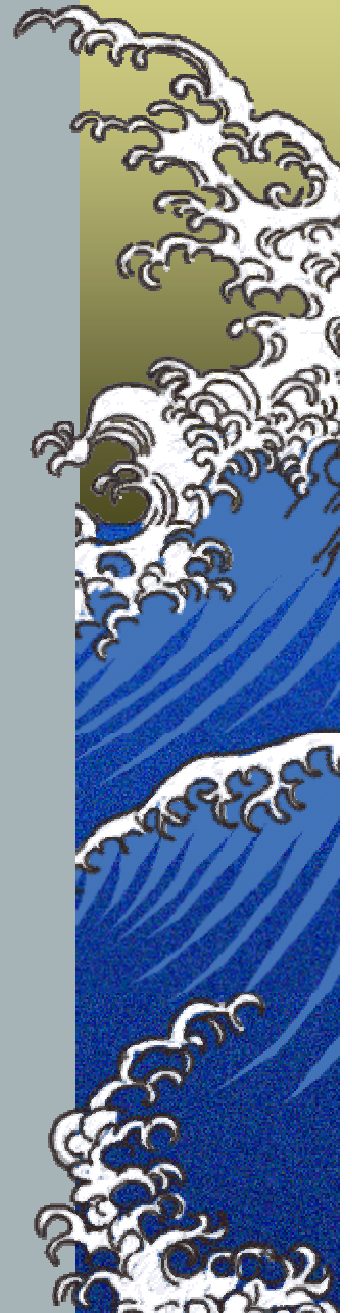


Sand Blasting & Metals Refinishing Operations

An Environmental Impact View



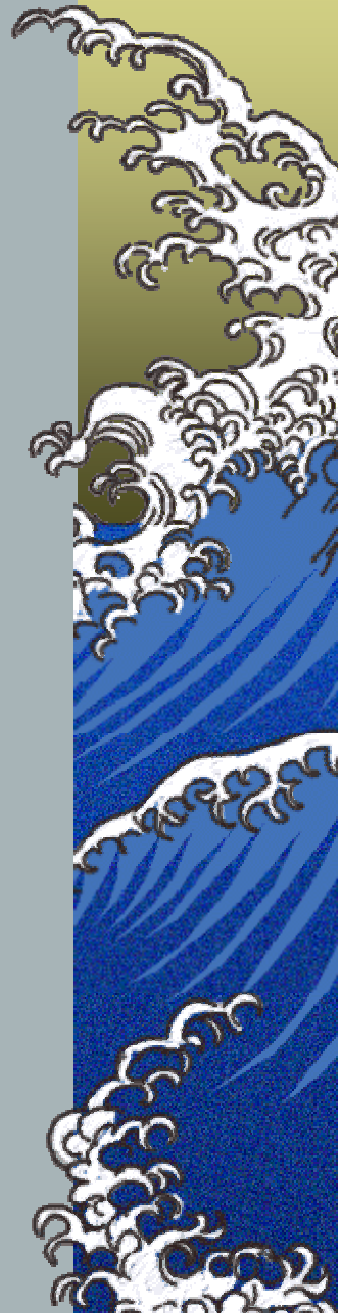
Acronym Key

- ▶ *BMP – Best Management Practice*
- ▶ *MIL Spec – Military Specification*
- ▶ *PBR – Permit by Rule (ie: Chapter 106 authorization)*
- ▶ *MACT – Maximum Achievable Control Technology*
- ▶ *PI-7 – Form that must be completed and sent to TCEQ for certain PBRs*
- ▶ *VOC – Volatile Organic Compound*
- ▶ *NESHAP – National Emission Standard for Hazardous Air Pollutants*
- ▶ *HVLP – High Volume Low Pressure*



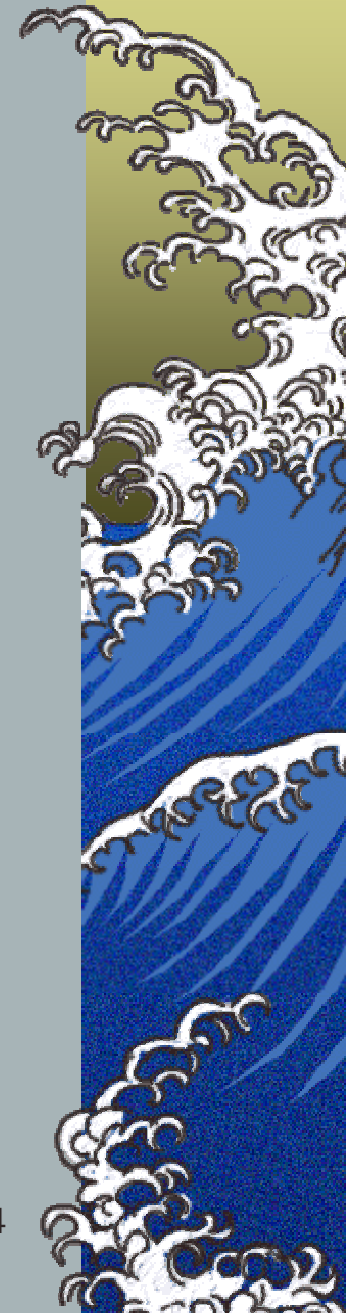
Types of Abrasives

- ▶ *Silica Sand*
- ▶ *Coal Slag*
- ▶ *Copper Slag*
- ▶ *Garnet*
- ▶ *Metal – Shot, Grit*
- ▶ *Glass*
- ▶ *Water*
- ▶ *Others – Dry Ice, Nitrogen, Sponge Jet*



Advantages / Disadvantages

- ▶ *Purchase cost varies*
- ▶ *Usage rates vary*
- ▶ *Ability to recycle*
- ▶ *Dust Creation*
- ▶ *Waste Disposal issues*
- ▶ *MIL Spec requirements*
- ▶ *Local regulatory requirements*



Coating Removal Technologies

- ▶ *Dry Abrasive Blasting*
 - ▶ *Slurry Blasting*
- ▶ *Ultra High Pressure Water Blasting*
- ▶ *μ -jet*
- ▶ *Dry Ice*
- ▶ *High Tech: Liquid Nitrogen, Laser.....*



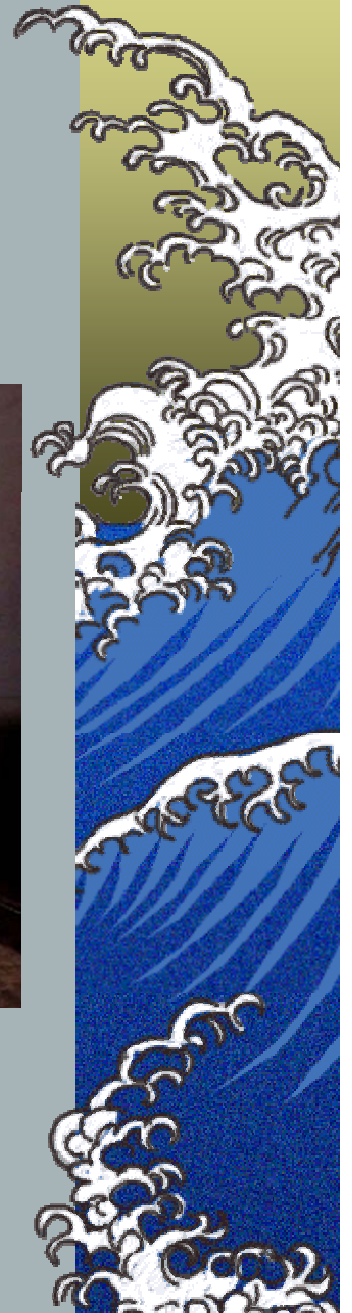
Dry Abrasives

- ▶ *Dust Concerns*
- ▶ *Impacts to Soil*
- ▶ *Impacts to Groundwater*
- ▶ *Impacts to Storm Water*
- ▶ *Waste Disposal*
 - ▶ *Is it Hazardous???*



More Dry Abrasive Issues

- ▶ *Shrouding essential*
 - ▶ *Condition of shrouds*
 - ▶ *Height of shrouds*
- ▶ *Number of nozzles*
- ▶ *Lbs / hr usage of abrasive per nozzle*
- ▶ *Air Pressure*



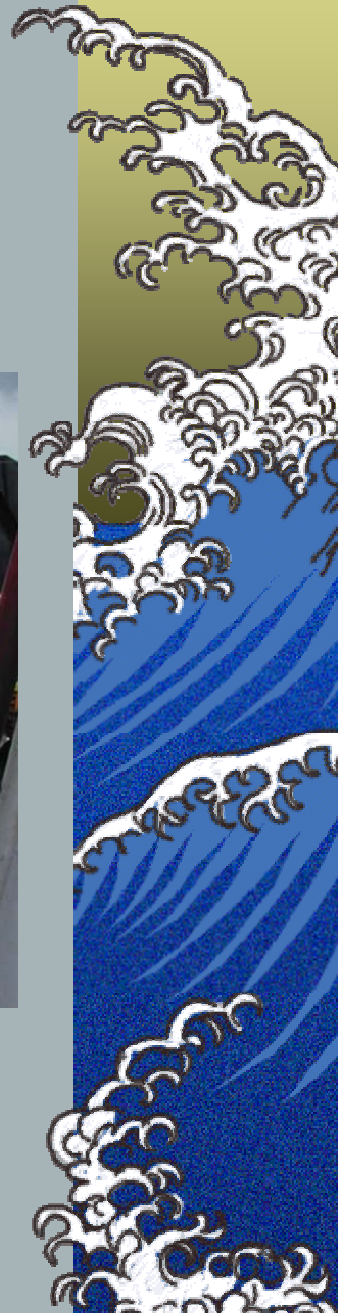
More Dry Abrasive Issues

- ▶ *Worker Protection*
- ▶ *Property Line Standard*
- ▶ *Nuisance Complaints*
- ▶ *Ability to permit*
 - ▶ *PBR very restrictive*
 - ▶ *Chapter 116 permit difficult to obtain*



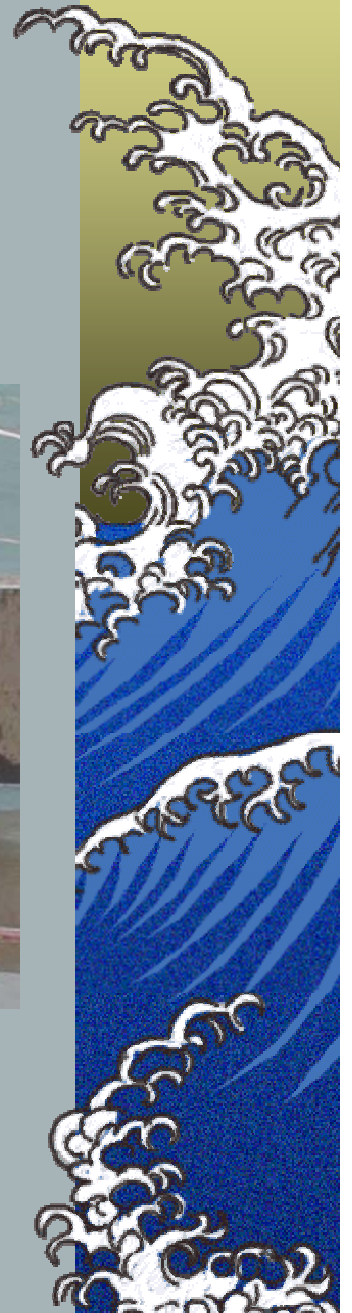
Ultra High Pressure Water

- ▶ *Minimal Air Issues*
- ▶ *Ability to collect waste water*
- ▶ *Disposal of Water \$*
- ▶ *Availability of Source Water*
- ▶ *Very Low Productivity*



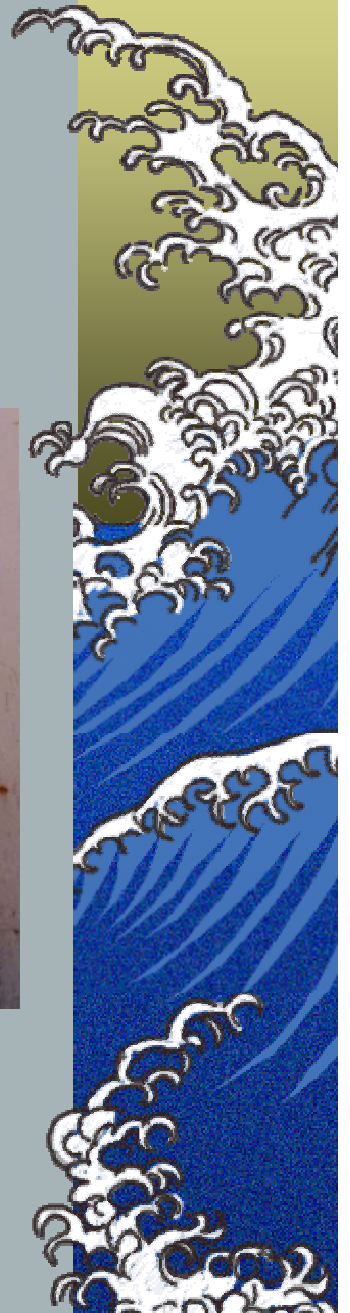
Ultra High Pressure Water

- ▶ *Must collect waste water*
 - ▶ *Metal Products & Machinery*
 - Categorical*
 - Discharge*
 - ▶ *Could be Hazardous*
 - due to Lead*



μ -jet

- ▶ *Sipco Patented Design*
 - ▶ *Ultra High Pressure Water+ Abrasives*
- ▶ *More Productive*
- ▶ *Lower Abrasive Usage*
- ▶ *No Dust*
- ▶ *High \$ Equipment cost*
- ▶ *Must be able to collect water*



μ -jet

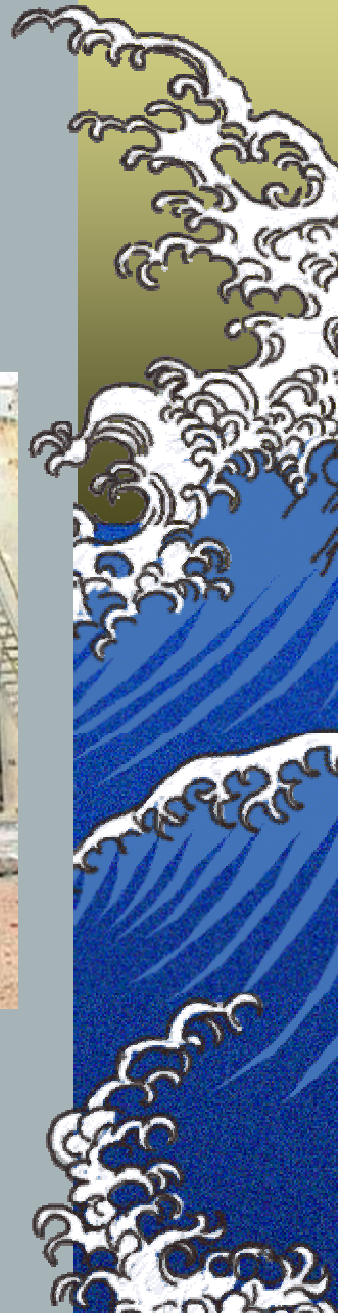
▲ *Modular Equipment*

- ▲ *Self-Contained*
- ▲ *Environmentally Designed*
- ▲ *Minimizes waste generation*
- ▲ *Minimizes Storm Water Concerns*



μ -jet In Use

- ▶ *Surfaces protected / contained*
 - ▶ *Prevent soil / storm water issues*
- ▶ *Less need to shroud*
- ▶ *No permit required*
 - ▶ *PBR, no PI-7*



Other Sipco Technology

- ▶ *Abrasive Hoppers*
- ▶ *Blast Pots*
- ▶ *Loading / transfer systems*
- ▶ *Designed for minimal impact.*
 - ▶ *Reduced air emissions*
 - ▶ *Reduced waste*



Coating Issues

- ▶ *Chapter 115 Rules for each industry*
 - ▶ *Limits VOC content*
 - ▶ *Applicable to essentially ALL*
 - ▶ *Not just Major Sources (ie: Title V permits)*
- ▶ *NESHAP MACT Rules*
 - ▶ *Only applicable to Major Sources*
- ▶ *PBR very restrictive:*
 - ▶ *6 pounds / hr of VOCs (ie: 2 to 3 gallons per hour)*
 - ▶ *Old Standard Exemption authorized 30 lbs / hr. max.*



Coating Technologies

- ▶ *Air Spray*
- ▶ *Airless*
- ▶ *HVLP*
- ▶ *Brush / Rolled*
- ▶ *Powder Coat*
- ▶ *Electrostatic*



Coating Technology Issues

- ▶ *Air Spray*
 - ▶ *Low transfer efficiency(60%), high over spray*
- ▶ *Airless*
 - ▶ *Better transfer eff. (75-80%)*
- ▶ *HVLP*
 - ▶ *Best transfer eff. (85%)*



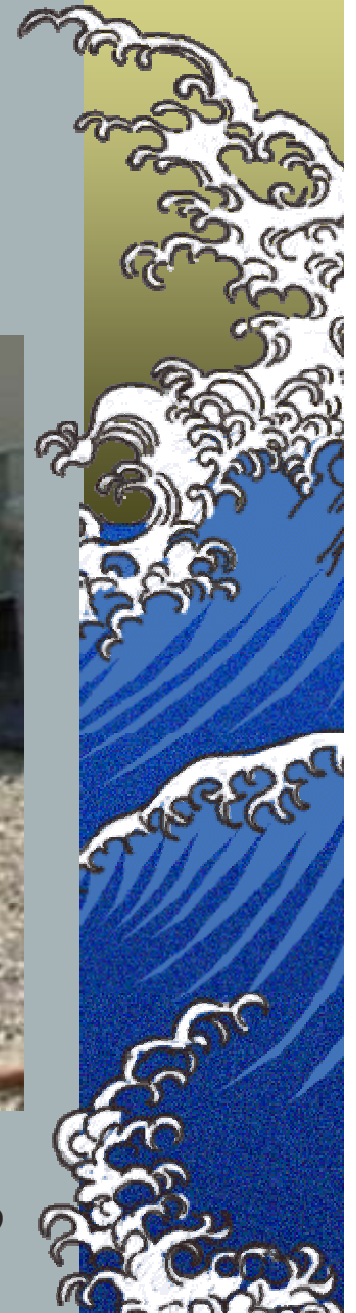
Coating BMPs

- ▶ *Open Containers and Paint pumps on plastic or in containment*
 - ▶ *Prevents soil / groundwater / storm water contamination*
 - ▶ *Reduces potential for waste generation*



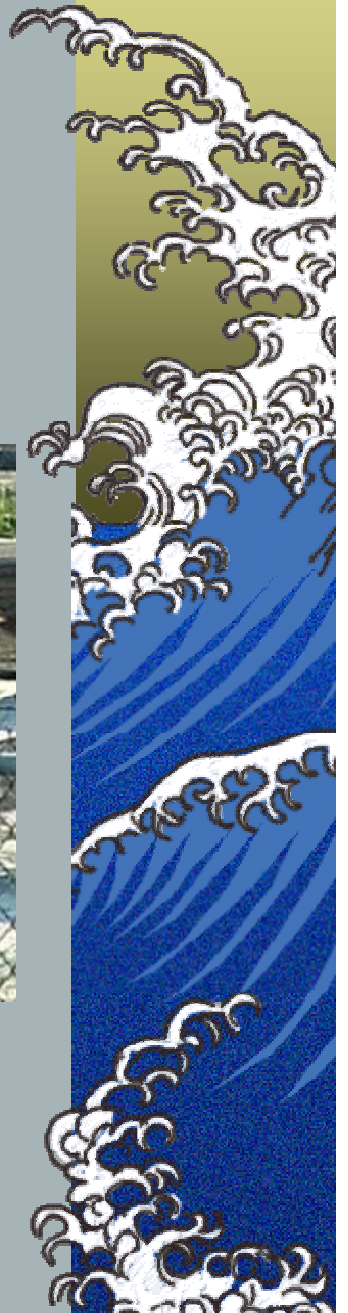
Coating BMPs

- ▶ *Even Empty Containers should be on plastic / in containment*
- ▶ *Empty container must have less than 1" of residue to be considered empty*
 - ▶ *OK to dry open*
- ▶ *If dry, OK to dispose in Class II waste if 5 Gallon or smaller*



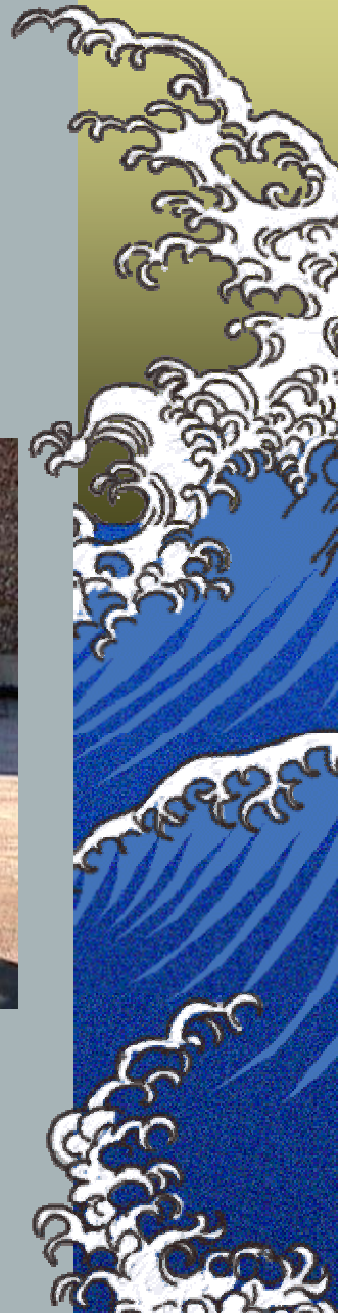
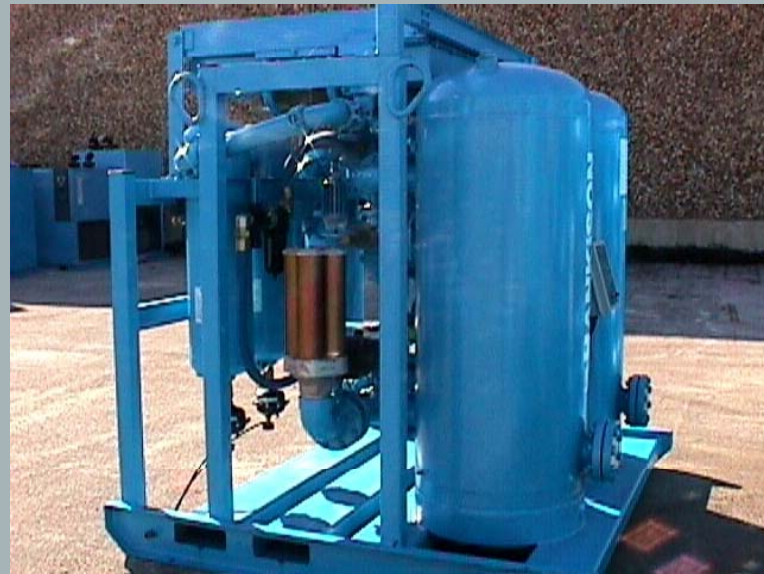
Coating Issues

- ▶ *Paint Waste is a Universal Waste*
 - ▶ *No longer managed as “Hazardous Waste”*
 - ▶ *No manifest required*
 - ▶ *Still requires prudent management*
 - ▶ *Does this look right?*



Other Issues

- ▶ *Compressed Air Source*
 - ▶ *Oil Leaks?*
 - ▶ *Where is condensate going?*
 - ▶ *Diesel Engine permanent mounted?*
 - ▶ *Possible Air Permit issue.*



Other Issues

- ▶ *Beyond Blasting & Painting*
 - ▶ *Storm Water Concerns?*
 - ▶ *Proximity of stored materials to water*
 - ▶ *Pollution Pathway?*

