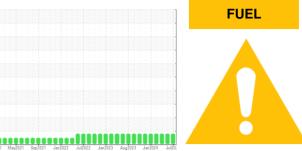


OIL ANALYSIS REPORT

Sample Rating Trend



INDEPENDENCE Unit 04 DB200104E

Natural Gas Engine

PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)

DIAGNOSIS Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. No other contaminants were detected in the oil.

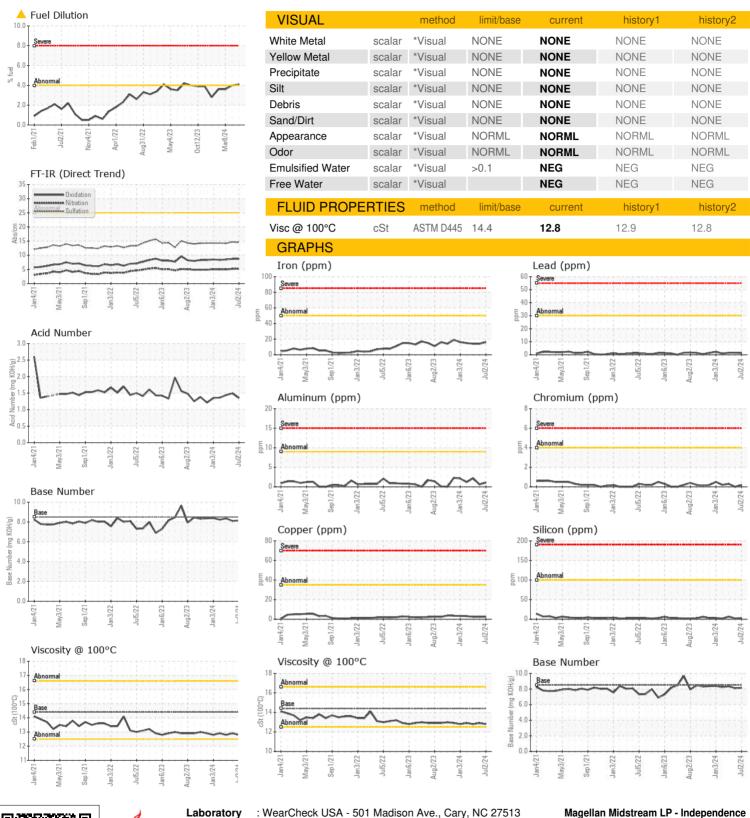
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sample Date Client Info 02 Jul 2024 15 Apr 2024 08 Mar 2024 Machine Age hrs Client Info 13851 13655 13428 Oil Oil Age hrs Client Info Not Changd Not Changd Not Changd ABNORMAL	J TOW (LOO GAL)	,					
Sample Date Client Info 02 Jul 2024 15 Apr 2024 08 Mar 2024 Machine Age hrs Client Info 13851 13655 13428 13428 Oil Age hrs Client Info Not Changd Not Changd Sample Status ABNORMAL ABNORMAL	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 13851 13655 13428 Oil Age hrs Client Info 13851 13655 13428 Oil Changed Client Info Not Changd Not Changd Many Sample Status Many Many Many Water WC Method So.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >4 <1 0 <1 Chromium ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Oil Changd ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 0 0 Oil Titanium ppm ASTM D5185m >3 0 0 0 0 0 0 0 Oil Titanium ppm ASTM D5185m >4 <1 1 <1 <1 <1 <1 <1 <1	Sample Number		Client Info		PCA0071484	PCA0097010	PCA0097014
Oil Age hrs Client Info 13851 13655 13428 Oil Changed Sample Status Client Info Not Changd ABNORMAL Not Changd Filtered MARGINAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >2 0 0 0 Chromium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >3 2 2 2	Sample Date		Client Info		02 Jul 2024	15 Apr 2024	08 Mar 2024
Oil Changed Sample Status Client Info Not Changd ABNORMAL Not Changd ABNORMAL Filtered MARGINAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m 0 <1	Machine Age	hrs	Client Info		13851	13655	13428
ABNORMAL ABNORMAL	Oil Age	hrs	Client Info		13851	13655	13428
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 1 2 2 Lead ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >4 <1 1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 </td <td>Oil Changed</td> <td></td> <td>Client Info</td> <td></td> <th></th> <td>Not Changd</td> <td>Filtered</td>	Oil Changed		Client Info			Not Changd	Filtered
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 16 14 14 Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 1 <1 2 Lead ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m 9 1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 0 Capper ppm ASTM D5185m 0 0 <1 </td <td>Sample Status</td> <td></td> <td></td> <td></td> <th>ABNORMAL</th> <td>ABNORMAL</td> <td>MARGINAL</td>	Sample Status				ABNORMAL	ABNORMAL	MARGINAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 16 14 14 14 Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m >2 0 0 0 Siliver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >9 1 <1 2 2 Copper ppm ASTM D5185m >35 3 2 2 2 Tin ppm ASTM D5185m >4 <1 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <t< th=""><th>CONTAMINATI</th><th>ON</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATI	ON	method	limit/base	current	history1	history2
Iron	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 1 2 2 Lead ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >4 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	16	14	14
Titanium	Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum ppm ASTM D5185m >9 1 <1 2 Copper ppm ASTM D5185m >30 1 2 2 Tin ppm ASTM D5185m >4 <1 1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 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 <1 0 Magnesium ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m	Titanium	ppm	ASTM D5185m			0	0
Lead ppm ASTM D5185m >30 1 2 2 Copper ppm ASTM D5185m >35 3 2 2 Tin ppm ASTM D5185m >4 <1 1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 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 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 0 0 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1292 1099 1258 Sulfur ppm	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >35 3 2 2 Tin ppm ASTM D5185m >4 <1		ppm	ASTM D5185m	>9			
Tin ppm ASTM D5185m >4 <1 1 1 <1 Vanadium ppm ASTM D5185m 0	Lead	ppm	ASTM D5185m	>30			
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 7 2 4 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 4 4 4 Manganese ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 </td <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>35</td> <th>3</th> <td>2</td> <td>2</td>	Copper	ppm	ASTM D5185m	>35	3	2	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 7 2 4 Barium ppm ASTM D5185m 0 0 0 Molydenum ppm ASTM D5185m 0 -1 0 Magnesium ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 <td< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>>4</td><th></th><td>1</td><td><1</td></td<>	Tin	ppm	ASTM D5185m	>4		1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 7 2 4 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 4 4 Manganese ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D5185m >20<	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 4 4 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 4 8 7 8 6 0 2 8 7 8 7 8 8 7 8 8 7 1054 9 9 1054 9 1054 9 1054 9 1054 9 1054 9 1054 9 1049 1054 1054 1049 1049 1049 1049 1049 1049 1049 1049 1049 1049 1040 104 104 104 104 104 104 104 104 104	Boron	ppm	ASTM D5185m		7	2	4
Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 3.6 INFRA-RED method limit/base current history1 history2 Soot %	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 910 872 878 Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 3.6 INFRA-RED method limit/base current history1 history2	Molybdenum	ppm	ASTM D5185m		4	4	4
Calcium ppm ASTM D5185m 1056 1028 1054 Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 3.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/.1mm *ASTM D7624 >20 5.2 5.2 5.0	Manganese	ppm	ASTM D5185m		0	<1	0
Phosphorus ppm ASTM D5185m 1044 987 1049 Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 3.6 INFRA-RED method limit/base current history1 history2	Magnesium	ppm	ASTM D5185m		910	872	878
Zinc ppm ASTM D5185m 1292 1099 1258 Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D5185m >20 2 0 1 Soot % % *ASTM D7844 0.1 0.1 0.1 0.1	Calcium	ppm	ASTM D5185m		1056	1028	1054
Sulfur ppm ASTM D5185m 2760 3014 3016 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m <1	Phosphorus	ppm	ASTM D5185m		1044	987	1049
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m		1292	1099	1258
Silicon ppm ASTM D5185m >+100 3 2 7 Sodium ppm ASTM D5185m <1 3 <1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 △ 3.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Sulfur	ppm	ASTM D5185m		2760	3014	3016
Sodium ppm ASTM D5185m <1 3 <1 Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 ▲ 4.1 ▲ 4.0 ▲ 3.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 1 Fuel % ASTM D3524 >4.0 4.1 4.0 3.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Silicon	ppm	ASTM D5185m	>+100	3	2	7
Fuel % ASTM D3524 >4.0 ▲ 4.1 ▲ 4.0 ▲ 3.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Sodium	ppm	ASTM D5185m			3	<1
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Potassium	ppm	ASTM D5185m	>20	2		1
Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Fuel	%	ASTM D3524	>4.0	<u>▲</u> 4.1	<u>4.0</u>	▲ 3.6
Nitration Abs/cm *ASTM D7624 >20 5.2 5.2 5.0 Sulfation Abs/.1mm *ASTM D7615 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 14.5 14.7 14.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Soot %	%	*ASTM D7844		0.1	0.1	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Nitration	Abs/cm	*ASTM D7624	>20	5.2	5.2	5.0
Oxidation Abs/.1mm *ASTM D7414 >25 8.7 8.7 8.5 Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Sulfation	Abs/.1mm	*ASTM D7415	>30	14.5	14.7	14.2
Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 1.35 1.49 1.44	Oxidation	Abs/.1mm	*ASTM D7414	>25	8.7	8.7	8.5
	Acid Number (AN)	mg KOH/g	ASTM D8045		1.35	1.49	
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.15		8.35



OIL ANALYSIS REPORT







Certificate 12367

Laboratory Sample No.

Lab Number : 06230889

: PCA0071484

Received **Tested** Unique Number : 11114382

: 08 Jul 2024 : 12 Jul 2024 Diagnosed

: 12 Jul 2024 - Sean Felton Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel) To discuss this sample report, contact Customer Service at 1-800-237-1369.

US 67301 Contact: Heath James heath.james@oakok.com T: (620)779-2040

836 South Rosser Road

Independence, KS

 st - 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)

Report Id: MAGIND [WUSCAR] 06230889 (Generated: 07/12/2024 08:17:00) Rev: 1

Submitted By: Kevin McIntosh