



WASTEWATER STABILIZATION POND USING XR-5 GEOMEMBRANE LINER WITHSTANDS EXTREME CONDITIONS

TIME CAPSULE



2007

Mammoth Cave, appropriately named, is the longest known cave system in the world. This 365-mile natural underground phenomenon draws more than two million curious visitors each year. Explorers come not only to wander through the cave's dark chambers and complex labyrinths but also to enjoy an extremely diverse population of animal and plant species - some endangered - that make their home above ground in the forests, rolling hills and rivers of this Kentucky based U.S. National Park.



1984

25

Protecting the treasured wildlife and abundant natural resources of Mammoth Cave National Park is the main goal of the U.S. National Park Service. Keeping groundwater clean is fundamental to this effort. In 1984 the National Park Service installed two wastewater stabilization ponds to treat domestic wastewater that flows from the Great Onyx Job Corps Center, a vocational training facility located on the grounds of the park. Operating in series, the primary treatment pond measures 190 feet by 200 feet and the polishing pond measures 300 feet by 200 feet. Once treated, the effluent from the ponds is released into the Nolin River, a tributary of the Green River, which also runs through the park. Both rivers are favored recreation destinations for Mammoth Cave visitors and other outdoor enthusiasts.



Seaman Corporation

XR-5® is made with DuPont Elvaloy® Resin Modifier and Dacron polyester fibers. XR-5® is a registered trade name of Seaman Corporation.

Proven to stand the test of time

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Lining the treatment ponds to protect the surrounding grounds and waterways from the wastewater contaminants is XR-5® geomembrane, manufactured by Seaman Corporation. For applications that require high strength, low thermal expansion and contraction, and unmatched UV ray and chemical resistance, XR-5 is the industry's longest proven containment solution. This rugged reinforced membrane delivers strength characteristics in a 30 mil liner that require over 80 mils in an unreinforced product.

A proprietary woven polyester base fabric is the foundation of XR-5's impressive dimensional stability, tensile strength and puncture resistance. An adhesive coat saturates these fibers to bond the substrate with the coating system, making delamination impossible and edge coating unnecessary. The finished top and back coat contain an exclusive ethylene copolymer based noncrystalline coating compound that inhibits stress cracking and maintains the membrane's long term flexibility - even in the most challenging environments.

This combination of characteristics allows designers to use steeper slopes and avoid applying protective layers over the membrane. Furthermore, because it is flexible, XR-5 can undergo a second stage of manufacturing in a controlled factory environment, which yields single sheets as large as 15,000 square feet. At Mammoth Cave, the largest pond was lined with XR-5 by using five panels and only four major field seams.

After more than 20 years of exposure to various chemical and organic waste contaminants, blistering UV rays and Kentucky's extreme temperatures swings that range from 25 degrees below zero (F) to upwards of 100 degrees in the summer, the original XR-5 geomembrane liners installed in 1984 still protect the park's grounds and waterways today.

With over 30 years of proven success in demanding applications around the globe, XR-5 by Seaman Corporation sets the industry standard for strength, durability and performance.