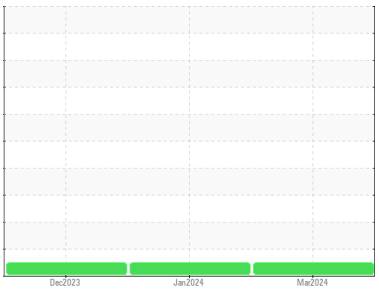
Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
IRIG [6816105]
Machine Id
IRIG-RF-DW-2302 IRIG-RF-DW-2302 DRAW WORKS
Component
Gearbox
Fluid
GEAR OIL SAE 80W90 (40 GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL SAE 80W90. Please confirm.

Wear
All component wear rates are normal.

Contamination
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**HLC0003069**	HLC0003030	HLC0002794
Sample Date		Client Info		**22 Mar 2024**	19 Jan 2024	04 Dec 2023
Machine Age	mths	Client Info		**0**	0	0
Oil Age	mths	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**NORMAL**	NORMAL	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	**3**	2	2
Chromium	ppm	ASTM D5185m	>15	**<1**	0	<1
Nickel	ppm	ASTM D5185m	>15	**<1**	0	0
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**1**	0	2
Lead	ppm	ASTM D5185m	>100	**1**	0	0
Copper	ppm	ASTM D5185m	>200	**1**	<1	<1
Tin	ppm	ASTM D5185m	>25	**1**	0	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	400	**137**	118	133
Barium	ppm	ASTM D5185m	200	**0**	0	0
Molybdenum	ppm	ASTM D5185m	12	**<1**	0	0
Manganese	ppm	ASTM D5185m		**<1**	0	0
Magnesium	ppm	ASTM D5185m	12	**1**	0	<1
Calcium	ppm	ASTM D5185m	150	**8**	3	3
Phosphorus	ppm	ASTM D5185m	1650	**503**	437	520
Zinc	ppm	ASTM D5185m	125	**9**	7	0
Sulfur	ppm	ASTM D5185m	22500	**10675**	9677	10909

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**1**	<1	2
Sodium	ppm	ASTM D5185m	>170	**0**	1	<1
Potassium	ppm	ASTM D5185m	>20	**1**	0	<1

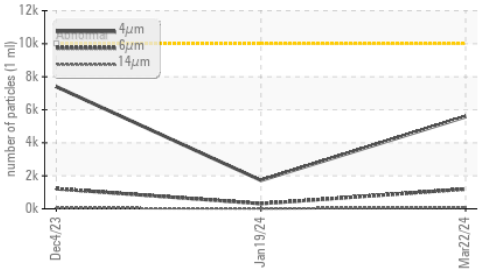
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	**5581**	1723	7401
Particles >6µm		ASTM D7647	>2500	**1195**	313	1215
Particles >14µm		ASTM D7647	>320	**76**	20	46
Particles >21µm		ASTM D7647	>80	**16**	7	14
Particles >38µm		ASTM D7647	>20	**2**	1	1
Particles >71µm		ASTM D7647	>4	**1**	1	0
Oil Cleanliness		ISO 4406 (c)	>20/18/15	**20/17/13**	18/15/11	20/17/13

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	2.00	**1.13**	0.80	0.91

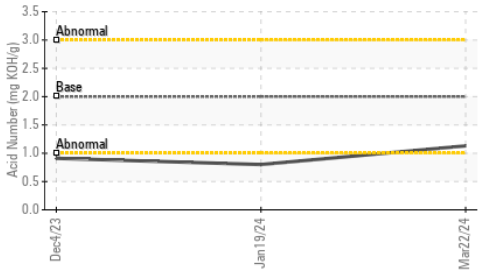
OIL ANALYSIS REPORT

Hilcorp Alaska, LLC

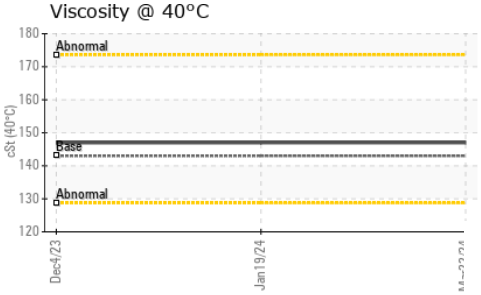
Particle Trend



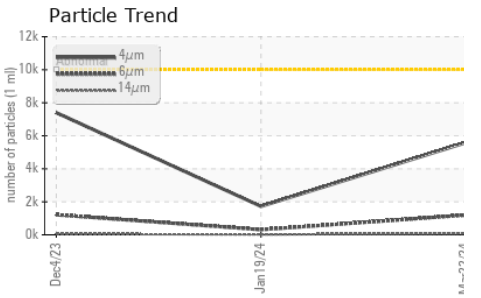
Acid Number



Viscosity @ 40°C

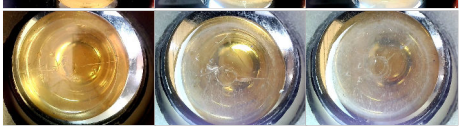


Particle Trend



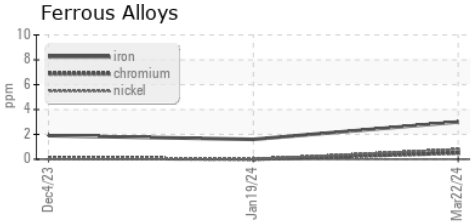
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	LIGHT
Sand/Dirt	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	143	**147**	147	147

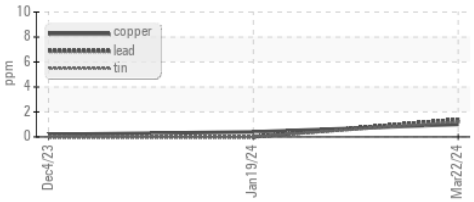
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

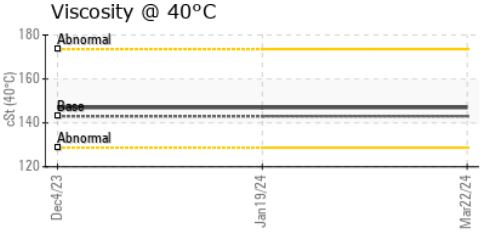
Ferrous Alloys



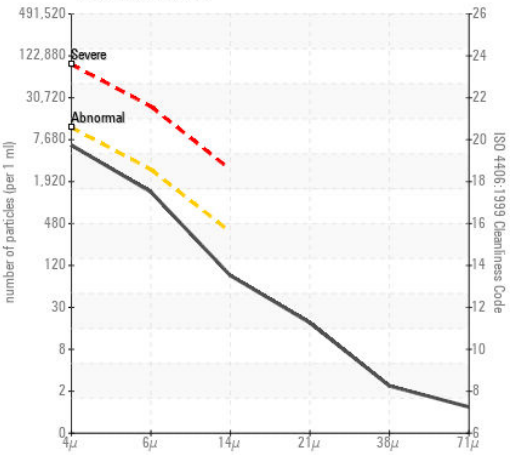
Non-ferrous Metals



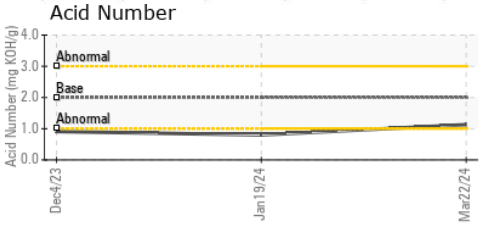
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0003069
Lab Number : 06147282
Unique Number : 10977360
Test Package : IND 2 (Additional Tests: PrtCount)

Received : 12 Apr 2024
Tested : 15 Apr 2024
Diagnosed : 15 Apr 2024 - Wes Davis

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] 06147282 (Generated: 04/15/2024 14:42:02) Rev: 1

Contact/Location: Evan Reilly - BPEMPU