



Assembled Chemical Weapons Assessment Program

**Air Permitting
Neutralization/Supercritical Water
Oxidation**

**Bill Scarpinato
Science Applications International
Corporation (SAIC)**



Overview

- ◆ Introduction
- ◆ Construction/Operating Permits
- ◆ Potential Air Emission Sources
- ◆ Preliminary Air Emission Estimates
- ◆ Air Quality Modeling
- ◆ Permit Application Format



Introduction

- ◆ This facility is being constructed to destroy Chemical Munitions per the Chemical Weapons Convention Treaty:
 - The plant will be located at Pueblo Chemical Depot.
 - The destruction facility will be called Pueblo Chemical Agent Pilot Plant.
 - Only mustard agent will be treated at the Pueblo Chemical Agent Pilot Plant.
 - Munitions to be treated are:
 - M110 155-mm Projectiles
 - M60 105-mm Projectiles
 - M2/M2A1 4.2-inch Mortars
- ◆ This presentation covers air permitting issues related to the Neutralization SCWO process.



Construction/Operating Permits

- ◆ A Construction permit application will be prepared by SAIC and ACWA for the construction of a Neutralization/SCWO Plant Per Regulation 3 Parts A, B, and C.
- ◆ Permit Application will be submitted by ACWA.
- ◆ PCD has an operating (synthetic minor) permit in place.
- ◆ The construction permit application will be for Pueblo Chemical Agent Pilot Plant activities only and will not be a modification of an existing PCD permit.
- ◆ PSD – Preliminary Emissions estimates are below 250 TPY Trigger level.



Construction/Operating Permits (Continued)

- ◆ Pre-construction Monitoring – Do not anticipate that ambient air monitoring will be required for this permitting action.
 - Onsite MET data has been collected.
- ◆ Title V – Still evaluating the need for a Title V operating permit.
 - The 100 TPY facility wide limit may limit operational flexibility of the Pueblo Chemical Agent Pilot Plant.



Potential Air Emission Sources

| Source | Vents To HVAC | Vents to ATM |
|--------------------------------|---------------|--------------|
| Dunnage Shredding and Handling | X | |
| Energetic Rotary Hydrolysis | X | |
| Projectile Agent Hydrolysis | X | |
| Energetic & Dunnage SCWO | X | |
| Hydrolyzed Agent SCWO | X | |
| Boilers | | X |
| Generators | | X |
| Fugitive Dust | | X |



Preliminary Air Emission Estimates (TPY)

| Source | PM | PM10 | SO _x | NO _x | CO | VOC |
|---|-------------|--------------|-----------------|-----------------|--------------|--------------|
| PCD – Support and G Block Activities | 3.8 | 3.6 | 3.3 | 55.5 | 28.8 | 26.1 |
| PCD – Fugitive | 80.4 | 74.7 | 0.1 | 0.4 | 13.1 | 13.5 |
| PCD – Insignificant Activities | 1.2 | 1.0 | 9.1 | 13.5 | 8.3 | 4.2 |
| ACWA Neutralization/SCWO – Process | 0.00 | 0.00 | 0.00 | 1.05 | 0.210 | 0.0044 |
| ACWA Neutralization/SCWO – Boilers | 2.15 | 2.15 | 0.17 | 28.34 | 23.80 | 1.56 |
| ACWA Neutralization/SCWO – Generators (Based on 500 hr/yr of operation.) | 1.06 | 1.06 | 5.18 | 32.38 | 7.38 | 1.01 |
| PCD TOTAL | 83.3 | 79.3 | 12.5 | 69.3 | 50.2 | 43.8 |
| ACWA Neutralization/SCWO TOTAL | 3.21 | 3.21 | 5.35 | 61.76 | 31.40 | 2.58 |
| Facility TOTAL | 83.3 | 82.51 | 17.85 | 131.06 | 81.6 | 46.38 |

Note: Pueblo Chemical Agent Pilot Plant insignificant activity and fugitive source emissions are not included in these emission estimates.

Emission estimates based on current Neutralization/SCWO design package (Jan 2001)

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Air Modeling

- ◆ The Colorado Modeling Guidance for Air Quality Permit will be used to determine if modeling will be required for the Pueblo Chemical Agent Pilot Plant. The following is the Army's proposal regarding the performance of air modeling:
- ◆ Hazardous Air Pollutants (HAPs) – Modeling for HAPs is being completed as part of the Health Risk Assessment (HRA) which is being performed for the RCRA permit.

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Air Modeling (Concluded)

- ◆ State and federal ambient air standards – Emission for the Pueblo Chemical Agent Pilot Plant are well below 250 TPY PSD major source emissions trigger. However, preliminary emission estimates indicate that modeling will be required for NOX. Therefore, modeling will be performed in order to show compliance with these standards.
 - ACWA will prepare and submit a modeling protocol to the APCD for approval.
 - Only Pueblo Chemical Agent Pilot Plant not Pueblo Chemical Depot sources will need to be modeled.

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Construction Permit Application Organization

- ◆ Section A, Introduction – Overview of permit organization.
- ◆ Section B, Facility Description – Detailed description of all process equipment.
- ◆ Section C, Estimated Emission – Emission calculation methodology along with emission tables that will summarize emissions will be provided.
- ◆ Section D, Air Pollution Control Systems Description.
- ◆ Section E, Regulatory Requirements.
- ◆ Section F, Air Modeling.

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Construction Permit Application Organization (Concluded)

- ◆ Appendix 1, Air Pollutant Emission Notices and Air Permit Forms.
- ◆ Appendix 2, Mass and Energy Balances.
- ◆ Appendix 3, Waste and Munitions Characterization.
- ◆ Appendix 4, Sample Emission Calculations.
- ◆ Appendix 5, Sample Pollution Abatement System Operating Procedures.
- ◆ Appendix 6, Engineering Specifications.
- ◆ Appendix 7, Engineering Drawings.
- ◆ Appendix 8, Modeling Files (CD-ROM).

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