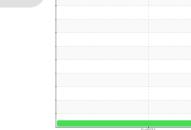


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id DODGE ATG7505 Component Gasoline Engine Fluid MOTOMASTER 5W40 (10 LTR)

#### 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.

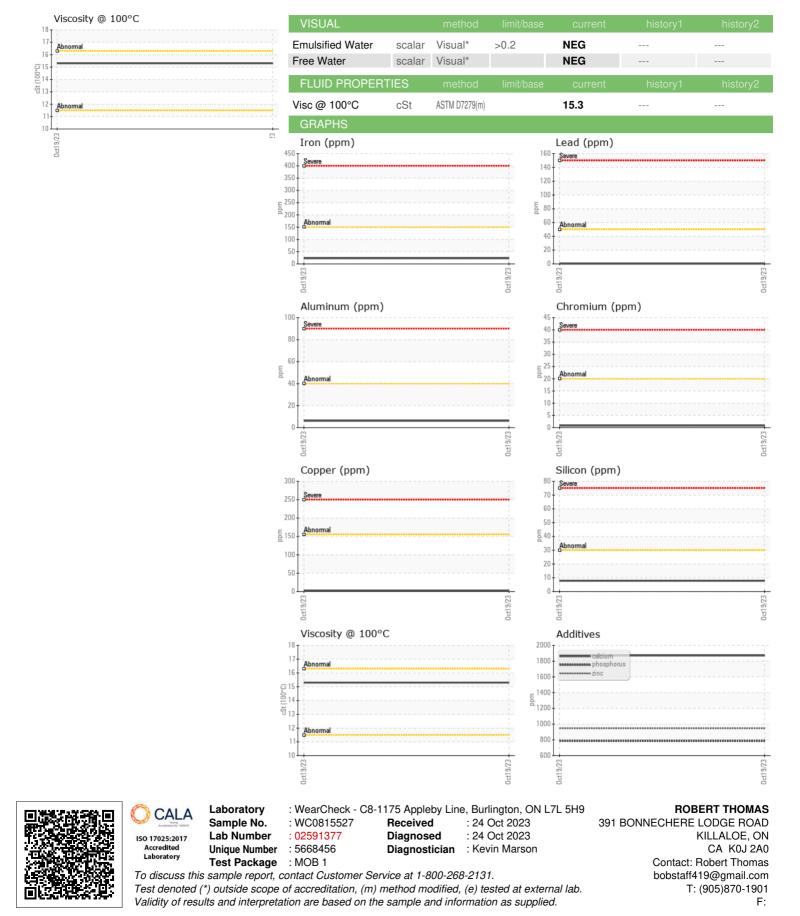
# Fluid Condition

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

Sample Number       Client Info       19 Oct 2023       ···       ···         Sample Date       Client Info       19 Oct 2023       ···       ···         Machine Age       kms       Client Info       299619       ···       ···         Oll Age       kms       Client Info       Changed       ···       ···         Oll Ange       Client Info       Changed       ···       ···       ···         CONTAMINATION       Method       Imitbase       Current       history1       history2         Fuel       WC Method       >4.0       10       ···       ···       ···         Glycol       WC Method       >150       23       ···       ···       ···         Nickel       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       <1       ···<       ···       ···         Aluminum       ppm       ASTM D5185(m)       >50       <1	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date         Client Info         19 Oct 2023             Machine Age         kms         Client Info         299619             Oil Age         kms         Client Info         23955             Sample Status         Client Info         Changed             Sample Status         method         Imit/base         current         history1            CONTAMINATION         method         Imit/base         current         history1            Glycol         WC Method         >4.0         <1.0             WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5180         >150         23             Tranum         ppm         ASTM D5180         >20         <1             Tranum         ppm         ASTM D5180         >20         <1             Silver         ppm         ASTM D5180         6              Auminum         ppm<	Sample Number		Client Info		WC0815527		
Oil Age         kms         Client Info         12355             Oil Changed         Client Info         Changed             CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0             Glycol         WC Method         >4.0         <1.0             WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTIM 0586/m         >150         23             Nickel         ppm         ASTIM 0586/m         >50         <1             Aluminum         ppm         ASTIM 0586/m         >50         <1             Copper         ppm         ASTIM 0586/m         >50         <1             Autominum         ppm         ASTIM 0586/m         >50         <1             Copper         ppm         ASTIM 0586/m         >50         <1        A			Client Info		19 Oct 2023		
Oli Changed       Client Info       Changed       Init Joase       Init Joase <th>Machine Age</th> <th>kms</th> <th>Client Info</th> <th></th> <th>299619</th> <th></th> <th></th>	Machine Age	kms	Client Info		299619		
Sample Status         method         imit/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0             Glycol         WC Method         NEG             WEAR METALS         method         Imit/base         current         History1         History2           Iron         ppm         ASTM0585(m)         >150         23             Othromium         ppm         ASTM0585(m)         >20         <1             Nickel         ppm         ASTM0585(m)         >5         <1             Silver         ppm         ASTM0585(m)         >50         <1             Copper         ppm         ASTM0585(m)         >50         <1             Antimomy         ppm         ASTM0585(m)         >10         0             Antimomy         ppm         ASTM0585(m)         0              Antimomy         ppm         ASTM0585(m)         0	Oil Age	kms	Client Info		12355		
CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >4.0              WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM 05185(m)         >150         23             Nickel         ppm         ASTM 05185(m)         >20         <1             Titanium         ppm         ASTM 05185(m)         >20         <1             Silver         ppm         ASTM 05185(m)         >20         <1             Lead         ppm         ASTM 05185(m)         >0         1             Antimony         ppm         ASTM 05185(m)         0              Antimony         ppm         ASTM 05185(m)         0              Copper         ppm         ASTM 05185(m)         0              Antimony         ppm         ASTM 05185(m)         0	Oil Changed		Client Info		Changed		
Fuel         WC Method         >4.0         <1.0	Sample Status				NORMAL		
Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >150         23             Chromium         ppm         ASTM D5185(m)         >20         <1             Nickel         ppm         ASTM D5185(m)         >2         1             Aluminum         ppm         ASTM D5185(m)         >50         <1             Aluminum         ppm         ASTM D5185(m)         >50         <1             Aluminum         ppm         ASTM D5185(m)         >10         0             Copper         ppm         ASTM D5185(m)         >10         0             Cadmium         ppm         ASTM D5185(m)         0              Baron         ppm         ASTM D5185(m)         0              Vanadium         ppm         ASTM D5185(m)         0	CONTAMINATION	N	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 05185(m)         >150         23             Othomium         ppm         ASTM 05185(m)         >20         -1             Nickel         ppm         ASTM 05185(m)         >2         1             Silver         ppm         ASTM 05185(m)         >2         1             Aluminum         ppm         ASTM 05185(m)         >20         -1             Aluminum         ppm         ASTM 05185(m)         >50         <1             Lead         ppm         ASTM 05185(m)         >10         0             Antimony         ppm         ASTM 05185(m)         0              Antimony         ppm         ASTM 05185(m)         0              Antimony         ppm         ASTM 05185(m)         0              Antimiun         ppm         ASTM 05185(m) </th <th>Fuel</th> <th></th> <th>WC Method</th> <th>&gt;4.0</th> <th>&lt;1.0</th> <th></th> <th></th>	Fuel		WC Method	>4.0	<1.0		
Iron         ppm         ASTM D5185(m)         >150         23             Chromium         ppm         ASTM D5185(m)         >20         <1             Nickel         ppm         ASTM D5185(m)         >5         <1             Titanium         ppm         ASTM D5185(m)         >2         1             Aluminum         ppm         ASTM D5185(m)         >60              Lead         ppm         ASTM D5185(m)         >50         <1             Antimony         ppm         ASTM D5185(m)         >10         0             Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Beryllium <t< th=""><th>Glycol</th><th></th><th>WC Method</th><th></th><th>NEG</th><th></th><th></th></t<>	Glycol		WC Method		NEG		
Dromium         ppm         ASTM D5168(m)         >20         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185(m)         >5         <1	Iron	ppm	ASTM D5185(m)	>150	23		
Titanium         ppm         ASTM 05185(m)         <1	Chromium	ppm	ASTM D5185(m)	>20	<1		
Silver       ppm       ASTM D5185(m)       >2       1           Aluminum       ppm       ASTM D5185(m)       >40       6           Lead       ppm       ASTM D5185(m)       >50       <1           Copper       ppm       ASTM D5185(m)       >10       0           Antimony       ppm       ASTM D5185(m)       >10       0           Antimony       ppm       ASTM D5185(m)       0            Vanadium       ppm       ASTM D5185(m)       0            Beryllium       ppm       ASTM D5185(m)       0	Nickel	ppm	ASTM D5185(m)	>5	<1		
Aluminum         ppm         ASTM D5185(m)         >40         6             Lead         ppm         ASTM D5185(m)         >50         <1             Copper         ppm         ASTM D5185(m)         >155         2             Antimony         ppm         ASTM D5185(m)         >10         0             Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Suffur         ppm         ASTM D5185(m)         2511             Suffu	Titanium	ppm	ASTM D5185(m)		<1		
Lead         ppm         ASTM D5185(m)         >50         <1	Silver	ppm	ASTM D5185(m)	>2	1		
Copper         ppm         ASTM D5185(m)         >155         2             Tin         ppm         ASTM D5185(m)         >10         0             Antimony         ppm         ASTM D5185(m)         0         0             Vanadium         ppm         ASTM D5185(m)         0              Beryllium         ppm         ASTM D5185(m)         0              Cadmium         ppm         ASTM D5185(m)         0              ADDITVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0              Malybdenum         ppm         ASTM D5185(m)         0              Magnesium         ppm         ASTM D5185(m)         73              Calcium         ppm         ASTM D5185(m)         786              Sulfur         ppm         ASTM D5185(m)	Aluminum	ppm		>40	6		
Tin         ppm         ASTM D5185(m)         >10         0             Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         Imit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Marganese         ppm         ASTM D5185(m)         73             Marganesum         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         >30         8             Sulfur         ppm         ASTM	Lead	ppm	ASTM D5185(m)	>50	<1		
Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         Imit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         68             Malybdenum         ppm         ASTM D5185(m)         0             Magnesse         ppm         ASTM D5185(m)         73             Magnesium         ppm         ASTM D5185(m)         786             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         20 <th>Copper</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>&gt;155</th> <th>2</th> <th></th> <th></th>	Copper	ppm	ASTM D5185(m)	>155	2		
Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         68             Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         0             Magnese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         786             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         >30 <th></th> <th>ppm</th> <th></th> <th>&gt;10</th> <th>0</th> <th></th> <th></th>		ppm		>10	0		
Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         68             Barium         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Magnese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Magnesium         ppm         ASTM D5185(m)         786             Calcium         ppm         ASTM D5185(m)         25111             Sulfur         ppm         ASTM D5185(m)         >30         8             CONTAMINANTS         method         limit/base         current         history1         history2           Sodium         ppm         ASTM D5185(m)	,	ppm			-		
Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         688             Barium         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Magnesium         ppm         ASTM D5185(m)         786             Calcium         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         20         8             Sulfur         ppm         ASTM D5185(m)         >30         8             Sodium         ppm		ppm	. /				
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)68BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0MagnesiumppmASTM D5185(m)73CalciumppmASTM D5185(m)736PhosphorusppmASTM D5185(m)786ZincppmASTM D5185(m)2511SulfurppmASTM D5185(m)2511LithiumppmASTM D5185(m)>308SodiumppmASTM D5185(m)>308INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D5185(m)>204INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7844*0.5SulfationAbs/immASTM D764*>2014.5SulfationAbs/immASTM D764*>2014.5SulfationAbs/immASTM D764*>2014.5SulfationAbs/immASTM D764*>2014.5-	-	ppm					
Boron         ppm         ASTM D5185(m)         68             Barium         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         786             Phosphorus         ppm         ASTM D5185(m)         786             Sulfur         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         >30         8             Sulfur         ppm         ASTM D5185(m)         >30         8             Sulfur         ppm         ASTM D5185(m)         >20         4             Sodium         ppm         ASTM D5185(m)	Cadmium	ppm	ASTM D5185(m)		0		
Barium         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         1871             Calcium         ppm         ASTM D5185(m)         786             Phosphorus         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         -<-1             Sulfur         ppm         ASTM D5185(m)         >30         8             Solicon         ppm         ASTM D5185(m)         >400         3             Sodium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         meth							
Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         73             Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         1871             Phosphorus         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         2511             Solicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4        Soot %         %         ASTM D7844*	ADDITIVES		method	limit/base	current	history1	history2
Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         1871             Phosphorus         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         2511             Solfur         ppm         ASTM D5185(m)         >30         8             Solicon         ppm         ASTM D5185(m)         >30         8             Solium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             Soot %         %         ASTM D7844*         0.5		ppm		limit/base			
Magnesium         ppm         ASTM D5185(m)         73             Calcium         ppm         ASTM D5185(m)         1871             Phosphorus         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         2511             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration	Boron		ASTM D5185(m)	limit/base	68		
Calcium         ppm         ASTM D5185(m)         1871             Phosphorus         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         2511             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7624*         >20         14.5             Ni	Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	limit/base	68 0		
Phosphorus         ppm         ASTM D5185(m)         786             Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration         Abs/.tm         ASTM D7415*         >30         27.4 <th>Boron Barium Molybdenum</th> <th>ppm ppm</th> <th>ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)</th> <th>limit/base</th> <th>68 0 0</th> <th></th> <th></th>	Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0		
Zinc         ppm         ASTM D5185(m)         946             Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)         <1             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7624*         >20         14.5             Nitration         Abs/rm         ASTM D7624*         >30         27.4             Sulfation         Abs/lmm         ASTM D7414*         >25         28.7 <th>Boron Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)</th> <th>limit/base</th> <th>68 0 0 0</th> <th></th> <th></th>	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0 0		
Sulfur         ppm         ASTM D5185(m)         2511             Lithium         ppm         ASTM D5185(m)          <1             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0 0 73		
LithiumppmASTM D5185(m)<1	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0 73 1871		
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)>308SodiumppmASTM D5185(m)>4003PotassiumppmASTM D5185(m)>204INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7844*0.5NitrationAbs/cmASTM D7844*>2014.5SulfationAbs/.1mmASTM D7415*>3027.4FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mmASTM D7414*>2528.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0 73 1871 786 946	   	
Silicon         ppm         ASTM D5185(m)         >30         8             Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7624*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		68 0 0 73 1871 786 946 2511		
Sodium         ppm         ASTM D5185(m)         >400         3             Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		68 0 0 73 1871 786 946 2511		
Potassium         ppm         ASTM D5185(m)         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0.5             Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		68 0 0 73 1871 786 946 2511 <1		
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7844*0.5NitrationAbs/cmASTM D7624*>2014.5SulfationAbs/1mmASTM D7415*>3027.4FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mmASTM D7414*>2528.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	68 0 0 73 1871 786 946 2511 <1 <1	      history1	      history2
Soot %         %         ASTM D7844*         0.5             Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	limit/base	68 0 0 73 1871 786 946 2511 <1 <1 current 8	      history1	      history2
Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7615*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	limit/base >30 >400	68 0 0 73 1871 786 946 2511 <1 <1 current 8 3	      history1 	        history2
Nitration         Abs/cm         ASTM D7624*         >20         14.5             Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	limit/base >30 >400 >20	68 0 0 73 1871 786 946 2511 <1 <1 <b>current</b> 8 3 4	      history1  	        history2  
Sulfation         Abs/.1mm         ASTM D7415*         >30         27.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         ASTM D7414*         >25         28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	limit/base >30 >400 >20	68 0 0 73 1871 786 946 2511 <1 <1 current 8 3 4 current	      history1   history1	        history2  
Oxidation Abs/.1mm ASTM D7414* >25 28.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	limit/base >30 >400 >20 limit/base	68 0 0 73 1871 786 946 2511 <1 <1 current 8 3 4 current 0.5	      history1  history1  history1	      history2  history2  history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	limit/base >30 >400 >20 limit/base	68 0 0 73 1871 786 946 2511 <1 <1 <i>current</i> 8 3 4 <i>current</i> 0.5 14.5	      history1  history1  history1	      history2  history2  history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7844* ASTM D7624*	>30 >400 >20 Imit/base >30 >20 Imit/base >20 >30	68 0 0 73 1871 786 946 2511 <1 current 8 3 4 2 5 11 5 14.5 27.4	       history1  history1  history1	      history2  history2  history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7844* ASTM D7844* ASTM D7844* ASTM D7844*	Iimit/base >30 >400 >20 Iimit/base >20 >30 >30 >30 >20 Iimit/base >30 >30 >30 >30 >30 >30 >30 >30 >30 >30 >30 >30	68 0 0 73 1871 786 946 2511 <1 <1 current 8 3 4 2 5 14.5 27.4 current	       history1  history1  history1	       history2  history2  history2



# **OIL ANALYSIS REPORT**



Submitted By: Robert Thomas Page 2 of 2