7030 Ryburn Dr. Millington, TN Phone: (901) 873-5300 Fax: (901) 873-5301 www.gohispeed.com

September 24, 2024

Terry Glover
USG
Greenville, MS

Terry,

The following is a summary report from the September 2024 quarterly oil analysis on the Wet Zone and Dry Zone Circ Fan Bearings. Please let us know if there are any questions or comments. As always, it has been a pleasure to serve USG-Greenville, MS. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

Senior Reliability Specialist
ISO/ANSI Certified Vibration Analyst, Category III

Cell: 901-486-4565
Email: kwilliam@gohispeed.com

Wet Zone Circ Fan Drive Bearing

Note copper, lead, tin, and silicon. The oil has an ISO 46 viscosity, and it isn't contaminated with water or overly oxidized based on the insolubles. We'll look for metals and silicon to decrease or stabilize next time. **OIL IS OK FOR USE**

			UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Oil								
	MI/HR on Unit								
	Sample Date	9/14/2024							
	Make Up Oil Added								
ELEMENTS IN PARTS PER MILLION	ALUMINUM	2	1						4
	CHROMIUM	0	0						0
	IRON	26	13						19
	COPPER	**18**	22						7
	LEAD	**226**	160						3
	TIN	**76**	33						1
	MOLYBDENUM	0	0						3
	NICKEL	0	0						0
	MANGANESE	0	0						0
	SILVER	0	0						0
	TITANIUM	0	0						1
	POTASSIUM	1	1						1
	BORON	1	1						4
	SILICON	**18**	10						5
	SODIUM	3	3						6
	CALCIUM	115	100						145
	MAGNESIUM	1	1						23
	PHOSPHORUS	366	342						345
	ZINC	562	456						178
	BARIUM	0	0						1

			Values Should Be*					
PROPERTIES	SUS Viscosity @ 210°F	49.4						
	cSt Viscosity @ 100°C	7.10						
	Flashpoint in °F	425						
	Fuel %	-						
	Antifreeze %	-						
	Water %	0.0	0.0					
	Insolubles %	0.3	<0.6					
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

Wet Zone Circ Fan Idle Bearing

Suggest an oil change for this unit if it hasn't been done. Metals, iron in particular, seem high. Some of that could be from break-in combined with accumulation, but excess wear could be taking place. Silicon is likely from a harmless source, though it can be dirt in some cases. No measurable water is present. Insolubles indicate low oil oxidation at 0.2%. The viscosity is in the ISO 46 range. **CHANGE OIL SOON**

ELEMENTS IN PARTS PER MILLION									
	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	9/14/2024							
	Make Up Oil Added								
	ALUMINUM	1	1						4
	CHROMIUM	0	0						0
	IRON	**1009**	13						19
	COPPER	**15**	22						7
	LEAD	**108**	160						3
	TIN	**28**	33						1
	MOLYBDENUM	0	0						3
	NICKEL	0	0						0
	MANGANESE	6	0						0
	SILVER	0	0						0
	TITANIUM	1	0						1
	POTASSIUM	3	1						1
	BORON	3	1						4
	SILICON	**38**	10						5
	SODIUM	5	3						6
	CALCIUM	132	100						145
	MAGNESIUM	2	1						23
	PHOSPHORUS	383	342						345
	ZINC	587	456						178
	BARIUM	0	0						1

PROPERTIES			Values Should Be*					
	SUS Viscosity @ 210°F	51.4						
	cSt Viscosity @ 100°C	7.70						
	Flashpoint in °F	425						
	Fuel %	-						
	Antifreeze %	-						
	Water %	0.0	0.0					
	Insolubles %	0.2	<0.6					
	TBN							
	TAN							
	ISO Code							

Dry Zone Circ Fan Drive Bearing

Copper, lead, and tin could be elevated at these levels. No water contamination or excess oil oxidation is evident. The viscosity is in the ISO 46 range. We'll learn more with trends; however, an oil change would help reset metal counts. **CHANGE OIL SOON**

ELEMENTS IN PARTS PER MILLION									
	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	9/14/2024							
	Make Up Oil Added								
	ALUMINUM	0	1						4
	CHROMIUM	0	0						0
	IRON	9	13						19
	COPPER	**14**	22						7
	LEAD	**128**	160						3
	TIN	**9**	33						1
	MOLYBDENUM	0	0						3
	NICKEL	0	0						0
	MANGANESE	0	0						0
	SILVER	0	0						0
	TITANIUM	0	0						1
	POTASSIUM	2	1						1
	BORON	1	1						4
	SILICON	8	10						5
	SODIUM	3	3						6
	CALCIUM	90	100						145
	MAGNESIUM	2	1						23
	PHOSPHORUS	306	342						345
	ZINC	403	456						178
	BARIUM	0	0						1

PROPERTIES			Values Should Be*					
	SUS Viscosity @ 210°F	48.1						
	cSt Viscosity @ 100°C	6.68						
	Flashpoint in °F	360						
	Fuel %	-						
	Antifreeze %	-						
	Water %	0.0	0.0					
	Insolubles %	TR	<0.6					
	TBN							
	TAN							
	ISO Code							

Dry Zone Circ Fan Idle Bearing

Note the levels of copper, lead, and tin. No measurable water is present, and insolubles indicate minimal oil oxidation at just a trace. The viscosity is in the ISO 46 range. An oil change can help reset metals. **CHANGE OIL SOON**

	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	9/14/2024							
	Make Up Oil Added								
ELEMENTS IN PARTS PER MILLION	ALUMINUM	0	1						4
	CHROMIUM	0	0						0
	IRON	5	13						19
	COPPER	**33**	22						7
	LEAD	**126**	160						3
	TIN	**13**	33						1
	MOLYBDENUM	0	0						3
	NICKEL	0	0						0
	MANGANESE	0	0						0
	SILVER	0	0						0
	TITANIUM	0	0						1
	POTASSIUM	0	1						1
	BORON	1	1						4
	SILICON	3	10						5
	SODIUM	3	3						6
	CALCIUM	96	100						145
	MAGNESIUM	1	1						23
	PHOSPHORUS	354	342						345
	ZINC	404	456						178
	BARIUM	0	0						1
			Values Should Be*						
PROPERTIES	SUS Viscosity @ 210°F	46.6							
	cSt Viscosity @ 100°C	6.23							
	Flashpoint in °F	430							
	Fuel %	-							
	Antifreeze %	-							
	Water %	0.0	0.0						
	Insolubles %	TR	<0.6						
	TBN								
	TAN								
	ISO Code								