COST COMPARISON

Cost of Waterjetting
Compared to Gritblasting

Flow

The following facts were gleaned during a discussion with a major offshore blasting and painting contractor located in the Gulf of Mexico that uses both waterjetting and gritblasting. The subject of discussion was the cost, operational and administrative issues of using water versus grit to remove coatings. There are several issues to note in the difference of using ultra-high pressure water versus grit. Some of the costs associated with the different grits may be different in your areas; however, the amount used per square foot should be fairly consistent.

The figures used are based on a 100,000 square foot coating removal project. Some of the costs associated with different grits may be different in your area.

Abrasive purchase costs

- It requires between 8-14 lbs. of abrasives per square foot treated to achieve a near white surface finish.
- Costs of silica in Louisiana is about $74 per ton including freight.
- Black Beauty (coal slag) costs about twice that, or $150 per ton.
- On the average it requires approximately 10 lbs. of abrasives per square foot.

Therefore, a 100,000 square foot project would require 500 tons of abrasives which equates to ***$37,000 for Silica and $75,000 for Black Beauty.***

Abrasive disposal costs

- Louisiana disposal costs for grit are approximately $75/ton or ***$37,500*** for the 100,000 square foot example.
- Other disposal costs include collection and transport of abrasives. Abrasives are typically scooped up with shovels and put back into sandbags, transported back to the collection site, tested, classified and finally disposed of. This is labor intensive and requires coordination with a disposal company – scheduling, purchase orders, etc.

Containment costs

- The method for containment varied between containment screens and tarps that could result in another ***$3000-$4000 per project.***
- Filter media and containment systems protecting compressors and other intakes on offshore platforms can run into tens of thousands of dollars on offshore platforms.
- With waterjetting, water is collected on poly tarps with a liner to collect solids. The remaining water is pumped with a diaphragm pump into settling barrels. Once settled, water is tested and disposed of based on the customer's water permit. There is about one tenth or less of disposal costs to the blasting company's customer for disposal on a project.

Equipment required

- The transportation of equipment needed to support an eight man dry blast crew versus a UHP project is another area resulting in savings to the facility owner. To transport the equipment for a grit job requires a forty foot drop deck trailer; the equipment for the UHP job can be handled with a mini-float.
- Equipment for gritblasting is a large compressor, Becon air prep system, 8-ton sand pot, bull hose, blast hoses, etc. This equipment requires a multitude of parts stock, a tool room and multiple vendors requiring both operational and administrative assistance.
- Waterjetting can be handled with one vendor and parts space is much smaller.
- The cost of a 40K psi pump with two JetLances is about 14% more than the spread of equipment needed for grit. However, the $75,000 to $110,000 expense of purchasing and disposing of grit goes away. There is much less administrative and operational efforts required with water versus grit because of the number of vendors, purchase orders, receiving, shipping, paperwork, etc. needed to support the array of equipment and grit.

Other issues

- Blasting company's customer likes the fact that multiple tasks can be performed with water as opposed to grit because of the lack of dust in the air to get into the bearing, intakes, etc.
- On lead projects, monitors were set up and airborne lead is to a minimum – safer work environment for workers in vicinity.
- The procurement of water is generally not an issue. If the project did not have water service, contractor uses 500 barrel tanks with a diaphragm pump. Rental of the tank and pump was very inexpensive.
- On lead job, they did not need a decon unit, saving about $5,000 per month.
- Felt that water was safer and workers could work closer together than with grit or low pressure, high volume water pumps.
- Contractor uses test kits to support the cleaner surface left with using water and lack of profile impact with water. Many times they will leverage the position of their paint reps to support the cleaner surface and additional life of the coating.

Editorial comments

On the surface, water appears slower. But when one factors in all of the above mentioned efforts required (labor intensiveness of collecting grit, overall handling, etc.), water could and may in fact in fact be more productive because the time required to perform those duties can be spent blasting. The administrative duties in processing paperwork are lessened. When the cost of abrasives and disposal are added to the cost of the gritblasting equipment, it far exceeds the cost of a waterjet system and there are no residual grit costs to add to the expenses. By having no residual grit, you have no residual risk at the facility where work is being performed. This also results in a cleaner work area that doesn't harm equipment or tools with moving parts to be clogged with abrasives flying through the air.

The major challenge is getting the inspectors to learn what a waterjetted surface looks like. It is imperative that proper instruction from the contractor and paint company is provided to educate the owners what surface rust levels are acceptable and how to address them. This is a totally new way of removing for many of the inspectors in the field so getting past the technology curve is sometimes challenging. FLOW is able to provide information from many different organizations and the paint reps are also a good source in assisting in that endeavor.