IND II

Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
IRIG [6730519]
Machine Id
IRIG-PRM-PMUD-0301 IRIG-PRM-PMUD-0301 #1 MUD PUMP
Component
Pump
Fluid
MOBIL SHC 632 (140 GAL)

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.

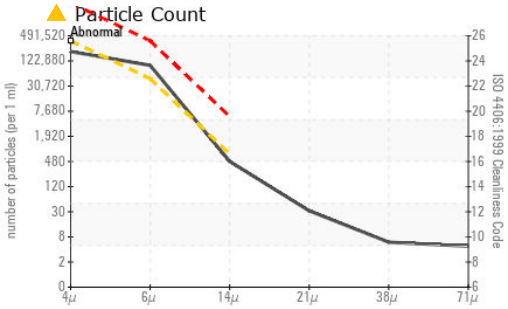
CONTAMINATION

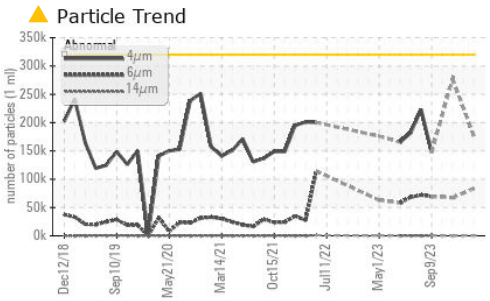
There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

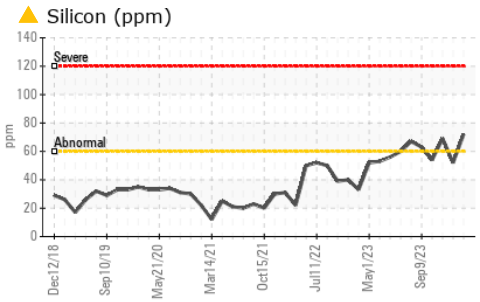
FLUID CONDITION

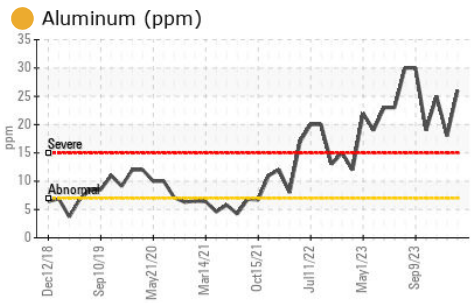
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

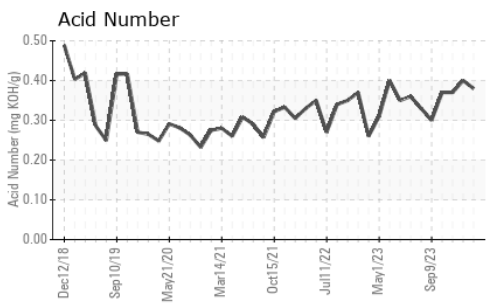
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HLC0002819	HLC0003033	HLC0003064
Sample Date		Client Info		25 Mar 2024	20 Feb 2024	05 Feb 2024
Machine Age	hrs	Client Info		20390	20054	19974
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Filtered	Not Changd	N/A
Filter Changed		Client Info		Cleaned	Cleaned	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>90	49	32	43
Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>3	<1	1	2
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>7	26	18	25
Lead	ppm	ASTM D5185m	>12	0	0	0
Copper	ppm	ASTM D5185m	>30	2	2	3
Tin	ppm	ASTM D5185m	>9	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>60	72	52	69
Potassium	ppm	ASTM D5185m	>20	20	15	20
Water		WC Method	>.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>320000	177689	---	277070
Particles >6µm		ASTM D7647	>40000	83156	---	67328
Particles >14µm		ASTM D7647	>640	424	---	118
Particles >21µm		ASTM D7647	>160	28	---	14
Particles >38µm		ASTM D7647	>40	5	---	0
Particles >71µm		ASTM D7647	>10	4	---	0
Oil Cleanliness		ISO 4406 (c)	>25/22/16	25/24/16	---	25/23/14
Silt	scalar	*Visual	NONE	NONE	MODER	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		29	21	32
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		6	2	4
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		3	4	1
Calcium	ppm	ASTM D5185m		14	11	10
Phosphorus	ppm	ASTM D5185m		450	420	425
Zinc	ppm	ASTM D5185m		0	0	0
Sulfur	ppm	ASTM D5185m		0	30	46
Acid Number (AN)	mg KOH/g	ASTM D8045		0.38	0.40	0.37
Visc @ 40°C	cSt	ASTM D445	325.8	488	484	485

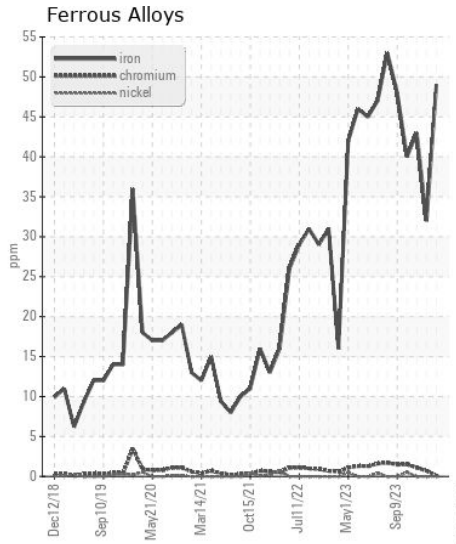


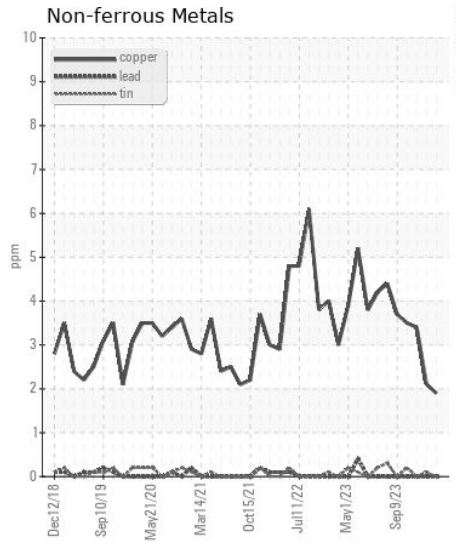


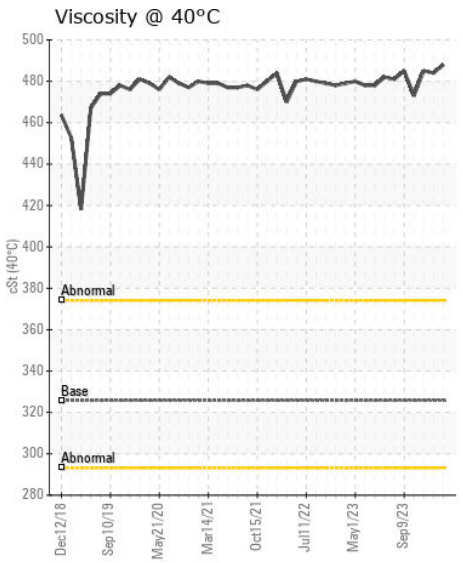


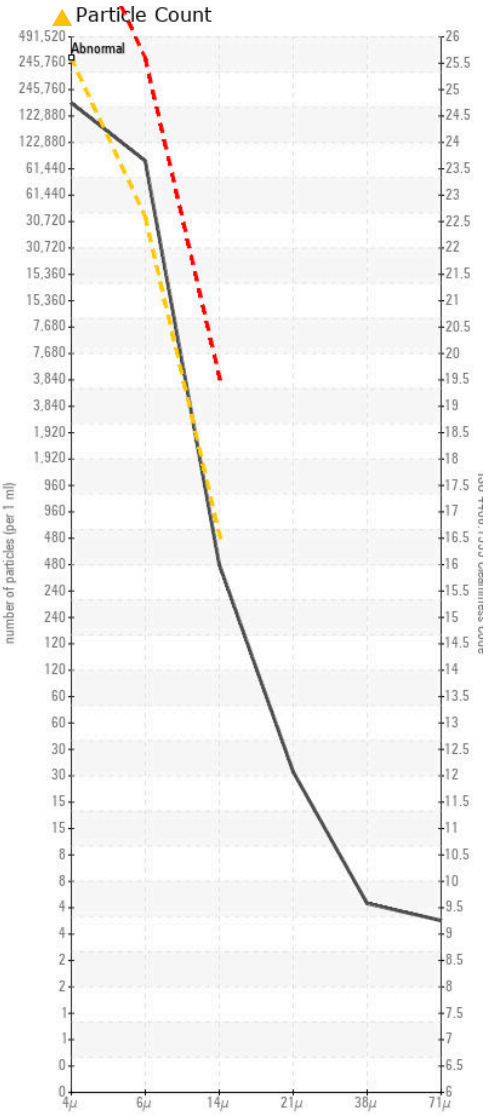


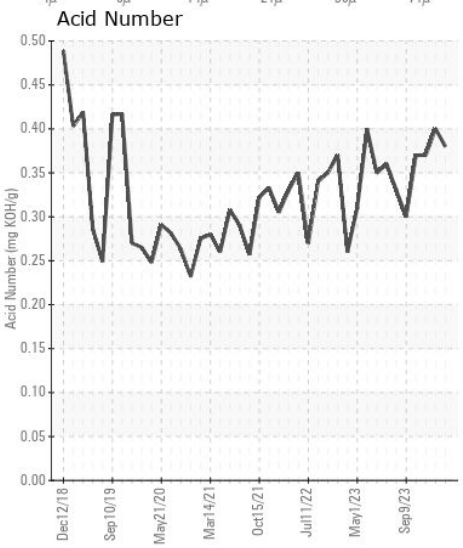












Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: HLC0002819	**Received**	: 12 Apr 2024
Lab Number	: 06147488	**Tested**	: 18 Apr 2024
Unique Number	: 10977566	**Diagnosed**	: 18 Apr 2024 - 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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