

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Area **8** WTG-805 Component **Hydraulic System** SHELL TELLUS 32 (300 LTR)

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

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

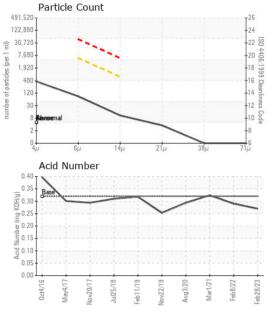
### Fluid Condition

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

Machine Age         mths         Client Info         0         81         0           Oil Age         inths         Client Info         Not Changd         Not Changd         Not Changd           Sample Status         Imit/So         Client Info         Not Changd         Nor Changd         Nor Changd           WEAR METALS         method         Imit/base         current         history1         history2           PQ         ASTM D5185m         >20         4         2         3           Chromium         ppm         ASTM D5185m         >20         9         9         4           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         >20         0         0         1           Copper         ppm         ASTM D5185m         >20         0         0         1           Copper         ppm         ASTM D5185m         >20         0         0         0           Attimony         ppm         ASTM D5185m         0         0         0         0           Attimony         ppm         ASTM D5185m         0         0         0         0 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Sample Number         Client Info         WC0804502         WC0850451         WC0847261           Sample Date         Client Info         28 Feb 2023         08 Feb 2022         01 Mar 2021           Machine Age         mths         Client Info         0         81         0           Oil Age         mths         Client Info         0         5         0           Oil Changed         Client Info         0         Not Changd         Not Changd         Not Changd           Sample Status         method         Imit/base         current         history1         History2           PQ         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         0         0         0           Silver         ppm         ASTM 05165n<>20         <1         0         0           Aluminum         ppm         ASTM 05165n<>20         <1         0         0           Capper         ppm         ASTM 05165n         >20         0         0         0           Capper         ppm         ASTM 05165n         >20         <1         <							
Sample Number         Client Info         WC0804502         WC0850451         WC0847261           Sample Date         Client Info         28 Feb 2023         08 Feb 2022         01 Mar 2021           Machine Age         mths         Client Info         0         81         0           Oil Age         mths         Client Info         0         5         0           Oil Changed         Client Info         0         Not Changd         Not Changd         Not Changd           Sample Status         method         Imit/base         current         history1         History2           PQ         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         0         0         0           Silver         ppm         ASTM 05165n<>20         <1         0         0           Aluminum         ppm         ASTM 05165n<>20         <1         0         0           Capper         ppm         ASTM 05165n         >20         0         0         0           Capper         ppm         ASTM 05165n         >20         <1         <							
Sample Number         Client Info         WC0804502         WC0850451         WC0847261           Sample Date         Client Info         28 Feb 2023         08 Feb 2022         01 Mar 2021           Machine Age         mths         Client Info         0         81         0           Oil Age         mths         Client Info         0         5         0           Oil Changed         Client Info         0         Not Changd         Not Changd         Not Changd           Sample Status         method         Imit/base         current         history1         History2           PQ         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         9         9         4           Nickel         ppm         ASTM 05165n<>20         0         0         0           Silver         ppm         ASTM 05165n<>20         <1         0         0           Aluminum         ppm         ASTM 05165n<>20         <1         0         0           Capper         ppm         ASTM 05165n         >20         0         0         0           Capper         ppm         ASTM 05165n         >20         <1         <			Oct2016 May2	017 Nov2017 Jul2018 Feb2	019 Nov2019 Aug2020 Mar2021 Feb2	022 Feb2023	
Sample Date         Client Info         28 Feb 2023         08 Feb 2022         01 Mar 2021           Machine Age         mths         Client Info         0         81         0           Oil Age         mths         Client Info         0         5         0           Oil Changed         Client Info         Not Changd         Not Changd         Not Changd         Not Changd           Sample Status         method         limit/base         current         history1         history2           PQ         ASTM 05165m         >20         9         9         4           Kromium         ppm         ASTM 05165m         >20         9         9         4           Nickel         ppm         ASTM 05165m         >20         0         0         0           Aluminum         ppm         ASTM 05165m         >20         0         0         1         0           Atimony         ppm         ASTM 05165m         >20         <1         0         0         1           Capper         ppm         ASTM 05165m         >20         0         0         1         0           Capper         ppm         ASTM 05165m         >20         0         0 <th>SAMPLE INFORM</th> <th>ATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Date         Client Info         28 Feb 2023         08 Feb 2022         01 Mar 2021           Machine Age         mths         Client Info         0         81         0           Oil Age         mths         Client Info         0         5         0           Oil Changed         Client Info         Not Changd         Not Changd         Not Changd         SEVERE           WEAR METALS         method         Imit/base         current         history1         History2           PQ         ASTM 05165m         >20         9         9         4           Nickel         ppm         ASTM 05165m         >20         9         9         4           Nickel         ppm         ASTM 05165m         >20         0         0         0           Aluminum         ppm         ASTM 05165m         >20         <1	Sample Number		Client Info		WC0804502	WC05504451	WC0547261
Oil Age         mths         Client Info         Not Changd         Not Chand         Not Changd         Not Chand	Sample Date		Client Info		28 Feb 2023	08 Feb 2022	01 Mar 2021
Oil Changed Sample Status         Cilient Info         Not Changd NORMAL         Not Changd NORMAL         Not Changd NORMAL         Not Changd SEVERE           WEAR METALS         method         Imit/base         current         history1         history2           PQ         ASTM D5186         >20         4         2         3           Chromium         ppm         ASTM D5185         >20         9         9         4           Nockel         ppm         ASTM D5185         >20         0         0         0           Aluminum         ppm         ASTM D5185         >20         0         0         0           Aduminum         ppm         ASTM D5185         >20         1         0         0           Lead         ppm         ASTM D5185         >20         1         2         4           Tin         ppm         ASTM D5185         >20         0         0         0           Addition         ppm         ASTM D5185         >20         0         0         0           Addition         ppm         ASTM D5185         0         0         0         0           Addition         ppm         ASTM D51855         0         0	Machine Age	mths	Client Info		0	81	0
Sample Status         rethod         Imit/base         current         NoRMAL         SEVERE           WEAR METALS         method         imit/base         current         history1         history2           PQ         ASTM DB184         15         16            Iron         ppm         ASTM DB185         >20         9         9         4           NoRMAL         ppm         ASTM DB185         >20         0         0         0           Nickel         ppm         ASTM DB185         >20         0         0         0           Silver         ppm         ASTM DB185         >20         <1	Oil Age	mths	Client Info		0	5	0
WEAR METALS         method         limit/base         current         history1         history2           PQ         ASTM D8184         15         16          3           Chromium         ppm         ASTM D5185m         >20         9         9         4           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >20         0         0         0           Aluminum         ppm         ASTM D5185m         >20         0         0         -1         0           Aluminum         ppm         ASTM D5185m         >20         0         0         <1	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
PQ         ASTM D8184         15         16            tron         ppm         ASTM D8185m         >20         4         2         3           Chromium         ppm         ASTM D5185m         >20         9         9         4           Nickel         ppm         ASTM D5185m         >20         0         0         0           Titanium         ppm         ASTM D5185m         >20         0         0         0           Aluminum         ppm         ASTM D5185m         >20         <1	Sample Status				NORMAL	NORMAL	SEVERE
ron         ppm         ASTM D5165m         >20         4         2         3           Chromium         ppm         ASTM D5185m         >20         9         9         4           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Dromium         ppm         ASTM D5185m         >20         9         9         4           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >20         <1	PQ		ASTM D8184		15	16	
Nickel         ppm         ASTM D5185m         >20         0         0         0           Titanium         ppm         ASTM D5185m         0         -<1	Iron	ppm	ASTM D5185m	>20	4	2	3
FitaniumppmASTM D5185m000SilverppmASTM D5185m20<1	Chromium	ppm	ASTM D5185m	>20	9	9	4
Silver         ppm         ASTM D5185m         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         <1	Nickel	ppm	ASTM D5185m	>20	0	0	0
Aluminum         ppm         ASTM D5185m         >20         <1         0         0           Lead         ppm         ASTM D5185m         >20         0         0         <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead         ppm         ASTM D5185m         >20         0         0         <1           Copper         ppm         ASTM D5185m         >20         <1	Silver	ppm	ASTM D5185m		0	<1	0
Copper         ppm         ASTM D5185m         >20         <1         2         4           Tin         ppm         ASTM D5185m         >20         0         0         <1	Aluminum	ppm	ASTM D5185m	>20	<1	0	0
Tin         ppm         ASTM D5185m         >20         0         0         <1           Antimony         ppm         ASTM D5185m          0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Maganese         ppm         ASTM D5185m         <1	Lead	ppm	ASTM D5185m	>20	0	0	<1
Antimony         ppm         ASTM D5185m           0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         <1	Copper	ppm	ASTM D5185m	>20	<1	2	4
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Magnaese         ppm         ASTM D5185m         <1	Tin	ppm	ASTM D5185m	>20	0	0	<1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         11         38         25         6           Calcium         ppm         ASTM D5185m         11         38         25         6           Calcium         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         >15         0         0         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1         0         0 <td>Antimony</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th></th> <td></td> <td>0</td>	Antimony	ppm	ASTM D5185m				0
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         <1	Vanadium	ppm	ASTM D5185m		0	0	
Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         <1         0         0           Manganese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         11         38         25         6           Calcium         ppm         ASTM D5185m         35         15         21         21           Phosphorus         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1           Sodium         ppm         ASTM D5185m         >20         <1         0         0           Potassium         ppm         ASTM D6304         >0.05         0.0099         0.008	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         <1         0         0           Manganese         ppm         ASTM D5185m         <1	Boron	ppm	ASTM D5185m		0	0	0
Maganese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         11         38         25         6           Calcium         ppm         ASTM D5185m         35         15         21         21           Phosphorus         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1	Barium	ppm	ASTM D5185m		0	0	0
Magnesium         ppm         ASTM D5185m         11         38         25         6           Calcium         ppm         ASTM D5185m         35         15         21         21           Phosphorus         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1	Molybdenum	ppm	ASTM D5185m		<1	0	0
Calcium         ppm         ASTM D5185m         35         15         21         21           Phosphorus         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1	-	ppm	ASTM D5185m		<1	0	
Phosphorus         ppm         ASTM D5185m         259         290         294         275           Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1	0	ppm					
Zinc         ppm         ASTM D5185m         277         316         303         250           Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1		ppm			-		
Sulfur         ppm         ASTM D5185m         1865         2032         1960         4524           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1           Sodium         ppm         ASTM D5185m         >15         0         0         <1           Sodium         ppm         ASTM D5185m         >20         <1         0         0           Potassium         ppm         ASTM D5185m         >20         <1         0         <1           Water         %         ASTM D6304         >0.05         0.009         0.008         0.010           oppm Water         ppm         ASTM D6304         >500         91.7         88.8         105.0           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         5000         74         940         821           Particles >14µm         ASTM D7647         >640         9         113         87           Particles >38µm         ASTM D7647         >40         0							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         0         0         <1							
Silicon         ppm         ASTM D5185m         >15         0         0         <1           Sodium         ppm         ASTM D5185m         >1         0         0         0           Potassium         ppm         ASTM D5185m         >20         <1		ppm	ASTM D5185m	1865	2032	1960	4524
Sodium         ppm         ASTM D5185m         1         0         0           Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         0         <1           Water         %         ASTM D6304         >0.05         0.009         0.008         0.010           opm Water         ppm         ASTM D6304         >500         91.7         88.8         105.0           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         55000         74         940         821           Particles >6µm         ASTM D7647         >640         9         113         87           Particles >14µm         ASTM D7647         >160         3         33         27           Particles >21µm         ASTM D7647         >40         0         4         0           Particles >38µm         ASTM D7647         >10         0         0         0 <td>Silicon</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;15</td> <th>0</th> <td>0</td> <td>&lt;1</td>	Silicon	ppm	ASTM D5185m	>15	0	0	<1
Water         %         ASTM D6304         >0.05         0.009         0.008         0.010           opm Water         ppm         ASTM D6304         >500         91.7         88.8         105.0           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         383         10745         3366           Particles >6µm         ASTM D7647         >5000         74         940         821           Particles >14µm         ASTM D7647         >640         9         113         87           Particles >21µm         ASTM D7647         >160         3         33         27           Particles >38µm         ASTM D7647         >10         0         0         0		ppm			1	0	0
oppm Water         ppm         ASTM D6304         >500         91.7         88.8         105.0           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         383         10745         3366           Particles >6µm         ASTM D7647         >5000         74         940         821           Particles >14µm         ASTM D7647         >640         9         113         87           Particles >14µm         ASTM D7647         >160         3         33         27           Particles >21µm         ASTM D7647         >40         0         4         0           Particles >38µm         ASTM D7647         >10         0         0         0							
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         383         10745         3366           Particles >6μm         ASTM D7647         >5000         74         940         821           Particles >14μm         ASTM D7647         >640         9         113         87           Particles >14μm         ASTM D7647         >160         3         33         27           Particles >21μm         ASTM D7647         >40         0         4         0           Particles >38μm         ASTM D7647         >10         0         0         0		%					
Particles >4μm         ASTM D7647         383         10745         3366           Particles >6μm         ASTM D7647         >5000         74         940         821           Particles >14μm         ASTM D7647         >640         9         113         87           Particles >14μm         ASTM D7647         >160         3         33         27           Particles >21μm         ASTM D7647         >40         0         4         0           Particles >38μm         ASTM D7647         >10         0         0         0	ppm Water	ppm	ASTM D6304	>500	91.7	88.8	105.0
Particles >6μm         ASTM D7647         >5000         74         940         821           Particles >14μm         ASTM D7647         >640         9         113         87           Particles >14μm         ASTM D7647         >160         3         33         27           Particles >21μm         ASTM D7647         >40         0         4         0           Particles >38μm         ASTM D7647         >10         0         0         0	FLUID CLEANLINE	ESS	method	limit/base	current	history1	history2
Particles >14μm         ASTM D7647         >640         9         113         87           Particles >21μm         ASTM D7647         >160         3         33         27           Particles >38μm         ASTM D7647         >40         0         4         0           Particles >71μm         ASTM D7647         >10         0         0         0	Particles >4µm		ASTM D7647		383		3366
Particles >21μm         ASTM D7647         >160         3         33         27           Particles >38μm         ASTM D7647         >40         0         4         0           Particles >71μm         ASTM D7647         >10         0         0         0	Particles >6µm		ASTM D7647	>5000	74		821
Particles >38μm         ASTM D7647         >40         0         4         0           Particles >71μm         ASTM D7647         >10         0         0         0	Particles >14µm		ASTM D7647	>640	9	113	87
Particles >71μm         ASTM D7647         >10         0         0         0			ASTM D7647	>160		33	
	•						
Oil Cleanliness         ISO 4406 (c)         >/19/16         16/13/10         21/17/14         19/17/14							
	Oil Cleanliness		ISO 4406 (c)	>/19/16	16/13/10	21/17/14	19/17/14



# **OIL ANALYSIS REPORT**



6000 5000	Water	r (K	F)					1			Color
(mq ater 3000 - 2000 -											Bottom
1000	Abnorma Mandal 17		Nov20/17	Jul25/18	Feb11/19	Nov22/19	Aug3/20	Mar1/21	Feb 8/22	Feb28/23	MPC
38 36 () 34 () 9 () 9 () 9 () 9 () 9 () 9 () 9 () 9	Abnoma Abnoma Abnoma		@ 4	0°C	Feb11/19 -	Nov22/19 +	Aug3/20 -	Mar//21	Feb 8/22	Feb28/23	
250 - 200 - 150 - 2 100 -	PQ Severe Abnorma	4									

FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	Acid Number (AN) mg KOH/g		0.32	0.27	0.29	0.324
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	LIGHT	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32.32	32.0	34.6	30.7
SAMPLE IMAGES		method	limit/base	current	history1	history2



Feb28/23 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Laboratory Sample No. : WC0804502 Received : 05857950 Lab Number Unique Number : 10492415 Test Package : IND 2 (Additional Tests: KF, PQ) Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Diagnosed : 30 May 2023 Diagnostician : Don Baldridge

: 26 May 2023

\* - 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)

**ENERGIA EOLICA** STA ANA KM25 CARRETERA AL SUR, A 1KM DEL CRUCE FRANCISCO MORAZAN, ZZ ΗN Contact: SANTOS DEL CID sdelcid@dencmi.com T: x: F: x:

0 eb8/22

Contact/Location: SANTOS DEL CID - ENEFRA