

# 61 ALBERT ST E HASTINGS BELL CANADA BELL CANADA

# **Right Diesel Engine**

# ESSO XD-3 EXTRA 15W40 (15 LTR)

## RECOMMENDATION

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The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

### WEAR

Metal levels are typical for a new component breaking in.

# CONTAMINATION

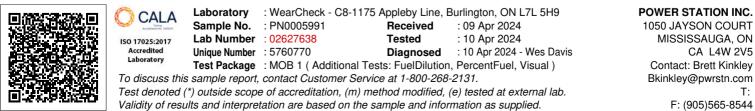
Light fuel dilution occurring. No other contaminants were detected in the oil.

#### FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Test  UOM  Method  Limit/Abs  Current  History1  History2    Sample Date  Client Info  02 Apr 2024      Machine Age  hrs  Client Info  177      Oil Age  hrs  Client Info  177      Oil Changed  Client Info  177      Oil Changed  Client Info  Changed      Sample Status  Client Info  Changed      Nickel  ppm  ASTM 05185(m)  >20  1     Nickel  ppm  ASTM 05185(m)  >2  0     Silver  ppm  ASTM 05185(m)  >20  1     Auminum  ppm  ASTM 05185(m)  >20  2      Auminum  ppm  ASTM 05185(m)  >20  2      Auminum  ppm  ASTM 05185(m)  >30  <							
Sample Number  Cilient Info  PN0005991      Machine Age  hrs  Cilient Info  177      Oil Age  hrs  Cilient Info  177      Filter Age  hrs  Cilent Info  177      Gil Changed  Cilent Info  Changed      Filter Changed  Cilent Info  Changed      Sample Status   NORMAL      Iron  ppm  ASTM D5185(m)  >20      Nickel  ppm  ASTM D5185(m)  >20      Silver  ppm  ASTM D5185(m)  >20      Lead  ppm  ASTM D5185(m)  >20      Vanadium  ppm  ASTM D5185(m)  >20      Vandium  ppm  ASTM D5185(m)  >20      Valew	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age  hrs  Client Info  177      Oil Age  hrs  Client Info  177      Filter Changed  Client Info  Changed      Filter Changed  Client Info  Changed      Sample Status  Client Info  Changed      Iron  ppm  ASTM D5185(m)  >15      Nickel  ppm  ASTM D5185(m)  >2  0      Nickel  ppm  ASTM D5185(m)  >2  0      Silver  ppm  ASTM D5185(m)  >20  1      Lead  ppm  ASTM D5185(m)  >20  1      Vanadium  ppm  ASTM D5185(m)  >40  2      Vanadium  ppm  ASTM D5185(m)  >0  1      Vanadium  ppm <t< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>PN0005991</th><th>-</th><th></th></t<>	Sample Number		Client Info		PN0005991	-	
Oil Age  hrs  Client Info  177      Filter Age  hrs  Client Info  177      Oil Changed  Client Info  Changed      Sample Status  Client Info  Changed      Iron  ppm  ASTM D5185(m)  >20  1     Nickel  ppm  ASTM D5185(m)  >20  1     Nickel  ppm  ASTM D5185(m)  >2  0      Nickel  ppm  ASTM D5185(m)  >2  0      Silver  ppm  ASTM D5185(m)  >2  0      Auminum  ppm  ASTM D5185(m)  >30  12      Vanadium  ppm  ASTM D5185(m)  >30  12      Vanadium  ppm  ASTM D5185(m)  >2  17      Vanadium  ppm	Sample Date		Client Info		02 Apr 2024		
Filter Age  hrs  Client Info  177      Oil Changed  Client Info  Changed      Filter Changed  Client Info  Changed      Sample Status  Visual  NORMAL      Iron  ppm  ASTM D5185(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >20  1      Aluminum  ppm  ASTM D5185(m)  >20  2      Auminum  ppm  ASTM D5185(m)  >20  1      Auminum  ppm  ASTM D5185(m)  >20  12      Vanadium  ppm  ASTM D5185(m)  >25  17      Vanadium  ppm  ASTM D5185(m)  >25  17      Vanadiu	Machine Age	hrs	Client Info		177		
Oil Changed Filter Changed Sample Status  Client Info  Changed Changed      Iron  ppm  ASTM D5185(m)  >150  15      Iron  ppm  ASTM D5185(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >2  0      Nickel  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >20  0      Lead  ppm  ASTM D5185(m)  >20  12      Vanadium  ppm  ASTM D5185(m)  >15  <11      Valew  woketal  scalar  Visual*  NONE  NONE     Valew  ppm  ASTM D5185(m)  >20  2      Valew  woketal  scalar	Oil Age	hrs	Client Info		177		
Oil Changed Filter Changed Sample Status  Client Info  Changed Changed      Iron  ppm  ASTM D5185(m)  >150  15      Iron  ppm  ASTM D5185(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >2  0      Nickel  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >20  0      Lead  ppm  ASTM D5185(m)  >20  12      Vanadium  ppm  ASTM D5185(m)  >15  <11      Valew  woketal  scalar  Visual*  NONE  NONE     Valew  ppm  ASTM D5185(m)  >20  2      Valew  woketal  scalar	Filter Age	hrs	Client Info		177		
Filter Changed  Client Info  Changed      Sample Status  NORMAL       Iron  ppm  ASTM D5185(m)  >10  1      Nickel  ppm  ASTM D5185(m)  >2  0      Nickel  ppm  ASTM D5185(m)  >2  0      Silver  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >20  1      Lead  ppm  ASTM D5185(m)  >0  12      Vanadium  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >0  0      Vanadium  ppm  ASTM D5185(m)  >20  2      Valow Metal  scalar  Visual*  NONE	•		Client Info		Changed		
Sample Status  NORMAL      Iron  ppm  ASTM D5185(m)  >150  15     Chromium  ppm  ASTM D5185(m)  >20  1     Nickel  ppm  ASTM D5185(m)  >2  0     Titanium  ppm  ASTM D5185(m)  >2  0     Silver  ppm  ASTM D5185(m)  >2  0     Aluminum  ppm  ASTM D5185(m)  >20  2     Lead  ppm  ASTM D5185(m)  >20  2     Copper  ppm  ASTM D5185(m)  >30  12     Vanadium  ppm  ASTM D5185(m)  >0      Vanadium  ppm  ASTM D5185(m)  >20  2      Vanadium  ppm  ASTM D5185(m)  >20  2      Vellow Metal  scalar  Visual*  NONE	Filter Changed		Client Info		Ū		
Iron  ppm  ASTM D5185(m)  >150  15      Chromium  ppm  ASTM D5185(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >2  0      Titanium  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >20  2      Aluminum  ppm  ASTM D5185(m)  >40  2      Lead  ppm  ASTM D5185(m)  >40  2      Copper  ppm  ASTM D5185(m)  >40  2      Vanadium  ppm  ASTM D5185(m)  >40  2      Vanadium  ppm  ASTM D5185(m)  >40  2      Vanadium  ppm  ASTM D5185(m)  >20  12      Vellow Metal  scalar	Sample Status						
Chromium  ppm  ASTM D5186(m)  >20  1      Nickel  ppm  ASTM D5185(m)  >2  0      Titanium  ppm  ASTM D5185(m)  >2  0      Silver  ppm  ASTM D5185(m)  >20  2      Auminum  ppm  ASTM D5185(m)  >20  2      Lead  ppm  ASTM D5185(m)  >20  2      Copper  ppm  ASTM D5185(m)  >30  12      Vanadium  ppm  ASTM D5185(m)  >10       Vanadium  ppm  ASTM D5185(m)  >20  2      Vanadium  ppm  ASTM D5185(m)  >20  2      Valew  wC Method  >0.2  NCE       Solicon  mbs/cm							
Nickel  ppm  ASTM D5185(m)  >2  0      Titanium  ppm  ASTM D5185(m)  >2  <1      Silver  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >20  2      Lead  ppm  ASTM D5185(m)  >40  2      Copper  ppm  ASTM D5185(m)  >40  2      Vanadium  ppm  ASTM D5185(m)  >30  12      Vanadium  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >20  2      Vanadium  ppm  ASTM D5185(m)  >20  2      Valow Metal  scalar  Visual*  NONE  NORE      Fuel  %	Iron	ppm	ASTM D5185(m)	>150	15		
Titanium  ppm  ASTM D5185(m)  >2  <1	Chromium	ppm	ASTM D5185(m)	>20	1		
Silver  ppm  ASTM D5185(m)  >2  0      Aluminum  ppm  ASTM D5185(m)  >40  2      Lead  ppm  ASTM D5185(m)  >40  2      Copper  ppm  ASTM D5185(m)  >30  12      Vanadium  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >25  17      Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D7533*  >5  1      Giycol  WC Method  >0.2  NEG      Soti %  %  ASTM D7624*	Nickel	ppm	ASTM D5185(m)	>2	0		
Aluminum  ppm  ASTM D5185(m)  >20  2      Lead  ppm  ASTM D5185(m)  >40  2      Copper  ppm  ASTM D5185(m)  >30  12      Tin  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >15  <1      White Metal  scalar  Visual*  NONE  NONE      Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D7593*  >5  1      Glycol  WC Method  >0.2  NEG      Soto %  %  ASTM D7624*<>20  7.6      Sulfation  Abs/tmm  ASTM D7415  >30 <th>Titanium</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>&gt;2</th> <th>&lt;1</th> <th></th> <th></th>	Titanium	ppm	ASTM D5185(m)	>2	<1		
Lead  ppm  ASTM D5185(m)  >40  2      Copper  ppm  ASTM D5185(m)  >30  12      Tin  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >15  <1      White Metal  scalar  Visual*  NONE  NONE      Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >25  17      Potassium  ppm  ASTM D5185(m)  >20  2      Water  WC Method  >0.2  NEG       Sot %  %  ASTM D7624*  >30  18.4      Sulfation  Abs/rmm  ASTM D7624*  >20  7.6      Sulfation  Abs/r	Silver	ppm	ASTM D5185(m)	>2	0		
Copper  ppm  ASTM D5185(m)  >30  12      Tin  ppm  ASTM D5185(m)  >15  <1      Vanadium  ppm  ASTM D5185(m)  >15  <1      White Metal  scalar  Visual*  NONE  NONE      Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >25  17      Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D7533*  >5  1      Water  WC Method  >0.2  NEG       Sot %  %  ASTM D7624*  >30  18.4      Sulfation  Abs/:nm  ASTM D71624*  >30  18.4      Debris  scalar <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>&gt;20</th> <th>2</th> <th></th> <th></th>	Aluminum	ppm	ASTM D5185(m)	>20	2		
Tin  ppm  ASTM D5185(m)  > 15  <1	Lead	ppm	ASTM D5185(m)	>40	2		
Vanadium  ppm  ASTM D5185(m)  0      White Metal  scalar  Visual*  NONE  NONE      Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >20  2      Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D7593*  >5  1      Water  WC Method  >0.2  NEG      Soot %  %  ASTM D7624*  >30      Sulfation  Abs/tmm  ASTM D7624*  >30  18.4      Sulfation  Abs/tmm  ASTM D715'  >30  18.4      Sulfation  Abs/tmm  NONE  NONE       Sodium  ppm  ASTM D5185(m)  S10	Copper	ppm	ASTM D5185(m)	>30	12		
White Metal  scalar  Visual*  NONE      Yellow Metal  scalar  Visual*  NONE      Silicon  ppm  ASTM D5185(m)  >25  17      Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D5185(m)  >20  2      Water  WC Method  >0.2  NEG      Glycol  WC Method  >0.2  NEG      Soot %  %  ASTM D7844*  >3  0      Sulfation  Abs/:m  ASTM D7624*  >20  7.6      Sulfation  Abs/:m  ASTM D7415*  >30  18.4      Sulfation  Abs/:m  ASTM D7814*  NONE  NONE      Sand/Dirt  scalar  Visual*  NORML  NORML	Tin	ppm	ASTM D5185(m)	>15	<1		
Yellow Metal  scalar  Visual*  NONE  NONE      Silicon  ppm  ASTM D5185(m)  >25  17      Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D5185(m)  >20  2      Water  WC Method  >0.2  NEG      Glycol  WC Method  >0.2  NEG      Soot %  %  ASTM D7844*  >3  0      Sulfation  Abs/rm  ASTM D7624*  >20  7.6      Sulfation  Abs/rm  ASTM D7415*  >30  18.4      Sulfation  Abs/rm  ASTM D7415*  >30  18.4      Sulfation  Abs/rm  NONE  NORE       Sand/Dirt  scalar  Visual* <t< th=""><th>Vanadium</th><th>ppm</th><th>ASTM D5185(m)</th><th></th><th>0</th><th></th><th></th></t<>	Vanadium	ppm	ASTM D5185(m)		0		
Silicon  ppm  ASTM D5185(m)  >25  17     Potassium  ppm  ASTM D5185(m)  >20  2     Fuel  %  ASTM D7593'  >5  1     Water  WC Method  >0.2  NEG     Glycol  WC Method  >0.2  NEG     Soot %  %  ASTM D7844'  >3  0     Soot %  %  ASTM D7624'  >20  7.6     Sulfation  Abs/cm  ASTM D7624'  >30  18.4      Sulfation  Abs/cm  ASTM D718's  >30  18.4      Debris  scalar  Visual*  NORM  NORML <td< th=""><th>White Metal</th><th>scalar</th><th>Visual*</th><th>NONE</th><th>NONE</th><th></th><th></th></td<>	White Metal	scalar	Visual*	NONE	NONE		
Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D57593*  >5  1      Water  WC Method  >0.2  NEG      Glycol  WC Method  NEG      Soot %  %  ASTM D7844*  >3  0     Nitration  Abs/cm  ASTM D7624*  >20  7.6     Sulfation  Abs/cm  ASTM D715*  >30  18.4      Sulfation  Abs/cm  ASTM D7415*  >30  18.4      Sulfation  Abs/cm  NOTE  NONE       Sulfation  Abs/cm  NONE  NONE       Sulfation  scalar  Visual*  NONE  NORML      Appearance  scalar  Visual*  NORML  NORML	Yellow Metal	scalar	Visual*	NONE	NONE		
Potassium  ppm  ASTM D5185(m)  >20  2      Fuel  %  ASTM D57593*  >5  1      Water  WC Method  >0.2  NEG      Glycol  WC Method  NEG      Soot %  %  ASTM D7844*  >3  0     Nitration  Abs/cm  ASTM D7624*  >20  7.6     Sulfation  Abs/cm  ASTM D715*  >30  18.4      Sulfation  Abs/cm  ASTM D7415*  >30  18.4      Sulfation  Abs/cm  NOTE  NONE       Sulfation  Abs/cm  NONE  NONE       Sulfation  scalar  Visual*  NONE  NORML      Appearance  scalar  Visual*  NORML  NORML							
Fuel%ASTM D7593*>51WaterWC Method>0.2NEGGlycolWC Method>30Soot %%ASTM D7844*>30NitrationAbs/mASTM D7624*>207.6SulfationAbs/mASTM D7624*>207.6SulfationAbs/mASTM D7415*>3018.4SulfationAbs/mNT415*>3018.4SulfationScalarVisual*NONENONESand/DirtscalarVisual*NONENONEAppearancescalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLBoronppmASTM D5185(m)>1924BariumppmASTM D5185(m)-2MagneseppmASTM D5185(m)399MagnesiumppmASTM D5185(m)37801326PhosphorusppmASTM D5185(m)11007ZincppmASTM D5185(m)13201146SulfurppmASTM D5185(m)38003289Ma			( )				
Water  WC Method  >0.2  NEG     Glycol  WC Method  NEG      Soot %  %  ASTM D7844*  >3  0     Nitration  Abs/cm  ASTM D7624*  >20  7.6     Sulfation  Abs/.1mm  ASTM D7624*  >20  7.6     Sulfation  Abs/.1mm  ASTM D7415*  >30  18.4      Sulfation  Abs/.1mm  ASTM D7415*  >30  18.4      Sulfation  Abs/.1mm  ASTM D7415*  >30  18.4      Sulfation  Abs/.1mm  ASTM D71415*  >30  18.4      Sand/Dirt  scalar  Visual*  NONE  NONE      Appearance  scalar  Visual*  NORML  NORML      Odor  scalar  Visual*  >0.2  NEG					_		
Glycol  WC Method  NEG     Soot %  %  ASTM D7844*  >3  0     Nitration  Abs/cm  ASTM D7624*  >20  7.6     Sulfation  Abs/1m  ASTM D7624*  >30  18.4      Sulfation  Abs/1m  ASTM D7415*  >30  18.4      Sulfation  scalar  Visual*  NONE  NONE      Appearance  scalar  Visual*  NORML  NORML      Odor  scalar  Visual*  >0.2  NEG      Sodium  ppm  ASTM D5185(m)  >192  4		%			-		
Soot %  %  ASTM D7844*  >3  0      Nitration  Abs/cm  ASTM D7624*  >20  7.6      Sulfation  Abs/.tmm  ASTM D7624*  >20  7.6      Sulfation  Abs/.tmm  ASTM D7624*  >30  18.4      Sulfation  Abs/.tmm  ASTM D7415*  >30  18.4      Silt  scalar  Visual*  NONE  NONE      Debris  scalar  Visual*  NONE  NONE      Appearance  scalar  Visual*  NORML  NORML      Odor  scalar  Visual*  NORML  NORML      Odor  scalar  Visual*  >0.2  NEG      Boron  ppm  ASTM D5185(m)  >192  4      Boron <t< th=""><th>Water</th><th></th><th></th><th>&gt;0.2</th><th>-</th><th></th><th></th></t<>	Water			>0.2	-		
NitrationAbs/cmASTM D7624*>207.6SulfationAbs/.1mmASTM D715*>3018.4SiltscalarVisual*NONENONEDebrisscalarVisual*NONEVLITESand/DirtscalarVisual*NONENONEAppearancescalarVisual*NORLNORMLOdorscalarVisual*NORLNORMLOdorscalarVisual*NORLNORMLOdorscalarVisual*NORLNORMLBoronppmASTM D5185(m)>1924BariumppmASTM D5185(m)<52ManganeseppmASTM D5185(m)2MagnesiumppmASTM D5185(m)39PhosphorusppmASTM D5185(m)37801326ZincppmASTM D5185(m)15001146SulfurppmASTM D5185(m)38003289OxidationAbs/.1mmASTM D7144*>2514.6	Glycol		WC Method		-		
SulfationAbs/.1mmASTM D7415*>3018.4SiltscalarVisual*NONENONEDebrisscalarVisual*NONEVLITESand/DirtscalarVisual*NONENONEAppearancescalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*NORMLNORMLSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)>1924MalybdenumppmASTM D5185(m)<<1ManganeseppmASTM D5185(m)2MagnesiumppmASTM D5185(m)37801326PhosphorusppmASTM D5185(m)15001146SulfurppmASTM D5185(m)38003289OxidationAbs/.1mmASTM D7414*>2514.6	Soot %	%	ASTM D7844*	>3	-		
SiltscalarVisual*NONENONEDebrisscalarVisual*NONEVLITESand/DirtscalarVisual*NONENONEAppearancescalarVisual*NORMNORMLOdorscalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*NORMLNORMLSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)>1924BariumppmASTM D5185(m)<<1MalybdenumppmASTM D5185(m)2MagnesiumppmASTM D5185(m)37801326PhosphorusppmASTM D5185(m)13701007ZincppmASTM D5185(m)15001146SulfurppmASTM D5185(m)3289OxidationAbs/.1mmASTM D5185(m)3289	Nitration	Abs/cm	ASTM D7624*	>20			
DebrisscalarVisual*NONEVLITESand/DirtscalarVisual*NONENONEAppearancescalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)<52BariumppmASTM D5185(m)<11MolybdenumppmASTM D5185(m)2MagnesiumppmASTM D5185(m)1326PhosphorusppmASTM D5185(m)13701007ZincppmASTM D5185(m)15001146SulfurppmASTM D5185(m)3289OxidationAbs/.1mmASTM D7414*>2514.6	Sulfation	Abs/.1mm	ASTM D7415*	>30	18.4		
Sand/DirtscalarVisual*NONENOREAppearancescalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*>0.2NEGEmulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)52BariumppmASTM D5185(m)<1MolybdenumppmASTM D5185(m)2MagnesiumppmASTM D5185(m)12PhosphorusppmASTM D5185(m)37801326ZincppmASTM D5185(m)13701007SulfurppmASTM D5185(m)38003289OxidationAbs/.1mmASTM D7414*>2514.6	Silt	scalar	Visual*	NONE	NONE		
AppearancescalarVisual*NORMLNORMLOdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)52BariumppmASTM D5185(m)<1MolybdenumppmASTM D5185(m)2ManganeseppmASTM D5185(m)2MagnesiumppmASTM D5185(m)37801326PhosphorusppmASTM D5185(m)13701007ZincppmASTM D5185(m)15001146SulfurppmASTM D5185(m)38003289OxidationAbs/.1mmASTM D7414*>2514.6	Debris	scalar	Visual*	NONE	VLITE		
OdorscalarVisual*NORMLNORMLEmulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)>1924BoronppmASTM D5185(m)52BariumppmASTM D5185(m)<1MolybdenumppmASTM D5185(m)2ManganeseppmASTM D5185(m)2MagnesiumppmASTM D5185(m)37801326PhosphorusppmASTM D5185(m)13701007ZincppmASTM D5185(m)15001146SulfurppmASTM D5185(m)38003289OxidationAbs/.1mmASTM D7414*>2514.6	Sand/Dirt	scalar	Visual*	NONE	NONE		
Emulsified Water  scalar  Visual*  >0.2  NEG     Sodium  ppm  ASTM D5185(m)  >192  4      Boron  ppm  ASTM D5185(m)  >192  4      Barium  ppm  ASTM D5185(m)   52      Malybdenum  ppm  ASTM D5185(m)   <1      Manganese  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  2      Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*	Appearance	scalar	Visual*	NORML	NORML		
Sodium  ppm  ASTM D5185(m)  >192  4      Boron  ppm  ASTM D5185(m)  >192  4      Boron  ppm  ASTM D5185(m)   52      Barium  ppm  ASTM D5185(m)   <1      Molybdenum  ppm  ASTM D5185(m)  39      Manganese  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  3780  1326      Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*<	Odor	scalar	Visual*	NORML	NORML		
Boron  ppm  ASTM D5185(m)  52      Barium  ppm  ASTM D5185(m)  <1      Molybdenum  ppm  ASTM D5185(m)  39      Manganese  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  2      Calcium  ppm  ASTM D5185(m)  749      Phosphorus  ppm  ASTM D5185(m)  3780  1326      Zinc  ppm  ASTM D5185(m)  1370  1007      Sulfur  ppm  ASTM D5185(m)  1500  1146      Oxidation  Abs/.1mm  ASTM D5185(m)  3800  3289	Emulsified Water	scalar	Visual*	>0.2	NEG		
Boron  ppm  ASTM D5185(m)  52      Barium  ppm  ASTM D5185(m)  <1      Molybdenum  ppm  ASTM D5185(m)  39      Manganese  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  2      Calcium  ppm  ASTM D5185(m)  749      Phosphorus  ppm  ASTM D5185(m)  3780  1326      Zinc  ppm  ASTM D5185(m)  1370  1007      Sulfur  ppm  ASTM D5185(m)  1500  1146      Oxidation  Abs/.1mm  ASTM D5185(m)  3800  3289	Codium			. 100	4		
Barium  ppm  ASTM D5185(m)  <1				>192			
Molybdenum  ppm  ASTM D5185(m)  39      Manganese  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  2      Magnesium  ppm  ASTM D5185(m)  749      Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6			( )				
Manganese  ppm  ASTM D5185(m)  2     Magnesium  ppm  ASTM D5185(m)  749      Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6							
Magnesium  ppm  ASTM D5185(m)  749      Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6	,		× 7				
Calcium  ppm  ASTM D5185(m)  3780  1326      Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6	0						
Phosphorus  ppm  ASTM D5185(m)  1370  1007      Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6	-		× 7	0700			
Zinc  ppm  ASTM D5185(m)  1500  1146      Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6							
Sulfur  ppm  ASTM D5185(m)  3800  3289      Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6	•						
Oxidation  Abs/.1mm  ASTM D7414*  >25  14.6							
Visc @ 100°C cSt ASTM D7279(m) 15.4 12.9							
	Visc @ 100°C	cSt	ASTM D7279(m)	15.4	12.9		





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