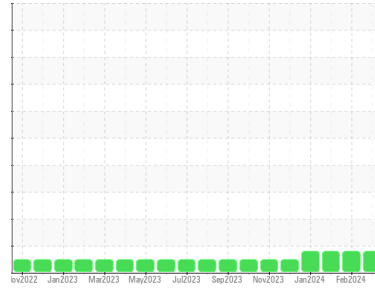




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
16K-3B
 Component
Compressor
 Fluid
HP R&O ISO 100 (--- GAL)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear

The iron level is abnormal. All other 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 acceptable for the time in service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		HPL0004529	HPL0004469	HPL0004159
Sample Date	Client Info		13 Mar 2024	15 Feb 2024	25 Jan 2024
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >50	▲ 71	▲ 87	▲ 78
Chromium	ppm	ASTM D5185m >10	0	<1	0
Nickel	ppm	ASTM D5185m	0	0	<1
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >25	1	2	2
Lead	ppm	ASTM D5185m >25	2	<1	2
Copper	ppm	ASTM D5185m >50	29	26	22
Tin	ppm	ASTM D5185m >15	19	20	21
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	<1	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0
Barium	ppm	ASTM D5185m	0	<1	0
Molybdenum	ppm	ASTM D5185m	0	0	0
Manganese	ppm	ASTM D5185m	<1	0	<1
Magnesium	ppm	ASTM D5185m	<1	0	1
Calcium	ppm	ASTM D5185m	1	1	4
Phosphorus	ppm	ASTM D5185m	187	196	189
Zinc	ppm	ASTM D5185m	16	15	8
Sulfur	ppm	ASTM D5185m	17710	15188	14535

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	2	2	3
Sodium	ppm	ASTM D5185m	<1	0	<1
Potassium	ppm	ASTM D5185m >20	1	<1	2

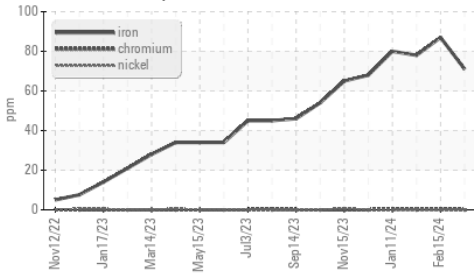
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.64	0.54	0.53

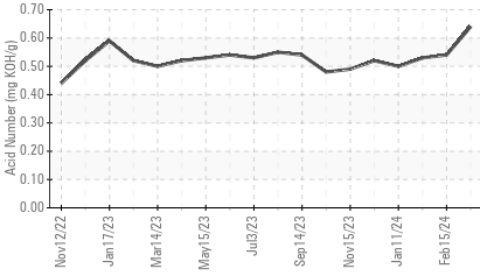


OIL ANALYSIS REPORT

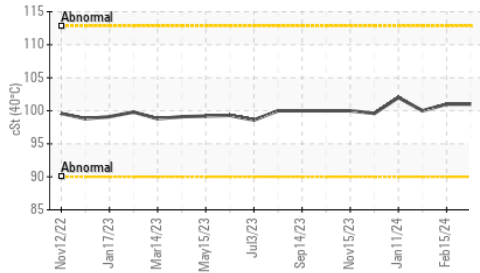
▲ Ferrous Alloys



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	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

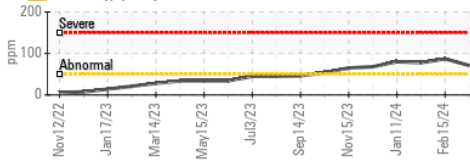
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	101	101	100

SAMPLE IMAGES	method	limit/base	current	history1	history2
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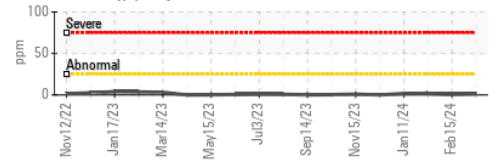
Color	no image	no image	no image
Bottom	no image	no image	no image

GRAPHS

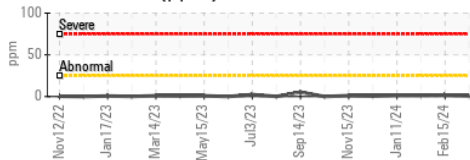
▲ Iron (ppm)



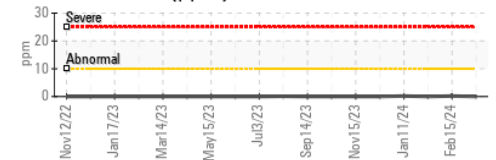
Lead (ppm)



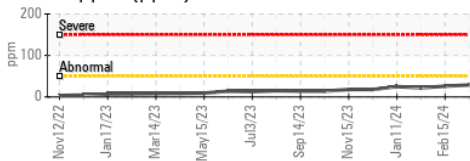
Aluminum (ppm)



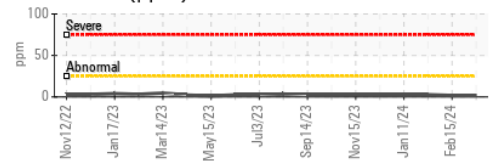
Chromium (ppm)



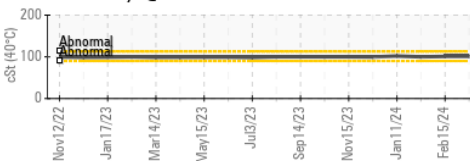
Copper (ppm)



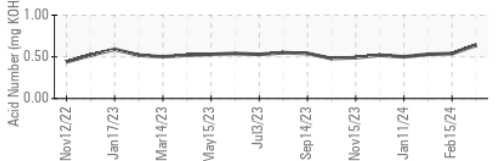
Silicon (ppm)



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HPL0004529
Lab Number : 06121713
Unique Number : 10930546
Test Package : MOB 2

Received : 18 Mar 2024
Tested : 19 Mar 2024
Diagnosed : 21 Mar 2024 - Jonathan Hester

MARATHON PETROLEUM CO.
 IL. REFININF DIVISION, 400 S MARATHON AVE
 ROBINSON, IL
 US 62454

Contact: M.S. MANHART
 mmanhart@marathonpetroleum.com

T: (618)544-2121

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)

F: x: