



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

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

Machine Id  
**HITACHI 2500 EXCAVATOR**

Component  
**Diesel Engine**

Fluid  
**TRC PRO-SPEC IV XP SYN BLEND 15W40 (--- LTR)**

**RECOMMENDATION**

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>TR06055066</b>	TR05871649	---
Sample Date		Client Info		<b>04 Jan 2024</b>	07 Jun 2023	---
Machine Age	hrs	Client Info		<b>1211</b>	792	---
Oil Age	hrs	Client Info		<b>419</b>	157	---
Filter Age	hrs	Client Info		<b>0</b>	0	---
Oil Changed		Client Info		<b>Not Changd</b>	Not Changd	---
Filter Changed		Client Info		<b>Not Changd</b>	Not Changd	---
Sample Status				<b>ABNORMAL</b>	NORMAL	---

**WEAR**

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Iron	ppm	ASTM D5185m	>100	<b>14</b>	6	---
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	---
Nickel	ppm	ASTM D5185m	>4	<b>1</b>	0	---
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	---
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m	>20	<b>7</b>	2	---
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	---
Copper	ppm	ASTM D5185m	>330	<b>▲ 513</b>	<1	---
Tin	ppm	ASTM D5185m	>15	<b>2</b>	1	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	---
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---

**CONTAMINATION**

There is no indication of any contamination in the oil.

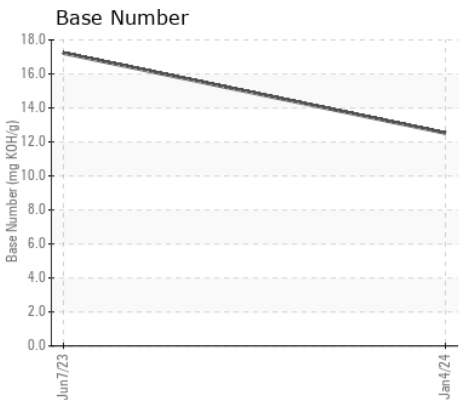
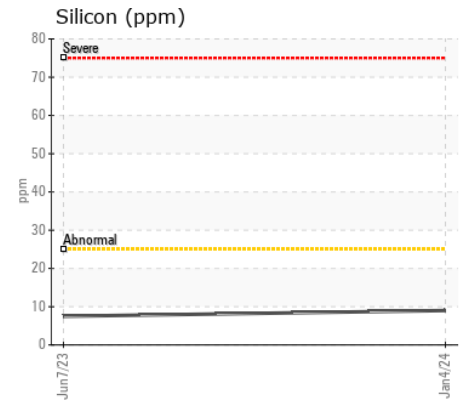
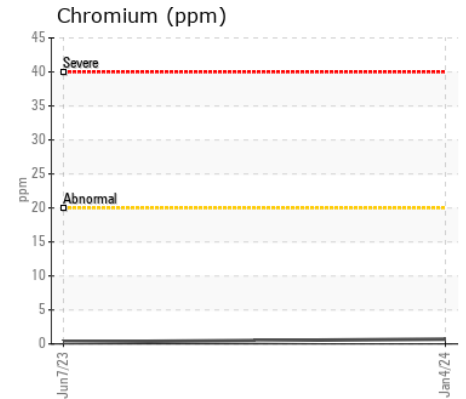
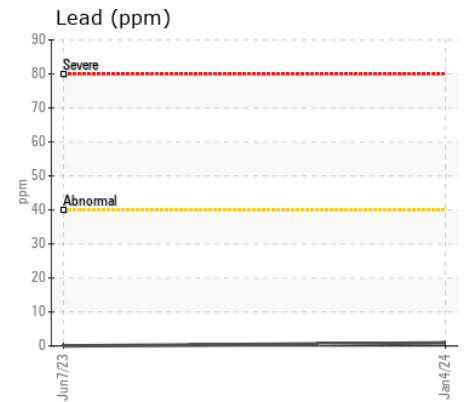
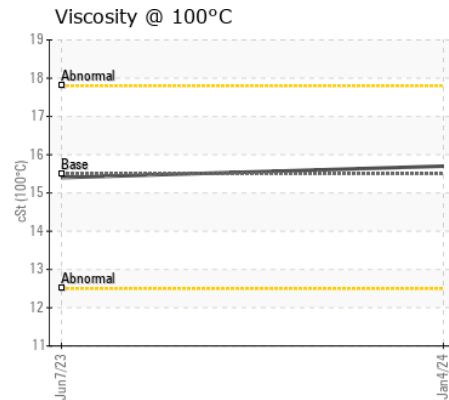
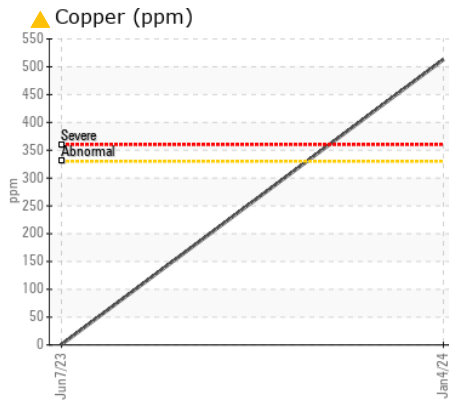
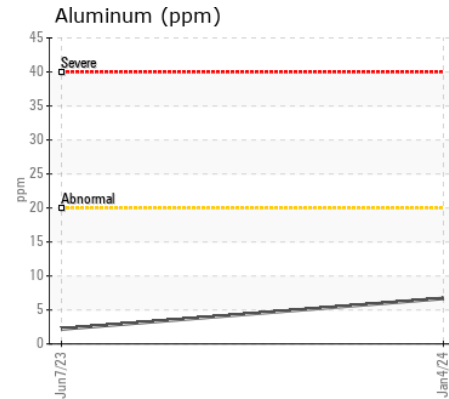
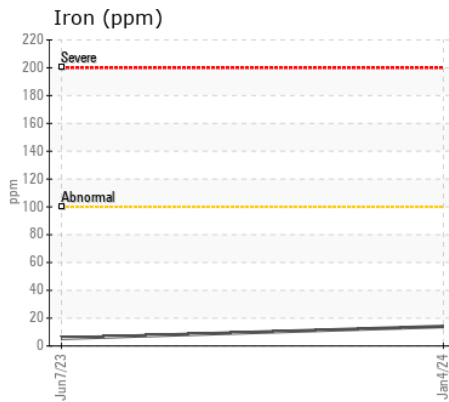
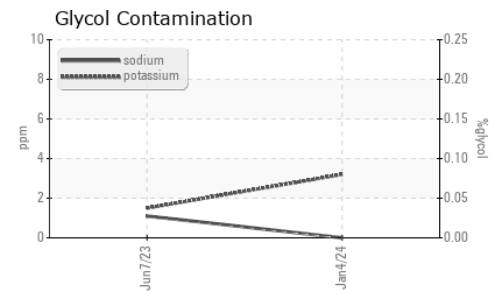
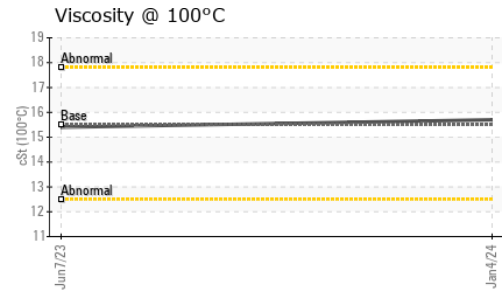
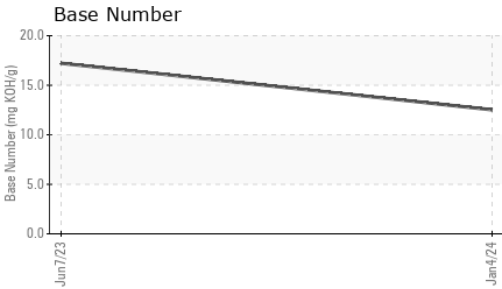
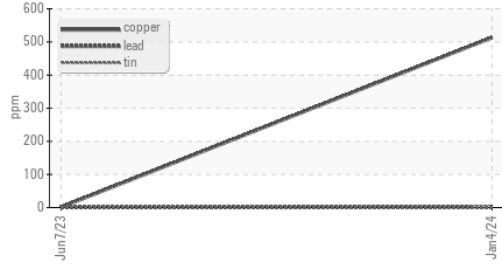
Silicon	ppm	ASTM D5185m	>25	<b>9</b>	8	---
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	2	---
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	---
Water		WC Method	>0.2	<b>NEG</b>	NEG	---
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	---
Soot %	%	*ASTM D7844	>3	<b>0.5</b>	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.5</b>	7.3	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.5</b>	17.3	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	---

**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.

Sodium	ppm	ASTM D5185m		<b>0</b>	1	---
Boron	ppm	ASTM D5185m		<b>14</b>	21	---
Barium	ppm	ASTM D5185m		<b>0</b>	0	---
Molybdenum	ppm	ASTM D5185m		<b>148</b>	141	---
Manganese	ppm	ASTM D5185m		<b>2</b>	<1	---
Magnesium	ppm	ASTM D5185m		<b>72</b>	75	---
Calcium	ppm	ASTM D5185m		<b>4114</b>	4122	---
Phosphorus	ppm	ASTM D5185m		<b>763</b>	893	---
Zinc	ppm	ASTM D5185m		<b>1048</b>	1081	---
Sulfur	ppm	ASTM D5185m		<b>4181</b>	5237	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.7</b>	9.1	---
Base Number (BN)	mg KOH/g	ASTM D2896		<b>12.52</b>	17.22	---
Visc @ 100°C	cSt	ASTM D445	15.5	<b>15.7</b>	15.4	---

▲ Non-ferrous Metals



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TR06055066 **Received** : 08 Jan 2024  
**Lab Number** : 06055066 **Diagnosed** : 10 Jan 2024  
**Unique Number** : 10821015 **Diagnostician** : Jonathan Hester  
**Test Package** : MOB 2 ( Additional Tests: Glycol )

**BO BONNER CONSTRUCTION**  
 528 EUREKA RIDGE LOOP  
 OROFINO, ID  
 US 83544  
 Contact: RON GROGAN

To discuss this sample report, contact Customer Service at 1-800-827-0711.

\* - 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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F: