

# **OIL ANALYSIS REPORT**

Sample Rating Trend

## NORMAL

## Machine Id 112201 - VOLVO EXCAVATOR (S/N VCECR145P00311684)

Diesel Engine

### PETRO CANADA DURON ADVANCED 10W30 (--- GAL)

#### 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

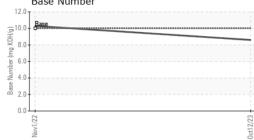
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

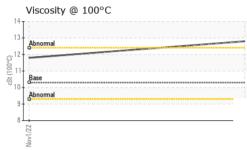
Sample Number         Client Info         SBP0004899         SBP0002128            Sample Date         Client Info         12 Oct 2023         01 Nov 2022            Machine Age         hrs         Client Info         2488         1964            Oil Age         hrs         Client Info         Changed         Changed            Oll Age         Client Info         MCRMAL         NORMAL         NORMAL            Sample Status         VC         Method         Sample Number             CONTAMINATION         method         Imit/base         current         history1            Glycol         WC Method         Sample Number              Glycol         WC Method         Sample Number              Machine ppm         ASTM DSISS         >100         54         2.7            Trainum         ppm         ASTM DSISS         >2.0         3             Sliver         ppm         ASTM DSISS         >3.0         0             Glycol         ppm	SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Date         Inc         Client Info         2488         1964            Machine Age         hrs         Client Info         524         500            Oil Changed         Irs         Client Info         524         500            Sample Status         Imit/base         Current         NoRMAL         NoRMAL            CONTAMINATION         method         Imit/base         current         history1            Glycol         WC Method         >55<<<1.0	Sample Number		Client Info		SBP0004899	SBP0002128	
Oil Age         hrs         Client Info         524         500            Oil Changed         Client Info         Changed         Changed            Sample Status         Imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0			Client Info		12 Oct 2023	01 Nov 2022	
Oil Changed Sample Status         Client Info         Changed NORMAL         Changed NORMAL            CONTAMINATION         method         imil/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0            Glycol         WC Method         >5         <1.0         <1.0            WEAR METALS         method         imil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >200         3         2            Nickel         ppm         ASTM D5185m         >20         3         2            Nickel         ppm         ASTM D5185m         >20         3         0            Auminum         ppm         ASTM D5185m         >20         18         16            Lead         ppm         ASTM D5185m         >330         4         3            Vanadium         ppm         ASTM D5185m         >330         4         3            Korpper         ppm         ASTM D5185m         1	Machine Age	hrs	Client Info		2488	1964	
Oli Changed Sample StatusClient Info NORMALChanged NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>5<1.0<1.0GlycolWC Method>5<1.0<1.0WEAR METALSmethodimit/basecurrenthistory1history2IronppmASTM D5185m>2032OthorniumppmASTM D5185m>2032NickelppmASTM D5185m>2032NickelppmASTM D5185m>201816LeadppmASTM D5185m>201816LeadppmASTM D5185m>3043CopperppmASTM D5185m>1<10AdminumppmASTM D5185m551<10VanadiumppmASTM D5185m05533ADDITIVESmethodimit/basecurrenthistory1history2BariumppmASTM D5185m05533MaganeseppmASTM D5185m05533MaganeseppmASTM D5185m01<1MaganeseppmASTM D5185m1010845609MaganeseppmASTM D5185m11010845<	0	hrs	Client Info		524	500	
Sample Status         Imath of the start of the sta	-		Client Info		Changed	Changed	
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0            Glycol         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5165m         >20         3         2            Chromium         ppm         ASTM D5165m         >20         3         2            Silver         ppm         ASTM D5165m         >20         3         0            Aluminum         ppm         ASTM D5165m         >3         0         0            Silver         ppm         ASTM D5165m         >20         18         16            Auminum         ppm         ASTM D5165m         >30         4         3            Addition         ppm         ASTM D5165m         >11         <1             Copper         ppm         ASTM D5165m         0         5         40	-				•	U	
Fuel         WC Method         >5         <1.0		N	method	limit/base	current	history1	history2
Glycol         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         3         27            Chromium         ppm         ASTM D5185m         >20         3         2            Nickel         ppm         ASTM D5185m         >20         3         0            Aluminum         ppm         ASTM D5185m         >4         <1         0            Lead         ppm         ASTM D5185m         >20         18         16            Copper         ppm         ASTM D5185m         >20         18         16            Vanadium         ppm         ASTM D5185m         >20         18         16            Vanadium         ppm         ASTM D5185m         >1         <1             Vanadium         ppm         ASTM D5185m         o1         0             Vanadium         ppm         ASTM D5185m         0         3         0 <th></th> <th></th> <th>WC Method</th> <th>&gt;5</th> <th></th> <th></th> <th></th>			WC Method	>5			
Iron         ppm         ASTM D5185m         >100         54         27            Chromium         ppm         ASTM D5185m         >20         3         2            Nickel         ppm         ASTM D5185m         >4         <1         0            Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >3         0         0            Lead         ppm         ASTM D5185m         >3         0         0            Copper         ppm         ASTM D5185m         >3         0         0            Cadmium         ppm         ASTM D5185m         >330         4         3            ADDITIVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         40            Magnesium         ppm         ASTM D5185m         0         1             Magnesium         ppm         ASTM D5185m         1010         845 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Iron         ppm         ASTM D5185m         >100         54         27            Chromium         ppm         ASTM D5185m         >20         3         2            Nickel         ppm         ASTM D5185m         >4         <1         0            Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >3         0         0            Lead         ppm         ASTM D5185m         >3         0         0            Copper         ppm         ASTM D5185m         >3         0         0            Cadmium         ppm         ASTM D5185m         >330         4         3            ADDITIVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         40            Magnesium         ppm         ASTM D5185m         0         1             Magnesium         ppm         ASTM D5185m         1010         845 <th>-</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>historv1</th> <th>historv2</th>	-		method	limit/base	current	historv1	historv2
Chromium         ppm         ASTM D5185m         >20         3         2            Nickel         ppm         ASTM D5185m         >4         <1		nom					
Nickel         ppm         ASTM D5185m         >4         <1         0            Titanium         ppm         ASTM D5185m         >3         0         0            Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >20         18         16            Lead         ppm         ASTM D5185m         >20         18         16            Copper         ppm         ASTM D5185m         >40         0         0            Vanadium         ppm         ASTM D5185m         >15         1         <1	-				-		
Titanium         ppm         ASTM D5185m         <1         0            Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >20         18         16            Lead         ppm         ASTM D5185m         >40         0         0            Copper         ppm         ASTM D5185m         >330         4         3            Tin         ppm         ASTM D5185m         >1         <1					-		
Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >20         18         16            Lead         ppm         ASTM D5185m         >40         0         0            Copper         ppm         ASTM D5185m         >330         4         3            Vanadium         ppm         ASTM D5185m         >15         1         <1				>4			
Aluminum         ppm         ASTM D5185m         >20         18         16            Lead         ppm         ASTM D5185m         >40         0         0            Copper         ppm         ASTM D5185m         >330         4         3            Tin         ppm         ASTM D5185m         >15         1         <1				0		•	
Lead         ppm         ASTM D5185m         >40         0         0            Copper         ppm         ASTM D5185m         >330         4         3            Tin         ppm         ASTM D5185m         >15         1         <1					-		
Copper         ppm         ASTM D5185m         >330         4         3            Tin         ppm         ASTM D5185m         >15         1         <1					-		
Tin         ppm         ASTM D5185m         >15         1         <1            Vanadium         ppm         ASTM D5185m          <1         0            Cadmium         ppm         ASTM D5185m          <1         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         40            Barium         ppm         ASTM D5185m         0         3         0            Molybdenum         ppm         ASTM D5185m         0         1         <1            Magnese         ppm         ASTM D5185m         1010         845         609            Magnesium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1150         887         814            Sulfur         ppm         ASTM D5185m         2060         2742         3514            Solicon         ppm         ASTM D5185m         >20							
Vanadium         ppm         ASTM D5185m         <1         0            Cadmium         ppm         ASTM D5185m         <1		ppm				-	
Cadmium         ppm         ASTM D5185m         <1         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         40            Barium         ppm         ASTM D5185m         0         3         0            Barium         ppm         ASTM D5185m         0         3         0            Magnesium         ppm         ASTM D5185m         0         1         <1            Magnesium         ppm         ASTM D5185m         0         1         <1            Magnesium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1070         1109         1553            Sulfur         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         260         2742         3514            Sulfur         ppm         ASTM D5185m         225         8				>15			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         40            Barium         ppm         ASTM D5185m         0         3         0            Barium         ppm         ASTM D5185m         0         1         <1	Vanadium	ppm	ASTM D5185m		<1		
Boron         ppm         ASTM D5185m         0         5         40            Barium         ppm         ASTM D5185m         0         3         0            Molybdenum         ppm         ASTM D5185m         60         55         33            Manganese         ppm         ASTM D5185m         0         1         <1            Magnesium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1070         1102         982            Sulfur         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            Soliton         ppm         ASTM D5185m         >20         <1         2            Soliton         ppm         ASTM D5185m	Cadmium	ppm	ASTM D5185m		<1	0	
Barium         ppm         ASTM D5185m         0         3         0            Molybdenum         ppm         ASTM D5185m         60         55         33            Manganese         ppm         ASTM D5185m         0         1         <1            Magnesium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1070         1102         982            Zinc         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            Solicon         ppm         ASTM D5185m         >25         8         7            Solicon         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/b			method	limit/baco	ourroot	history	history?
Molybdenum         ppm         ASTM D5185m         60         55         33            Manganese         ppm         ASTM D5185m         0         1         <1            Magnesium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            Sollicon         ppm         ASTM D5185m         225         8         7            Sodium         ppm         ASTM D5185m         >20         <11         2            Sodium         ppm         ASTM D5185m         >20         <1         2            Sodium         ppm         ASTM D7844         >3         0.3         0.3            INFRA-RED         method         limit	ADDITIVES		method	iiiiii/base	current	nistory i	TIIStor yz
Manganese         ppm         ASTM D5185m         0         1         <1		ppm					-
Magnesium         ppm         ASTM D5185m         1010         845         609            Calcium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1070         1109         1553            Zinc         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >20         <1         2            Sodium         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.3            Sulfation         Abs/.tmm         *ASTM D74	Boron		ASTM D5185m	0	5	40	
Calcium         ppm         ASTM D5185m         1070         1109         1553            Phosphorus         ppm         ASTM D5185m         1150         887         814            Zinc         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >20         <1         2            Sodium         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.tmm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.tmm         *ASTM D7415 <th>Boron Barium</th> <th>ppm</th> <th>ASTM D5185m ASTM D5185m</th> <th>0</th> <th>5 3</th> <th>40 0</th> <th></th>	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	5 3	40 0	
Phosphorus         ppm         ASTM D5185m         1150         887         814            Zinc         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >20         <1         2            NFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7415         >30         17.9         22.2            FLUID DEGRADATION         method         limit	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 3 55	40 0 33	
Zinc         ppm         ASTM D5185m         1270         1102         982            Sulfur         ppm         ASTM D5185m         2060         2742         3514            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >20         <1         2            Nortassium         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.3            Sulfation         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7624         >20         7.5         9.1            FLUID DEGRADATION         method         limi	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 3 55 1	40 0 33 <1	
SulfurppmASTM D5185m206027423514CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2587SodiumppmASTM D5185m>2043PotassiumppmASTM D5185m>20<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.3NitrationAbs/cm*ASTM D7624>207.59.1SulfationAbs/.1mm*ASTM D7415>3017.922.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2514.519.2	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 3 55 1 845	40 0 33 <1 609	
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2587SodiumppmASTM D5185m>2043PotassiumppmASTM D5185m>20<12INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.3NitrationAbs/cm*ASTM D7624>207.59.1SulfationAbs/.1mm*ASTM D7415>3017.922.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2514.519.2	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	5 3 55 1 845 1109	40 0 33 <1 609 1553	  
Silicon         ppm         ASTM D5185m         >25         8         7            Sodium         ppm         ASTM D5185m         >20         4         3            Potassium         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7615         >30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	5 3 55 1 845 1109 887	40 0 33 <1 609 1553 814	  
Sodium         ppm         ASTM D5185m         4         3            Potassium         ppm         ASTM D5185m<>20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844<>3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624<>20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7415<>30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414<>25         14.5         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	5 3 55 1 845 1109 887 1102	40 0 33 <1 609 1553 814 982	
Sodium         ppm         ASTM D5185m         4         3            Potassium         ppm         ASTM D5185m<>20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844<>3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624<>20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7415<>30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414<>25         14.5         19.2	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	0 0 60 0 1010 1070 1150 1270 2060	5 3 55 1 845 1109 887 1102 2742	40 0 33 <1 609 1553 814 982 3514	
Potassium         ppm         ASTM D5185m         >20         <1	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	5 3 55 1 845 1109 887 1102 2742 current	40 0 33 <1 609 1553 814 982 3514 history1	     history2
Soot %         %         *ASTM D7844         >3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7415         >30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 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>	0 0 60 1010 1070 1150 1270 2060	5 3 55 1 845 1109 887 1102 2742 2742 current 8	40 0 33 <1 609 1553 814 982 3514 history1 7	    history2
Soot %         %         *ASTM D7844         >3         0.3         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7415         >30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         19.2	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	5 3 55 1 845 1109 887 1102 2742 2742 current 8 4	40 0 33 <1 609 1553 814 982 3514 history1 7 3	     history2
Nitration         Abs/cm         *ASTM D7624         >20         7.5         9.1            Sulfation         Abs/.1mm         *ASTM D7615         >30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	5 3 55 1 845 1109 887 1102 2742 current 8 4 4 <1	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2	     history2  
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.9         22.2            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	5 3 55 1 845 1109 887 1102 2742 current 8 4 4 <1 current	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1	     history2   history2
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.5     19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20	5 3 55 1 845 1109 887 1102 2742 <b>current</b> 8 4 -1 <b>current</b> 0.3	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1 0.3	     history2  history2
Oxidation Abs/.1mm *ASTM D7414 >25 14.5 19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	5 3 55 1 845 1109 887 1102 2742 <i>current</i> 8 4 <1 <i>current</i> 0.3 7.5	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1 0.3 9.1	history2 history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	5 3 55 1 845 1109 887 1102 2742 current 8 4 <1 current 0.3 7.5 17.9	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1 0.3 9.1 22.2	      history2  history2  history2
Base Number (BN) mg KUHig ASIM D2896 10.0 8.6 10.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 imit/base	5 3 55 1 845 1109 887 1102 2742 current 8 4 <1 current 0.3 7.5 17.9 current	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1 0.3 9.1 22.2 history1	history2 history2 history2 history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	5 3 55 1 845 1109 887 1102 2742 current 8 4 <1 current 0.3 7.5 17.9 current 14.5	40 0 33 <1 609 1553 814 982 3514 history1 7 3 2 history1 0.3 9.1 22.2 history1 19.2	      history2  history2  history2  history2



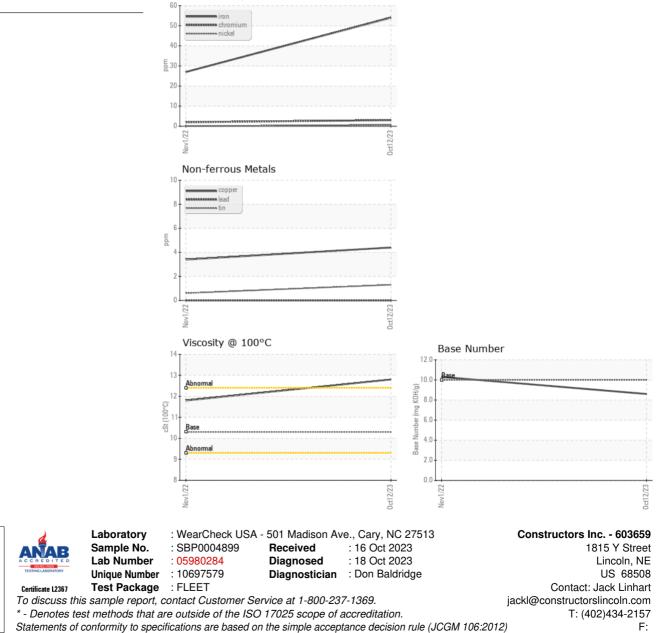
# **OIL ANALYSIS REPORT**

Base Number





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPERT	ΓIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.3	12.8	11.8	
GRAPHS						
Ferrous Alloys						



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