



# OIL ANALYSIS REPORT



Area  
**MINING**  
Machine Id  
**ME-581 CATERPILLAR 988F BNH01437**  
Component  
**Hydraulic System**  
Fluid  
**SHELL Spirax S4 CX 10W (--- GAL)**

## Sample Rating Trend



ISO



### DIAGNOSIS

#### Recommendation

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

#### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0942048</b>	---	---
Sample Date	Client Info		<b>26 Jun 2024</b>	---	---
Machine Age	hrs	Client Info	<b>54690</b>	---	---
Oil Age	hrs	Client Info	<b>0</b>	---	---
Oil Changed	Client Info		<b>Not Chngd</b>	---	---
Sample Status			<b>ABNORMAL</b>	---	---

### CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	<b>NEG</b>	---	---

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >20	<b>6</b>	---	---
Chromium	ppm	ASTM D5185(m) >10	<b>2</b>	---	---
Nickel	ppm	ASTM D5185(m) >10	<b>&lt;1</b>	---	---
Titanium	ppm	ASTM D5185(m)	<b>&lt;1</b>	---	---
Silver	ppm	ASTM D5185(m)	<b>0</b>	---	---
Aluminum	ppm	ASTM D5185(m) >10	<b>8</b>	---	---
Lead	ppm	ASTM D5185(m) >10	<b>&lt;1</b>	---	---
Copper	ppm	ASTM D5185(m) >75	<b>3</b>	---	---
Tin	ppm	ASTM D5185(m) >10	<b>0</b>	---	---
Antimony	ppm	ASTM D5185(m)	<b>0</b>	---	---
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	---	---
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	---	---
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	---	---

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<b>6</b>	---	---
Barium	ppm	ASTM D5185(m)	<b>&lt;1</b>	---	---
Molybdenum	ppm	ASTM D5185(m)	<b>5</b>	---	---
Manganese	ppm	ASTM D5185(m)	<b>&lt;1</b>	---	---
Magnesium	ppm	ASTM D5185(m)	<b>74</b>	---	---
Calcium	ppm	ASTM D5185(m)	<b>2834</b>	---	---
Phosphorus	ppm	ASTM D5185(m)	<b>964</b>	---	---
Zinc	ppm	ASTM D5185(m)	<b>1131</b>	---	---
Sulfur	ppm	ASTM D5185(m)	<b>3264</b>	---	---
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	---	---

### CONTAMINANTS

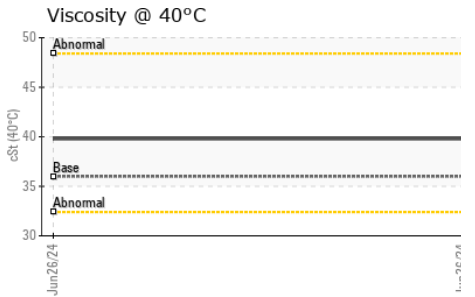
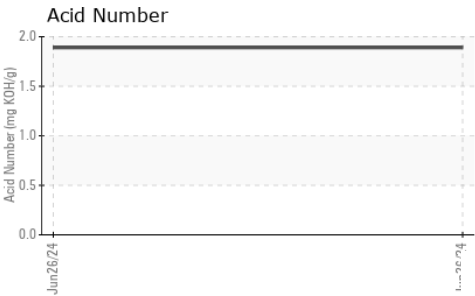
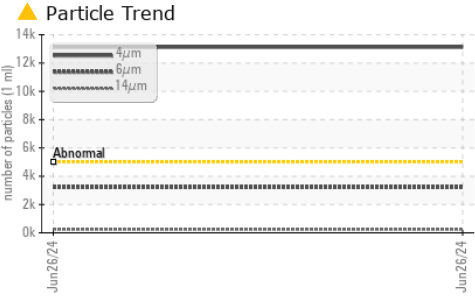
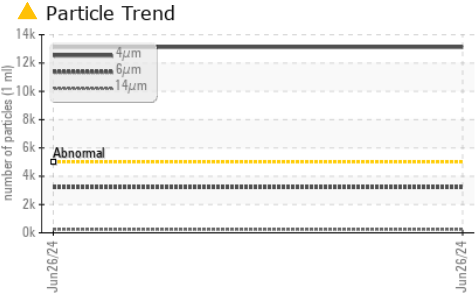
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >20	<b>19</b>	---	---
Sodium	ppm	ASTM D5185(m)	<b>6</b>	---	---
Potassium	ppm	ASTM D5185(m) >20	<b>4</b>	---	---

### FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	<b>▲ 13121</b>	---	---
Particles >6µm	ASTM D7647	>1300	<b>▲ 3214</b>	---	---
Particles >14µm	ASTM D7647	>160	<b>● 243</b>	---	---
Particles >21µm	ASTM D7647	>40	<b>56</b>	---	---
Particles >38µm	ASTM D7647	>10	<b>2</b>	---	---
Particles >71µm	ASTM D7647	>3	<b>0</b>	---	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	<b>▲ 21/19/15</b>	---	---



# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		<b>1.89</b>	---	---

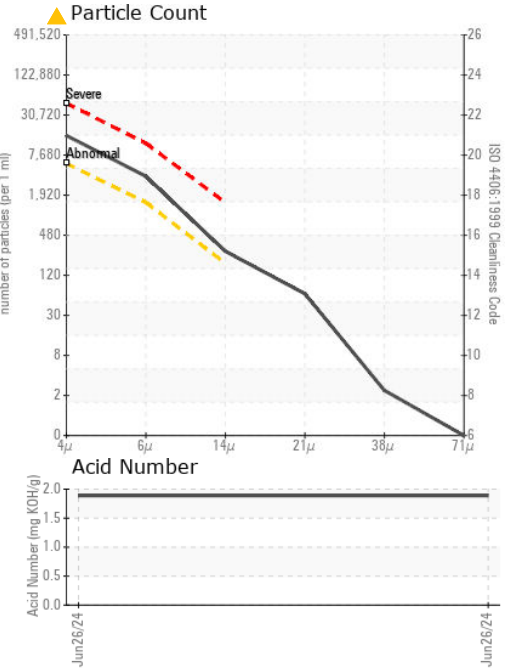
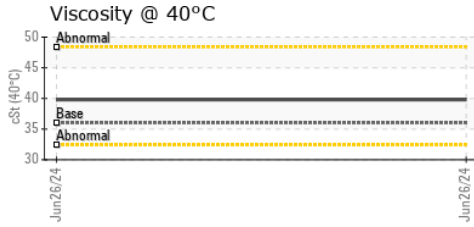
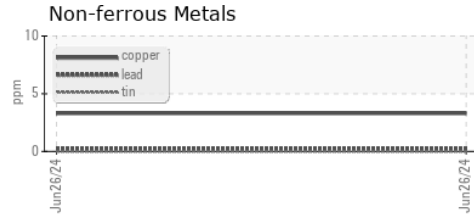
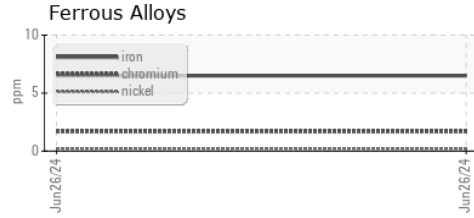
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	---	---
Silt	scalar	Visual*	NONE	<b>NONE</b>	---	---
Debris	scalar	Visual*	NONE	<b>NONE</b>	---	---
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	---	---
Appearance	scalar	Visual*	NORML	<b>NORML</b>	---	---
Odor	scalar	Visual*	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	Visual*	>0.1	<b>NEG</b>	---	---
Free Water	scalar	Visual*		<b>NEG</b>	---	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	36	<b>39.8</b>	---	---

### SAMPLE IMAGES

method	limit/base	current	history1	history2
Color			no image	no image
Bottom			no image	no image

### GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0942048      **Received** : 05 Jul 2024  
**Lab Number** : **02645918**      **Tested** : 08 Jul 2024  
**Unique Number** : 5811470      **Diagnosed** : 08 Jul 2024 - Kevin Marson  
**Test Package** : CONST

**Covia Canada Ltd.**  
 260 Unimin Road, County Rd. #46  
 Havelock, ON  
 CA K0L 1Z0  
 Contact: Dan Lyon  
 dan.lyon@coviacorp.com  
 T: (705)632-8904  
 F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.