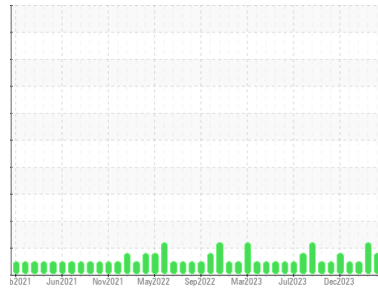




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area

IRIG [7008221]

Machine Id

IRIG-PRM-HPU-0301 IRIG-PRM-HPU-0301 HPU MUD MODULE

Component

Hydraulic System

Fluid

MOBIL DTE 10 EXCEL 32 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	HLC0003038	HLC0003068	HLC0003052
Sample Date	Client Info	27 Apr 2024	09 Mar 2024	06 Feb 2024
Machine Age	hrs	1119	1106	1053
Oil Age	hrs	0	0	0
Oil Changed	Client Info	Filtered	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.05	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >20	0	0	<1
Chromium	ppm ASTM D5185m >20	0	<1	0
Nickel	ppm ASTM D5185m >20	<1	0	0
Titanium	ppm ASTM D5185m	0	0	<1
Silver	ppm ASTM D5185m	0	0	0
Aluminum	ppm ASTM D5185m >20	0	<1	0
Lead	ppm ASTM D5185m >20	<1	0	0
Copper	ppm ASTM D5185m >20	4	6	6
Tin	ppm ASTM D5185m >20	0	0	0
Vanadium	ppm ASTM D5185m	0	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	0	0	0
Molybdenum	ppm ASTM D5185m	0	0	0
Manganese	ppm ASTM D5185m	0	<1	0
Magnesium	ppm ASTM D5185m	1	0	0
Calcium	ppm ASTM D5185m 120	103	102	90
Phosphorus	ppm ASTM D5185m 475	427	449	408
Zinc	ppm ASTM D5185m	45	48	34
Sulfur	ppm ASTM D5185m 1275	1557	1700	1236

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >15	<1	<1	<1
Sodium	ppm ASTM D5185m	4	4	4
Potassium	ppm ASTM D5185m >20	2	2	0

FLUID CLEANLINESS

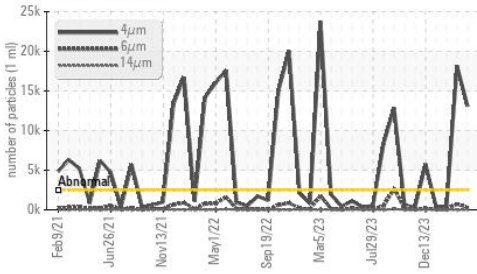
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	▲ 13071	▲ 18170	455
Particles >6µm	ASTM D7647 >640	286	● 743	54
Particles >14µm	ASTM D7647 >160	10	5	7
Particles >21µm	ASTM D7647 >40	4	1	2
Particles >38µm	ASTM D7647 >10	1	0	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >18/16/14	▲ 21/15/10	▲ 21/17/10	16/13/10

FLUID DEGRADATION

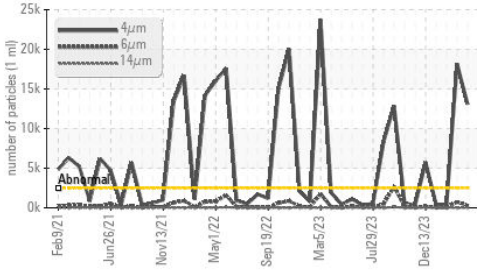
method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D8045	0.04	0.125	0.07

OIL ANALYSIS REPORT

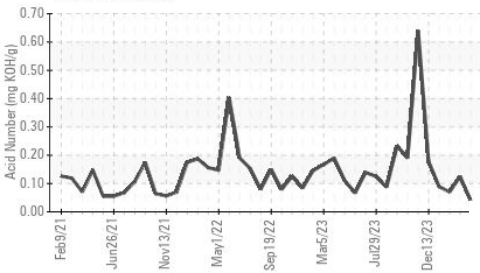
▲ Particle Trend



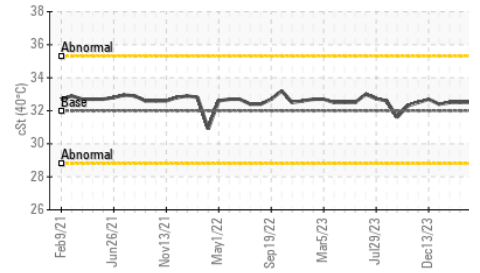
▲ Particle Trend



Acid Number



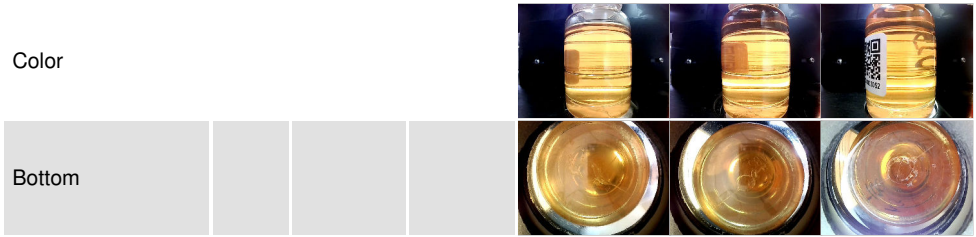
Viscosity @ 40°C



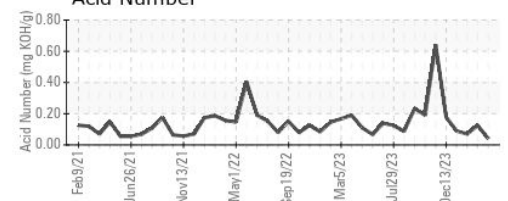
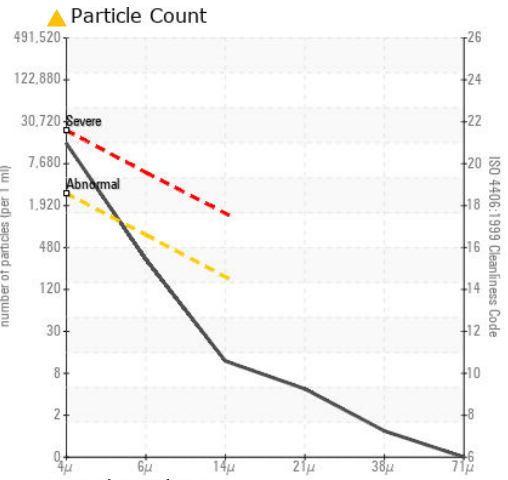
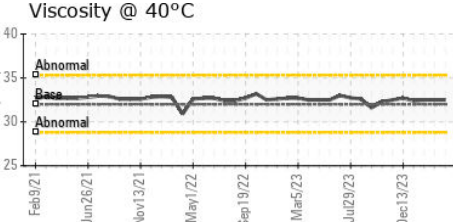
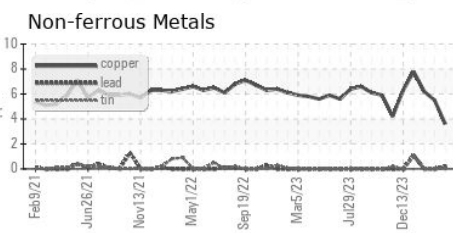
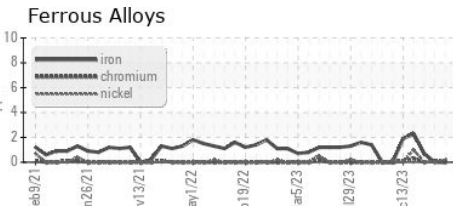
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	32.5	32.5

SAMPLE IMAGES	method	limit/base	current	history1	history2
---------------	--------	------------	---------	----------	----------



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0003038 **Received** : 10 May 2024
Lab Number : 06176084 **Tested** : 14 May 2024
Unique Number : 11022137 **Diagnosed** : 14 May 2024 - Wes Davis
Test Package : IND 2

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:

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)