

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 727068-361321

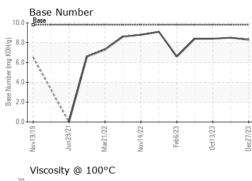
Component **Diesel Engine** Fluid

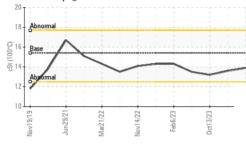
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIACNOSIS         SAMPLE INFORMATION         methods         unribase         current         history1         history1 <th></th> <th></th> <th></th> <th>NovZU19 .</th> <th>Junzuzi Marzuzz</th> <th>NOVZUZZ FEDZŪZ3 UCtZŪZ3</th> <th>Dec2023</th> <th></th>				NovZU19 .	Junzuzi Marzuzz	NOVZUZZ FEDZŪZ3 UCtZŪZ3	Dec2023	
Resample fail the next service interval to monitor.         Simple faile         Client Info         27 Dec 2023         01 Dec 2023         13 Oct 2023.           Machine Age         hrs         Client Info         4068         9800         9825           At component wear rates are normal.         Oil Age         hrs         Client Info         700 </th <th>DIAGNOSIS</th> <th></th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	DIAGNOSIS		MATION	method	limit/base	current	history1	history2
Water         All component wear rates are normal.         Contamination         Client Info         Client Info <thclient info<="" th="">         Cl</thclient>	Recommendation	Sample Number		Client Info		GFL0098348	GFL0098305	GFL0079307
All component wear rates are normal.       Oil Age       htts       Client Info       700       700       700         There is no indication of any containination in the oil.       There is no indication of any containination in the oil.       Sample Status       Client Info       Changed	Resample at the next service interval to monitor.	Sample Date		Client Info		27 Dec 2023	01 Dec 2023	13 Oct 2023
Containation       Client Info       Changed       Chan	Wear	Machine Age	hrs	Client Info		4068	3900	3626
Sample Status       NORMAL       NORMAL       NORMAL         Due is no indication of any contamination in the ol.       Sample Status       Imitbaso       current       Hatory1       history2         Fuel       WC Method       0.0       -1.0       <1.0	All component wear rates are normal.	Oil Age	hrs	Client Info		700	700	700
Sample Status       NORMAL       NORMAL       NORMAL         Due is no indication of any contamination in the ol.       Sample Status       Imitbaso       current       Hatory1       history2         Fuel       WC Method       0.0       -1.0       <1.0	·	Oil Changed		Client Info		Changed	Changed	Changed
Ol.       CONTAMINATION       method       Instance       Netsony1       Netsony2         Fuel Condition       The RV result indicates that there is suitable alkalmity remaining in the oil. The condition of the oil is suitable for further service.       WC Method       >3.0       <1.0		Sample Status				-		
Fluid         WC Method         >3.0         <1.0         <1.0         <1.0           The DN result indicates that there is suitable alkalinity romaining in the oil. The condition of the oil is suitable for further service.         NEG         NEG         NEG         NEG         NEG           Water         WC Method         So.2         NEG         NEG         NEG         NEG           View         WC Method         So.2         <1		•		and the state	11.0011/000000		Interface and	history O
The BUR result indicates that there is suitable addating remaining in the 0.1.1 be condition of the 0.1 be condition o	Fluid Condition		ION					
Glycol         WC Method         NEG         NEG         NEG           oil is suutable for further service.         Glycol         WC Method         Inth/bass         current         history1         history1           Iron         ppm         ASTU D5155n         >12.0         33         17.0         9.4           Chromium         ppm         ASTU D5155n         >2.0         3.0         1.0         0           Nickel         ppm         ASTU D5155n         >2.0         0.0         0.0         0           Silver         ppm         ASTU D5155n         >2.0         0.0         0.0         0.0           Aluminum         ppm         ASTU D5155n         >2.0         2.0         .1         2.0           Cooper         ppm         ASTU D5155n         >2.0         2.0         .2         .2           Tin         ppm         ASTU D5155n         >1.0         0.0         0.0         0.0           Carmium         ppm         ASTU D5155n         0         <1		Fuel						
WEAR METALS         method         imitbase         current         history1         history2           Iron         ppm         ASTM.0588m         >12.0         33         17         34           Chromium         ppm         ASTM.0588m         >12.0         31         -1         -1         -1           Nickel         ppm         ASTM.0588m         >2         -1         0         0           Silver         ppm         ASTM.0588m         >2         -1         0         0           Auminum         ppm         ASTM.0588m         >20         2         -1         2           Lead         ppm         ASTM.0588m         >40         2         -1         2           Copper         ppm         ASTM.0588m         >30         2         2         1           Vanadium         ppm         ASTM.0588m         0         0         0         0           ADDITIVES         method         imitbase         current         history1         history2           Boron         ppm         ASTM.0588m         0         5         5         5           Maganesium         ppm         ASTM.0588m         0         1         0<	alkalinity remaining in the oil. The condition of the	Water		WC Method	>0.2			
Iron       ppm       ASTM D5185m       >12.0       33       17.0       34.4         Chromium       ppm       ASTM D5185m       >2.0       <1	oil is suitable for further service.	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         <1		WEAR METAL	S	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         <1         <1         <1           Nickel         ppm         ASTM D5185m         >2         <1		Iron	ppm	ASTM D5185m	>120	33	17	34
Nickel         ppm         ASTM 05185m         >5         <1         0         0           Titanium         ppm         ASTM 05185m         >2         0         0         0           Aluminum         ppm         ASTM 05185m         >2         0         0         0           Aluminum         ppm         ASTM 05185m         >40         2         <1		Chromium		ASTM D5185m	>20	<1	<1	<1
Titanium       ppm       ASTM D5185m       >2       <1       0       0         Silver       ppm       ASTM D518m       >20       2       <1								
Silver       ppm       ASTM DS185m       >20       0       0       0         Aluminum       ppm       ASTM DS185m       >40       20       <1       2         Lead       ppm       ASTM DS185m       >33.00       2       2       2       2         Copper       ppm       ASTM DS185m       >15       <1       0       0       0         Vanadium       ppm       ASTM DS185m       15       <1       0       0       0         Cadmium       ppm       ASTM DS185m       0       <1       0       0       0         ADDITIVES       method       Imit/base       current       history1       History2       Notroy2         Boron       ppm       ASTM DS185m       0       8       0       0       0         Barium       ppm       ASTM DS185m       0       8       0       0       0         Molybdenum       ppm       ASTM DS185m       0       8       0       0       0         Marganesum       ppm       ASTM DS185m       1010       874       966       945       899         Zalcium       ppm       ASTM DS185m       1010       862       <								
Atuminum       ppm       ASTM D5185m       >20       2       <1       2         Lead       ppm       ASTM D5185m       >300       2       <1								
Lead       ppm       ASTM D5185m       >440       2       <1								
Copper         ppm         ASTM D5165m         >330         2         2         2           Tin         ppm         ASTM D5165m<>15         <1								
Tin       ppm       ASTM D5185m       >15       <1								
Vanadium         ppm         ASTM 05185m         0         0         0           Cadmium         ppm         ASTM 05185m         <1								
Cadmium       ppm       ASTM D5185m       <1       0       0         ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185m       0       <1					>15			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1								
Boron       ppm       ASTM D5185m       0       <1			ррш					
Barium       ppm       ASTM D5185m       0       8       0       0         Molybdenum       ppm       ASTM D5185m       60       55       55       57         Manganese       ppm       ASTM D5185m       0       <1       0       0         Magnesium       ppm       ASTM D5185m       1010       874       906       876         Calcium       ppm       ASTM D5185m       1010       874       906       948         Phosphorus       ppm       ASTM D5185m       1070       978       966       948         Phosphorus       ppm       ASTM D5185m       1070       882       945       899         Zinc       ppm       ASTM D5185m       1200       1111       1180       1149         Sulfar       ppm       ASTM D5185m       2060       2915       2971       2918         Solicon       ppm       ASTM D5185m       >20       3       2       2       2         Solicon       ppm       ASTM D5185m       >20       2       0       2       2         Solicon       ppm       ASTM D5185m       >20       2       0       2       2         Nitration <th></th> <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>		ADDITIVES		method	limit/base	current	history1	history2
Molybdenum       ppm       ASTM D5185m       60       55       55       57         Manganese       ppm       ASTM D5185m       0       <1		Boron	ppm				0	0
Marganese       ppm       ASTM D5185m       0       <1       0       0         Magnesium       ppm       ASTM D5185m       1010       874       906       876         Calcium       ppm       ASTM D5185m       1070       978       966       948         Phosphorus       ppm       ASTM D5185m       1150       882       945       899         Zinc       ppm       ASTM D5185m       1270       1111       1180       1149         Sulfur       ppm       ASTM D5185m       2060       2915       2971       2918         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >205       3       2       2         Sodium       ppm       ASTM D5185m       >20       2       0       2         Notassium       ppm       ASTM D5185m       >20       2       0       2         Notassium       ppm       ASTM D5185m       >20       2.3       1.4       1.8         Nitration       Abs/(mm *ASTM D744       >4       2.3       1.4       1.8         Nitration       Abs/(mm *ASTM D7415       >30		Barium	ppm	ASTM D5185m	0	8	0	0
Magnesium       ppm       ASTM D5185m       1010       874       906       876         Calcium       ppm       ASTM D5185m       1070       978       966       948         Phosphorus       ppm       ASTM D5185m       1150       882       945       899         Zinc       ppm       ASTM D5185m       1270       1111       1180       1149         Sulfur       ppm       ASTM D5185m       2600       2915       2971       2918         CONTAMINANTS       method       limit/base       current       history1       history2         Sodium       ppm       ASTM D5185m       >20       2       0       2         Sodium       ppm       ASTM D5185m       >20       2       0       2         Potassium       ppm       ASTM D5185m       >20       2       0       2         Soot %       %       *ASTM D7644       >4       2.3       1.4       1.8         Nitration       Abs/tmm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/tmm       *ASTM D7145       >30       20.9       19.0       20.6         FLUID DEGRADATION       Method<		Molybdenum	ppm			55	55	57
Calcium       ppm       ASTM D5185m       1070       978       966       948         Phosphorus       ppm       ASTM D5185m       1150       882       945       899         Zinc       ppm       ASTM D5185m       1270       1111       1180       1149         Sulfur       ppm       ASTM D5185m       2060       2915       2971       2918         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >25       3       2       2         Sodium       ppm       ASTM D5185m       >20       2       0       <1         Potassium       ppm       ASTM D5185m       >20       2       0       2         Soot %       %       *ASTM D7844       >4       2.3       1.4       1.8         Nitration       Abs/cm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/lmm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/lmm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/lmm		Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus       ppm       ASTM D5185m       1150       882       945       899         Zinc       ppm       ASTM D5185m       1270       1111       1180       1149         Sulfur       ppm       ASTM D5185m       2060       2915       2971       2918         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >25       3       2       2         Sodium       ppm       ASTM D5185m       >20       2       0       <1		Magnesium	ppm	ASTM D5185m	1010	874	906	876
Zinc       ppm       ASTM D5185m       1270       1111       1180       1149         Sulfur       ppm       ASTM D5185m       2060       2915       2971       2918         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >25       3       2       2         Sodium       ppm       ASTM D5185m       >25       3       2       2         Sodium       ppm       ASTM D5185m       >20       0       0       <1149         Potassium       ppm       ASTM D5185m       >20       2       0       2         NtFRA-RED       method       limit/base       current       history1       history2         Soot %       %       *ASTM D7844       >4       2.3       1.4       1.8         Nitration       Abs/cm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/.tmm       *ASTM D7415       >30       20.9       19.0       20.6         FLUID DEGRADATION       method       limit/base       current       history1       history2         Oxidation       Abs/.tmm		Calcium	ppm	ASTM D5185m	1070	978	966	948
SulfurppmASTM D5185m2060291529712918CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25322SodiumppmASTM D5185m>200<11		Phosphorus	ppm	ASTM D5185m	1150	882	945	899
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m<>25322SodiumppmASTM D5185m00<1		Zinc	ppm	ASTM D5185m	1270	1111	1180	1149
SiliconppmASTM D5185m>25322SodiumppmASTM D5185m000<1PotassiumppmASTM D5185m>20202INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>42.31.41.8NitrationAbs/cm*ASTM D7624>207.46.07.5SulfationAbs/lmm*ASTM D7415>3020.919.020.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/lmm*ASTM D7414>2513.212.513.5		Sulfur	ppm	ASTM D5185m	2060	2915	2971	2918
SodiumppmASTM D5185m00<1		CONTAMINAN	TS	method	limit/base	current	history1	history2
SodiumppmASTM D5185m00<1PotassiumppmASTM D5185m>20202INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>42.31.41.8NitrationAbs/cm*ASTM D7624>207.46.07.5SulfationAbs/1mm*ASTM D7415>3020.919.020.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2513.212.513.5		Silicon	ppm	ASTM D5185m	>25	3	2	2
PotassiumppmASTM D5185m>20202INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>42.31.41.8NitrationAbs/cm*ASTM D7624>207.46.07.5SulfationAbs/1mm*ASTM D7415>3020.919.020.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2513.212.513.5				ASTM D5185m				
Soot %       %       *ASTM D7844       >4       2.3       1.4       1.8         Nitration       Abs/cm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/.1mm       *ASTM D7415       >30       20.9       19.0       20.6         FLUID DEGRADATION       method       limit/base       current       history1       history2         Oxidation       Abs/.1mm       *ASTM D7414       >25       13.2       12.5       13.5		Potassium		ASTM D5185m	>20	2	0	2
Soot %       %       *ASTM D7844       >4       2.3       1.4       1.8         Nitration       Abs/cm       *ASTM D7624       >20       7.4       6.0       7.5         Sulfation       Abs/.1mm       *ASTM D7415       >30       20.9       19.0       20.6         FLUID DEGRADATION       method       limit/base       current       history1       history2         Oxidation       Abs/.1mm       *ASTM D7414       >25       13.2       12.5       13.5		INERA-RED		method	limit/base	current	historv1	history2
Nitration         Abs/cm         *ASTM D7624         >20         7.4         6.0         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.0         20.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         12.5         13.5			0/				,	
SulfationAbs/.1mm*ASTM D7415>3020.919.020.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.212.513.5								
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.212.513.5								
Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         12.5         13.5					>30	20.9	19.0	20.6
		FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.3 8.5 8.4		Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	12.5	13.5
		Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.3	8.5	8.4

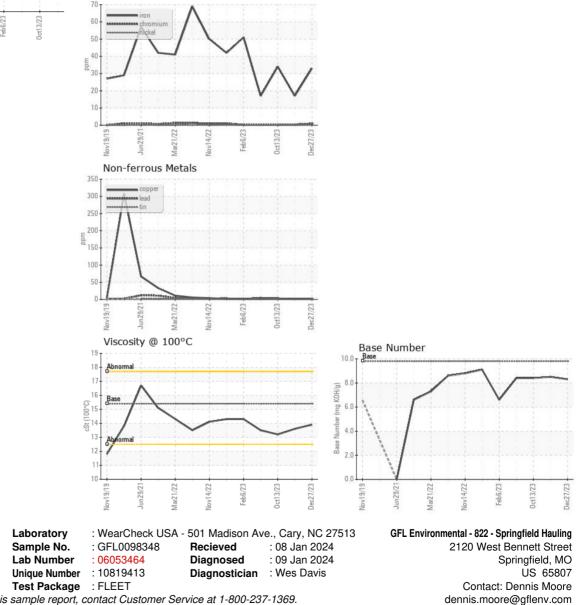


## **OIL ANALYSIS REPORT**





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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	13.9	13.6	13.2
GRAPHS						
Ferrous Alloys						





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F: