

Material Handling Glovebox

A Quinn

Business & Technical Manager

Requirement

- To identify and sentence legacy beryllium material so that it can be recycled.

Issue

- AWE has a large Be inventory of which only about 10% is useful.
- MoD wishes to dispose of the majority, which comprises swarf, powder and old components.
- The material is stored in 45 gallon drums and other packages, identified only as “Beryllium”.
- The inventory must be reduced to minimise a potential environmental hazard - a Regulatory issue.

Material ownership & recyclability

- All material - including swarf - belongs to MoD.
- Disposal cannot be progressed without their approval.
- Brush Wellman (BW) will accept material back IF we can positively identify it; we therefore need to open the drums and packages.

Current repacking position

- There is a temporary ventilated enclosure (tent) for emergency repacking but this involves an RPE operation.
- This approach cannot be used routinely - contrary to CoSHH hierarchy, which has use of RPE at the bottom.
- An engineered solution was therefore required.

Engineered scheme

- Requirement agreed (1995) and scheme funded (2000).
- “New” approach adopted - involve workforce from “Day 1”.
- Many previous schemes developed by remote managers in isolation - costly errors resulted.

Contractor Selection

- External design & build approach chosen.
- AWE shop floor staff involved in selection process - shown proposals and comments invited.
- Gravatom chosen on cost grounds. Like the other tenderers, they have experience of providing similar equipment for eg BNFL, and their proposal did what we wanted.
- This selection meant known technology was being used, as opposed to the “innovative” approach often followed by AWE previously.

Outline Design

- Stainless steel air glove box with large entry/exit fume cupboard.
- Box chosen because powder being handled.
- Glovebox contains drum port for accessing drums, CCTV system and drum lifter.
- Similar to plant installed at BNFL.

Manufacture

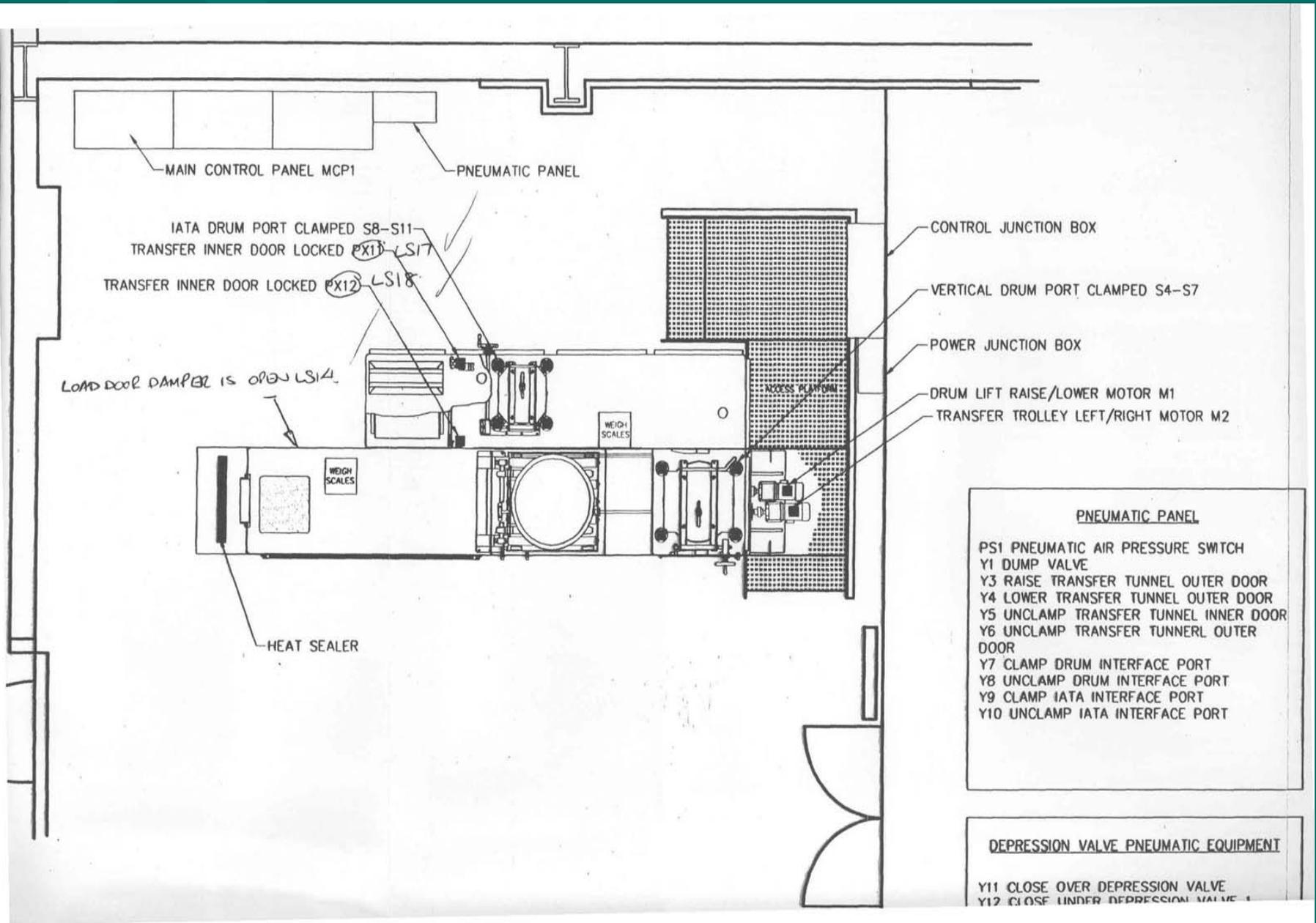
- Much work done at the project front-end in design to ensure minimisation of construction problems.
- AWE staff have visited Gravatom on several occasions for ergonomic assessments.
- For instance a plywood mock-up was used to develop the optimum location for the gloveports.

Installation and Commissioning

- Factory testing scheduled for completion end March 2003 with delivery to AWE to follow.
- Handover to AWE scheduled for end December 2004.
- At present, these programme dates will be met.

Conclusions

- Involvement of staff at all levels early on gives confidence that the plant will be accepted upon handover
- Devoting much early effort to resolving design issues has minimised fabrication problems.
- Using known technology has meant that few errors have been unearthed as the project progressed.
- The Glovebox will be a great asset.



DRAWING REFERENCE No.

SB/EC/A82.1/65

DRAWING No.

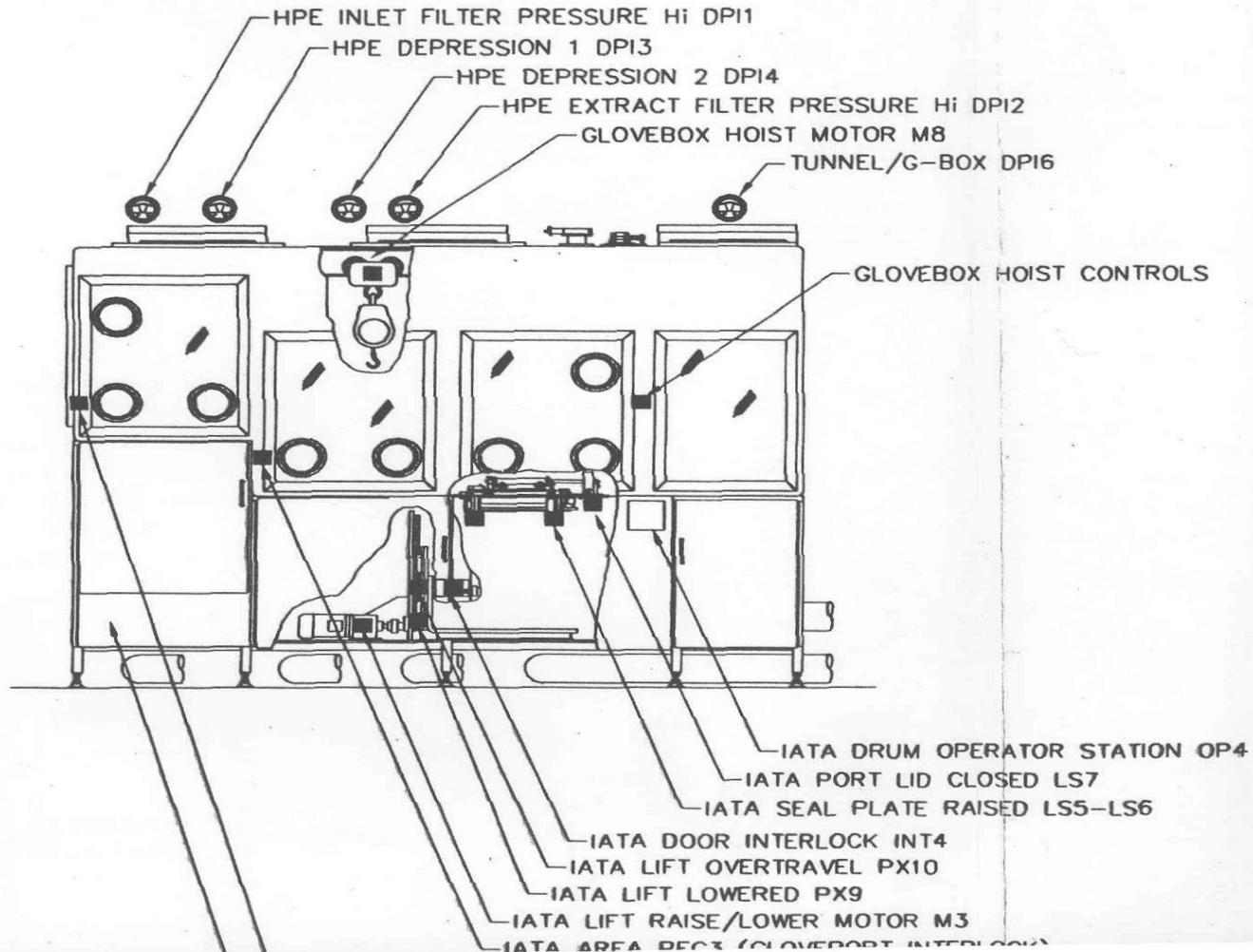
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SHT 1

OF 1

USED ON

VIEW ON GLOVEBOX



DEPRESSION VALVE P

Y11 CLOSE OVER DEPRE
Y12 CLOSE UNDER DEPI
Y13 CLOSE UNDER DEPI

4

VIEW ON FUME CUPBOARD

