

**CLOSURE OF UNLINED LANDFILLS**

**BY**

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**RESEARCH REPORT**

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## INTRODUCTION

Closure of unlined, uncontrolled solid waste disposal sites poses quite a challenge to the design engineer in addition to representing significant costs to the site owner. Often, groundwater contamination has already occurred and must be addressed as part of the closure plan. Alternative remedial measures may be taken depending on the environmental impact of the waste disposal site. Each site is unique and possesses specific characteristics which must be taken into consideration. A remedial measure which may be feasible for one site may be totally impractical for another.

The objective of this report is to identify cost-effective, environmentally acceptable methods for closure of unlined, uncontrolled solid waste disposal sites. A case study is made on a landfill which was placed on the U.S. Environmental Protection Agency's (EPA) National Priority List (NPL) of potential uncontrolled hazardous waste sites. The site history, characteristics and site specific data are presented and used to evaluate the environmental impact of various closure alternatives. Closure alternatives presented include various technologies such as stabilization, natural attenuation, leachate plume management, and surface water control. Closure technologies



are evaluated based on their ability to meet established closure objectives such as environmental impact and ease of implementation.

### Background

The Northwest 58th Street landfill (Landfill) is a one-square-mile site located in Dade County, Florida about five miles northwest of the Miami International Airport. Figure 1 shows the Landfill site location. The Landfill is owned by Metropolitan Dade County (County) and was the County's main disposal facility for more than thirty years. Operations at the Landfill began in 1952, with wastes placed at or below the groundwater table in shallow trenches. Until it was banned in 1960, open burning for volume reduction was practiced. Daily cover of waste material was not practiced until 1975 and fires frequently occurred in the uncovered refuse.

In 1975, daily cover was applied to the waste in response to new State of Florida regulations. By this time, approximately 70 percent of the site had been filled with solid waste, and there was little onsite soil available for cover material. Therefore, cover material had to be imported from outside sources. Materials have included: 1) calcium carbonate sludge from water treatment plants; 2) crushed limestone; and 3) spoil materials such as muck,

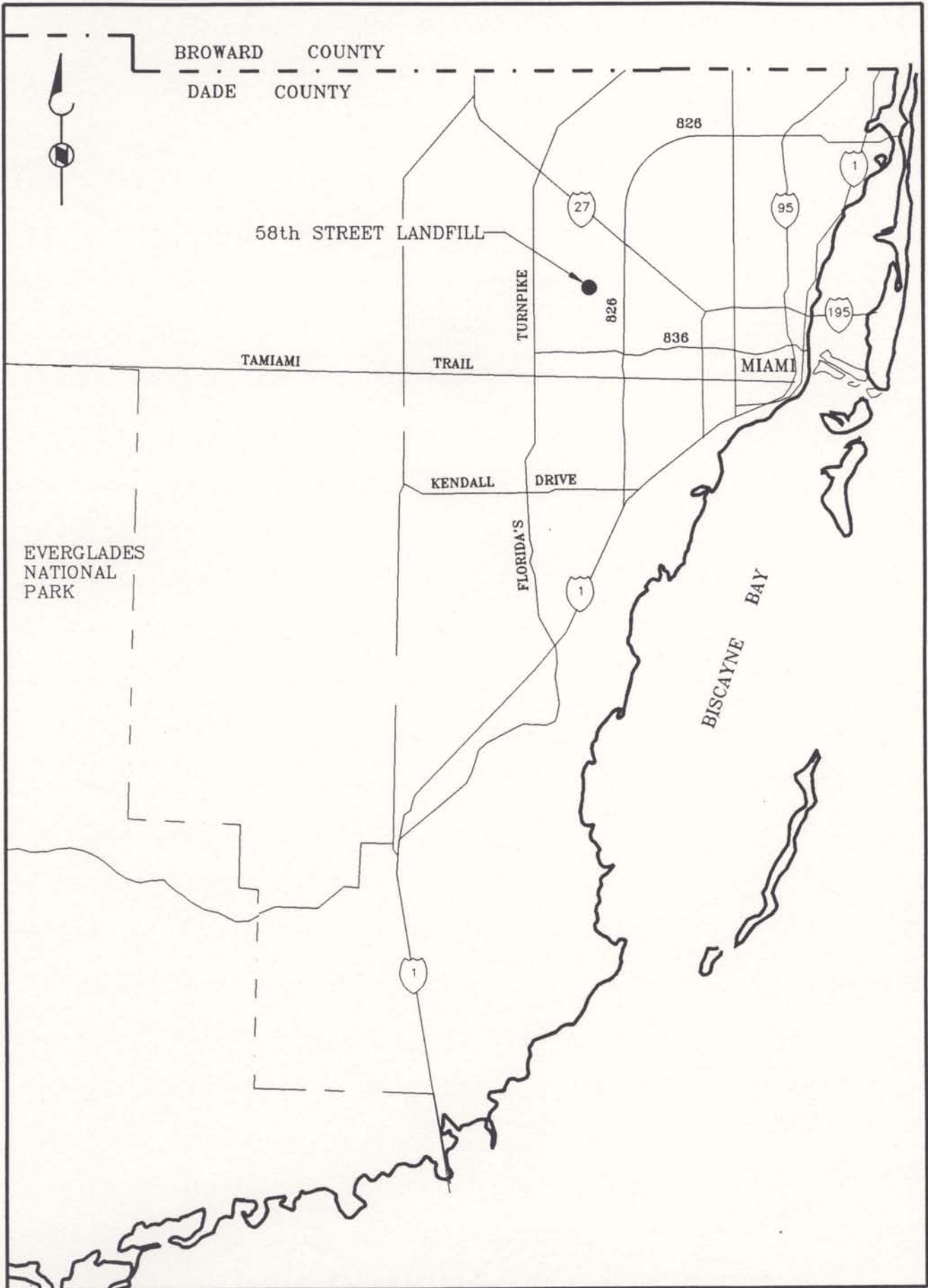


Figure 1. Landfill Site Location Map

















































































































































































