

X-Shield FS450 - Big Springs Fish Hatchery: Montana, USA, March 2005

The Problem:

The existing concrete substrate was painted with a lead based paint that was flaking and delaminating. There were also traces of PCB contamination in the concrete. The fish hatchery was located up stream of a heavily fished spring which presented the danger of contamination to both fish and wild life in addition to local residents. There were also numerous cracks in the concrete. A total of 52,000 ft² of concrete need to be coated. After the lead paint was safely removed the Engineer required a coating that would form a dense barrier to the contaminated concrete and also have the ability to accommodate the cracked concrete. A key factor was also that the coating had to be **no toxic** to fish and wildlife.



Big Springs Fish Hatchery adjacent to heavily fished spring waters



X-Shield FS450 Polyurea was applied 80 mils to concrete channels floor and walls.

The Solution:

Polyurea was selected as the best choice of coating technology as it was elastomeric, it could be applied with minimum shutdown and the product when cured forms a very dense impermeable barrier.

The following product was specified:

Polyurea Membrane: X-Shield FS450

X-Shield FS450 is a high elongation, elastomeric, chemically resistant waterproof coating. This coating is approved by the EPA as a storage tank system and also passes the Washington Department of Ecology Toxicity Test (Non Toxic to Aquatic Life)



Newly coated Fish Hatchery Channels recommissioned and open to flow.

Other key advantages are its UV resistant with no loss of properties when used in direct sunlight. X-Shield FS450 has an elongation of 450% and is very fast setting. The product can be open to service (immersion) in one hour.

Application:

A 2 component epoxy 100 % solids epoxy was used to fill bug holes and prime the concrete. This was applied by hand trowel. The X-Shield FS450 fast set polyurea was applied using plural component pumps to an average thickness of 80 mils. This coating thickness could be achieved in single application. The polyurea had to be applied to the primed substrate within 24 hours. The whole project involved coating a total of 52,000 square feet.