



# OIL ANALYSIS REPORT

WEAR	<b>SEVERE</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>

Machine Id  
**46-1071**  
Component  
**Hydraulic System**  
Fluid  
**FORSYTHE NO FIRE HPWG 46B (--- LTR)**

## RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 39%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of results is based on the sample as received from the customer. The condition of the sample and the method of sampling cannot be verified. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 2 test kits, this testkit includes Particle Count to determine the ISO cleanliness of the fluid.

## WEAR

Iron ppm levels are severe. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

## CONTAMINATION

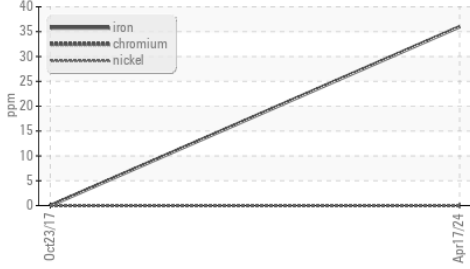
Light concentration of visible dirt/debris present in the oil.

## FLUID CONDITION

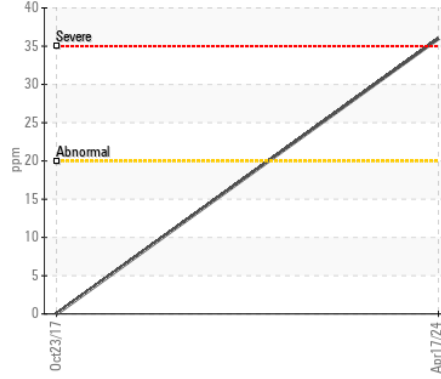
The water concentration level is lower than acceptable for this fluid. The oil viscosity is higher than normal. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0304934</b>	WC0287665	---
Sample Date		Client Info		<b>17 Apr 2024</b>	23 Oct 2017	---
Machine Age	mths	Client Info		<b>0</b>	3	---
Oil Age	mths	Client Info		<b>0</b>	3	---
Filter Age	mths	Client Info		<b>0</b>	3	---
Oil Changed		Client Info		<b>N/A</b>	Not Changd	---
Filter Changed		Client Info		<b>N/A</b>	Not Changd	---
Sample Status				<b>SEVERE</b>	NORMAL	---
PQ		ASTM D8184*		<b>2</b>	---	---
Iron	ppm	ASTM D5185(m)	>20	<b>▲ 36</b>	0	---
Chromium	ppm	ASTM D5185(m)	>10	<b>0</b>	0	---
Nickel	ppm	ASTM D5185(m)	>10	<b>0</b>	0	---
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	---
Silver	ppm	ASTM D5185(m)		<b>&lt;1</b>	0	---
Aluminum	ppm	ASTM D5185(m)	>10	<b>0</b>	2	---
Lead	ppm	ASTM D5185(m)	>10	<b>0</b>	0	---
Copper	ppm	ASTM D5185(m)	>75	<b>0</b>	<1	---
Tin	ppm	ASTM D5185(m)	>10	<b>0</b>	0	---
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	---
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	---
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	---
Silicon	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	0	---
Potassium	ppm	ASTM D5185(m)	>20	<b>16</b>	10	---
Water	%	ASTM D6304*	>50	<b>▲ 33.0</b>	35.8	---
ppm Water	ppm	ASTM D6304*		<b>▲ 330000</b>	358000	---
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	---
Debris	scalar	Visual*	NONE	<b>▲ LIGHT</b>	VLITE	---
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	---
Appearance	scalar	Visual*	NORML	<b>▲ FRGLY</b>	NORML	---
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	---
Emulsified Water	scalar	Visual*	>50	<b>&gt;10%</b>	>10%	---
Sodium	ppm	ASTM D5185(m)		<b>54</b>	0	---
Boron	ppm	ASTM D5185(m)	0.0	<b>2</b>	<1	---
Barium	ppm	ASTM D5185(m)	0.2	<b>1</b>	0	---
Molybdenum	ppm	ASTM D5185(m)	0.7	<b>0</b>	0	---
Manganese	ppm	ASTM D5185(m)		<b>0</b>	<1	---
Magnesium	ppm	ASTM D5185(m)	2.7	<b>&lt;1</b>	2	---
Calcium	ppm	ASTM D5185(m)	3.1	<b>26</b>	0	---
Phosphorus	ppm	ASTM D5185(m)	6.8	<b>&lt;1</b>	0	---
Zinc	ppm	ASTM D5185(m)	2.1	<b>0</b>	0	---
Sulfur	ppm	ASTM D5185(m)	326	<b>47</b>	0	---
Visc @ 40°C	cSt	ASTM D7279(m)	46	<b>▲ 53.9</b>	47.2	---

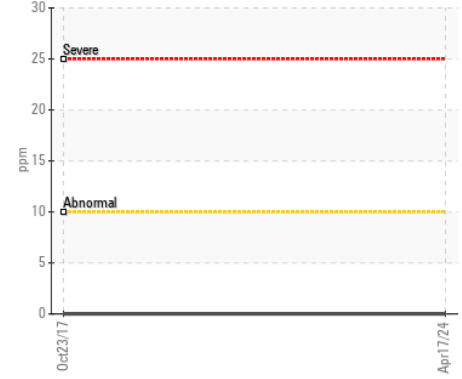
▲ Ferrous Alloys



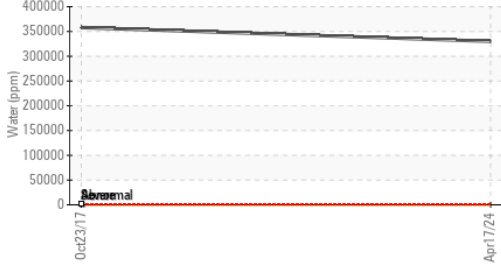
▲ Iron (ppm)



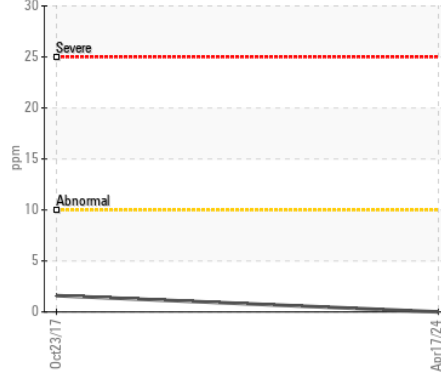
▲ Lead (ppm)



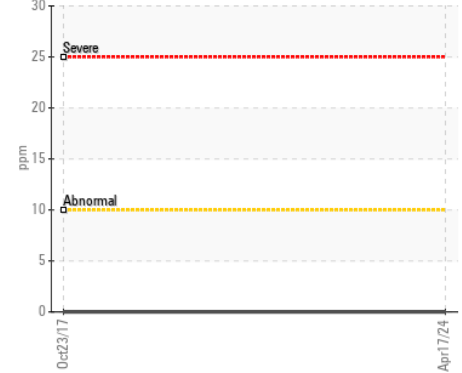
▲ Water (KF)



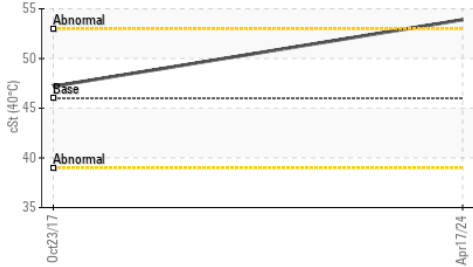
▲ Aluminum (ppm)



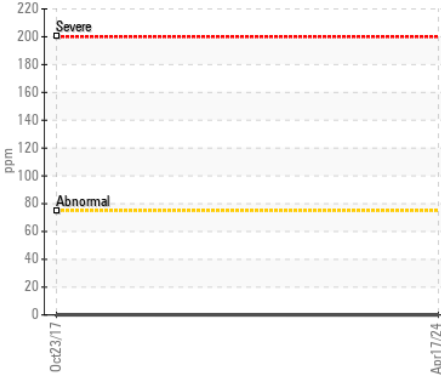
▲ Chromium (ppm)



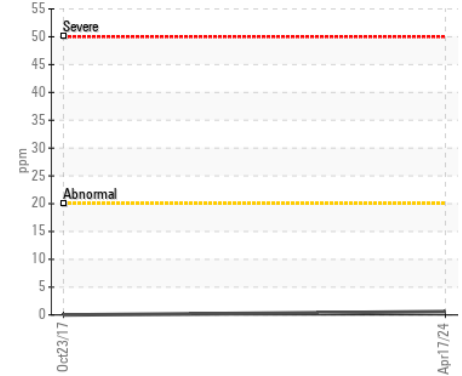
▲ Viscosity @ 40°C



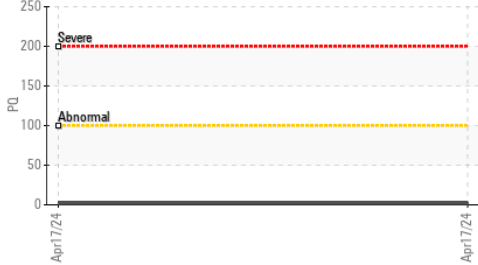
▲ Copper (ppm)



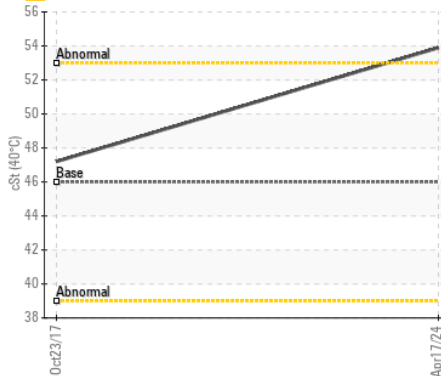
▲ Silicon (ppm)



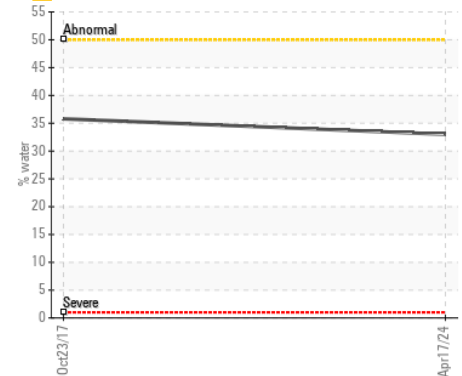
▲ PQ



▲ Viscosity @ 40°C



▲ Water



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0304934 **Received** : 24 Apr 2024  
**Lab Number** : 02631240 **Tested** : 30 Apr 2024  
**Unique Number** : 5772393 **Diagnosed** : 30 Apr 2024 - Kevin Marson  
**Test Package** : MOB 1 ( Additional Tests: KF, PQ )

**Vale - Copper Cliff Smelter**  
 COPPER CLIFF SMELTER WAREHOUSE, 155 BALSAM ST.  
 COPPER CLIFF, ON  
 CA P0M 1N0  
 Contact: Andy Kozachanko  
 andrew.kozachanko@vale.com  
 T: (705)682-6687  
 F: (705)682-6939

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.