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RDX NITRATION MODERNIZATION PROGRAM

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Outline

- **Background**
- **Objectives**
- **Approach**
- **Project Phases**
- **Summary**

Background

- Holston Army Ammunition Plant (HSAAP) is the sole producer of RDX in North America
- RDX is manufactured on one production line which is operated at near its design capacity
- Future requirements for RDX will likely exceed current capability
- The Project Manager for Joint Services initiated this effort to modernize a production line at HSAAP
  - **To meet anticipated production requirement**
  - **To eliminate dependency on single RDX production line**

Objective

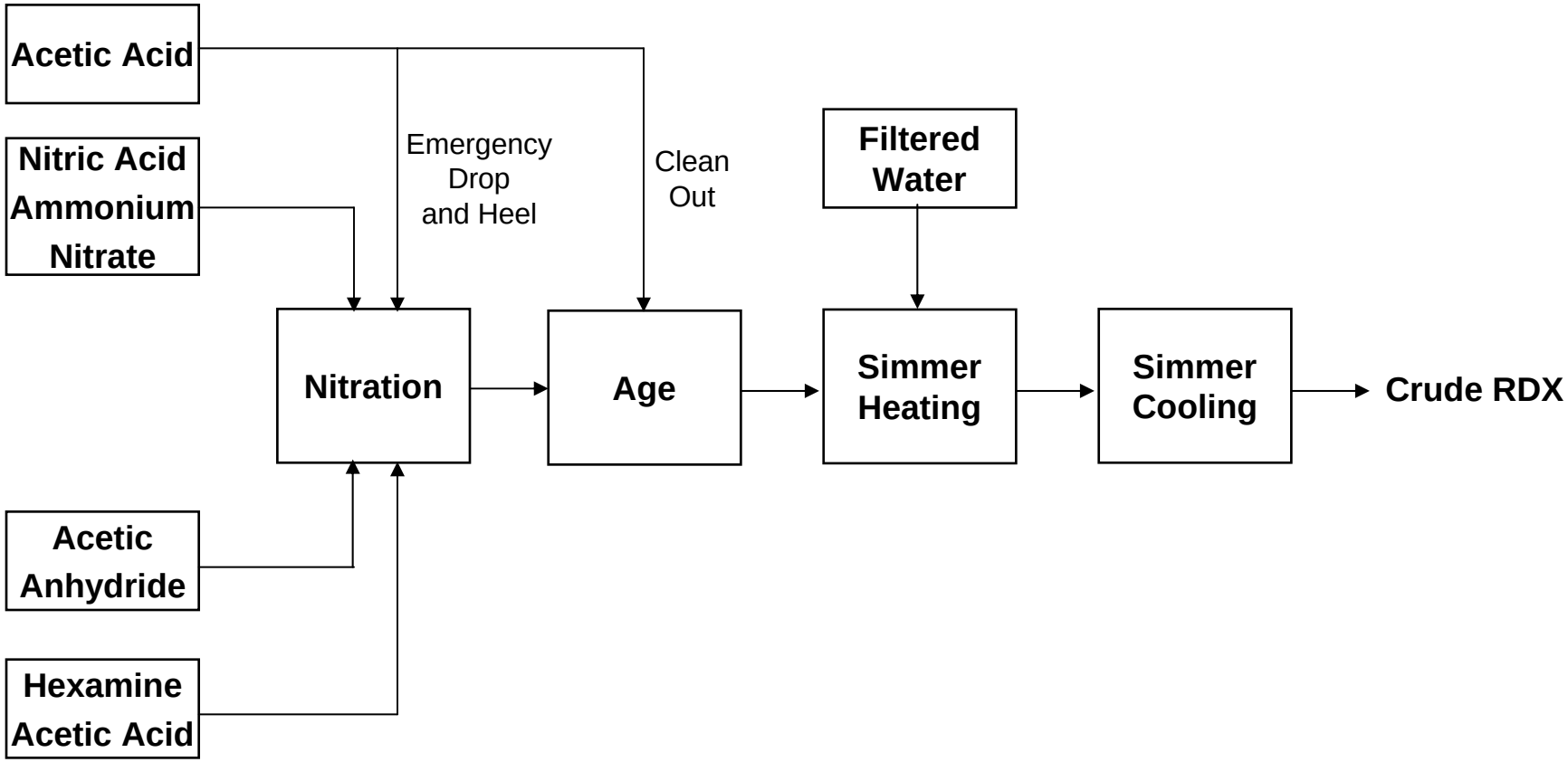
- Raise RDX production capacity by 2M pounds a month

Approach

- Select the Bachmann continuous nitration process
- Renovate a RDX nitration facility to enable the facility
  - To become operational
  - To meet current environmental standards
- Obtain emission permits
- Revise safety site plan
- Replace instrumentation
- Update control loops
- Install chemical feed pipelines
- Upgrade utilities
- Prove-Out


REACTOR COOLING LEGS

Continuous RDX Manufacture Flow Sheet



Project Phases

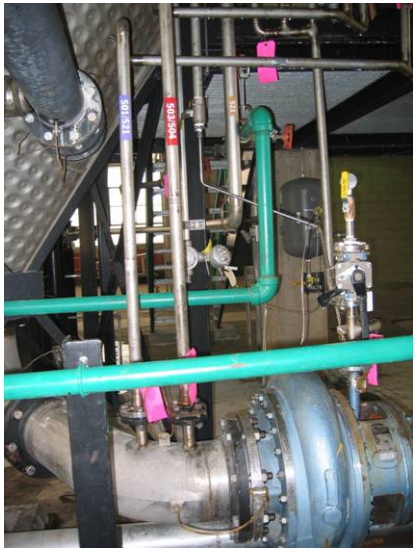
- **Phase I: Design and Engineering**
  - Process
  - Mechanical
  - Electrical
  - Control

Project Phases

- **Phase II: Environmental and Building Modifications**
  - Safety site plan
  - Environmental assessment
  - Infrastructure repairs
  - Construction/Installation

Project Phases

- **Phase III: System Commissioning**
  - Equipment check-out
  - Water trials
  - Documentation



Summary

- Project was completed
  - On schedule
  - Within budget
- System was successfully proven out
- New capacity will meet anticipated requirements