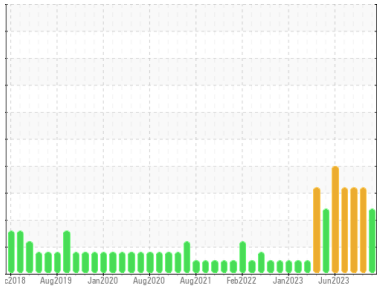
Hilcorp Alaska, LLC

PROBLEM SUMMARY

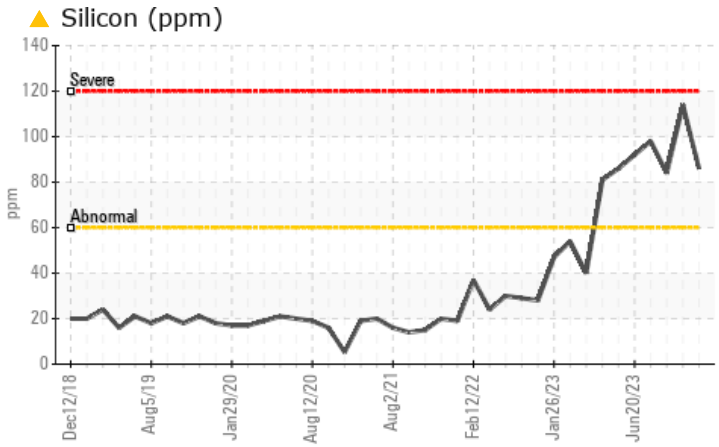
Sample Rating Trend

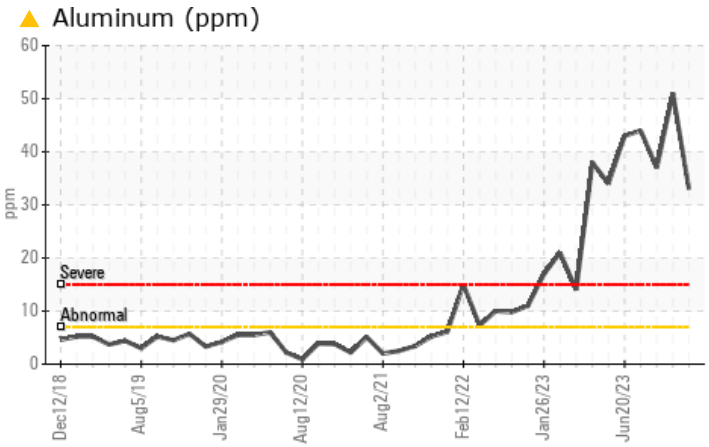


DIRT

Area
IRIG [6193563]
Machine Id
IRIG-PRM-PMUD-0302 - 2MP IRIG-PRM-PMUD-0302 #2 MUD PUMP
Component
Pump
Fluid
MOBIL SHC 634 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check all areas where dirt can enter the system. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Aluminum	ppm	ASTM D5185m	>7	▲ **33**	▲ 51	▲ 37
Silicon	ppm	ASTM D5185m	>60	▲ **86**	▲ 114	▲ 84

Customer Id: BPEMPU
Sample No.: HLC0002800
Lab Number: 06011556
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Check Dirt Access	---	---	?	We advise that you check all areas where dirt can enter the system.

HISTORICAL DIAGNOSIS

09 Sep 2023 Diag: Doug Bogart

DIRT

We advise that you check all areas where dirt can enter the system. No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

05 Aug 2023 Diag: Doug Bogart

DIRT

We advise that you check all areas where dirt can enter the system. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

view report

02 Aug 2023 Diag: Don Baldridge

DIRT

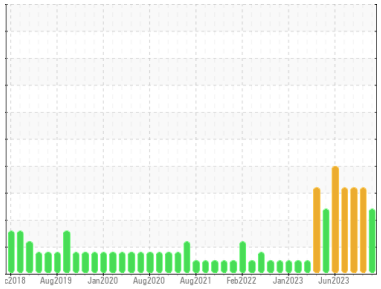
We advise that you check all areas where dirt can enter the system. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
IRIG [6193563]
Machine Id
IRIG-PRM-PMUD-0302 - 2MP IRIG-PRM-PMUD-0302 #2 MUD PUMP
Component
Pump
Fluid
MOBIL SHC 634 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check all areas where dirt can enter the system. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

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		**HLC0002800**	HLC0002799	HLC0002746
Sample Date		Client Info		**02 Nov 2023**	09 Sep 2023	05 Aug 2023
Machine Age	hrs	Client Info		**18222**	17770	17450
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Filtered**	Filtered	N/A
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	**45**	63	45
Chromium	ppm	ASTM D5185m	>5	**3**	4	2
Nickel	ppm	ASTM D5185m	>5	**<1**	0	0
Titanium	ppm	ASTM D5185m	>3	**2**	3	2
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>7	▲ **33**	▲ 51	▲ 37
Lead	ppm	ASTM D5185m	>12	**0**	0	0
Copper	ppm	ASTM D5185m	>30	**6**	6	5
Tin	ppm	ASTM D5185m	>9	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**0**	0	10
Calcium	ppm	ASTM D5185m		**0**	26	18
Phosphorus	ppm	ASTM D5185m		**341**	397	425
Zinc	ppm	ASTM D5185m		**0**	0	6
Sulfur	ppm	ASTM D5185m		**0**	101	17

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>60	▲ **86**	▲ 114	▲ 84
Sodium	ppm	ASTM D5185m		**45**	49	41
Potassium	ppm	ASTM D5185m	>20	**35**	41	36

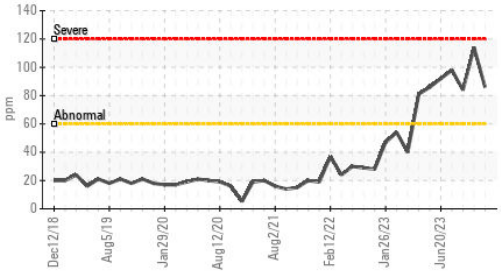
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>320000	**---**	164954	236596
Particles >6µm		ASTM D7647	>40000	**---**	▲ 83655	▲ 71965
Particles >14µm		ASTM D7647	>640	**---**	424	172
Particles >21µm		ASTM D7647	>160	**---**	38	13
Particles >38µm		ASTM D7647	>40	**---**	2	1
Particles >71µm		ASTM D7647	>10	**---**	1	0
Oil Cleanliness		ISO 4406 (c)	>25/22/16	**---**	▲ 25/24/16	▲ 25/23/15

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.32**	0.25	0.27

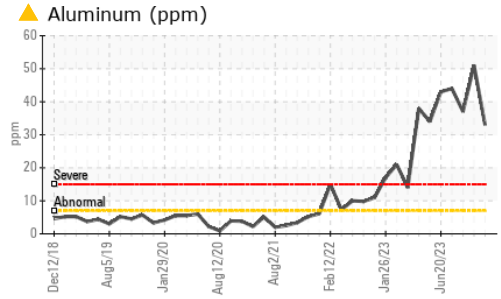
OIL ANALYSIS REPORT

Hilcorp Alaska, LLC

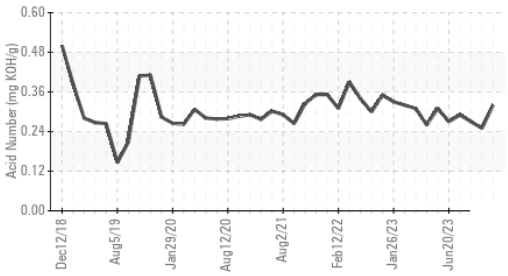
Silicon (ppm)



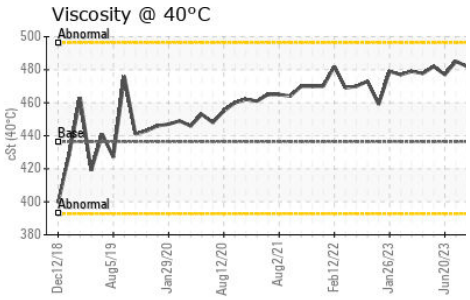
Aluminum (ppm)



Acid Number



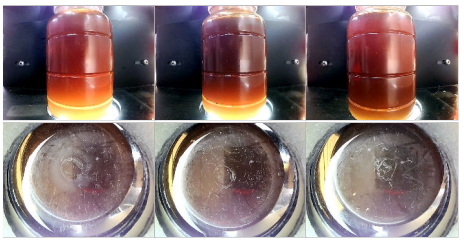
Viscosity @ 40°C



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	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

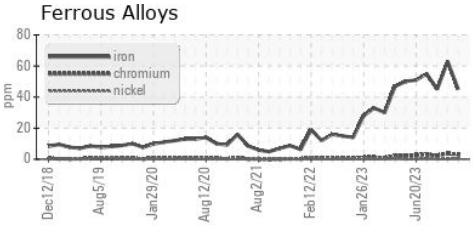
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	436.4	**482**	486	482

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

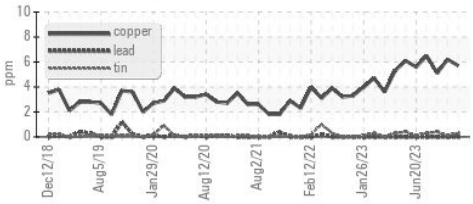


GRAPHS

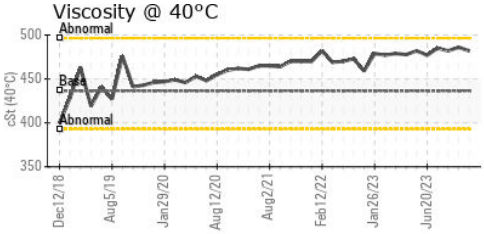
Ferrous Alloys



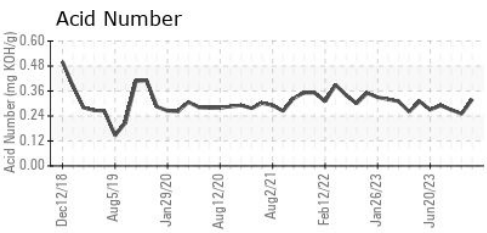
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0002800 **Received** : 17 Nov 2023
Lab Number : 06011556 **Diagnosed** : 22 Nov 2023
Unique Number : 10750700 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: PrtCount)

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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