



Date: 07/08/2014
Vessel: EL FARO
Operator: Sea Star Lines, LLC
Location: JACKSONVILLE, FL

TESTING RESULTS:

BOILERS:

	Port Blr	Stbd Blr
• P alkalinity	12 ppm	16 ppm
• T alkalinity	30 ppm	24 ppm
• Hydrazine	0.05 ppm	0.07 ppm
• Chlorides	7 ppm	6 ppm
• Phosphate	23 ppm	25 ppm
• Conductivity	85 μ mho	85 μ mho
• Silica	0.6 ppm	0.3 ppm
• pH	10.16	10.32

CONDENSATE:

• pH	2 DROPS
• Chlorides	1 ppm
• Conductivity	5 μ mho
• Hardness	0 ppm
• Ammonia	0 ppm

MAKE UP FEEDWATER:

	#4 Port DB	#4 Starboard DB
• pH	6.14	6.54
• Chlorides	1 ppm	1 ppm
• Conductivity	7 μ mho	5 μ mho
• Silica	≤ 0.1 ppm	≤ 0.1 ppm

FEEDWATER:

• pH	8.61
• Chlorides	1 ppm
• Conductivity	5 μ mho
• Silica	≤ 0.1 ppm



DISTILLED TANK:

- pH 5.85
- Chlorides 2 ppm
- Conductivity 5 μ mho

LPSG:

- H Alkalinity 70 ppm
- Phosphate 20 ppm
- Hydrazine 0.03 ppm
- Chlorides 8 ppm
- Conductivity 175 μ mho
- ADT Temp 200°F

DC Heater (DA Tank):

- Pressure 35 psig remote, 38 psig local
- Temp. Steam 277 °F
- Temp. Water 280 °F

COMMENTS ON BOILER WATER TREATMENTS:

Main Boilers appear to be properly maintained. Total alkalinity for boiler one was over double the value for P-alkalinity, continue to monitor. pH for boiler #2 was above just above limits, however vessel has been experiencing problems with pH meter; temperature sensor is not working properly therefore pH reading was not corrected for temperature. All test results for condensate and feed water tests were within control limits. LPSG test parameters maintained within control limits. It was noted that pH for distilled water and double bottom tanks was slightly acidic. This was checked with the pH meter and validated with pH test strips. Recommend that these tanks are monitored and pH rechecked when vessel obtains new pH meter. Low pH in makeup water is not necessarily an issue due to the purity of the water in the tanks, however last lab analysis (samples from 03/08/2014) showed high iron content in these tanks. If the opportunity arises we would recommend inspecting tanks. DC heater pressures and temperatures properly correlate with one another when checked using remote pressure reading. If local pressure reading are used temperature for both water and steam are low. Recommend that both pressure gauges be checked and calibration validated

CHEMICAL INJECTION POINTS AND DOSING EQUIPMENT:

- AMERZINE: Using chemical dosing pump located on the port side operating flat. Dosing is directly to the DC Heater.
- ADJUNCT B and GC: Pot feeder located near chemical testing stand. Doses directly to the steam drum of the boiler.

- SLCCA: Mixing in AMERZINE dosing tank and dosing to the DC heater.
- LPSG: Gravity dosing system from operating flat to ADT tank on lower level.

SAMPLING POINTS:

- Boiler water samples taken from rear side wall header of boilers.
- Feed water samples taken from discharge side of feed water pump.
- LPSG samples taken from the steam generating vessel at gauge glass.
- Condensate sample taken from condensate pump discharge line.
- Distilled water sample taken from chemical test stand sink.
- Make up Feed Water Samples taken from discharge line of transfer pump.

DOSING QTY:

Chemical	Port Blr	Stbd Blr	LPSG
Amerzine	500 ml/d*	500 ml/d*	0
GC	≈ 30 ml/w	≈ 20 ml/w	0
SLCCA	16 oz/d*	16 oz/d*	0
Adjunct B	≈ 5 oz/w	≈ 5 oz/w	0
AGK 100	0	0	400 ml/d

*The amounts which are mark indicate a total dosing for both boilers per day and not an amount for each individual boiler per day as dosing point is common for both boilers.

OTHER DREW MARINE CHEMICALS ON BOARD:

Vessel is using AMEROYAL CF Treatment in evaporator. The recommended dosage rate for AMEROYAL CF Evaporator Treatment is 15 mls per ton based on the rated capacity of the evaporator. The rated capacity of the vessels evaporator is 90 tons per day, therefore the proper dosage rate for AMEROYAL CF Evaporator Treatment is 2.7 liters per 24 hours of operation. Vessel is currently properly dosing AMEROYAL CF

Vessel is currently using SAF ACID to acid wash evaporator. Recommend that acid washing frequency be based on a reduction in production.

Vessel also has:

- DREWCLEAN 3000
- DREWCLEAN 2000
- DREW ELECTRIC
- AMEROID OWS
- ACC-9
- CARBON REMOVER



Drew Marine

RECCOMENDATION:

Recommend that vessel order new pH Meter Kit PO6 PCN 0236117.
Vessel did not have spare Phosphate Vacu Vial Test Kit PCN 1AA5850.

Respectfully Submitted,

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