IND II

Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
IRIG [6193561]
Machine Id
IRIG-PRM-PMUD-0301 IRIG-PRM-PMUD-0301 #1 MUD PUMP
Component
Pump
Fluid
MOBIL SHC 632 (140 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

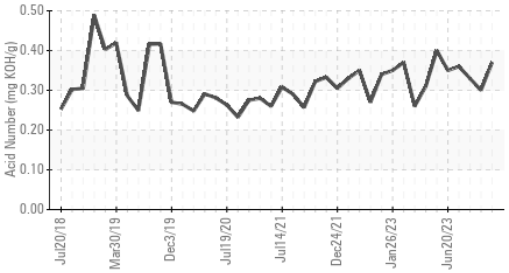
There is no indication of any contamination in the oil.

FLUID CONDITION

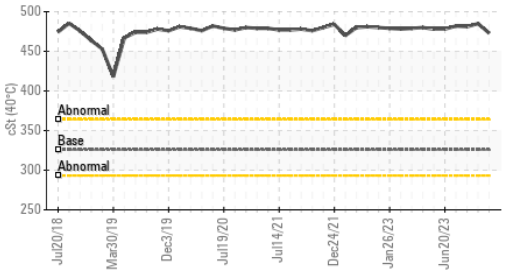
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HLC0002834	HLC0002802	HLC0002710
Sample Date		Client Info		02 Nov 2023	09 Sep 2023	05 Aug 2023
Machine Age	hrs	Client Info		19025	18571	18220
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Filtered	Filtered	N/A
Filter Changed		Client Info		Cleaned	Cleaned	N/A
Sample Status				NORMAL	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>90	40	48	53
Chromium	ppm	ASTM D5185m	>5	2	2	2
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m	>3	2	2	2
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>7	19	▲ 30	▲ 30
Lead	ppm	ASTM D5185m	>12	0	0	0
Copper	ppm	ASTM D5185m	>30	4	4	4
Tin	ppm	ASTM D5185m	>9	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>60	54	▲ 63	▲ 67
Potassium	ppm	ASTM D5185m	>20	15	18	20
Water		WC Method	>.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>320000	---	147448	222876
Particles >6µm		ASTM D7647	>40000	---	▲ 69280	▲ 72019
Particles >14µm		ASTM D7647	>640	---	351	107
Particles >21µm		ASTM D7647	>160	---	42	8
Particles >38µm		ASTM D7647	>40	---	3	2
Particles >71µm		ASTM D7647	>10	---	1	2
Oil Cleanliness		ISO 4406 (c)	>25/22/16	---	▲ 24/23/16	▲ 25/23/14
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	>.1	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		21	29	32
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		0	0	2
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		0	0	9
Calcium	ppm	ASTM D5185m		0	12	14
Phosphorus	ppm	ASTM D5185m		354	381	445
Zinc	ppm	ASTM D5185m		0	0	33
Sulfur	ppm	ASTM D5185m		0	30	2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.37	0.30	0.33
Visc @ 40°C	cSt	ASTM D445	325.8	473	485	481

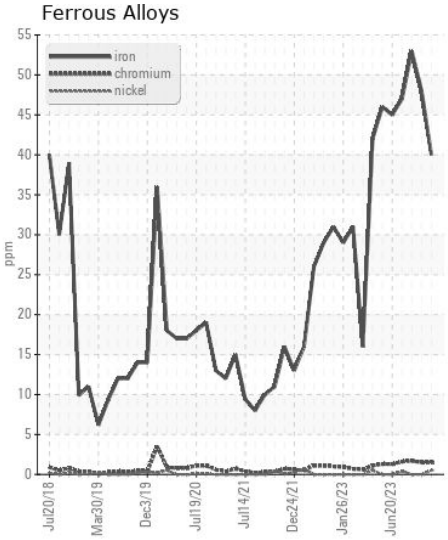
Acid Number



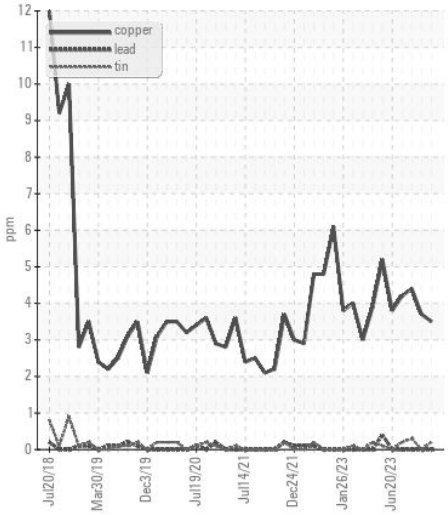
Viscosity @ 40°C



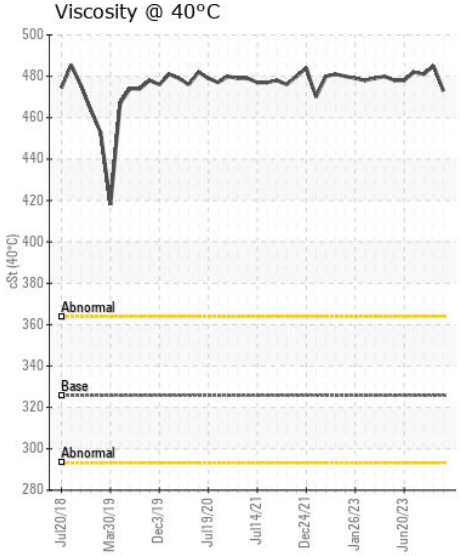
Ferrous Alloys



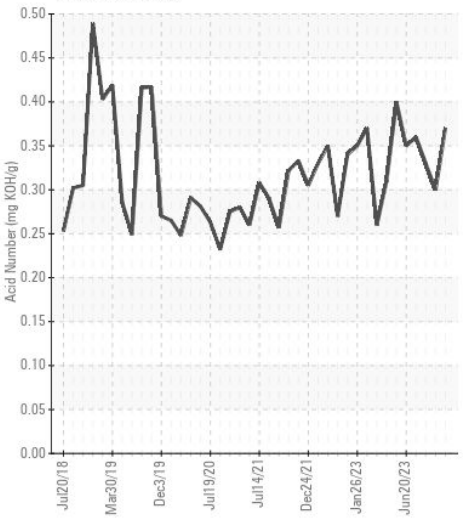
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0002834 **Recieved** : 17 Nov 2023
Lab Number : 06011554 **Diagnosed** : 22 Nov 2023
Unique Number : 10750698 **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)

HILCORP EXPLORATION ALASKA - MILNE POINT
1000 MILNE POINT RD
PRUDOE BAY, AK
US 99734
Contact: Evan Reilly
evan.reilly@hilcorp.com
T: (907)670-3231
F: x: