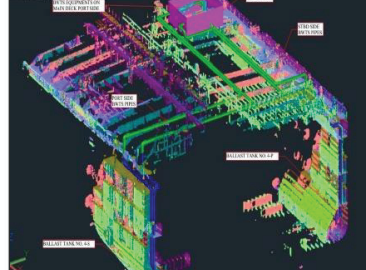
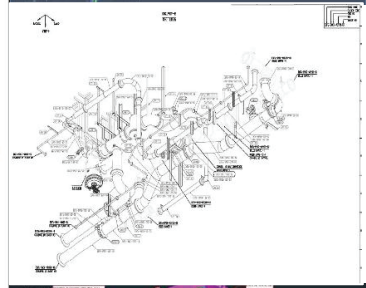
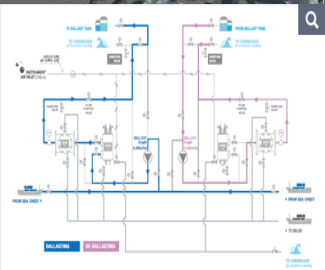
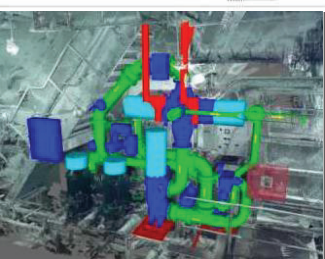
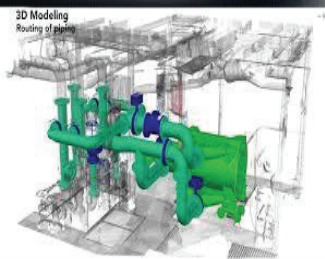


Specialist Outsourced Services (SOS)



# BALLAST WATER TREATMENT SYSTEMS

## ONE-STOP COMPREHENSIVE SOLUTION



## FAROHAR ENTERPRIZES PRIVATE LTD

HEADQUARTERS:  
1 Coleman St; 05-06A, The Adelphi, Singapore 179803.  
Mobile: +65 9186 8500 | Tel.: +65 6222 8880 (ext. 132)  
Fax.: +65 65702435

WORKSITE:  
T241, Tower 10 International Technology Center,  
C.B.D., Belapur, Navi Mumbai – 400614, India  
Mobile: +65 9186 8500 | Tel : +912267120701



Europe, Japan, Africa, Canada, USA, Philippines, Indonesia, Thailand, Hong Kong and others

# THE FAROHAR ADVANTAGE

- Over 30 years collective competence & experience in Marine and Oil-Gas Industry
- Specialist outsourced services for oil-gas and marine industry
- Over 750 strong skilled workforce
- Headquartered in Singapore and operation center in India. Global presence in Europe, Japan, Africa, Canada, USA, Philippines, Indonesia, Thailand, Hong Kong and others
- Strategic alliances & joint ventures with leading specialists
- ISO 9001 & ISO 27001 certified. Highest degree of quality assurance and efficiency
- Best value and highest return on investment for clients
- Reasonable fees and no hidden charges
- Robust services contracts and warranties
- End-to-end turnkey execution from Assessment to Plant handover
- Expert Riding Teams and Supervisors
- Enroute Works cuts down Project time-cost by over 25%

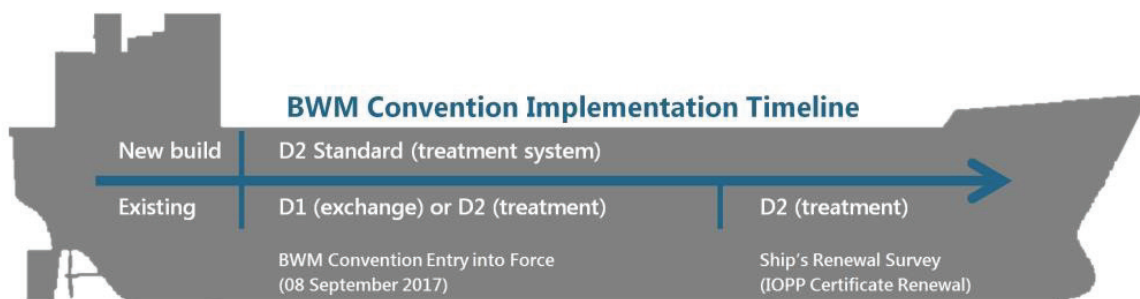


## OUR ACHIVEMENT & CLIENTS

- **650+** PROJECTS EXECUTED
- **50+** DRY-DOCKS SUPPORTED
- **200+** SATISFIED CUSTOMERS
- **10k+** INCIDENT- FREE MANDAYS INSPECTIONS
- **1.6m+** ENGG DESIGN HOURS
- **30k+** TONS OF STEEL RECYCLED
- **30+** COUNTRIES TOUCHED



## BWTS REGULATIONS & COMPLIANCE



### IMO REGULATIONS

**Regulation D-1 "Ballast Water Exchange Standard":** This rule requires ships operating ballast water exchange doing so with an efficiency of 95 per cent volumetric exchange of Ballast Water.

**Regulation D-2 "Ballast Water Performance Standard":** D-2 Standard concerns water quality being discharged, related to specified maximum concentrations of microorganisms.

**Regulation D-3 "Approval requirements For Ballast Water Management systems":** Requires using Ballast Water Management systems **approved** by the Administration in accordance with **IMO Guidelines**.

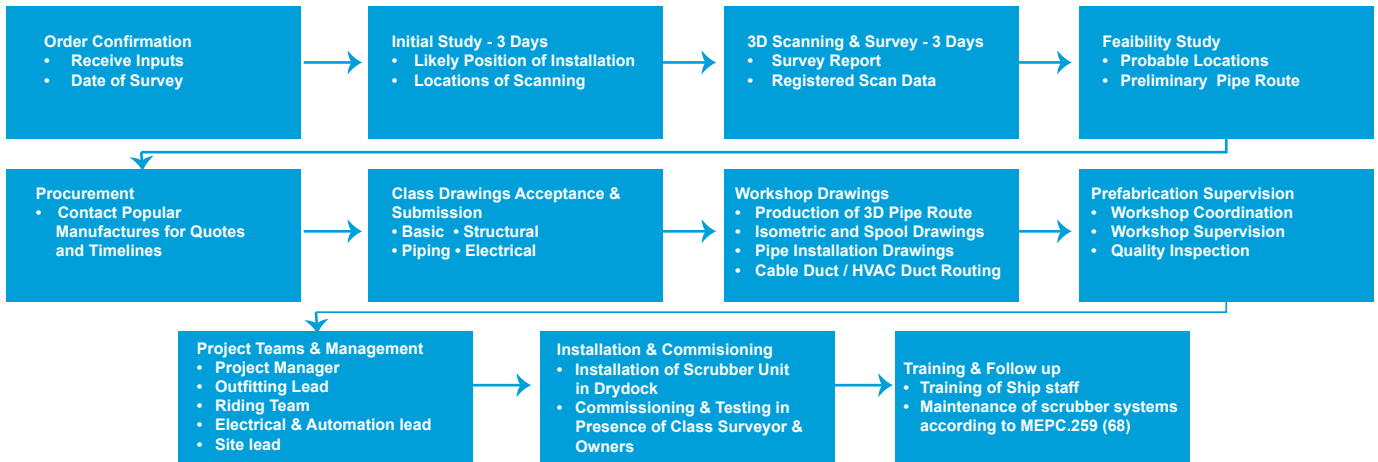
### USCG REGULATIONS

Vessels within the territorial waters of the United States must discharge via

- A USCG-approved ballast water management system OR
- An approved alternate management system OR
- A shoreside facility OR
- Not at all.



# TYPICAL PROJECT STAGES & ESTIMATED TIMELINES

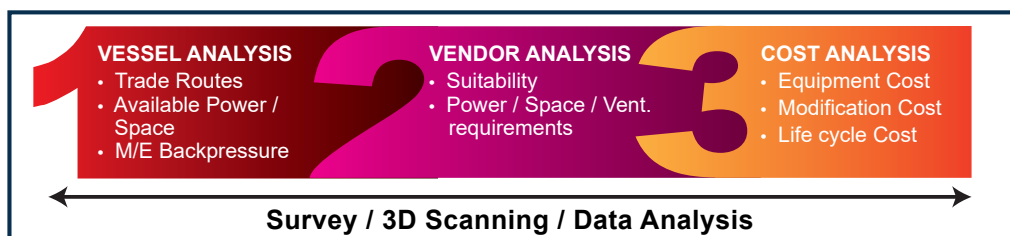


## ESTIMATED PROJECT TIMELINES

BWTS - RETROFITTING PROCESS	ESTIMATED TIMELINES - WEEKS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Initial study of Client provided material																				
Onboard 3D Scanning & Survey																				
Feasibility Study																				
Procurement																				
Class Drawings - Acceptance & Submission																				
Workshop Drawings																				
Pre fabrication Supervision																				
Project Management with Riding Team Onboard																				
Installation of Equipment in Dry Dock																				
Commissioning of Equipment with owners & Class																				
Training																				

Note: Timeline estimates and overlaps are non-binding indicators only and subject to change as per actual conditions per project

## 1. FEASIBILITY STUDY & 3D SCANNING



### OPTION 1: DESK BASED

- Cost Effective
- Fast Execution
- Only Basic Level Study

### OPTION 2: 3-D Scan Recommended

- Very Accurate
- Complete Spatial Feasibility
- Detailed Study

## 2. PROCUREMENT: POPULAR MANUFACTURERS - BWTS

Designs approved by IMO & USCG			
Manufacturer	Model	Manufacturer	Model
Techcross, Inc.	Electro-Clean	Ecochlor, Inc.	Ecochlor BWTS
BIO-UV Group	BIO-SEA B	Samsung Heavy Industries	Purimar
Wartsila Water Systems	Aquarius EC	ERMA FIRST	Erma First FIT
Optimarin	OBS/OBS Ex	TeamTec OceanSaver AS	OceanSaver
Sunrui	BalClor	Alfa Laval	PureBallast 3

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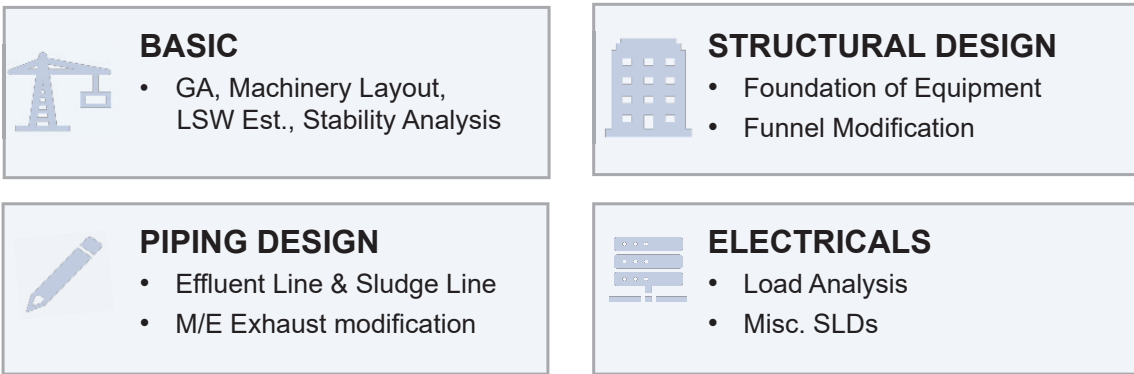
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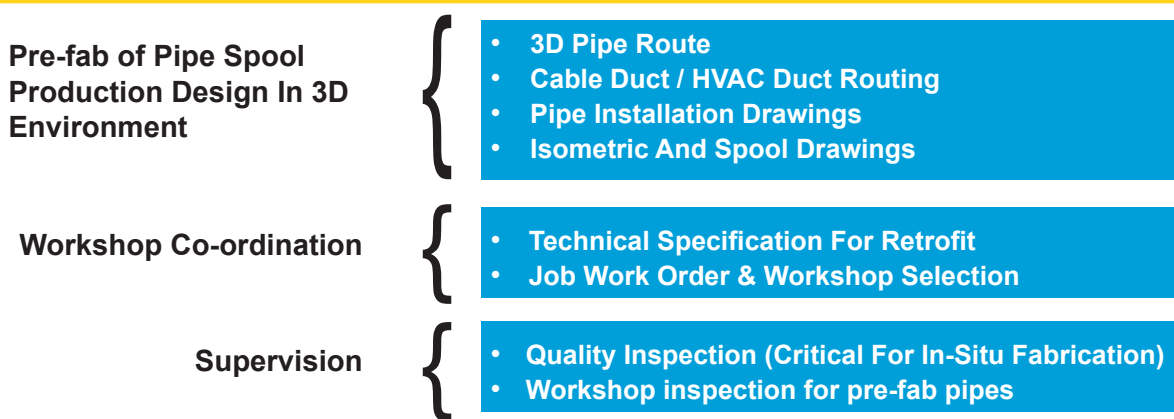


### 3. CLASS DRAWINGS – ACCEPTANCE & SUBMISSION

Class Approvals: Approvals for Retrofit Drawings & Coordination for Class Survey onboard

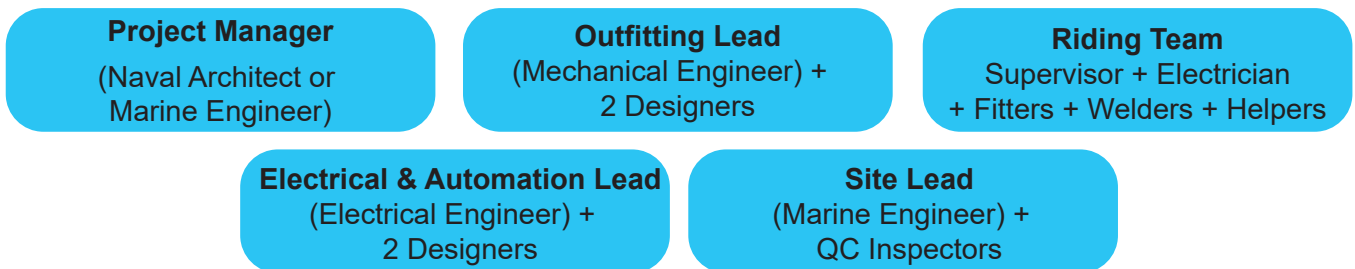


### 4. WORKSHOP DRAWINGS, CO-ORDINATION & SUPERVISION



### 5. PROJECT TEAM & PROJECT MANAGEMENT

Typical Team Composition for a Scrubber Retrofit Engineering Design project of highly experienced and qualified professionals.



### 6. INSTALLATION & COMMISSIONING

- CHOICE OR COMBINATION OF YARD-BASED OR ENROUTE WORKS
- FEASIBILITY & RPI STUDIES BY FAROHAR EXPERTS TO DETERMINE BEST CHOICE (OPTIONAL ADDITIONAL SERVICE)
- PROVISION & MANAGEMENT OF EXPERT RIDING TEAMS FOR ENROUTE INSTALLATION
- INTELLIGENT PREPARATORY WORKS TO MINIMIZE INSTALLATION INVESTMENT & TIME
- HIGH QUALITY, HIGH SAFETY STANDARDS, MINIMAL INTERRUPTION OF NORMAL SHIP OPERATIONS
- EFFICIENT CO-ORDINATION WITH MAKERS, OWNERS, MANAGERS, CLASS & SHIPBOARD TEAMS
- ADEQUATE TRIALS, TESTING & COMMISSIONING WORKS LEADING TO CLASS SURVEY & PASSING
- HANDOVER OF OPERATIONAL INSTALLATION



## 7. TRAINING & SUPPORT

- CLIENT SPECIFIC TRAINING ON OPERATION AND MAINTENANCE OF BWTS PLANT & EQUIPMENT
- PREPARATION OF VESSEL SPECIFIC COMPUTER-BASED TRAINING (CBT) APPLICATION
- SHIPBOARD & SHOREBASED TRAINING SESSIONS & MODULES CAN BE PROVIDED
- TECHNICAL & LOGISTICAL POST-INSTALLATION SUPPORT (RETAINER OR ADHOC)
- REMOTE 24/7 SUPPORT DESK SERVICE

## 8. COMMERCIAL & CONTRACTUAL – GENERAL TERMS

- All Works Undertaken Are Strictly Based on Signed Contracts Drafted using Internationally Accepted Terms and Jurisdiction.
- Pre-Requisites As Defined In The Contract Must Be Properly Provided By Client Including Responsibilities Of Both The Parties.
- Rates For Vessel And/or Out-Station Visits By Farohar Personnel Should Be Paid As Per The Contract. Working Hours And Overtime Should Be Paid As Per The Contract. Estimates That Are Subject To Change Are Clearly Indicated.
- Approval Will Be Sought From Client Prior To Undertaking Works With Additional Fees.
- All Payments Are In USD By Bank Transfer To Farohar's Designated Account.
- Practical Change Management Should Be Provided For Within The Contract.
- Strict Mutually Applicable NDA And IP Protection Terms.
- Payment Terms 50% On Signing And Rest Will Be Pro-Rated On Release Of Deliverables.
- GST At 18% Shall Be Charged As Per Applicable Government Levy.
- Fees Do Not Include Class Approval Charges.

Given The Multiple Variables Involved Such As Type Of Vessel, Urgency, Type Of Equipment, Complexity Of Design And Location, Limitations /Delays Not Of Farohar's Doing, Etc. Specific Monetary Quotes Can Only Be Provided Upon Receipt Of Specific Information From Prospective Client. Do Contact [Karma@FaroharLtd.Com](mailto:Karma@FaroharLtd.Com) With Your Requirements.

## 9. RELATED SERVICES FOR MARINE & OIL-GAS SECTORS

- EXHAUST GAS SCRUBBER SYSTEM RETROFIT TURNKEY PROJECT
- STEEL WORKS & MODIFICATIONS: DESIGN, ENGINEERING, FABRICATION, ONBOARD WORKS & FOLLOW UPS
- VESSEL VALUATION SERVICES
- VESSEL PERFORMANCE DATA MONITORING
- DIGITIZATION & E-LIBRARY WORKS FOR VESSEL/OFFSHORE ESTABLISHMENTS
- MARINE ERP SYSTEMS WORKS-SELECTION, IMPLEMENTATION, OPTIMIZATION, AUDITS, SUPPORT
- DATA POPULATION & DATA COLLECTION
- DATA MIGRATION & CONVERSION
- CREATION OF E-PLANS & DRAWINGS
- SHIP DESIGN & MODIFICATIONS
- TURNKEY PROJECT IMPLEMENTATION FOR PORTS, JETTIES, STORAGE FACILITIES, ETC.

Visit [www.FaroharLtd.com](http://www.FaroharLtd.com) or Email us at [Contact@FaroharLtd.com](mailto:Contact@FaroharLtd.com) for more details on our Services & Offerings

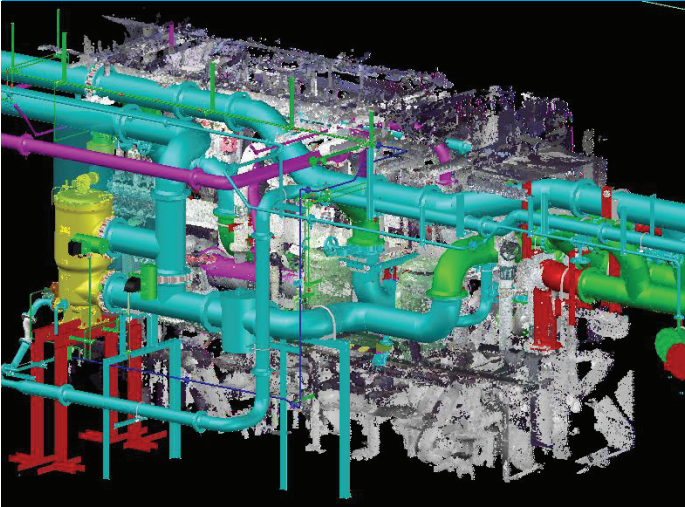


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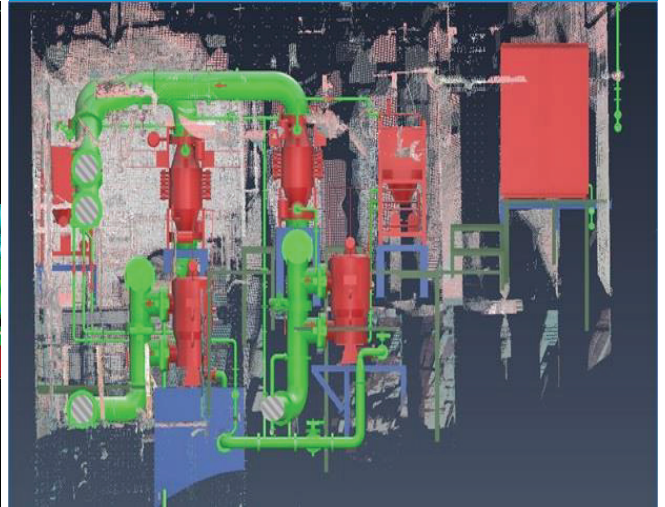


# 10. SAMPLES FOR BWTS PLANS - 3D & 2D

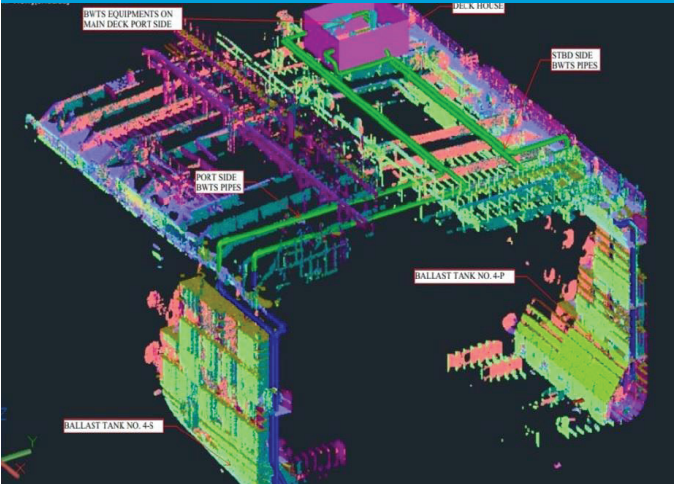
Equipment Placement in Point Cloud



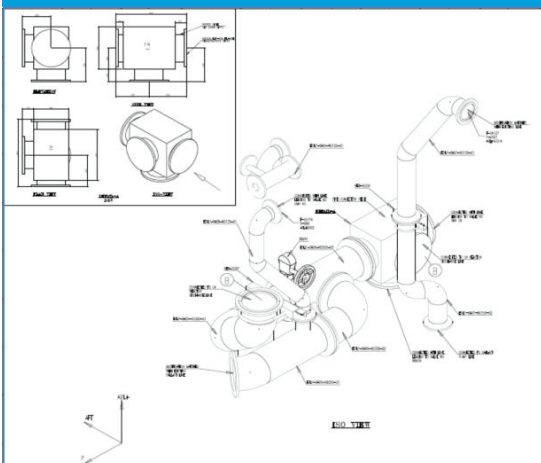
Equipment Placement & Routing in Point Cloud



System Modeling in 3-D Environment



Schematics Drawings 1



Schematics Drawings 2

