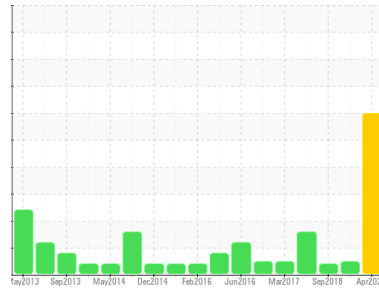


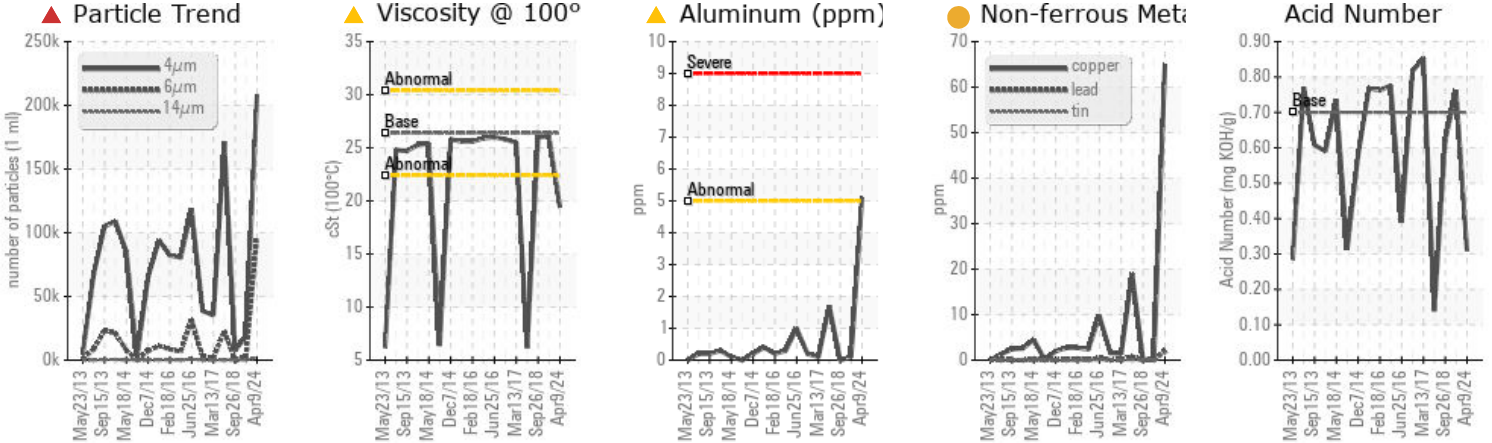
# PROBLEM SUMMARY

Sample Rating Trend



Area  
**Gas Compression [450310863]**  
Machine Id  
**Methanol Wellhead Injection Pump D - Gearbox (S/N Sample Tag PD-42010D-S1)**  
Component  
**Gearbox**  
Fluid  
**PETRO CANADA ENDURATEX SYNTHETIC EP 220 (120 LTR)**

## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

## PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	NORMAL	ABNORMAL
Aluminum	ppm	ASTM D5185(m)	>5	▲ 5	<1	2
Particles >6µm		ASTM D7647	>5000	▲ 97068	2241	▲ 22821
Particles >14µm		ASTM D7647	>640	▲ 2079	69	131
Oil Cleanliness		ISO 4406 (c)	>--/19/16	▲ 25/24/18	21/18/13	▲ 25/22/14
Visc @ 100°C	cSt	ASTM D7279(m)	26.39	▲ 19.4	26.1	26.0
Viscosity Index (VI)	Scale	ASTM D2270*	151	▲ 108	149	149

Customer Id: TERHAM  
Sample No.: PC  
Lab Number: 02631759  
Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Kevin Marson +1 (289)291-4644 x4644  
[Kevin.Marson@wearcheck.com](mailto:Kevin.Marson@wearcheck.com)

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 recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

## HISTORICAL DIAGNOSIS

### NORMAL



#### 22 Dec 2019 Diag: Kevin Marson

Resample at the next service interval to monitor. 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



### ISO



#### 26 Sep 2018 Diag: Kevin Marson

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. Particles >6µm are abnormally high. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### VISCOSITY



#### 26 Sep 2018 Diag: Kevin Marson

Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: The current sample results do not match this unit's historical trend, indicating the sample may not be from this component/unit. 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. Viscosity of sample indicates oil is within ISO 32 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported.

view report



Area

**Gas Compression [450310863]**

Machine Id

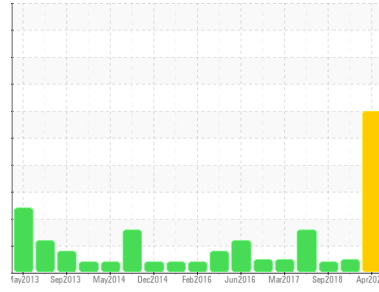
**Methanol Wellhead Injection Pump D - Gearbox (S/N Sample Tag PD-42010D-S1)**

Component

**Gearbox**

Fluid

**PETRO CANADA ENDURATEX SYNTHETIC EP 220 (120 LTR)**



**DIAGNOSIS**

**▲ Recommendation**

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

**▲ Wear**

Aluminum ppm levels are abnormal. Copper ppm levels are noted.

**▲ Contamination**

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

**▲ Fluid Condition**

The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

**SAMPLE INFORMATION**

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PC</b>	PC	PC
Sample Date	Client Info	<b>09 Apr 2024</b>	22 Dec 2019	26 Sep 2018
Machine Age	hrs	<b>0</b>	0	0
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>SEVERE</b>	NORMAL	ABNORMAL

**CONTAMINATION**

method	limit/base	current	history1	history2
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG

**WEAR METALS**

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	10	5
Iron	ppm ASTM D5185(m) >150	<b>14</b>	<1	10
Chromium	ppm ASTM D5185(m) >10	<b>0</b>	0	0
Nickel	ppm ASTM D5185(m) >10	<b>1</b>	0	<1
Titanium	ppm ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm ASTM D5185(m)	<b>0</b>	0	0
Aluminum	ppm ASTM D5185(m) >5	<b>5</b>	<1	2
Lead	ppm ASTM D5185(m) >65	<b>2</b>	0	<1
Copper	ppm ASTM D5185(m) >80	<b>65</b>	<1	19
Tin	ppm ASTM D5185(m) >8	<b>2</b>	0	<1
Antimony	ppm ASTM D5185(m) >5	<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

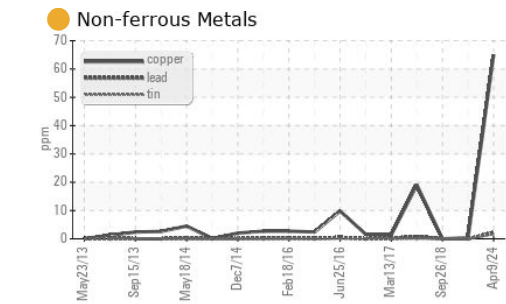
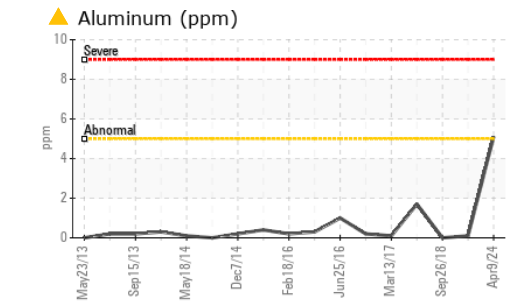
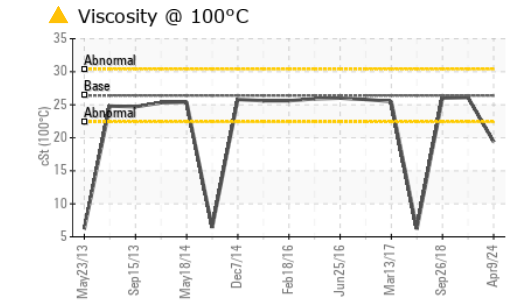
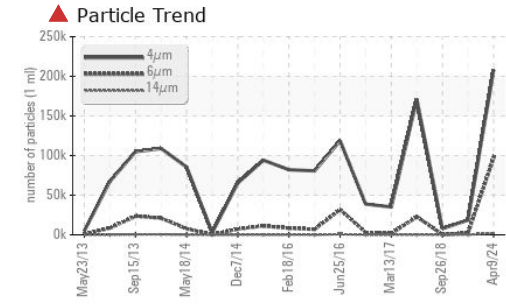
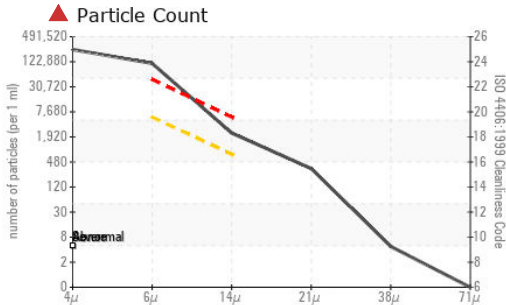
**ADDITIVES**

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m) 33	<b>22</b>	23	17
Barium	ppm ASTM D5185(m) 5	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185(m)	<b>0</b>	0	0
Manganese	ppm ASTM D5185(m)	<b>1</b>	0	<1
Magnesium	ppm ASTM D5185(m) 5	<b>&lt;1</b>	<1	<1
Calcium	ppm ASTM D5185(m) 5	<b>&lt;1</b>	<1	<1
Phosphorus	ppm ASTM D5185(m) 437	<b>215</b>	417	403
Zinc	ppm ASTM D5185(m) 5	<b>8</b>	1	4
Sulfur	ppm ASTM D5185(m) 5000	<b>4414</b>	4857	4740
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	0

**CONTAMINANTS**

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

# OIL ANALYSIS REPORT



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC  
**Lab Number** : 02631759  
**Unique Number** : 5772912  
**Test Package** : MAR 2 ( Additional Tests: KV100, PQ, PrtCount, TAN Man, VI )

**Received** : 26 Apr 2024  
**Tested** : 01 May 2024  
**Diagnosed** : 01 May 2024 - Kevin Marson

**Suncor - Terra Nova Projects**  
 Scotia Centre, 235 Water Street  
 St. John's, NL  
 CA A1C 1B6  
 Contact: Josh Hynes  
 joshynes@suncor.com  
 T: (709)778-3575  
 F: (709)724-2835

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.

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647			<b>207903</b>	18713	170846
Particles >6µm	ASTM D7647	>5000		<b>▲ 97068</b>	2241	<b>▲ 22821</b>
Particles >14µm	ASTM D7647	>640		<b>▲ 2079</b>	69	131
Particles >21µm	ASTM D7647	>160		<b>● 294</b>	16	20
Particles >38µm	ASTM D7647	>40		<b>4</b>	0	0
Particles >71µm	ASTM D7647	>10		<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/19/16		<b>▲ 25/24/18</b>	21/18/13	<b>▲ 25/22/14</b>

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.7	<b>0.31</b>	0.762	0.62

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	VLITE
Debris	scalar	Visual*	NONE	<b>NONE</b>	VLITE	VLITE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG
Free Water	scalar	Visual*		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	223	<b>204</b>	223	222
Visc @ 100°C	cSt	ASTM D7279(m)	26.39	<b>▲ 19.4</b>	26.1	26.0
Viscosity Index (VI)	Scale	ASTM D2270*	151	<b>▲ 108</b>	149	149

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