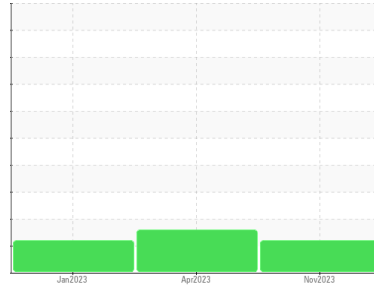




# PROBLEM SUMMARY

## Sample Rating Trend



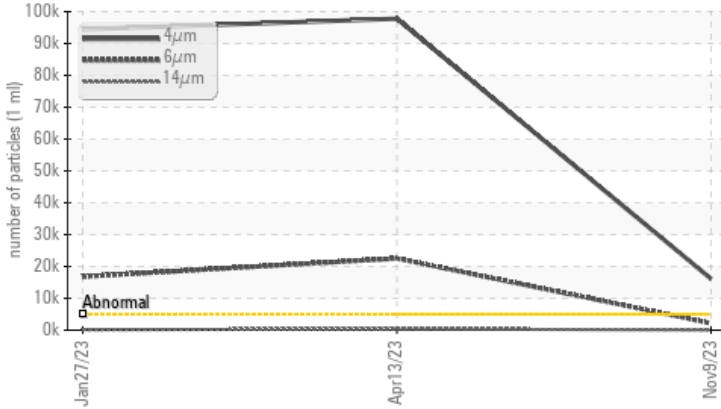
ISO



Machine Id  
**KD-2 LIQUID NOX**  
 Component  
**Pump**  
 Fluid  
**SAE 5W40 (--- GAL)**

## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	ABNORMAL	ABNORMAL
Particles >4µm	ASTM D7647	>5000	▲ 16111	▲ 97784	▲ 94443
Particles >6µm	ASTM D7647	>1300	▲ 2155	▲ 22506	▲ 16801
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 21/18/12	▲ 24/22/16	▲ 24/21/14

Customer Id: NRGDOV  
 Sample No.: USP255347  
 Lab Number: 06006380  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Doug Bogart +1 (800)237-1369 x4016  
[dougb@wearcheckusa.com](mailto:dougb@wearcheckusa.com)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

### 13 Apr 2023 Diag: Doug Bogart

ISO



We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 27 Jan 2023 Diag: Doug Bogart

ISO



Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

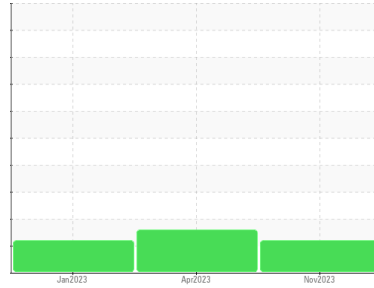
view report





# OIL ANALYSIS REPORT

## Sample Rating Trend



ISO



Machine Id  
**KD-2 LIQUID NOX**  
 Component  
**Pump**  
 Fluid  
**SAE 5W40 (--- GAL)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>USP255347</b>	USP249797	USP246501
Sample Date	Client Info		<b>09 Nov 2023</b>	13 Apr 2023	27 Jan 2023
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	ABNORMAL

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >90	<b>0</b>	<1	1
Chromium	ppm	ASTM D5185m >5	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m >5	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m >3	<b>0</b>	0	0
Silver	ppm	ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >7	<b>1</b>	<1	<1
Lead	ppm	ASTM D5185m >12	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >30	<b>&lt;1</b>	2	3
Tin	ppm	ASTM D5185m >9	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>139</b>	156	164
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>39</b>	44	47
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185m	<b>917</b>	928	880
Calcium	ppm	ASTM D5185m	<b>983</b>	984	977
Phosphorus	ppm	ASTM D5185m	<b>1028</b>	1041	1069
Zinc	ppm	ASTM D5185m	<b>1261</b>	1296	1240
Sulfur	ppm	ASTM D5185m	<b>3228</b>	3420	3133

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >60	<b>4</b>	5	5
Sodium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Potassium	ppm	ASTM D5185m >20	<b>0</b>	1	2
Water	%	ASTM D6304 >.1	<b>0.074</b>	0.033	0.041
ppm Water	ppm	ASTM D6304 >1000	<b>741.7</b>	331.0	414.3

### FLUID CLEANLINESS

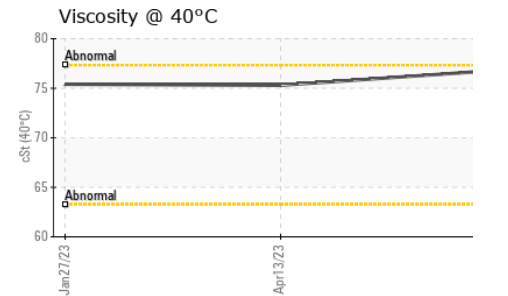
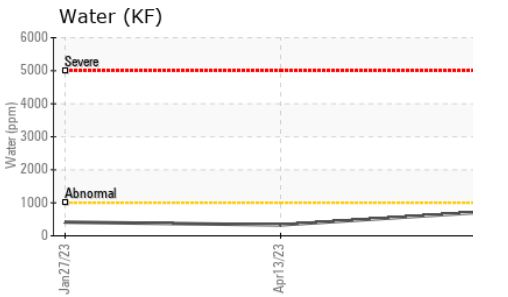
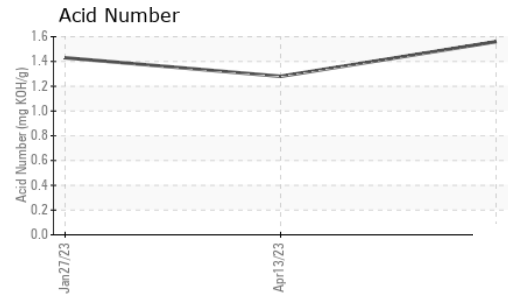
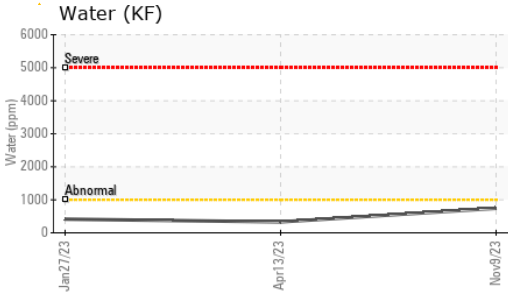
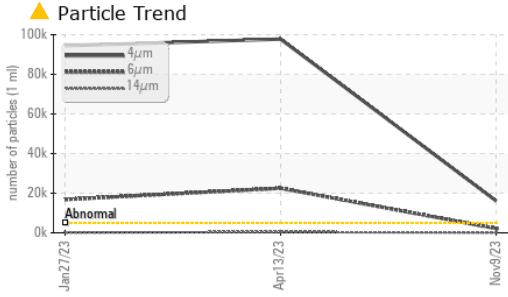
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	<b>▲ 16111</b>	▲ 97784	▲ 94443
Particles >6µm	ASTM D7647	>1300	<b>▲ 2155</b>	▲ 22506	▲ 16801
Particles >14µm	ASTM D7647	>160	<b>39</b>	▲ 385	110
Particles >21µm	ASTM D7647	>40	<b>7</b>	40	12
Particles >38µm	ASTM D7647	>10	<b>0</b>	1	0
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	<b>▲ 21/18/12</b>	▲ 24/22/16	▲ 24/21/14

### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>1.56</b>	1.28	1.43



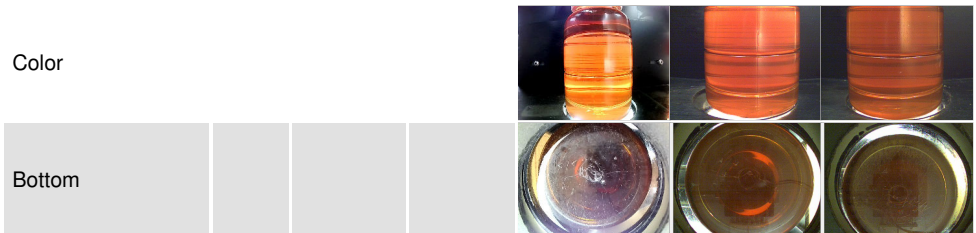
# OIL ANALYSIS REPORT



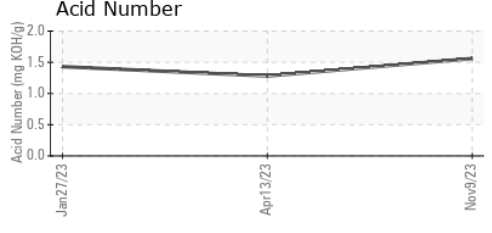
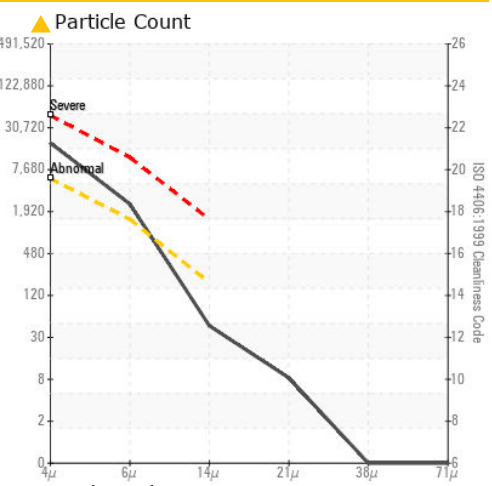
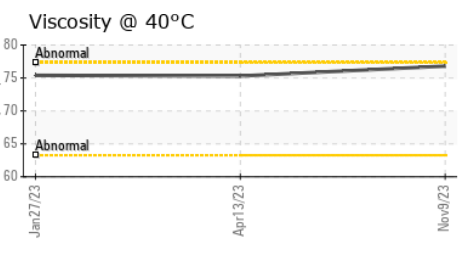
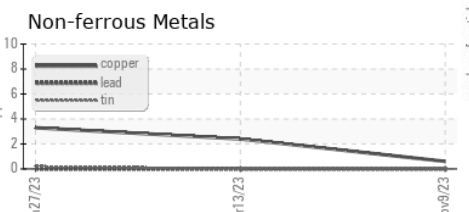
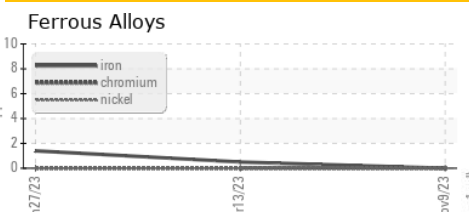
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	76.8	75.3	75.4

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : USP255347 **Received** : 13 Nov 2023  
**Lab Number** : 06006380 **Diagnosed** : 15 Nov 2023  
**Unique Number** : 10740142 **Diagnostician** : Doug Bogart  
**Test Package** : IND 2

**ENERGY CENTER DOVER LLC - DCODOV**  
 1280 W NORTH ST  
 DOVER, DE  
 US 19904  
 Contact: ERNIE JUST  
 ernie.just@clearwayenergy.com  
 T: (302)678-4353  
 F:

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)