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Field Report

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HDPE USED FOR INNOVATIVE WATER COLLECTION SYSTEM IN MARYLAND LANDFILL TO PROTECT ENVIRONMENT

Washington County, Maryland - When Maryland's legislators created the Maryland Environmental Service in 1970, the agency's mission was clear — protect and enhance the state's air, land and water resources. The agency strives to combine the public sector's commitment to environmental protection with the private sector's efficiencies and expertise to find innovative solutions to some of its most complex environmental challenges.

Phase II of a project for the Resh Road Landfill in Washington County led the agency to call upon engineering firm URS Corporation along with ISCO Industries to design a unique storm water collection system from polyethylene pipe. It had a dual purpose – To reduce the formation of excess leachate, and to control erosion.

A major concern for any landfill is to manage leachate. The generation of leachate is caused principally by precipitation percolating through waste deposited in a landfill. Once in contact with decomposing solid waste, the percolating water becomes contaminated and if it then flows out of the waste material it is termed leachate.

The risks of leachate generation can be mitigated by properly designed and engineered landfill sites, such as sites that are constructed on geologically impermeable materials or sites that use impermeable liners made of material such as polyethylene. The use of linings is now mandatory within both the United States and the European Union except where the waste is deemed inert. In addition, most toxic and difficult materials are now specifically excluded from landfilling. However, despite much stricter statutory controls, leachate from modern sites are found to contain a range of contaminants that may either be associated with some level of illegal activity or may reflect the ubiquitous use of a range of difficult materials in household and domestic products which enter the waste stream legally.

"Certain areas of the landfill had level spots or benches where water could collect," said Jay Mokotoff, project manager for Phase II of the project. If the water collects in one spot there is a chance it will drain into the landfill creating leachate. "We designed a pipe gutter system from HDPE

to convey water from these areas to sediment basins."

Mokotoff was familiar with working with HDPE pipe because the landfill exclusively uses the pipe for other operations like methane recovery because it doesn't react with the chemicals found in landfills.

The system includes 2100 feet of 18-inch DR 32.5 perforated with 4-inch diameter holes on top and placed in these areas to collect the water runoff. Stabilizers were also added to the pipe to prevent dirt from entering the perforations.

"I believe this is the first time a landfill has ever used this kind of system," said Jim Ross of Kinsley Construction the General Contractor. "ISCO did a great job of fabricating the engineers design and being available for every step of the project."

"Maryland has a long history of being very concerned with environmental issues," said Steve Lingafelter with ISCO. "And projects like this demonstrate how the state is working with the private sector to tap into our knowledge of technologies that protect the environment. We feel this kind of pipe system will be beneficial to landfills across the country."

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