

## **OIL ANALYSIS REPORT**



#### Machine Id **2122346** Component **Diesel Engine**

Fluid PETRO CANADA DURON SHP 10W30 (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

Metal levels are typical for a components first oil change.

#### Contamination

There is no indication of any contamination in the oil.

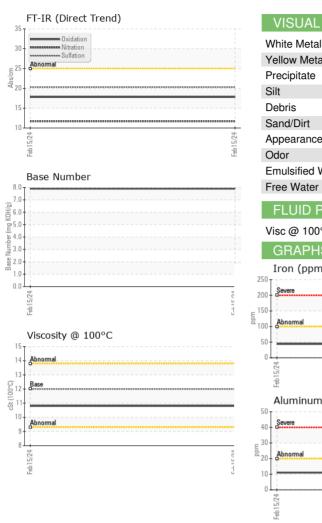
#### Fluid Condition

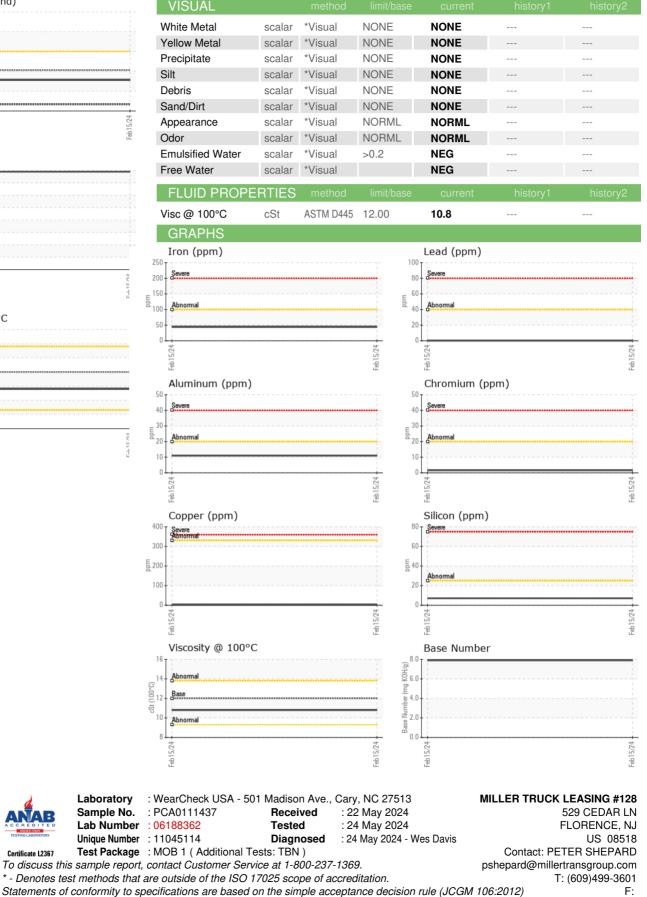
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION      method      limit/base      current      history1      history2        Sample Number      Client Info      15 Feb 2024          Sample Date      Client Info      106471          Oil Age      mls      Client Info      106471          Sample Status      method      Imit/base      current      history1      history2        Fuel      WC Method      >5      <1.0          Water      WC Method      >0           Iron      ppm      ASTM051655      >4      <1          Iron      ppm      ASTM051655      >4      <1          Iron      ppm      ASTM051655      >3	GAL)		-		Feb2024		
Sample Date      Client Info      15 Feb 2024          Machine Age      mis      Client Info      106471          Oil Changed      Client Info      106471          Sample Status      Client Info      Changed          Sample Status      Client Info      Changed          Vater      WC Method      >5.      <1.0          Water      WC Method      >0.2      NEG          WEAR METALS      method      imit/base      current      history1      history2        Iron      ppm      ASTM 05185m      >100      44          WEAR METALS      method      Imit/base      current      history1      history2        Iron      ppm      ASTM 05185m      >4      <1          Silver      ppm      ASTM 05185m      >20      11          Capper      ppm      ASTM 05185m      >30	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age      mils      Client Info      106471          Oil Ghanged      Client Info      106471          Sample Status      Client Info      Changed          CONTAMINATION      method      Imit/bass      current      history1         Water      WC Method      >5      <1.0          Water      WC Method      >0.2      NEG          Oli Optimation      WC Method      >0.2      NEG          WEAR METALS      weithod      initbass      20           Nickel      ppm      ASTM DS185m      >20      2           Nickel      ppm      ASTM DS185m      >20      11           Norega      ystm DS185m      >30      2           Norega      ystm DS185m      >30      <1          Astm DS185m	Sample Number		Client Info		PCA0111437		
Oil Age      mis      Client Info      106471          Oil Changed      Client Info      Changed          Sample Status      Imit/base      current      History1      History2        Fuel      WC Method      >5      <1.0          Water      WC Method      >0.2      NEG          Wethed      0.2      NEG           Wethed      0.2      NEG           Wethed      Netg      current      History1      History2        Iron      ppm      ASTM D5185m      >4      <1          Silver      ppm      ASTM D5185m      >4      <1          Copper      ppm      ASTM D5185m      >3      <1          Cadmium      ppm      ASTM D5185m      >3      <1          Copper      ppm      ASTM D5185m      20      1	Sample Date		Client Info		15 Feb 2024		
Oil Changed      Client Info      Changed NORMAL          Sample Status      I      Rethod      Imit/base      current      History1      History2        Fuel      WC Method      >5.      <1.0	Machine Age	mls	Client Info		106471		
Sample Status      NORMAL          CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >5      <1.0          Water      WC Method      >0.2      NEG          Olycol      WC Method      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >100      44          Nickel      ppm      ASTM D5185m      >4      <1          Aluminum      ppm      ASTM D5185m      >3      <1          Aluminum      ppm      ASTM D5185m      >30      2          Lead      ppm      ASTM D5185m      >30      2          Capper      ppm      ASTM D5185m      >30      2          Vanadium      ppm      ASTM D5185m </th <th>Oil Age</th> <th>mls</th> <th>Client Info</th> <th></th> <th>106471</th> <th></th> <th></th>	Oil Age	mls	Client Info		106471		
CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >5      <1.0          Water      WC Method      >0.2      NEG          Glycol      WC Method      >0.2      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >100      44          Ohromium      ppm      ASTM D5185m      >20      2          Nickel      ppm      ASTM D5185m      >3      <1          Aluminum      ppm      ASTM D5185m      >20      11     <         Copper      ppm      ASTM D5185m      >30      2          Cadmium      ppm      ASTM D5185m      >330      2          Soron      ppm      ASTM D5185m      0     <	Oil Changed		Client Info		Changed		
Fuel      WC Method      >5      <1.0	Sample Status				NORMAL		
Water      WC Method      >0.2      NEG          Glycol      WC Method      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5165m      >20      2          Nickel      ppm      ASTM D5165m      >20      2          Nickel      ppm      ASTM D5165m      >20      11          Silver      ppm      ASTM D5165m      >20      11          Lead      ppm      ASTM D5165m      >20      11          Copper      ppm      ASTM D5165m      >20      11          Vanadium      ppm      ASTM D5165m      >20      11          ASTM D5165m      0             Vanadium      ppm      ASTM D5165m      0      0	CONTAMINAT	ION	method	limit/base	current	history1	history2
Głycoł      WE Method      Imit/base      current      history1      inistory2        Iron      ppm      ASTM D5185m      >100      44          Chromium      ppm      ASTM D5185m      >20      2          Nickel      ppm      ASTM D5185m      >4      <1          Silver      ppm      ASTM D5185m      >3      <1          Aluminum      ppm      ASTM D5185m      >20      11          Lead      ppm      ASTM D5185m      >20      11          Vanadium      ppm      ASTM D5185m      >30      2          Vanadium      ppm      ASTM D5185m      15      <1          Cadmium      ppm      ASTM D5185m      15      <1          Magnasium      ppm      ASTM D5185m      0           Barium      ppm      ASTM D5185m	Fuel		WC Method	>5	<1.0		
WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >100      44          Chromium      ppm      ASTM D5185m      >20      2          Nickel      ppm      ASTM D5185m      >20      2          Titanium      ppm      ASTM D5185m      >3      <1          Silver      ppm      ASTM D5185m      >20      11          Lead      ppm      ASTM D5185m      >20      11          Copper      ppm      ASTM D5185m      >20      11          Cadmium      ppm      ASTM D5185m      >20      11          Adminum      ppm      ASTM D5185m      0      <1          Vanadium      ppm      ASTM D5185m      0      <1          Adminum      ppm      ASTM D5185m      0	Water		WC Method	>0.2	NEG		
Iron      ppm      ASTM D5185m      >100      44          Chromium      ppm      ASTM D5185m      >20      2          Nickel      ppm      ASTM D5185m      >4      <1          Silver      ppm      ASTM D5185m      >3      <1          Aluminum      ppm      ASTM D5185m      >20      11          Lead      ppm      ASTM D5185m      >20      11          Copper      ppm      ASTM D5185m      >20      11          Cadmium      ppm      ASTM D5185m      >330      2          ASTM D5185m      >15      <1           Cadmium      ppm      ASTM D5185m      0      <1          ASTM D5185m      0      <1            Magnasin      ppm      ASTM D5185m      50	Glycol		WC Method		NEG		
Chromium      ppm      ASTM D5185m      >4      <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel      ppm      ASTM D5185m      >4      <1	Iron	ppm	ASTM D5185m	>100	44		
Titanium      ppm      ASTM D5185m      0          Silver      ppm      ASTM D5185m      >3      <1          Aluminum      ppm      ASTM D5185m      >20      11          Lead      ppm      ASTM D5185m      >40      <1          Copper      ppm      ASTM D5185m      >33.0      2          Vanadium      ppm      ASTM D5185m      >15      <1          Cadmium      ppm      ASTM D5185m      >15      <1          Mandum      ppm      ASTM D5185m      0           Cadmium      ppm      ASTM D5185m      0      0          Boron      ppm      ASTM D5185m      0      0          Magnese      ppm      ASTM D5185m      0      <1157          Magnesium      ppm      ASTM D5185m      9	Chromium	ppm	ASTM D5185m	>20	2		
Silver      ppm      ASTM D5185m      >3      <1	Nickel	ppm	ASTM D5185m	>4			
Aluminum      ppm      ASTM D5185m      >20      11         Lead      ppm      ASTM D5185m      >40      <1          Copper      ppm      ASTM D5185m      >330      2          Tin      ppm      ASTM D5185m      >15      <1          Vanadium      ppm      ASTM D5185m      >15      <1          Cadmium      ppm      ASTM D5185m      2      0          ADDITIVES      method      Imit/base      current      history1      history2        Boron      ppm      ASTM D5185m      0      0          Malganese      ppm      ASTM D5185m      0.0      -1          Marganese      ppm      ASTM D5185m      0.0      1157          Marganese      ppm      ASTM D5185m      905      1157          Calcium      ppm      ASTM D5185m      0.0 <t< th=""><th>Titanium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th></th><th></th></t<>	Titanium	ppm	ASTM D5185m		0		
Lead      ppm      ASTM D5185m      >40      <1	Silver	ppm	ASTM D5185m	>3			
Copper      ppm      ASTM D5185m      >330      2          Tin      ppm      ASTM D5185m      >15      <1          Vanadium      ppm      ASTM D5185m      >15      <1          Cadmium      ppm      ASTM D5185m      0           ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      2      0          Marganese      ppm      ASTM D5185m      0      0      0         Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      913          Magnesium      ppm      ASTM D5185m      950      913          Sulfur      ppm      ASTM D5185m      950      1022          Sulfur      ppm      ASTM D5185m	Aluminum	ppm	ASTM D5185m	>20	11		
Tin      ppm      ASTM D5185m      >15      <1	Lead	ppm	ASTM D5185m	>40	<1		
Vanadium      ppm      ASTM D5185m      <1	Copper	ppm	ASTM D5185m	>330	2		
Cadmium      ppm      ASTM D5185m      0          ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      2      0          Barium      ppm      ASTM D5185m      0      0          Molybdenum      ppm      ASTM D5185m      0      66          Magnesium      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      0.0      <1          Calcium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      1022          Sulfur      ppm      ASTM D5185m      950      3368          Sulfur      ppm      ASTM D5185m      >20      9          Sodium      ppm      ASTM D5185m      >20      9	Tin	ppm	ASTM D5185m	>15	<1		
ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      2      0          Barium      ppm      ASTM D5185m      0      0          Barium      ppm      ASTM D5185m      0      66          Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      1022          Zinc      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >20	Vanadium	ppm	ASTM D5185m				
Boron      ppm      ASTM D5185m      2      0          Barium      ppm      ASTM D5185m      0      0          Molybdenum      ppm      ASTM D5185m      50      66          Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      1157          Phosphorus      ppm      ASTM D5185m      995      1022          Sulfur      ppm      ASTM D5185m      995      1022          Sulfur      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >20      9     Sodium      ppm      ASTM D5185m		ppm	ASTM D5185m		0		
Barium      ppm      ASTM D5185m      0      0          Molybdenum      ppm      ASTM D5185m      50      66          Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      1050      1157          Phosphorus      ppm      ASTM D5185m      995      1022          Sulfur      ppm      ASTM D5185m      2600      3368          Solicon      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum      ppm      ASTM D5185m      50      66          Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      1050      1157          Phosphorus      ppm      ASTM D5185m      1050      1157          Zinc      ppm      ASTM D5185m      995      1022          Sulfur      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      225      7          Sodium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      'A	Boron	ppm	ASTM D5185m	2	0		
Manganese      ppm      ASTM D5185m      0      <1	Barium	ppm	ASTM D5185m	0	0		
Magnesium      ppm      ASTM D5185m      950      913          Calcium      ppm      ASTM D5185m      1050      1157          Phosphorus      ppm      ASTM D5185m      995      1022          Zinc      ppm      ASTM D5185m      1180      1225          Sulfur      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      2600      3368          Sulfur      ppm      ASTM D5185m      2600      3368          Solicon      ppm      ASTM D5185m      2600      3368          Sodium      ppm      ASTM D5185m      225      7          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844	Molybdenum	ppm	ASTM D5185m		66		
Calcium      ppm      ASTM D5185m      1050      1157          Phosphorus      ppm      ASTM D5185m      995      1022          Zinc      ppm      ASTM D5185m      1180      1225          Sulfur      ppm      ASTM D5185m      2600      3368          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >25      7          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/.mm<*ASTM D7624      >20      11.7          Sulfation      Abs/.1mm<*ASTM D7415      >30	Manganese	ppm	ASTM D5185m	0	<1		
Phosphorus      ppm      ASTM D5185m      995      1022          Zinc      ppm      ASTM D5185m      1180      1225          Sulfur      ppm      ASTM D5185m      2600      3368          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >25      7          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      l	Magnesium	ppm	ASTM D5185m	950	913		
Zinc      ppm      ASTM D5185m      1180      1225          Sulfur      ppm      ASTM D5185m      2600      3368          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >20      9          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/ba		ppm	ASTM D5185m	1050	1157		
SulfurppmASTM D5185m26003368CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>257SodiumppmASTM D5185m>209PotassiumppmASTM D5185m>209INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.8NitrationAbs/cm*ASTM D7624>2011.7SulfationAbs/1mm*ASTM D7415>3020.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.8		ppm			-		
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>257SodiumppmASTM D5185m>209PotassiumppmASTM D5185m>209INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.8NitrationAbs/cm*ASTM D7624>2011.7SulfationAbs/tmm*ASTM D7415>3020.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.8		ppm			1225		
Silicon      ppm      ASTM D5185m      >25      7          Sodium      ppm      ASTM D5185m      >20      1          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8			ASTM D5185m	2600	3368		
Sodium      ppm      ASTM D5185m      1          Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/.1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium      ppm      ASTM D5185m      >20      9          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/.1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8				>25	7		
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.8NitrationAbs/cm*ASTM D7624>2011.7SulfationAbs/.1mm*ASTM D7415>3020.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.8		ppm					
Soot %      %      *ASTM D7844      >3      0.8          Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/.1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8		ppm		>20	9		
Nitration      Abs/cm      *ASTM D7624      >20      11.7          Sulfation      Abs/.1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation      Abs/.1mm      *ASTM D7415      >30      20.3          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      17.8							
FLUID DEGRADATION  method  limit/base  current  history1  history2    Oxidation  Abs/.1mm  *ASTM D7414  >25  17.8				>20			
Oxidation Abs/.1mm *ASTM D7414 >25 17.8				>30	20.3		
	FLUID DEGRA			limit/base	current	history1	history2
Base Number (BN)      mg KOH/g      ASTM D2896      7.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.8		
	Base Number (BN)	mg KOH/g	ASTM D2896		7.9		



# **OIL ANALYSIS REPORT**





Report Id: MILFLO [WUSCAR] 06188362 (Generated: 05/24/2024 16:45:47) Rev: 1

Certificate 12367

Laboratory

Sample No.

Contact/Location: PETER SHEPARD - MILFLO