Removing Plastics & Reducing Green House Gases

Tom Perlich

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and Clean up the Planet while saving Money

Tom Perlich

Drew Marine

Plastic Contribution to GHG

- Harvard University's Office for Sustainability, "The entire life cycle of plastics uses fossil fuels, contributes to global warming, and causes pollution."
- GHG:
  - Energy Exploration
  - Energy Extraction / Transportation
  - Plastic Refining
  - Disposal (Incineration, Landfill, Recycling)

Greener Shipping Summit 2021

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Plastic Sources

- Food Packaging
- Cleaning and Maintenance Chemicals
- Operational Chemicals
- Single Use Drinking Water Bottles

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- Food Packaging
- Cleaning and Maintenance Chemicals
- Operational Chemicals
- **Single Use Drinking Water Bottles**

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Remove Plastic from the Sea

- The Global Fleet disposes of:
  - 1 Billion plastic bottles and caps per year
  - 40 tons of waste bottles per year (IMPA/Save)
- IMO, EU, USA all working to reduce single use plastic water bottles.
- Charterers, End Users, Environmental Lobby

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Remove Plastic from the Sea

- Singapore-based JAG Consultants:
  - *The consumption and disposal of water from plastic bottles costs an owner around $14,000 a year per ship (cost + delivery + disposal).*
- Required: Well structured Plan
- Realistic: ROI

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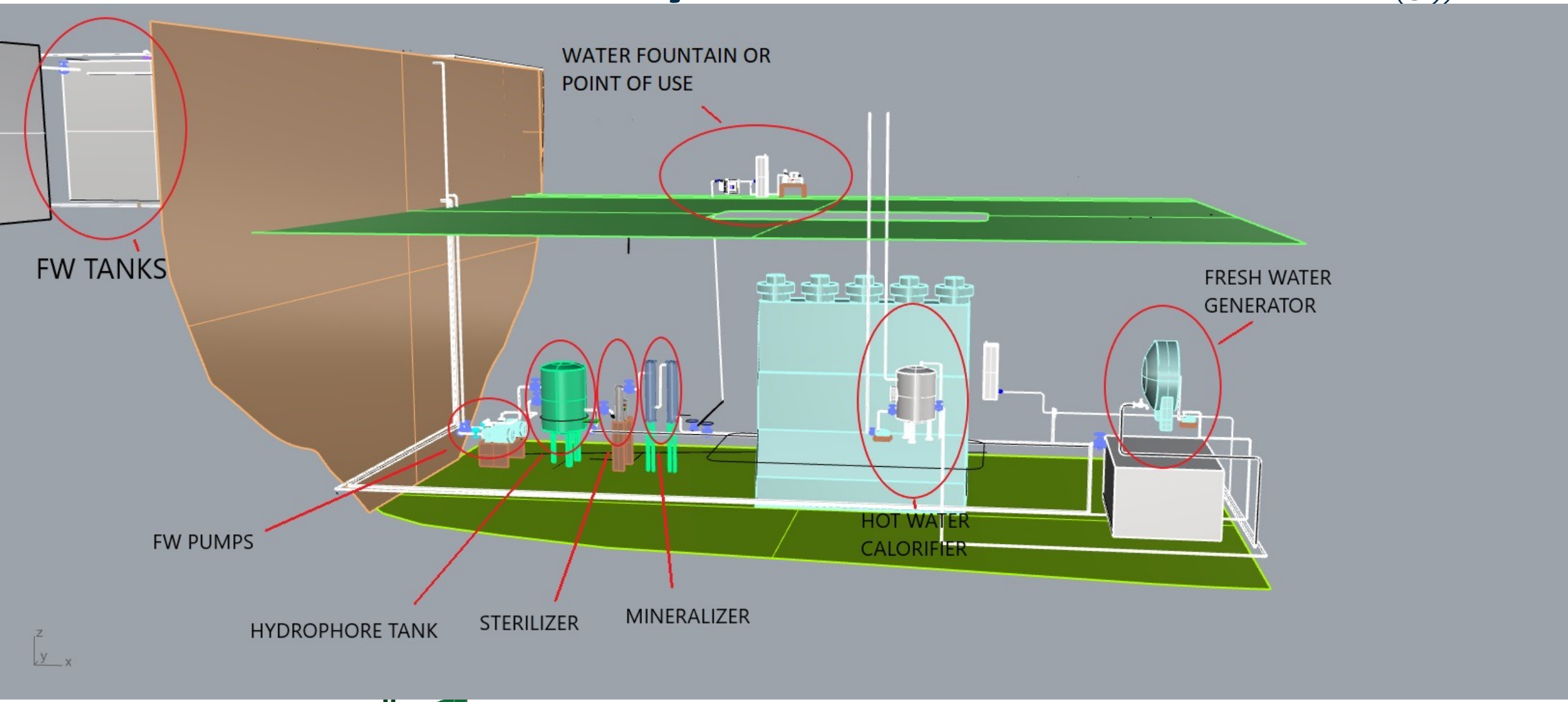
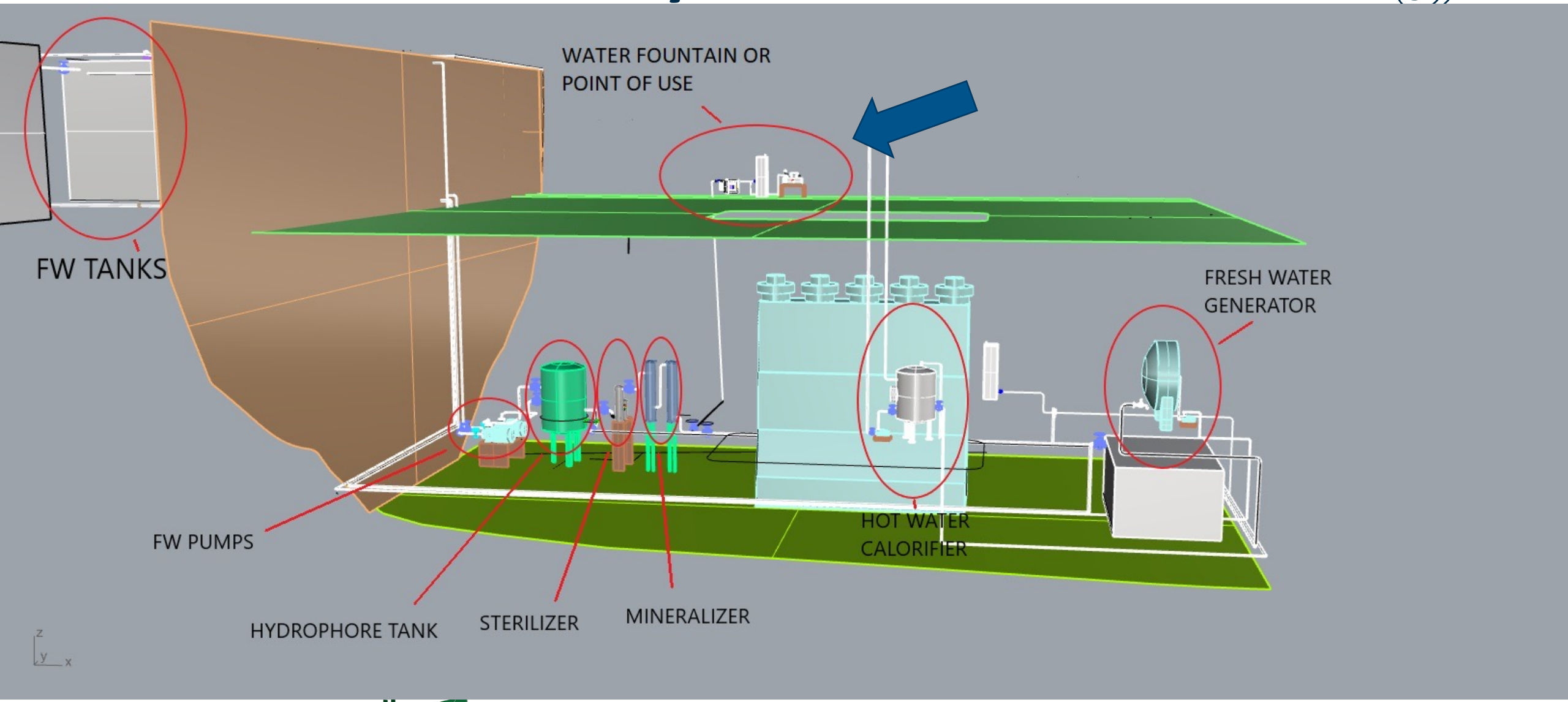
Challenge: Crew Member Resistance

- How to overcome Resistance?
- Good reasons for Resistance? System issues or just habit?
- Comprehensive Solution:
  - Focus on the Entire Fresh Water System
  - Crew Member Involvement
  - Management Support

Basic Fresh Water System



Basic Fresh Water System



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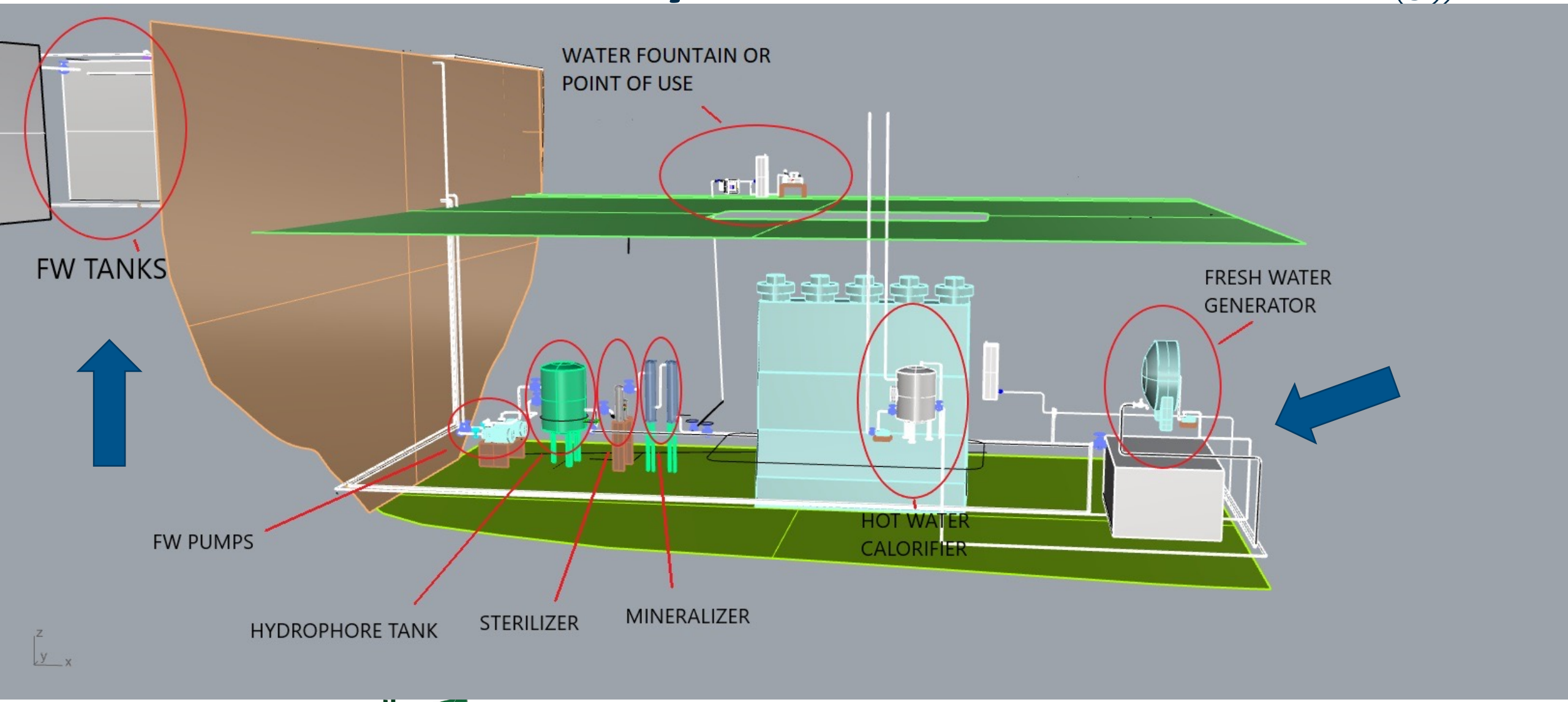

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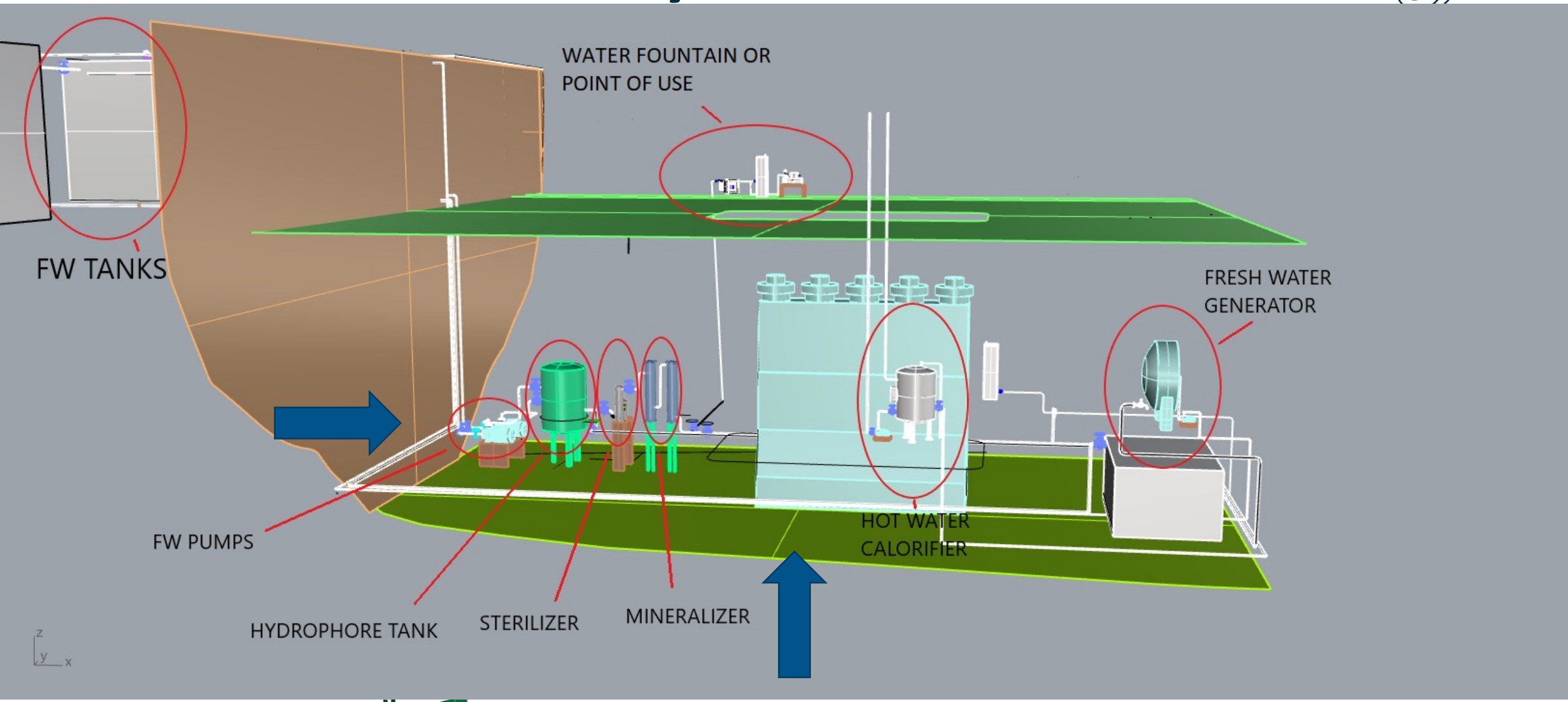

Crew Member – Resistance

Good Reason for Resistance?

- Is the System Maintained and Reliable?
- Is the System Monitored on a Regular Basis?
- Is there a Water Safety Plan in Place? Followed?

Comprehensive Solution

Water Safety Plan

- The vessels Water Safety Plan is designed to ensure that the potable water onboard is of a satisfactory quality for crew consumption. The plan should include; that standards exist and are enforced; that regulations are adhered to; that a sampling regimen are in place; there is a plan for continuous maintenance and improvement of the system.
- 3 major sets of requirements must be met when creating a Water Safety Plan: WHO, MLC 2006 and any internal requirements.
- Ensure the vessels Water Safety Plan is up to date.

Comprehensive Solution

System Survey

- Bunkered Water:
  - Source of Water / Verification of Quality
  - Delivery Method / Who and How?
- Microbiological Activity:
  - Storage / Distribution - Method of Control
- Corrosion:
  - Storage / Distribution - Method of Control
- Recommendations for Improvement

Reducing Resistance

Verification Testing

- Onboard Testing
  - Onboard water testing should be done as part of normal safe practice
  - Potable Water Test Kit Example (Pictured)
  - Records should be maintained onboard to ensure water quality

- Shoreside testing
  - More detailed testing should be completed by shore side testing for various WHO related parameters
  - Follow Flag / Class / Company policy for shore-based testing frequency

Easy Win: Eliminate Plastic Water Bottles

- Reduces Green House Gases
  - Industry Goals
  - Company Objectives
- Key: Overcome Crew Member Resistance
  - **Comprehensive Solution: Focus on the Entire Fresh Water System**
- Clean up the Planet + Save Money
  - System Maintenance or Upgrade
  - **Filters** to Enhance Taste and Crew Acceptance
  - **Green Initiative that has a ROI**

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