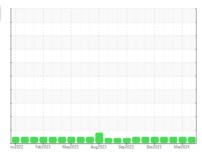


# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id
77K-1
Component
Compressor
Fluid
HP R&O ISO 100 (--- GAL)

#### DIAGNOSIS

## 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.

		ovZUZZ Fel	b2U23 May2U23 Au	igzuza sepzuza Deczuza	Mar2U24	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		HPL0005077	HPL0004530	HPL0004467
Sample Date		Client Info		15 Apr 2024	13 Mar 2024	15 Feb 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				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	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	<1	0	1
Chromium	ppm	ASTM D5185m	>10	<1	0	<1
Nickel	ppm	ASTM D5185m		0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	0	<1	2
Lead	ppm	ASTM D5185m	>25	0	0	0
Copper	ppm	ASTM D5185m	>50	5	<1	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		1	<1	0
Magnesium	ppm	ASTM D5185m		<1	0	0
Calcium	ppm	ASTM D5185m		4	<1	0
Phosphorus	ppm	ASTM D5185m		146	145	148
Zinc	ppm	ASTM D5185m		10	<1	3
Sulfur	ppm	ASTM D5185m		18435	18555	16436
CONTAMINANTS	;	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	1	2	2
Sodium	ppm	ASTM D5185m		1	<1	0
Potassium	ppm	ASTM D5185m	>20	0	1	<1
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2

0.54

Acid Number (AN)

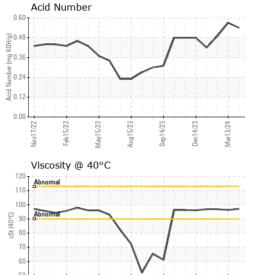
mg KOH/g ASTM D8045

0.57

0.49



## **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	his	story1	his	tory2
Vhite Metal	scalar	*Visual	NONE	NONE	NON	ΝE	NON	ΙE
ellow Metal	scalar	*Visual	NONE	NONE	NOI	NE	NON	ΙE
Precipitate	scalar	*Visual	NONE	NONE	NOI	ΝE	NON	ΙE
Silt	scalar	*Visual	NONE	NONE	NOI	ΝE	NON	ΙE
Debris	scalar	*Visual	NONE	NONE	NOI	ΝE	NON	ΙE
Sand/Dirt	scalar	*Visual	NONE	NONE	NOI	ΝE	NON	ΙE
Appearance	scalar	*Visual	NORML	NORML	NOF	RML	NOF	RML
Odor	scalar	*Visual	NORML	NORML	NOF	NORML NORM		RML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEC	à	NEG	à
Free Water	scalar	*Visual		NEG	NEC	à	NEG	à
FLUID PROPER	TIES	method	limit/base	current	his	story1	his	tory
Visc @ 40°C	cSt	ASTM D445	5	97.2	96.2	)	96.9	
SAMPLE IMAGE	ES	method	limit/base	current	his	story1	his	tory
Color				no image	no ii	mage	no in	mage
Bottom				no image	no image		no image	
GRAPHS Iron (ppm)				Lead (ppm)				
Iron (ppm)			E G	Severe Abnormal				
Iron (ppm)	Aug15/23	Sep14/23	E 9	Severe Abnormal	May15/23	Sep14/23	Dec14/23	Mar 13/74
Abnomal  Abnomal  Abnomal  Abnomal  Abnomal  Abnomal  Apnomal  Apn		Sep14/23	Mar13/24 ppm	Severe  Abnormal  Chromium (	May15/23	Sep 14/23	Dec14/23	Mar 1374
Iron (ppm) Severe Abnormal		Sep14/23 +	Mar13/24	Severe  Ahnomal  Chromium (	May15/23	Sep14/23	Dec14/23	Mar 374
Abnomal  Abnomal  EZZZ EZZZ EZZZ EZZZ NeW  Aluminum (ppm)		Sep14/23 Dec14/23	Mar13/24	Severe  Ahnomal  Chromium (	May15/23	Sep14/23	Dec14/23	Mar 3.74
Abnormal  Abnormal  EZZZLINON  Aluminum (ppm)  Severe			Mari 3,24	Severe  Ahnomal  Chromium (	(ppm)		Dec14/23	M ar 3.74
Iron (ppm)  Severe  Abnormal  27/21 1/494 PR  Aluminum (ppm)  Severe			Mar13.24	Severe  Abnormal  Chromium ( Severe  Abnormal	(ppm)			
Iron (ppm)  Severe  ZZZZZSZSZSZSZSZSZSZSZSZSZSZSZSZSZSZSZ		Sep 14/23 - Sep 14/23 - Dec 14/23 - Sep 14	Mari 3,24	Severe  Abnormal  Chromium ( Severe  Abnormal	May15/23		Dec; 14/23	
Iron (ppm)  Severe  Abnormal  Abnormal  Abnormal  Abnormal  Copper (ppm)			Mar13/24 Mar13/24 ppm	Severe  Chromium  Chromium  Chromium  Severe  Abnormal  Silicon (ppm	May15/23			
Iron (ppm) Severe Abnomal Aluminum (ppm) Severe Abnomal Abnomal			Mar13.24	Severe  Chromium  Chromium  Chromium  Severe  Abnormal  Silicon (ppm	May15/23			
Iron (ppm)  Severe  Abnomal  EZZLIANN (ppm)  Severe  Abnomal  Copper (ppm)  Severe			Mar13/24 Mar13/24 ppm	Severe  Chromium  Chromium  Chromium  Severe  Abnormal  Silicon (ppm	May15/23			
Iron (ppm)  Severe  Abnomal  EZZS1 494  Aluminum (ppm)  Severe  ZZZL1 1091  Copper (ppm)  Severe	Aug15/23	Sep 14/23	Mar1324 Mar1324 ppm	Severe  Chromium  Chromium  Chromium  Severe  Abnormal  Silicon (ppm	(bbd) (bdd) (bdd) (bdd)	Sep14/23	Dec14/23	Mar13/74
Iron (ppm)  Severe  Abnomal  EZZS1 494  Aluminum (ppm)  Severe  ZZZL1 1091  Copper (ppm)  Severe	Aug15/23	Sep 14/23	Mar1324 Mar1324 ppm	Severe  Chromium  Chromium  Chromium  Severe  Abnormal  Silicon (ppm	(bbd) (bdd) (bdd) (bdd)	Sep14/23	Dec14/23	Mar13/74
Iron (ppm)  Severe  ZZZZIANN (ppm)  Severe  Abnomal  EZZSIANN (ppm)  Severe  Abnomal  Copper (ppm)  Severe  Abnomal  Copper (ppm)	Aug15,723 Aug15,723		Mar13/24 Mar13/24 Ppm	Severe  Chromium  Chromium  Chromium  Silicon (ppm  Severe  Abnormal  Severe  Abnormal  Severe  Abnormal  Severe	May15/23 (bbdw) (may15/23 Aun15/23 Aun1	Sep14/23		Mar13/74
Iron (ppm)  Severe  Abnormal  EZZS1494  Aluminum (ppm)  Severe  EZZS1494  Copper (ppm)  Severe  ZZZL1400  Viscosity @ 40°C	Aug15,723 Aug15,723	Sep 14/23	Mar13/24 Mar13/24 Ppm	Severe  Chromium  Chromium  Chromium  Silicon (ppm  Severe  Abnormal  Severe  Abnormal  Severe  Abnormal  Severe	May15/23 (bbdw) (may15/23 Aun15/23 Aun1	Sep14/23	Dec14/23	Mar13/74
Iron (ppm)  Severe  Abnormal  EZZS1494  Aluminum (ppm)  Severe  EZZS1494  Copper (ppm)  Severe  ZZZL1400  Viscosity @ 40°C	Aug15,723 Aug15,723	Sep 14/23	Mar13/24 Mar13/24 Ppm	Severe  Chromium  Chromium  Chromium  Silicon (ppm  Severe  Abnormal  Severe  Abnormal  Severe  Abnormal  Severe	May15/23 (bbdw) (may15/23 Aun15/23 Aun1	Sep14/23	Dec14/23	Mar13/74
Iron (ppm)  Severe  Abnormal  EZZZLIANN (ppm)  Severe  Abnormal  Copper (ppm)  Severe  Abnormal  Copper (ppm)  Severe  Abnormal  Copper (ppm)  Severe  Abnormal  Viscosity @ 40°C	Aug15,723 Aug15,723	Sep 14/23	Mar1324 Mar1324 ppm	Severe  Chromium  Chromium  Chromium  Silicon (ppm  Severe  Abnormal  Severe  Abnormal  Severe  Abnormal  Severe	May15/23 (bbdw) (may15/23 Aun15/23 Aun1	Sep14/23	Dec14/23	Mari 3.74 Mari 3.74 Mari 3.74





Certificate 12367

Laboratory

Sample No. : HPL0005077 Lab Number : 06156181 Unique Number : 10991604

Test Package : MOB 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Apr 2024

Tested : 23 Apr 2024 : 23 Apr 2024 - Wes Davis Diagnosed

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

US 62454 Contact: M.S. MANHART

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. mmanhart@marathonpetroleum.com T: (618)544-2121

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: M.S. MANHART - MARROB

F: x: