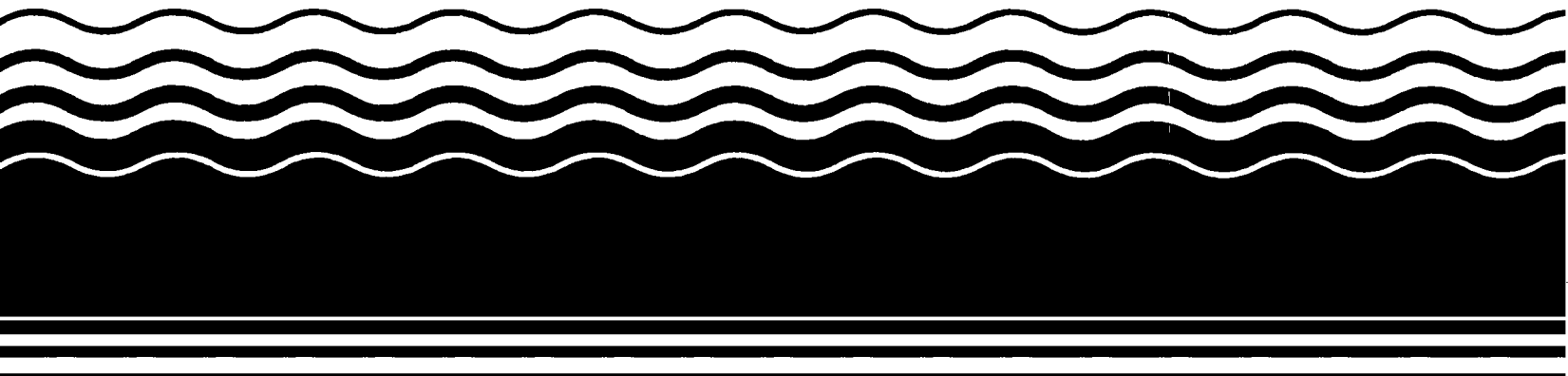


**PB96-963127  
EPA/AMD/R01-96/128  
April 1997**

**EPA Superfund  
Record of Decision Amendment:**

**Coakley Landfill Site,  
North Hampton, NH  
5/17/1996**



**DECLARATION FOR THE  
EXPLANATION OF SIGNIFICANT DIFFERENCES  
COAKLEY LANDFILL SUPERFUND SITE**

**SITE NAME AND LOCATION**

Coakley Landfill Superfund Site  
North Hampton and Greenland, New Hampshire

**STATEMENT OF PURPOSE**

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Coakley Landfill Superfund Site in North Hampton and Greenland, New Hampshire.

**STATUTORY BASIS FOR ISSUANCE OF THE ESD**

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9617(c), if the U.S. Environmental Protection Agency (EPA) determines that the remedial action being undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made. Section 300.435(c) of the National Contingency Plan (NCP), 40 C.F.R. § 300.435(c), and EPA guidance (Office of Solid Waste and Emergency Response [OSWER] Directive 9355.3-02), indicate that an ESD, rather than a Record of Decision (ROD) amendment, is appropriate where the changes being made to the remedy are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the ROD provided in the ESD are significant but do not fundamentally alter the overall remedy for the Site with respect to scope, performance, or cost, this ESD is properly being issued.

In accordance with Section 300.435(c) of the NCP, this ESD and supporting documentation will become part of the Administrative Record which is available for public review at both the EPA Region I Records Center in Boston, Massachusetts and the North Hampton Public Library in North Hampton, New Hampshire.

**OVERVIEW OF THE ESD**

Based on data generated during extensive pre-design studies and other new information developed after the ROD was issued, the landfill gas management component of the selected remedy described in the ROD issued June 20, 1990, has been modified.

The ROD required collection and treatment of landfill gases generated below the cap by means of an active interior gas collection system. The collected gases would be treated on-site by a thermal destruction process. Evaluations using data not available when the ROD was issued indicated that rates of gas generation and levels of hazardous substances in the landfill gas would be lower than those assumed and used for the preparation of the ROD. Therefore, after consultation with NHDES, EPA has concluded that a passive landfill gas collection and venting system will prevent off-site, sub-surface migration of landfill gases and be protective of human health and the environment, while saving significant costs.

**DECLARATION**

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the Coakley Landfill Superfund Site in North Hampton and Greenland, New Hampshire, and the changes stated therein.

May 17, 1996  
Date

Linda M. Murphy  
Linda M. Murphy, Director  
Office of Site Remediation and  
Restoration  
U.S. E.P.A., Region I

**EXPLANATION OF SIGNIFICANT DIFFERENCES  
COAKLEY LANDFILL SUPERFUND SITE  
NORTH HAMPTON AND GREENLAND, NEW HAMPSHIRE**

**I. INTRODUCTION**

**A. Site Name and Location**

Site Name: Coakley Landfill Superfund Site

Site Location: Towns of North Hampton and Greenland,  
Rockingham County, New Hampshire

**B. Lead and Support Agencies**

Lead Agency: United States Environmental Protection  
Agency

Support Agency: New Hampshire Department of  
Environmental Services

**C. Legal Authority**

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9617(c), Section 300.435(c) of the National Contingency Plan (NCP), 40 C.F.R. § 300.435(c), and U.S. Environmental Protection Agency (EPA) guidance (Office of Solid Waste and Emergency Response [OSWER] Directive 9355.3-02), if EPA determines that differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the Record of Decision (ROD) with respect to scope, performance, or cost, EPA shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

**D. Summary of Circumstances Necessitating this Explanation of Significant Differences**

The volume of the gas generated within the landfill and the constituents contained in that gas were evaluated during the Pre-Design Investigation conducted by the Coakley Landfill Group under EPA and NHDES oversight in accordance with the Consent Decree Scope of Work for the Site. The evaluation took into account standards which must be achieved (Applicable or Relevant and Appropriate Federal and State environmental laws and regulations [ARARs]) and public health risks. This evaluation used data which were not available when the ROD for the source control remedy was written.

**E. Availability of Documents**

This Explanation of Significant Differences (ESD) and supporting documentation shall become part of the Administrative Record for the Site. The ESD, supporting documentation for the ESD, and the Administrative Record are available to the public at the following locations and may be reviewed at the times listed:

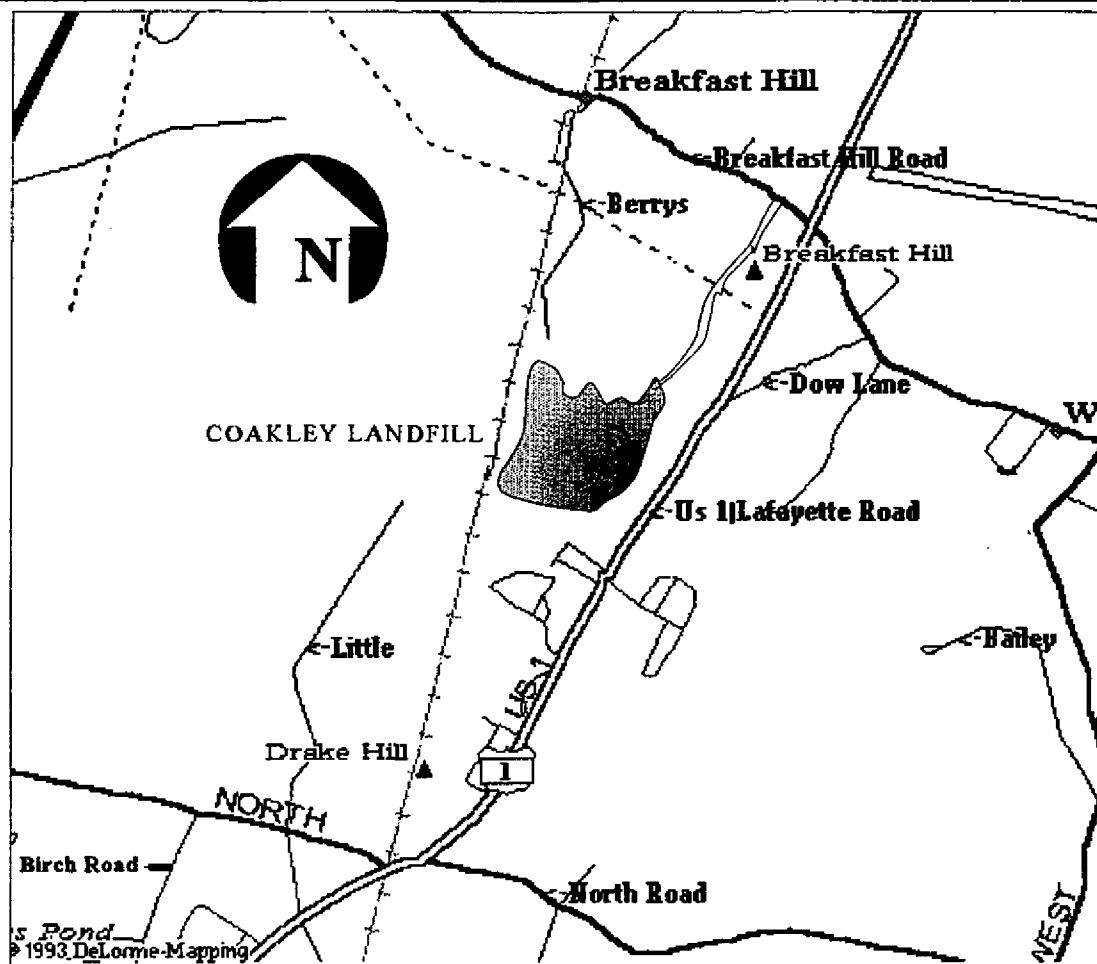
U.S. Environmental Protection Agency  
Records Center  
90 Canal Street  
Boston, MA 02114  
(617) 573-5729  
Weekdays from 10:00 a.m. to 1:00 p.m.,  
and from 2:00 p.m. to 5:00 p.m.

North Hampton Public Library  
235 Atlantic Avenue  
North Hampton, NH 03878  
(603) 692-4587  
Monday through Thursday from 10:00 a.m. to 8:00 p.m. and  
Friday from 10:00 a.m. to 5:00 p.m.

**II. SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND  
SELECTED REMEDY**

**A. Site History and Contamination Problems**

The Coakley Landfill Superfund Site (the Site) includes approximately 92 acres located within the Towns of Greenland and North Hampton, Rockingham County, New Hampshire (See Site Map below). The actual landfill covers approximately 27 acres of this property. The Site is located about 400 to 800 feet west of Lafayette Road (U.S. Route 1), directly south of Breakfast Hill Road, and about 2.5 miles northeast of the center of the Town of North Hampton. A more complete description of the Site can be found in the Remedial Investigation Report, Chapter 2, Pages 2-1 to 2-6.



**SITE MAP**

Landfill operations began in 1972, with the southern portion of the Site used for refuse from the New Hampshire municipalities of Portsmouth, North Hampton, Newington, and New Castle, along with Pease Air Force Base. Concurrent with landfill operations, rock quarrying was conducted at the Site from approximately 1973 through 1977. Much of the refuse disposed of at Coakley Landfill was placed in open (some liquid-filled) trenches created by rock quarrying and sand and gravel mining.

From 1972 until July 1982, the Site accepted municipal waste. In 1982, the City of Portsmouth began operating a refuse-to-energy plant on leased property at Pease Air Force Base. From July 1982 through July 1985, Pease Air Force Base and the municipalities of Rye, North Hampton, Portsmouth, New Castle, Newington and Derry, among others, began transporting their refuse to this plant for incineration. The Coakley Landfill generally accepted only incinerator residue from the new plant after July, 1982. In March 1983, the New Hampshire Bureau of Solid Waste Management

ordered the landfill closed to all waste disposal except burnt residue from the incinerator. In July, 1985, the landfill was closed to all disposal activities.

In 1979, the New Hampshire Waste Management Division received a complaint concerning leachate breakouts in the area. A subsequent investigation by the Bureau of Solid Waste Management resulted in the discovery of allegedly empty drums with markings indicative of cyanide waste.

A second complaint was received in early 1983 by the New Hampshire Water Supply and Pollution Control Commission (WSPCC) regarding the water quality from a domestic drinking water well. Testing revealed the presence of five different Volatile Organic Compounds (VOCs).

A subsequent confirmatory sampling beyond these initial wells detected VOC contamination to the south, southeast, and northeast of the Coakley Landfill. As a result, the Town of North Hampton extended public water to Lafayette Terrace in 1983 and to Birch and North Roads in 1986. Prior to this time, commercial and residential water supply came from private wells.

Also in 1983, the Rye Water District completed a water main extension along Washington Road to the corner of Lafayette Road and along Dow Lane. This extension brought the public water supply into the area due east and southeast of the Rye Landfill. In December 1983, the Coakley Landfill was proposed for listing on the National Priority List (NPL), and in 1986 it was listed and ranked as No. 689.

A cooperative agreement was signed with the State of New Hampshire on August 12, 1985 to conduct a Remedial Investigation/Feasibility Study (RI/FS). The contractor, Roy F. Weston, Inc., completed the RI and the FS which were released for public comment on October 31, 1988, and March 2, 1990, respectively. The Proposed Plan containing EPA's preferred alternative was released with the FS. On June 28, 1990, EPA issued a Record of Decision (ROD) for the source control operable unit of the Coakley Landfill Superfund Site (Site). On March 2, 1991, EPA issued an ESD concerning modifications to the source control remedy related to landfill cap construction and emissions from air strippers used to treat the groundwater.

## B. Summary of the Selected Remedy

The selected source control remedy is the first operable unit of a two operable unit approach to the remediation of the Site. It provides for the remediation of the source at the Coakley Site including the contaminated groundwater beneath and in the vicinity of the landfill (i.e., source control). The second operable unit addressed groundwater contamination which has migrated from the landfill, beyond the property boundary (i.e. management of migration) through natural attenuation of the contaminated groundwater along with institutional controls to prevent exposure to the contamination. This ESD affects only the source control remedy.

The source control remedy involves consolidating sediments and solid waste followed by capping the landfill and extracting and treating on-site groundwater and landfill gases. The major components of the remedy are:

1. Consolidating sediment in the wetlands
2. Consolidating solid waste;
3. Capping the landfill;
4. Fencing the landfill;
5. Collecting and treating landfill gases;
6. Extracting and treating groundwater;
7. Long-term environmental monitoring; and
8. Institutional controls where possible.

## III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

Since the signing of the ROD, an extensive Pre-Design Investigation was conducted by the Coakley Landfill Group, with EPA and NHDES oversight, pursuant to the Consent Decree Scope of Work. This investigation indicated that modifications to the landfill gas management component of the selected remedy could achieve significant cost savings while remaining protective of public health and the environment.

The ROD required collection and treatment of landfill gases generated below the cap by means of an active interior gas collection/recovery system. The collected gases would be treated on-site by a thermal destruction process. Through the use of mathematical models based upon sampling done at the landfill during the Pre-Design Investigation, gas generation rates were able to be more accurately predicted and their impacts evaluated.



In addition, the predicted ambient air concentrations of hazardous constituents in the gas were evaluated and compared to ARARs and health risk levels. Based on these evaluations, rates of gas generation and levels of hazardous substances in the landfill gas were found to be lower than those assumed and used for the preparation of the ROD. Furthermore, a review of landfills recently closed in the State indicates that passive gas collection and venting has been effective in preventing off-site migration of landfill gas beneath impermeable covers. The design of the system at the Coakley Landfill is conservative based on a review of selected landfills having similar characteristics. The thickness of the gas collection layer (12 inches), the number of vents per acre (2.5), and the number of annual air samples (25), exceed requirements at the other sites.

In addition, the passive gas management system will result in a capital cost savings of \$346,500 and a present worth cost savings for operations and maintenance over a 30 year period of \$320,400.

Therefore, after consultation with NHDES, EPA has concluded that a passive landfill gas collection and venting system will prevent off-site, sub-surface migration of landfill gases, while saving significant costs. In addition, this system will meet all standards for ambient air quality.

The proposed modification embodied in this ESD will protect human health and the environment, will comply with all applicable or relevant and appropriate Federal and State requirements, and will provide for a long-term and permanent remedy for the Site to a similar degree as the remedy outlined in the ROD as modified by the first ESD, and will pose the same short-term, construction-related risks as the remedy contained in the ROD, as modified in the first ESD. In addition, the proposed modification to the remedy will reduce construction costs, as well as, operation and maintenance costs.

#### IV. SUPPORT AGENCY COMMENTS

The State of New Hampshire has participated with EPA in reviewing the modifications to the design which are described herein and concurs with the approach adopted by EPA.

#### V. STATUTORY DETERMINATION

Considering the above outlined adjustment to the selected remedy set forth in the ROD, as modified in the first ESD, EPA believes that the remedy remains protective of human health and the environment, complies with all Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective.

#### VI. PUBLIC INFORMATION

This ESD and the Administrative Record are available for public review at the locations and times listed in Section I., above.