

InstaCote



ENGINEERING SERVICES & ENVIRONMENTAL COATINGS

Subject: Ventilation Duct Stabilization – Autofroth 9453 Foam

Project: Rocky Flats, Golden, CO May, 2003

Building 886, Highly Enriched Uranium & Plutonium Contaminated Facility.

Project Contractor: Kaiser Hill

Scope of Work:

Building 886 at Rocky Flats was a criticality R&D facility for handling of plutonium and highly enriched uranium solutions. In spring of 2003, the building was slated for controlled demolition. Imbedded in the slab of this facility were contaminated ventilation ducts. These exhaust ducts exited the building and traveled underground through a tunnel leading to a large, multi-staged plenum in another adjacent building. A duct stabilization technology was needed to ensure no re-suspension during the aggressive demolition process.

InstaCote engineers developed a method to stabilize the loose contamination within these ducts. Foaming agents were selected to ensure 100% void fill and fix the loose radiological contamination in these ducts. This structural foam had to withstand the rigors of controlled demolition (processors, excavators, and explosives) of the concrete surrounding the ducts. These ducts would undergo further size reduction using heavy equipment (processors and shears) to allow the large-diameter ducts to fit inside radioactive waste containers.

Products Used:

Autofroth 9453 (a BASF foam selected by InstaCote) solved this problem. This foam is injected into pipes and ducts of various sizes. This unique approach also stabilizes contaminated glove boxes, tanks and other contaminated process equipment; eliminating the need for size reduction or further stabilization prior to shipping. The use of this foam eliminates the potential for re-suspension and spread of contamination during remediation and size reduction of contaminated ventilation ducts and pipes.

Application Technique:

InstaCote engineered the placement of the foam in the duct using modified BASF foaming equipment. The Autofroth foam was injected using extended tubing to place the foam as required. The engineered planning and approach provided by InstaCote engineers ensured no voids – necessary to prevent any re-suspension during open-aired size reduction using heavy equipment (construction processors).

Results:

Radiological surveys (including air samples) performed during demolition proved the effectiveness of the use of foam to control contamination. Size reduction of the larger sections of the duct with heavy equipment did not require tenting or secondary containment.