

BRIDGEPORT, NJ, SOLUTIA BRIDGEPORT: INDUSTRIAL SLUDGE



PROJECT NAME:

Solutia Bridgeport

PROJECT LOCATION:

Bridgeport, New Jersey

PROJECT APPLICATION:

Capping over exposed industrial sludge

MATERIAL USED:

DuraSkrim® R20BV & DuraSkrim® K45BT2

PROJECT CHALLENGES:

- Exposed sludge created a difficult installation condition
- Fully exposed landfill cap
- Soft exposed sludge created surface stabilization issues
- Extreme variations in surface temperatures with minimal thermal reactivity

PROJECT OVERVIEW:

- The industrial landfill site is located at the Delaware River Plant and has been in operation since 1961. Manufacturing byproducts such as plasticizers, flame retardants, and organic chemicals were disposed of within the onsite landfill and capped off. Due to the age and method of construction, stability issues created the need to contain and recap the site. The industrial sludge, which behaves hydrophilically, became exposed at the top of the site and created issues with installation and access. The capping system required for the project needed to have limited thermal expansion and contraction, capable of a minimum 20 year exposed life expectancy, high tensile strengths for ongoing surface inspections and operations, and good surface texture for those operations.

PROJECT SOLUTION:

- In order to get the project started, the exposed sludge at the surface of the cap needed to be stabilized or bridged. Attempts to chemically stabilize the sludge failed, so a bridging technique was used. The DuraSkrim® R20BV was used at the cap surface to cover the exposed sludge and help support surface crews while installing the final cap material. The DuraSkrim® R20BV was delivered to the jobsite in prefabricated panels that were then unfolded and installed over the exposed sludge. The outer perimeter of this liner was then trenched and buried to create a membrane capable of carrying the tensile loads created by primary capping operations. Due to the internal reinforcement of the R20BV, this initial cap was capable of safely carrying the load of the installation crews over the underlying, extremely soft industrial sludge. The next step in the capping operation included the DuraSkrim® K45BT2. This is a 45mil double-sided textured, scrim reinforced membrane. This would serve as the primary exposed liner and was also delivered in prefabricated panels to assist with installation operations and time. These panels ranged in size from 62' x 140' to 45' x 230'. Each of these panels were delivered to the jobsite in a protected roll. These rolls were then moved to their predesigned location, unrolled and deployed into place. After multiple panels were deployed, they were then welded together creating a unified capping system. The new capping system, with the internally reinforced DuraSkrim® K45BT2, is capable of providing a 20 year warranty for exposure, exceptional performance in tensile strength for periodic monitoring and surface operations, and minimal thermal reactivity to minimize cap stresses incurred from temperature related expansion and contraction.



Solutia Landfill: Installation of factory assembled DuraSkrim® R20BV panels over exposed sludge.

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PROJECT IMAGES:



Placement of factory assembled DuraSkrim® K45BT2 panels on top of prepared platform.



Folded panel of DuraSkrim® K45BT2 being opened for installation.



Folded panel of DuraSkrim® K45BT2 being aligned for welding preparation.



Panel of DuraSkrim® K45BT2 being welded to adjacent panel.

