

Problem Rounds Path Forward Briefing Series



Schedule of Topics

7 December 2011

Presented to:
Design Options Working Group

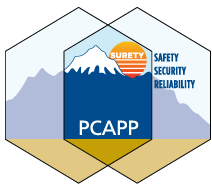
Presented by:
Scott Susman
**ACWA Systems Engineering and
Operations**

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CHEMICAL WEAPONS DESTRUCTION

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U.S. Army Element, Assembled
Chemical Weapons Alternatives



Pueblo Chemical Agent
Destruction Pilot Plant

Schedule of Topics

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■ Possible Problem Rounds Path Forward Topic Areas for Future Discussion

- Problem Rounds Processing Alternatives **COMPLETED** 8 Dec '10
- Path Forward Schedule and Bechtel's Proposal Process 7 Dec '11
- National Environmental Protection Act (NEPA) Process **COMPLETED** 26 Jan '11
- NEPA Process Q&A **COMPLETED** 30 Mar '11
- Determination of potential feeds (types and quantities) 27 Apr '11
- Considerations for processing boxed 105mm projectiles **COMPLETED** 27 Apr '11
- Other Topics TBD
 - Environmental Assessment (EA)/Multi-Pathway Health Risk Assessment (MPHRA)
Update **COMPLETED** 29 Jun '11
 - EA/MPHRA Update **COMPLETED** 23 Aug '11
 - EA/MPHRA Update **COMPLETED** 26 Oct '11
 - Assessment of Bioremediation of EDS Effluent **COMPLETED** 26 Oct '11
 - EA/MPHRA Update 7 Dec' 11
 - Final Disposition of the Explosive Destruction Technology (EDT)..... TBD

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Environmental Assessment and Multiple Pathway Health Risk Assessment Update

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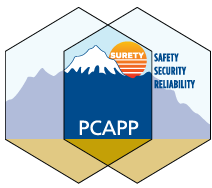
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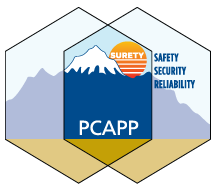


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Environmental Assessment (EA) Status

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- ACWA has received Chapters 1, 2, and portion of 3 of the Environmental Assessment and the Draft MPHRA and they are under review by ACWA, EPA Region 8 and CDPHE
- Complete Draft EA due to ACWA this month
- Outcome of EA still anticipated for March 2012 release for public comment.



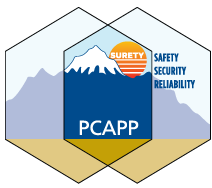
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Multiple Pathway Health Risk Assessment (MPHRA) Objectives

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Objectives of the MPHRA

- Evaluate how chemicals reasonably expected to be present in PCAPP air emissions can be transported through the environment and into the food chain
- Assess how different people (human receptors) can directly or indirectly come into contact with these substances (exposure pathways)
- Calculate the cumulative risks (cancer effects) and hazards (non-cancer effects) for each exposure scenario
- Determine if the reasonable maximum estimate of potential risks and hazards are acceptable, if not then a more detailed site specific assessment is warranted



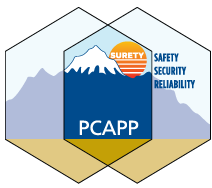
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Multiple Pathway Health Risk Assessment (MPHRA) Process

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Typical Process for Performing an MPHRA

- Data Collection and Evaluation
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization
- Uncertainty Analysis



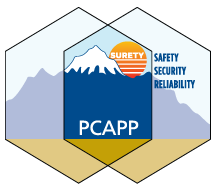
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Multiple Pathway Health Risk Assessment (MPHRA) Process

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Data Collection and Evaluation

- Facility Characterization
 - Emission locations and characteristics
 - Chemicals of Potential Concern
 - Emission Rates
- Air Dispersion and Deposition Modeling
 - Meteorological data processing
 - Locations of human and food-chain receptors
- Exposure Scenario Selection
 - Identify pathways
 - Select exposure values
 - Select transport pathways



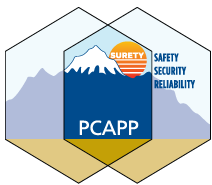
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Multiple Pathway Health Risk Assessment (MPHRA) Process

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Exposure Assessment

- Estimating Media Concentrations
 - Air concentrations for inhalation
 - Ground concentrations for inhalation
 - Transfer to livestock
- Quantifying Exposure
 - Direct exposure (inhalation)
 - Indirect exposure (e.g. food-chain)
 - Uptakes by human receptors



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Multiple Pathway Health Risk Assessment (MPHRA) Process

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Toxicity Assessment

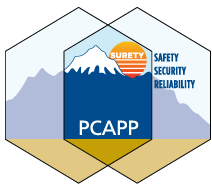
- Toxicity Assessment
 - Cancer slope factors
 - References dose/concentrations
 - Tabulate health effects data

Risk Characterization

- Characterizing Risk and Hazard
 - Individual and collective cancer risks
 - Individual and collective non-cancer risks

Uncertainty Analysis (not conducted for EDT at this time)

- Interpreting Uncertainty
 - Discuss unknowns
 - Quantify alternate risk estimates



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Multiple Pathway Health Risk Assessment (MPHRA) Results

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Preliminary Draft MPHRA results indicate that the health risks associated with the EDT systems in combination with the health risks from the 2007 PCAPP MPHRA are below threshold values