

### **OIL ANALYSIS REPORT**

Sample Rating Trend

ISO

# BUSCH GT LINE 3 MAIN

Component Vacuum Pump Fluid USPI VAC 100 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

#### Fluid Condition

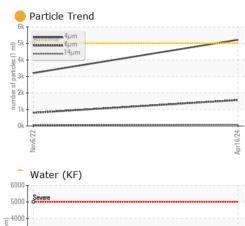
The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

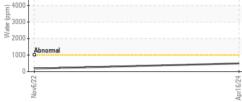
Sample Number         Client Info         USPM36735         USPM2175            Sample Date         Client Info         0         0            Oll Age         hrs         Client Info         0         0            Oll Age         hrs         Client Info         0         0            Oll Age         hrs         Client Info         N/A         N/A            Sample Status         Client Info         N/A         N/A         N/A            WEAR METALS         method         Imitbase         current         history!         history!           Iron         ppm         ASTM 05155m         >20         0         0            Nickel         ppm         ASTM 05155m         >20         0         0            Silver         ppm         ASTM 05155m         >20         0         0            Cadmium         ppm         ASTM 05155m         >20         0             Adminum         ppm         ASTM 05155m         >20         0             Cadmium         ppm         ASTM 05155	SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0         0         0	Sample Number		Client Info		USPM36735	USPM22175	
Machine Age         hrs         Client Info         0         0         0	Sample Date		Client Info		16 Apr 2024	06 Nov 2022	
Oil Age         hrs         Client Info         0         0            Oil Changed         Client Info         N/A         N/A         N/A            WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM 05185m         >20         0         0            Nickel         ppm         ASTM 05185m         >20         0         0            Silver         ppm         ASTM 05185m         >20         0         0            Auminum         ppm         ASTM 05185m         >20         0         0            Capper         ppm         ASTM 05185m         >20         0             AstM 05185m         20         0         0	Machine Age	hrs	Client Info		-	0	
Oil Changed         Client Info         N/A         N/A         N/A            Sample Status         Image Status         Image Status         ATTENTION         NORMAL            WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         >20         0         0            Silver         ppm         ASTM D5185m         >20         0         0            Aluminum         ppm         ASTM D5185m         >20         0         0            Copper         ppm         ASTM D5185m         >20         0         0            Adminum         ppm         ASTM D5185m         >20         0         0	-	hrs	Client Info		0	0	
Sample Status         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5165m         >20         0         0            Chromium         ppm         ASTM D5165m         >20         0         0            Nickel         ppm         ASTM D5165m         >20         0         0            Silver         ppm         ASTM D5165m         >20         0         0            Aluminum         ppm         ASTM D5165m         >20         0         0            Aluminum         ppm         ASTM D5165m         >20         0         0            Copper         ppm         ASTM D5165m         >20         0             Vanadium         ppm         ASTM D5165m         >20         0         0            Addminum         ppm         ASTM D5165m         0         0         0            Adminum         ppm         ASTM D5165m         0         0         0            Adminum         ppm         ASTM D5165m         0         0	-		Client Info		N/A	N/A	
Iron         ppm         ASTM D5185m         >20         0         0            Chromium         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         >20         0         0            Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >20         0         <-1            Lead         ppm         ASTM D5185m         >20         0         <-1            Copper         ppm         ASTM D5185m         >20         0         <-1	•				ATTENTION	NORMAL	
Chromium         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         >20         0         <11            Lead         ppm         ASTM D5185m         >20         0         0            Kompone         ppm         ASTM D5185m         >20         0         0            Vanadium         ppm         ASTM D5185m         >20         0         <11            Vanadium         ppm         ASTM D5185m         >20         0         <1            Vanadium         ppm         ASTM D5185m         >20         0         0            ADDITIVES         method         Imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0            Aditybenum         ppm         ASTM D5185m         0         27         0 </th <th>WEAR METALS</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METALS		method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         0         0            Nickel         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >20         0         <11	Iron	maa	ASTM D5185m	>20	0	0	
Nickel         ppm         ASTM D5185m         >20         0         0            Titanium         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         >20         0            Aluminum         ppm         ASTM D5185m         >20         0         0            Lead         ppm         ASTM D5185m         >20         0         0            Copper         ppm         ASTM D5185m         >20         0             Vanadium         ppm         ASTM D5185m         >20         0	Chromium			>20			
Titanium         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >20         0         0            Lead         ppm         ASTM D5185m         >20         0         0            Copper         ppm         ASTM D5185m         >20         0         <1					-		
Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >20         0         <1				0			
Aluminum         ppm         ASTM D5185m         >20         0         <1            Lead         ppm         ASTM D5185m         >20         0         0            Copper         ppm         ASTM D5185m         >20         0         0            Vanadium         ppm         ASTM D5185m         >20         0         <1					-		
Lead         ppm         ASTM D5185m         >20         0         0            Copper         ppm         ASTM D5185m         >20         0         0            Vanadium         ppm         ASTM D5185m         >20         0         <1				>20			
Copper         ppm         ASTM D5185m         >20         0         0            Tin         ppm         ASTM D5185m         >20         0         <1							
Tin         ppm         ASTM D5185m         >20         0         <1            Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0            Barium         ppm         ASTM D5185m         0         0         0            Maganese         ppm         ASTM D5185m         0         0         0            Calcium         ppm         ASTM D5185m         0         0         0            Phosphorus         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         27         0            Sodium         ppm         ASTM D5185m         0         0 <t< td=""><td></td><td></td><td></td><td></td><th>-</th><td></td><td></td></t<>					-		
Vanadium         ppm         ASTM D5185m         <1         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0            Barium         ppm         ASTM D5185m         0         0         0         0            Manganese         ppm         ASTM D5185m         0         <1         0            Magnesium         ppm         ASTM D5185m         0         <1         0            Calcium         ppm         ASTM D5185m         0         <1         0            Magnesium         ppm         ASTM D5185m         0         <1         0            Calcium         ppm         ASTM D5185m         0         20         0            Sulfur         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         0         0         <					-		
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0            Barium         ppm         ASTM D5185m         0         0         0         0            Molybdenum         ppm         ASTM D5185m         0         0         0         0            Manganese         ppm         ASTM D5185m         0         <1         0            Calcium         ppm         ASTM D5185m         0         <11         0            Calcium         ppm         ASTM D5185m         0         <11         0            Calcium         ppm         ASTM D5185m         0         27         0            Sulfur         ppm         ASTM D5185m         0         27         0            Sulfur         ppm         ASTM D5185m         0         0         0            Sodium         ppm         ASTM D5185m <t< td=""><td></td><td></td><td></td><td>&gt;20</td><th>-</th><td></td><td></td></t<>				>20	-		
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0            Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         0         0            Magnesium         ppm         ASTM D5185m         0         <1							
Boron         ppm         ASTM D5185m         0         0         0            Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         0         0            Manganese         ppm         ASTM D5185m         0         <1         0            Magnesium         ppm         ASTM D5185m         0         <1         0            Calcium         ppm         ASTM D5185m         0         0         0            Calcium         ppm         ASTM D5185m         0         0         0            Zinc         ppm         ASTM D5185m         0         27         0            Sulfur         ppm         ASTM D5185m         0         0             Sodium         ppm         ASTM D5185m         0         0             Vater         %         ASTM D5185m         >20         0         0            Particles >4µm         ASTM D6304         >1000         494         182.3 <th></th> <th>ppm</th> <th></th> <th></th> <th>U</th> <th>U</th> <th></th>		ppm			U	U	
Barium         ppm         ASTM D5185m         0         0         0         0         0         0         0							history2
Molybdenum         ppm         ASTM D5165m         0         0         0            Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm			-		
Manganese         ppm         ASTM D5185m         0         <1         0            Magnesium         ppm         ASTM D5185m         0         <1	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium         ppm         ASTM D5185m         0         <1         0            Calcium         ppm         ASTM D5185m         0         0         0            Phosphorus         ppm         ASTM D5185m         0         0         0            Zinc         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         27         0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         0         27         0            Sodium         ppm         ASTM D5185m         0         0             Sodium         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >20         0         0            Vater         %         ASTM D5185m         >20         0         0.018            ppm Water         ppm         ASTM D6304         >1000         494	Molybdenum	ppm	ASTM D5185m	0	0	0	
Calcium         ppm         ASTM D5185m         0         0         0            Phosphorus         ppm         ASTM D5185m         1800         715         20            Zinc         ppm         ASTM D5185m         0         0         0         0            Sulfur         ppm         ASTM D5185m         0         27         0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >20         0         0            Potassium         ppm         ASTM D5185m         >20         0         0.018            ppm Water         %         ASTM D6304         >.1         0.0499         0.018            Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300 <td< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>0</th><td>0</td><td></td></td<>	Manganese	ppm	ASTM D5185m		0	0	
Phosphorus         ppm         ASTM D5185m         1800         715         20            Zinc         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         27         0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >15         5         2            Potassium         ppm         ASTM D5185m         >20         0         0            Water         %         ASTM D5185m         >20         0         0.018            ppm Water         ppm         ASTM D6304         >.1         0.0499         0.018            Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >4µm         ASTM D7647         >1300         1569         799            Particles >14µm         ASTM D7647         >10         1 <t< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>&lt;1</th><td>0</td><td></td></t<>	Magnesium	ppm	ASTM D5185m	0	<1	0	
Zinc         ppm         ASTM D5185m         0         0         0            Sulfur         ppm         ASTM D5185m         0         27         0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >20         0         0            Potassium         ppm         ASTM D6304         >.1         0.049         0.018            Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D640         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >4µm         ASTM D7647         >1300         1569         799            Particles >21µm         ASTM D7647         >40         20	Calcium	ppm	ASTM D5185m	0	0	0	
Sulfur         ppm         ASTM D5185m         0         27         0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         >15         5         2            Potassium         ppm         ASTM D5185m         >20         0         0            Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D6304         >.1000         494         182.3            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >1µm         ASTM D7647         >10         1         7            Particles >38µm         ASTM D7647         >3         0         7	Phosphorus	ppm	ASTM D5185m	1800	715	20	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         5         2            Sodium         ppm         ASTM D5185m         0         0            Potassium         ppm         ASTM D5185m         >20         0         0            Water         %         ASTM D6304         >.1         0.0499         0.018            ppm Water         ppm         ASTM D6304         >.1000         494         182.3            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >1µm         ASTM D7647         >160         87         55            Particles >21µm         ASTM D7647         >10         1         7            Particles >38µm         ASTM D7647         >3         0         7	Zinc	ppm	ASTM D5185m	0	0	0	
Silicon       ppm       ASTM D5185m       >15       5       2          Sodium       ppm       ASTM D5185m       0       0          Potassium       ppm       ASTM D5185m       >20       0       0          Water       %       ASTM D6304       >.1       0.049       0.018          ppm Water       ppm       ASTM D6304       >.1000       494       182.3          FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >5000       5221       3206          Particles >6µm       ASTM D7647       >1300       1569       799          Particles >14µm       ASTM D7647       >160       87       55          Particles >21µm       ASTM D7647       >40       20       15          Particles >38µm       ASTM D7647       >3       0       7          Particles >71µm       ASTM D7647       >3       0       7          Oil Cleanliness       ISO 4406 (c)       >19/17/14       20/18/14       19/17/13	Sulfur	ppm	ASTM D5185m	0	27	0	
Sodium         ppm         ASTM D5185m         0         0            Potassium         ppm         ASTM D5185m         >20         0         0            Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D6304         >.1         0.049         0.018            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >6µm         ASTM D7647         >160         87         55            Particles >14µm         ASTM D7647         >40         20         15            Particles >38µm         ASTM D7647         >3         0         7            Particles >71µm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0         0            Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D6304         >.1000         494         182.3            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >14µm         ASTM D7647         >160         87         55            Particles >14µm         ASTM D7647         >10         1         7            Particles >21µm         ASTM D7647         >10         1         7            Particles >38µm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         Imit/base         current         history1 <th< td=""><td>Silicon</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;15</td><th>5</th><td>2</td><td></td></th<>	Silicon	ppm	ASTM D5185m	>15	5	2	
Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D6304         >1000         494         182.3            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >14µm         ASTM D7647         >160         87         55            Particles >21µm         ASTM D7647         >40         20         15            Particles >38µm         ASTM D7647         >10         1         7            Particles >71µm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Sodium	ppm	ASTM D5185m		0	0	
Water         %         ASTM D6304         >.1         0.049         0.018            ppm Water         ppm         ASTM D6304         >1000         494         182.3            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         5221         3206            Particles >6µm         ASTM D7647         >1300         1569         799            Particles >14µm         ASTM D7647         >160         87         55            Particles >21µm         ASTM D7647         >40         20         15            Particles >38µm         ASTM D7647         >10         1         7            Particles >71µm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185m	>20	0	0	
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         5221         3206            Particles >6μm         ASTM D7647         >1300         1569         799            Particles >6μm         ASTM D7647         >160         87         55            Particles >14μm         ASTM D7647         >40         20         15            Particles >21μm         ASTM D7647         >40         20         15            Particles >38μm         ASTM D7647         >10         1         7            Particles >71μm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Water		ASTM D6304	>.1	0.049	0.018	
Particles >4µm       ASTM D7647       >5000       5221       3206          Particles >6µm       ASTM D7647       >1300       1569       799          Particles >14µm       ASTM D7647       >160       87       55          Particles >21µm       ASTM D7647       >40       20       15          Particles >21µm       ASTM D7647       >40       20       15          Particles >38µm       ASTM D7647       >10       1       7          Particles >71µm       ASTM D7647       >3       0       7          Oil Cleanliness       ISO 4406 (c)       >19/17/14       20/18/14       19/17/13          FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water	ppm	ASTM D6304	>1000	494	182.3	
Particles >6μm         ASTM D7647         >1300         1569         799            Particles >14μm         ASTM D7647         >160         87         55            Particles >21μm         ASTM D7647         >40         20         15            Particles >21μm         ASTM D7647         >40         20         15            Particles >38μm         ASTM D7647         >10         1         7            Particles >38μm         ASTM D7647         >3         0         7            Particles >71μm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14µm       ASTM D7647       >160       87       55          Particles >21µm       ASTM D7647       >40       20       15          Particles >38µm       ASTM D7647       >10       1       7          Particles >38µm       ASTM D7647       >3       0       7          Particles >71µm       ASTM D7647       >3       0       7          Oil Cleanliness       ISO 4406 (c)       >19/17/14       20/18/14       19/17/13          FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >4µm		ASTM D7647	>5000	<mark>)</mark> 5221	3206	
Particles >21μm         ASTM D7647         >40         20         15            Particles >38μm         ASTM D7647         >10         1         7            Particles >37μm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2			ASTM D7647	>1300	<u> </u>	799	
Particles >38μm         ASTM D7647         >10         1         7            Particles >71μm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14µm		ASTM D7647	>160	87	55	
Particles >71μm         ASTM D7647         >3         0         7            Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21µm		ASTM D7647	>40	20	15	
Oil Cleanliness         ISO 4406 (c)         >19/17/14         20/18/14         19/17/13            FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >38µm		ASTM D7647	>10	1	7	
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0	7	
			ISO 4406 (c)	>19/17/14	<b>e</b> 20/18/14	19/17/13	
Acid Number (AN) mg KOH/g ASTM D8045 0.05 0.092 0.072	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.05	0.092	0.072	

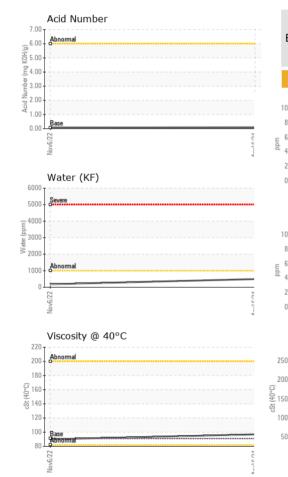
Contact/Location: MIKE DUNLAP - CARDAY Page 1 of 2

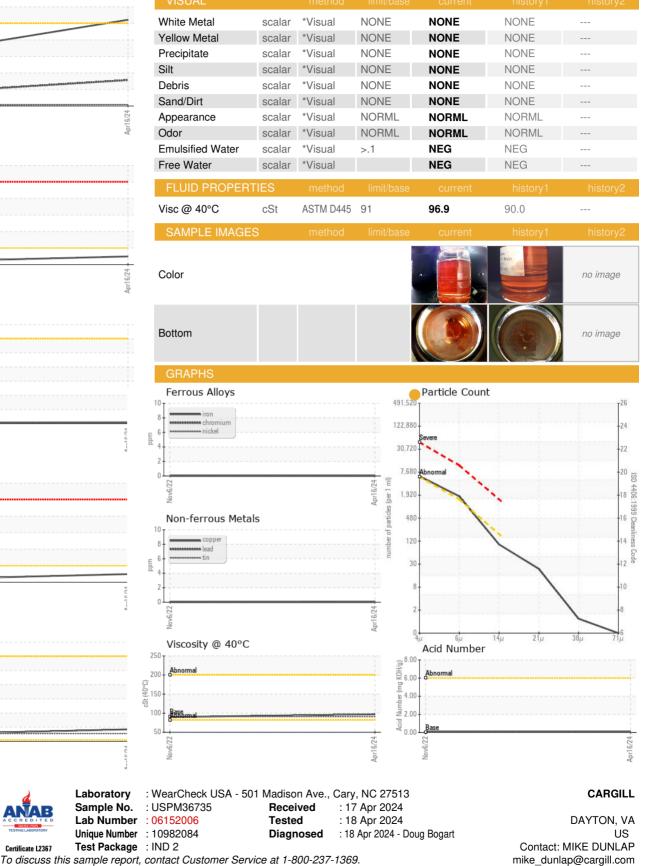


## **OIL ANALYSIS REPORT**









\* - 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) F: (540)879-2913

Report Id: CARDAY [WUSCAR] 06152006 (Generated: 04/18/2024 18:40:20) Rev: 1

Certificate 12367

Laboratory

Sample No.

Lab Number

Contact/Location: MIKE DUNLAP - CARDAY

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