AOM II

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINANTS	NORMAL
OIL CONDITION	ABNORMAL

Area
System 71 - Main Power Generation [01954098]
Machine Id
Z-7101A Generator Lube Oil Train A
Component
Lube System
Fluid
IRVING HYDRAULIC OIL LP 32 (1400 LTR)

RECOMMENDATION

We recommend an early resample to monitor this condition.

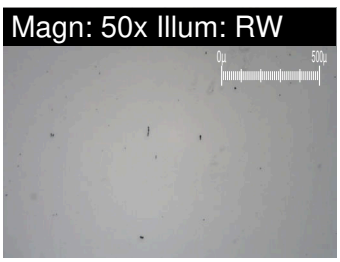
WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

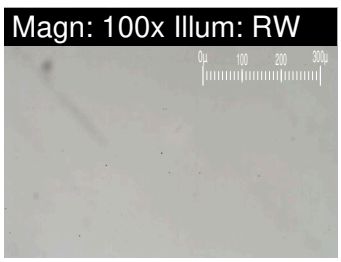
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PP	PP	PP
Sample Date		Client Info		13 Apr 2024	14 Dec 2023	31 Aug 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>20	0	0	0
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>10	0	0	0
Lead	ppm	ASTM D5185(m)	>20	0	0	0
Copper	ppm	ASTM D5185(m)	>20	0	<1	0
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Large Particles		DR-Ferr*		5.9	2.1	0.9
Small Particles		DR-Ferr*		4.3	1.7	0.6
Total Particles		DR-Ferr*	>---	10.2	3.8	1.5
Large Particles Percentage	%	DR-Ferr*		15.7	10.5	20
Severity Index		DR-Ferr*		9	1	0
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2	2	2
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	1	2
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*		1		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		1		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				

Magn: 200x Illum: BC

Magn: 50x Illum: RW



Magn: 100x Illum: RW



CONTAMINANTS

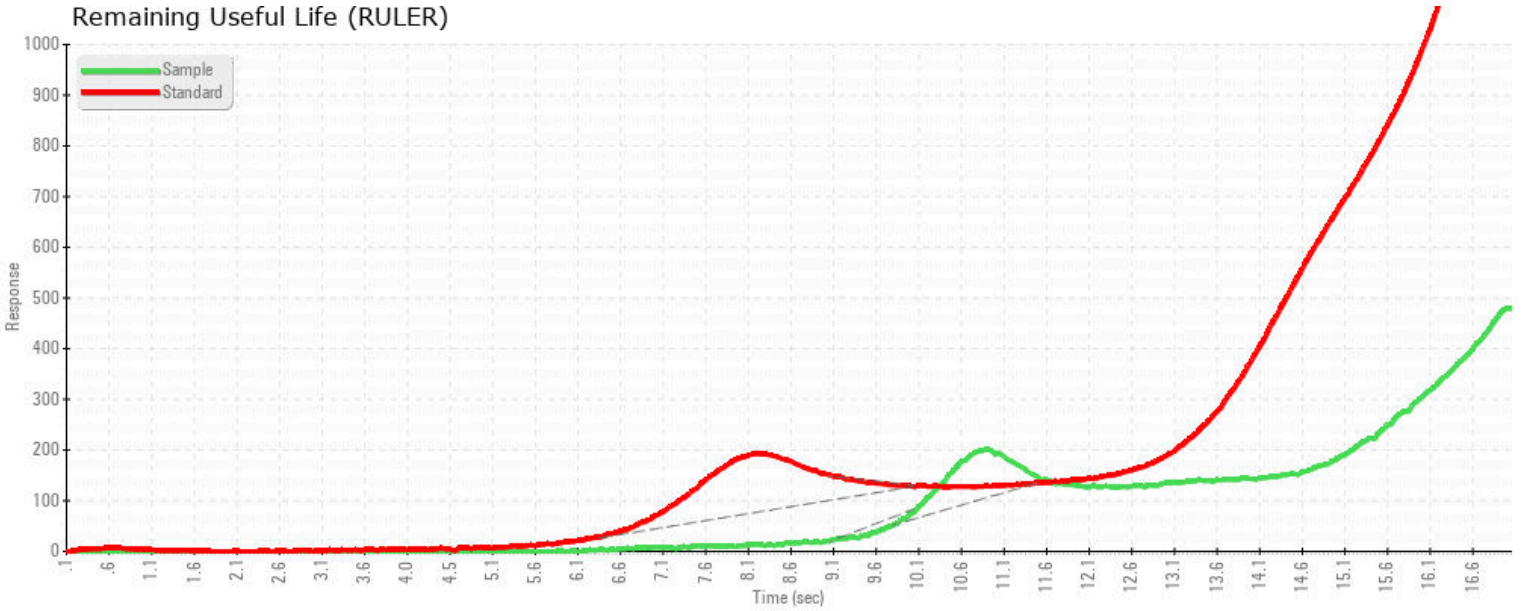
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185(m)	>15	**0**	0	0
Potassium	ppm	ASTM D5185(m)	>20	**<1**	0	<1
Water	%	ASTM D6304*	>0.05	**0.002**	0.004	0.004
ppm Water	ppm	ASTM D6304*	>500	**22**	42	49.3
Soot %	%	ASTM D7844*		**0**	0	0
Nitration	Abs/cm	ASTM D7624*		**1.9**	1.9	2.0
Sulfation	Abs/.1mm	ASTM D7415*		**23.4**	23.6	23.7
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	**5**	3	6
Particles >4µm		ASTM D7647	>5000	**187**	541	313
Particles >6µm		ASTM D7647	>1300	**48**	150	60
Particles >14µm		ASTM D7647	>160	**4**	8	5
Particles >21µm		ASTM D7647	>40	**1**	3	2
Particles >38µm		ASTM D7647	>10	**0**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**15/13/9**	16/14/10	15/13/10
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	NONE
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
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		**2**	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*			1	1

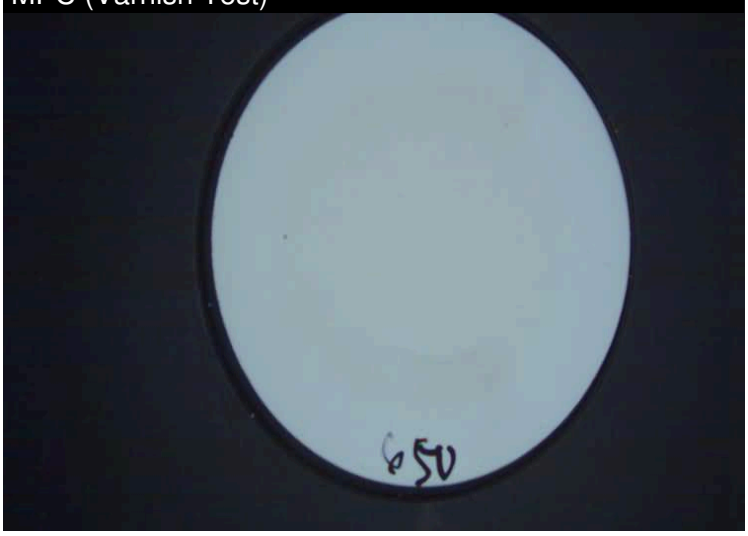
OIL CONDITION

Linear Sweep Voltammetry (RULER– ASTM D6971) testing indicates a low amount of one of the anti-oxidants present in the oil, however, the other anti-oxidant(s) are still performing adequately. The AN level is acceptable for this fluid.

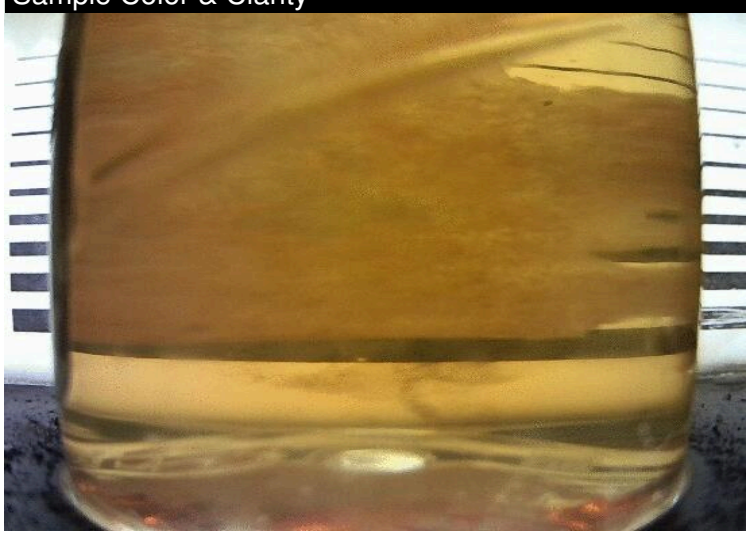
Sodium	ppm	ASTM D5185(m)		**0**	<1	<1
Boron	ppm	ASTM D5185(m)		**<1**	<1	0
Barium	ppm	ASTM D5185(m)		**0**	<1	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**61**	59	58
Phosphorus	ppm	ASTM D5185(m)		**333**	333	366
Zinc	ppm	ASTM D5185(m)	400	**426**	429	442
Sulfur	ppm	ASTM D5185(m)		**1078**	1064	1131
Oxidation	Abs/.1mm	ASTM D7414*		**14.4**	14.6	14.7
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.53**	0.57	0.52
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	**33.5**	33.4	33.2
Visc @ 100°C	cSt	ASTM D7279(m)	6.4	**6.6**	6.5	6.5
Viscosity Index (VI)	Scale	ASTM D2270*	151	**156**	152	153
Anti-Oxidant 1	%	ASTM D6971*	<25	**45**	45	51
Anti-Oxidant 2	%	ASTM D6971*	<25	▲ **18**	▲ 24	▲ 23
Lubricant Degradation	Scale 0-10	ASTM D7684*				



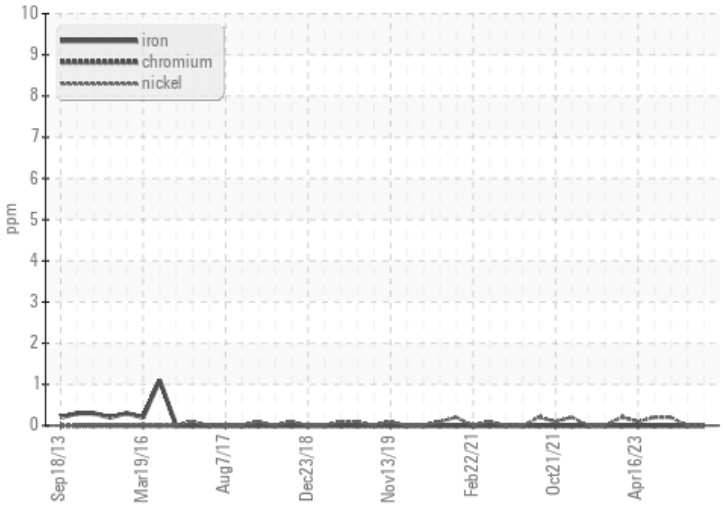
MPC (Varnish Test)



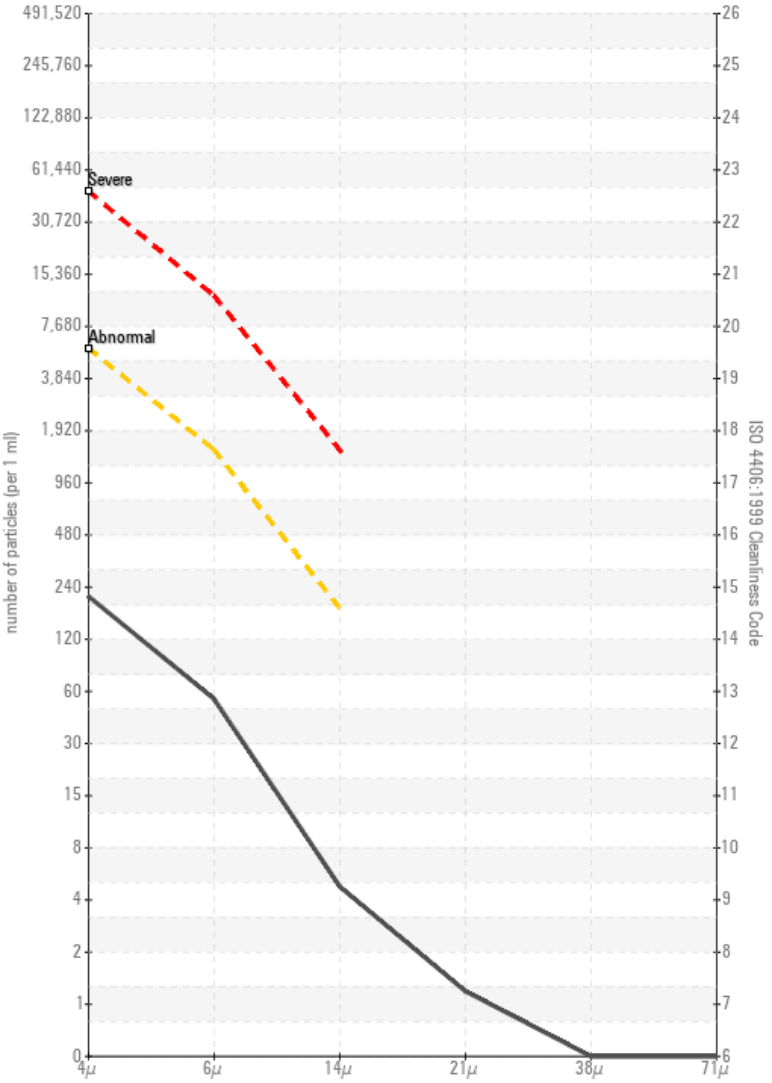
Sample Color & Clarity



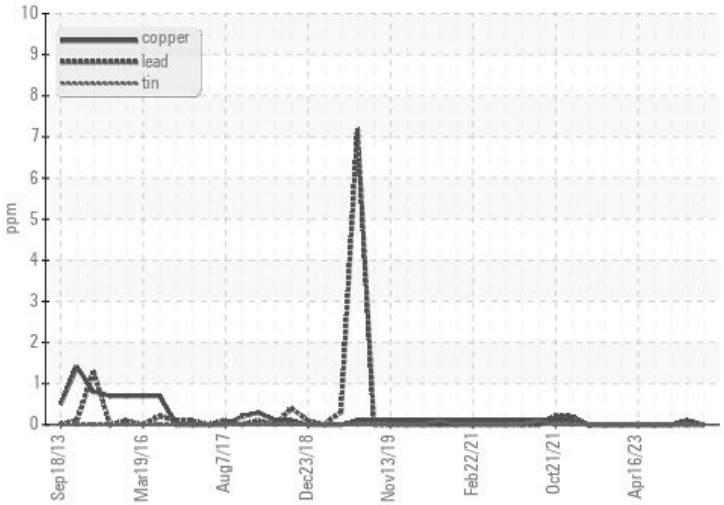
Ferrous Alloys



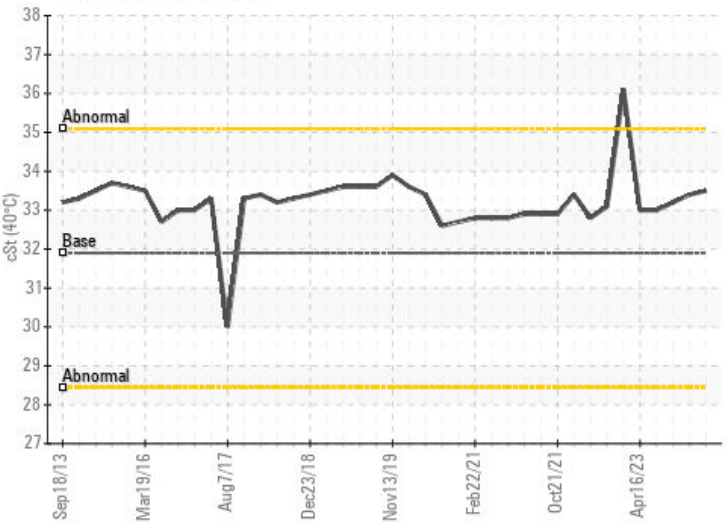
Particle Count



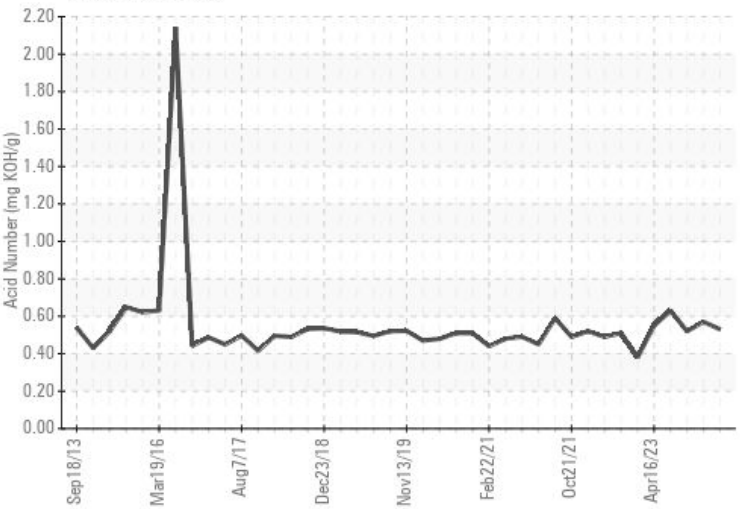
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP
Lab Number : 02631650
Unique Number : 5772803
Test Package : AOM 2

Received : 26 Apr 2024
Tested : 06 May 2024
Diagnosed : 06 May 2024 - Bill Quesnel

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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