



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
(W40-1440) Co-Gen - Utilities

Machine Id
Silo Sweep Drive 1

Component
Reduction Gear

Fluid
SHELL MORLINA S4 B 220 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor. Tests do not reveal cause for reported problem. (Customer Sample Comment: Oil sample very foamy when taken. Clear and bright after sitting for 20minutes)

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PE0000724	PE0001447	PE0001426
Sample Date		Client Info		03 Jan 2024	06 Nov 2023	12 Sep 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				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

PQ	UOM	Method	Limit/Abn	Current	History1	History2
Iron	ppm	ASTM D5185m	>150	0	<1	4
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	0	0	4
Lead	ppm	ASTM D5185m	>100	0	0	<1
Copper	ppm	ASTM D5185m	>50	<1	1	2
Tin	ppm	ASTM D5185m	>10	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

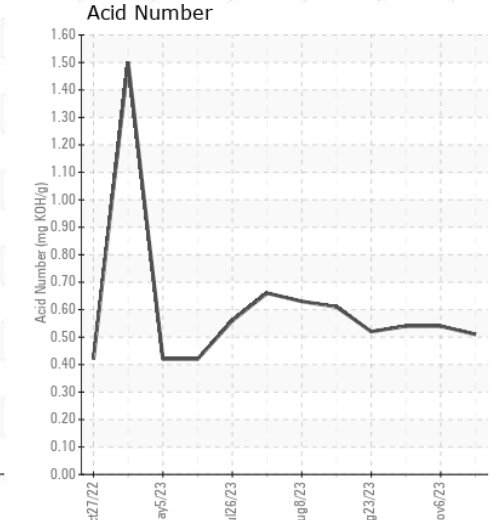
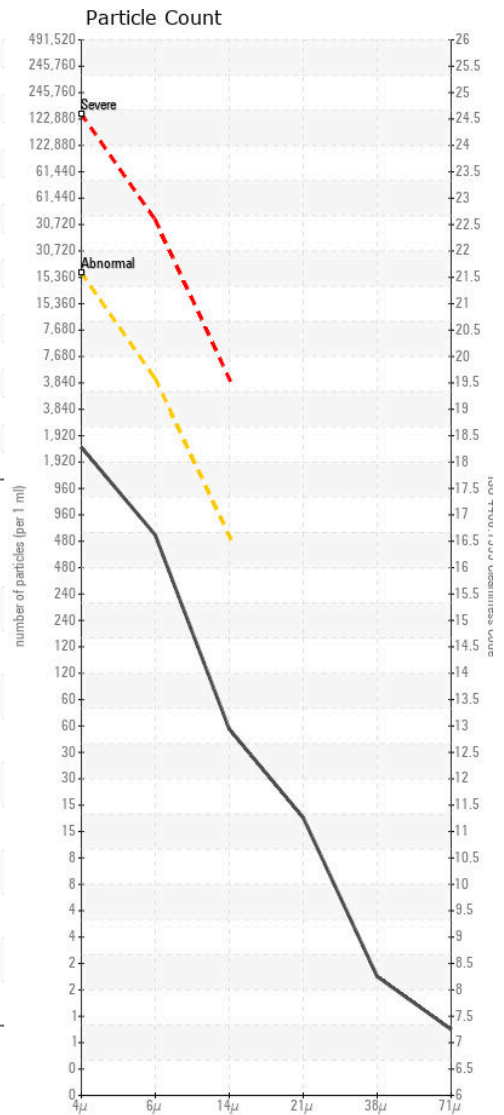
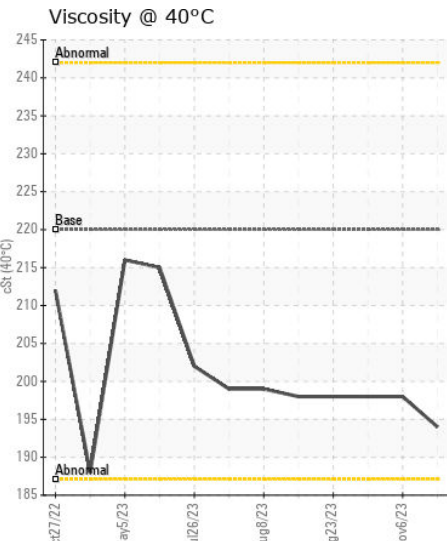
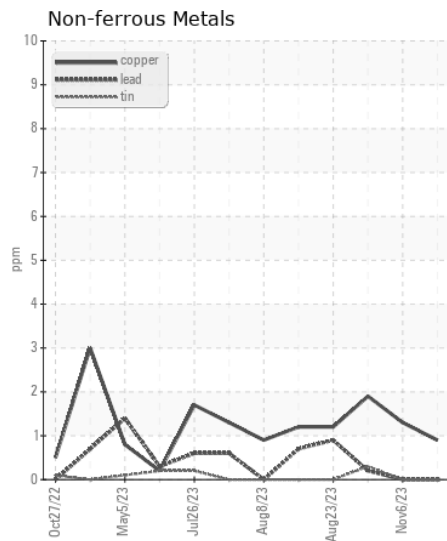
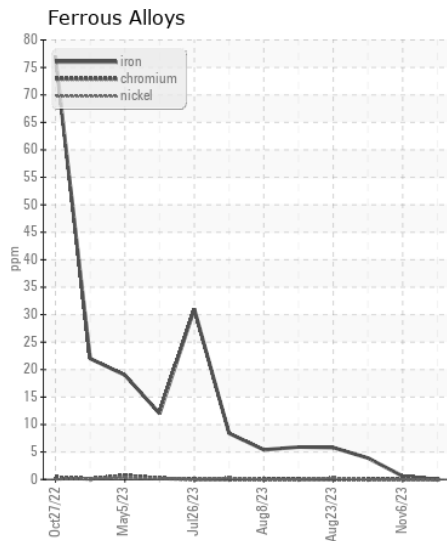
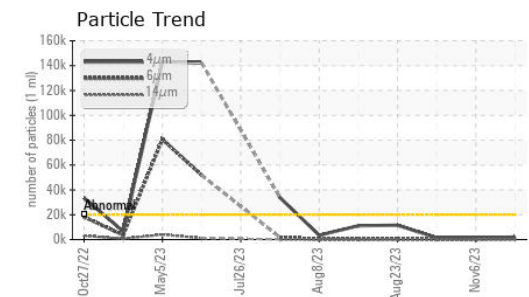
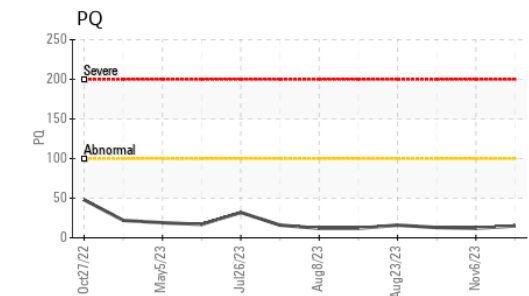
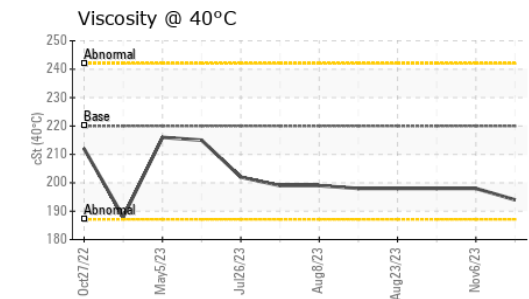
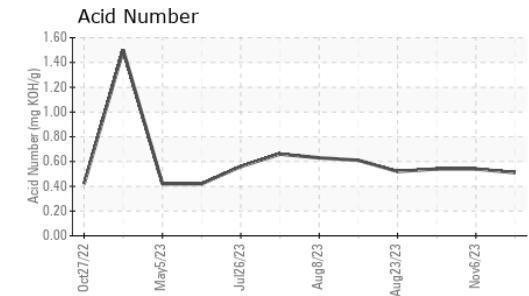
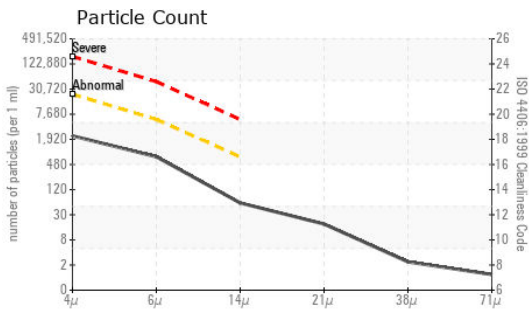
There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Silicon	ppm	ASTM D5185m	>50	7	10	13
Potassium	ppm	ASTM D5185m	>20	0	0	<1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	2039	1184	1446
Particles >6µm		ASTM D7647	>5000	646	261	365
Particles >14µm		ASTM D7647	>640	51	20	31
Particles >21µm		ASTM D7647	>160	16	5	11
Particles >38µm		ASTM D7647	>40	2	0	1
Particles >71µm		ASTM D7647	>10	1	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	18/17/13	17/15/11	18/16/12
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m		1	2	<1
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	0	1
Manganese	ppm	ASTM D5185m		0	0	<1
Magnesium	ppm	ASTM D5185m		0	0	<1
Calcium	ppm	ASTM D5185m		0	<1	0
Phosphorus	ppm	ASTM D5185m		348	359	403
Zinc	ppm	ASTM D5185m		6	13	3
Sulfur	ppm	ASTM D5185m		609	825	969
Acid Number (AN)	mg KOH/g	ASTM D8045		0.51	0.54	0.54
Visc @ 40°C	cSt	ASTM D445	220	194	198	198



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PE0000724 **Received** : 08 Jan 2024
Lab Number : 06054782 **Diagnosed** : 10 Jan 2024
Unique Number : 10820731 **Diagnostician** : Don Baldrige
Test Package : PLANT (Additional Tests: ICP, KV40, PQ, PrtCount, SCREEN)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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)

MCKINLEY PAPER COMPANY
 1902 MARINE DR
 PORT ANGELES, WA
 US 98363
 Contact: CHAD GALLAUHER
 chad.gallauher@biopappel.com
 T: (360)457-4474
 F: