

#### Machine Id WMC Component Starboard Reduction Gear Fluid Reduction Gear Oil (--- GAL)

## RECOMMENDATION

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

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#### WEAR

All component wear rates are normal.

### CONTAMINATION

There is no indication of any contamination in the oil.

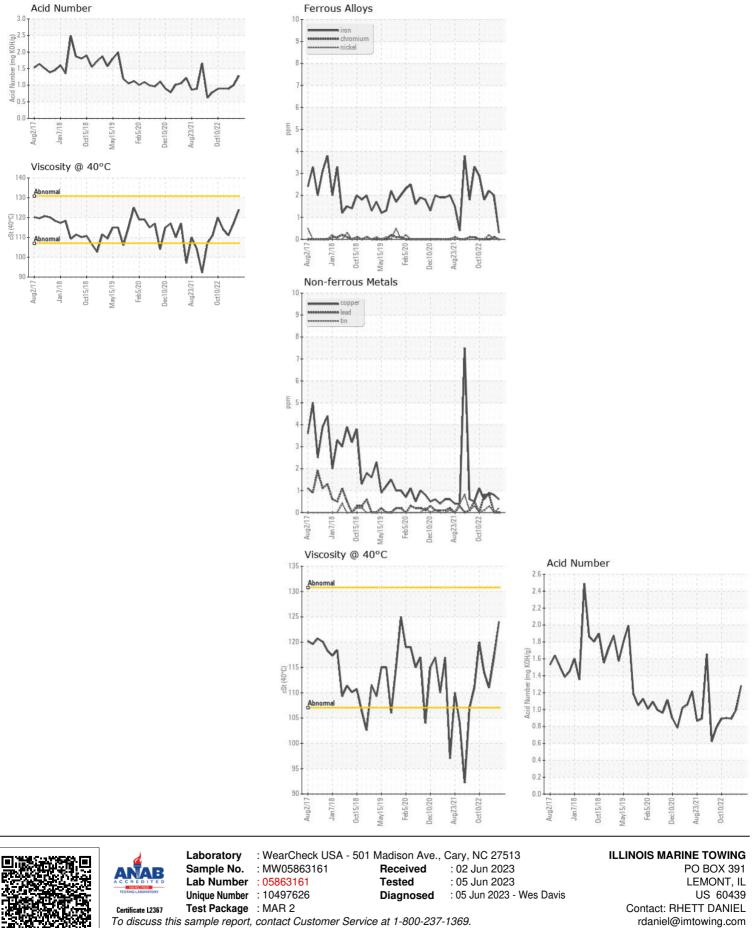
### **FLUID CONDITION**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sample Date         Client Info         01 Jun 2023         18 Apr 2023         22 Jan 2023           Machine Age         hrs         Client Info         66847         66078         65316           Oil Age         hrs         Client Info         769         762         1177           Filter Age         hrs         Client Info         N/A         N/A         N/A         N/A           Filter Changed         Client Info         N/A         N/A         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A         N/A         N/A           Iron         ppm         ASTM D5185m         >150         <1								
Sample DateClient InfoInfoIf Jun 202318 Apr 202322 Jan 2023Machine AgehrsClient Info668476607865316Oil AgehrsClient Info7697621177Filter AgehrsClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185n>10Q<	Test	UOM	Method	Limit/Abn	Current	History1	History2	
Machine Age         hrs         Client Info         66847         66078         65316           Oil Age         hrs         Client Info         769         762         1177           Filter Age         hrs         Client Info         N/A         N/A         N/A           Filter Changed         Client Info         N/A         N/A         N/A           Filter Changed         Client Info         N/A         N/A         N/A           Filter Changed         Client Info         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A           Iron         ppm         ASTM D5185m         >10         0         <1         0           Nickel         ppm         ASTM D5185m         >10         0         <1         1           Silver         ppm         ASTM D5185m         >10         0         <1         1           Lead         ppm         ASTM D5185m         >10         0         <1         <1           Vanadium         ppm         ASTM D5185m         >10         <1         <1         <1           Vanadium         ppm         ASTM D5185m         >10         <1	Sample Number		Client Info		MW05863161	MW05824218	WC05745356	
Oil AgehrsClient Info7697621177Filter AgehrsClient Info000Oil ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185m>1000<1IronppmASTM D5185m>1000<10NickelppmASTM D5185m>1000<1<1SilverppmASTM D5185m>1000<11LeadppmASTM D5185m>1000<1<1CopperppmASTM D5185m>1000<1<1IrinppmASTM D5185m>10041<1<1VanadiumppmASTM D5185m>10041<1<1VanadiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50445PotassiumppmASTM D5185m>50111<	Sample Date		Client Info		01 Jun 2023	18 Apr 2023	22 Jan 2023	
Filter Age Oil ChangedhrsClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185m>150<122ChromiumppmASTM D5185m>1000<1NickelppmASTM D5185m>1000<1TitaniumppmASTM D5185m>100<1<1SilverppmASTM D5185m>25011LeadppmASTM D5185m>50<1<1<1LeadppmASTM D5185m>1000<1<1VanadiumppmASTM D5185m>50<1<1<1VanadiumppmASTM D5185m>50<1<1<1VanadiumppmASTM D5185m>50<1<1<1VanadiumppmASTM D5185m>50<1<1<1VanadiumppmASTM D5185m>50<445PotassiumppmASTM D5185m>50<445PotassiumppmASTM D5185m>50<4<5<1SiliconppmASTM D5185m>50<4<5<5PotassiumppmASTM D5185m>50<4<5<5SodiumppmASTM D5185m>50<1NONENONENoNENONE	Machine Age	hrs	Client Info		66847	66078	65316	
Oil ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusNORMALNORMALNORMALNORMALIronppmASTM D5185m>150<1	Oil Age	hrs	Client Info		769	762	1177	
Filter Changed Sample Status         Client Info         N/A         N/A         N/A         N/A           Iron         ppm         ASTM D5185m         >150         <1         2         2           Chromium         ppm         ASTM D5185m         >10         0         <1         0           Nickel         ppm         ASTM D5185m         >10         0         <1         2         0           Nickel         ppm         ASTM D5185m         >10         0         <1         <1         1           Silver         ppm         ASTM D5185m         >25         0         1         1         1           Lead         ppm         ASTM D5185m         >10         0         <1         1         1           Copper         ppm         ASTM D5185m         >10         <1         0         <1         1           Vanadium         ppm         ASTM D5185m         >10         <1         0         <1         1           Vanadium         ppm         ASTM D5185m         >50         <1         <1         <1         <1           Vanadium         ppm         ASTM D5185m         >50         <1         A         <5	Filter Age	hrs	Client Info		0	0	0	
Sample StatusNORMALNORMALNORMALNORMALIronppmASTM D5185m>1000<10NickelppmASTM D5185m>100<10NickelppmASTM D5185m00<1<1TitaniumppmASTM D5185m020AluminumppmASTM D5185m>25011LeadppmASTM D5185m>50<1<1<1CopperppmASTM D5185m>1000<1<1VanadiumppmASTM D5185m>10<10<1VanadiumppmASTM D5185m>50<1<1<1Yellow Metalscalar"VisualNONENONENONENONESiliconppmASTM D5185m>50445PotassiumppmASTM D5185m>2000<1WaterWC Method>0.1NCRENONENONESuliconppmASTM D5185m>50445Debrisscalar"VisualNONENONENONENONEAppearancescalar"VisualNORMNORMLNORMLNORMLAddyscalar"VisualNORMNORMLNORMLNORMLAppearancescalar"VisualNORMNORMLNORMLNORMLBariumppmASTM D5185m<1111Boron	Oil Changed		Client Info		N/A	N/A	N/A	
Iron         ppm         ASTM D5185m         >150         <1	Filter Changed		Client Info		N/A	N/A	N/A	
International         ppm         ASTM D5185m         >10         0         <1	Sample Status				NORMAL	NORMAL	NORMAL	
International         ppm         ASTM D5185m         >10         0         <1				450				
Nickel         ppm         ASTM D5185m         >10         0         0         <1	-							
Titanium         ppm         ASTM 05185m         0         <1								
Silver         ppm         ASTM D5185m         0         2         0           Aluminum         ppm         ASTM D5185m         >25         0         1         1           Lead         ppm         ASTM D5185m         >100         0         <1         1           Copper         ppm         ASTM D5185m         >50         <1         <1         <1         1           Tin         ppm         ASTM D5185m         >10         <1         0         <1         0         <1           Vanadium         ppm         ASTM D5185m         >10         <1         0         <1         0         <1           Vanadium         ppm         ASTM D5185m         >10         <1         0         <1         0         <1           Vanadium         ppm         ASTM D5185m         >10         NONE         NORE         NORE <th></th> <th></th> <th></th> <th>&gt;10</th> <th>-</th> <th></th> <th></th>				>10	-			
Aluminum         ppm         ASTM D5185m         >25         0         1         1           Lead         ppm         ASTM D5185m         >100         0         0         <1           Copper         ppm         ASTM D5185m         >100         <1         <1         <1           Tin         ppm         ASTM D5185m         >10         <1         0         <1         <1           Vanadium         ppm         ASTM D5185m         >10         <1         0         <1         <1           Vanadium         ppm         ASTM D5185m         >10         <1         0         <1         <1           Vanadium         ppm         ASTM D5185m         >50         4         4         5           Potassium         ppm         ASTM D5185m         >50         4         4         5           Potassium         ppm         ASTM D5185m         >50         4         4         5           Silicon         ppm         ASTM D5185m         >50         4         4         5           Potassium         ppm         ASTM D5185m         >50         4         4         5           Silit         scalar         *Visual <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Lead         ppm         ASTM D5185m         >100         0         <1				05	-			
Copper         ppm         ASTM D5185m         >50         <1					-			
Tin         ppm         ASTM D5185m         >10         <1					-			
VanadiumppmASTM D5185m0000White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>50445PotassiumppmASTM D5185m>2000<1WaterWC Method>0.1NEGNEGNEGSilitscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORENORENORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m41147752ManganeseppmASTM D5185m4114752ManganeseppmASTM D5185m48618211772ZincppmASTM D5185m999933890SulfurppmASTM D5185m303637473687Acid Number (AN)mg KOH/gASTM D8185m1.281.00 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>								
White Metal Yellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>50445PotassiumppmASTM D5185m>2000<1WaterWC Method>0.1NEGNEGNEGSilitscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLModerscalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLBoronppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m41147752ManganeseppmASTM D5185m448120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m393637473687Acid Number (AN)mg KOHigASTM D8185m1.281.000.89				>10				
Yellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>50445PotassiumppmASTM D5185m>2000<1WaterWC Method>0.1NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m0000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m48120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m861821772ZincppmASTM D5185m303637473687Acid Number (AN)mg KOHgASTM D5185m1.281.000.89					-			
SiliconppmASTM D5185m>50445PotassiumppmASTM D5185m>2000<1WaterWC Method>0.1NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORMLNORMLBoronppmASTM D5185m1111BoronppmASTM D5185m0000MolybdenumppmASTM D5185m44043622328BariumppmASTM D5185m4147752ManganeseppmASTM D5185m<41<11<12ManganeseppmASTM D5185m305025682315PhosphorusppmASTM D5185m<861821772ZincppmASTM D5185m999933890SulfurppmASTM D5185m303637473687Acid Number (AN)mg K0HgASTM D5185m1.281.000.89		scalar		NONE				
PotassiumppmASTM D5185m>2000<1	<1	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
PotassiumppmASTM D5185m>2000<1	Silicon	maa	ASTM D5185m	>50	4	4	5	
WaterWC Method>0.1NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185mQ414362328BariumppmASTM D5185mQ4147752ManganeseppmASTM D5185m488120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Potassium		ASTM D5185m	>20	0	0	<1	
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m0000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m488120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Water		WC Method	>0.1	NEG	NEG	NEG	
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m488120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m<1<1<172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m861821772ZincppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m<1<1<172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m861821772ZincppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGNEGNEGSodiumppmASTM D5185m1111BoronppmASTM D5185m404362328BariumppmASTM D5185m0000MolybdenumppmASTM D5185m4147752ManganeseppmASTM D5185m<11<11<12MagnesiumppmASTM D5185m<48120172CalciumppmASTM D5185m305025682315PhosphorusppmASTM D5185m861821772ZincppmASTM D5185m999933890SulfurppmASTM D5185m1.281.000.89	Appearance	scalar		NORML	NORML	NORML	NORML	
Emulsified Water         scalar         *Visual         >0.1         NEG         NEG         NEG           Sodium         ppm         ASTM D5185m         1         1         1         1           Boron         ppm         ASTM D5185m         404         362         328           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         41         477         52           Manganese         ppm         ASTM D5185m          41         47         52           Magnesium         ppm         ASTM D5185m          48         120         172           Calcium         ppm         ASTM D5185m          3050         2568         2315           Phosphorus         ppm         ASTM D5185m          861         821         772           Zinc         ppm         ASTM D5185m          999         933         890           Sulfur         ppm         ASTM D5185m          3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89 <th></th> <th>scalar</th> <th>*Visual</th> <th>NORML</th> <th></th> <th>NORML</th> <th>NORML</th>		scalar	*Visual	NORML		NORML	NORML	
Boron         ppm         ASTM D5185m         404         362         328           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         41         477         52           Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         48         120         172           Calcium         ppm         ASTM D5185m         3050         2568         2315           Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         1.28         1.00         0.89	Emulsified Water	scalar		>0.1	NEG	NEG	NEG	
Boron         ppm         ASTM D5185m         404         362         328           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         41         477         52           Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         48         120         172           Calcium         ppm         ASTM D5185m         3050         2568         2315           Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         1.28         1.00         0.89								
Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         41         47         52           Manganese         ppm         ASTM D5185m         <1	Sodium	ppm			-			
Molybdenum         ppm         ASTM D5185m         41         47         52           Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         <48         120         172           Calcium         ppm         ASTM D5185m         3050         2568         2315           Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89								
Manganese         ppm         ASTM D5185m         <1		ppm						
Magnesium         ppm         ASTM D5185m         48         120         172           Calcium         ppm         ASTM D5185m         3050         2568         2315           Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	Molybdenum	ppm	ASTM D5185m		41	47	52	
Calcium         ppm         ASTM D5185m         3050         2568         2315           Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	3	ppm			<1		<1	
Phosphorus         ppm         ASTM D5185m         861         821         772           Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	-	ppm	ASTM D5185m				172	
Zinc         ppm         ASTM D5185m         999         933         890           Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	Calcium	ppm	ASTM D5185m		3050	2568	2315	
Sulfur         ppm         ASTM D5185m         3936         3747         3687           Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	Phosphorus	ppm	ASTM D5185m		861	821	772	
Acid Number (AN)         mg KOH/g         ASTM D8045         1.28         1.00         0.89	Zinc	ppm	ASTM D5185m		999	933	890	
	Sulfur	ppm			3936	3747	3687	
Visc @ 40°C cSt ASTM D445 117 111	Acid Number (AN)	mg KOH/g	ASTM D8045		1.28	1.00	0.89	
	Visc @ 40°C	cSt	ASTM D445		124	117	111	

Contact/Location: RHETT DANIEL - AMELEMIL

# WEAR NORMAL CONTAMINATION NORMAL FLUID CONDITION NORMAL



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)

Contact/Location: RHETT DANIEL - AMELEMIL

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