

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend

### NORMAL





### 2020 Ma2021 Ju2021 Max0022 Ju2022 Max0022 Max002 Ma2023

Sample Number     Client Info     WC0820272     WC0820275     WC0820275     WC0820275       Machine Age     mths     Client Info     14 Nov 2023     03 Oct 2023     07 Sep 202       Machine Age     mths     Client Info     0     0     0       Oil Age     mths     Client Info     N/A     N/A     N/A       Sample Status     Client Info     N/A     N/A     N/A     N/A       WEAR METALS     method     imit/base     current     history     history       Iron     ppm     ASTM D5185m     >70     0     0     0       Kickel     ppm     ASTM D5185m     >10     <1     0     0       Silver     ppm     ASTM D5185m     >3     2     0     0     0       Lead     ppm     ASTM D5185m     >3     0     0     1     0     0       Copper     ppm     ASTM D5185m     >3     0     0     1     0     0       Copper     ppm     ASTM D5185m			¥2020 Mar202	I JUNE VE I HOVEDET MINE	LE UNCOLL MUYLULL MIDILULS (	1012023 100120	
Sample Date     Client Info     14 Nov 2023     03 Oct 2023     07 Sep 202       Machine Age     mths     Client Info     0     0     0       Oil Age     mths     Client Info     0     0     0       Oil Charged     Client Info     N/A     N/A     NA       Sample Status     Client Info     N/A     N/A     NA       VeAR METALS     method     imit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >70     0     0     0       Nickel     ppm     ASTM D5185m     >10     <1     0     0       Silver     ppm     ASTM D5185m     3     2     0     0       Copper     ppm     ASTM D5185m     >3     0     0     0       Vanadium     ppm     ASTM D5185m     >3     0     0     0       AstM D5185m     >3     0     0     0     0     0       Kikel     ppm     ASTM D5185m     0	SAMPLE INFORM	1ATION	method	limit/base	current	history1	history
Machine Age     mths     Client Info     0     0     0     0       Oil Age     mths     Client Info     0     0     0     0       Oil Changed     Client Info     NVA     N/A     N/A     N/A       Sample Status     Imit/base     current     history     history       Iron     ppm     ASTM D5185m     >70     0     0     0       Nickel     ppm     ASTM D5185m     >70     0     0     0       Silver     ppm     ASTM D5185m     >10     <1	Sample Number		Client Info		WC0820272	WC0820275	WC082024
Oil Age     mths     Client Info     0     0     0       Oil Changed     Client Info     NA     NA     NA     NA       Sample Status     Client Info     NA     NORMAL     NORMAL     NORMAL       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM 05185m     >70     0     0     0       Chromium     ppm     ASTM 05185m     10     -1     0     0       Nickel     ppm     ASTM 05185m     0     0     0     0       Auminum     ppm     ASTM 05185m     >3     2     0     0     0       Additionum     ppm     ASTM 05185m     >3     0     0     -1     0     0       Capper     ppm     ASTM 05185m     3     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 <t< td=""><td>Sample Date</td><td></td><td>Client Info</td><td></td><th>14 Nov 2023</th><td>03 Oct 2023</td><td>07 Sep 202</td></t<>	Sample Date		Client Info		14 Nov 2023	03 Oct 2023	07 Sep 202
Oil Changed     Client Info     N/A     N/A     N/A     N/A       Sample Status     method     limit/base     current     history1     NoRMAL     NORMAL       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM 05/85m     >70     0     0     0       Chromium     ppm     ASTM 05/85m     0     0     0     0       Nickel     ppm     ASTM 05/85m     0     0     0     0       Silver     ppm     ASTM 05/85m     >3     2     0     0       Lead     ppm     ASTM 05/85m     >20     <1	Machine Age	mths	Client Info		0	0	0
Sample Status     Instant     NORMAL     NORMAL     NORMAL     NORMAL       WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >70     0     0     0       Nickel     ppm     ASTM D5185m     0     0     -1     0       Silver     ppm     ASTM D5185m     0     0     0     0       Aluminum     ppm     ASTM D5185m     >3     2     0     0       Auminum     ppm     ASTM D5185m     >3     0     0     -1       Copper     ppm     ASTM D5185m     >20     <1	Oil Age	mths	Client Info		0	0	0
WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >70     0     0     0       Otromium     ppm     ASTM D5185m     >10     -1     0     0       Nickel     ppm     ASTM D5185m     0     0     0     0       Silver     ppm     ASTM D5185m     0     0     0     0       Aluminum     ppm     ASTM D5185m     >3     2     0     0       Lead     ppm     ASTM D5185m     >20     -1     0     0     0       Vanadium     ppm     ASTM D5185m     20     -1     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     0     0       Boron     ppm     ASTM D5185m     0     0     0     0     0       Maganese     ppm     ASTM D5185m     0     0     0     2     2       Calcium     ppm <td< td=""><td>Oil Changed</td><td></td><td>Client Info</td><td></td><th>N/A</th><td>N/A</td><td>N/A</td></td<>	Oil Changed		Client Info		N/A	N/A	N/A
Iron     ppm     ASTM D5185m     >70     0     0     0       Chromium     ppm     ASTM D5185m     0     <1	Sample Status				NORMAL	NORMAL	NORMAL
Chromium     ppm     ASTM D5185m     >10     <1     0     0       Nickel     ppm     ASTM D5185m     0     0     <1	WEAR METALS		method	limit/base	current	history1	history
Nickel     ppm     ASTM D5185m     0     0     <1       Titanium     ppm     ASTM D5185m      0     0     0       Silver     ppm     ASTM D5185m     >3     2     0     0       Auminum     ppm     ASTM D5185m     >3     2     0     0       Lead     ppm     ASTM D5185m     >20     <1	Iron	ppm	ASTM D5185m	>70	0	0	0
Titanium     ppm     ASTM D5185m     <1     0     0       Silver     ppm     ASTM D5185m     3     2     0     0       Aluminum     ppm     ASTM D5185m     >3     2     0     0       Lead     ppm     ASTM D5185m     >4     0     0     <1	Chromium	ppm	ASTM D5185m	>10	<1	0	0
Silver     ppm     ASTM D5185m     0     0     0     0       Aluminum     ppm     ASTM D5185m     >3     2     0     0       Lead     ppm     ASTM D5185m     >4     0     0     <1	Nickel	ppm	ASTM D5185m		0	0	<1
Atuminum     ppm     ASTM D5185m     >3     2     0     0       Lead     ppm     ASTM D5185m     >4     0     0     <1	Titanium	ppm	ASTM D5185m		<1	0	0
Lead     ppm     ASTM D5185m     >4     0     0     <1       Copper     ppm     ASTM D5185m     >20     <1	Silver	ppm	ASTM D5185m		0	0	0
Copper     ppm     ASTM D5185m     >20     <1     0     0       Tin     ppm     ASTM D5185m     >3     0     0     <1	Aluminum	ppm	ASTM D5185m	>3	2	0	0
Tin     ppm     ASTM D5185m     >3     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     <1	Lead	ppm	ASTM D5185m	>4	0	0	<1
Tin     ppm     ASTM D5185m     >3     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     <1	Copper	ppm	ASTM D5185m	>20	<1	0	0
Cadmium     ppm     ASTM D5185m     <1     0     0       ADDITIVES     method     limit/base     current     history1     history1       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     6     0     0       Magnese     ppm     ASTM D5185m     0     0     2     0       Magnesium     ppm     ASTM D5185m     0     0     2     0       Calcium     ppm     ASTM D5185m     0     0     2     0       Phosphorus     ppm     ASTM D5185m     0     0     0     23       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     0     0     <1	Tin	ppm	ASTM D5185m	>3	0	0	<1
Cadmium     ppm     ASTM D5185m     <1     0     0       ADDITIVES     method     limit/base     current     history1     history       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     6     0       Molybdenum     ppm     ASTM D5185m     0     0     2     0       Manganese     ppm     ASTM D5185m     0     0     2     0       Calcium     ppm     ASTM D5185m     0     0     2     0       Calcium     ppm     ASTM D5185m     0     0     2     2       Calcium     ppm     ASTM D5185m     0     0     0     2       Zinc     ppm     ASTM D5185m     0     0     0     2       Silicon     ppm     ASTM D5185m     >45     <1     0     <1       Sodium     ppm     ASTM D5185m     >20     <1     <1     <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron     ppm     ASTM D5185m     0     0     0       Barium     ppm     ASTM D5185m     -1     <1	Cadmium		ASTM D5185m		<1	0	0
Barium     ppm     ASTM D5185m     0     6     0       Molybdenum     ppm     ASTM D5185m     <1	ADDITIVES		method	limit/base	current	history1	history
Molybdenum     ppm     ASTM D5185m     <1     <1     0       Manganese     ppm     ASTM D5185m     0     0     <1	Boron	ppm	ASTM D5185m		0	0	0
Manganese     ppm     ASTM D5185m     0     0     <1       Magnesium     ppm     ASTM D5185m     0     0     2       Calcium     ppm     ASTM D5185m     0     <1	Barium	ppm	ASTM D5185m		0	6	0
Manganese     ppm     ASTM D5185m     0     0     <1       Magnesium     ppm     ASTM D5185m     0     0     2       Calcium     ppm     ASTM D5185m     0     <1	Molybdenum	ppm	ASTM D5185m		<1	<1	0
Magnesium     ppm     ASTM D5185m     0     0     2       Calcium     ppm     ASTM D5185m     0     <1	-				0	0	<1
Calcium     ppm     ASTM D5185m     0     <1     0       Phosphorus     ppm     ASTM D5185m     1032     990     1022       Zinc     ppm     ASTM D5185m     0     0     0       Sulfur     ppm     ASTM D5185m     0     0     23       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >45     <1	Magnesium		ASTM D5185m		0	0	2
Phosphorus     ppm     ASTM D5185m     1032     990     1022       Zinc     ppm     ASTM D5185m     0     0     0     23       Sulfur     ppm     ASTM D5185m     0     0     23       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >45     <1     0     <1       Sodium     ppm     ASTM D5185m     >45     <1     0     <1       Potassium     ppm     ASTM D5185m     >20     <1     <1     <1       Water     %     ASTM D6304     >0.6     0.0004     0.002     0.001       pm     ASTM D6304     >0.6     0.0044     0.002     0.001       pm     ASTM D7647     >10000     57     251     37       Particles >4µm     ASTM D7647     >200     14     70     16       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >21µm	-	ppm	ASTM D5185m		0	<1	0
Zinc     ppm     ASTM D5185m     0     0     0       Sulfur     ppm     ASTM D5185m     0     0     23       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >45     <1	Phosphorus		ASTM D5185m		1032	990	1022
Sulfur     ppm     ASTM D5185m     0     0     23       CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >45     <1			ASTM D5185m		0	0	0
CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >45     <1	Sulfur		ASTM D5185m		0		23
Silicon   ppm   ASTM D5185m   >45   <1   0   <1     Sodium   ppm   ASTM D5185m   0   0   <1   <1     Potassium   ppm   ASTM D5185m   >20   <1   <1   <1   <1     Vater   %   ASTM D6304   >0.6   0.004   0.002   0.001     ppm Water   ppm   ASTM D6304   >0.6   0.004   0.002   0.001     ppm Water   ppm   ASTM D6304   <0.6   0.004   0.002   0.001     Particles >4µm   ASTM D7647   >10000   57   251   37     Particles >6µm   ASTM D7647   >2500   14   70   16     Particles >14µm   ASTM D7647   >320   3   9   2     Particles >21µm   ASTM D7647   >80   0   3   1     Particles >38µm   ASTM D7647   >20   0   0   0     Oil Cleanliness   ISO 4406 (c)   >20/18/15   13/11/9   15/13/10   12/11/9     FLUID DEGRADATION   method   limit/base   current <td>CONTAMINANTS</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history</td>	CONTAMINANTS		method	limit/base	current	history1	history
Sodium     ppm     ASTM D5185m     0     0     <1       Potassium     ppm     ASTM D5185m     >20     <1					-1		
Potassium     ppm     ASTM D5185m     >20     <1     <1     <1       Water     %     ASTM D6304     >0.6     0.004     0.002     0.001       ppm     ASTM D6304     >0.6     0.004     0.002     0.001       ppm Water     ppm     ASTM D6304     41     23.4     10.3       FLUID CLEANLINESS     method     limit/base     current     history1     history       Particles >4µm     ASTM D7647     >10000     57     251     37       Particles >6µm     ASTM D7647     >2500     14     70     16       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >21µm     ASTM D7647     >80     0     3     1       Particles >38µm     ASTM D7647     >20     0     0     1       Particles >71µm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION				240			
Water     %     ASTM D6304     >0.6     0.004     0.002     0.001       ppm Water     ppm     ASTM D6304     41     23.4     10.3       FLUID CLEANLINESS     method     limit/base     current     history1     history       Particles >4µm     ASTM D7647     >10000     57     251     37       Particles >6µm     ASTM D7647     >2500     14     70     16       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >21µm     ASTM D7647     >80     0     3     1       Particles >38µm     ASTM D7647     >20     0     0     1       Particles >71µm     ASTM D7647     >4     0     0     0     0       Ol Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1				>20	-		
ppm Water     ppm     ASTM D6304     41     23.4     10.3       FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     >10000     57     251     37       Particles >6µm     ASTM D7647     >2500     14     70     16       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >21µm     ASTM D7647     >80     0     3     1       Particles >38µm     ASTM D7647     >20     0     0     1       Particles >71µm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1							
FLUID CLEANLINESS     method     limit/base     current     history1     history1       Particles >4µm     ASTM D7647     >10000     57     251     37       Particles >6µm     ASTM D7647     >2500     14     70     16       Particles >6µm     ASTM D7647     >320     3     9     2       Particles >14µm     ASTM D7647     >320     3     9     2       Particles >21µm     ASTM D7647     >80     0     3     1       Particles >38µm     ASTM D7647     >20     0     0     1       Particles >71µm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1				>0.0			
Particles >6μm     ASTM D7647     >2500     14     70     16       Particles >14μm     ASTM D7647     >320     3     9     2       Particles >21μm     ASTM D7647     >80     0     3     1       Particles >21μm     ASTM D7647     >80     0     3     1       Particles >38μm     ASTM D7647     >20     0     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1			method	limit/base	current	history1	history
Particles >6μm     ASTM D7647     >2500     14     70     16       Particles >14μm     ASTM D7647     >320     3     9     2       Particles >21μm     ASTM D7647     >80     0     3     1       Particles >21μm     ASTM D7647     >80     0     3     1       Particles >38μm     ASTM D7647     >20     0     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history	Particles >4µm		ASTM D7647	>10000	57	251	37
Particles >14μm     ASTM D7647     >320     3     9     2       Particles >21μm     ASTM D7647     >80     0     3     1       Particles >21μm     ASTM D7647     >20     0     0     1       Particles >38μm     ASTM D7647     >20     0     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history	Particles >6µm		ASTM D7647	>2500	14		16
Particles >21μm     ASTM D7647     >80     0     3     1       Particles >38μm     ASTM D7647     >20     0     0     1       Particles >38μm     ASTM D7647     >20     0     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1					3		
Particles >38μm     ASTM D7647     >20     0     1       Particles >37μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1	•						
Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     13/11/9     15/13/10     12/11/9       FLUID DEGRADATION     method     limit/base     current     history1     history1							
Oil CleanlinessISO 4406 (c) >20/18/1513/11/915/13/1012/11/9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1							
Acid Number (AN) mg KOH/g ASTM D8045 0.097 0.22 0.081	FLUID DEGRADA		method	limit/base	current	history1	history
	Acid Number (AN)	mg KOH/g	ASTM D8045		0.097	0.22	0.081

## Machine Id Component **Rotary Compressor**

**INGERSOLL-RAND TURBOBLEND 46 (--- GAL)** 

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

#### Fluid Condition

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

Contact/Location: JOE BARRETT - UGIMESWC



Water (KF)

1200

20

52 50

48

ري بخ 44

47

38 Vov23/20

r of particles (1 ml)

8

4k

21

Ab 40

# **OIL ANALYSIS REPORT**

scalar

scalar

scalar

scalar

scalar

scalar

White Metal

Yellow Metal

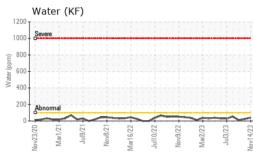
Precipitate

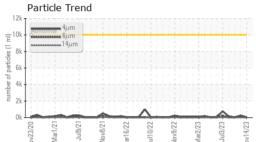
Silt

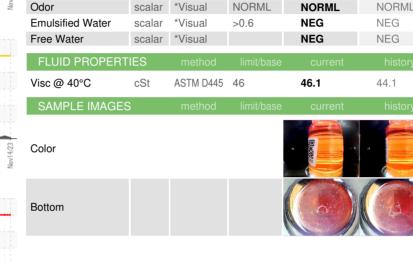
Debris

Sand/Dirt

Appearance







\*Visual

\*Visual

\*Visual

\*Visual

\*Visual

\*Visua

scalar \*Visual

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

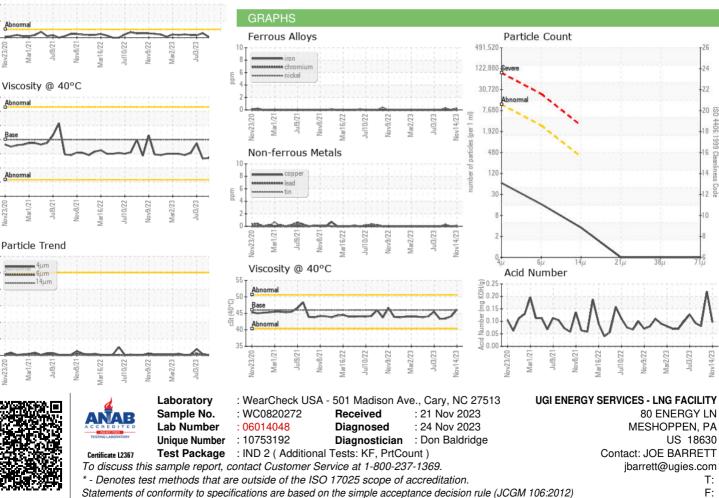
NEG

NEG

43.4

1406

6661



Contact/Location: JOE BARRETT - UGIMESWC