

OIL ANALYSIS REPORT

Sample Rating Trend

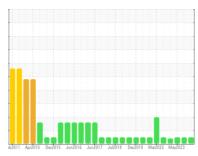
NORMAL



KEMP QUARRIES / MUSKOGEE SAND [66574] Machine Id WL042

Component **Hydraulic System**

PETRO CANADA HYDREX AW 68 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: PM-1 changed filters)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

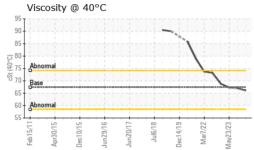
Fluid Condition

The condition of the oil is acceptable for the time in service.

HEX AW 68 ((JAL)	b2011 Apr201	5 Dec2015 Jun2016 Jun	2017 Jul2018 Dec2019 Mar2022	May2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0087008	PCA0084618	PCA0087102
Sample Date		Client Info		24 Oct 2023	11 Jul 2023	23 May 2023
Machine Age	hrs	Client Info		33553	32072	31670
Oil Age	hrs	Client Info		33553	32072	1720
Oil Changed		Client Info		N/A	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	2	6	3
Chromium	ppm	ASTM D5185m	>10	<1	2	2
Nickel	ppm	ASTM D5185m	>10	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	<1	1	<1
Lead	ppm	ASTM D5185m	>10	0	<1	0
Copper	ppm	ASTM D5185m		2	7	2
Tin	ppm		>10	 <1	0	0
Vanadium	ppm	ASTM D5185m	710	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	2	2
Barium	ppm	ASTM D5185m	0	19	0	0
Molybdenum	ppm	ASTM D5185m	0	1	2	2
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m	0	6	31	41
Calcium	ppm	ASTM D5185m	50	76	239	183
Phosphorus	ppm	ASTM D5185m	330	364	431	367
Zinc	ppm	ASTM D5185m	430	444	544	475
Sulfur	ppm	ASTM D5185m	760	1188	1375	1053
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	1	2	2
Sodium	ppm	ASTM D5185m		2	1	0
Potassium	ppm	ASTM D5185m	>20	0	3	<1
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	67.4	66.1	67.0	67.3



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	SAMPLE IMAGE	ES	method	limit/base	current	history1	history2
	Color				no image	no image	no image
-	Bottom				no image	no image	no image

GRAPHS	
Iron (ppm) 40 35 L Severe	Lead (ppm)
35 30	25 - Severe
E 20 Abnomal	20 - E 15 -
15	10 - Abnormal
5	5
Feb15/11- Apr30/15- Jun29/16- Jun20/17- Jul6/18- Ma7/22-	May23/23 Feb15/11 Apr30/15 Jun29/16 Juli5/18 Mar7/22 May23/23
Aluminum (ppm)	E & B IN IN B W IN
30	30 7
25 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	25 Severe 20
Ē 15-	E 15 € 15 € 15 € 15 € 15 € 15 € 15 € 15
10 Abnormal	Abnormal
Feb 15/11 Apr30/15 Dec 10/15 Jun 29/16 Jun 20/17 Jul6/18 Dec 14/19 Mar7/22	Feb15/11 Feb15/11 Apr30/15 Dec10/15 Jun29/16 Jun20/17 Jul6/18 Mar7/22 May23/23
Copper (ppm)	Silicon (ppm)
250 Z	50 Severe
150	40-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
100 Abnormal	E 30 Abnongal
50	10
eb15/117- pr30/15 nr29/16 Jul6/18 Jul6/18	eb 15/11+ pr30/15+ ec10/15+ un20/17+ un20/17+ un20/17+ un20/17+ un20/17 var23/23
A O I I	
Viscosity @ 40°C	Additives
90	2500 - calcium phosphorus
⊕ 75 + Abnormal	E 1500
⁸ 70 Base Base	1000
60 Abnormal	500
Feb 15/11 Apr30/15 Jun 20/17 Jun 20/17 Jun 20/17 Mar 7/22	May(23/23 + Apr30/15 - Apr30/15 - Jun(29/16 - Jun(29/16 - Jun(29/16 - Jun(20/17 - Jun(20/17 - Mar/23/23 - May(23/23 - May(23/2
Api Api Jun Jun Mi	May May May May May May





Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10722267

Test Package : MOB 1

: 05993907

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0087008

: 30 Oct 2023 Received Diagnosed Diagnostician : Sean Felton

: 01 Nov 2023

Kemp Quarries - Muskogee Sand

3395 W 50th St N Porter, OK US 74454

Contact: MUSCOGEE NOTIFICATIONS muskogee@muskogeesand.com

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)

Report Id: KEMPOR [WUSCAR] 05993907 (Generated: 11/01/2023 11:11:03) Rev: 1

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