



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
Kingsbridge SP-13584
 Machine Id
T1 (S/N 21746)
 Component
Wind Turbine Gearbox
 Fluid
CHEVRON PINNACLE WM 320 (285 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0863373	WC0783162	WC0783114
Sample Date		Client Info		01 Apr 2024	01 Oct 2023	26 Apr 2023
Machine Age	yrs	Client Info		0	0	0
Oil Age	yrs	Client Info		0	0	0
Filter Age	yrs	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		ASTM D8184*	>50	0	0	0
Iron	ppm	ASTM D5185(m)	>75	71	72	65
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>10	0	<1	<1
Titanium	ppm	ASTM D5185(m)	>10	0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>15	<1	<1	<1
Copper	ppm	ASTM D5185(m)	>10	<1	<1	<1
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

CONTAMINATION

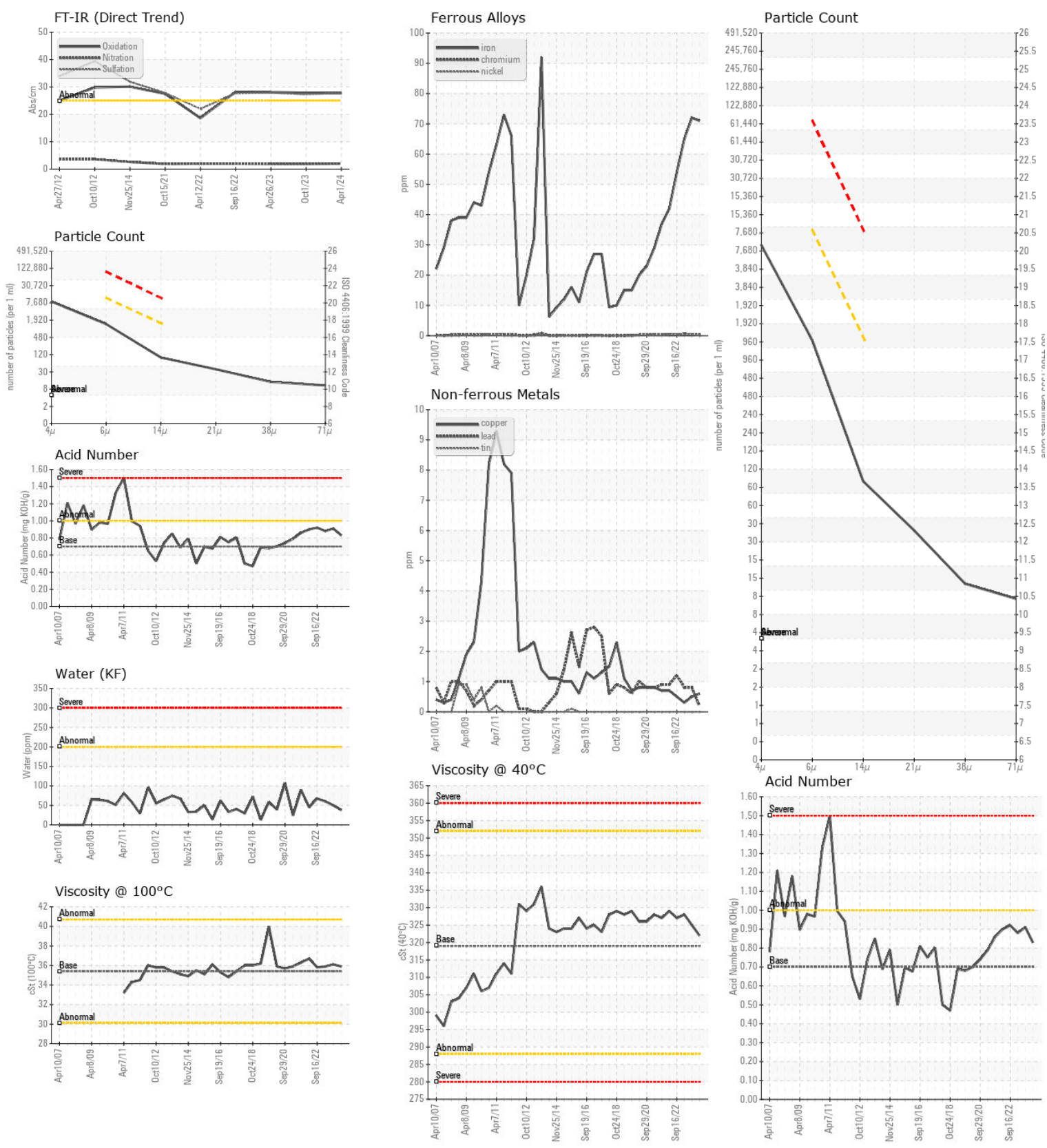
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185(m)	>10	6	<1	2
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Water	%	ASTM D6304*	>0.02	0.003	0.005	0.006
ppm Water	ppm	ASTM D6304*	>200	38	50	60.2
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*		2.0	1.9	1.9
Sulfation	Abs/.1mm	ASTM D7415*		27.7	27.3	27.9
Particles >4µm		ASTM D7647		7479	1799	14116
Particles >6µm		ASTM D7647	>10000	1226	428	1481
Particles >14µm		ASTM D7647	>1300	84	42	25
Particles >21µm		ASTM D7647	>320	33	12	6
Particles >38µm		ASTM D7647	>80	12	2	0
Particles >71µm		ASTM D7647	>20	9	2	0
Oil Cleanliness		ISO 4406 (c)	>-/20/17	20/17/14	18/16/13	21/18/12
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	VLITE	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*	>0.02	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 D5185(m)	>10	3	3	2
Boron	ppm	ASTM D5185(m)	0	<1	<1	<1
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	0
Manganese	ppm	ASTM D5185(m)		1	1	1
Magnesium	ppm	ASTM D5185(m)	0	<1	0	0
Calcium	ppm	ASTM D5185(m)	0	1	1	0
Phosphorus	ppm	ASTM D5185(m)	300	244	253	286
Zinc	ppm	ASTM D5185(m)	0	11	12	11
Sulfur	ppm	ASTM D5185(m)	8000	6462	6519	6580
Oxidation	Abs/.1mm	ASTM D7414*		27.7	27.9	28.1
Acid Number (AN)	mg KOH/g	ASTM D974*	0.7	0.83	0.91	0.88
Visc @ 40°C	cSt	ASTM D7279(m)	319	322	325	328
Visc @ 100°C	cSt	ASTM D7279(m)	35.4	35.9	36.1	35.9
Viscosity Index (VI)	Scale	ASTM D2270*	156	158	157	155



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0863373
Lab Number : 02639238
Unique Number : 5788400
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, PQ, TAN Man, VI)

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Received : 31 May 2024
 Tested : 04 Jun 2024
 Diagnosed : 04 Jun 2024 - Kevin Marson
 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.