IM HE LOADING OF 155MM PROJECTILES

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Outline

- Background
- IM Loading Equipment
- Model Based Controls (MBC)
- Cooling Profiles
- Developed IM Processes
Background

• ARDEC’s Pilot Plant Loading Facility utilizes state of the art melt pour equipment to develop loading processes for IM replacements of TNT and Composition B.

• Tight controls over equipment and processes are necessary to meet stringent cast quality specification requirements for artillery projectiles. These tight controls yield quality projectiles that can be used for IM testing.
IM Loading Equipment

Safe Line Explosive Screener

Metal Parts Preheat Oven

50 Gallon Melt Kettle
IM Loading Equipment Cont.

4-Nozzle Pouring Machine

Controlled Cooling Oven
Model Base Controls (MBC)

- The MBC System utilizes cart water level sensors, thermocouples, data collectors, and real time control screens to develop loading processes.
- The MBC system allows for changes to be made to cooling parameters in real time or by analyzing the results of previous test runs.
MBC Equipment

HMI Control Screen

Data Collector

Cart Water Level Sensor
Cooling Profiles

- DEMN-3J
Developed IM Processes

• Processes for several IM candidates have been developed utilizing ARDEC’s melt pour equipment.
  – PAX-44
  – IMX-101 (OSX-CAN)
  – IMX-102 (MCX-8)
  – IMX-103 (DEMN 3J)