



Neutralization/Biotreatment Process

- ◆ **Burster Washout Machine**
 - Waste In
 - Burster Tubes
 - Burster tubes rinsed with high pressure water jets
 - Waste Out
 - Burster Tubes
 - Energetics Slurry
- ◆ **Permit Strategy**
 - Ancillary Equipment to a Tank System
 - Process water is used to remove and transport energetic material to the energetics hydrolyzer tank

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Neutralization/Biotreatment Process

- ◆ **Energetics Hydrolysers**
 - Waste In
 - Energetics Slurry
 - Energetics Slurry Neutralized in Reactors With Caustic
 - Waste Out
 - Neutralized Energetic Slurry
- ◆ **Strategy Permit**
 - Treatment in a Tank Systems - Subpart J
 - Chemical Treatment with caustic followed by addition of acid to adjust pH

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Neutralization/Biotreatment Process

- ◆ **Energetics Hydrolysate Storage**
 - Waste In
 - Neutralized Energetics Slurry
 - Neutralized Energetics Slurry Stored
 - Waste Out
 - Neutralized Energetic Slurry
- ◆ **Permit Strategy**
 - Storage in Tank Systems - Subpart J
 - Potential for storage to exceed 90 days

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Neutralization/Biotreatment Process

- ◆ **Projectile Mortar Disassembly Machine (WPMD)**
 - Waste In
 - Waste Munitions (Bursting, Fuses, and Agent)
 - Fuses and Bursting are removed from munitions
 - Waste Out
 - Munitions Bodies (containing agent)
 - Energetic Material and Associated Metal Parts
- ◆ **Permitting Strategy**
 - Not a permitted activity
 - Considered opening containers for the purpose of removing waste

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Neutralization/Biotreatment Process

- ◆ **Multipurpose Demilitarization Machine (WMDM)**
 - Waste In
 - Debursting Munitions
 - Burster well removed, casing cut, and agent drained
 - Waste Out
 - Drained Munitions
- ◆ **Permitting Strategy**
 - Not a permitted activity
 - Considered opening containers for the purpose of removing waste

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Neutralization/Biotreatment Process

- ◆ **Rotary Washout Machine**
 - Waste In
 - Drained Munitions
 - Drained munitions are washed with water jet to remove any heel that may be remaining
 - Waste Out
 - Agent Concentrate
 - Agent Wash Water
 - Triple Rinsed Munition Bodies (containers)
- ◆ **Permitting Strategy**
 - Treatment in a Tank System – Subpart J
 - Munition Bodies will be triple rinsed in accordance with 261.7(b)(3)(i)
 - Agent hydrolyzed in water

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Neutralization/Biotreatment Process

- ◆ **Agent Storage tank**
 - Waste In
 - Agent Concentrate
 - Stores concentrated agent from Rotary Washout Machine
 - Waste Out
 - Agent Concentrate
- ◆ **Permitting Strategy**
 - Storage in a Tank System – Subpart J
 - Potential for storage to exceed 90 days

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Neutralization/Biotreatment Process

- ◆ **Agent Hydrolyser**
 - Waste In
 - Agent Concentrate
 - Neutralizes the chemical agent with water followed by addition of caustic to adjust pH
 - Waste Out
 - Agent Hydrolysate
- ◆ **Permitting Strategy**
 - Treatment in a Tank System – Subpart J
 - Chemical Neutralization of agent in a tank

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Neutralization/Biotreatment Process

- ◆ **Agent Hydrolysate Storage Tank**
 - Waste In
 - Agent Hydrolysate
 - Stores the Agent Hydrolysate
 - Waste Out
 - Agent Hydrolysate
- ◆ **Permitting Strategy**
 - Storage in a Tank System – Subpart J
 - Potential for Storage to Exceed 90 Days

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Neutralization/Biotreatment Process

- ◆ **Immobilized Cell Bioreactors ICB™**
 - Waste In
 - Agent Hydrolysate
 - Energetic Hydrolysate
 - Biotreats Agent Hydrolysate & Energetic Hydrolysate
 - Waste Out
 - Waste Not Considered Hazardous
- ◆ **Permit Strategy**
 - Army Will Pursue Delisting of the Agent Hydrolysate prior to entering the Immobilized Cell Bioreactors
 - Preliminary Results Indicate that the Energetics Hydrolysate is not hazardous

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Neutralization/Biotreatment Process

- ◆ **Brine Reduction Package**
 - Waste In
 - Wastes entering the Brine Reduction Package is not considered hazardous
 - Used to recover water for reuse in the process
 - Waste Out
 - Non-hazardous salt waste
- ◆ **Permit Strategy**
 - Waste entering is not a hazardous waste

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Neutralization/Biotreatment Process

- ◆ **Rotary Metal Parts Treatment**
 - Waste In
 - Triple Rinsed Munition Bodies (Containers)
 - Electric Induction Coils, Swept With Superheated Steam
 - Waste Out
 - Scrap Metal
- ◆ **Permit Strategy**
 - Not a permitted unit
 - Waste containers entering have been triple rinsed and are not subject to regulation through 261.7(b)(3(i))
 - Munition Bodies Are Scrap Metal 261.6(a)(3)(ii) and are not subject to regulation

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Neutralization/Biotreatment Process

- ◆ Batch Metal Parts Treatment
 - Waste In
 - Burster Tubes
 - Burster Wells
 - Deactivated Explosive Components
 - Uses Superheated Steam (1000 OF) Followed by an Effluent Heater (1200 OF)
 - Waste Out
 - Scrap Metal
- ◆ Permit Strategy
 - Thermal Treatment In Tank Systems - Subpart J
 - Chemical Treatment Using Superheated Steam
 - Metal Debris Will Meet the Treatment Standards for Debris Under 268.45 and Will Be Recycled

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Neutralization/Biotreatment Process

- ◆ Contaminated Solid Waste Preparation
 - Waste In
 - Wood Pallets/boxes
 - Demilitarization Protective Ensemble Suites
 - Spent Carbon Filters
 - Shreds Wood Plastics and Carbon Filters
 - Waste Out
 - Shredded Dunnage
- ◆ Permit Strategy
 - Either 90 Day or Permitted Storage

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Neutralization/Biotreatment Process

- ◆ Continuous Steam Treater
 - Waste In
 - Shredded Dunnage
 - Used To Treat Shredded Dunnage; Steam Used As Carrier Gas
 - Waste Out
 - Ash
- ◆ Permit Strategy
 - Thermal Treatment In Tank Systems– Subpart J
 - Remaining Ash Will Be Analyzed and Sent for Further Treatment If Required

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Pueblo Chemical Agent Pilot Plant Process Effluent

- ◆ Solids
 - Biotreatment Sludge
 - Landfill Requirements To Be Determined
 - Brine Cakes
 - Landfill Requirements To Be Determined
 - Decontaminated Dunnage (Mostly Ash)
 - Scrap Metal
 - Will Be Recycled
- ◆ Air Emissions
- ◆ No Liquid Wastes
 - Water Will Be Recycled and Re-introduced Into the Process

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Neutralization/Biotreatment Process

- ◆ Format Will Follow the "A.T. Kearney" Canned Comments

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