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)

- NESHAAP 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%)
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?