

IMPROVING EFFICIENCY IN PORT OPERATIONS

INSIDE A MARINE REPAIR FACILITY

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AGENDA

- 1. About ASRY
- 2. ASRY Facilities for Port Operations
- 3. Diversity of Operations within ASRY
- 4. Improving Safety and Efficiency in Operations
- 5. Summary



ABOUT Arab Shipbuilding & Repair Yard Co (ASRY)

- ASRY is a Multi Yard, located in Bahrain
- The construction of the Yard started in 1973 and has been in operation from 1977
- It's the leading Shipyard in the Region in terms of Ship/Rig Repair, Conversions and Constructions
- The majority share is now held by the National Oil and Gas Regulating Authority (NOGA) of Bahrain
- It has recently diversified its activities to cover Oil and Gas based Engineering, Construction and Repairs.





ABOUT Arab Shipbuilding & Repair Yard Co (ASRY)

- Facilities for Docking Ships No of Graving Dock – 1 No of Floating Docks – 2 No of Slipways - 2
- <u>Facilities for Berthing ships</u> No of Wharfs – 13 Berth length – 4 km
- <u>Type of Ships</u> Tankers – VLCC size & below Container– 15000 TEU & below Bulk carriers – Panamax & below PCPT's, RoRo Offshore Support Vessels Navy Vessels Jack up Rigs & Jack up Barges
- <u>Trading Patterns of Clients</u> Worldwide





ASRY as a Port

- ASRY is thus a Port, where vessels are being handled 24 x7, for the following activities
- Berthing Vessels calling ASRY for Repairs
- Berthing Naval vessels with Force Protection
- Maneuvering and Shifting vessels in ASRY between Berths, Docks and Slipways
- Discharging cargo shipments meant for ASRY
- Serving Offshore support vessels for Logistics
- Serving Barges and Tugs bringing heavy equipment for ASRY clients



ASRY – An Approved ISPS facility



- All ships over 500 GT (Rigs/ Navy's excluded) entering ASRY have an ISM and an ISPS certificate.
- ASRY also needs to have a Statement of compliance as a Port facility.
- ASRY therefore meets the requirement of Regulation 10, Chapter XI-2 of SOLAS
- Shipowners can therefore send their ships to a facility fully certified



FACILITIES FOR OPERATING AS A PORT



ASRY Layout with Berth, Docks



Adequate waterways, berths and docks to ensure safe berthing and stacking



Water Depth to ensure safe berthing of Ships



A Bathymetric Survey carried out to ensure adequate water depths to avoid grounding



Infrastructure to Ensure safe berthing of Vessels



Quays, Berths, Dolphin, Construction Areas built on Concrete



Yard Equipment to ensure efficient operations



Example of Lifting and Shifting Equipment required to be kept in good condition



Tugs and Barges to ensure efficient operations



ASRY maintains a Fleet of Highly Maneuverable Tugs with ASD propulsion



DIVERSITY OF OPERATIONS WITHIN ASRY



Handling and Berthing Ships





Berthing and Docking of various Ship Types





Handling and Berthing Rigs



Rigs being Maneuvered and berthed



Handling ASRY own Cargo





A Ship with Grit used for Blasting beng unoaded at ASRY



Handling Barges with Fabricated Structures at nearby facilities



A Prefabricated structure required for an ASRY project manufactured and transported to ASRY from a facility in Bahrain



Special Services



ASRY Barge being used for Crane Load testing at 1900 Tonnes

ASRY Floating Crane installing a large structure on a vessel under repairs



Berths for supporting Logistics for Offshore Bahrain



Providing Logistic Support for various activities Offshore Bahrain



Off loading Heavy Structures from Vessel to Shore



A Drill Floor of 1200 T being offloaded from a Jack up Rig on SPMT's



IMPROVING SAFETY & EFFICENCY IN OPERATIONS



Tool Box Talks on Quay side before starting work





Safety Checks on Lifting Gear, Conducting Fire Drills



Mock Fire Drills Taking Place



Lifting Gear being checked



Engineering Critical Operations



Heavy lifts Engineered for Strength and Criticality of operation



LARGE STEEL FABRICATION FACILITIES





Improving Welding Processes

- Moving away to Semi Automatic & Automatic Processes
- Improve Speed of Work
- Improve Energy Efficiency





Inverter based Machines stacked on Deck of Ships



Welding in progress using them inside ships

ASRY target is to increase FCAW to 70% from its present 40% to generate greater Energy savings



Improving Turnaround of Ships



Day and Night 24 hours operation with highly efficient tugs



Improving Energy Efficiency

- ASRY has to deal with a number of inductive loads, such as Transformers, Machine shop Motors, Dehumidfiers etc
- This leads to power factors below 0.9 in certain feeders and penalty from EWA
- Capacitor Banks have now been installed on the 11KV side, leading to improvement in PF.
- As can be seen PF on Feeder 1 improved to 0.96 from 0.82-0.88 and PF on Feeder 2 improved to 0.93 from 0.78-0.82
- A monthly saving of over US\$ 50,000 was achieved only from penalty paid for reactive power.





LED Lighting in Docks and Shipyard

- LED Lighting Mainly used by Auxiliary department, ASRY's Blasting department and Testing in Docks
- LED Lighting is being integrated into daily usage in variety of areas. They work with input power of 110 V & 220 V.
- It is Portable type & less in weight, so it can be handled easily.
- The power consumption / heat dissipation is lesser than the old lights, with better lighting illumination
- LED lighting savings will be 220 KW at around US\$ 75,000/year and Improved productivity

LOCATION	Nos.	OLD LIGHT	NEW LED	CONSUMPTION SAVING (%)
Dock 02	32	400 Watt	150 Watt	62.5%
Dock 01	6	1000 Watt	150 Watt	85%
DSA 03	1	400 Watt	150 Watt	62.5%
AUX	150	400 Watt	150 Watt	62.5%
B&P	200	1000 Watt	150 Watt	85%

LED Light being used in the Dock





Replacing/Upgrading its own Workshop Machinery

Improvement have been realized by replacing Lathe machines

- Added 10 new lathe machines in our mechanical workshop.
- Machining hours reduced by 25% leading to savings of over US\$ 68,000 per year





- A number of other equipment such as Automated Blasting in the Dock on Ships, Additional Grit Blasting, CNC Pipe profiling/bending machines are being added



Energy efficiency through better practices

- ASRY major Energy Consumption have been Air Compressors (21%), Air Conditioning and Cooling (17%), Welding (16%), Canteen (7%), Dehumidifier (5%)
- Air Compressor
 - To reduce air compressor power consumption, work is continuously being carried out to reduce leakage in piping
 - Proper air pressure in pipes, have reduced hire of generators for blasting.
- Air Conditioning
 - Air conditioning is being renewed with Air conditioners of better technology with reduced power consumption
- Welding Transformers
 - Transformers are being maintained to ensure they work more efficiently at higher power factor
- Dehumidifiers
 - Unnecessary use of Dehumidifier and use of ventilation fans just for providing ventilation is being controlled



Reducing Carbon footprints for Clients















SUMMARY

- The diversity of Operations within ASRY makes it a very different Port Operation
- ASRY simultaneously has an obligation to its clients to comply to statutory and owner specific certifications and maintains a fully certified ISPS facility
- It also has to improve its operations to cater to the growing market needs, to expand its services into bigger projects such as conversions, fabrications, energy efficiency retrofits
- This has to be accompanied by quick turnaround, bearing in mind, safety of its work force and its operation
- ASRY also has to cater to the NAVY's operating in this area, and has to meet their requirements of Security
- Implementing Carbon footprint reduction on ships and creating Energy savings for ship owners, flag states and within ASRY is gaining increased focus
- With all the above challenges, ASRY is continuously upgrading and implementing modern practices to improve its efficiency of operations and being your **DEPENDABLE PARTNER**





THANK YOU FOR YOUR ATTENTION AND TIME