

Problem Rounds Path Forward Briefing Series

Design Options Working Group Update

27 April 2011



Pueblo Chemical Agent-
Destruction Pilot Plant

Presented to:

Colorado CAC

Presented by:

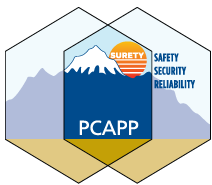
Scott Susman, ACWA Systems Engineering and Operations

A PARTNERSHIP FOR SAFE
CHEMICAL WEAPONS DESTRUCTION

www.pmacwa.army.mil



U.S. Army Element, Assembled
Chemical Weapons Alternatives



Pueblo Chemical Agent-Destruction Pilot Plant

Schedule of Topics

- Possible Problem Rounds Path Forward Topic Areas for Future Discussion
 - Problem Rounds Processing Alternatives **COMPLETED** 8 Dec '10
 - Path Forward Schedule and BNI's RFP Process ... **DELAYED** 8 Dec '10
 - NEPA Process **COMPLETED** 26 Jan '11
 - NEPA Process Q&A **COMPLETED** 30 Mar '11
 - Determination of potential EDT feeds (types and quantities) 27 Apr '11
 - Considerations for processing boxed 105mm projectiles **COMPLETED** 27 Apr '11
 - Other Topics ??????
 - Final Disposition of the EDT

Problem Rounds Path Forward Briefing Series



Processing Alternatives

8 December 2010

Presented to:
Design Options Working Group

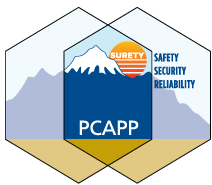
Presented by:
Scott Susman, ACWA Systems Engineering and Operations

A PARTNERSHIP FOR SAFE
CHEMICAL WEAPONS DESTRUCTION

www.pmacwa.army.mil



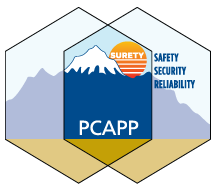
U.S. Army Element, Assembled
Chemical Weapons Alternatives



Pueblo Chemical Agent
Destruction Pilot Plant

Processing Alternatives - Agenda

- PCAPP Design History
- What's a Problem Round?
- Technology Implementation – Inside vs Outside the Plant
- Criteria for Processing of Problem Rounds
- Options for Processing (Pros and Cons)
 - Cryofracture
 - Waterjet cutting
 - Manual processing
 - EDT



Pueblo Chemical Agent-
Destruction Pilot Plant

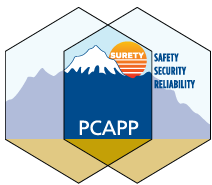
Processing Alternatives – Problem Rounds

■ Problem Rounds

Those munitions that can not be processed through the plant in a normal manner



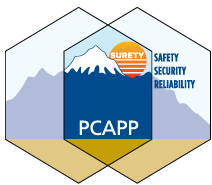
- Overpacks – Previous or in process leakers and previously sampled munitions in metal containers with bolted end caps or propelling charge container or both)
 - Would require unpacking and manual processing to minimize plant contamination
- Rejects – Munitions that plant equipment can not process under normal operating conditions. Typically, the fuze, nose closure, fuze well cup, or burster can not be removed.
 - Would require manual handling and processing.
 - Current facility is not able to process energetically configured munitions in the toxic maintenance area due to explosive limitations.



Pueblo Chemical Agent-
Destruction Pilot Plant

Processing Alternatives – Criteria/Need

- Criteria for establishing a technology suitable for treating a Problem Round
 - Safe
 - Effective
 - Environmentally Compliant
 - Mature
 - Affordable
 - Minimal impact to PCAPP schedule

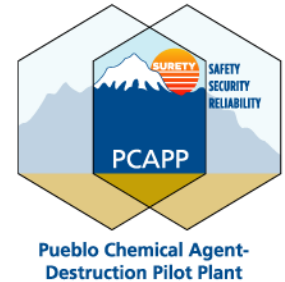


Pueblo Chemical Agent
Destruction Pilot Plant

Processing Alternatives – Options for Processing

- Cryofracture
 - The use of liquid nitrogen to freeze a munition to such a degree that it can be fractured into pieces to expose the agent within the munition.
- Water jet Cutting
 - The use of water to deliver granular abrasive material at high speed to wear away metal and separate components to access the agent within the munition.
- Manual Processing
 - The use of manual means (wrench, pipe cutter) to access the explosive components and agent for subsequent processing .
- Explosive Destruction Technology
 - The use of explosives and/or heat to access and destroy the energetics and agent within a munition.

Problem Rounds Path Forward Briefing Series



National Environmental Policy Act (NEPA) Process

26 January 2011

Presented to:

Design Options Working Group

Presented by:

Scott Susman, ACWA Systems Engineering and Operations

Jon Ware, ACWA Risk Management

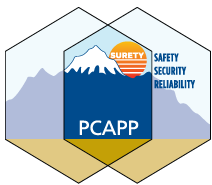
Greg Zimmerman, Oak Ridge National Laboratory

A PARTNERSHIP FOR SAFE
CHEMICAL WEAPONS DESTRUCTION

www.pmacwa.army.mil



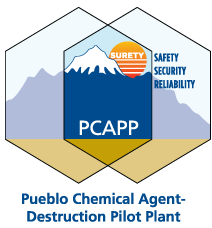
U.S. Army Element, Assembled
Chemical Weapons Alternatives



Pueblo Chemical Agent-
Destruction Pilot Plant

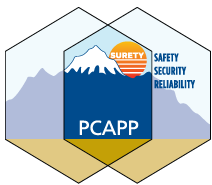
NEPA Process - Agenda

- Addressing Pre-Determination Issue
 - Considerations / Approach
 - Acquiring Technology Emissions Data
- Overall Schedule
- NEPA Process
 - Background
 - ACWA NEPA Approach
 - Public Involvement
- Oak Ridge National Laboratory
 - Background / Experience / Capabilities
 - EA Approach



NEPA Process – Addressing Pre-Determination

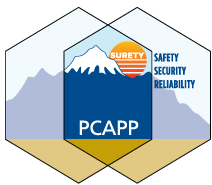
- Original approach was to allow Bechtel to down select an EDT vendor based on “Best Value” and conduct an EA that would include an EDS and the down-selected EDT
- Concerns were raised within this Working Group and by the EPA and others that this would circumvent the NEPA process by excluding potential solutions prematurely
- The decision has now been made to include all viable commercial EDT systems as well as the EDS in the NEPA process
 - PM Non-Stockpile - Explosive Destruction System (EDS)
 - CH2M Hill - Transportable Detonation Chamber (TDC)
 - UXB/DYNASAFE - Static Detonation Chamber (SDC)
 - VERSAR/Kobe Steel - Detonation in a Vacuum Assisted Chamber (DAVINCH)



Pueblo Chemical Agent
Destruction Pilot Plant

NEPA Process – Basic Logistics continued

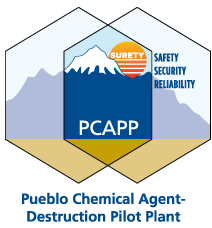
- NEPA Documents
 - Environmental Assessment (EA)
 - Concise document that briefly provides sufficient evidence and analysis for determining whether to prepare an EIS or not
 - Aids an agency's compliance with NEPA when no environmental impact statement is necessary
 - Facilitates preparation of an Environmental Impact Statement when one is necessary



Pueblo Chemical Agent
Destruction Pilot Plant

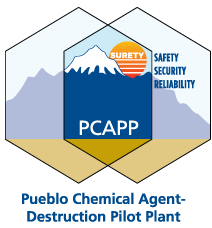
NEPA Process – Basic Logistics continued

- NEPA Documents continued
 - Environmental Impact Statement
 - A Federal agency must prepare an EIS if it is proposing a major federal action that could significantly affect the quality of the human health and environment
 - The regulatory requirements for an EIS are more detailed than the requirements for an EA or a categorical exclusion
 - Environmental impact statements shall be analytic rather than encyclopedic - 40 CFR 1502.2(a)



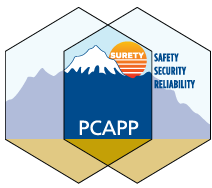
NEPA Process – ACWA Path Forward

- Supplement Pueblo Chemical Depot 2002 Site Specific EIS
 - Supplemental EA
 - Will consider all concerns from previous EA
 - Parallel Review Process With EPA Region 8 and the Colorado Department of Public Health and Environment
 - Written as a Stand Alone Document
 - Vendor Data under PCAPP Site Configuration
 - Health Risk Assessment for Subject Site and Configuration
 - Environmental Justice Analysis for Subject Site and Configuration



NEPA Process – Public Involvement

- Continue Public Involvement with CAC and DOWG on Program Path forward
- Consider all Comments on Previous EDT EA
- Purpose and Need for Action Vetted with Local Stakeholders
- Public Review of NEPA Analysis

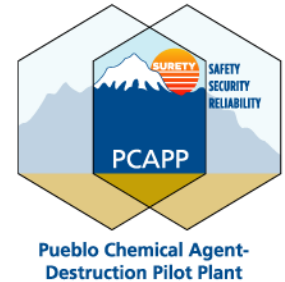


Pueblo Chemical Agent
Destruction Pilot Plant

NEPA Process – Schedule

Activity	Calendar Year				
	2011	2012	2013	2014	2015
NEPA PROCESS					
FONSI OR NEED FOR EIS					
EDT IMPLEMENTATION					
PCAPP START OF OPS					
PERMIT SCHEDULE FOR EDT <small>Requirement</small>					
EDT START OF OPS (TBD)					

Problem Rounds Path Forward Briefing Series



Potential EDT Feeds

27 April 2011

Presented to:
Design Options Working Group

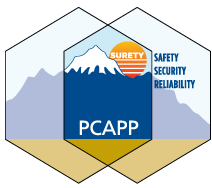
Presented by:
Scott Susman, ACWA Systems Engineering and Operations

A PARTNERSHIP FOR SAFE
CHEMICAL WEAPONS DESTRUCTION

www.pmacwa.army.mil



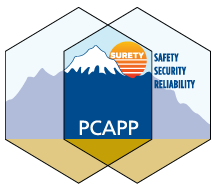
U.S. Army Element, Assembled
Chemical Weapons Alternatives



Pueblo Chemical Agent-
Destruction Pilot Plant

EDT Potential Feed Materials

- **Overpacked Munitions**
 - Previously sampled or Leaking Munitions in propellant charge cans and/or single round containers (SRCs)
- **Treaty Sampled Munitions**
 - Munitions that need to be sampled to demonstrate the presence of agent to the OPCW
- **Reject munitions**
 - Items that can not be processed through the plant by normal means
 - Quantities estimated based on previous experience and results of LPMD testing at Anniston
- **Energetic material**
 - Those that are determined to be agent contaminated
 - Those that require further processing
 - Based on economics or practicality



Pueblo Chemical Agent
Destruction Pilot Plant

Overpacked Munitions

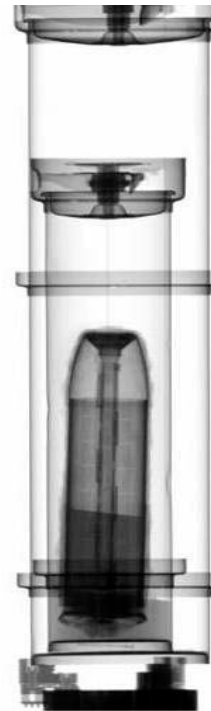
■ Overpacked Munitions

- Currently there are 547 overpacks containing munitions that were previously sampled or have been identified as leakers. Some minimal additional quantity is anticipated before PCAPP Ops
- They are configured either in propellant charge cans or single round containers, or both
- If not processed in an EDT, these would have to be manually reconfigured to minimize plant contamination

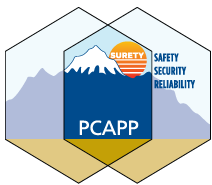


Single Round
Container

Mortar in double
overpack



Propellant
Charge Cans

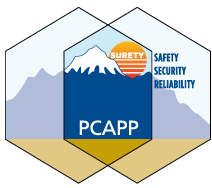


Pueblo Chemical Agent-
Destruction Pilot Plant

Treaty Sampled Munitions

■ Treaty Sampled Munitions

- The Organisation for the Prohibition of Chemical Weapons requires that agent samples be taken from the stockpile during operations
- The method for sampling is still being investigated but depending on this method, it could present complications for in plant processing.
- Although the number of sampled munitions still needs to be negotiated, previous quantities have been established on a monthly basis based on throughput. It is anticipated between 100 and 200 munitions will need to be sampled.



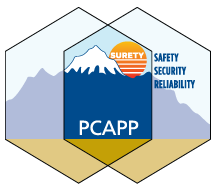
Pueblo Chemical Agent
Destruction Pilot Plant

Reject Munitions

- Reject munitions
 - Items that can not be processed through the plant by normal means
 - Quantities estimated based on previous experience and results of LPMD testing at Anniston



Fuze falls off a 4.2" mortar during processing at ANCDF



Pueblo Chemical Agent-
Destruction Pilot Plant

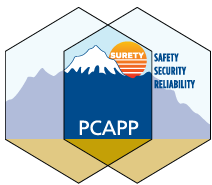
Reject Munitions

LPMD Rejects and resulting PCAPP projections

Munition Type	Original # Planned for LPMD	LPMD Rejects	LPMD Reject Rate	Approximate Equivalent PCAPP Rejects	Anticipated Range based on Lessons Learned*
4.2-inch M2	20,016	205	1.024%	1,000	500-1,000
105 mm M60	20,495	36	0.176%	650	650-1,000
155mm M110 HD	7,959	31	0.389%	1,200	50-1,200
Totals	48,470	242	0.499%	2,850	1,200-3,200

* Estimated range attempts to take into account differences in equipment configuration and munition configuration, but is ultimately still an estimate.

Based on earlier experienced LPMD reject rates, an upper bound of 13,000 rejects will be retained due to specific unknowns with the PCD stockpile.

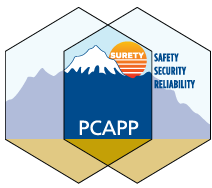


Pueblo Chemical Agent
Destruction Pilot Plant

Energetic Material

■ Energetic material

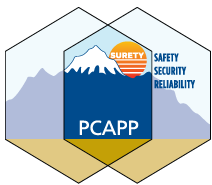
- Based on discussions with Treatment Storage and Disposal Facilities, two components removed from the munition, can not be treated without being further processed
 - 4.2" fuze and burster are attached and require separation before shipment. While this capability is being built into the plant, it does add a step in the process that increases process risk
 - The 155mm burster is too large for TSDF treatment without size reduction. This capability is not built into the plant and would require the TSDF or third party to size reduce adding risk
 - There are approximately 100,000 4.2" fuze/burster components and 300,000 155mm bursters that may, as a result, be processed in an EDT



Pueblo Chemical Agent
Destruction Pilot Plant

Energetic Material (cont)

- Energetic material
 - Energetics and energetic components (ie fuzes) that are contaminated and not able to be sent off-site for disposal, will be destroyed in the EDT (very limited quantity anticipated)
 - Although current estimates that the cost to process energetics within an EDT is on par with treating off-site, economics and convenience may warrant on-site processing. This would include fuzes, bursters, and propellant.



Pueblo Chemical Agent-
Destruction Pilot Plant

Summary

■ Summary

- Current total number of munitions that may require processing in an EDT, including treaty sampled munitions, overpacks, and rejects is estimated between 1,800 and 3,900 **but will not truly be known until the end of operations.** Because of this, an upper bound of 13,000 rejects will be retained due to specific unknowns with the PCD stockpile.
- Energetic material is also anticipated to be processed in an EDT to be determined by risk and economics
- The Environmental Assessment will assess impacts of operating the types of systems needed to process the feed types, but will be based on processing rate rather than any hard and fast number of munitions
- Previous consideration for EDT processing of 105mm projectiles with M57 fuzes is currently being re-assessed. Fuzes removed from Anniston munitions are being evaluated by experts at Picatinny Arsenal