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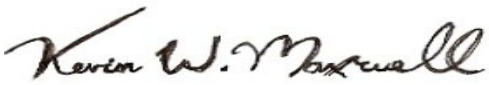
December 17, 2024

Terry Glover
USG
Greenville, MS

Terry,

The following is a summary report from the November 2024 4th quarter oil analysis at your facility. 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,



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Komatsu Press Clutch and Brake

This sample looks a bit better than the last in terms of steel wear (iron). Insolubles are at limits, though, so we recommend changing this oil to help clear out some of the solids. That should help bring iron down a bit, too. Check back next service for an update. Everything else looks good. **CHANGE OIL SOON**

			UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Oil								
	MI/HR on Unit								
	Sample Date	11/20/2024		8/1/2024	9/11/2023	5/6/2023	8/8/2022	3/11/2022	
	Make Up Oil Added								
ELEMENTS IN PARTS PER MILLION	ALUMINUM	1	0	1	2	1	0	0	1
	CHROMIUM	0	0	0	0	1	1	0	0
	IRON	**170**	52	**201**	**111**	**136**	**249**	**234**	71
	COPPER	3	3	3	5	11	3	7	22
	LEAD	0	0	0	0	0	1	0	1
	TIN	0	0	0	0	2	0	0	2
	MOLYBDENUM	0	0	0	0	0	0	0	0
	NICKEL	0	0	0	0	0	0	0	0
	MANGANESE	1	0	2	1	1	2	2	0
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	1	1	0	0	0	0	0
	BORON	0	1	1	1	4	0	1	1
	SILICON	3	1	3	**15**	**15**	2	2	4
	SODIUM	1	2	1	2	3	2	2	2
	CALCIUM	87	107	86	85	108	115	115	109
	MAGNESIUM	0	0	0	0	0	0	0	2
	PHOSPHORUS	110	431	99	126	363	468	457	422
	ZINC	4	5	6	9	15	4	4	246
	BARIUM	0	0	0	0	0	0	0	0

			Values Should Be*					
PROPERTIES	SUS Viscosity @ 210°F	40.6		41.4	42.9	39.8	39.8	39.2
	cSt Viscosity @ 100°C	4.34		4.60	5.06	4.09	4.12	3.91
	Flashpoint in °F	335		355	345	380	350	400
	Fuel %	-		-	-	-	-	-
	Antifreeze %	-		-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	**0.1**	<0.1	TR	**0.5**	TR	**0.1**	**0.1**
	TBN							
	TAN							0.2
	ISO Code							23/20/17

#3 Board Line Drive Gearbox

Iron looks a lot better this time, and the other wear metals are low, if they showed up at all. No water was present in this sample, and insolubles tested at 0.1%, so the oil hadn't become too oxidized while it was in use. **OIL IS OK FOR USE**

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	11/20/2024		8/1/2024	9/11/2023	5/6/2023	8/8/2022	3/11/2022	
	Make Up Oil Added								
	ALUMINUM	0	1	0	0	0	0	1	1
	CHROMIUM	0	1	3	1	**5**	3	2	0
	IRON	60	58	**484**	**189**	**738**	**452**	**296**	64
	COPPER	1	5	1	1	2	1	2	2
	LEAD	0	0	0	0	1	1	0	0
	TIN	0	0	0	0	0	0	0	0
	MOLYBDENUM	0	0	1	1	3	1	1	21
	NICKEL	0	0	2	1	**5**	3	2	0
	MANGANESE	1	1	5	3	7	5	3	1
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	1	1	0	0	0	0	1
	BORON	8	12	14	8	15	10	17	26
	SILICON	6	5	4	5	6	5	5	10
	SODIUM	1	8	3	4	10	8	8	5
	CALCIUM	1	7	3	7	5	5	6	12
	MAGNESIUM	0	1	1	1	0	0	1	1
	PHOSPHORUS	276	309	266	351	341	343	338	425
	ZINC	10	30	16	68	28	32	32	22
	BARIUM	0	0	0	0	0	0	0	0
			Values Should Be*						
PROPERTIES	SUS Viscosity @ 210°F	92.0		91.5	87.2	90.0	91.0	90.9	
	cSt Viscosity @ 100°C	18.45		18.33	17.31	17.98	18.21	18.19	
	Flashpoint in °F	475		455	450	460	450	490	
	Fuel %	-		-	-	-	-	-	
	Antifreeze %	-		-	-	-	-	-	
	Water %	0.0	0.0	**0.2**	0.0	0.0	0.0	0.0	
	Insolubles %	0.1	<0.6	0.4	0.2	0.3	0.2	0.3	
	TBN								
	TAN							0.4	
	ISO Code							24/23/17	

Hydropulper Gearbox

This sample looks okay on the spectral level, with just a bit more copper than last time. This 6-ppm reading doesn't look unusual for this unit, or for your Falk units in general (see unit/location averages). There was water in this sample, though, which caused the oil to boil when heated. Change this oil to get rid of water and check for places where moisture could be entering the oilways. **CHANGE OIL SOON**

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	11/20/2024		8/1/2024	9/12/2023	5/6/2023	8/8/2022	3/11/2022	
	Make Up Oil Added								
	ALUMINUM	1	1	1	0	0	1	1	1
	CHROMIUM	1	1	3	1	2	1	1	0
	IRON	21	58	22	11	37	14	21	64
	COPPER	6	5	3	3	**8**	**5**	**6**	2
	LEAD	0	0	0	0	0	0	0	0
	TIN	0	0	0	0	0	0	0	0
	MOLYBDENUM	0	0	0	0	0	0	0	21
	NICKEL	0	0	0	0	0	0	0	0
	MANGANESE	0	1	0	0	1	0	0	1
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	1	1	0	1	0	1	1
	BORON	22	12	15	16	17	16	16	26
	SILICON	6	5	6	4	6	3	4	10
	SODIUM	3	8	2	6	5	1	2	5
	CALCIUM	2	7	6	7	7	3	5	12
	MAGNESIUM	1	1	1	1	2	1	2	1
	PHOSPHORUS	258	309	262	324	329	340	333	425
	ZINC	44	30	18	23	52	23	47	22
	BARIUM	1	0	0	0	0	0	0	0

PROPERTIES			Values Should Be*					
	SUS Viscosity @ 210°F	88.0		93.0	91.2	92.4	94.0	89.8
	cSt Viscosity @ 100°C	17.50		18.71	18.27	18.55	18.95	17.94
	Flashpoint in °F	**BOIL**		465	455	480	465	480
	Fuel %	-		-	-	-	-	-
	Antifreeze %	-		-	-	-	-	-
	Water %	**POS**	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	0.0	<0.6	TR	0.2	0.4	0.1	TR
	TBN							
	TAN							1.1
	ISO Code							24/22/18

Hi-Pressure Hydraulic Pump (Water Jet System)

This sample looks fine on the spectral level, but there was a small amount of visible debris present in the sample container. This may be from the are being very dirty while obtaining the oil sample. All else looks fine. **OIL IS OK FOR USE**

ELEMENTS IN PARTS PER MILLION									
	MI/HR on Oil		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Unit								
	Sample Date	11/20/2024		8/1/2024	9/12/2023	5/6/2023	8/8/2022	3/11/2022	
	Make Up Oil Added								
	ALUMINUM	0	0	0	0	0	0	0	0
	CHROMIUM	3	1	3	**5**	3	1	1	0
	IRON	1	2	1	1	1	1	2	3
	COPPER	3	4	2	3	3	5	4	5
	LEAD	0	1	0	0	0	0	0	1
	TIN	0	0	0	0	0	0	0	0
	MOLYBDENUM	0	0	0	2	2	4	5	1
	NICKEL	0	0	0	0	0	0	0	0
	MANGANESE	0	0	0	0	0	0	0	0
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	0
	POTASSIUM	0	0	2	0	0	0	0	1
	BORON	1	1	1	3	3	3	4	2
	SILICON	3	9	4	**70**	**104**	**49**	3	2
	SODIUM	3	2	4	3	3	3	2	3
	CALCIUM	12	41	21	43	60	72	69	82
	MAGNESIUM	55	14	61	48	40	51	65	6
	PHOSPHORUS	254	285	244	311	308	314	308	1912
	ZINC	270	306	295	312	319	342	349	411
	BARIUM	0	0	0	0	0	0	0	0

PROPERTIES			Values Should Be*					
	SUS Viscosity @ 210°F	49.2		47.1	47.3	48.6	49.8	47.5
	cSt Viscosity @ 100°C	7.03		6.39	6.43	6.84	7.20	6.50
	Flashpoint in °F	475		435	430	465	400	440
	Fuel %	-		-	-	-	-	-
	Antifreeze %	-		-	-	-	-	-
	Water %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Insolubles %	TR	<0.1	TR	0.0	0.0	**0.2**	0.0
	TBN							
	TAN							0.4
	ISO Code							21/19/16