Nickel	ppm	ASTM D5185m	>4	0		
Aluminum	Titanium	ppm	ASTM D5185m		<1		
Lead	Silver	ppm	ASTM D5185m	>3	<1		
Copper	Aluminum	ppm	ASTM D5185m	>20	4		
Tin	Lead	ppm	ASTM D5185m		0		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         31             Barium         ppm         ASTM D5185m         0.0         2             Molybdenum         ppm         ASTM D5185m         1.2         56             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         24         595             Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1 <t< td=""><td>Copper</td><td>ppm</td><td></td><td>&gt;330</td><th>9</th><td></td><td></td></t<>	Copper	ppm		>330	9		
Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         31             Barium         ppm         ASTM D5185m         0.0         2             Molybdenum         ppm         ASTM D5185m         1.2         56             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         24         595             Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         4996         3632             Sulfur         ppm         ASTM D5185m         >25         9             Solicon         ppm         ASTM D5185m         24				>15			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         31             Barium         ppm         ASTM D5185m         0.0         2             Molybdenum         ppm         ASTM D5185m         1.2         56             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         24         595             Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1160         1269             Zinc         ppm         ASTM D5185m         4996         3632             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history2           Solium         ppm         ASTM D5185m         22	Vanadium	ppm			-		
Boron   ppm   ASTM D5185m   316   31	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         1.2         56             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         24         595             Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         1160         1269             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history3           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         24             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current	Boron	ppm	ASTM D5185m	316	31		
Manganese         ppm         ASTM D5185m         2             Calcium         ppm         ASTM D5185m         24         595             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         1160         1269             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         24             Potassium         ppm         ASTM D5185m         24             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0	Barium	ppm	ASTM D5185m	0.0	2		
Magnesium         ppm         ASTM D5185m         24         595             Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         1160         1269             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history3           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         >20         13             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4             Sulfation         Abs/.1mm         *ASTM D78415 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1.2</td> <th>56</th> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m	1.2	56		
Calcium         ppm         ASTM D5185m         2292         1696             Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         1160         1269             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         >20         13             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         l	Manganese	ppm	ASTM D5185m		2		
Phosphorus         ppm         ASTM D5185m         1064         1059             Zinc         ppm         ASTM D5185m         1160         1269             Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         24             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414	<u> </u>	ppm					
Zinc   ppm   ASTM D5185m   1160   1269       Sulfur   ppm   ASTM D5185m   4996   3632             CONTAMINANTS   method   limit/base   current   history1   history1     Silicon   ppm   ASTM D5185m   >25   9         Sodium   ppm   ASTM D5185m   24         Potassium   ppm   ASTM D5185m   >20   13         INFRA-RED   method   limit/base   current   history1   history1     Soot %   % *ASTM D7844   >3   0.4         Nitration   Abs/cm *ASTM D7624   >20   10.5         Sulfation   Abs/.1mm *ASTM D7415   >30   22.0         FLUID DEGRADATION   method   limit/base   current   history1   history1     Oxidation   Abs/.1mm *ASTM D7414   >25   18.1	Calcium	ppm	ASTM D5185m	2292			
Sulfur         ppm         ASTM D5185m         4996         3632             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         24              Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history3           Soot %         %         *ASTM D7844         >3         0.4             Sulfation         Abs/cm         *ASTM D7624         >20         10.5             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1		ppm					
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         24             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4             Nitration         Abs/cm         *ASTM D7624         >20         10.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1		ppm					
Silicon   ppm   ASTM D5185m   >25   9	Sulfur	ppm	ASTM D5185m	4996	3632		
Sodium         ppm         ASTM D5185m         24             Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.4             Nitration         Abs/cm         *ASTM D7624         >20         10.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         13             INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.4             Nitration         Abs/cm         *ASTM D7624         >20         10.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1	Silicon	ppm	ASTM D5185m	>25	9		
INFRA-RED		ppm			24		
Soot %         %         *ASTM D7844         >3         0.4             Nitration         Abs/cm         *ASTM D7624         >20         10.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1	Potassium	ppm	ASTM D5185m	>20	13		
Nitration         Abs/cm         *ASTM D7624         >20         10.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         22.0             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1	Soot %	%	*ASTM D7844	>3	0.4		
FLUID DEGRADATION method limit/base current history1 history:  Oxidation Abs/.1mm *ASTM D7414 >25 18.1	Nitration	Abs/cm	*ASTM D7624	>20	10.5		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.0		
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.1 7.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.1		
	Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.7		



## **OIL ANALYSIS REPORT**







Certificate 12367

Sample No.

: PE0003416 **Lab Number** : 06155762 Unique Number : 10991185

cSt (100°C)

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Apr 2024 **Tested** : 23 Apr 2024

: 24 Apr 2024 - Don Baldridge Diagnosed

Base Number

(mg KOH/c

0.0

Test Package: FLEET (Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN) 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)

Viscosity @ 100°C

**NATIONAL FOODS NW** 

2005 268TH ST NW STANWOOD, WA US 98292

Contact: TIM GAY

T: F: