

INTEK

nuclear decon solutions

Case Study

Lead Decontamination Process

LEAD DECONTAMINATION PROCESS

The Problem

Approximately 230,000 pounds of lead consisting of brick, sheet, 3/32 inch shot and lead encapsulated in steel structures such as shield doors, plugs and pigs were radioactively contaminated during the execution of R&D programs at a DOE facility.

The facility evaluated various cleaning methods such as CO2 ice blasting, high pressure water blasting, grit blasting, scabbing, as well as various chemical methods. They determined these to be labor intensive, costly and minimally effective. They also generated large mixed waste volumes. The chemical methods evaluated required significant personnel protection and involved environmental concerns. A process to decontaminate the lead shot did not exist.

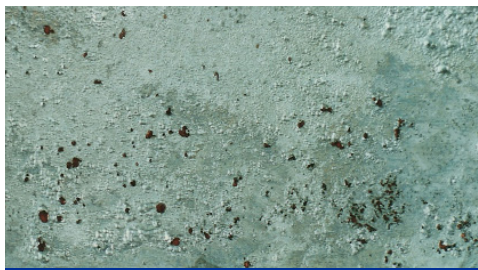


Contaminated Lead Brick

INTEK Approach

A licensed applicator used the INTEK Lead Decontamination Process to decontaminate, and free release greater than 99.9% of the lead. The rejected lead was volumetrically contaminated, therefore inappropriate for any method. Less than 50 pounds of mixed waste was generated.

The INTEK Lead Decontamination Process utilized non-hazardous chemicals at ambient temperatures. Only the lead oxides were removed. In-process destruction of the chemicals in the treatment vessel resulted in the formation of insoluble lead hydroxide sludge that was dewatered, stabilized, and disposed of as a low level radioactive waste.



Lead Brick after 45 min. in INTEK Lead Decontamination Process

BENEFITS

- Lead with surface contamination will be decontaminated to free release limits.
- The neutral pH chemistry is non-destructive to base metal and permits items to be free released or returned to service after decontamination.
- The Process is effective on a variety of lead shapes and sizes that cannot be cleaned utilizing other methods.
- The throughput is limited only by the size of the decon vessel and lifting capacity
- No special worker protection is required to deal with chemical or airborne exposure.
- After use, the chemistry is destroyed and the waste volume can be minimized utilizing a variety of innovative technologies designed to meet the customer's disposal criteria.

INTEK Technology

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