

# Memorandum



**Date:** April 2, 2014

**To:** Honorable Sally A. Heyman  
County Commissioner - District 4

**From:** Carlos A. Gimenez  
Mayor

A handwritten signature in blue ink, appearing to read "Carlos A. Gimenez". The signature is fluid and cursive, written over the printed name.

**Subject:** Reuse of Deep Soil Mixing Material at the Biscayne Landing Site in North Miami

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Pursuant to your request regarding the deep soil mixing material that is currently stockpiled at the Biscayne Landing Site in North Miami, staff has reviewed the available information and provides the following information:

## **Background**

Deep Soil Mixing technology consists of in-ground blending of native soils with an injected cement grout mixture, which serves to stabilize the soil to facilitate excavation during construction activities. Malcolm Drilling Company used this technique for construction at the Brickell City Center Project in downtown Miami, and has provided approximately 194,000 cubic yards of the excavated material (the material) to the Biscayne Landing site (the site) for beneficial reuse as backfill, both above and below the groundwater table. The material is currently stockpiled at the site pending a final decision by the City of North Miami on its potential reuse at the site.

Biscayne Landing is a former landfill site undergoing redevelopment. The site contains buried solid wastes and has a history of documented groundwater contamination. To address groundwater contamination from the former landfill operations, the City of North Miami, as owner of the property and working with Miami-Dade County, has installed a groundwater recovery and deep well disposal system to capture and remove contaminated groundwater to reduce the impact on adjacent areas including Biscayne Bay. Redevelopment of the site requires review and approval from regulatory agencies to assure conformance with environmental regulations for protection of human health and the environment.

## **Environmental Evaluation**

In June 2013, DERM collected five (5) samples from the material stockpiled at Biscayne Landing and each sample was analyzed for 90 chemicals, including total recoverable petroleum hydrocarbons, semi-volatile organic compounds, total metals, and leaching tests for metals. All results of this testing were below the human health screening criteria, which indicates that direct exposure to the material does not pose a human health concern.

However, the leaching test results indicated aluminum concentrations exceed the secondary groundwater criteria for aluminum, meaning that the material has the potential to release aluminum to groundwater or surface water. Subsequently, the Department of Regulatory and Economic Resources, Division of Environmental Resources Management, conducted laboratory scale leaching tests to simulate placing the material below the water table as in the case of a lake-filling operation. Test results indicate that aluminum concentrations exceed the secondary water quality criteria of 200 parts per billion (ppb). However, results were well below the human health based criteria of 7000 ppb.

The analysis indicates that leaching of aluminum is correlated to pH with leaching occurring only at high pH. Secondary water quality standards are not based upon protection of human health, but rather on the potential to affect the color, taste or smell of water (i.e. in this case the potential for aluminum to impair the color and taste of water).

It should be noted that while laboratory tests suggest the material has a potential for leaching aluminum, actual groundwater data from three (3) monitoring wells in close proximity to the material stockpiles at the site, which were sampled over a nine month period (August 2013, November 2013, and February 2014), indicate no impact to the groundwater from the material.

### **Summary**

Based upon results from chemical analysis of the material, direct exposure to the material does not pose a human health concern. Additionally, the groundwater monitoring data indicate that the material does not pose a concern with respect to leaching. Therefore, pursuant to provisions of state and county regulations, the material can be used onsite above the water table with no associated restrictions.

Based on unique, site-specific conditions, including the presence of an active remediation system, the reuse of the material below the water table, with the proviso of ongoing monitoring, may also be considered for this site.

If you have any questions or would like further information, please contact Lee N. Hefty, Assistant Director, Department of Regulatory and Economic Resources, Division of Environmental Resources Management at 305-372-6754 or via email: [heftyl@miamidade.gov](mailto:heftyl@miamidade.gov).

c: Jack Osterholt, Deputy Mayor/Director  
Department of Regulatory and Economic Resources