



PROGRAM MANAGER FOR CHEMICAL DEMILITARIZATION



Safety Improvement Actions After The 15 July 2002 Chemical Event at TOCDF

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Purpose



**This Briefing is Intended to Accompany
And Explain What is Being Done to Assure
That There is No Repeat of the 15 July 2002
Chemical Event at TOCDF – Exposure of
Worker to Chemical Agent Without
Adequate Protection, With Potential
Long Term Consequences**



15 July 2002 Event at TOCDF



- **Policy**
 - **Maximum Protection Standard Applies**
 - > **Worker**
 - > **Public**
 - > **Environment**
- **Practice**
 - **We Found Compliance with RCRA to Exclusion of Maximum Protection of Worker Health and Safety**
 - **We Have Ongoing Initiatives to Change Mindset for Safety**
 - **We Require Strict Adherence to Procedures**
- **Technology**
 - **Destruction of Liquid Agent by Incineration (LIC)**
 - **Assortment of Fuel, Air, and Agent Systems Connected to a Combustion Chamber**
- **Bottom Line**
 - **Exposure of Worker to Chemical Agent Without Adequate Protection is Unacceptable**
 - **This Time the Individual Survived**
 - **Long-Term Care Required**
 - **Exposure Symptoms Persisted for Over a Week**



Event Summary



1. Improvements in LIC Reliability and Efficiency

- **Need Identified Spring 2001**
- **Changes Approved Summer 2001**
- **Work Package Prepared August 2001**
- **LIC-1 Changes Made Winter 2001**
- **Plant Destroying GB**

2. LIC-1 Event

- **Agent Leakage Beyond Expected Boundaries (January 2002)**
- **Replacement of Block Devices (January 2002)**



Event Summary



3. LIC –2 Work Package

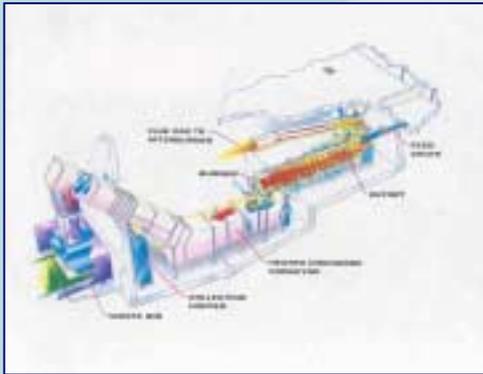
- Work Request Made 14 February 2002
- No Lessons Learned From Recent Problems
- Work Started 15 July 2002
- Plant in Outage Preparing for VX

4. LIC –2 Event

- Protective Clothing Was Not A Deciding Factor
(Case of Maintenance Took Priority)
- Alarms Sound 1 Hour to Evacuate
 4 Hours to Decontaminate
 5 Hours Before MD Examines



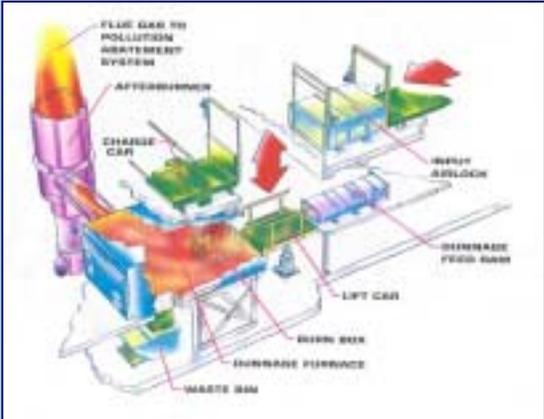
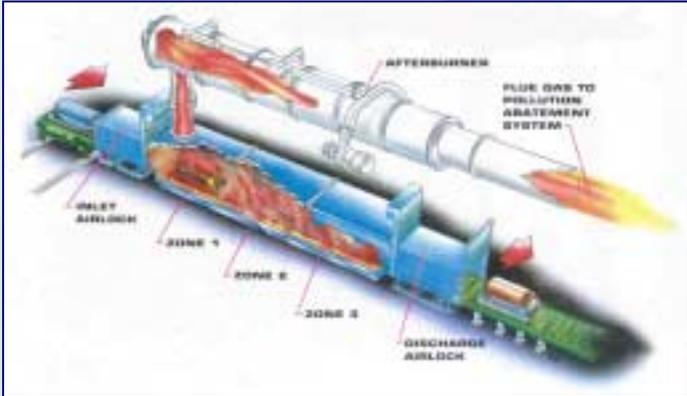
Program Manager for Chemical Demilitarization



Deactivation Furnace
Disposes of Rocket Parts
and Explosive Components

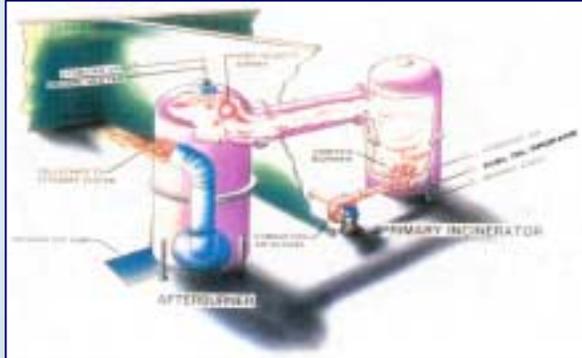
Disposal Process

Metal Parts Furnace
Disposes of Bulk Containers
and Non-Explosive
Munitions



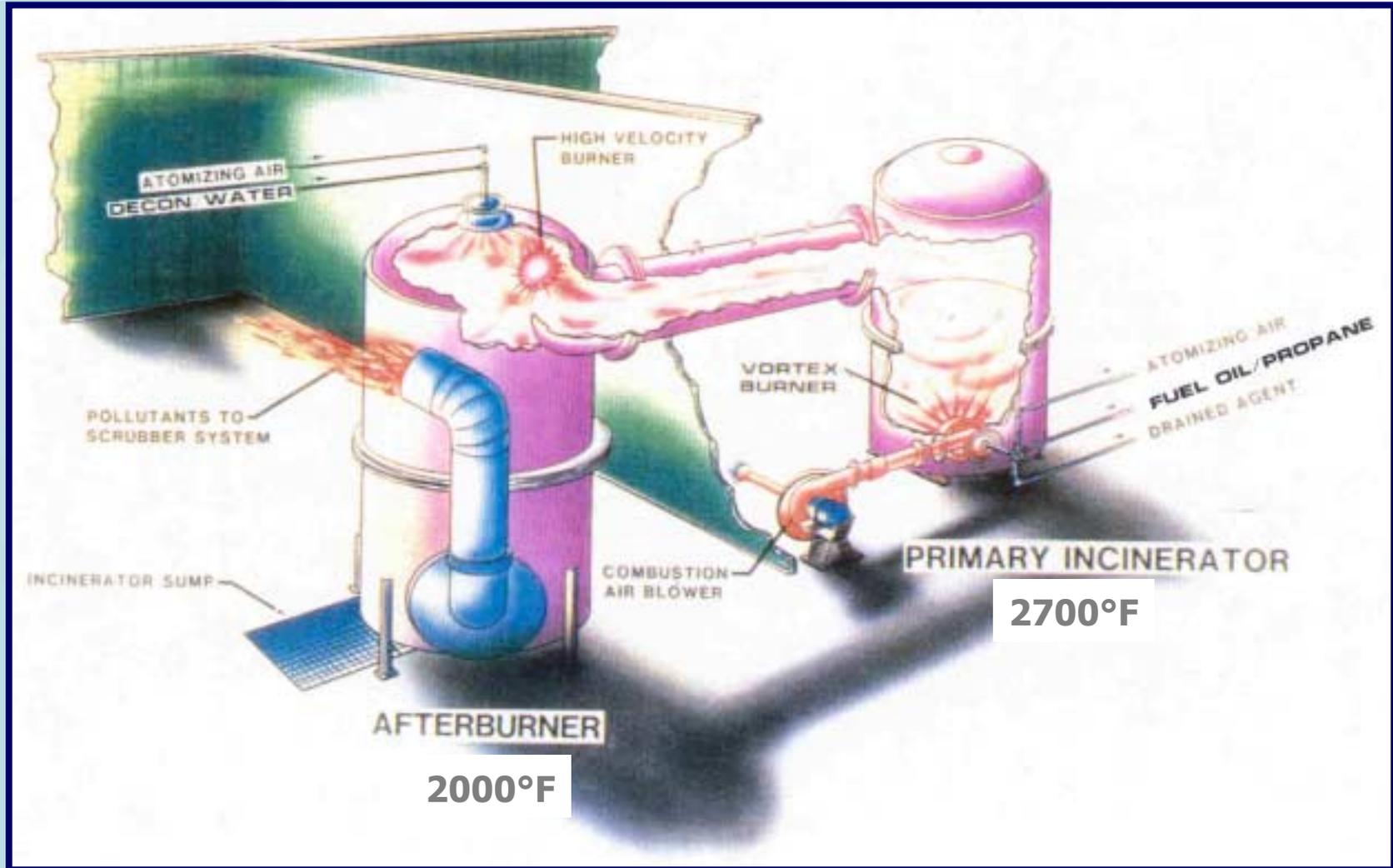
Dunnage Furnace
Disposes of Packing Materials

Liquid Incinerator
Disposes of Agent Drained
From Bulk Containers and
Munitions





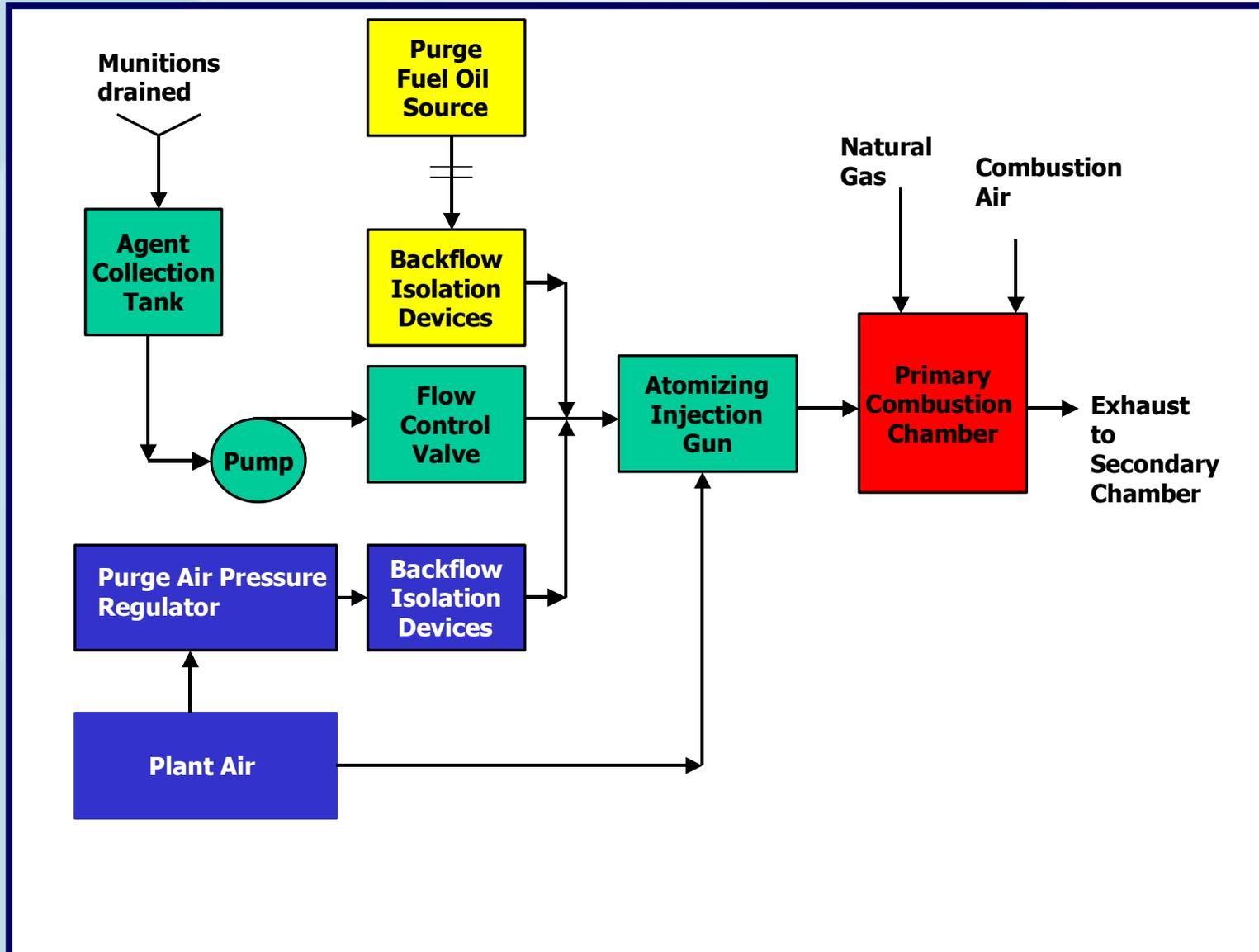
Liquid Incinerator



Disposes of Agent Drained From Bulk Containers and Munitions



Simplified Schematic of LIC Feed System





Liquid Incinerator Purge System





Determined Actions by HQDA Following the Event



- **PMCD Ordered Suspension of Agent Related Activities Except Those Essential to Safety and the Environment**
- **ASA(I&E) Directed Independent Safety Investigation**
- **EG&G/PMCD Initiated Work on Corrective Actions**



HQDA Board of Investigation Report



- **Completed 23 September 2002**
- **Investigation Report Under Army Regulation 385-40, *Accident Reporting and Records* - Required to be Protected, But Executive Summary Contains Essential Findings and Conclusions**



Composition of the HQDA Board of Investigation



- **President**
 - **Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health)**
- **Members**
 - **Army Safety Office**
 - **Army Center for Health Promotion and Preventive Medicine**
 - **Soldier and Biological-Chemical Command**
 - **Centers for Disease Control**
- **Advisors**
 - **Program Manager for Chemical Demilitarization**
 - **Knowledgeable Contractors and Consultants**



Corrective Actions Underway and Planned



- **EG&G Has Been Taking Corrective Actions Since the Unplanned Worker Exposure**
- **PMCD Has Prohibited all but Essential Entries Until New, Assured Protective Measures are in Place and Validated**
- **Safety Improvement Program Required at TOCDF and all Other Sites**
- **All Actions Based on Five Major Points**
 - **We Subscribe to the Maximum Protection Standard**
 - **We Have No Intent to Start up Tooele Until All Necessary Corrective Actions to Protect Worker Safety Have Been Completed**
 - **We Have Been Working With the State of Utah to Keep Them Informed and to Assure That Their Needs Are Met**
 - **We Recognize It Will Take Time to Make Long-Term Improvements in Safety**
 - **Tooele Start up Is Not a Priority Until the Above Items Are Done**



Categories of Corrective Action



- **Immediate Actions Required to Assure Worker Safety Before Any Further Activities Involving Chemical Agent**
- **Engineering, Procedural, and Management Changes to be Completed Prior to VX Destruction in Operations**
- **Additional Engineering, Procedural, and Management Changes to Accomplish Lasting Improvements**
- **Long-Term Care and Follow-up of Exposed Workers and Families**
- **Non-TOCDF Actions, and PMCD Reorientation to Prevent Similar Events Elsewhere**



Path Forward and Summary



- **Award Fee Determination Will Reflect Event**
- **Completion of Corrective Actions Will Be Required of EG&G**
- **Independent Validation of Corrective Actions Will Be Accomplished Before VX Destruction Operations Will Be Allowed to Begin**



Corrective Actions Underway



- **Worker Safety**
 - **Review & Modify Incident Response Protocols and Procedures**
 - > **Agent Monitoring**
 - > **Medical Assistance**
 - > **Decontamination Practices**
 - **Implement and Augment Maintenance Program for Control of Non-Routine Activities**
 - **Perform All Non-Routine Work in Toxic Areas, or on Safety and Control Systems in Accordance with the Controls of the Augmented Maintenance Program**
 - **Develop and Implement a Confirmed Agent Exposure Evaluation and Care Program**
- **Work Practices**
 - **Modify the Limiting Conditions of Operations (LCOs) to Assure That These Systems are Operated Within Known Safe Limits**
 - > **Emergency Electrical Generation**
 - > **Uninterruptible Power System**
 - > **HVAC System**
 - **Better Manage Control Room Alarms**



Corrective Actions Underway



- **Design Authority**
 - **Validate Facility Design Basis**
 - > **Agent Bearing Systems**
 - > **HVAC System**
 - > **Piping and Instrument Diagrams**
 - **Verify Agent Monitoring System for Proper Identification**
- **Lessons Learned**
 - **Conduct Critiques and Investigations of Incidents In Addition to Accidents and Chemical Events**
 - **Communicate Events and Results with Management and the Workforce**
- **Management Involvement and Oversight**
 - **Direct New Performance Based Assessment Program, to be Implemented by Every PMCD Field Office (Requirement Issued 7 October 2002)**
 - **Revised Procedures to be in Place by 1 January 2003**
 - > **Roles and Responsibilities of Government Oversight Personnel**
 - > **Functional Areas to be Monitored**
 - > **Communications with the Contractor**
 - > **Identification and Resolution of Technical Issues**
 - > **Role of Support Contractors**
 - > **Means of Conducting Oversight**
 - > **Management Expectations**