Item	Conventional-Copper Slag Method	Hydro-Blasting Method	Mobile Blast Room Method
Blasting Abrasive	Copper Slag	Water	Steel Grit/Shot
	Inconsistent Quality of Copper Slag in terms of Size, Hardness, and Chloride Content.	Consistent Quality of Water	Consistent Quality of Steel Grit and Shots
	Diminishing Supply of Copper Slag	Ready and Stable Supply of Water	Stable Supply of Steel Grit/Shots
	Variable Quality from different Copper Mines	Standardized Quality	Standardized Quality
	Inconsistent Surface Profile From Blasting	No Profile From Blasting	Consistent Deep Surface Profile From Blasting
	Inherent Pollution during Blasting within the Tank, On-Deck and External Surrounds	Low Pollution	Low Pollution
	High Waste Product with Disposal Issue	No Disposal Concerns	Low waste Product
Blasting Characteristics	Endanger Blasters when changing positions with no cut-off switch.	Clumsy Machinery and safety hazard with high pressure jetting via the 'Tumble Box' and 'Rotating Gun'.	Safe and Easy control by Blasters with the use of Remote Controls when changing positions.
	Non-Continuous Workflow requiring blasting to stop when refilling copper slag.	Stable Supply of Water to Rotating Gun.	Automatic Steel Grit Recycling system ensures continuous work flow.
	Blasting nozzle with diameter 8.5-11mm.	Rotating Nozzle Compressed Water Capacity	Blasting nozzle with diameter 11-12.7mm.
	Spill-over of Copper Slag to surroundings from topping up activities.	Spill over of Water during Operation.	No Spill-over effects during operation or topping up activities.
	Poor Blasting visibility from Copper Slag fragmentation within the tank, resulting in the need for re-blasts.	Poor Blasting visibility from Water cloud on impact and clumsy 1M Long, 5kg rotating gun, which is also unable to reach difficult areas.	Excellent Blasting visibility from low fragmentation of Steel Grit/Shots, coupled with dust collector, with nil re-blast.
	Medium Air Pressure loss as a result of lengthy hose distribution system.	Lengthy High pressured water distribution system with numerous bends. Fast wear and tear from the extreme heat and pressure result in higher safety concerns.	Low Air Pressure loss as a result of nearer machine placement to the Tank with shorter distribution system.

Abrasive Recovery Vacuum System	Industry Standard Vacuum Machines of 75kw.	Utilizes Pump.	High Performance Vacuum Machines of 90 kw.
	Require changeover of Silos every 1 hour or so, when silos reach full capacity.		Automatic Dump Silos via programmed level sensors prevent over flow situations.
	Require Spare/ Stand-by Silos for containment of Copper Slag during Operation, taking up precious space on main deck.		Built-In Silos into MBR in 1 compact unit.
	May damage filter cartridge and pump of vacuum machine when Silo is full		Programmed Mechanisms prevent situations where equipment will be damaged.
	Heavy Pollution during operation and high incidences of Spill-overs on deck.		Contained abrasive distribution system and integrated machinery prevent incidences of spill overs.
Productivity, Cleanliness and Misc.	Inconsistent Blasting Profile	No Surface Profile.	Consistent Deep Surface Profile.
	Dust particles from blasting impact bond easily on blasted surface, making the cleaning process tedious.	High Incidence of Heavy Flash Rusting resulting in common re- blasts.	Lesser Dust Particles fall easily to the ground for easy vacuum cleaning than bond on the blasted surface
	Dusty Environment and inconsistent surface profile decrease paint adhesiveness.	Poor Adhesion of Paint due to sub-standard surface profile.	Good Adhesion of Paint due to good surface profile and dust- free environment.
	Slow and inefficient Schedule where Steel Work and other activities are put on hold during Copper Slag Blasting.	Slow Working Schedule with the need for multiple groups of Hydro-Blasters, resulting in higher safety risks.	Progressive Schedule allow concurrent works to take place, speeding up the overall schedule of the vessel.
	Work Activities around the whole vessel are adversely affected due to the dusty environment.	Common Spill-outs of Water on Main Deck and Surround result in slippery conditions but however do not affect other work activities.	No Spill outs and Clean Environment create a comfortable working environment for other activities.

	Main Deck cluttered with heavy Copper Slag Blasting Equipment.	Uncluttered Equipment on board with low usage of Cranes	Uncluttered Equipment on board with little space requirement and low usage of cranes.
	Frequent use of cranes for topping-up / Disposal of Copper Slag.	No Abrasive Top-ups / Disposal and Silo Requirements.	No Support requirements for Abrasive Top-ups / Disposals.
	May require water rinse-down of blasted surface as a result of remaining Salt content after blasting.	No remaining salt content after initial water-blasting, however may still require re-blasts from Heavy Flash Rusting.	May require water rinse-down of blasted surface as a result of remaining Salt content after blasting.
	Heavy Pollution may damage sensitive equipment on board vessel.	No Pollution with low risk of damage to sensitive equipment on board vessel.	No Pollution with low risk of damage to sensitive equipment on board vessel.
	High Cost to contain and dispose of the after-effects of Copper Slag Blasting	No Cost to contain or dispose of the after-effects of Hydro-Blasting.	No Cost to contain or dispose of the after-effects of MBR- Blasting.
	High Cost to the environment.	Nil Damage to Environment	Nil Damage to Environment

Investment Cost Comparison

Item	Conventional-Copper Slag Method	Hydro-Blasting Method	Mobile Blast Room Method
Initial Investments	Medium	Very High	High
Short-Medium Term Operating Cost	High	Medium	Medium
Long-Term Operating Cost (Including Non-Quantifiable Costs)	Very High	High	Medium
Quantifiable Costs			
Supply of Abrasive	Copper Slag	Fresh Water	Steel Grit
Disposal of Abrasive	High	Nil	Low
Electricity Consumption	High	Low	Medium
Dehumidifier Cost	High	Low	Medium
Welding, and other Works Disruption From Blasting	High	Medium	Low
Support Activities For Blasting Method	High	Low	Low
Non-Quantifiable Costs			
Safety Hazard	High	Higher	Low
Pollution Level	High	Low	Low
Overall Cost Assessment	High	Medium	Low