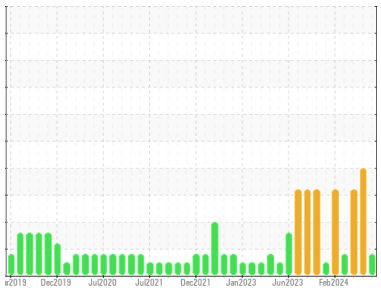
Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

Sample Rating Trend



SEDIMENT

Area
IRIG [7030866]
Machine Id
IRIG-PRM-PMUD-0301 IRIG-PRM-PMUD-0301 #1 MUD PUMP
Component
Pump
Fluid
MOBIL SHC 634 (140 GAL)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of visible silt present in the sample.

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		**HLC0003386**	HLC0003073	HLC0002819
Sample Date		Client Info		**15 May 2024**	15 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info		**20926**	20571	20390
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	Filtered
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	**36**	42	49
Chromium	ppm	ASTM D5185m	>5	**1**	2	<1
Nickel	ppm	ASTM D5185m	>5	**0**	0	0
Titanium	ppm	ASTM D5185m	>3	**1**	2	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>7	**19**	30	26
Lead	ppm	ASTM D5185m	>12	**0**	0	0
Copper	ppm	ASTM D5185m	>30	**3**	5	2
Tin	ppm	ASTM D5185m	>9	**0**	<1	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**8**	18	6
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	1	0
Magnesium	ppm	ASTM D5185m		**3**	7	3
Calcium	ppm	ASTM D5185m		**12**	21	14
Phosphorus	ppm	ASTM D5185m		**442**	412	450
Zinc	ppm	ASTM D5185m		**4**	0	0
Sulfur	ppm	ASTM D5185m		**62**	62	0

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>60	**52**	▲ 79	▲ 72
Sodium	ppm	ASTM D5185m		**20**	35	29
Potassium	ppm	ASTM D5185m	>20	**15**	32	20

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>320000	**---**	239187	177689
Particles >6µm		ASTM D7647	>40000	**---**	▲ 98052	▲ 83156
Particles >14µm		ASTM D7647	>640	**---**	▲ 1155	424
Particles >21µm		ASTM D7647	>160	**---**	▲ 226	28
Particles >38µm		ASTM D7647	>40	**---**	3	5
Particles >71µm		ASTM D7647	>10	**---**	0	4
Oil Cleanliness		ISO 4406 (c)	>25/22/16	**---**	▲ 25/24/17	▲ 25/24/16

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.33**	0.26	0.38

OIL ANALYSIS REPORT

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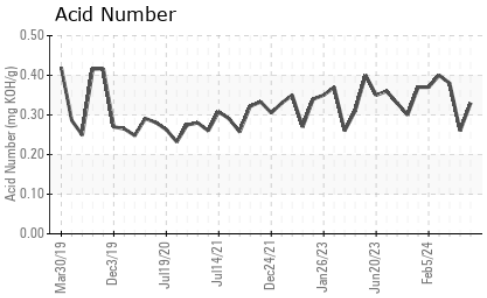
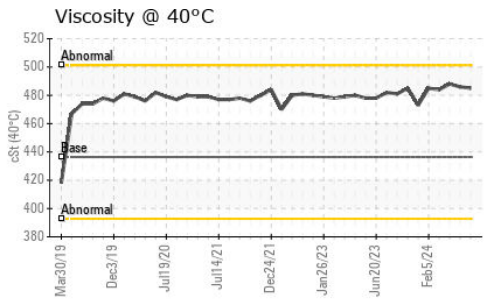


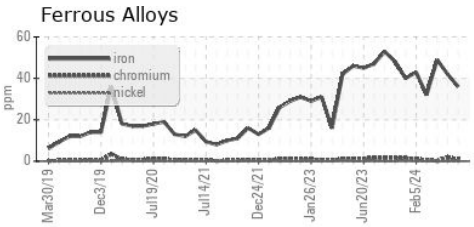


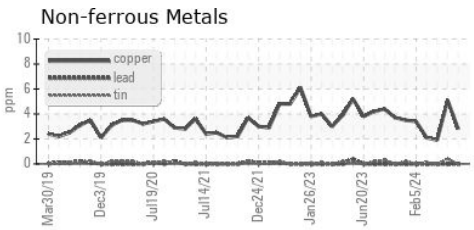
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	▲ **MODER**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

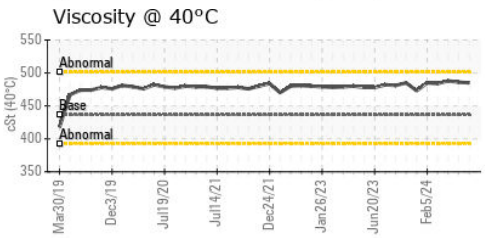
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	436.4	**485**	486	488

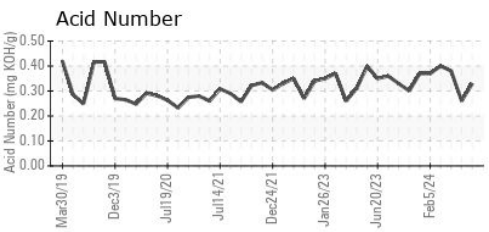
SAMPLE IMAGES				current	history1	history2
Color						
Bottom						

GRAPHS









Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0003386
Lab Number : 06202079
Unique Number : 11069540
Test Package : IND 2 (Additional Tests: PrtCount)

Received : 06 Jun 2024
Tested : 11 Jun 2024
Diagnosed : 11 Jun 2024 - Jonathan Hester

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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