

Activity Delivery System

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The CRIC radio-chemistry facility requires that radio-nuclides produced on a GE PETtrace 8 cyclotron are delivered to 4 hot cells in a GMP production lab and to 3 hot cells in a R&D lab. CRIC is working closely with Von Gahlen to develop a comprehensive radionuclide delivery system. The ADS is capable of supplying radioactive gases and liquids safely and reliably from the cyclotron to all of the points of use. The switching valves also have the possibility of directing the radio-nuclides to waste.

The route possibilities are shown in figure 1.

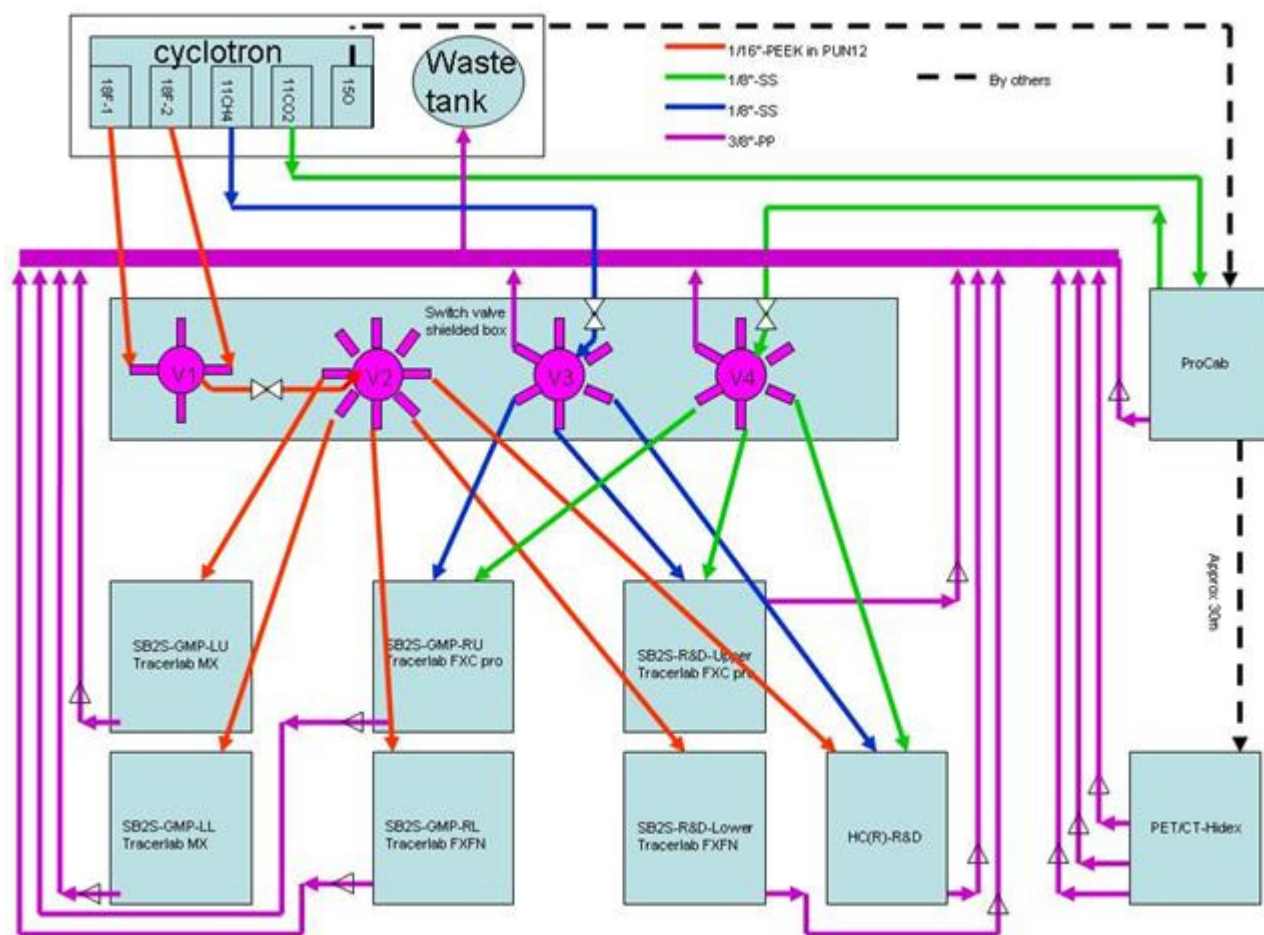


Figure 1: Delivery system routes.

The switching valves and isolation valves have all been selected for their proven reliability and adequate performance characteristics.

The system will be controlled by a plc. Software will be validated to GAMP 5.

The operator can control the delivery from one of three touch screen panels.

The system has been designed with a high level of safety both for the operators and the environment. The whole system is enclosed in a stainless steel box. The box has separate compartments for the valves and the control equipment. The valves and filters are housed in an airtight lead-shielded compartment (75mm) which is ventilated. The extract air is filtered with HEPA/charcoal filters.

Access inside the shielded compartment is not possible while delivery is in progress or when the radiation level is above a pre-set threshold. This is achieved by interlocking the door lock to an internally mounted radiation detector.

Delivery along the chosen route can only occur when safe pre-conditions have been met (e.g. hot cell doors closed).

The lines to the hot cells are run in floor trenches under the hot cells. The trenches are shielded with 75mm of lead and provided with hatches to facilitate replacement of lines.

Views of the box are shown below.

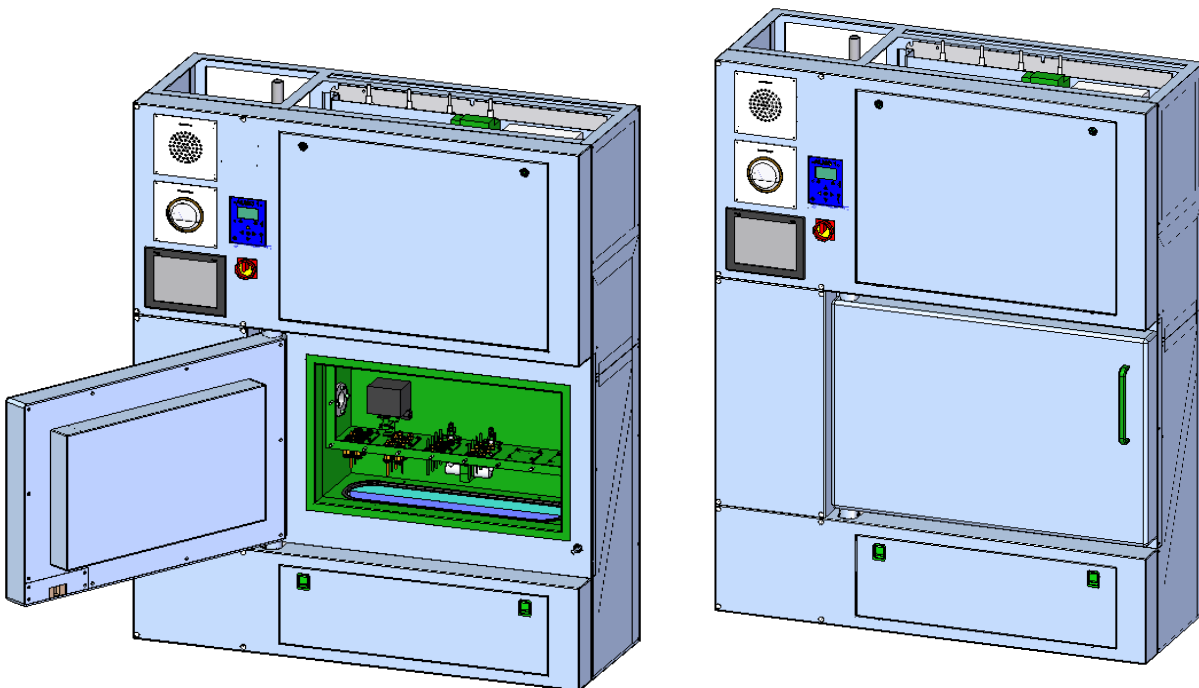


Figure 2: Activity delivery system shielded box