

Sponge Jet : An Environmentally Friendly, Innovative and Effective Substrate Blasting Preparation for Coating Application

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Sponge-Jet, Inc. U.S.A.
Presented to:
NACE-Jubail
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Protect What's Important

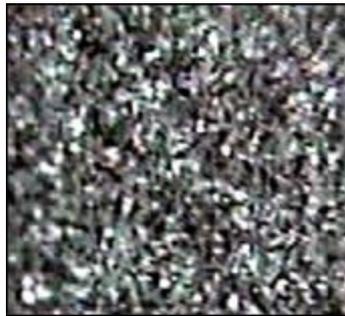


Industry leaders SPECIFY Sponge-Jet...



Proper Surface Preparation:

Cleanliness (Visual)

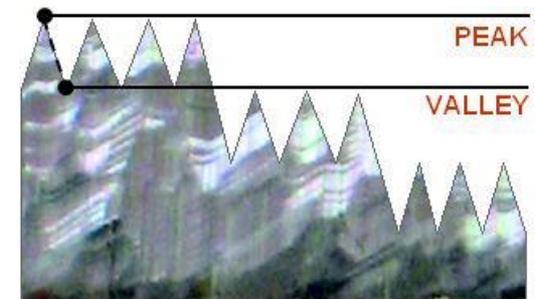


Decontamination (Invisible)

CHLORIDES & SULFATES
OIL RESIDUE
LEAD
ASBESTOS
PCBs
LOW-LEVEL RADIATION

Profile (Measurable)

Microns / Mils



“75% of coating failures are the result of poor surface preparation”

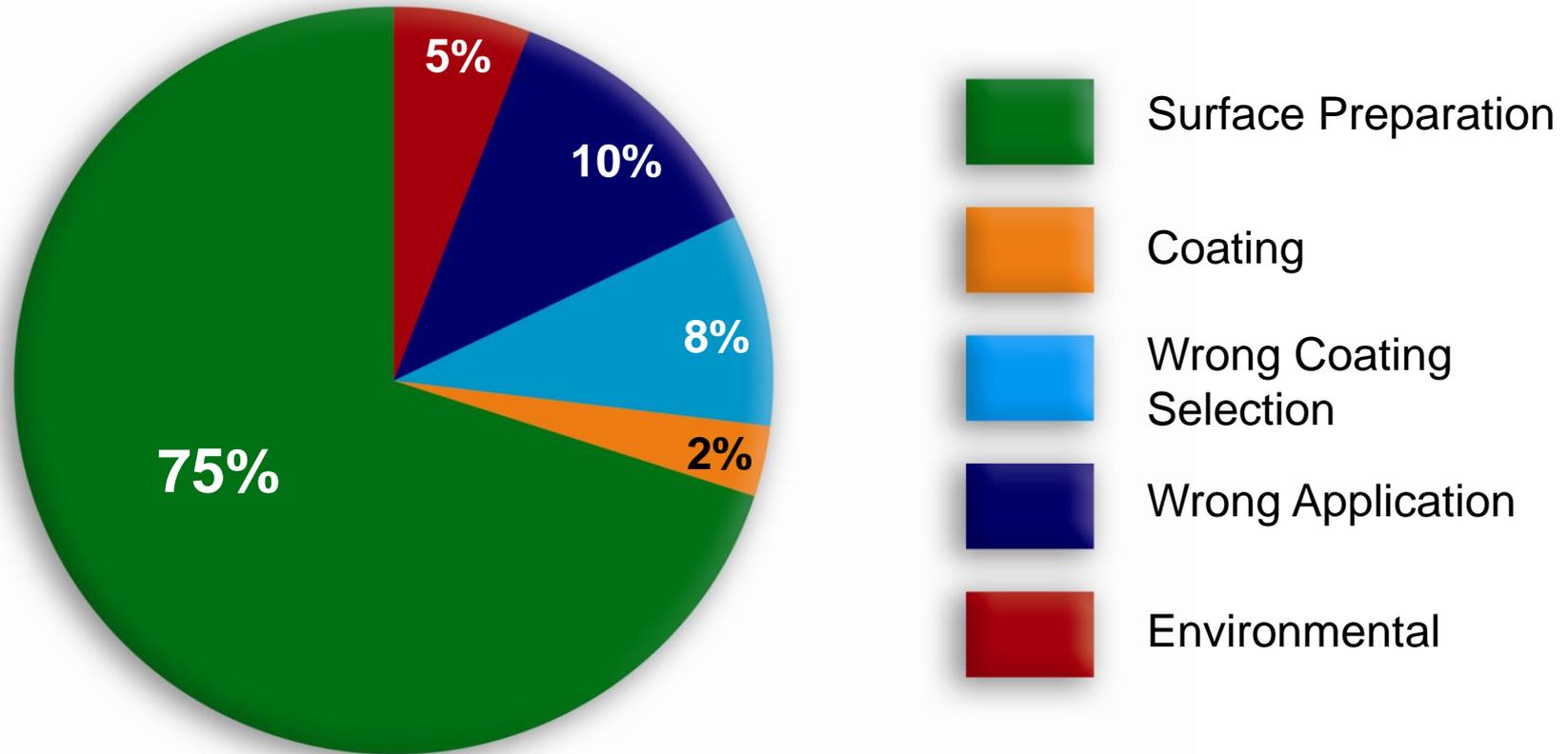
“It should be remembered that when defects are exposed by blast cleaning and subsequently removed by grinding, it is necessary to re-prepare the immediate area to retain the surface profile.”

“All coating systems will perform better on properly cleaned surfaces with a good surface profile”



SOURCE: NACE Coating Inspector Program (Level 1)

Why Do Coatings Fail?



Protect What's Important



Professional Associations have established standard descriptions for *visible contaminants*

Standard	SSPC	NACE	ISO
White Metal Blast Cleaning	SP-5	NACE 1	Sa3
Near White Blast Cleaning	SP-10	NACE 2	Sa2.5
Commercial Blast Cleaning	SP-6	NACE 3	Sa2
Brush-Off Blast Cleaning	SP-7	NACE 4	Sa1

Protect What's Important

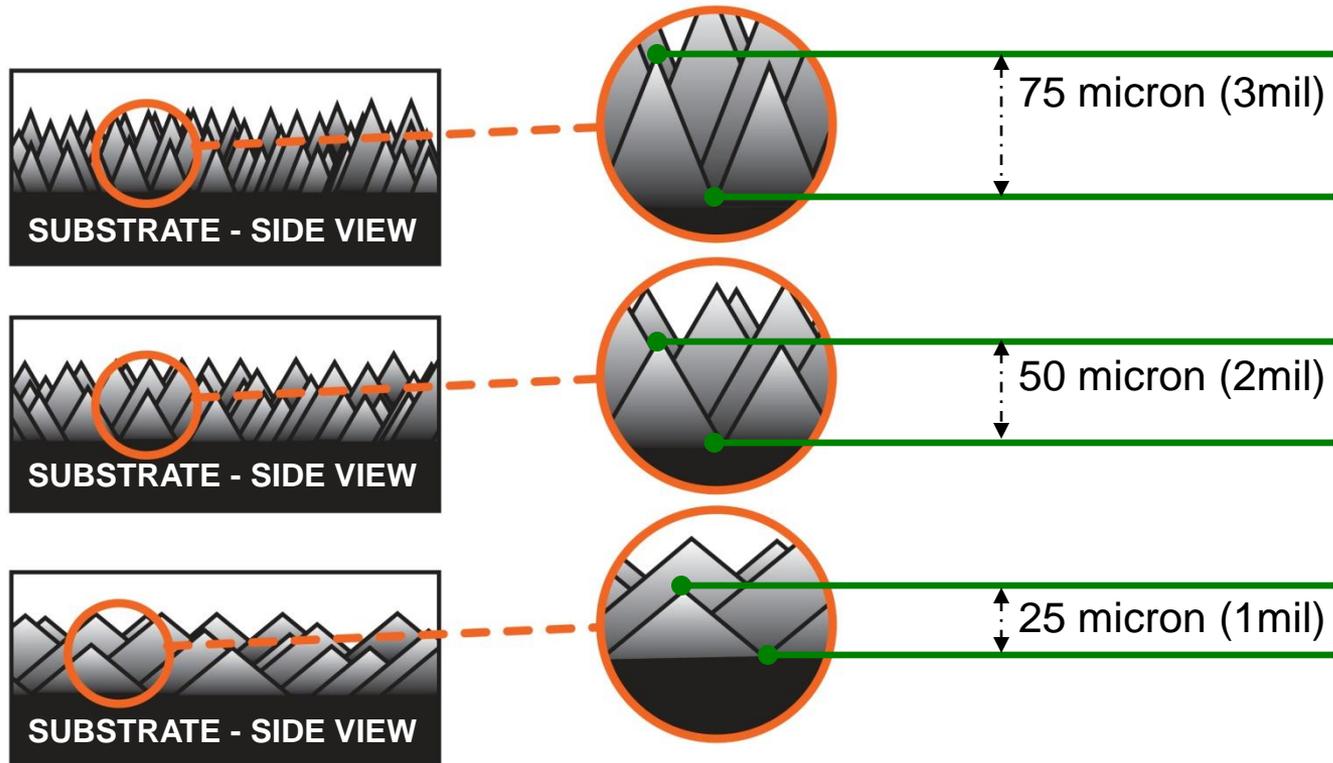


SSPC has established standard levels of defined cleanliness for *invisible contaminants*

	Chloride	Soluble Ferrous	Sulfates
SC 1	0 $\mu\text{g}/\text{cm}^2$	<0 $\mu\text{g}/\text{cm}^2$	<0 $\mu\text{g}/\text{cm}^2$
SC 2	<7 $\mu\text{g}/\text{cm}^2$	<10 $\mu\text{g}/\text{cm}^2$	<17 $\mu\text{g}/\text{cm}^2$
SC 3	50 $\mu\text{g}/\text{cm}^2$	<50 $\mu\text{g}/\text{cm}^2$	n/a

Protect What's Important

Surface profile is a measurement of the average peak to valley distance, normally recorded in Microns or Mils



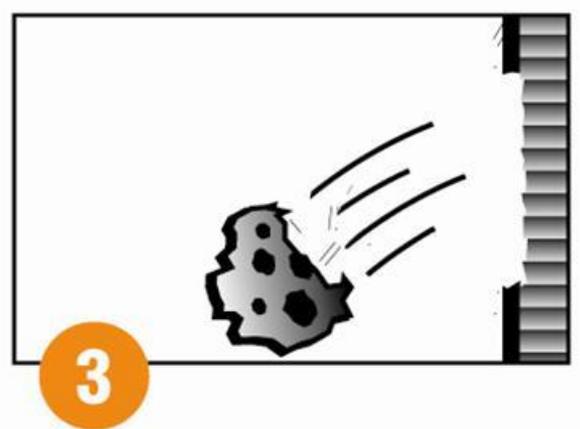
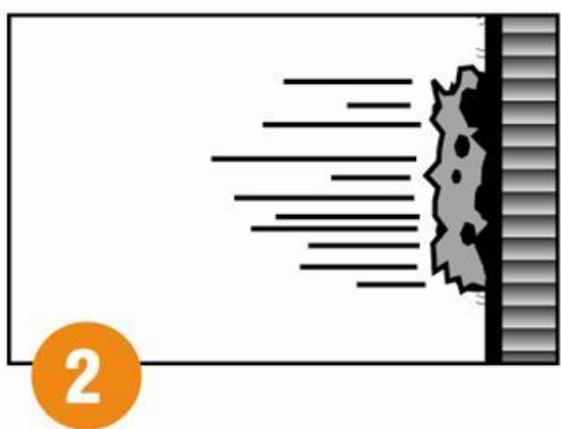
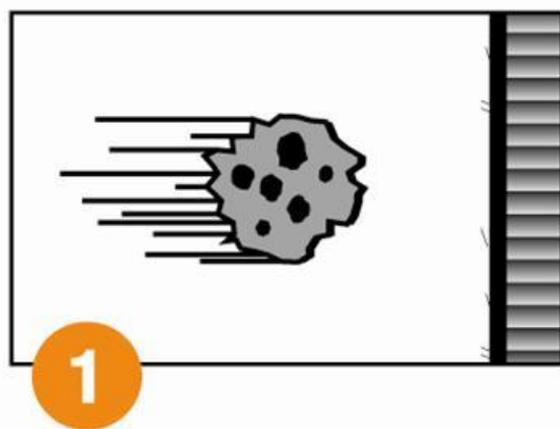
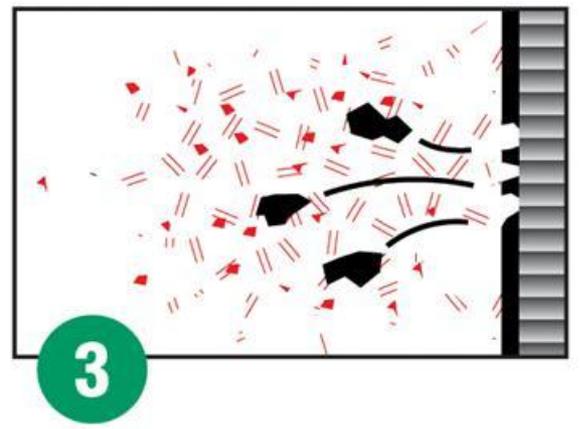
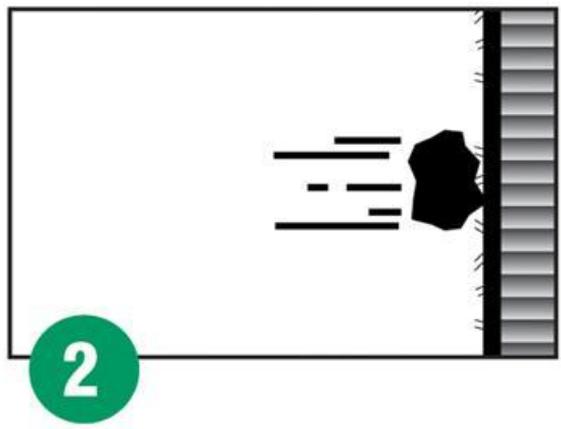
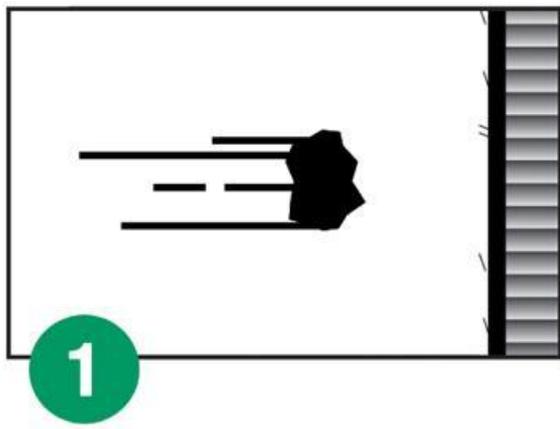
Note: a *corroded* surface is NOT an (anchor) profiled surface

Protect What's Important

Different Technologies Produce Different Results

TECHNOLOGY	VISIBLE CLEANLINESS	NON-VISIBLE CONTAMINATES	PROFILE
Ultra-High Pressure Water	√+	√+	∅
Dry Ice (CO ₂)	√	√	∅
Power Tools	√-	∅	√-
Ordinary Abrasive	√+	√	√+
Sponge Blasting	√+	√+	√+

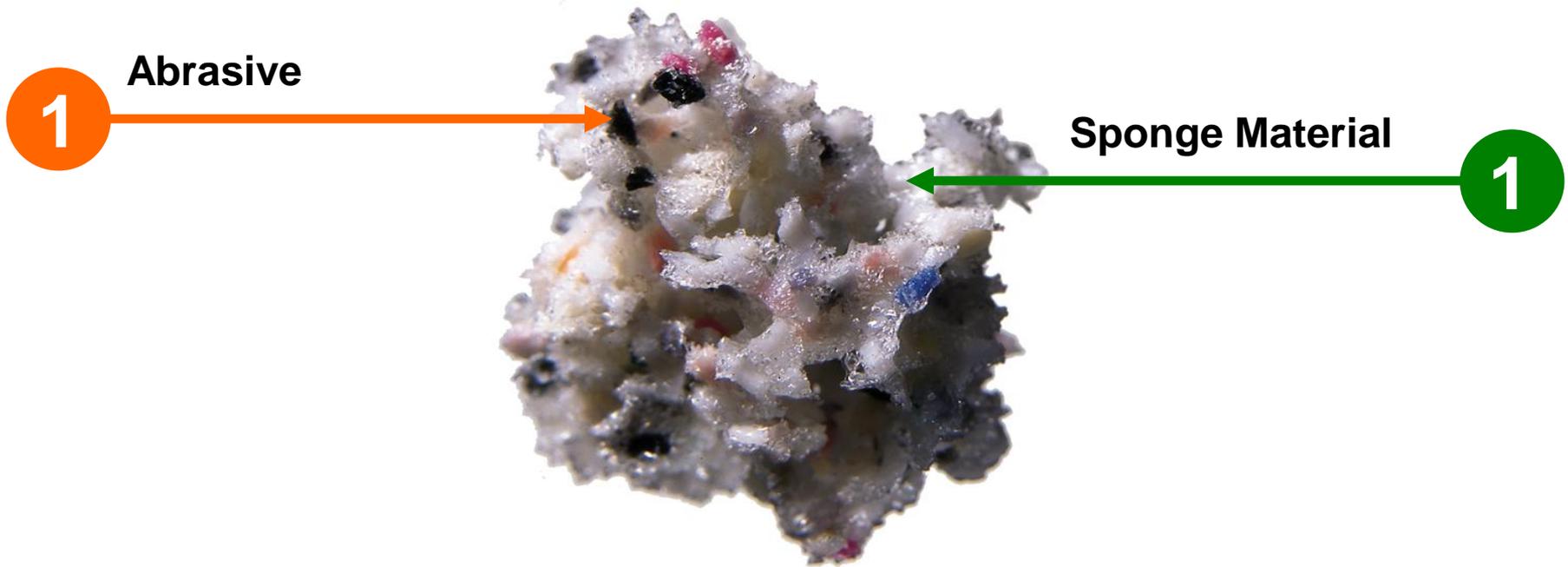
Ordinary Blasting versus Sponge Media Blasting



Sponge Blasting System



Sponge Media Technology



Dramatically Reduce Airborne Emissions

Sponge Blasting



Ordinary Blasting



Sponge Blasting can reduce dust levels as much as 98% compared to ordinary abrasives

Profile 0 to 150+microns (0 to 6+mils)

The Many Profiles of Sponge Media™

Low Dust Abrasive Blasting Technology

Silver 80 Sponge Media™	Silver Aero-Alox™ 320 Sponge Media™	Silver 60 Sponge Media™	Silver 30 Sponge Media™	Silver 16 Sponge Media™
				
				
PROFILE (on Aluminum): ±62.5micron (±2.5mil) Blast Pressure: 3.4bar(50psi) ABRASIVE AGENT: 80-Grit Aluminum Oxide	PROFILE (on Steel): <12micron (<.5 mil) Blast Pressure: 5.5bar(80psi) ABRASIVE AGENT: 320-Grit Aluminum Oxide	PROFILE (on Steel): ±62.5micron (±2.5mil) Blast Pressure: 5.5bar(80psi) ABRASIVE AGENT: 60-Grit Aluminum Oxide	PROFILE (on Steel): ±75micron (±3 mil) Blast Pressure: 5.5bar(80psi) ABRASIVE AGENT: 30-Grit Aluminum Oxide	PROFILE (on Steel): ±100micron (±4 mil) Blast Pressure: 5.5bar(80psi) ABRASIVE AGENT: 16-Grit Aluminum Oxide

To learn more visit [Sponge-Jet, Inc. at www.spongejet.com](http://www.spongejet.com); call 603-610-7950 or in Europe call +44-1253-390731

Sponge Blasting is a Dry Abrasive Blasting Process



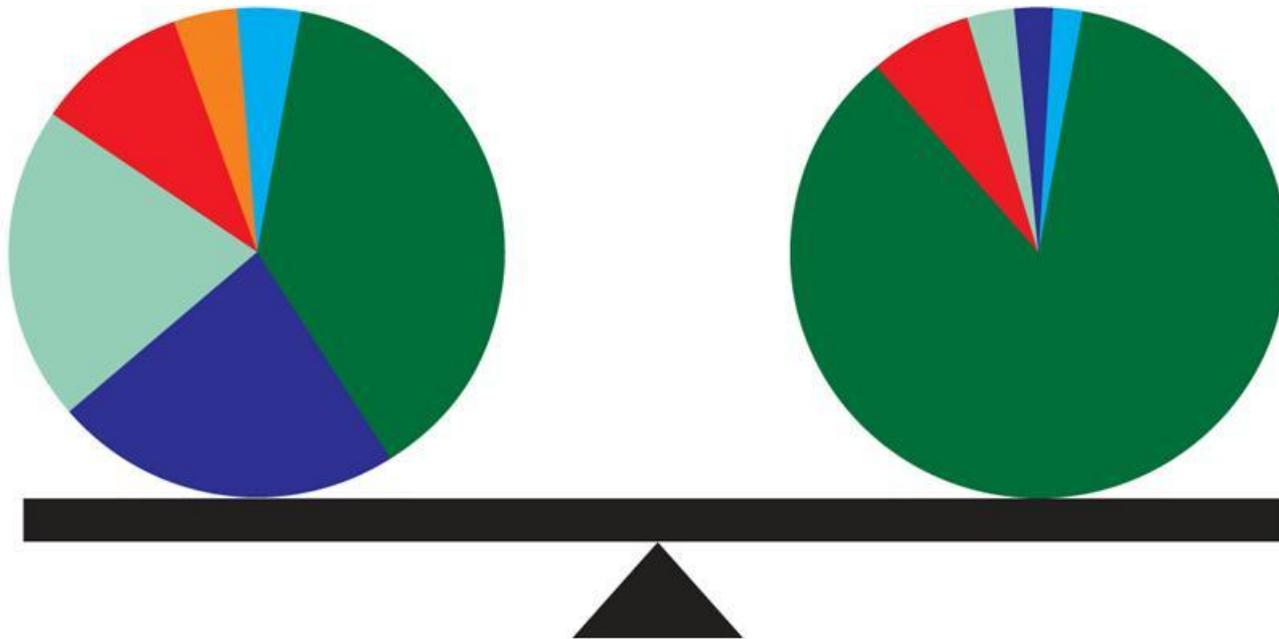
- Blast near sensitive equipment
- Work near active electrical components
- Reduce fugitive emissions (dust)
- Eliminate water, slurry or runoff problems



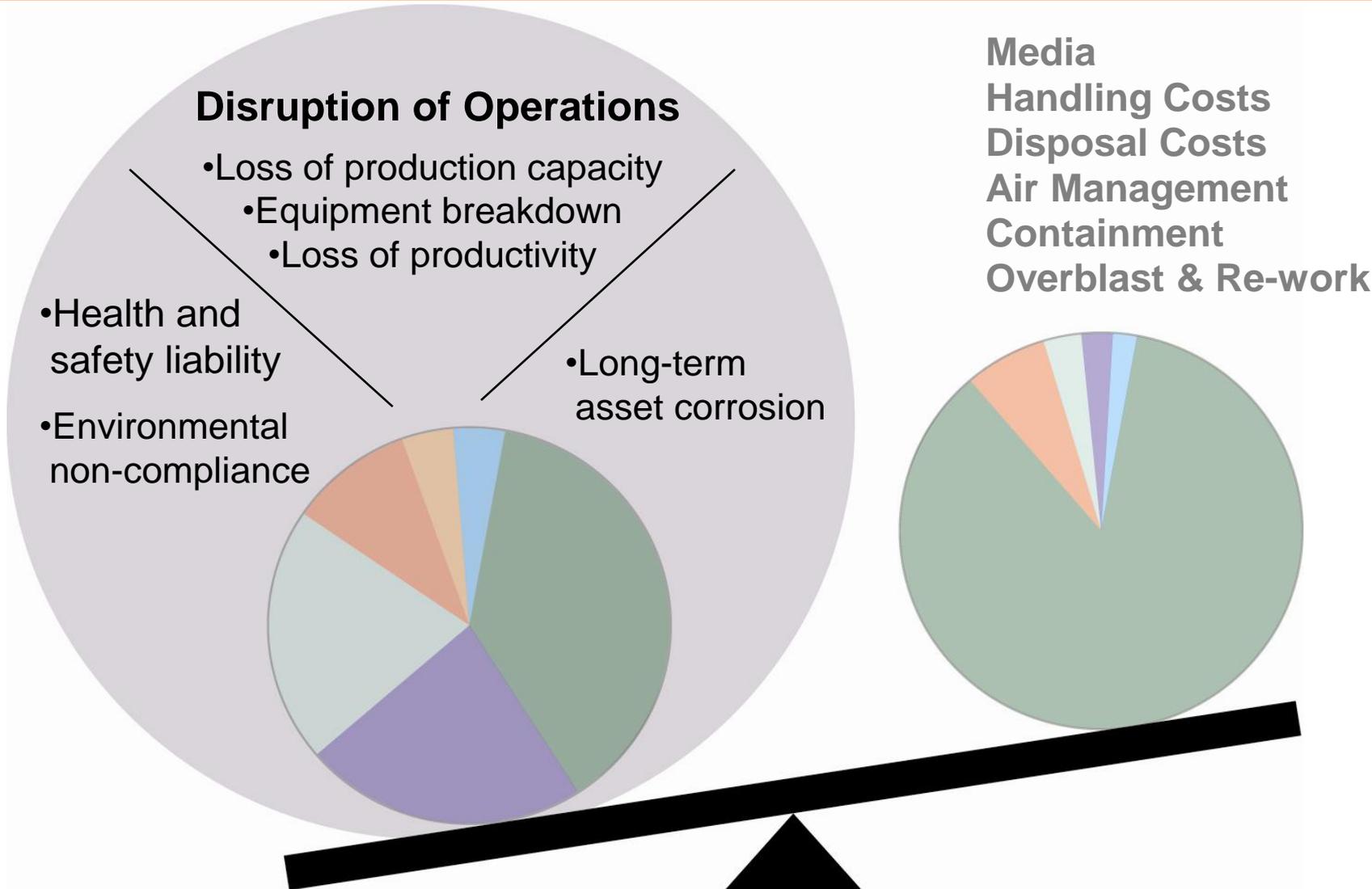
**SPONGE-JET
BLASTING IN
PROGRESS**

Project Costs

- Media
- Handling Costs
- Disposal Costs
- Air Management
- Containment
- Overblast & Re-work



Total Project Costs (Including Hidden Costs)



Protect What's Important

The REAL COST of Ordinary Abrasive Blasting



Hazardous Emissions



Corrosion



Equipment Breakdown



Eye Injuries

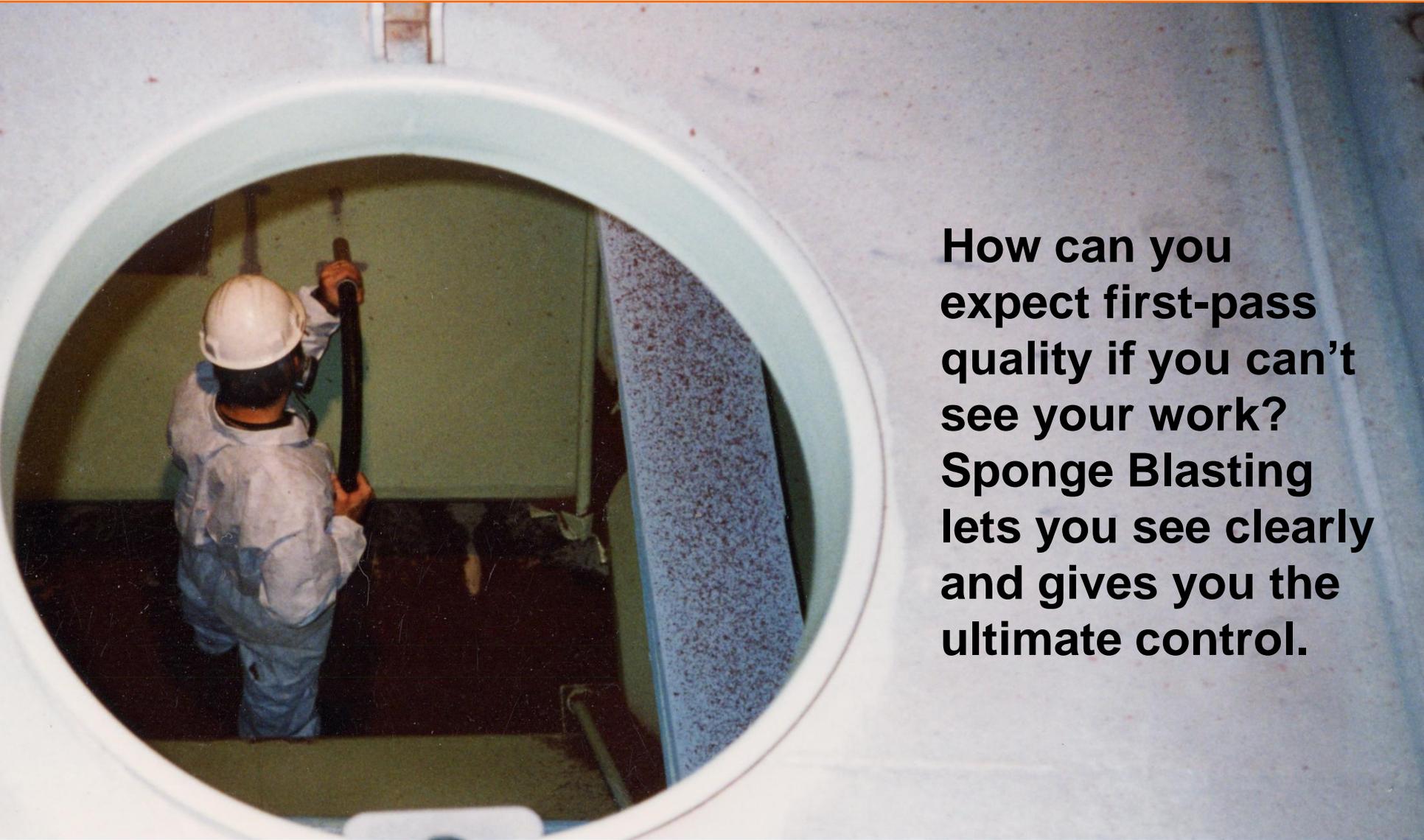


Pollution



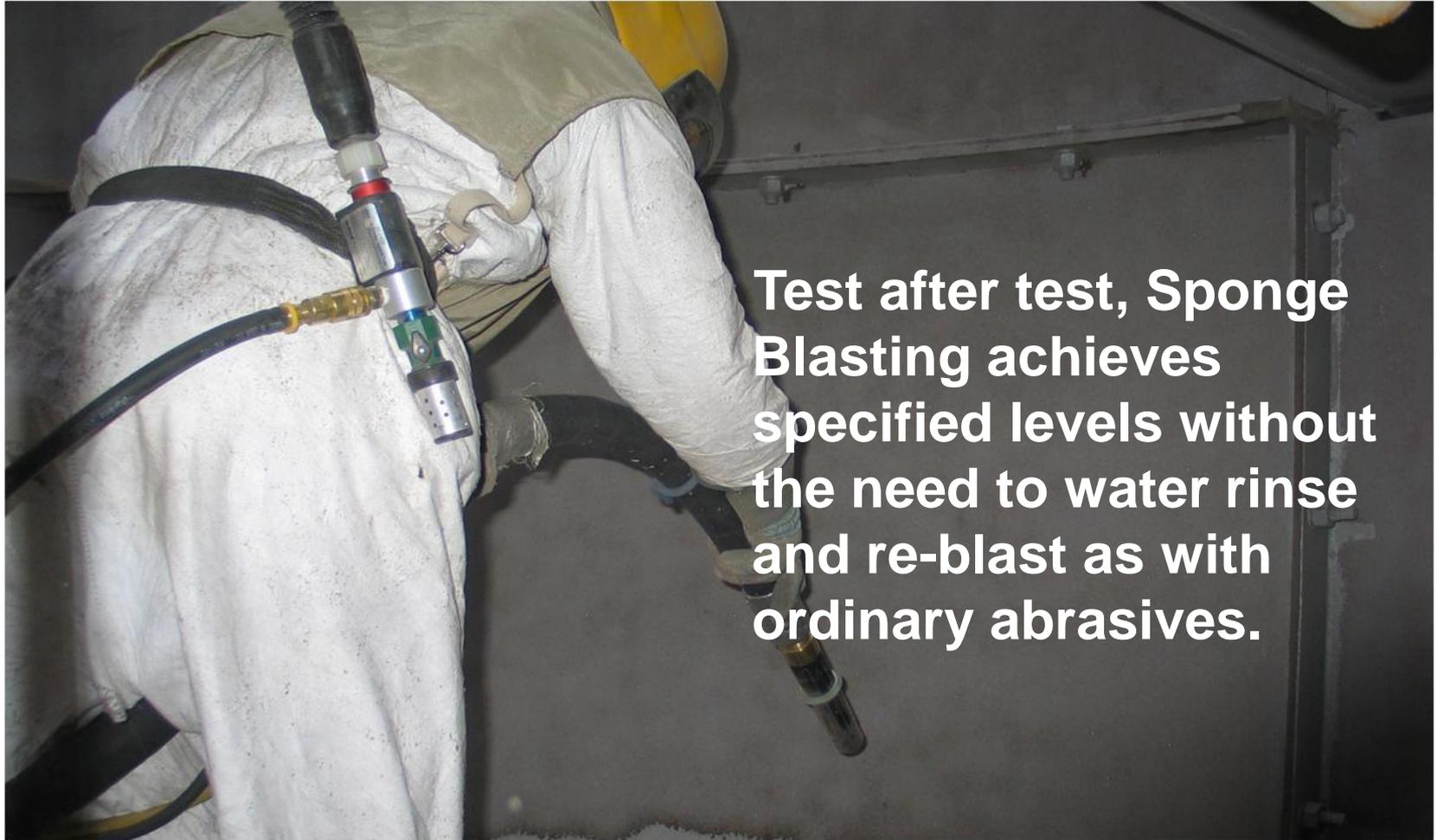
Downtime

Virtually Eliminate Rework



How can you expect first-pass quality if you can't see your work? Sponge Blasting lets you see clearly and gives you the ultimate control.

Remove Chlorides Faster



Test after test, Sponge Blasting achieves specified levels without the need to water rinse and re-blast as with ordinary abrasives.

Blast When and Where You Want

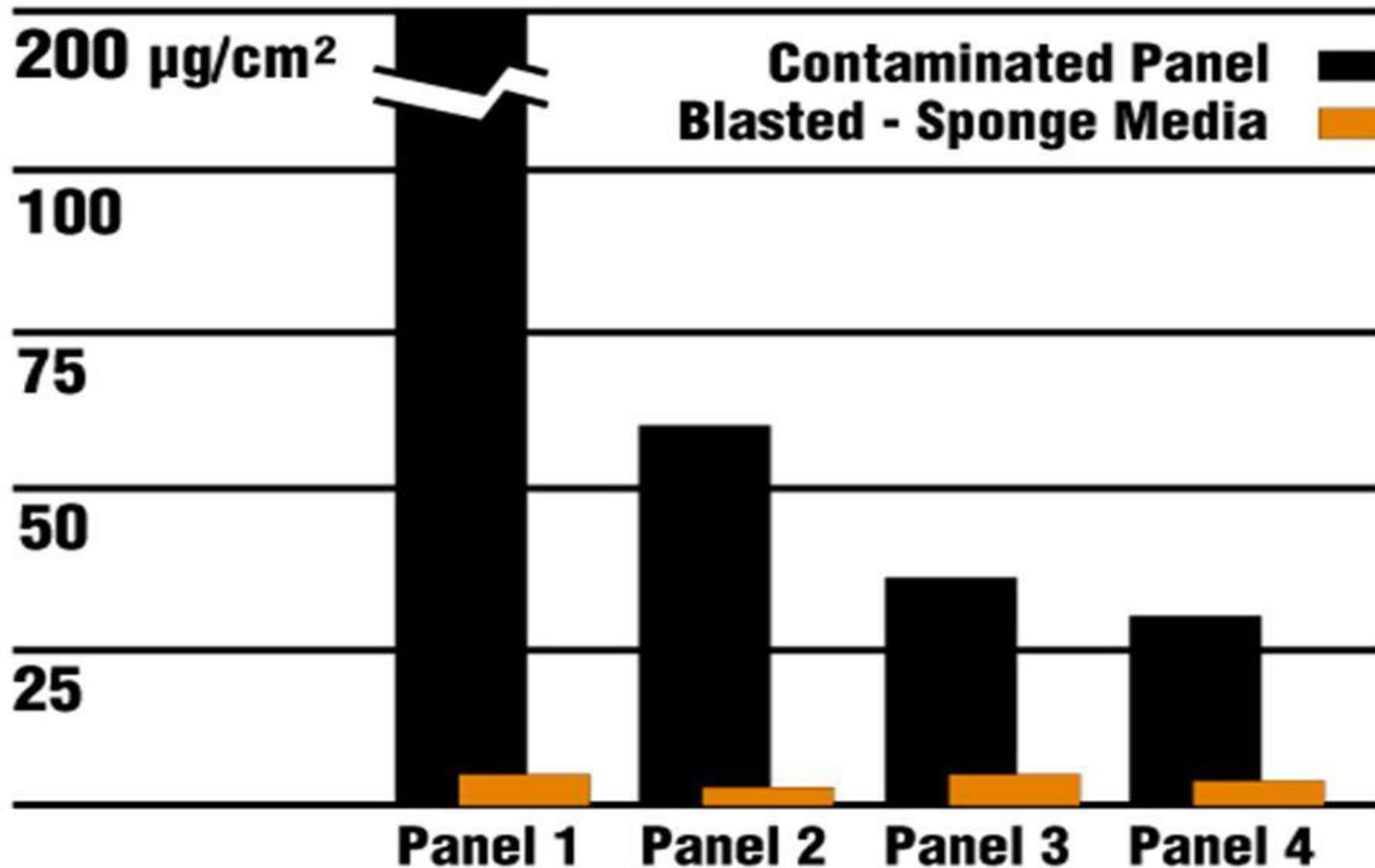


Sponge Blasting reduces ricochet causing less collateral damage to adjacent surfaces and sensitive machinery.

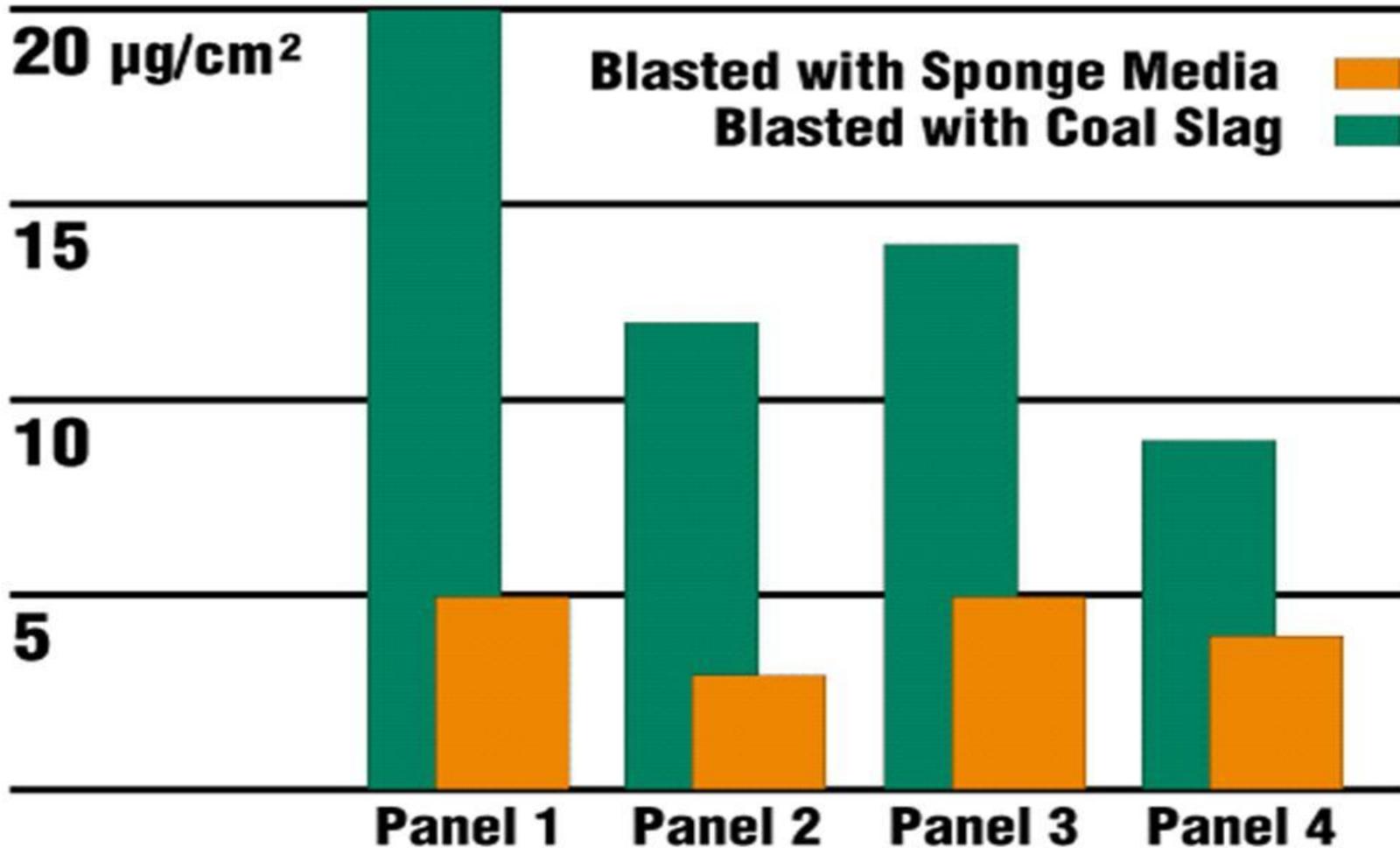


**Blast Where You Don't
Want to Blast Again!**

Residual Chloride Comparison - A



Residual Chloride Comparison - B



One Abrasive System... Many Capabilities

Abrading/Profiling

Selective Stripping



Cleaning and Micro-abrasion

Contaminant Removal



- **IN MINUTES** - change from one of 20 different Sponge Media types/sizes/grits to another

As a result...

- **Profile:** 0-150+ microns (0-6+ mils)
- **Achieve all abrasive Levels of Surface Cleanliness**

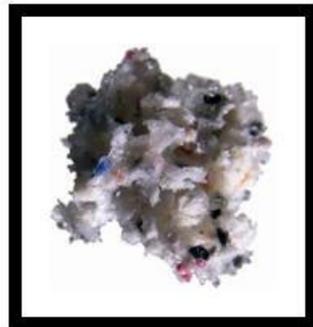


Broad Ranging in Size and Capability



Sponge Blasting System

Sponge-Jet Feed Unit™ / Sponge-Jet Recycler™ / Sponge-Jet Sponge Media™



Sponge Blasting System

The Sponge-Jet Feed Unit™

- Delivers Sponge Media particles to the surface
- Monitors specific flow characteristics
- Optimizes production and rebound
- Controls mixture of Sponge Media particles and air



Sponge Blasting System

The Sponge-Jet Media Recycler™

- Prepares and cleans Sponge Media particles for reuse
- Separates media into three categories:
 - Oversized debris
 - Reusable Sponge Media
 - Fines: spent media contaminants



Sponge-Jet Integrated Systems

The B-VAC™ Pro 3 High-Production System:

- Automatic Recovery, Recycling and Reloading System
- Save time, labor and money by accelerating blasting and painting operations
- Recover Sponge Media™ abrasive in the work area
- Automatically removes contaminants
- Reusable media is reloaded the Feed Unit for reliable blasting



Sponge-Jet Integrated Systems

The CVR P220 Continuous VAC-Recovery System™:

- Automatic vacuum/recovery for reduced handling and labor costs
- Recovers, separates and stores, dust, waste and Sponge Media™ which has been vacuumed from remote job sites
- Users any Sponge-Jet Recycler™ and Sponge-Jet Feed Unit™ - most waste drums and dumpsters
- For recovery up to 100m (300ft) or 30m (100ft) vertically; 3800mm WC (11in of Hg) maximum suction



Sponge-Jet Integrated Systems

RASP Xtreme™ Team:

- Integrated, light and mobile blasting and recycling system
- Includes pneumatic 25-P Recycler™ and RASP Xtreme™ Feed Unit™
- Designed to allow for:
 - Complete blasting and recycling in remote and/confined areas
 - Quick in-service maintenance on deployable assets like ships and offshore platforms



Sponge Blasting System

The KwietKave™ In-shop B-VAC and Noise Control System:

- Similar to B-VAC Pro with added noise control, enhanced media handling system and blast room
- Costs less than most conventional grit blasting/air-handling systems
- No need to erect new foundation; no buried conveyors/raised floors; installs on existing flat surfaces
- With less noise exposure, install system adjacent to personnel
- Lowering heating/air conditioning costs with HEPA quality filters that re-circulate air within system



Clean Abrasive Blasting Process

- Simplify surface preparation
- Blast in sensitive surroundings
- Reduce fatigue on the blaster
- Enjoy fast, easy clean-up



Easier and Faster Cleanup

Support personnel sweep or vacuum Sponge Media™ abrasive (and trapped dust particulate) more easily than traditional abrasives.



Less Need for Extensive Containment

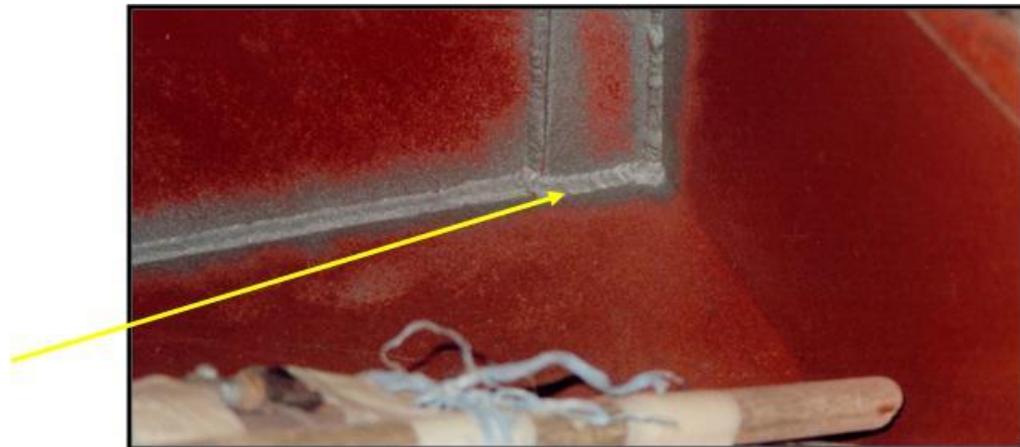
Sponge Media™ abrasives absorb rebound energy, reducing media ricochet, allowing for less extensive containment.



No Collateral Damage

- ✓ Prepare weld seams and repair coating blisters
- ✓ Remove corrosion and coating products
- ✓ Clean the surface
- ✓ Produce the required profile
- ✓ Provide a smooth coating transition (*feathering*) without cracking or fracturing the surrounding intact coatings
- ✓ Blast around rotating equipment, electrical boxes, other trades
- ✓ Ergonomically sound

***White Metal Prep
Feathered into primer***



Sponge-Jet Summary



The Sponge-Jet Process:

Cleaning or preparing a surface with pneumatic propulsion of sponge/abrasive composite particles

Sponge-Jet Media: A composite of open-cell, polyurethane foam (sponge) and abrasive

Sponge-Jet Equipment:

- **Feed Unit:** A modified abrasive blast unit designed to reliably blast Sponge Media. *Primary difference:* actuator in pressure vessel and screw auger below vessel - providing improved and controlled flow of media.
- **Recycler:** A vibratory, multi-deck classifier separates and cleans Sponge-Media for reuse.

All Patented in the US and Europe

Industrial Coating Maintenance

- Bridge and industrial structures
- Railcars and mass-transportation
- Water and waste-water plants
- Offshore structures
- Petrochemical facilities
- Marine vessels
- Military - ground, sea and air segments
- Food processing
- Pulp and paper mills



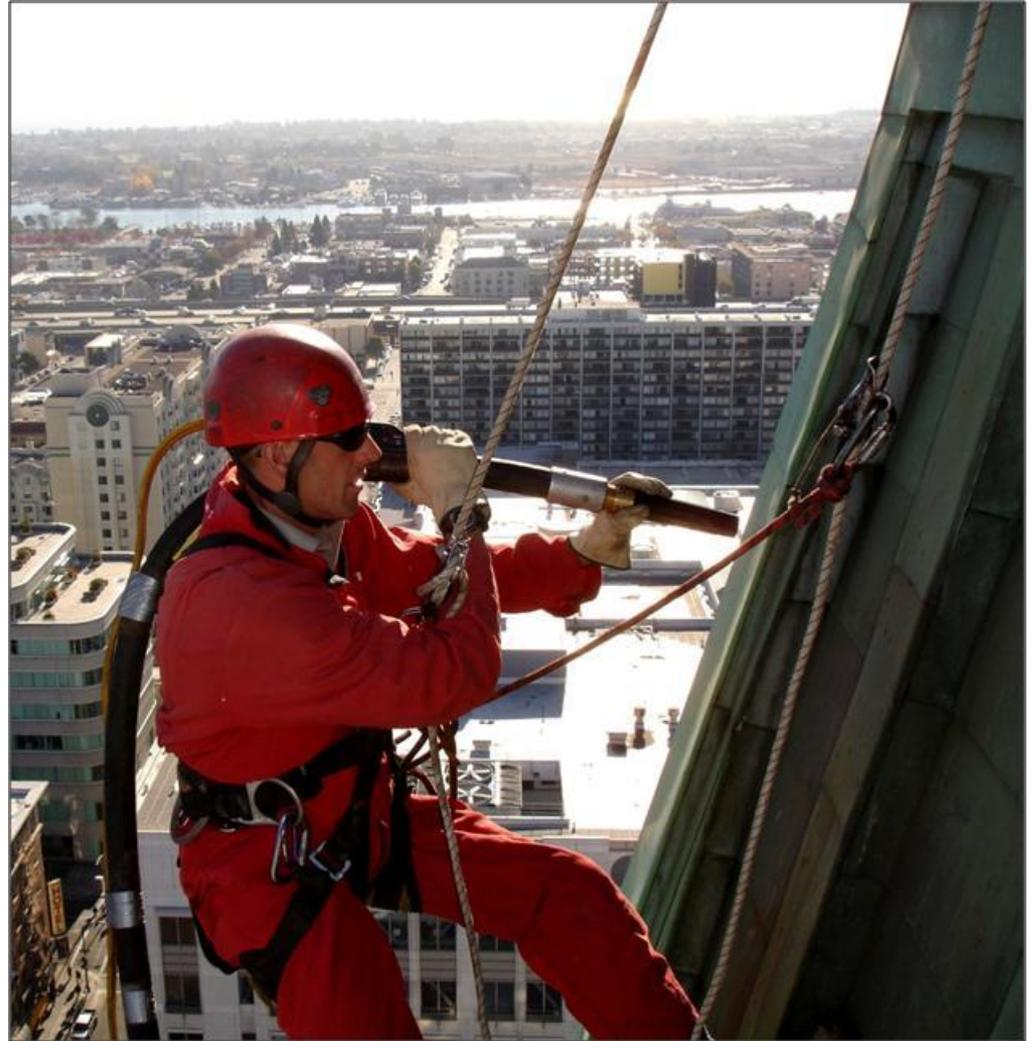
Abatement

- Lead abatement
- Asbestos abatement
- PCB abatement



Cleaning and Restoration

- Fire damage / soot removal
- Machine cleaning
- Parts refurbishment
- Interior and exterior wall; ceiling cleaning



Value-added Benefits

- ✓ Blast near other trades and operating equipment
- ✓ Limit over-blasting and re-work
- ✓ Increase the reliability of rotating equipment and compressors
- ✓ Reduce transportation and disposal costs by recycling
- ✓ Eliminate most risks related to surface preparation methods



Conclusion



Blast Where You Want...When You Want

www.spongejet.com