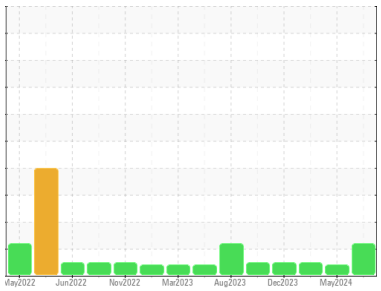
Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
ASRI RIG DURST-001 ASRI RIG DURST-001
Component
Gearbox
Fluid
GEAR OIL SAE 75W90 (2 GAL)

DIAGNOSIS

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

Wear
All component wear rates are normal.

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

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**HLC0002887**	HLC0002932	HLC0002971
Sample Date		Client Info		**31 May 2024**	07 May 2024	23 Mar 2024
Machine Age	hrs	Client Info		**28371**	27881	26917
Oil Age	hrs	Client Info		**500**	1000	1000
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**38**	27	11
Chromium	ppm	ASTM D5185m	>15	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>15	**0**	0	<1
Titanium	ppm	ASTM D5185m		**<1**	0	<1
Silver	ppm	ASTM D5185m		**0**	<1	0
Aluminum	ppm	ASTM D5185m	>25	**2**	<1	2
Lead	ppm	ASTM D5185m	>100	**0**	<1	<1
Copper	ppm	ASTM D5185m	>200	**<1**	<1	2
Tin	ppm	ASTM D5185m	>25	**<1**	0	1
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	<1	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	400	**216**	230	225
Barium	ppm	ASTM D5185m	200	**<1**	0	0
Molybdenum	ppm	ASTM D5185m	12	**<1**	0	1
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	12	**1**	0	2
Calcium	ppm	ASTM D5185m	150	**8**	8	15
Phosphorus	ppm	ASTM D5185m	1650	**1318**	1413	1458
Zinc	ppm	ASTM D5185m	125	**12**	0	4
Sulfur	ppm	ASTM D5185m	22500	**21457**	27971	26917

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**10**	7	5
Sodium	ppm	ASTM D5185m		**0**	2	1
Potassium	ppm	ASTM D5185m	>20	**1**	1	1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **136167**	---	---
Particles >6µm		ASTM D7647	>5000	▲ **25611**	---	---
Particles >14µm		ASTM D7647	>640	**153**	---	---
Particles >21µm		ASTM D7647	>160	**19**	---	---
Particles >38µm		ASTM D7647	>40	**0**	---	---
Particles >71µm		ASTM D7647	>10	**0**	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/22/14**	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	2.00	**1.90**	1.92	2.59

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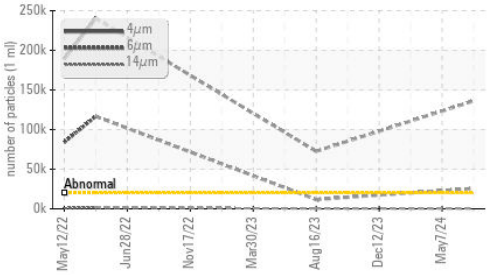
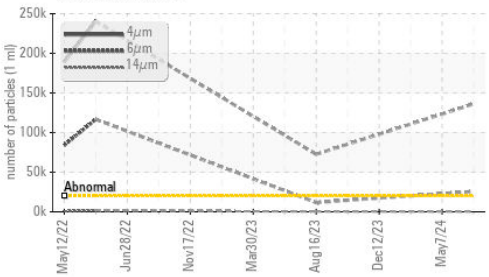
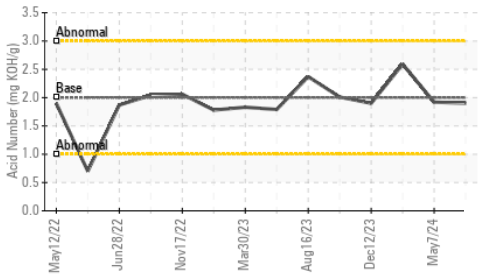
Particle Trend



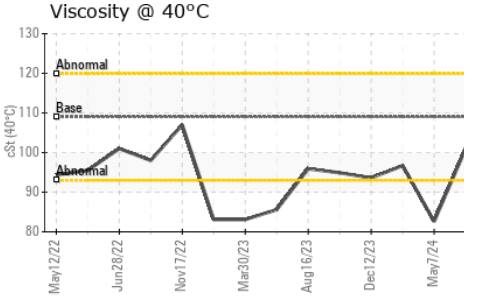
Particle Trend



Acid Number



Viscosity @ 40°C



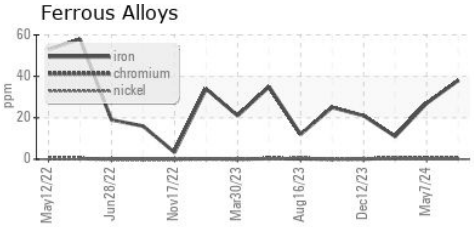
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	MODER	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	109	**101**	82.61	96.7

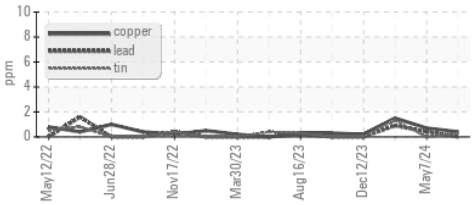
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

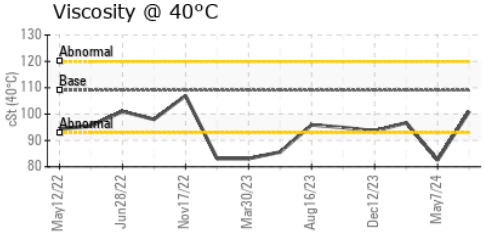
Ferrous Alloys



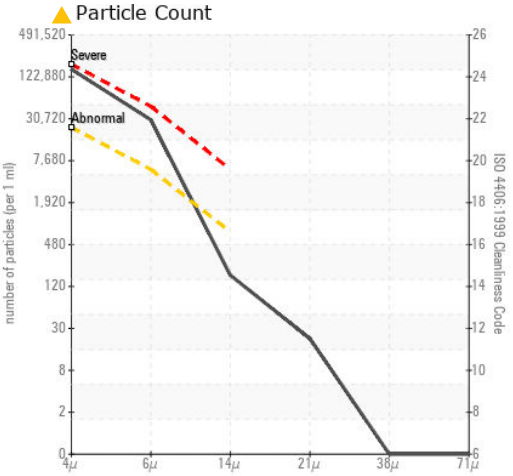
Non-ferrous Metals



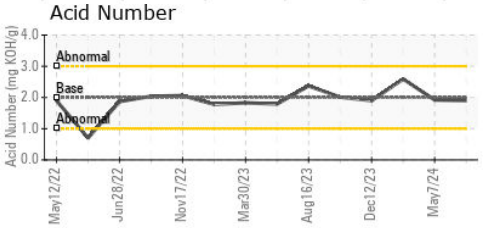
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0002887
Lab Number : 06203352
Unique Number : 11070813
Test Package : IND 2 (Additional Tests: PrtCount)

Received : 07 Jun 2024
Tested : 10 Jun 2024
Diagnosed : 11 Jun 2024 - Angela Borella

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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Report Id: BPEMPU [WUSCAR] 06203352 (Generated: 06/11/2024 18:35:10) Rev: 1

Contact/Location: Evan Reilly - BPEMPU