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Primary Composite Remote Manufacturing Facility (PCRMF-DD6)

Sensors & Electronics | Countermeasures | Pyrotechnics & Munitions | Energetic Sub-Systems

Agenda

- CEUK Facilities Overview: DD1
- CEUK Facilities Overview: PCRMF-DD6
- DD1 Design & Function
- PCRMF-DD6 Layout & PIDs
  - Control Room SCADA
  - Cell1 Design & Function
  - Cell2 Design & Function
  - Cell4 Design & Function
- PCRMF-DD6 Status
- PCRMF-DD6 ‘Take Home Messages’
- Questions

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Facilities Overview: DD1

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Facilities Overview: DD1 (cont.)

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Facilities Overview: DD1

- DD1 Manufacture:
  - Deteriorating building infrastructure requiring CAPEX investment
  - 1900's technology
  - Operator exposure to bulk manufacture: 1kg-7kg yields
  - Manual washing, sieving, drying & dispensing
  - High risk/high impact procedures undertaken by personnel
  - Facility compliance against MSER 2005 under constant review
  - Scope for automation limited and implementation difficult
  - Facility falls short of industry benchmark (SAAB Bofors Dynamics)

Facilities Overview: DD6

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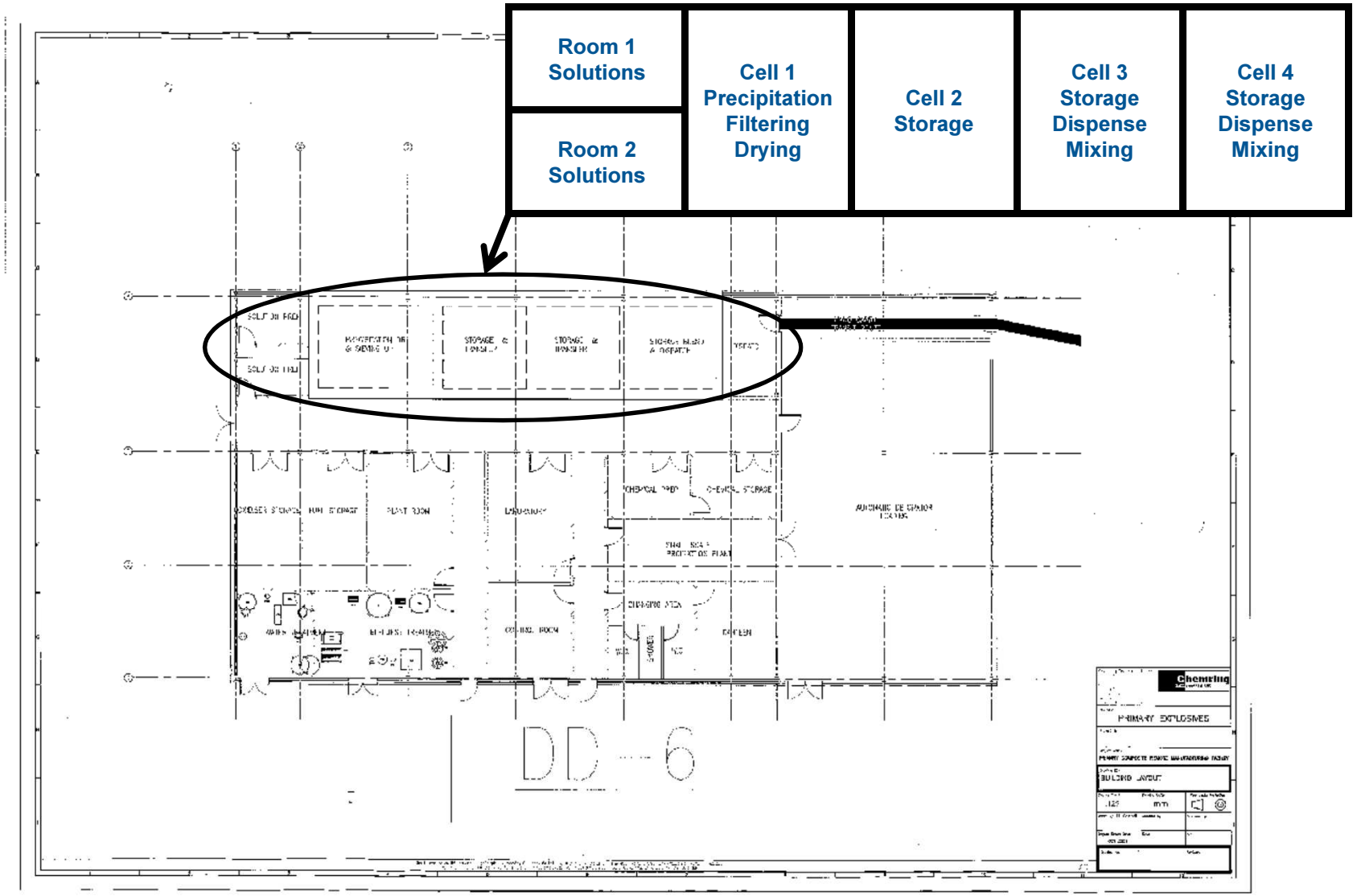
Facilities Overview: PCRMF-DD6

- PCRMF-DD6 Manufacture:
  - Major capital investment, making CEUK a world leader
  - Fully automated process from precipitation to destruction
  - HMI-SCADA interface for process selection
  - Programmable Logic Controller reducing scope for operator error
  - Robotic handling of all bulk quantities
  - Personnel exposure limited to a maximum of 7gm
  - Reduced environmental impact from effluent discharges
  - Improved accountability to COER

PCRMF-DD6 Layout



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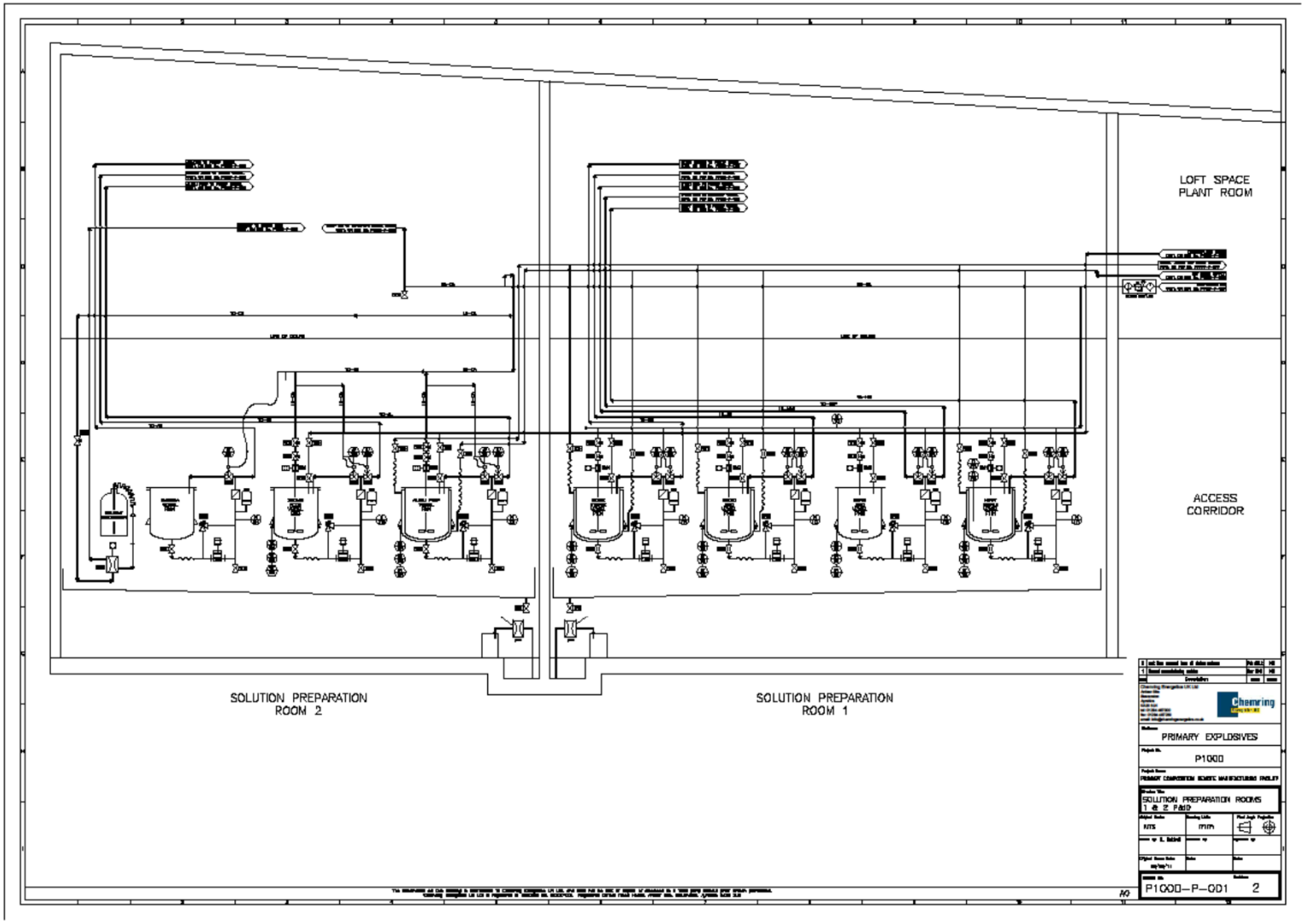
PCRMF-DD6 Solution Preparation



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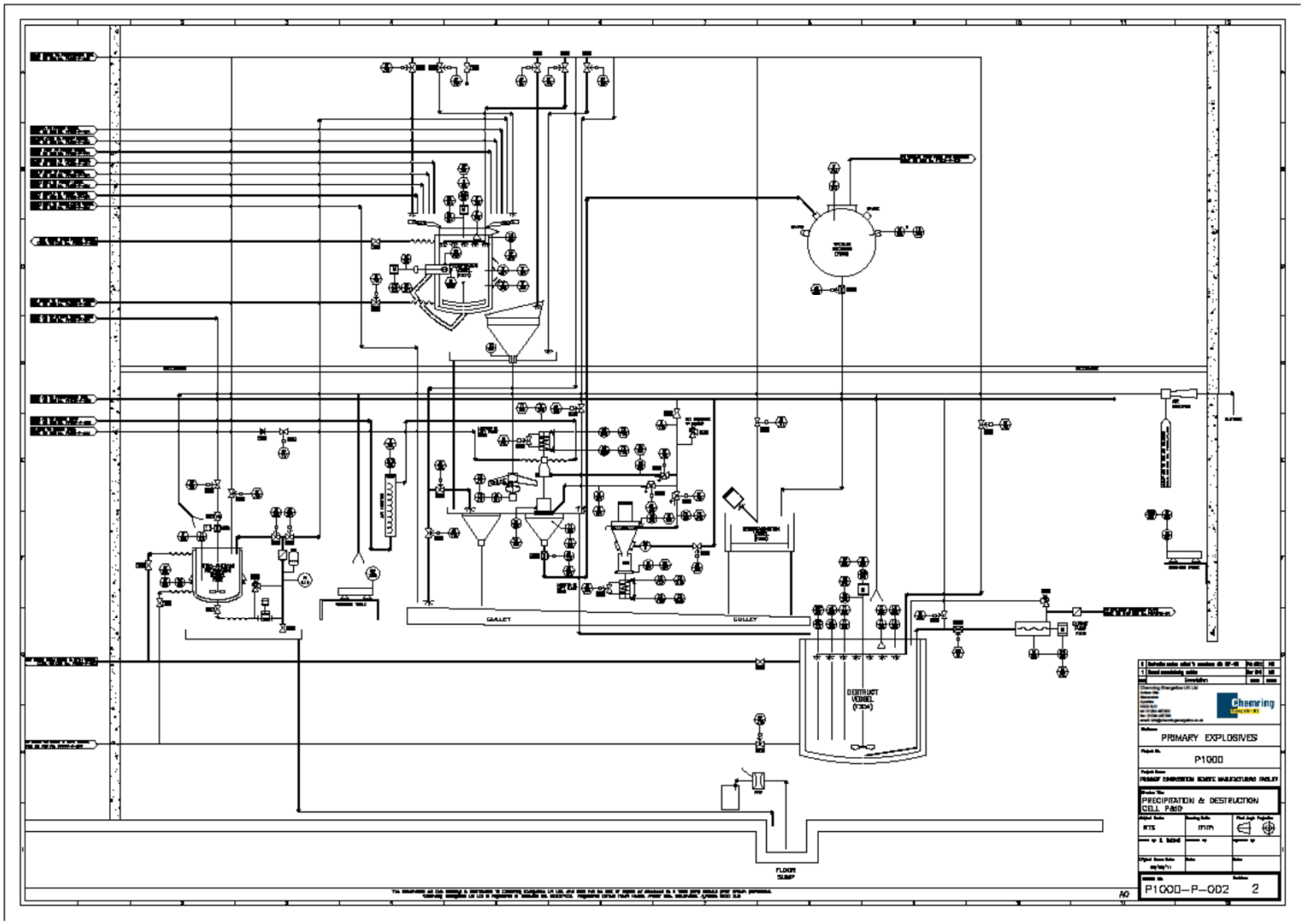
PCRMF-DD6 Precipitation & Destruction



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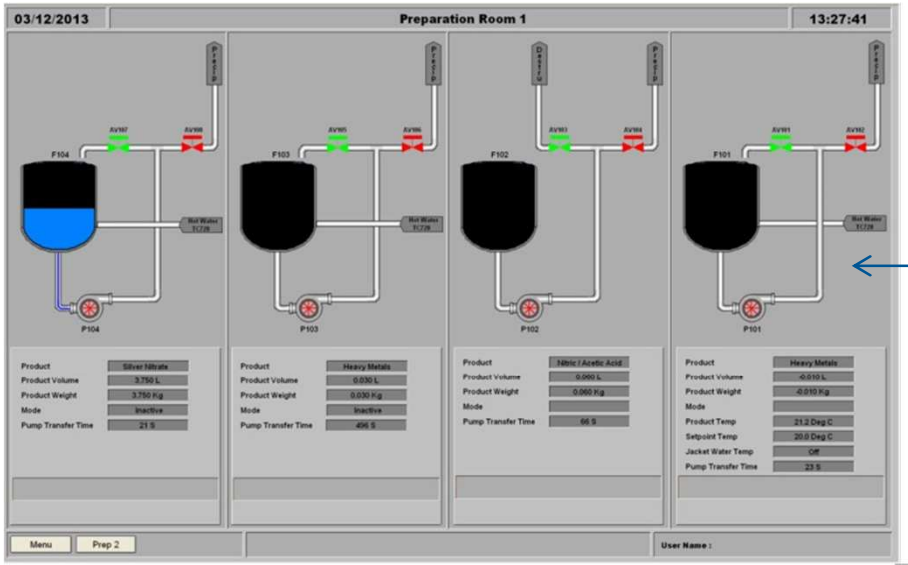
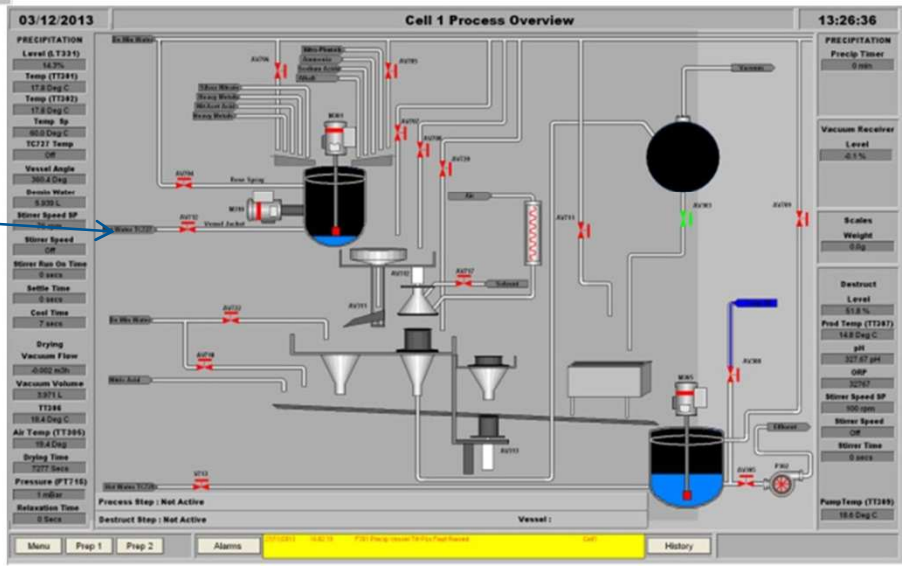
PCRMF-DD6 SCADA Schematic



Solution Preparation Room 1

Precipitation-Destruct Cell 1



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PCRMF-DD6 Cell1 Overview

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PCRMF-DD6 Cell1 Door & Solution Vessel

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PCRMF-DD6 Precipitation Vessel

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PCRMF-DD6 Drying Station

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PCRMF-DD6 Drying to Sieve

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PCRMF-DD6 Sieving

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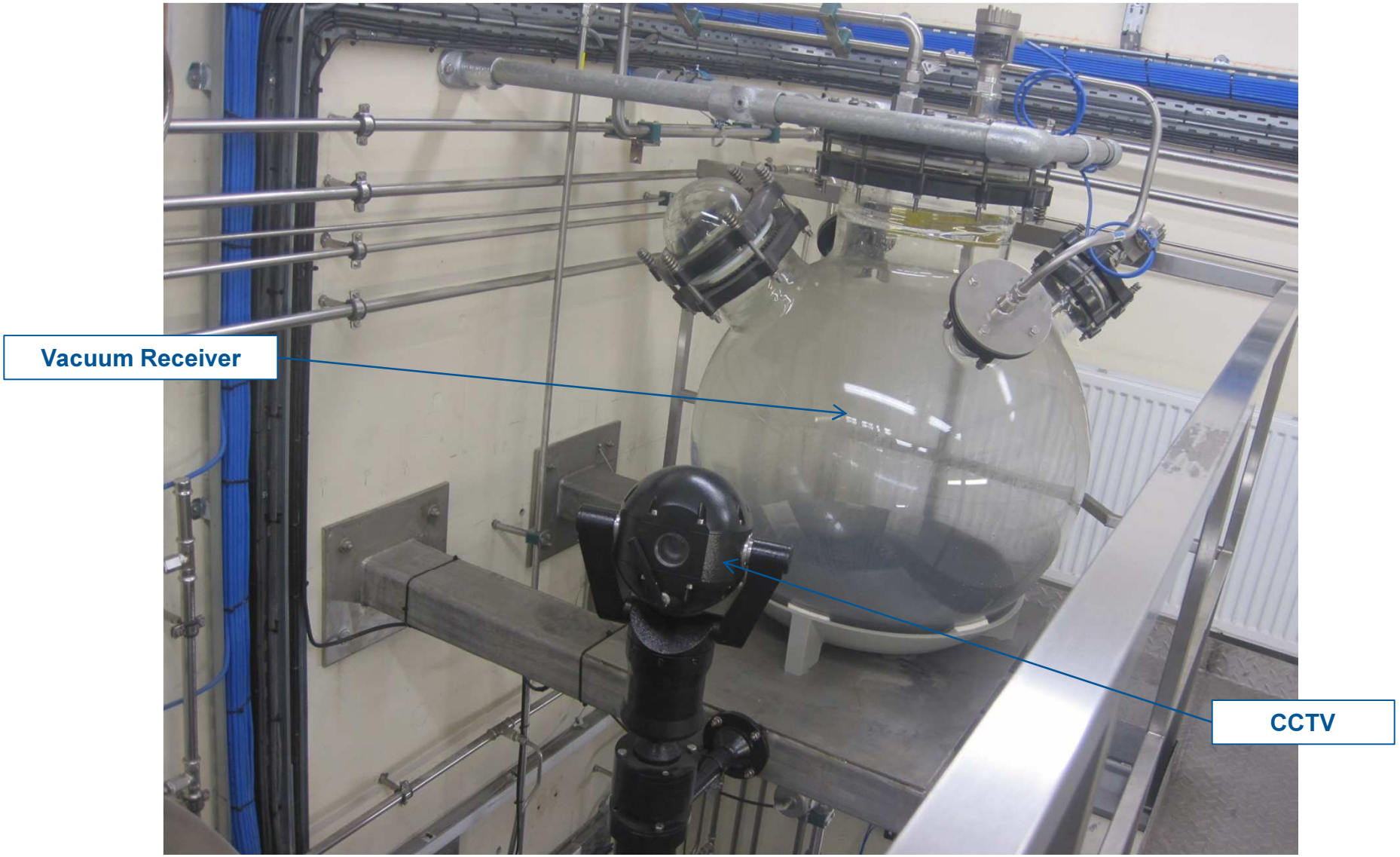
PCRMF-DD6 Vacuum Receiver



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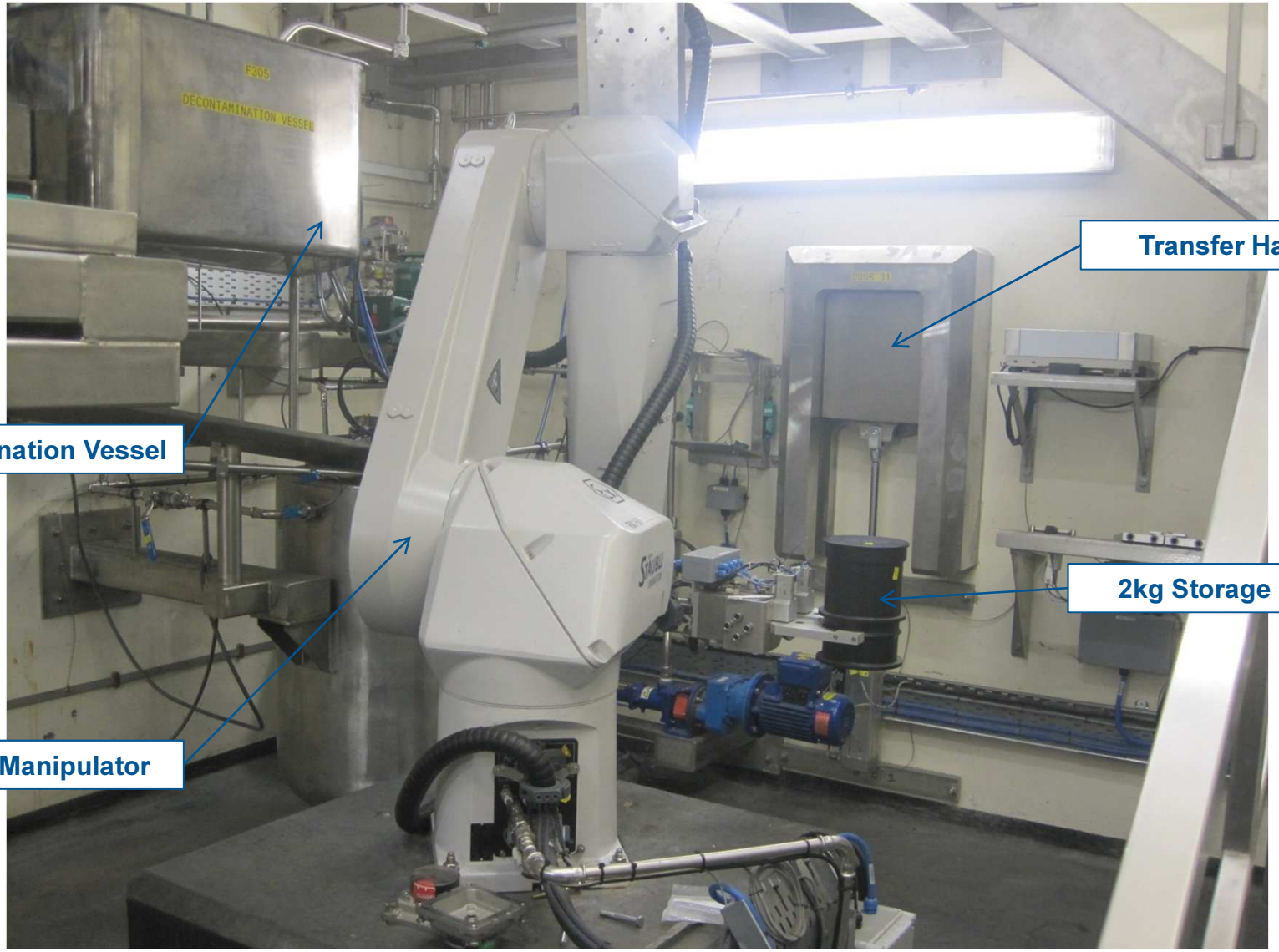
PCRMF-DD6 Cell1 Robot Manipulator



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PCRMF-DD6 Cell2 Overview & Transfer Hatch

PCRMF-DD6 Cell4 Overview

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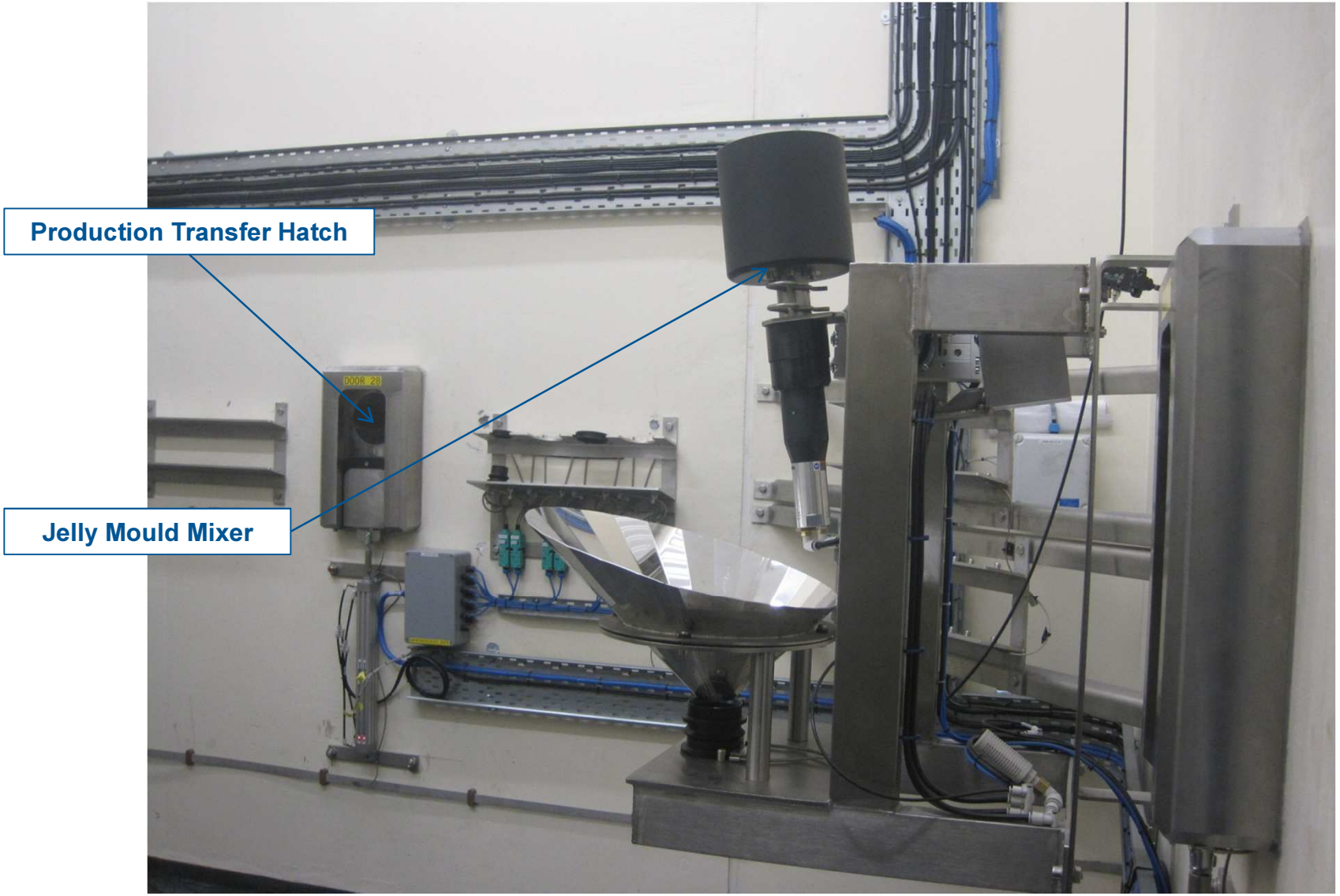
PCRMF-DD6 Cell4 Jelly Mould Mixer



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PCRMF-DD6 Status

- PCRMF-DD6 Manufacture:
  - 10 Precipitations Completed
    - Lead Styphnate
    - Lead Azide
    - Tetrazene
    - Barium Styphnate
    - Silver Azide
    - Lead 2,4-Dinitroresorcinate
    - Lead Mononitroresorcinate
  - 4 Blends Completed
  - Campaign to reduce composition inventory
  - Challenges exist due to differing material properties

PCRMF-DD6 ‘Take Home Messages’

- Are your personnel exposed to significant hazards from energetic materials?
- With the benefits of PLC driven remote operation, do your processes have risks to personnel that can be considered to be ALARP
- Can automation remove your personnel from the immediate hazards posed from energetic materials?
- Automated methods or robotics, don’t need to be prohibitively expensive and can be replaced or repaired
- Robot manipulators don’t have dependants!

PCRMF-DD6 Questions

Any Questions?

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