



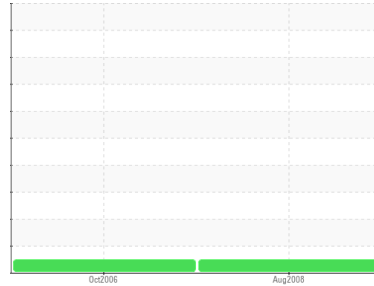
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
CATERPILLAR 81Z12792
 Component
Diesel Engine
 Fluid
ROYAL PURPLE MOTOR OIL 15W40 (19 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 component.

Fluid Condition

The condition of oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		RP007018	RP007786	---
Sample Date	Client Info		13 Aug 2008	17 Oct 2006	---
Machine Age	hrs	Client Info	469	421	---
Oil Age	hrs	Client Info	95	88	---
Oil Changed	Client Info		Not Chngd	Not Chngd	---
Sample Status			NORMAL	NORMAL	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method		<1.0	<1.0	---
Glycol	WC Method		NEG	NEG	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	22	15	---
Chromium	ppm	ASTM D5185m	<1	<1	---
Nickel	ppm	ASTM D5185m	<1	<1	---
Titanium	ppm	ASTM D5185m	<1	<1	---
Silver	ppm	ASTM D5185m	0	0	---
Aluminum	ppm	ASTM D5185m	3	3	---
Lead	ppm	ASTM D5185m	2	2	---
Copper	ppm	ASTM D5185m	215	49	---
Tin	ppm	ASTM D5185m	0	0	---
Antimony	ppm	ASTM D5185m	0	2	---
Vanadium	ppm	ASTM D5185m	0	0	---
Cadmium	ppm	ASTM D5185m	<1	0	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	20	20	---
Barium	ppm	ASTM D5185m	0	0	---
Molybdenum	ppm	ASTM D5185m	97	80	---
Manganese	ppm	ASTM D5185m	<1	<1	---
Magnesium	ppm	ASTM D5185m	130	109	---
Calcium	ppm	ASTM D5185m	3246	2620	---
Phosphorus	ppm	ASTM D5185m	1082	986	---
Zinc	ppm	ASTM D5185m	1233	1081	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	5	5	---
Sodium	ppm	ASTM D5185m	4	5	---
Potassium	ppm	ASTM D5185m	0	0	---

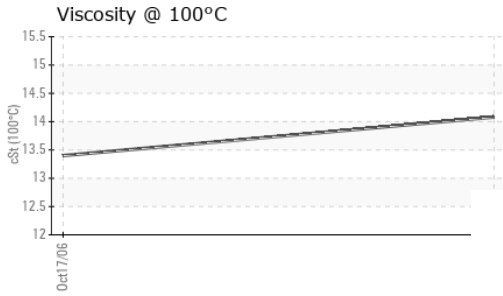
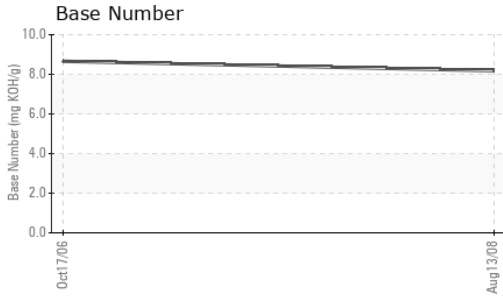
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	---
Nitration	Abs/cm	*ASTM D7624	8.	0.08	---
Sulfation	Abs/.1mm	*ASTM D7415	19.	0.17	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	15.	0.23	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.18	8.66	---

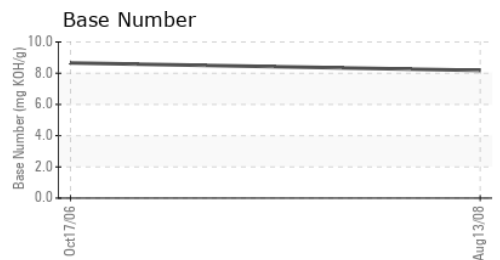
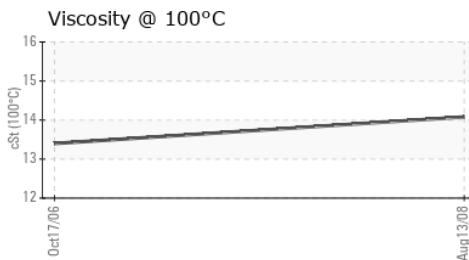
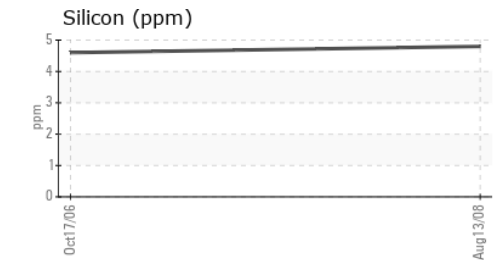
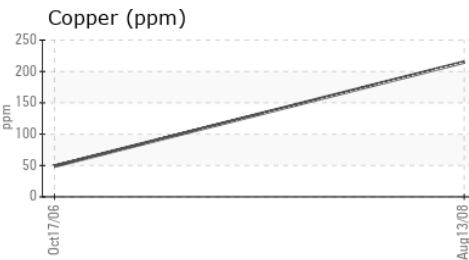
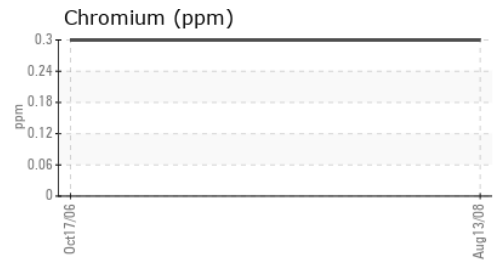
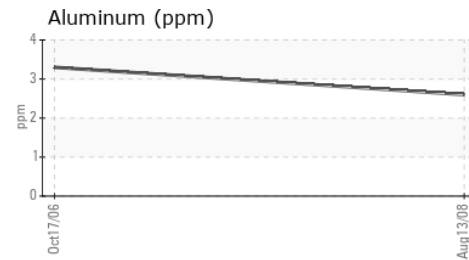
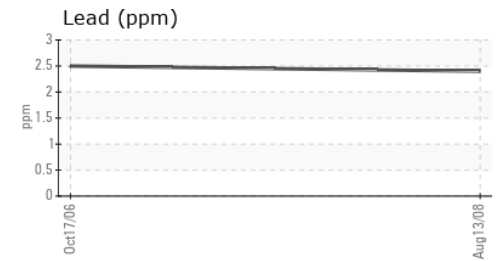
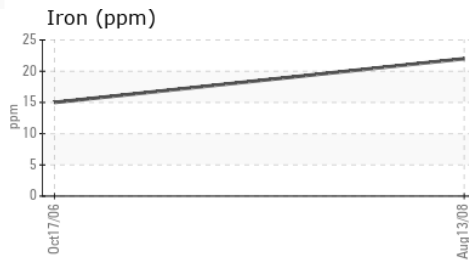
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	NEG	NEG	---
Free Water	scalar	*Visual	NEG	NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.08	13.4	---

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RP007018 **Received** : 02 Sep 2008
Lab Number : 02239500 **Diagnosed** : 13 Sep 2008
Unique Number : 4559035 **Diagnostician** : Doug Bogart
Test Package : MOB 2

GRAYLING GENERATING STATION
 4400 WEST FOUR MILE ROAD
 GRAYLING, MI
 US 49738
 Contact: JASON SHEA
 jason.j.shea@cmsenergy.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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)

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