

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 929144

Component
Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

## 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.

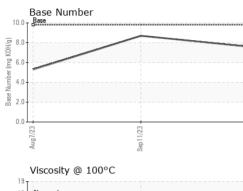
## Fluid Condition

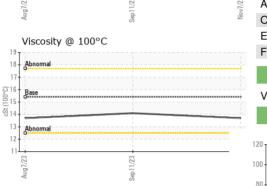
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date         Client Info         07 Nov 2023         11 Sep 2023         07 Aug 2023           Machine Age         hrs         Client Info         2528         2418         2157           Oil Age         hrs         Client Info         0         6600         600           Oil Changed         Client Info         Nor Changd         Changed         Changed         Changed           Sample Status         Imit/base         current         history1         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG         NEG           VEAR METALS         method         imit/base         current         history1         history1           Iron         ppm         ASTM D5185m<>22         2         <1         4         1           Silver         ppm         ASTM D5185m<>22         0         0         0         0           Cooper         ppm         ASTM D5185m<>25         9         8         31         1         0         0         0		MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         2528         2418         2157           Oil Age         hrs         Client Info         0         600         600         600           Oil Age         hrs         Client Info         Not Changed         Chan	Sample Number		Client Info		GFL0093415	GFL0093406	GFL0080384
Oil Age         hrs         Client Info         0         600         600         600           Oil Changed         Client Info         Not Changd         Changed         Changed <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>07 Nov 2023</th> <th>11 Sep 2023</th> <th>07 Aug 2023</th>	Sample Date		Client Info		07 Nov 2023	11 Sep 2023	07 Aug 2023
Oil Changed Sample Status       Client Info       Not Changd NORMAL       Changed NORMAL       Changed ABNORMAL         CONTAMINATION       method       limit/base       current       history1       history1         Fuel       WC Method       >5       <1.0       <1.0       <1.0         Glycol       WC Method       >5       <1.0       <1.0       <1.0         WEAR METALS       method       Imit/base       current       history1       history1         Iron       ppm       ASTM D5185m       >110       44       32       109         Chromium       ppm       ASTM D5185m       >2       2       <1       4         Silver       ppm       ASTM D5185m       >2       0       0       0         Aluminum       ppm       ASTM D5185m       >2       0       0       0         Inin       ppm       ASTM D5185m       >2       0       0       0         Cadmium       ppm       ASTM D5185m       >2       0       0       0         Cadmium       ppm       ASTM D5185m       0       <1       1       0         Cadmium       ppm       ASTM D5185m       0       <1       2	Machine Age	hrs	Client Info		2528	2418	2157
Sample Status         Image: Sample Status         NORMAL         NORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG           Veram:         ppm         ASTM D5185m         >4         3         2         7           Iron         ppm         ASTM D5185m         >2         2         <1         4           Titanium         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >2         0         0         0           Cadmium         ppm         ASTM D5185m         >2         0         0         0         0         0           Cadmium         ppm         ASTM D5185m         >4         0         <1         0         0         0         2         <1         0         0         2         1         1	Oil Age	hrs	Client Info		0	600	600
CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0           Glycol         WC Method         >5         <1.0         <1.0         <1.0         <1.0           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM 05185m         >110         44         32         109           Chromium         ppm         ASTM 05185m         >2         2         <1         ▲           Nickel         ppm         ASTM 05185m         >2         0         0         <1         <1           Silver         ppm         ASTM 05185m         >2         0         0         0         0           Lead         ppm         ASTM 05185m         >45         0         <1         0         <	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel         WC Method         >5         <1.0	-				NORMAL	NORMAL	ABNORMAL
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >4         3         2         109           Chromium         ppm         ASTM D5185m         >4         3         2         109           Nickel         ppm         ASTM D5185m         >2         2         <1         4           Titanium         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         9         8         31         1           Lead         ppm         ASTM D5185m         >25         9         8         31         1           Copper         ppm         ASTM D5185m         >45         0         <1         <1         0           Cadmium         ppm         ASTM D5185m         >4         0         <1         <1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	CONTAMINATI	ON	method	limit/base	current	history1	history2
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >4         3         2         109           Chromium         ppm         ASTM D5185m         >4         3         2         109           Nickel         ppm         ASTM D5185m         >2         2         <1         4           Titanium         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         9         8         31         1           Lead         ppm         ASTM D5185m         >25         9         8         31         1           Copper         ppm         ASTM D5185m         >45         0         <1         <1         0           Cadmium         ppm         ASTM D5185m         >4         0         <1         <1         1           Vanadium         ppm         ASTM D5185m         0         0         0         2         <1           Barium         ppm         ASTM D5185m	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Ion         ppm         ASTM D5185m         >110         44         32         109           Chromium         ppm         ASTM D5185m         >4         3         2         7           Nickel         ppm         ASTM D5185m         >2         2         <1         4           Titanium         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         9         8         31           Lead         ppm         ASTM D5185m         >45         0         <1         0           Copper         ppm         ASTM D5185m         >45         0         <1         0           Vanadium         ppm         ASTM D5185m         0         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         2         <1           Boron         ppm         ASTM D5185m         0         0         2         <1           Magnesium         ppm         ASTM D5185m         0         0         <1         2							
Ion         ppm         ASTM D5185m         >110         44         32         109           Chromium         ppm         ASTM D5185m         >4         3         2         7           Nickel         ppm         ASTM D5185m         >2         2         <1         4           Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         9         8         31           Lead         ppm         ASTM D5185m         >45         0         <1         0           Copper         ppm         ASTM D5185m         >85         3         9         39           Tin         ppm         ASTM D5185m         0         <1         <1         0           Cadmium         ppm         ASTM D5185m         0         0         2         <1           Boron         ppm         ASTM D5185m         0         0         2         <1           Magnesium         ppm         ASTM D5185m         0         0         <1         2	WEAR METALS	S	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >4         3         2         A           Nickel         ppm         ASTM D5185m         >2         2         <1         A           Titanium         ppm         ASTM D5185m         >2         0         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >25         9         8         31           Lead         ppm         ASTM D5185m         >45         0         <1         0           Copper         ppm         ASTM D5185m         >4         0         <1         0           Vanadium         ppm         ASTM D5185m         0         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0         0           Boron         ppm         ASTM D5185m         0         0         2         <1         0           Magnese         ppm         ASTM D5185m         0         0         <1         2         0           Magnesium         ppm         ASTM D5185m <th></th> <th></th> <th>ASTM D5185m</th> <th></th> <th>44</th> <th>32</th> <th>109</th>			ASTM D5185m		44	32	109
Nickel         ppm         ASTM D5185m         >2         2         <1	-						
Titanium         ppm         ASTM D5185m         0         <1							
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >25         9         8         ▲ 31           Lead         ppm         ASTM D5185m         >45         0         <1         0           Copper         ppm         ASTM D5185m         >85         3         9         39           Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         >4         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Manganese         ppm         ASTM D5185m         0         0         <11         2         2           Magnesium         ppm         ASTM D5185m         1070				~_			
Aluminum         ppm         ASTM D5185m         >25         9         8         ▲ 31           Lead         ppm         ASTM D5185m         >45         0         <1         0           Copper         ppm         ASTM D5185m         >85         3         9         39           Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         >4         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0         0         0           Boron         ppm         ASTM D5185m         0         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Magnesium         ppm         ASTM D5185m         0         0         <1         2         1029           Calcium         ppm         ASTM D5185m         1010         1039         12447         12444           Phosphorus         ppm         <				> 2			
Lead         ppm         ASTM D5185m         >45         0         <1							
Copper         ppm         ASTM D5185m         >85         3         9         39           Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         >4         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Manganese         ppm         ASTM D5185m         0         0         <1         2           Magnesium         ppm         ASTM D5185m         1010         1039         1289         1029           Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060 <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th>						-	
Tin         ppm         ASTM D5185m         >A         0         <1							
Vanadium         ppm         ASTM D5185m         0         <1							
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Malybdenum         ppm         ASTM D5185m         0         0         0         <1         2           Magnesium         ppm         ASTM D5185m         1010         1039         1289         1029           Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method <th></th> <th></th> <th></th> <th>&gt;4</th> <th></th> <th></th> <th></th>				>4			
ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Barium         ppm         ASTM D5185m         0         0         0         2         <1           Malybdenum         ppm         ASTM D5185m         60         62         84         70           Manganese         ppm         ASTM D5185m         0         0         <1         2           Magnesium         ppm         ASTM D5185m         1010         1039         1289         1029           Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         150         1183         1322         1038           Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method							
Boron         ppm         ASTM D5185m         0         0         0         2         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         60         62         84         70           Manganese         ppm         ASTM D5185m         0         0         <1         2           Magnesium         ppm         ASTM D5185m         1010         1039         1289         1029           Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1150         1183         1322         1038           Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m<							
Molybdenum         ppm         ASTM D5185m         60         62         84         70           Manganese         ppm         ASTM D5185m         0         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Manganese         ppm         ASTM D5185m         0         0         <1		ppm					<1
Magnesium         ppm         ASTM D5185m         1010         1039         1289         1029           Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1150         1183         1322         1038           Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM	Boron		ASTM D5185m	0	0	2	<1
Calcium         ppm         ASTM D5185m         1070         1309         1447         1244           Phosphorus         ppm         ASTM D5185m         1150         1183         1322         1038           Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	2 0	<1 2
Phosphorus         ppm         ASTM D5185m         1150         1183         1322         1038           Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 62	2 0 84	<1 2 70
Zinc         ppm         ASTM D5185m         1270         1411         1686         1322           Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 62 0	2 0 84 <1	<1 2 70 2
Sulfur         ppm         ASTM D5185m         2060         3363         4460         2808           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         5         7         <1           Potassium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 62 0 1039	2 0 84 <1 1289	<1 2 70 2 1029
CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         5         7         <1           Potassium         ppm         ASTM D5185m         >20         4         6         34           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 62 0 1039 1309	2 0 84 <1 1289 1447	<1 2 70 2 1029 1244
Silicon         ppm         ASTM D5185m         >30         7         11         13           Sodium         ppm         ASTM D5185m         5         7         <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 0 62 0 1039 1309 1183	2 0 84 <1 1289 1447 1322	<1 2 70 2 1029 1244 1038
Sodium         ppm         ASTM D5185m         5         7         <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 0 62 0 1039 1309 1183 1411	2 0 84 <1 1289 1447 1322 1686	<1 2 70 2 1029 1244 1038 1322
Sodium         ppm         ASTM D5185m         5         7         <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 62 0 1039 1309 1183 1411 3363	2 0 84 <1 1289 1447 1322 1686 4460	<1 2 70 2 1029 1244 1038 1322
INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 62 0 1039 1309 1183 1411 3363 current	2 0 84 <1 1289 1447 1322 1686 4460 history1	<1 2 70 2 1029 1244 1038 1322 2808 history2
Soot %         %         *ASTM D7844         >3         0.5         0         1.2           Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060	0 0 62 0 1039 1309 1183 1411 3363 current 7	2 0 84 <1 1289 1447 1322 1686 4460 history1 11	<1 2 70 2 1029 1244 1038 1322 2808 history2 13
Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	0 0 62 0 1039 1309 1183 1411 3363 <u>current</u> 7 5	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <1
Nitration         Abs/cm         *ASTM D7624         >20         9.2         9.3         13.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	0 0 62 0 1039 1309 1183 1411 3363 current 7 5 4	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <1
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20 <b>limit/base</b>	0 0 62 0 1039 1309 1183 1411 3363 current 7 5 4 4	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6 kistory1	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <1 34 history2
Suitation ADS/.IMM TASIM D/415 >30 20.3 23.7 26.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >33	0 0 62 0 1039 1309 1183 1411 3363 <u>current</u> 7 5 4 <u>current</u> 0.5	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6 history1 0	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <1 34 history2 1.2
FLUID DEGRADATION method limit/base current history1 history	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >33	0 0 62 0 1039 1309 1183 1411 3363 <u>current</u> 7 5 4 <u>current</u> 0.5	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6 history1 0	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <1 34 history2 1.2
Oxidation Abs/.1mm *ASTM D7414 >25 17.2 18.5 24.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 <b>imit/base</b> >3 >20 >3	0 0 62 0 1039 1309 1183 1411 3363 <u>current</u> 7 5 4 <u>current</u> 0.5 9.2 20.3	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6 history1 0 9.3 23.7	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <13 4 history2 1.2 1.2 1.2 13.4
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.6 8.7 5.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	0 0 62 0 1039 1309 1383 1411 3363 <i>current</i> 7 5 4 <i>current</i> 0.5 9.2 20.3 <i>current</i>	2 0 84 <1 1289 1447 1322 1686 4460 history1 11 7 6 history1 0 9.3 23.7 history1	<1 2 70 2 1029 1244 1038 1322 2808 history2 13 <13 <1 34 history2 1.2 1.2 1.3.4 26.9 history2



# **OIL ANALYSIS REPORT**





	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
ep11/23 . Nov7/23 .	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sep11/23 Nov7/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.1	13.7
	GRAPHS						
	Ferrous Alloys						
	120 iron						
Sep 11/23	100 - chromium						
ŏ	80						
E	60						
	40	1-					
	20-						
	1/23 -	1/23 -		//23 -			
	Aug7/23	Sep 11/23		Nov7/23			
	Non-ferrous Meta	ls					
		10					
	<sup>40</sup> T						
	35 - copper						
	conner 1						
	35 - copper lead						
	35 - copper lead 30 - tin 25 -						
	35 - copper 30 - lead tin						
	35 30 25 50 50 50 50 50 50 50 50 50 50 50 50 50						
	35 30 25 20 15						
	35 30 25 20 15 10 5 0 0 15 0 15 0 15 0 15 0 15 0 15 0 15 0 15 15 15 15 15 15 15 15 15 15						
}	35 30 25 20 15 10 5 0 0 15 0 15 0 15 0 15 0 15 0 15 0 15 0 15 15 15 15 15 15 15 15 15 15	1123		vī23			
	35         copper           30         jead           25         jin           25         jin           15         jon	Sep11/23		Novi/23			
	viscosity @ 100°C			-	Base Number	r	
	25 0 0 0 0 0 0 0 0 0 0 0 0 0			-	Base Number	r	
	25 15 10 5 0 15 0 15 10 5 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 10 10 10 10 10 10 10 10			10.0	Base	r	
	25 20 25 20 15 10 5 0 Viscosity @ 100°C 19 18 Abnomal 17			10.0	Base	r	
	25 20 25 20 15 10 5 0 Viscosity @ 100°C 19 18 Abnomal 17			10.0	Base	r	
	25 20 25 20 25 20 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 100°C 10 100°C			10.0	Base	r	
	25 26 27 27 27 27 27 27 27 27 27 27			10.0 8.0 0.0 (UH(0) 0.0 900 (Junup 900 (Junu	Base	r	
	25 20 25 25 25 25 25 25 25 25 25 25			10.0 8.0 (0,H(0) 0.0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0	Base	r	
	25 20 25 25 25 25 25 25 25 25 25 25			10.0 (B/HC) B(L) Jaquinny asse 2.0 0.0	Base		
	25 20 25 25 25 25 25 25 25 25 25 25			10.0 (B/HC) B(L) Jaquinny asse 2.0 0.0	Base		
	25 26 27 27 27 27 20 27 27 27 27 27 27 27 27 27 27			10.0 (0)HOX But but but but but but but but but but b	Base	Sep 11/23	
	Copper Solution	Sep11/23	son Ave Ca	10.0 (0)HOX Bull 38.0 bull	Base Base Ezclored	Sep 11/23	auls Vallev Haul
	25 20 25 20 25 27 27 27 27 27 27 27 27 27 27	Sep11/23		10.0 (0)HOX Bull 38.0 bull	Base EZ/L <sup>Biny</sup> GFL Env	rironmental - 892 - Pa 405 East Airport	Industrial Ro
Laboratory Sample No. Lab Number	25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 20 25 25 20 25 25 25 25 25 25 25 25 25 25	501 Madis Received Diagnose	d :091 ed :131	ry, NC 27513 Nov 2023 Nov 2023	Base EZ/L <sup>Biny</sup> GFL Env	rironmental - 892 - Pa 405 East Airport	Industrial Roa auls Valley, C
Laboratory Sample No. Lab Number Unique Number	Copper Solution Copper Solution Copper Solution Copper Solution Copper Solution Soluti	501 Madia	d :091 ed :131	10.0 (0)+00y but 5.0 (0)+00y but 5.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base EZ/L <sup>Biny</sup> GFL Env	rironmental - 892 - Pa 405 East Airport Pa	Industrial Ro auls Valley, C US 730
Laboratory Sample No. Lab Number	25 20 25 25 25 25 25 25 25 25 25 25	501 Madia Received Diagnost	d : 09 f ed : 13 f tician : Dor	10.0 (0,400) but back but back (0,400) but back (0,400) b	Base EZ/L <sup>Biny</sup> GFL Env	rironmental - 892 - Pa 405 East Airport Pr Contact	Industrial Ro auls Valley, C

Contact/Location: Tony Graham - GFL892