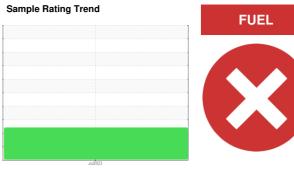


# **OIL ANALYSIS REPORT**

# NOT GIVEN PCA0097296 (S/N NO INFO ON SIF/BOTTLE)

**Diesel Engine** 

DIESEL ENGINE OIL SAE 15W40 (--- GAL)



## **DIAGNOSIS**

#### Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil.

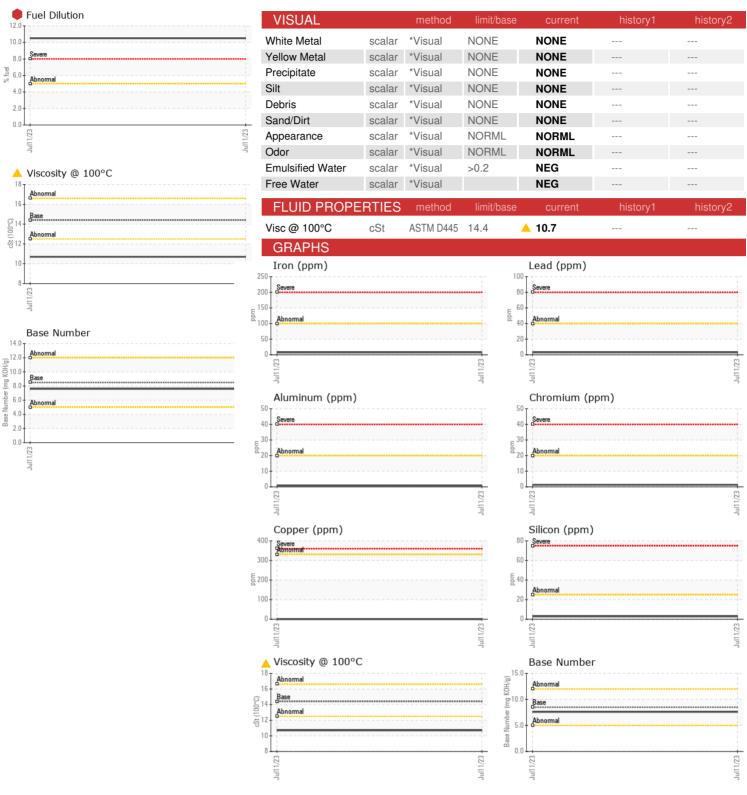
### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sample Number   Client Info   PCA0097296								
Cample Number   Client Info   PCA0097296   Cample Date   Client Info   11 Jul 2023   Cample Date   Client Info   13429   Client Info   250   Client Info   250   Client Info   250   Client Info   N/A   Cample Status   SEVERE   Control   Client Info   N/A   Cample Status   Control   Client Info   N/A   Cample Status   Control   Client Info   N/A   Cample Status   Control					Jul2023			
Cample Number   Client Info   PCA0097296   Cample Date   Client Info   11 Jul 2023   Cample Date   Client Info   13429   Client Info   250   Client Info   250   Client Info   250   Client Info   N/A   Cample Status   SEVERE   Control   Client Info   N/A   Cample Status   Control   Client Info   N/A   Cample Status   Control   Client Info   N/A   Cample Status   Control	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Date					PCA0097296			
Machine Age								
Dil Age	•	hrs						
Contample Status								
CONTAMINATION   method   limit/base   current   history1   history2	-							
WEAR METALS	Sample Status							
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	historv1	historv2	
Concord	Glycol		WC Method		NEG			
Description	WEAR METAL	S	method	limit/base	current	history1	history2	
Description	ron	maa	ASTM D5185m	>100	7			
ASTM D5185m								
ASTM D5185m   STM D5185m   ST	Vickel							
Astmorphisms	Titanium				-			
Astronometric   Astronometri	Silver			>3				
December   December	Aluminum							
Copper	_ead							
Act								
Anadium         ppm         ASTM D5185m         <1             Cadmium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         3             Barium         ppm         ASTM D5185m         10         0             Manganese         ppm         ASTM D5185m         100         40             Magnesium         ppm         ASTM D5185m         450         675             Calcium         ppm         ASTM D5185m         450         675             Phosphorus         ppm         ASTM D5185m         1150         946             Picinc         ppm         ASTM D5185m         1350         1171             Sulfur         ppm         ASTM D5185m         >25         3             CONTAMINANTS         method         limit/base         current         history	Tin							
ADDITIVES				7.0				
ADDITIVES								
Soron   ppm   ASTM D5185m   250   3		1-1-		limit/bass	· · · · · · · · · · · · · · · · · · ·	history1	hiotory2	
Sarium						HISTOLAL	HISTOLYZ	
Molybdenum         ppm         ASTM D5185m         100         40             Manganese         ppm         ASTM D5185m         450         675             Magnesium         ppm         ASTM D5185m         3000         1373             Calcium         ppm         ASTM D5185m         1150         946             Phosphorus         ppm         ASTM D5185m         1350         1171             Zinc         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         10.5             Fuel         %         ASTM D7844								
Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         450         675             Calcium         ppm         ASTM D5185m         3000         1373             Phosphorus         ppm         ASTM D5185m         1150         946             Zinc         ppm         ASTM D5185m         1350         1171             Sulfur         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Cotassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         10					-			
Magnesium         ppm         ASTM D5185m         450         675             Calcium         ppm         ASTM D5185m         3000         1373             Phosphorus         ppm         ASTM D5185m         1150         946             Zinc         ppm         ASTM D5185m         1350         1171             Sulfur         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Colium         ppm         ASTM D5185m         >158         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >20         3             Fuel         %         ASTM D5185m         >10.5             Fuel         %         ASTM D5185m         >3         0	•			100				
Calcium         ppm         ASTM D5185m         3000         1373             Phosphorus         ppm         ASTM D5185m         1150         946             Zinc         ppm         ASTM D5185m         1350         1171             Sulfur         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Sodium         ppm         ASTM D5185m         >158         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D3524         >5         10.5             Soot %         %         *ASTM D7844         >3         0.3             Soot %         %         *ASTM D7624         >20         6.1             Sulfation         Abs/.1mm         *ASTM D7414	•							
Phosphorus         ppm         ASTM D5185m         1150         946             Zinc         ppm         ASTM D5185m         1350         1171             Sulfur         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >25         3             Sodium         ppm         ASTM D5185m         >158         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D3524         >5         10.5             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         6.1             Soot %         %         *ASTM D7624         >20         6.1             FUID DEGRADATION         method         limit/base	-							
Zinc								
Sulfur         ppm         ASTM D5185m         4250         3554             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Sodium         ppm         ASTM D5185m         >158         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D524         >5         10.5             Soot %         %         *ASTM D7844         >3         0.3             Soot %         %         *ASTM D7624         >20         6.1             Sulfation         Abs/.1mm         *ASTM D7415         >30 <td< td=""><td></td><td>ppm</td><td>ASTM D5185m</td><td>1150</td><td>0.40</td><td></td><td></td></td<>		ppm	ASTM D5185m	1150	0.40			
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3             Sodium         ppm         ASTM D5185m         >158         3             Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D3524         >5         10.5             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3             Sulfration         Abs/.1mm         *ASTM D7624         >20         6.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	lino							
Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >158 3 Sodium ppm ASTM D5185m >20 3 Sodium ppm ASTM D5185m >20 3 Sodium ppm ASTM D5185m >20 3 Sodium ppm ASTM D3524 >5 10.5 Sodium ppm ASTM D3524 >5 10.5 Sodium ppm ASTM D7844 >3 0.3 Sodium ppm ASTM D7844 >3 0.3 Sodium ppm ASTM D7844 >3 0.3 Sodium ppm ASTM D7844 >20 6.1 Sodium ppm ASTM D7845 >20 6.1 Sodium ppm ASTM D7845 >30 17.3 Sodium ppm ASTM D7845 >30 17.3 Sodium ppm ASTM D7845 >30 17.3 Sodium ppm ASTM D7845 >25 12.4 Sodium ppm ASTM D7846 >25 12.4			ASTM D5185m	1350	1171			
Sodium			ASTM D5185m	1350	1171			
Potassium         ppm         ASTM D5185m         >20         3             Fuel         %         ASTM D3524         >5         10.5             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3             Vitration         Abs/cm         *ASTM D7624         >20         6.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Sulfur	ppm	ASTM D5185m ASTM D5185m	1350 4250	1171 3554			
Fuel % ASTM D3524 >5 10.5  INFRA-RED method limit/base current history1 history2  Soot % % *ASTM D7844 >3 0.3  Nitration Abs/cm *ASTM D7624 >20 6.1  Sulfation Abs/.1mm *ASTM D7415 >30 17.3  FLUID DEGRADATION method limit/base current history1 history2  Dxidation Abs/.1mm *ASTM D7414 >25 12.4	Sulfur CONTAMINAN	ppm	ASTM D5185m ASTM D5185m method	1350 4250 limit/base	1171 3554 current	history1	 history2	
INFRA-RED	Sulfur  CONTAMINAN Silicon	ppm TS ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	1350 4250 limit/base >25	1171 3554 current	history1	 history2 	
Soot %	Sulfur	ppm TS ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1350 4250 limit/base >25 >158	1171 3554 current 3 3	history1	history2	
Nitration         Abs/cm         *ASTM D7624         >20         6.1             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Sulfur  CONTAMINAN  Silicon  Sodium  Potassium	ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1350 4250 limit/base >25 >158 >20	1171 3554 current 3 3 3	history1	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Sulfur  CONTAMINAN  Silicon  Sodium  Potassium  Fuel	ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524	1350 4250 limit/base >25 >158 >20 >5	1171 3554 current 3 3 3	 history1  	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Sulfur  CONTAMINAN  Silicon  Sodium  Potassium  Fuel  INFRA-RED	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method	1350 4250 limit/base >25 >158 >20 >5 limit/base	1171 3554 current 3 3 3 10.5	history1 history1	history2	
<b>Dxidation</b> Abs/.1mm *ASTM D7414 >25 <b>12.4</b>	Sulfur  CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m  method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D3524  method  *ASTM D7844	1350 4250 limit/base >25 >158 >20 >5 limit/base >3	1171 3554 current 3 3 3 10.5 current	history1 history1	history2 history2 history2	
	Sulfur  CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm % % Abs/cm	ASTM D5185m  Method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D3524  Method  *ASTM D7844  *ASTM D7624	1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20	1171 3554 current 3 3 3 10.5 current 0.3 6.1	history1 history1 history1	history2 history2 history2	
Base Number (BN) mg KOH/g ASTM D2896 8.5 7.6	Sulfur  CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm %  % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m  method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D3524  method  *ASTM D7844  *ASTM D7624  *ASTM D7415	1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >3	1171 3554 current 3 3 3 10.5 current 0.3 6.1 17.3	history1 history1 history1	history2 history2 history2	
	Sulfur  CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D7615 method	1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >3 	1171 3554 current 3 3 3 10.5 current 0.3 6.1 17.3	history1 history1 history1 history1	history2 history2 history2 history2	



## **OIL ANALYSIS REPORT**







Certificate L2367

Laboratory Sample No. **Unique Number** 

Lab Number

: PCA0097296 : 05936958 : 10622229

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

: 29 Aug 2023 Diagnosed

: 30 Aug 2023 Diagnostician : Don Baldridge

**Test Package**: MOB 1 (Additional Tests: FuelDilution, PercentFuel, 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)

**NORTH AMERICAN STEVEDORING CO** 

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Contact: PACO MARTINEZ

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T: F:

Contact/Location: PACO MARTINEZ - NORCHILL