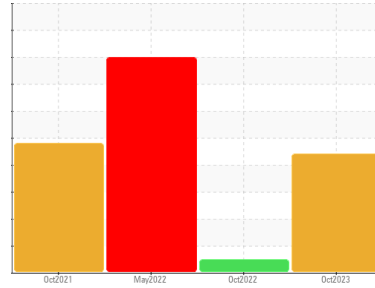




Machine Id  
**68HYDPACK004**

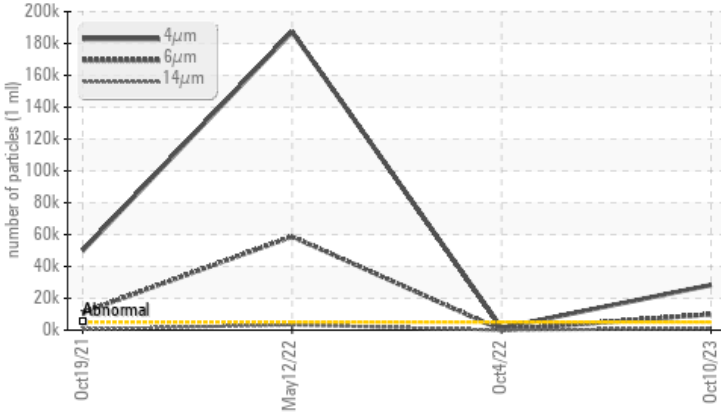
Component  
**Hydraulic System**

Fluid  
**PETRO CANADA HYDREX AW 32 (--- GAL)**



**COMPONENT CONDITION SUMMARY**

**Particle Trend**



**RECOMMENDATION**

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

**PROBLEMATIC TEST RESULTS**

Sample Status	ASTM D7647	SEVERE	NORMAL	SEVERE
Particles >4µm	>5000	▲ 28318	1421	● 187339
Particles >6µm	>1300	● 10003	145	● 58752
Particles >14µm	>160	▲ 1028	10	● 3291
Particles >21µm	>40	▲ 281	3	● 525
Particles >38µm	>10	▲ 21	0	▲ 19
Oil Cleanliness	ISO 4406 (c) >19/17/14	● 22/21/17	18/14/10	● 25/23/19

Customer Id: GLEONA  
Sample No.: PC0052760  
Lab Number: 02593246  
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Wes Davis +1 905-569-8600 x223  
[wesd@wearcheck.ca](mailto:wesd@wearcheck.ca)

To change component or sample information:  
Gloria Gonzalez +1 (289)291-4643 x4643  
[gloria.gonzalez@wearcheck.com](mailto:gloria.gonzalez@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

## HISTORICAL DIAGNOSIS

### 04 Oct 2022 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 12 May 2022 Diag: Wes Davis

ISO



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >4µm are severely high. Particles >38µm are notably high. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



### 19 Oct 2021 Diag: Kevin Marson

ISO



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. We recommend that you drain the oil from the component if this has not already been done. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 32. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Light concentration of visible metal present. Bearing and/or bushing wear is indicated. Particles >6µm are severely high. Particles >4µm are severely high. Particles >14µm are abnormally high. Particles >21µm are abnormally high. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

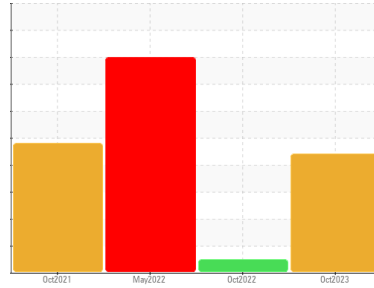




Machine Id  
**68HYDPACK004**

Component  
**Hydraulic System**

Fluid  
**PETRO CANADA HYDREX AW 32 (--- GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. 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 high amount of particulates (2 to 100 microns in size) present in the oil.

### 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	<b>PC0052760</b>	PC0051899	PC0052989
Sample Date	Client Info	<b>10 Oct 2023</b>	04 Oct 2022	12 May 2022
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>SEVERE</b>	NORMAL	SEVERE

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m) >20	<b>3</b>	3	5
Chromium	ppm	ASTM D5185(m) >20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	<b>&lt;1</b>	2	0
Aluminum	ppm	ASTM D5185(m) >20	<b>0</b>	<1	<1
Lead	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	<1
Copper	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	1
Tin	ppm	ASTM D5185(m) >20	<b>0</b>	0	<1
Antimony	ppm	ASTM D5185(m)	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m) 0	<b>0</b>	<1	<1
Barium	ppm	ASTM D5185(m) 0	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185(m) 0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m) 0	<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m) 0	<b>&lt;1</b>	<1	<1
Calcium	ppm	ASTM D5185(m) 50	<b>35</b>	37	41
Phosphorus	ppm	ASTM D5185(m) 330	<b>311</b>	330	328
Zinc	ppm	ASTM D5185(m) 430	<b>384</b>	368	394
Sulfur	ppm	ASTM D5185(m) 760	<b>754</b>	778	791
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >15	<b>&lt;1</b>	<1	1
Sodium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Potassium	ppm	ASTM D5185(m) >20	<b>0</b>	0	<1

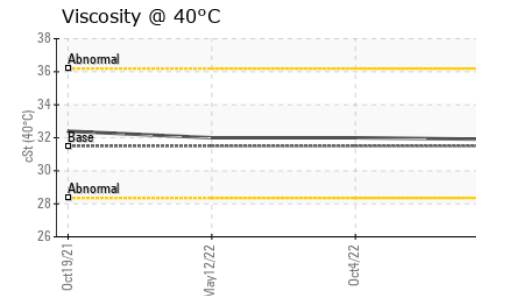
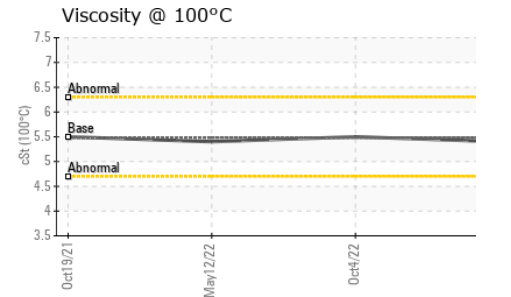
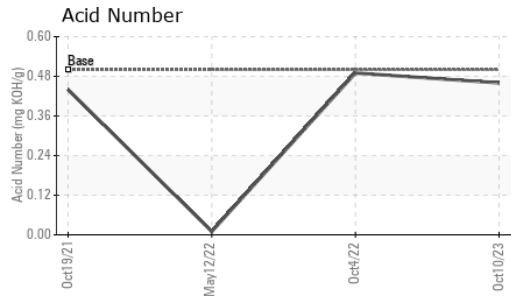
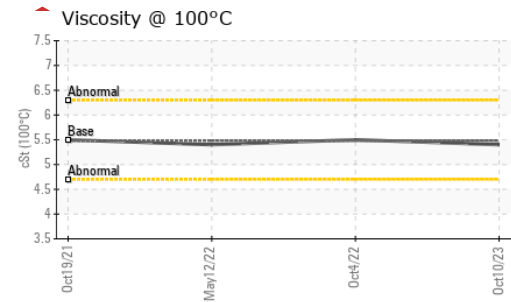
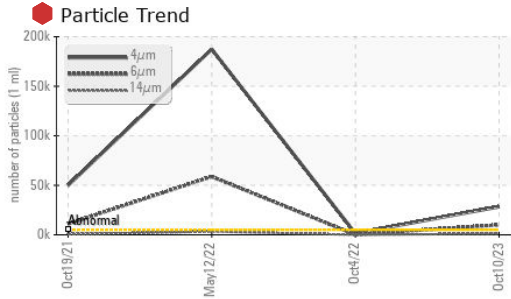
## FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647	>5000	<b>▲ 28318</b>	1421	● 187339
Particles >6µm	ASTM D7647	>1300	<b>● 10003</b>	145	● 58752
Particles >14µm	ASTM D7647	>160	<b>▲ 1028</b>	10	● 3291
Particles >21µm	ASTM D7647	>40	<b>▲ 281</b>	3	● 525
Particles >38µm	ASTM D7647	>10	<b>▲ 21</b>	0	▲ 19
Particles >71µm	ASTM D7647	>3	<b>1</b>	0	1
Oil Cleanliness	ISO 4406 (c)	>19/17/14	<b>● 22/21/17</b>	18/14/10	● 25/23/19

## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D974* 0.50	<b>0.46</b>	0.49	0.01

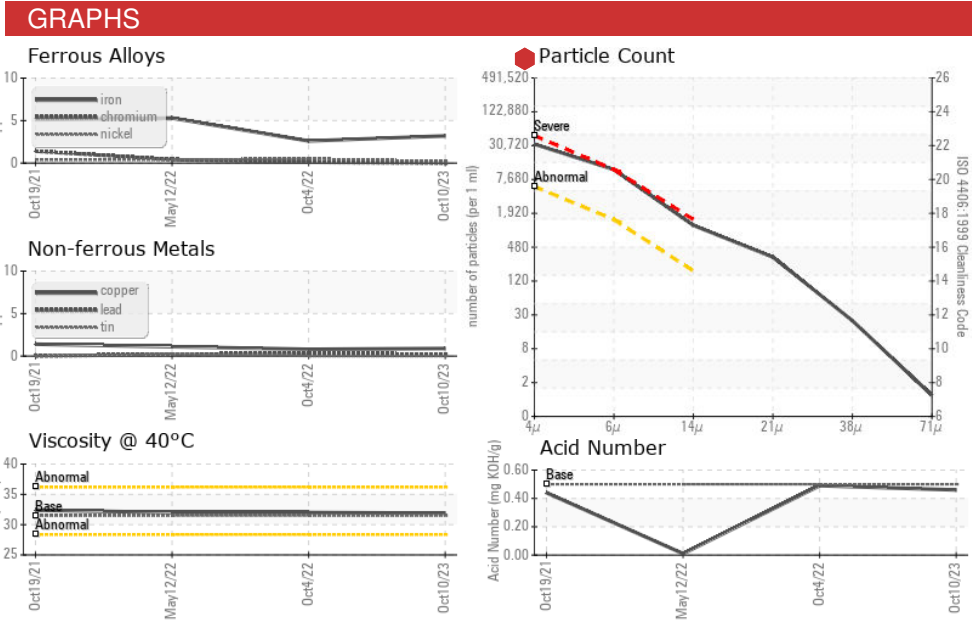
# OIL ANALYSIS REPORT



PARAMETER	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

PARAMETER	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	31.5	32.0	32.0
Visc @ 100°C	cSt	ASTM D7279(m)	5.4	5.5	5.4
Viscosity Index (VI)	Scale	ASTM D2270*	110	107	102

PARAMETER	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter					



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC0052760 **Received** : 01 Nov 2023  
**Lab Number** : 02593246 **Diagnosed** : 02 Nov 2023  
**Unique Number** : 5670325 **Diagnostician** : Wes Davis  
**Test Package** : IND 2 ( Additional Tests: KV100, VI )

**Glencore Canada – Fraser Mine**  
 85 Regional Road 8  
 Onaping, ON  
 CA P0M 2R0  
 Contact: Marc-Andre Marseille  
 marcandre.marseille@dmcmining.com

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.