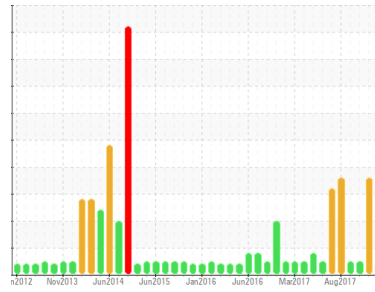




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area  
**1 White Oil/029 #2HTU/P Pump/401A 2 Stage HTU Charge**  
 Machine Id  
**N/A 29GP401A**  
 Component  
**Gearbox**  
 Fluid  
**PETRO CANADA ENDURATEX SYNTHETIC EP 220 (50 LTR)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

Particles >6µm are abnormally high. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service. 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>WC22127592</b>	WC22127553	WC22127532
Sample Date	Client Info		<b>01 Mar 2018</b>	14 Feb 2018	21 Nov 2017
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	NORMAL

## 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	
Iron	ppm	ASTM D5185(m)	>200	<b>8</b>	9	<1
Chromium	ppm	ASTM D5185(m)	>15	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m)	>15	<b>&lt;1</b>	<1	0
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)	>25	<b>0</b>	<1	0
Lead	ppm	ASTM D5185(m)	>100	<b>0</b>	0	0
Copper	ppm	ASTM D5185(m)	>200	<b>&lt;1</b>	<1	0
Tin	ppm	ASTM D5185(m)	>25	<b>0</b>	0	0
Antimony	ppm	ASTM D5185(m)		<b>&lt;1</b>	0	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>11</b>	22	31
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>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)	5	<b>0</b>	1	0
Calcium	ppm	ASTM D5185(m)	5	<b>&lt;1</b>	<1	0
Phosphorus	ppm	ASTM D5185(m)	437	<b>398</b>	408	434
Zinc	ppm	ASTM D5185(m)	5	<b>&lt;1</b>	1	<1
Sulfur	ppm	ASTM D5185(m)	5000	<b>4860</b>	5067	5390
Lithium	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	<1

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>50	<b>&lt;1</b>	2	<1
Sodium	ppm	ASTM D5185(m)		<b>&lt;1</b>	0	0
Potassium	ppm	ASTM D5185(m)	>20	<b>0</b>	<1	<1

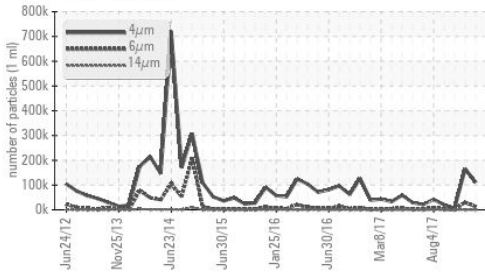
## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>110800</b>	165713	5563
Particles >6µm	ASTM D7647	>5000	<b>▲ 12986</b>	▲ 30096	471
Particles >14µm	ASTM D7647	>640	<b>260</b>	● 822	12
Particles >21µm	ASTM D7647	>160	<b>63</b>	165	3
Particles >38µm	ASTM D7647	>40	<b>0</b>	3	0
Particles >71µm	ASTM D7647	>10	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/19/16	<b>▲ 24/21/15</b>	▲ 25/22/17	20/16/11

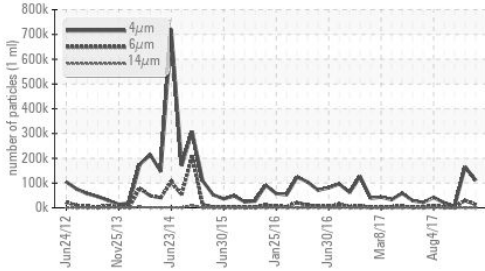


# OIL ANALYSIS REPORT

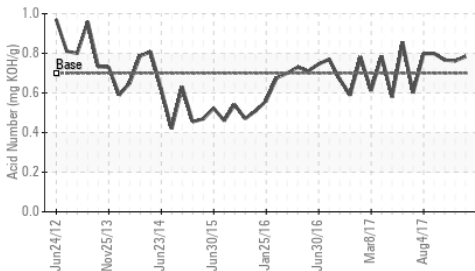
### Particle Trend



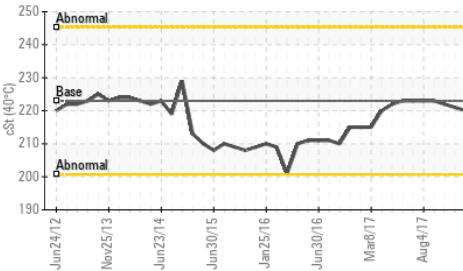
### Particle Trend



### Acid Number



### Viscosity @ 40°C

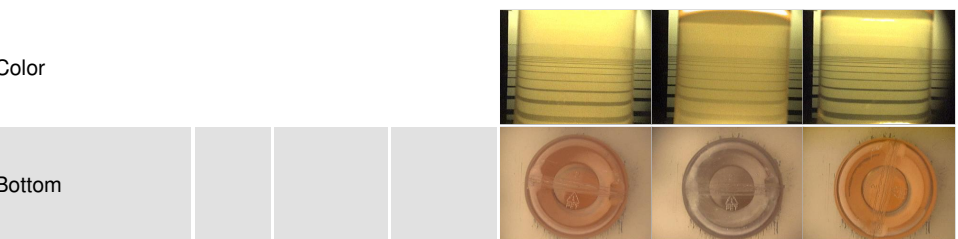


FLUID DEGRADATION	method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D974*	0.7	<b>0.784</b>	0.762	0.766

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>	▲ LIGHT	NONE
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
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>	▲ .2%	NEG
Free Water	scalar	Visual*		<b>NEG</b>	.2%	NEG

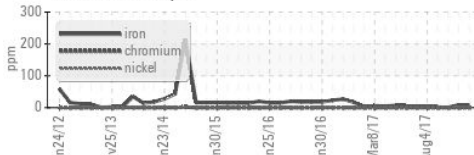
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D7279(m)	223	<b>220</b>	221	222

### SAMPLE IMAGES

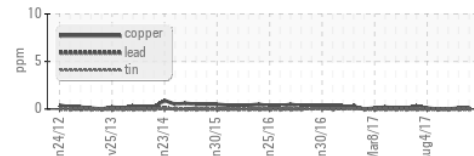


### GRAPHS

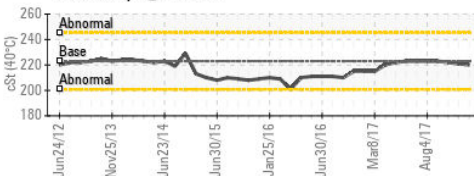
#### Ferrous Alloys



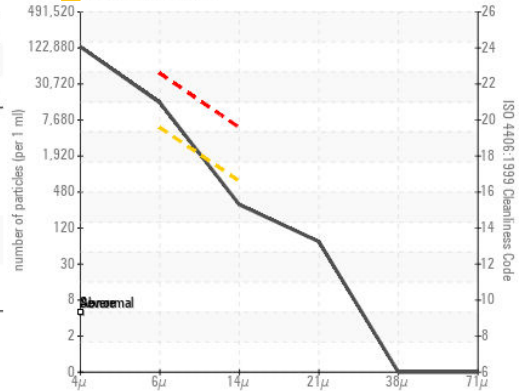
#### Non-ferrous Metals



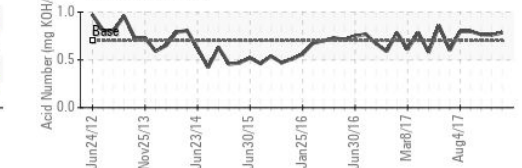
#### Viscosity @ 40°C



#### Particle Count



#### Acid Number



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC22127592 **Received** : 01 Mar 2018  
**Lab Number** : **02201692** **Tested** : 02 Mar 2018  
**Unique Number** : 4652814 **Diagnosed** : 02 Mar 2018 - Wes Davis  
**Test Package** : IND 2 ( Additional Tests: TAN Man )

**Petro Canada Lubricants Inc.**  
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 Contact: Kyle Blezard  
 kyle.blezard@HFSinclair.com  
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 F: (905)822-6025

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.