

# **OIL ANALYSIS REPORT**

Sample Rating Trend

# NORMAL

Machine Id

# 929081-260352

## 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.

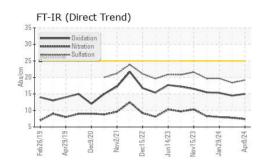
### Fluid Condition

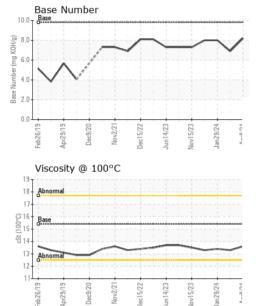
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109196	GFL0109145	GFL0109205
Sample Date		Client Info		08 Apr 2024	15 Mar 2024	29 Jan 2024
Machine Age	hrs	Client Info		15244	15095	14837
Oil Age	hrs	Client Info		600	300	700
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	•		limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	5	18
Chromium	ppm	ASTM D5185m	>20	0	0	1
Nickel	ppm	ASTM D5185m	>4	۰ <1	0	<1
Titanium	ppm	ASTM D5185m	T.4	0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	<1
Lead	ppm	ASTM D5185m	>40	1	0	3
Copper	ppm	ASTM D5185m	>330	0	0	3
Tin	ppm	ASTM D5185m	>15	۰ <1	0	<1
Vanadium	ppm	ASTM D5185m	210	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
	1.1	method	limit/hase		-	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	current 2	history1 0	history2 <1
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	current 2 0	history1 0 0	history2 <1 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 59	history1 0 0 58	history2 <1 0 71
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 59 0	history1 0 0 58 0	history2 <1 0 71 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 59 0 976	history1 0 0 58 0 1010	history2 <1 0 71 <1 1028
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current      2      0      59      0      976      1073	history1 0 0 58 0 1010 1113	history2      <1      0      71      <1      1028      1119
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	Current 2 0 59 0 976 1073 1074	history1 0 58 0 1010 1113 1065	history2      <1      0      71      <1      1028      1119      1075
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	current      2      0      59      0      976      1073      1074      1314	history1 0 58 0 1010 1113 1065 1326	history2      <1      0      71      <1      1028      1119      1075      1321
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	Current 2 0 59 0 976 1073 1074 1314 3734	history1 0 58 0 1010 1113 1065 1326 3591	<1    0    71    <1    1028    1119    1075    1321    3151
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 1010 1070 1150 1270 2060	current    2    0    59    0    976    1073    1074    1314    3734    current	history1 0 58 0 1010 1113 1065 1326 3591 history1	<1    0    71    <1    1028    1119    1075    1321    3151    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm 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	current      2      0      59      0      976      1073      1074      1314      3734      current      4	history1      0      0      58      0      1010      1113      1065      1326      3591      history1      3	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm 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>	current      2      0      59      0      976      1073      1074      1314      3734      current      4      10	history1      0      0      58      0      1010      1113      1065      1326      3591      history1      3      3	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	current    2    0    59    0    976    1073    1074    1314    3734    current    4    10    4    10    4	history1      0      0      58      0      1010      1113      1065      1326      3591      history1      3      3	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current    2    0    59    0    976    1073    1074    1314    3734    current    4    10    4    current    current	history1    0    0    58    0    1010    1113    1065    1326    3591    history1    3	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2
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 <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current      2      0      59      0      976      1073      1074      1314      3734      current      4      10      4      00      0	history1      0      0      58      0      1010      1113      1065      1326      3591      history1      3      3      <1      history1      0.2	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2    0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	current    2    0    59    0    976    1073    1074    1314    3734    current    4    10    4    0    0.3    7.4	history1      0      0      58      0      1010      1113      1065      1326      3591      history1      3      3      <1      history1      0.2      7.8	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2    0.4    8.0
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 2060 225 >25 >20 Limit/base >20	current      2      0      59      0      976      1073      1074      1314      3734      current      4      10      4      00      0	history1    0    0    58    0    1010    1113    1065    1326    3591    history1    3    3    -1    0.2    7.8    18.4	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2    0.4
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	current    2    0    59    0    976    1073    1074    1314    3734    current    4    10    4    0.3    7.4    19.2    current	history1    0    0    58    0    1010    1113    1065    1326    3591    history1    3    3    <1    history1    0.2    7.8    18.4    history1	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2    0.4    8.0
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 2060 225 20 225 20 20 320 33 20 20	current    2    0    59    0    976    1073    1074    1314    3734    current    4    10    4    0.3    7.4    19.2	history1    0    0    58    0    1010    1113    1065    1326    3591    history1    3    3    -1    0.2    7.8    18.4	<1    0    71    <1    1028    1119    1075    1321    3151    history2    8    53    20    history2    0.4    8.0    19.7

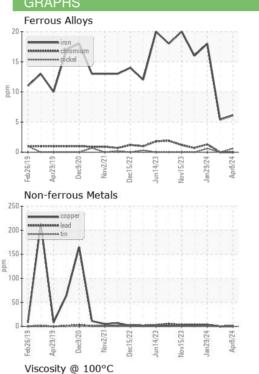


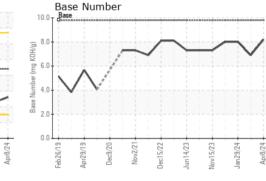
# **OIL ANALYSIS REPORT**





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	13.6	13.3	13.4
GRAPHS						





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 822 - Springfield Hauling Sample No. : GFL0109196 Received : 11 Apr 2024 2120 West Bennett Street Lab Number : 06146428 Tested : 12 Apr 2024 Springfield, MO Unique Number : 10976506 Diagnosed : 12 Apr 2024 - Wes Davis US 65807 Test Package : FLEET Contact: Dennis Moore Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dennis.moore@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (417)403-3641 F:

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Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Submitted By: Dennis Moore

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