

#### Machine Id **28005** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

# RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

### **WEAR**

Cylinder, crank, or cam shaft wear is indicated.

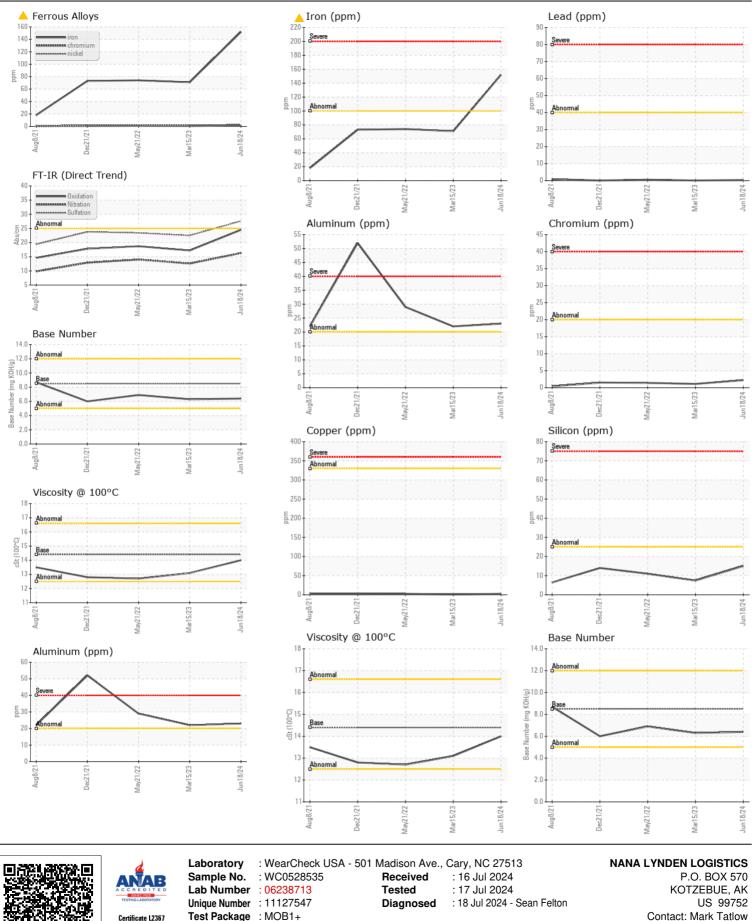
## CONTAMINATION

Elevated aluminum (AI) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Sample Number     Client Info     IK 00528638     WC0681206     WC0528558       Sample Date     Client Info     18 Jun 2021     15 Mar 2023     21 May 2022       Oil Age     hrs     Client Info     1134     1311     642       Filter Changed     Client Info     1134     1311     642       Oil Changed     Client Info     Changed     Changed <th></th> <th>Test</th> <th>UOM</th> <th>Method</th> <th>Limit/Abn</th> <th>Current</th> <th>History1</th> <th>History2</th>		Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age     hrs     Client Info     5962     3605     2294       Oil Age     hrs     Client Info     1134     1311     642       Fitter Age     hrs     Client Info     Changed     Changed     Changed       Sample Status     Client Info     Changed     Changed     Changed     Changed       Sample Status     Sample Status     NORMAL     NORMAL     NORMAL     NORMAL       Iron     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >30     0     0     -1       Tin     ppm     ASTM D5185m     >30     2     1     2       Yelow Metal     scalar     "Visual     NONE     NONE     NONE     NONE       Velow Metal     scalar     "Visual     NONE     NONE     NONE		Sample Number		Client Info		WC0528535	WC0681206	WC0528558
Oil Age     hrs     Client Info     1134     1311     642       Filter Age     hrs     Client Info     1134     1311     642       Oil Changed     Client Info     Changed     Changed     Changed     Changed       Sample Status     Client Info     Changed     NORMAL     NORMAL     NORMAL       Iron     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >20     23     21     -1       Vanadium     ppm     ASTM D5185m     >20     23     21     -1     -1       Vanadium     ppm     ASTM D5185m     >20     21     1     -1     -1       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Vanadium     ppm     ASTM D5185m     >20 <t< th=""><th></th><th>Sample Date</th><th></th><th></th><th></th><th>18 Jun 2024</th><th>15 Mar 2023</th><th>21 May 2022</th></t<>		Sample Date				18 Jun 2024	15 Mar 2023	21 May 2022
Filter Age     hrs     Client Info     1134     1311     642       Oil Changed     Client Info     Changed     Ch		Ũ	hrs	Client Info		5962	3605	2294
Oil ChangedClient InfoChanged ChangedC		0	hrs			-		
Filter Changed Sample Status     Client Info     Changed ABNORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL       Iron     ppm     ASTM D5185m     >100     152     71     74       Chromium     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >20     2     1     1       Silver     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >40     <1     0     <1       Vanadium     ppm     ASTM D5185m     >40     <1     0     <1       Vanadium     ppm     ASTM D5185m     >20     25     <1     <1     1       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Vellow Metal     scalar     *Visual     NONE     NONE     NONE		Filter Age	hrs			1134	1311	642
Sample Status     ABNORMAL     NORMAL     NORMAL     NORMAL       Iron     ppm     ASTM D5185m<>100     ▲ 152     71     74       Chromium     ppm     ASTM D5185m     >40     1     0     <11       Nickel     ppm     ASTM D5185m     >4     1     0     <1       Titanium     ppm     ASTM D5185m     >30     0     0     0       Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >300     2     1     2       Tin     ppm     ASTM D5185m     >300     2     1     0     <1       Variadium     ppm     ASTM D5185m     >20     15     7     11       Variadium     ppm     ASTM D5185m<>25     15     7     11       Potassium     ppm     ASTM D5185m<>20     25     27     11		Oil Changed		Client Info		Changed	Changed	Changed
Iron     ppm     ASTM D5185m     >100     ▲ 152     71     74       Chromium     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >4     1     0     <1       Titanium     ppm     ASTM D5185m     >4     1     0     <1       Titanium     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >330     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     0     <1       Vanadium     ppm     ASTM D5185m     >25     15     7     11       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Velow Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Silicon     ppm     ASTM D7844     >3		Filter Changed		Client Info		Changed	Changed	Changed
Chromium     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >4     1     0     <1       Titanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >30     2     1     2       Tin     ppm     ASTM D5185m     >330     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     1     1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1     1       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Velassium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     50.2     NEG     NEG     NEG       Solicon     ppm     ASTM D7184     3     1.4		Sample Status				ABNORMAL	NORMAL	NORMAL
Chromium     ppm     ASTM D5185m     >20     2     1     1       Nickel     ppm     ASTM D5185m     >4     1     0     <1       Titanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >30     2     1     2       Tin     ppm     ASTM D5185m     >330     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     1     1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1     1       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Velassium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     50.2     NEG     NEG     NEG       Solicon     ppm     ASTM D7184     3     1.4		Iron			. 100	450	71	74
Nickel     ppm     ASTM D5185m     >4     1     0     <1		-				-		
Titanium     ppm     ASTM D5185m     17     16     16       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >40     <1     0     <1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >25     15     7     11       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >5.2     15     7     11       Potassium     ppm     ASTM D784     >3     1.4     1.1     1.1       Kater     WC Method     >0.2     NEG     NONE     NONE								
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >300     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >20     25     27     41       Vellow Metal     scalar     'Visual     NONE     NONE     NONE     NONE       Silicon     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     'ASTM D7624     >20     16.3     12.6     14					>4			
Aluminum     ppm     ASTM D5185m     >20     23     22     29       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Copper     ppm     ASTM D5185m     >330     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     0     <1       White Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Yellow Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Silicon     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     'ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/:mm     'ASTM D7624     >20     16.3     12					.2			
Lead     ppm     ASTM D5185m     >40     <1								
Copper     ppm     ASTM D5185m     >330     2     1     2       Tin     ppm     ASTM D5185m     >15     <1     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     0     <1       White Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Yellow Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Silicon     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/tmm     *ASTM T0764     >20     16.3     12.6     14.0       Sulfation     Abs/tmm     *ASTM T0764     >20     16.3     12.6     14.0       Sulfation     Abs/tmm     *ASTM T0765     >3						-		
TinppmASTM D5185m>15<1								
VanadiumppmASTM D5185m<1								
White Metal Yellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>20252741PotassiumppmASTM D5185m>20252741FuelWC Method>5<1.0<1.0<1.0WaterWC Method>0.2NEGNEGNEGGlycolWC Method>0.2NEGNEGNEGSoot %%*ASTM D7844>31.41.11.1NitrationAbs/cm*ASTM D745>3027.622.523.4Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORLNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLManganeseppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m250466166ManganeseppmASTM D5185m250740744667CalciumppmASTM D5185m1150755680647Zincppm <th></th> <th></th> <th></th> <th>&gt;15</th> <th></th> <th></th> <th></th>					>15			
Yellow Metal     scalar     *Visual     NONE     NONE     NONE     NONE       Silicon     ppm     ASTM D5185m     >25     15     7     11       Potassium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/cm     *ASTM D7844     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE       Debris     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     NORML     N					NONE			
Silicon     ppm     ASTM D5185m     >25     15     7     11       Potassium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     *ASTM D7644     >3     1.4     1.1     1.1       Nitration     Abs/.mm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.mm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.mm     *ASTM D7624     >20     16.3     12.6     NONE       Debris     scalar     *Visual     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     >0.2     NEG						-		
Potassium     ppm     ASTM D5185m     >20     25     27     41       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7155     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     NOR     NORM <th></th> <th></th> <th>304141</th> <th>VISUAI</th> <th></th> <th></th> <th>NONL</th> <th>NONL</th>			304141	VISUAI			NONL	NONL
Fuel     WC Method     >5     <1.0		Silicon	ppm	ASTM D5185m	>25	15	7	11
Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     NEG     NEG     NEG       Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.1mm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.1mm     *ASTM D7615     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Debris     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML     NORML     NORML       Emulsified Water     scalar     *Visual     NORML     NORML     NORML     NORML     NORML       Boron     ppm     ASTM D5185m     >158     6     4     3 <th>Potassium</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;20</th> <th>25</th> <th>27</th> <th>41</th>		Potassium	ppm	ASTM D5185m	>20	25	27	41
Glycol     WC Method     NEG     NEG     NEG       Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/cm     *ASTM D7615     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Debris     scalar     *Visual     NOR     NOR     NOR     NONE     NONE       Appearance     scalar     *Visual     NOR     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     >0.2     NEG     NEG     NEG       Sodium     ppm     ASTM D5185m     >158     6     4     3       Boron		Fuel		WC Method	>5	<1.0	<1.0	<1.0
Soot %     %     *ASTM D7844     >3     1.4     1.1     1.1       Nitration     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.tmm     *ASTM D7415     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE       Debris     scalar     *Visual     NONE     NONE     NONE     NONE       Sand/Dirt     scalar     *Visual     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     NORM     NORML     NORML     NORML       Odor     scalar     *Visual     >0.2     NEG     NEG     NEG       Sodium     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm		Water		WC Method	>0.2	NEG	NEG	NEG
Nitration     Abs/cm     *ASTM D7624     >20     16.3     12.6     14.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     27.6     22.5     23.4       Silt     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Debris     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Sand/Dirt     scalar     *Visual     NONE     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NORML     NORML     NORML     NORML       Odor     scalar     *Visual     NOR     NORML     NORML     NORML     NORML       Emulsified Water     scalar     *Visual     >0.2     NEG     NEG     NEG       Sodium     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100		Glycol		WC Method		NEG	NEG	NEG
SulfationAbs/.1mm*ASTM D7415>3027.622.523.4Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m100313129ManganeseppmASTM D5185m100313129ManganeseppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1150755680647ZincppmASTM D5185m1350851856801SulfurppmASTM D5185m42502941343222876OxidationAbs/.1mm*ASTM D7414>2524.517.218.7Base Number (BN)mgKOHgASTM D28968.56.46.36.9		Soot %	%	*ASTM D7844	>3	1.4	1.1	1.1
Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m100313129ManganeseppmASTM D5185m100313129MagnesiumppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1150755680647ZincppmASTM D5185m1350851856801SulfurppmASTM D5185m4250294134322876OxidationAbs/1mm*ASTM D7414>2524.517.218.7Base Number (BN)mg KOHgASTM D28968.56.46.36.9		Nitration	Abs/cm	*ASTM D7624	>20	16.3	12.6	14.0
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m100313129ManganeseppmASTM D5185m100313129MagnesiumppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1350851856801SulfurppmASTM D5185m1350851856801SulfurppmASTM D5185m4250294134322876OxidationAbs/Imm*ASTM D7414>2524.517.218.7Base Number (BN)mg KOHgASTM D28968.56.46.36.9		Sulfation	Abs/.1mm	*ASTM D7415	>30	27.6	22.5	23.4
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m100000MolybdenumppmASTM D5185m100313129ManganeseppmASTM D5185m450740744667CalciumppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1350851856801SulfurppmASTM D5185m4250294134322876OxidationAbs/1mm*ASTM D7414>2524.517.218.7Base Number (BN)mg KOHgASTM D28968.56.46.36.9		Silt	scalar		NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100313129ManganeseppmASTM D5185m450740744667CalciumppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1350851856801SulfurppmASTM D5185m4250294134322876OxidationAbs/.tmm*ASTM D7414>2524.517.218.7Base Number (BN)mg KOHgASTM D2968.56.46.36.9		Debris	scalar		NONE			
Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>158643BoronppmASTM D5185m250466166BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100313129ManganeseppmASTM D5185m100313129MagnesiumppmASTM D5185m450740744667CalciumppmASTM D5185m3000153016401498PhosphorusppmASTM D5185m1350851856801SulfurppmASTM D5185m4250294134322876OxidationAbs/.tmm*ASTM D7414>2524.517.218.7Base Number (BN)mg KOHgASTM D29868.56.46.36.9		Sand/Dirt	scalar					
Emulsified Water     scalar     *Visual     >0.2     NEG     NEG     NEG       Sodium     ppm     ASTM D5185m     >158     6     4     3       Boron     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     1350     2941     3432     2876       Oxidation     Abs/.mm< *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOHg     ASTM D2896<						-		
Sodium     ppm     ASTM D5185m     >158     6     4     3       Boron     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150     755     680     647       Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     1350     2941     34322     2876       Oxidation     Abs/.imm     *ASTM D7414								
Boron     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     100     31     31     29       Calcium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7414<>25     24.5     17.2     18.7       Base Number (BN)     mg K0Hg     ASTM D2896		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Boron     ppm     ASTM D5185m     250     46     61     66       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     100     31     31     29       Calcium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7414<>25     24.5     17.2     18.7       Base Number (BN)     mg K0Hg     ASTM D2896		Sodium	maa	ASTM D5185m	>158	6	4	3
Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     100     31     31     29       Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150     755     680     647       Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm<*ASTM D7414<>25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.4     6.3     6.9						-		
Molybdenum     ppm     ASTM D5185m     100     31     31     29       Manganese     ppm     ASTM D5185m     2     2     1       Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150     755     680     647       Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.4     6.3     6.9								
Manganese     ppm     ASTM D5185m     2     2     1       Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150     755     680     647       Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.mm     *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOHg     ASTM D2896     8.5     6.4     6.3     6.9								
Magnesium     ppm     ASTM D5185m     450     740     744     667       Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150     755     680     647       Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D286     8.5     6.4     6.3     6.9								
Calcium     ppm     ASTM D5185m     3000     1530     1640     1498       Phosphorus     ppm     ASTM D5185m     1150 <b>755</b> 680     647       Zinc     ppm     ASTM D5185m     1350 <b>851</b> 856     801       Sulfur     ppm     ASTM D5185m     4250 <b>2941</b> 3432     2876       Oxidation     Abs/.mm     *ASTM D7414     >25 <b>24.5</b> 17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5 <b>6.4</b> 6.3     6.9		-		ASTM D5185m	450			667
Phosphorus     ppm     ASTM D5185m     1150 <b>755</b> 680     647       Zinc     ppm     ASTM D5185m     1350 <b>851</b> 856     801       Sulfur     ppm     ASTM D5185m     4250 <b>2941</b> 3432     2876       Oxidation     Abs/.tmm     *ASTM D7141     >25 <b>24.5</b> 17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5 <b>6.4</b> 6.3     6.9		0				1530	1640	1498
Zinc     ppm     ASTM D5185m     1350     851     856     801       Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7144     >25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.4     6.3     6.9				ASTM D5185m				
Sulfur     ppm     ASTM D5185m     4250     2941     3432     2876       Oxidation     Abs/.tmm     *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.4     6.3     6.9								
Oxidation     Abs/.1mm     *ASTM D7414     >25     24.5     17.2     18.7       Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.4     6.3     6.9		Sulfur		ASTM D5185m				
				*ASTM D7414	>25		17.2	18.7
Visc @ 100°C cSt ASTM D445 14.4 14.0 13.1 12.7		Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.4	6.3	6.9
		Visc @ 100°C	cSt	ASTM D445	14.4	14.0	13.1	12.7

### 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.



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)

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