



# **Superfund Record of Decision:**

## **Beacon Heights Landfill, CT**



<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO. EPA/ROD/R01-90/050	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Beacon Heights Landfill, CT First Remedial Action - Final (Supplemental)			5. Report Date 09/28/90	6.
7. Author(s)			8. Performing Organization Rept. No.	
9. Performing Organization Name and Address			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000	
			14.	
15. Supplementary Notes				
16. Abstract (Limit: 200 words)  The 34-acre Beacon Heights Landfill site is on the northwest corner of an 82-acre property in Beacon Falls, Connecticut. From the 1920s to 1970, a 6-acre area of the site was used as a dumping and incineration area. The site was subsequently expanded to a 34-acre area where waste materials including industrial liquids and chemicals were buried until the State closed the landfill in 1979. Industrial waste water sludge also was disposed of onsite. Because of a slide of soil and buried waste in 1972, ground water and leachate discharge points were created in the north/northwestern areas of the landfill; several of these discharge points still persist in the slide area. In 1984, sampling of forty-four residential wells downgradient of the site revealed VOC-contaminated water in two residential wells. As a result of the sampling, the State provided bottled drinking water to the affected residents. A 1985 Record of Decision (ROD) documented remedial activities, including consolidation and capping of contaminated soil at the six-acre area; installation of a leachate collection system; and extension of a public water supply line to area residences. This ROD supplements the 1985 ROD by resolving those determinations left open in the 1985 ROD including the manner and locations of leachate treatment/disposal; cleanup levels for soil deemed  (See Attached Page)				
17. Document Analysis a. Descriptors Record of Decision - Beacon Heights Landfill, CT First Remedial Action - Final (Supplemental) Contaminated Media: soil, gw, sw Key Contaminants: VOCs (benzene, toluene, xylenes)  b. Identifiers/Open-Ended Terms     c. COSATI Field/Group				
18. Availability Statement		19. Security Class (This Report) None		21. No. of Pages 126
		20. Security Class (This Page) None		22. Price

Abstract (Continued)

impracticable to cap in areas contiguous to the landfill; and the need for air pollution controls on the landfill gas vents. The primary contaminants of concern affecting the soil, ground water, surface water, and air are VOCs including benzene, toluene, and xylenes.

The selected remedial action for this site supplements the remedial actions documented in the 1985 ROD and includes offsite leachate treatment at a waste water treatment facility prior to offsite discharge of the treated effluent to offsite surface water; offsite incineration of the sludge generated during leachate treatment; monitoring of landfill gases; and providing the criteria for excavation of the contaminated soil deemed impracticable to cap. Although air pollution controls are not currently necessary, the vents to be built into the future cap will be constructed in such a way as to facilitate the addition of pollution control devices should continual monitoring reveal levels of air contaminants exceeding Federal and State standards. The present worth cost for this supplemental remedial action is \$2,241,000, with a present worth O&M cost of \$951,000.

PERFORMANCE STANDARDS OR GOALS: In order to protect the aquifer underlying the site from further potential contamination, excavation levels for contaminants of concern in soil contiguous to the area of the landfill deemed impracticable to cap are based on leachate modeling. In the absence of a chemical-specific ARAR, cleanup goals will be based on a  $10^{-6}$  excess cancer risk level for carcinogens or a HI=1 for noncarcinogens. Soil excavation levels include benzene 0.08 mg/kg, TCE 0.01 mg/kg, toluene 100 mg/kg, and xylenes 500 mg/kg. No cleanup levels for leachate were set because all but negligible amounts of leachate will be removed and treated offsite. The treatment effluent will meet all NPDES permit requirements prior to discharge to surface water.

**BEACON HEIGHTS LANDFILL  
SUPPLEMENTAL RECORD OF DECISION**

**September 28, 1990**

**Beacon Heights Landfill Site, Beacon Falls, Connecticut**

## DECLARATION FOR THE SUPPLEMENTAL RECORD OF DECISION

Beacon Heights Landfill  
Beacon Falls, Connecticut

### STATEMENT OF PURPOSE

This decision document completes, to the extent technically practicable, the remedy outlined in the 1985 Record of Decision (ROD) for the Beacon Heights Landfill Site (the Site) in Beacon Falls, Connecticut, and represents the selected leachate treatment and disposal alternative developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR Part 300 et seq., as amended. This remedial action along with the determinations concerning the soil cleanup levels and air pollution controls on the landfill gas vents will be protective of human health and the environment at the completion of the remedy. The Region I Administrator has been delegated the authority to approve this supplemental ROD.

The Connecticut DEP concurs with the selected alternative for leachate treatment and disposal and with the determination for air pollution controls, but does not concur with the soil remediation levels. A copy of the declaration of concurrence/non-concurrence is attached as Appendix B to this supplemental Record of Decision.

### STATEMENT OF BASIS

This decision is based on the Administrative Record which has been developed in accordance with Section 113 (k) of CERCLA and which is available for public review at the Beacon Falls Town Hall in Beacon Falls, Connecticut and at the Region I Waste Management Division Records Center in Boston, Massachusetts. The Administrative Record Index (Appendix B to the ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

### ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this supplemental ROD, may present an imminent and substantial endangerment to the public health or welfare or to the environment.

**DESCRIPTION OF THE LEACHATE TREATMENT/DISPOSAL ALTERNATIVE AND DETERMINATIONS OF CONTAMINANT LEVELS FOR SOIL EXCAVATION AND AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS**

This supplemental ROD sets forth the selected alternative for the manner and location of leachate treatment, and determines the extent to which contaminated soils will be excavated for consolidation with the main landfill and the need for air pollution controls on the landfill gas vents at the Beacon Heights Landfill Site.

The selected leachate treatment/disposal alternative and the soil and pollution control determinations described in this supplemental ROD, together with the remedial action specified in the 1985 ROD, will protect the drinking water aquifer by minimizing further migration of contaminants to the groundwater and surface water, and will eliminate threats posed by direct contact with or ingestion of contaminated soils and wastes at the Site.

The major components of this supplemental ROD include:

- Transport and subsequent treatment of contaminated leachate at the Naugatuck, Connecticut wastewater treatment facility.
- Determination of the extent to which contaminated soils located outside the main landfill will be excavated.
- Determination of the need for air pollution controls to be installed on the landfill gas vents at the Site.

The major components of the 1985 ROD included:

- Excavating and/or capping Betkoski's dump and other contaminated soils for consolidation with the main landfill prior to closure.
- RCRA capping of the consolidated wastes, including gas venting (with air pollution controls if determined necessary in a supplementary Decision Document), and stormwater management controls.
- Installing a perimeter leachate collection system.
- Extending a public water supply line along Skokorat Road and along Blackberry Hill Road to service current residences.
- Enclosing the Site with security fencing.

- Installing a more extensive groundwater monitoring system.
- Collection of leachate and transporting it to a licensed waste water treatment facility or on-site treatment followed by discharge to a tributary of the Hockanum Brook.
- A supplemental ROD selecting the manner and location of leachate treatment (onsite or offsite), the extent of excavation of contaminated soils, and the need for air pollution controls on the landfill gas vents would be prepared.

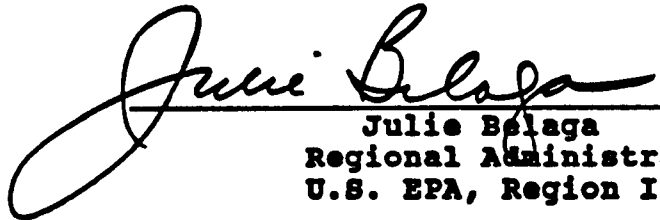
#### DECLARATION

The selected leachate treatment/disposal alternative and the soil and air pollution control determinations will be protective of human health and the environment at the completion of the remedy, attain Federal and State requirements that are applicable or relevant and appropriate and are cost-effective. The selected leachate treatment/disposal alternative satisfies the statutory preference for remedies that utilize treatment as a principal element to reduce the toxicity, mobility, or volume of hazardous substances. In addition, this leachate treatment/disposal alternative utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

As this alternative will result in hazardous substances remaining onsite above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

9/28/90

Date:

  
\_\_\_\_\_  
Julie Belaga  
Regional Administrator  
U.S. EPA, Region I

**BEACON HEIGHTS SUPPLEMENTAL RECORD OF DECISION**  
**TABLE OF CONTENTS**

<b>I.</b>	<b>SITE DESCRIPTION</b>	<b>1</b>
<b>II.</b>	<b>SITE HISTORY AND ENFORCEMENT ACTIVITIES</b>	<b>2</b>
	<b>A. General Site History</b>	<b>2</b>
	<b>B. State Response History</b>	<b>2</b>
	<b>C. Federal Response History</b>	<b>4</b>
	<b>D. Enforcement History</b>	<b>6</b>
<b>III.</b>	<b>COMMUNITY RELATIONS</b>	<b>7</b>
<b>IV.</b>	<b>SCOPE AND ROLE OF RESPONSE ACTION</b>	<b>8</b>
<b>V.</b>	<b>SUMMARY OF SITE CHARACTERISTICS</b>	<b>8</b>
	<b>A. Soil</b>	<b>9</b>
	<b>B. Groundwater</b>	<b>9</b>
	<b>C. Leachate</b>	<b>9</b>
	1. Leachate Quantity	<b>9</b>
	2. Leachate Quality	<b>10</b>
	<b>D. Surface Water</b>	<b>10</b>
	<b>E. Air</b>	<b>10</b>
<b>VI.</b>	<b>PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS</b>	<b>11</b>
<b>VII.</b>	<b>DEVELOPMENT AND SCREENING OF ALTERNATIVES FOR LEACHATE TREATMENT AND DISPOSAL AND DETERMINATIONS REGARDING CONTAMINANT LEVELS FOR SOIL EXCAVATION AND FOR AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS</b>	<b>16</b>
	<b>A. Statutory Requirements/Response Objectives</b>	<b>16</b>
	<b>B. Leachate Disposal and Treatment Technology and Alternative Development and Screening; Basis for Soil Excavation and Gas Treatment Determinations</b>	<b>17</b>
<b>VIII.</b>	<b>DESCRIPTION OF LEACHATE TREATMENT AND DISPOSAL ALTERNATIVES</b>	<b>19</b>
<b>IX.</b>	<b>SUMMARY OF THE COMPARATIVE ANALYSIS OF LEACHATE TREATMENT AND DISPOSAL ALTERNATIVES</b>	<b>24</b>
	1. Overall Protection of Human Health and the Environment	<b>26</b>
	2. Compliance with Applicable or Relevant and Appropriate	<b>27</b>
	3. Long-term Effectiveness and Permanence	<b>27</b>
	4. Reduction of Toxicity, Mobility, or Volume Through Treatment	<b>29</b>
	5. Short-Term Effectiveness	<b>30</b>
	6. Implementability	<b>32</b>
	7. Cost	<b>33</b>
	8. State Acceptance	<b>33</b>
	9. Community Acceptance	<b>34</b>



<b>X.</b>	<b>THE SELECTED ALTERNATIVE FOR LEACHATE TREATMENT AND DISPOSAL . . . . .</b>	<b>34</b>
	<b>A. Leachate Treatment and Disposal Cleanup Levels . . . . .</b>	<b>34</b>
	<b>B. Leachate Treatment Components . . . . .</b>	<b>34</b>
<b>XI.</b>	<b>DETERMINATION OF CONTAMINANT LEVELS FOR SOIL EXCAVATION . . . . .</b>	<b>35</b>
	<b>A. Soil Cleanup Levels . . . . .</b>	<b>36</b>
	<b>B. Soil Excavation Components . . . . .</b>	<b>39</b>
<b>XII.</b>	<b>DETERMINATION FOR AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS . . . . .</b>	<b>40</b>
	<b>A. No Air Pollution Controls Are Needed . . . . .</b>	<b>40</b>
	<b>B. Continued Monitoring . . . . .</b>	<b>41</b>
<b>XIII.</b>	<b>FUTURE ACTIONS . . . . .</b>	<b>42</b>
<b>XIV.</b>	<b>STATUTORY DETERMINATIONS . . . . .</b>	<b>42</b>
	<b>A. The Remedial Actions Specified in this Supplemental ROD are Protective of Human Health and the Environment . . . . .</b>	<b>42</b>
	<b>B. The Remedial Actions Specified in this supplemental ROD Attain ARARS . . . . .</b>	<b>43</b>
	<b>C. The Remedial Action is Cost-Effective . . . . .</b>	<b>46</b>
	<b>D. The Selected Alternative for Leachate Treatment and Disposal and the Determination for Air Pollution Controls Utilize Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable . . . . .</b>	<b>48</b>
	<b>E. The Remedial Actions Selected in this Supplemental ROD Satisfy the Preference for Treatment Which Significantly Reduces the Toxicity, Mobility or Volume of the Hazardous Substances as a Principal Element . . . . .</b>	<b>50</b>
<b>XV.</b>	<b>DOCUMENTATION OF SIGNIFICANT CHANGES . . . . .</b>	<b>50</b>
<b>XVI.</b>	<b>STATE ROLE . . . . .</b>	<b>51</b>
	<b>APPENDIX A - Figures</b>	
	<b>APPENDIX B - Tables</b>	
	<b>APPENDIX C - Responsiveness Summary</b>	
	<b>APPENDIX D - State of Connecticut Concurrence Letter</b>	
	<b>APPENDIX E - Administrative Record Index</b>	

## **I. SITE DESCRIPTION**

The Beacon Heights Landfill Site (the Site) is located approximately ten miles south of Waterbury, Connecticut and two miles east of the intersection of Connecticut Routes 8 and 42 in Beacon Falls, Connecticut. The actual landfill area covers approximately 34 acres of an 82 acre property located in Beacon Falls, Connecticut.

The area surrounding the Site is rural. Adjacent land uses include farming, forest areas, gravel quarry operations, and residential development along Blackberry Hill and Skokorat Roads. One farm is located adjacent to the Site, approximately 2,000 feet to the north. An inactive quarry is located at the base of a steep slope below the landfill. Low-density residential areas border the Site to the north along Blackberry Hill Road and to the west along Skokorat Road. The closest residence is approximately 1,000 feet away on Blackberry Hill Road. Hockanum Brook, presently classified as recreational use water with the goal of becoming a potential drinking water source, (Class B/A) according to state water quality standards, is a tributary of the Naugatuck River and runs north and west of the Site. The Naugatuck River, located west of the Site is classified as restricted recreational use water with the goal of becoming recreational use water, (Class C/B).

The main landfill surface slopes steeply to the north/northwest and drops in elevation from approximately 650 feet at the top of the landfill down to approximately 320 feet at the base of the slope. Waste materials are covered by a veneer of sandy soils. The entire Site lies outside the 100 year floodplain of Hockanum Brook, and does not include or border any wetland areas.

Construction of an access road and the accumulation of waste materials apparently altered pre-existing natural surface and groundwater drainage patterns of the Site. As a result, two surface water drainageways have developed which flow down the north slope of the landfill. These drainageways flow into the Hockanum Brook and the Naugatuck River. Surface water flowing within each drainageway carries leachate surfacing in the north and northwest areas of the landfill.

Bedrock outcrops appear in many areas around the Site. The bedrock surface beneath the Site is fractured and slopes north/northwest, parallel to surface water drainage. Groundwater in the unconsolidated deposits also flows to the north/northwest.

A more complete description of the Site can be found in the Feasibility Study Report dated August, 1985 at pages 1-1 through 1-8. Figure 1 of this supplemental ROD maps the location of the Site.

## **II. SITE HISTORY AND ENFORCEMENT ACTIVITIES**

### **A. General Site History**

From the 1920's until 1970 a small portion of what is now known as the Beacon Heights Site was known as "Betkoski's Dump" and consisted of approximately 6 acres of active dumping and open burning in the northwest corner of the existing Site. During this period of operation, there were general complaints and concerns, due to fumes, smoke, and blowing litter. The Site was not regulated by the State until 1970. (See section V for a more detailed description of Site characteristics.)

In 1970 Beacon Heights, Incorporated (BHI) purchased the Site, which included the Betkoski Dump area. BHI and its owner, Harold Murtha, owned and operated the Site as Beacon Heights Landfill and expanded the landfill area to approximately 34 acres. On-site soil generated by this expansion was used as cover material for the landfill. Wastes were placed directly onto bedrock and covered with soil, and waste materials were no longer burned.

A slide of soil and buried waste occurred on the northwest side of the landfill in 1972 due to both landfill operations and the changed surface and groundwater patterns from construction of the access road. This slide created groundwater and leachate discharge points in the north/northwest areas of the landfill. Several of these discharge points still persist in the slide area.

From 1973 until the Site closed in July, 1979 specified areas or cells were used for the disposal of various waste materials rather than placing waste directly onto bedrock. Cover material was placed over all working areas.

In 1977 the Connecticut Department of Environmental Protection (CT DEP) approved spreading of waste water sludge from the Naugatuck municipal/industrial waste water treatment facility over covered areas of the landfill. These activities continued until the summer of 1984.

### **B. State Response History**

The State of Connecticut began regulating the Site in 1970. In 1972 and 1973 BHI was ordered by CT DEP to develop plans for eliminating pollution from the landfill and surrounding groundwater.

DEP attempted to close the landfill and regulate industrial liquids and chemicals disposed at the landfill by issuing additional orders to BHI in 1975 and 1976. These orders cited contamination of well water and Hockanum Brook tributaries as a

result of landfill operations. In response to these actions, BHI submitted a second engineering report describing an improved landfill operating plan but failed to provide a groundwater monitoring plan.

These activities culminated in a Consent Order between BHI and CT DEP to close the facility by July 1, 1979. The Consent Order was signed on June 20, 1979 and entered as a final order of the Connecticut Commissioner of Environmental Protection on July 24, 1979. BHI complied with the consent order and the landfill was closed in July, 1979.

Forty-four residential wells, located down gradient of the Site, along Skokorat and Blackberry Hill Roads were sampled by EPA in 1984. Samples were analyzed for Hazardous Substance List (HSL) organic and inorganic parameters. Two contaminated residential wells located along Skokorat were resampled in November 1984. These wells revealed benzene at concentrations ranging from 32 to 131 micrograms per liter (ug/l). As a result of EPA sampling, CT DEP provided bottled water to these residences as a temporary safe drinking water source. Other organic compounds detected in some of the residential well samples were below levels that would indicate any health risks. To provide more data on the nature of residential well contamination, some residential wells were resampled in January 1985. These results generally confirmed the results of the previous samples. Benzene was detected in the same wells again at 42 to 89 ug/l. Low levels of other organic compounds were also identified in a limited number of wells.

### C. Federal Response History

EPA conducted several preliminary study/sampling activities in 1981 and 1982 to evaluate Site conditions, to collect preliminary sample data, and to identify the potential for immediate health risk as a consequence of the Site. The Site was listed on the EPA's National Priorities List on September 1, 1983. As a result of the listing, the Site became eligible for remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

NUS Corporation, EPA's contractor, performed a Remedial Investigation (RI) at the Site from March 1984 through April 1985 to supplement the previous investigations at the Site and to provide sufficient data to perform a Feasibility Study (FS). The RI/FS was released to the public in April 1985.

A more detailed description of the Site history leading up to the FS including a summary of the results of the RI can be found in Section 1 of the FS Report.

Based on the RI/FS studies, EPA issued a Record of Decision (ROD) on September 23, 1985, documenting the selected remedial actions for the Site. The remedy included:

- Excavating Betkoski's dump and other contaminated soils for consolidation with the main landfill prior to closure.<sup>1</sup>
- RCRA capping of the consolidated wastes, including gas venting (with air pollution controls if determined necessary in a Supplementary Record of Decision Document), and stormwater management controls.
- Installing a perimeter leachate collection system.
- Extending a public water supply line along Skokorat Road and along Blackberry Hill Road to service current residences.
- Enclosing the Site with security fencing.
- Installing a more extensive groundwater monitoring system.
- Collecting of leachate and transporting it to a licensed waste water treatment facility or on-site treatment followed by discharge to a tributary of the Hockanum Brook.

---

<sup>1</sup>Although the 1985 ROD and the Proposed Plan call for excavating Betkoski's dump, only a portion of the dump area will be excavated. The remaining area will be included under the cap. (See Section XIV, Explanation of Significant Differences, for a more complete explanation.)

Further studies and a supplemental ROD selecting the manner and location of leachate treatment (on-site or off-site), the extent of excavation of contaminated soils, and the need for air pollution controls on the landfill gas vents would be prepared.<sup>2</sup>

After the 1985 ROD was signed, EPA issued an Administrative Order in October, 1986 in response to contamination discovered in some private residence wells and as a precaution against further leachate contamination. The order required 31 generators to offer residences in the vicinity of the landfill the opportunity to become connected to the municipal water supply system. Fifty-eight residences opted to become hooked up to the municipal water system, and domestic water supply wells previously serving the residences were decommissioned. Eight area residences declined and continue to use private wells to supply drinking water.

In September, 1987 the United States entered a consent decree with 32 PRPs, now known as the Beacon Heights Generators Coalition (BHGC), under which those PRPs agreed to perform the remedial action at the Site. Among other things, the consent decree required the PRPs to perform pre-design studies to gather the information which forms the basis for the determinations made in this supplemental ROD.

Because Beacon Heights, Inc. denied Site access to BHGC for these studies and other remedial activities, remedial investigation work was not performed until a court order issued in October 1988 required BHI to provide access.

In March, 1990, the BHGC submitted a final draft of the Pre-Design Studies Report to EPA. A Proposed Plan regarding the decisions to be made in this supplemental ROD was issued in May,

---

<sup>2</sup>This document represents the Supplemental ROD referred to in the 1985 ROD. Therefore, this document is limited to resolving those determinations left open in the 1985 ROD. Those determinations are

- (1) manner and location of leachate treatment/disposal;
- (2) extent of excavation of contaminated soils; and
- (3) need for air pollution controls on the landfill gas vents.

Both the 1985 ROD and this Supplemental ROD document the remedy selected for this Site.

1990. Based on the Pre-Design Studies Report, the RI/FS, and on public and State comments, EPA reached the determinations set out in this supplemental ROD.

#### **D. Enforcement History**

In March, 1985, EPA notified approximately sixty (60) parties who either owned or operated the landfill, generated the wastes that were shipped to the landfill, arranged for the disposal of wastes at the landfill, or transported the wastes to the landfill of their potential liability with respect to the Site. Negotiations ensued with these potentially responsible parties (PRPs) regarding the settlement of their liability at the Site.

A subset of the PRPs consisting primarily of waste generators formed a steering committee (Beacon Heights Generators Coalition-BHGC). Negotiations between EPA and BHGC resulted in a consent decree in September, 1987 requiring BHGC to pay for and perform all of the work necessary to complete the remedial action at the Site. This work included the pre-design study work described above.

In March, 1990, pursuant to the Consent Decree, the BHGC submitted a Pre-Design Studies Report which presented several alternatives and recommendations for the treatment and disposal of leachate as well as information on the extent of soil excavation and air pollution controls on the landfill gas vents. The BHGC also submitted technical comments regarding the Proposed Plan during the public comment period. These comments are included in the Responsiveness Summary in Appendix C.

In addition to the above noted sections, the Beacon Heights Site has also been the subject of extensive litigation. In March 1987, the United States sued Beacon Heights, Inc., Harold Murtha, and a number of affiliated corporations and individuals under Section 107 of CERCLA to recover response costs incurred at the Site and another nearby site, the Laurel Park, Inc. Superfund Site, also owned by a Murtha affiliated corporation. The BHGC also filed claims against the Murtha entities for contribution toward the anticipated cost of the cleanup of the Beacon Heights Site.

In spring 1988, Beacon Heights, Inc., Harold Murtha, and their affiliated corporations filed claims against approximately 200 individuals and corporations, claiming that they too were liable for the cleanup of the Beacon Heights and Laurel Park Sites. These claims sought to have these 200 persons contribute toward the cleanup costs at the two Sites.

In September 1988, the United States brought claims against eight additional defendants to recover past and future response costs

incurred at the Beacon Heights Site, which were not collected under the terms of the 1987 consent decree.

These various lawsuits have been consolidated into one action currently pending in the Connecticut federal district court.

### III. COMMUNITY RELATIONS

Throughout the Site's history, community concern and involvement have been high. EPA has kept the community and other interested parties apprised of Site activities through a series of informational meetings, fact sheets, and press releases.

On May 9, 1990 EPA held a public informational meeting to discuss the results of the Pre-Design Studies for this supplemental ROD. At this meeting, EPA (1) presented the Agency's Proposed Plan for the manner and location of leachate treatment and disposal, the soil excavation criteria for the contaminated soils located adjacent to the main landfill area, and the need for air pollution controls on the gas vents; (2) answered questions from the public; and (3) announced that from May 9 to June 8, 1990 the agency would hold a 30 day comment period to accept public comment on the alternatives presented in the Pre-Design Studies and the Proposed Plan.

On May 30, 1990, the Agency held a public hearing to discuss the Proposed Plan and other alternatives evaluated and to accept any oral comments for the record. A transcript of this meeting and all comments received during the comment period and the Agency's response to these comments are included in the attached Responsiveness Summary. In response to public request, EPA increased the original 30 day comment period to 60 days ending on July 9, 1990 to allow opportunity for additional review and comment. Approximately fourteen sets of comments were received from residents, state and local government officials, and PRPs.

The PRPs were concerned primarily with pretreatment potential and the criteria utilized to set the soil excavation levels for cleanup. They also questioned the need to specify which off-site alternative should be used and suggested a more generic approach of merely choosing off-site treatment and leaving the decision as to which type of off-site treatment for a later date pending negotiations between the PRPs and the Town of Beacon Falls and the Borough of Naugatuck.

An Administrative Record for the Site was originally established in September, 1985 and has been updated as of the signing of this supplemental ROD. This supplemental ROD and much of the material used in its development are included in the Administrative Record and are available for public review. Copies of the updated Administrative Record are available at the Town Clerk's Office at



the Beacon Falls Town Hall, the information repository that EPA established for the Site; and at the EPA Records Center at 90 Canal Street, Boston, Massachusetts.

One of the alternatives described in the Proposed Plan contemplated offsite leachate treatment and disposal at the Town of Beacon Falls waste water treatment facility. The BHGC met with the Town of Beacon Falls at various times during the process to discuss the possibility of sending leachate to the Beacon Falls facility for treatment and disposal. EPA consulted with both the Town and the BHGC from time to time during these discussions to keep abreast of significant developments. As of the signing of this supplemental ROD, the Town of Beacon Falls has not consented to accepting the leachate. Without the Town's consent, this alternative cannot be implemented.

#### **IV. SCOPE AND ROLE OF RESPONSE ACTION**

The performance objectives described in this document for leachate treatment and disposal, for the extent of soil excavation and the need for air pollution controls on the landfill gas vents are part of the overall remedial action documented in the 1985 ROD for the Site. The supplemental ROD completes the remedial action decisions made in the 1985 ROD to the extent technically practicable. Specifically, the supplemental ROD determines the leachate treatment and disposal plan; completes the soil excavation component for the capping portion of the remedy; and establishes the performance standards and procedures that will be utilized in determining the air pollution control component of the gas venting system.

The performance objectives for remedial action are described more fully in Sections X, XI, and XII of the supplemental ROD and are an integral part of the remedial action decisions documented in the 1985 ROD. The supplemental ROD and the 1985 ROD address the following principal threats to human health and the environment posed by the Site:

- Off-site migration of contaminants via leachate.
- Future ingestion of contaminated groundwater on-site and off-site.
- Future ingestion and direct contact with contaminated soils and solid wastes adjacent to the main landfill.
- Inhalation of potentially harmful gas produced within the landfill.

## V. SUMMARY OF SITE CHARACTERISTICS

Chapters 3 and 4 of the Pre-Design Studies contain an overview of the most recent sampling and analysis performed at the Site and sampling and analysis performed during the 1985 RI. The significant findings of the Pre-Design Studies and the RI are summarized below.

### A. Soil

Site soils were subjected to physical and chemical testing during the 1985 RI/FS and the Pre-Design studies. This was done to evaluate the extent of contaminated soils adjacent to the main landfill. Analyses of soil samples taken in locations outside the proposed cap area reveal the presence of benzene (concentration range: 3.5 to 2,200 ug/kg), xylene (concentration range: 460 to 490 ug/kg), lead (45,000 ug/kg), chlorobenzene (concentration range: 20 to 2,400 ug/kg), trichlorofluoromethane (280 ug/kg), 1,1-dichloroethane (3,700 ug/kg), 1,1-dichloroethene (47 ug/kg), and bis (2-ethylhexyl) phthalate (concentration range: 380 to 1,990 ug/kg). More complete results of these analyses are presented in Table 1. Figure 2 delineates the approximate areas of contaminated soil located outside the main landfill.

The 1985 ROD determined that due to the technical difficulty and the excessive cost of capping all contaminated soils on Site, some areas will be excavated and consolidated with the main section of the landfill prior to capping.

### B. Groundwater

The general flow of groundwater in the landfill area is to the north/northwest, paralleling the direction of the adjacent surface water streams and surface topography. Studies conducted during the RI show the average groundwater flow velocity in the unconsolidated soils near the Site to be approximately 50 feet per year (1.8 cm/sec). More detailed descriptions of the groundwater properties are located in Section 4 of the RI.

### C. Leachate

#### 1. Leachate Quantity

The rate and quantity of leachate presently generated by the uncapped landfill is a function of a variety of factors, including precipitation, the permeability of the soil cover over the wastes, and the degree of surface runoff from the landfill.

As part of the Pre-Design Studies the quantity of leachate currently being produced was compared with estimates of leachate

produced after capping. This analysis showed that the landfill generates an average of 20 gallons per minute (gpm) of leachate, with the highest leachate peak flow estimated at approximately 42 gpm; in drier periods, flow may be less than 10 gpm.

The Pre-Design Studies also revealed that between 5 to 10 years after capping of the main landfill, leachate production may diminish to a point at which minimal or no collection and treatment will be necessary. Figure 3 shows the expected quantity of leachate flow after capping.

## **2. Leachate Quality**

Samples taken during the RI/FS and the Pre-Design Studies from leachate seeps and groundwater monitoring wells both inside and outside the property boundary were evaluated to determine the types of leachate treatment which would be most appropriate for the Site. These samples were analyzed for Hazardous Substance List (HSL) components, organic and inorganic compounds, Total Organic Carbons (TOCs), and dioxin. Additionally, the samples were analyzed for general chemistry parameters and BOD. The variety of leachate and groundwater samples were contaminated primarily with volatile organic compounds (VOCs), including benzene (concentration range: 3 to 35,000 ug/l), chlorobenzene (concentration range: 1.3 to 5,310 ug/l), toluene (concentration range: 1.1 to 2,400 ug/l), ethyl benzene (concentration range: 2 to 590 ug/l), and chloroethane (concentration range: 10 to 1,450 ug/l). Semi-Volatile compounds were detected in the following concentrations: bis(2-chloroethyl) ether (concentration range: 24 to 4,680 ug/l), xylene (concentration range: 3 to 447 ug/l) and bis (2-ethylhexyl) phthalate (concentration range: 10 to 1,990 ug/l). Figure 4 shows the approximate sampling locations.

Inorganic analyses were performed to assist in evaluating treatment processes for select metals. Elevated levels of barium, cyanide, manganese, iron, and zinc were detected in the leachate. Table 2 provides a summary of additional physical and chemical analyses performed on leachate/groundwater samples obtained as part of the Pre-Design Studies and the Remedial Investigation.

### **D. Surface Water**

At present, leachate discharged from the Site drains to a tributary to the Hockanum Brook. Subsequently, the leachate enters the Hockanum Brook via the tributary. CT DEP has classified the Hockanum Brook as B/A, recreational use water with the goal of becoming drinking water quality. CT DEP feels that the Brook is currently class B (less than drinking water standards) due to the contaminants leaching from the Beacon Heights Landfill.

Sampling analysis was performed during the 1985 RI to characterize any possible contamination of the local surface waters. The results of this sampling are presented in Table 3.

#### **E. Air**

A limited air investigation was performed as part of the 1985 RI/FS. The maximum gas vent concentrations are below the Maximum Allowable Stack Concentrations (MASC). Similarly, analyses of ambient air samples at the landfill property boundaries indicate that all constituents detected are below both Connecticut Hazard Limiting Values and the Connecticut Odor Threshold Limits. The results of the 1985 samplings revealed the presence of nine volatile organic compounds. The highest concentrations observed were for benzene (21.5 ug/m<sup>3</sup>), toluene (20.7 ug/m<sup>3</sup>), and total xylenes (8.8 ug/m<sup>3</sup>)

No reliable trends were observed with air emissions at the Site during the Pre-Design Studies because gas vent and ambient air samples collected as part of the Pre-Design Studies were deemed inadequate for the following reasons:

1. Surrogate recoveries often were outside quality control limits;
2. Failure to report analytical data in units which could be incorporated into an estimate of exposure (ug/m<sup>3</sup>);
3. Significant sample breakthrough was observed during vent sampling; and
4. Failure to document or obtain meteorological conditions and background air quality information in an adequate fashion such that an assessment could focus on the contribution of landfill gas to ambient air quality.

Continued monitoring as outlined in Section XII A. and B. will ensure that all applicable or relevant and appropriate requirements will be met at the completion of the remedy.

#### **VI. PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS**

A public health and environmental analysis was performed during the 1985 RI/FS to estimate the probability of potential adverse human health and environmental effects from exposure to contaminants associated with the Site. Limited sampling of groundwater, leachate, and soil conducted as part of the Pre-Design Study was also considered in the analysis of the threat to public health. Using both sets of samples, with the exception of inhalation of VOCs from landfill gas emissions, and the consumption of fish, Site risks are based on the highest concentrations of contaminants found at the Site. Most levels of

contamination observed were similar or below the levels observed as part of the 1985 RI/FS. Because the 1985 ROD eliminated the no action decision for leachate treatment and disposal, a second subsequent quantitative risk assessment was not performed.

The public health analysis followed a four step process: 1) contaminant identification which identified those hazardous substances which, given the specifics of the Site, were of significant concern; 2) exposure assessment which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of the exposure; 3) toxicity assessment which considered the types and magnitude of adverse human and environmental effects associated with exposure to hazardous substances, and 4) risk characterization, which integrated the three earlier steps to summarize the potential threats posed by hazardous substances at the Site. The results of the public health and environmental analysis for the Beacon Heights Landfill Site are discussed below.

Over 50 contaminants were detected at the Beacon Heights Landfill during the Remedial Investigation/Feasibility Study and Pre-Design Study. The analysis of public health concerns focused on a subset of these contaminants found to pose the greatest risk to human health at the Beacon Heights landfill. Seven (7) contaminants of concern were selected to represent potential Site related hazards based on observed concentration, toxicity, frequency of detection, and persistence in the environment. Observed ranges in concentration for the contaminants of concern in each medium are listed in Tables 5-9 of this supplemental Record of Decision. A discussion of the toxicity and health effects of each of the contaminants of concern can be found in Section 2.3.2 "Potential Health Effects" in the Beacon Heights Landfill Feasibility Study, May 1985. Further discussions can be found at pages 5-8 of the 1985 ROD.

An evaluation of the potential threat to public health posed by the consumption of contaminated groundwater and ingestion and dermal contact of contaminated soils was performed by comparing the observed concentration to the most relevant public health criteria available in 1985. This included Acceptable Daily Intakes (ADIs), Suggested No Adverse Response Levels (SNARLs) corresponding to a 1-day, 10-day, and long term health advisory, and groundwater concentrations corresponding to a  $10^{-6}$  excess cancer risk level. On the basis of these comparisons, observed groundwater levels of benzene and bis(2-chloroethyl) ether were found to exceed concentrations corresponding to a  $10^{-6}$  excess cancer risk level by 1,000 and 100,000 fold respectively.

Benzene was also found to exceed the 10-day and long term health advisories. Additionally, the maximum concentration of chlorobenzene in ground water exceeded the acceptable daily intake for this compound.

In the 1985 RI/FS, potential human health effects associated with exposure to the contaminants of concern in other media were evaluated by considering potential exposure pathways. These included direct contact with leachate, inhalation of contaminants from the soil, groundwater, surface water, and leachate by workers or other individuals, and consumption of fish. A discussion of exposure pathways can be found in Section 2.4.4 of the Beacon Heights Landfill Feasibility Study, May 1985.

Gas vent and ambient air samples collected as part of the Pre-Design Studies were inadequate for a quantitation of possible health risks and for comparison to ARARs due to the factors listed in Section A above. Despite these limitations, there is evidence from the Pre-Design Studies to suggest that toxic pollutants have been observed in landfill emissions and that as part of future remedial activities (i.e. capping), monitoring of landfill emissions will occur. Should subsequent monitoring data reveal there to be a threat to human health or the environment, controls will be implemented. Based on the air investigation of 1985, potential inhalation of VOCs originating from contaminated media was deemed unlikely to result in any adverse health consequences.

In summary, ingestion of groundwater represented a significant threat to public health although at present an alternate water supply eliminates direct exposure to groundwater, except for the eight residences which declined to be hooked up to the alternate water supply. Furthermore, as long as source materials remain in soils and groundwater, the potential exists for further degradation of groundwater quality to levels which would endanger public health if consumed. Direct contact with leachate was also found to pose a substantial threat to public health if protective measures are not imposed while consumption of fish was deemed unlikely to result in adverse health consequences. Although VOCs in the landfill gases did not appear to pose any adverse health consequences in 1985, VOC concentrations are likely to fluctuate over time as the landfill settles and ages and may pose a threat to public health.

Actual or threatened releases of hazardous substances from contaminated soils and leachate and which are present in the groundwater at this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health and the environment.

**TABLE 3: SUMMARY OF CONTAMINANTS  
OF CONCERN IN GROUND WATER**

<b>Contaminants of Concern</b>	<b>Observed Concentration Range (ug/l)</b>
Benzene	3.0 - 850
Chlorobenzene	1.3 - 797
Ethylbenzene	23.0 - 28
Toluene	1.1 - 110
Xylenes	3.0 - 47
Bis (2-chloroethyl) ether	45.0 - 4,360
Bis (2-ethylhexyl) phthalate	10.0 - 38

**TABLE 4: SUMMARY OF CONTAMINANTS  
OF CONCERN IN SURFACE WATER**

<b>Contaminants of Concern</b>	<b>Observed Concentration Range (ug/l)</b>
Benzene	16.0 - 49
Chlorobenzene	17.5 - 95
Bis(2-chloroethyl) ether	420
Bis(2-ethylhexyl) phthalate	26.0 - 30

\*Sampling results from 1985 RI/FS only

**TABLE 5: SUMMARY OF CONTAMINANTS  
OF CONCERN IN LEACHATE**

<b>Contaminants of Concern</b>	<b>Observed Concentration Range (ug/l)</b>
Benzene	27.8 - 35,000
Chlorobenzene	15.5 - 5,310
Ethylbenzene	5.0 - 590
Toluene	20.8 - 2,400
Xylenes (totals)	11.0 - 447
Bis(2- chloroethyl)ether	24.0 - 4,680

**TABLE 6: SUMMARY OF CONTAMINANTS  
OF CONCERN IN SOILS**

<b>Contaminants of Concern</b>	<b>Observed Concentration Range (ug/kg)</b>
Benzene	3.5 - 2,200
Chlorobenzene	20.0 - 2,400
Ethylbenzene	25
Toluene	15.0 - 2,800
Xylenes (totals)	460 - 490
Bis(2- chloroethyl)ether	228
Bis(2-ethylhexyl) phthalate	380 - 1,990



**TABLE 7: SUMMARY OF CONTAMINANTS  
OF CONCERN IN AIR**

Contaminants of Concern	Observed Concentration Range (ug/m <sup>3</sup> )
Benzene	16.6 - 21.5
Toluene	18.0 - 20.7
Xylenes (total)	7.9 - 8.8

\*Sampling results from 1985 RI/FS only

**VII. DEVELOPMENT AND SCREENING OF ALTERNATIVES FOR LEACHATE TREATMENT AND DISPOSAL AND DETERMINATIONS REGARDING CONTAMINANT LEVELS FOR SOIL EXCAVATION AND FOR AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS**

**A. Statutory Requirements/Response Objectives**

Under its legal authorities, specified in CERCLA, as amended, and the NCP, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including: a requirement that EPA's remedial action, when complete, must comply with all federal and more stringent state environmental standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for remedies in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment.<sup>3</sup> The response

---

<sup>3</sup>Because the 1985 ROD was written before CERCLA was amended by SARA, the selected remedy in that ROD did not need to meet the more stringent remedial standards specified in Section 121. In accordance with the statutory and regulatory system in effect at the time, the 1985 ROD determined that the remedial action selected in that ROD was cost effective and provided adequate protection of

alternatives for leachate treatment and disposal were developed to be consistent with these Congressional mandates.

Based on the requirements of the 1985 ROD, its underlying RI/FS, and other information relating to types of contaminants, environmental media of concern, and potential exposure pathways, remedial action objectives were developed to aid in the development and screening of alternatives for leachate collection and treatment and to inform EPA's determinations relating to soil excavation and landfill gas treatment. These remedial action objectives were developed to mitigate existing and future potential threats to public health and the environment. These response objectives were:

- To determine the manner and location for leachate treatment and disposal to prevent continued degradation of the ground water and off-site surface water and potential exposure to leachate via ingestion.
- To determine the contaminant levels for soils adjacent to the proposed cap which protect both the aquifer and human health and the environment.
- To determine the risks associated with inhalation of the gas being produced by the landfill and the need for air pollution controls on the gas vents at the Site.

**B. Leachate Disposal and Treatment Technology and Alternative Development and Screening; Basis for Soil Excavation and Gas Treatment Determinations**

CERCLA and the NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, and the remedial action requirements made in the 1985 ROD, a range of leachate treatment and disposal alternatives using different treatment technologies were developed during the

---

public health, welfare, and the environment.

The determinations concerning the level of contamination in the satellite areas of soil to be excavated reached in this Supplemental ROD and which complete the remedy outlined in the 1985 ROD, will be protective of human health and the environment, will meet all ARARs, and will be cost effective.

**Pre-Design Studies.** In addition, in accordance with the dictates of the 1985 ROD, areas of contaminated soil deemed impracticable to cap were delineated and sampled. Once the treatment and disposal alternatives were evaluated, the selected alternative for leachate treatment and disposal was documented in this supplemental ROD as was the levels of contaminants to be excavated and the need for pollution controls on the landfill gas vents.

The 1985 ROD made the decision that contaminated soils in locations determined to be impracticable to cap would be excavated and placed on top of the landfill prior to capping of the main landfill. The 1985 ROD further stated that these contaminated soils would be excavated to background levels or to alternate levels protective of human health, welfare, and the environment. Pre-design sampling was necessary to define the excavation criteria; therefore, the only decisions to be made in this supplemental ROD with regard to soil excavation are the contamination levels for the purposes of determining the extent of excavation necessary to ensure protectiveness of human health and the environment.

Chapters 5, 6 and 7 of the Pre-Design Studies Report analyzed and evaluated the extent of soil excavation, the need for air pollution controls, and the alternatives for the manner and location of leachate treatment and disposal.

Chapter 5 describes the criteria for determining the extent of soil excavation. The purpose of establishing soil excavation criteria is to identify acceptable levels of chemical constituents that may remain in the soils without adversely impacting public health and the environment. EPA used two groundwater modeling techniques inputting federal Maximum Contaminant Levels (MCLs), proposed federal MCLs, and minimum contaminant detection levels to set these contaminant levels. Soils contaminated above these levels will either be capped in place under the main landfill cap or excavated to these levels and consolidated within the main landfill.

Chapter 6 assesses the need for pollution controls on the landfill gas vents. Landfill gas samples and perimeter ambient air samples were obtained during the Pre-Design Studies. However, the data obtained is not considered reliable to assess this potential need, or to compare with federal and state air emission requirements. After capping, air quality at the property boundary and other compliance points will be monitored to determine the future need for pollution controls.

Chapter 7 of the Pre-Design Studies identified, assessed and screened leachate treatment and disposal technologies based on implementability, effectiveness, and cost. Chapter 7 also presented the remedial alternatives developed by combining the

technologies identified in the previous screening process. The purpose of the initial screening was to narrow the number of potential remedial actions for further detailed analysis while preserving a range of options. Each alternative was then evaluated and screened in Chapter 7.

In summary, six leachate treatment alternatives were screened in Chapter 7 and retained for detailed analysis. Section VIII of this document identifies the six alternatives that were retained through the screening process.

#### **VIII. DESCRIPTION OF LEACHATE TREATMENT AND DISPOSAL ALTERNATIVES**

The 1985 ROD examined three methods of leachate treatment: on-site treatment using a permanent treatment facility (alternative 3), off-site treatment by means of trucking leachate to a treatment facility (alternative 3B), and on-site treatment using a temporary mobile treatment system (alternative 3C). The 1985 ROD determined that these three alternatives "provide the same degree of source control" (p. 26), differing slightly in cost, but all of which were more cost effective than other alternatives examined. The 1985 ROD left for subsequent decision, in light of additional data needed on such matters as projected leachate flow and further refinement of estimated costs, which of these three options to choose.

Although the 1985 ROD did not consider the Beacon Falls facility as an off-site treatment location because of concerns about its ability to handle industrial-type discharges like the leachate, the information presented in the Pre-Design Studies concerning the feasibility of upgrading the facility enables EPA to include this alternative for leachate treatment and disposal.

To further develop and refine the information necessary to make the determination regarding leachate treatment, the Pre-Design Studies adopted the methodology of examining specific treatment technologies, rather than the categorical types of treatment technologies examined in the 1985 ROD. These technologies constitute the six alternatives evaluated in this supplemental ROD.

Below is a narrative summary of each alternative evaluated in the Pre-Design Studies. A more complete description can be found in Section 7 of the Pre-Design Studies. The 1985 ROD required collection of leachate and treatment either on- or off-site; thus, the no-action alternative was eliminated in the 1985 ROD and therefore was not considered in this supplemental ROD. The leachate treatment and disposal alternatives considered for the site are listed below:

1. Off-site treatment at the Beacon Falls waste water treatment facility, LT-1.
2. Off-site treatment at the Naugatuck waste water treatment facility, LT-2.
3. Trucking to an appropriate off-site waste disposal facility, LT-3.
4. On-site treatment with green sand and activated carbon filtration, LT-4.
5. On-site treatment with parallel bioreactors, LT-5.
6. On-site treatment by chemical coagulation and clarification, and ultraviolet-enhanced oxidation, LT-6.

**LT-1 Off-Site Treatment at the Beacon Falls Waste Water Treatment Facility**

This alternative transfers the leachate from a collection structure into the Beacon Falls sewer system for treatment at an upgraded Beacon Falls waste water treatment facility. Installing 0.3 miles of new pipe from the landfill to the sewer system is required and a central leachate collection structure will be constructed. Prior to any discharge of leachate into the sewer system, the sewer pipes would be inspected to insure that they are in sound condition. Defective portions of the sewer line would be repaired, replaced, or bypassed as necessary.

The Beacon Falls facility is a 0.5 million gallons per day activated sludge treatment facility currently operating at about half of its capacity. The estimated initial leachate flow only represents approximately nine percent of the facility's total capacity and is expected to decline dramatically after the first year following installation of the cap. Treated water from the Beacon Falls facility is discharged to the Naugatuck River.

An upgrade of the Beacon Falls facility will be necessary to accommodate the high BOD, metal and VOC levels in the leachate. The upgrade would include adding oxygen to the air used in the treatment process, as well as increasing the capacities of the sludge pumping and dewatering systems. Residual sludge byproduct from leachate treatment will be consolidated with the facility's normal sludge production which is incinerated at the Naugatuck treatment facility.

Presently, the Beacon Falls facility is permitted by the CT DEP to treat only domestic sewage. Treatment of industrial wastes will require a permit modification. This permit may require some degree of leachate pretreatment. A state permit will also be necessary to discharge the leachate to the Town's sewer system.

In addition, the Town of Beacon Falls would have to consent to accept the Beacon Heights leachate for treatment and disposal at the Beacon Falls facility.

ESTIMATED TIME FOR CONSTRUCTION: 1 year  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$668,000  
 ESTIMATED OPERATION & MAINTENANCE (Present Worth): \$948,000  
 ESTIMATED TOTAL COST (Present Worth): \$1,501,000  
 [COST DOES NOT INCLUDE PRETREATMENT]

LT-2 Off-Site Treatment at the Naugatuck Waste Water Treatment Facility

This alternative sends the leachate to the Naugatuck waste water treatment facility for treatment. A five-mile long pipeline from the Site to a connection point with the Naugatuck sewer system near the intersection of Cotton Hollow Road and Cross Street is required. The pipeline will lie primarily in the rights of way of Bethany Road, Main Street, and Route 8 and will be dedicated solely to leachate transport from the Site. In addition, construction of an on-site leachate collection tank of approximately 5,000 gallon capacity as well as a pump station near the Site to pump the leachate to the Naugatuck sewer system is necessary.

The Naugatuck waste water treatment facility is a 10.5 million gallons per day activated sludge facility which is currently permitted by the CT DEP to treat both domestic and industrial sewage. Since the Naugatuck facility currently treats approximately 6.5 million gallons of sewage per day, it has sufficient remaining capacity to accept the Beacon Heights Landfill leachate. The facility will incinerate any sludge remaining after treatment as part of its normal operation. Treated water from the Naugatuck facility is discharged to the Naugatuck River. No upgrade of this facility is necessary to adequately treat the leachate. A state permit will also be necessary to discharge the leachate to the Town's sewer system. Pretreatment may also be required by the State.

The portions of the Naugatuck sewer system through which the leachate would flow are large enough to handle the projected additional volume. Prior to any discharge of leachate, the sewer pipes would be inspected to ensure that they are in sound

condition. Defective portions of the sewer line would be repaired, replaced, or bypassed as necessary.

ESTIMATED TIME FOR CONSTRUCTION: 1 year  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$1,406,000  
 ESTIMATED OPERATION & MAINTENANCE (Present Worth): \$951,000  
 ESTIMATED TOTAL COST (Present Worth): \$2,241,000  
 [COST DOES NOT INCLUDE PRETREATMENT]

**LT-3 Trucking to an Appropriate Off-Site Waste Disposal Facility**

In this alternative, leachate is collected and stored in a leachate storage system to be constructed on-site. The leachate is then transported to an approved treatment, storage, and disposal facility licensed to treat hazardous wastes. Leachate would be transported in 5,000 gallon tanker trucks by a licensed waste hauler.

A total of approximately 4,700 round trips will be required to dispose of the estimated volume of leachate over a ten-year period (the length of time that leachate is expected to be produced within the landfill after capping). Eight round trips per day are expected during the first year of operation; over two round trips per day during the second year; and one round trip per day during the fifth year declining to two trips per week at the end of ten years.

ESTIMATED TIME FOR CONSTRUCTION: 2 months  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$147,000  
 ESTIMATED OPERATION &  
 MAINTENANCE (Present Worth): \$5,927,000  
 ESTIMATED TOTAL COST (Present Worth): \$5,354,000

**LT-4 On-Site Treatment with Green Sand and Activated Carbon Filtration**

This alternative treats leachate on-site using a combination of three treatment processes: (1) granular activated carbon filtration, (2) green sand filtration, and (3) chemical disinfection.

The leachate is pumped from a collection basin through a green sand filter to reduce iron and manganese levels. The filtered leachate is then pumped through a granular activated carbon filter to remove VOCs and reduce BOD levels. Chemical

disinfection, both before and after each process, will control fouling of the filters by microorganisms and will remove cyanide. The treated and disinfected water will then be discharged to the Hockanum Brook.

These filtration processes will produce a waste sludge which may or may not be hazardous. This sludge will be tested and, if found to be hazardous, will be trucked to a licensed RCRA disposal facility. Non-hazardous sludge will likewise be trucked to an appropriate off-site disposal area.

A State National Pollutant Discharge Elimination System (NPDES) permit is required for discharge to the Hockanum Brook.

ESTIMATED TIME FOR CONSTRUCTION: 1 year  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$522,000  
 ESTIMATED OPERATION &  
 MAINTENANCE (Present Worth): \$1,248,000  
 ESTIMATED TOTAL COST (Present Worth): \$1,618,000\*

\*Does not include cost of trucking hazardous sludge to a RCRA facility.

#### LT-5 On-Site Treatment with Parallel Bioreactors

This alternative requires constructing an on-site facility consisting primarily of a pair of parallel bioreactors, green sand filters, and disinfection equipment. The bioreactors will remove VOCs through microorganism action. Green sand filters remove iron and manganese from the leachate to prevent odors and reduce discoloration caused by concentrations of those elements. Sodium sulphate will be used to control barium levels as necessary. Disinfection will control disease causing organisms.

In operation, the parallel bioreactors would be alternately filled with leachate. Air would then be bubbled through the leachate to increase the level of dissolved oxygen, induce mixing, and promote microorganism growth. The contents would then be allowed to settle, and the liquid filtrate poured off through the green sand filters. The filtrate would then be disinfected and discharged to Hockanum Brook.

This treatment will produce a waste sludge which may or may not be hazardous. This sludge will be tested and trucked to an appropriate off-site disposal area.

A State National Pollutant Discharge Elimination System (NPDES) permit is required for discharge to the Hockanum Brook. Additional state permits are also necessary for discharge of effluent to the Hockanum Brook.



ESTIMATED TIME FOR CONSTRUCTION: 1 year  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$663,000  
 ESTIMATED OPERATION & MAINTENANCE (Present Worth): \$589,000  
 ESTIMATED TOTAL COST (Present Worth): \$1,180,000

\*Does not include cost of trucking hazardous sludge to a RCRA facility.

**LT-6 On-Site Treatment by Chemical Coagulation and Clarification, and Ultraviolet-Enhanced Oxidation**

In this alternative leachate is treated in two phases. The first phase of treatment uses chemicals to cause certain metals and some organic contaminants to coagulate and settle out of the leachate. The remaining liquid is then pumped directly through a green sand filter to remove iron and manganese.

In the second phase, the resulting filtered water is acidified and then flows through an ultraviolet-enhanced oxidation cell, which destroys organic contaminants and high BOD constituents. Neutralization of the acid in the filtered water restores a balanced pH. The treated water is then disinfected and discharged to Hockanum Brook. Sodium sulphate will be added during the process to control barium as necessary.

This treatment will produce a waste sludge which may or may not be hazardous. This sludge will be tested and trucked to an appropriate off-site disposal area.

A State National Pollutant Discharge Elimination System (NPDES) permit is required for discharge to the Hockanum Brook. Additional state permits are also necessary for discharge of effluent to the Hockanum Brook.

ESTIMATED TIME FOR CONSTRUCTION: 1 year  
 ESTIMATED TIME FOR OPERATION: 7-10 years  
 ESTIMATED CAPITAL COST: \$980,000  
 ESTIMATED OPERATION &  
 MAINTENANCE (Present Worth): \$1,063,000  
 ESTIMATED TOTAL COST (Present Worth): \$1,914,000\*

\*Does not include cost of trucking hazardous sludge to a RCRA facility.

## **IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF LEACHATE TREATMENT AND DISPOSAL ALTERNATIVES**

Section 121(b)(1) of CERCLA, as amended, presents several factors that at a minimum EPA is required to consider in its assessment of alternatives. Building upon these specific statutory mandates, the National Contingency Plan articulates nine evaluation criteria to be used in assessing the individual remedial alternatives.

The 1985 ROD determined that the three categorical leachate collection alternatives evaluated in that document were equivalent in terms of feasibility, protectiveness, and other factors. However, because the Pre-Design Studies presented a range of leachate treatment technologies in greater detail than had been considered in the 1985 ROD, this supplemental ROD will evaluate those alternatives in accordance with the procedures and criteria specified in the current NCP.

A detailed analysis was performed on the six alternatives using the nine evaluation criteria in order to choose the selected leachate treatment and disposal alternative. These criteria and their definitions are as follows:

### **Threshold Criteria**

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP.

1. Overall protection of human health and the environment addresses whether or not an alternative provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.
2. Compliance with applicable or relevant and appropriate requirements (ARARS) addresses whether or not an alternative will meet all of the ARARS of other Federal and State environmental laws and/or provide grounds for invoking a waiver.

### **Primary Balancing Criteria**

The following five criteria are utilized to compare and evaluate the elements of one alternative to another that meet the threshold criteria.

3. **Long-term effectiveness and permanence** addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.
4. **Reduction of toxicity, mobility, or volume through treatment** addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the Site.
5. **Short term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.
6. **Implementability** addresses the technical and administrative feasibility of an alternative, including the availability of materials and services needed to implement a particular option.
7. **Cost** includes estimated capital and Operation Maintenance (O&M) costs, as well as present-worth costs.

#### Modifying Criteria

The modifying criteria are used on the final evaluation of remedial alternatives generally after EPA has received public comment on the RI/FS and Proposed Plan.

8. **State acceptance** addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the State's comments on ARARs or the proposed use of waivers.
9. **Community acceptance** addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS report.

The following section balances the strengths and weaknesses of the six alternatives under each of the nine criteria set out above.

## **1. Overall Protection of Human Health and the Environment**

Alternatives LT-1, LT-2, LT-3, LT-4 and LT-6 all offer equivalent protection of human health and the environment by using reliable treatment systems which reduce exposure to Site contaminants in the leachate and which attain desired water quality levels. These technologies include on- and off-site leachate treatment and disposal.

LT-6 provides the potential achievement of the highest water quality of all the on-site alternatives to provide protection of public health and the environment. This efficiency, however, is dependent on continuous operator attention and is very sensitive to variability in leachate quality.

Alternative LT-5, on-site treatment of leachate with parallel bioreactors, may not be protective of human health and the environment because bioremediation and filtering will not remove sufficient amounts of priority pollutant organics from the leachate to meet state and federal regulations for discharge to surface waters.

Alternatives LT-1, LT-2, and LT-3 all consist of removing the leachate from the Site either through piping to an off-site waste water treatment facility or trucking to an off-site treatment, storage and disposal facility. Removing leachate as it is generated reduces exposure to Site contaminants and attains state and federal water quality standards. Each of these alternatives minimizes on-site treatment holding facilities and none produce on-site by-product waste sludge.

On-site treatment of leachate, described in LT-4 and LT-6, rely on chemical coagulation (LT-6) and filtration (LT-4 and LT-6) of contaminants to attain water quality standards. Although both generate sludge by-products which require on-site short-term storage, these technologies effectively remove metals and priority pollutants from the leachate through a series of filtration system and are equally as protective as LT-1, LT-2 and LT-3. The resulting water meets all state and federal levels for protectiveness. Further, the potential for contact with leachate at the Site is minimized and eventually eliminated as the refuse dries out under the cap.

## **2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)**

EPA evaluated each alternative for compliance with ARARs, including chemical-specific, action-specific and location specific ARARs. Alternatives LT-1, LT-2, LT-3, LT-4, and LT-6 meet their respective ARARs.

Because bioremediation and filtration may not remove sufficient amounts of priority pollutant organics in the effluent to be discharged to Hockanum Brook, alternative LT-5 may not meet the Connecticut Water Quality Standards established for this Class B/A surface water. Because this alternative may not be protective of human health and the environment and because it will not attain ARARs, it will not be carried through the remaining criteria comparisons.

### 3. Long-term Effectiveness and Permanence

The risk remaining from untreated leachate at the Site decreases as the refuse under the cap dries out and will be essentially reduced to the maximum extent possible once the amount of leachate generated diminishes to negligible amounts. Because all alternatives will remove leachate from the Site, the long-term effectiveness of each is therefore measured by a variety of factors such as the type of technology used.

LT-1 achieves the greatest degree of long-term effectiveness and permanence when compared to LT-3, LT-4 and LT-6, and only slightly more long-term effectiveness and permanence than LT-2.

Both LT-1 and LT-2 provide long-term effectiveness by relying on: (a) an established treatment system; (b) a waste water treatment facility which is already in operation and capable of handling industrial sewage; and (c) sophisticated facility personnel and technology. LT-1, however, requires installing a 0.3 mile pipeline for leachate transfer while LT-2 requires a 5 mile pipeline. While cracking or deterioration of the pipes for either LT-1 or LT-2 is remote, the probability for pipe replacement or repair is greater in LT-2 than LT-1 as is the potential for contamination of a wider area due to leakage given the greater length of the pipe in LT-2.

Several modifications to the Beacon Falls facility are necessary to effectively treat the leachate. Once Beacon Falls is upgraded, both the Beacon Falls and Naugatuck facilities will require only normal maintenance.

LT-3 on the other hand, provides less long-term effectiveness than either LT-1 or LT-2 since it is dependent on maintaining a fleet of trucks to transport the leachate to a treatment, storage, and disposal facility (TSDF). The potential exists during off-site trucking of leachate for adverse weather conditions to impede or stall truck transportation. In contrast, adverse weather conditions will have minimal effect on piping leachate off-site since both pipelines in LT-1 and LT-2 will be

brand new and transport will be underground. Additionally, overflow, spillage, or leakage from the leachate holding tank in LT-3 may occur, causing recontamination of clean areas around the landfill.

While all of the alternatives rely on a leachate collection structure and a leachate transfer system, LT-3 requires direct transfer of leachate from the structure to the trucks through a valve hookup. This transfer raises the possibility of Site recontamination from uncontrolled discharge during coupling and uncoupling of the transfer system. In contrast, LT-1, LT-2, LT-4 and LT-6 employ a closed leachate transfer system directly from the collection structure to the treatment facility which minimizes the chance of uncontrolled discharges.

LT-4 and LT-6 provide less long-term effectiveness and permanence in that they require more maintenance and part replacements than LT-1 and LT-2. Both LT-4 and LT-6 require various types of filtration; therefore, replacement filters will be necessary from time to time. LT-1 and LT-2 require construction of much simpler facilities and do not require an additional work force, unlike LT-4 and LT-6, since both the Beacon Falls facility and the Naugatuck facility already exist and are operational.

While LT-4, on-site leachate treatment using carbon absorption, uses treatment processes which have been employed historically with a high degree of reliability, it requires regular service to regenerate the carbon beds which play an integral role in the leachate treatment process.

LT-6, on-site leachate treatment using chemical coagulation and clarification, employs a relatively new technology with a history of some operations and maintenance difficulties and has an extremely high electrical consumption. It has a high potential for periodic process upsets and discharge of non-compliant effluent from the facility without ongoing operator attention. While this alternative has the potential to achieve the highest water quality of all the on-site treatment alternatives, treatment efficiency is very sensitive to operator attention and to maintaining optimum water clarity, iron removal and solution ph. Because treatment efficiency is heavily dependent on maintenance, LT-6 provides the least amount of long-term effectiveness.

#### **4. Reduction of Toxicity, Mobility, or Volume Through Treatment**

Each of the alternatives will reduce the mobility and volume of leachate at the Site because (1) all alternatives require collection and treatment of all but negligible amounts of leachate generated by the landfill and (2) the volume of leachate at the Site is expected to diminish through the course of

approximately 10 years as the landfill dries out after capping. Additionally, all of the collected leachate will be treated irreversibly to levels which eliminate the toxicity of the leachate in all of the alternatives.

Since each alternative removes all but a negligible amount of the leachate from the Site, contact and ingestion will be minimized as will further degradation of surface and groundwater. LT-4 and LT-6 employ filtration systems on-site which remove VOCs, metals and BODs from the leachate. LT-1, LT-2 and LT-3 transport leachate off-site to a waste water treatment facility which also removes contaminants from the leachate. Whether the effluent is discharged on-site to the Hockanum Brook (LT-4 and LT-6) or off-site to the Naugatuck River (LT-1 and LT-2), all NPDES permit levels for discharge to a surface water will be met.

In addition, all of the alternatives may produce a certain amount of residual sludge through the leachate treatment process. Sludge produced during treatment at the waste water treatment facilities in LT-1 and LT-2 will be incinerated at the Naugatuck waste water treatment facility as part of the present ongoing operations. Any sludge produced as a result of leachate treatment associated with LT-3 will be treated or disposed as part of the normal wastewater treatment process at whichever treatment, storage, and disposal facility is selected for the alternative.

For both on-site treatment alternatives, LT-4 and LT-6, the residual sludge generated by the filtration processes will be stored on-site pending periodic transport to an appropriate treatment and disposal facility.

Therefore, each of the alternatives will reduce the toxicity, mobility, and volume of contaminants through their respective treatment processes.

## **5. Short-Term Effectiveness**

LT-1 provides the greatest degree of short-term effectiveness of all alternatives evaluated mainly because of the limited amount of time and construction necessary to begin leachate treatment. LT-2 provides a higher degree of short-term effectiveness when compared with alternatives LT-3, LT-4 and LT-6 mainly to its ease of implementability and limited environmental impact risk.

Some dust and noise will be generated during construction of the collection structure and pipe installation for both LT-1 and LT-2, causing some risk to the community from noise and dust. This disturbance will be minimal for the Beacon Falls connection since

the sewer line is only 0.3 miles away from the Site. The disturbance will be slightly longer with LT-2 since the closest sewer line connection point for the Naugatuck facility is 5 miles from the Site.

LT-4 and LT-6 will produce some air emissions from the treatment processes. While these emissions will be controlled with best available technology, the facilities will be operating for an expected 10 year period and must be constantly monitored. LT-3 will create the greatest amount of air emissions from the trucks as they run their estimated 4,632 round trips to and from the Site.

LT-1 offers the briefest duration of community disruption. Although normal traffic patterns will be altered while installing both the 0.3 mile pipeline for LT-1 and the 5 mile pipeline for LT-2, the time for installing the 0.3 mile pipe is shorter. As soon as the pipe is in the ground, leachate can be pumped off-site with no further community disruption.

This is, however, overshadowed by the fact that the Beacon Falls facility must be upgraded prior to being able to accept the leachate for treatment. The potential for spills and other upsets during early operations exists until all startup problems are worked out and the facility is completely operational. Alternatively, the Naugatuck facility is currently operational and is already successfully treating contaminated leachate from another Superfund Site.

In comparison to LT-1 and LT-2, LT-3 requires trucking of leachate to an appropriate TSDF in 5,000 gallon tanker trucks. Trucking leachate off-site is an ongoing process requiring use of area roads every day for ten years. The number of round trips per day (8 during the first year) on steep residential roads near the Site will increase air emissions and traffic in the area considerably and will expose the community to hazards which EPA considers unacceptable, at least in the early stages of this alternative. However, as leachate production diminishes, truck traffic is expected to diminish as well.

With regard to LT-4 and LT-6, although best available controls technology (BACT) will be used in constructing the facilities, operations will generate air emissions which may be harmful to the community. In addition, LT-4 and LT-6 will require heavy construction equipment to travel to and from the Site each day for a period of approximately one year during construction of the treatment facility. Alternatively, once the pipelines in LT-1 and LT-2 are installed, noise and air pollution will be minimal.

Finally, risk to the community from exposure to the leachate is less in LT-1 than in LT-2 or LT-3. The possibility of leakage and the area where leaks could occur are less from a 0.3 mile



pipe than from a 5 mile pipe. Any leak would presumably be detected much more quickly in the shorter pipe. Leaks in a 5 mile pipe could potentially affect a large number of residential areas. Likewise, accidents and resulting spills from the trucks carrying leachate and sludge in LT-3 could potentially affect a wide range of residential areas.

Risk to workers in all of the alternatives will be controlled with safe working practices. LT-4 and LT-6 may expose workers to potential emissions from the on-site treatment facilities. Again, BACT will be implemented; however, operations will continue for approximately 10 years. With alternatives LT-1 and LT-2 the possibility, although remote, does exist for accidental discharge of and worker contact with leachate from any spills or cracks in the pipe. Concentrations of volatile organic compounds at the plant should be low due to the dilution of the leachate in the sewage. Therefore, any risk to treatment plant workers from inhalation of volatile organic compounds are expected to be minimal if the plant is in compliance with OSHA ventilation standards. The potential for contact with the leachate is high in LT-3, especially in the first year since 5,000 gallon trucks must be loaded with leachate 8 times per day.

As with worker exposure to leachate from pipeline cracks or spills from trucks, the environment may also suffer from such occurrences although the probability of pipeline leaks is small since they will be newly installed and the sewer lines will be thoroughly inspected before leachate is sent through them and will be subject to regular inspection and maintenance.

All of the alternatives will also be the source air emissions for varying amounts of time as explained above.

## 6. Implementability

All of the alternatives can be implemented to varying degrees except LT-1. Some alternatives are technically easier to implement than others based on their design and complexity.

LT-2 is the easiest to implement technically since it will use an existing waste water treatment facility which has been successfully treating residential and industrial waste water for a number of years as well as leachate from the nearby Laurel Park, Inc. Superfund Site since January, 1990. Owners and operators, including the Borough of Naugatuck, have consented to accept the Beacon Heights Landfill leachate under specific contractual terms and conditions.

The Town of Beacon Falls was not able to agree to conditions under which it would accept the leachate for treatment at its wastewater treatment facility. Without such consent, alternative

LT-1 is not implementable. EPA, therefore, cannot select it even though it ranks highly in all selection criteria except implementability.

Piping materials necessary for LT-2 are readily available and construction methods are conventional. LT-2 provides for a pretreatment unit if necessary and the facility is already set up to monitor the effectiveness of pretreatment and treatment. LT-3, trucking of leachate to a treatment, storage and disposal facility (TSDF), although not physically difficult to implement, requires long-term management of trucking and hauling schedules. Additional trucks and on-site storage facilities can be added if necessary; however, trucking the leachate off-site requires 8 round trips per day for the first year on steep residential roads. Adding additional trucks would only increase the burden of traffic on and hazards to the surrounding community and would most likely require additional planning and oversight by local agencies.

LT-4 and LT-6 are the most difficult to implement since they require constructing on-site treatment facilities. Each may also require an off-site disposal service for treatment of any residuals produced as a result of leachate treatment. Additional unit treatment processes can be added to these facilities if necessary to treat the leachate to appropriate standards.

Administratively, LT-2 will require a State permit from the CT DEP for discharge to the sanitary sewer. Landowner approval has been obtained from the one private landowner affected by the proposed pipeline alignment for LT-2. The remaining pipeline will be constructed in public rights of way. In addition to consent from the Town of Beacon Falls, modification of the current NPDES permits may also be required from the CT DEP for LT-1. However, the administrative feasibility of securing permits for either LT-1 or LT-2 may be more easily achieved than obtaining an on-site surface water discharge permit for alternatives LT-4 and LT-6 since the State of Connecticut has expressed some reservation about discharging treated effluent into the Hockanum Brook. For LT-3, EPA must approve any TSDF accepting leachate from the Site.

## 7. Cost

### Summary of Estimated Treatment Alternatives Costs (In Thousands of Dollars)

Alternative	Capital	O&M	Net Present Worth
Beacon Falls Facility* (LT-1)	668	948	1,501
Naugatuck Facility* (LT-2)	1,406	951	2,241
Trucking (LT-3)	147	5,927	5,354
On-Site II** (LT-4)	522	1,248	1,618
On-Site III** (LT-6)	980	1,063	1,914.

\*Does not include pretreatment cost, if pretreatment is necessary.

\*\*Does not include the cost of trucking hazardous sludge to a RCRA facility if necessary.

## 8. State Acceptance

The Connecticut Department of Environmental Protection has been involved with the Site from the beginning as summarized in Section II of this document "SITE HISTORY AND ENFORCEMENT ACTIVITIES". The CT DEP has reviewed this document and concurs with the selected alternative, LT-2, for leachate treatment and disposal as documented in the attached Declaration of Concurrence.

## 9. Community Acceptance

The comments received during the public comment period and the discussions during the Proposed Plan and FS public meeting are summarized in the attached document entitled "The Responsiveness Summary" (Appendix C). Varied comments were received from residents living near the Site, representatives from the Town of Beacon Falls and The Borough of Naugatuck, and from the BHGC. One citizen desires the EPA to avoid choosing LT-2; another citizen suggested that treating the leachate on-site would expedite the cleanup; the Selectmen of the Town of Beacon Falls

are generally opposed to LT-1; the BHGC generally wants the EPA to choose LT-2; and the Borough of Naugatuck commented that they will accept leachate from Beacon Heights assuming certain conditions are met.

#### **X. THE SELECTED ALTERNATIVE FOR LEACHATE TREATMENT AND DISPOSAL**

LT-2, off-site treatment and disposal of leachate at the Naugatuck waste water facility, is the selected manner and location for leachate treatment and disposal. This selection along with the soil excavation criteria and landfill gas vent pollution control decision completes the selected remedy for the Site.

The selections in this supplemental ROD and the 1985 ROD constitute both the source control and management of migration components for the Site.

##### **A. Leachate Treatment and Disposal Cleanup Levels**

The decision to treat/dispose of leachate from the Site was made in the 1985 ROD. No cleanup levels for leachate were set at the Site since all but negligible amounts of leachate will be removed from the Site and treated at the Naugatuck facility. The treated effluent will meet all requirements of the NPDES permit requirements prior to discharge to the Naugatuck River.

##### **B. Leachate Treatment Components**

One of the objectives of the 1985 ROD is to minimize the migration of contaminants via groundwater and surface water runoff. Therefore, part of the remedy required by that ROD is to install a central leachate collection structure and a new subsurface transfer pipeline located at the base of the ridge, northwest of the property. Leachate would be pumped through a new 5 mile pipeline connected to the existing sewer line at the intersection of Androsko Drive and Cross Street. The leachate will then travel through the sewer line and discharge to the Naugatuck waste water treatment facility.

Discharge of the leachate to the Naugatuck facility must comply with the National Pretreatment Program of the Clean Water Act and will require a state permit for discharge to the sewer line.

Characteristics of sewer line segments include: (1) A 24 inch reinforced concrete sanitary sewer line in the vicinity of Androsko Drive and Cross Street; (2) At the intersection of Cross Street and the Route B entrance/exit ramp, the pipe becomes 30-inch-diameter reinforced concrete pipe; (3) The pipeline continues along the entrance ramp for northbound Route 8 for approximately 2,200 feet; (4) At that point, it crosses

underneath the Naugatuck River through a 36-inch-diameter prestressed concrete cylinder pipeline; (5) The pipeline then travels approximately 150 feet south where it discharges to the Naugatuck facility. The entire pipeline system will require further examination as part of the final leachate system design. If certain segments are found to be structurally deficient, the segments would be repaired, replaced, or bypassed.

The Naugatuck facility is currently permitted by CT DEP to treat both domestic and industrial sewage and does not require upgrading to accept the Beacon Heights Landfill leachate. It has the capacity to treat 10.5 million gallons of sewage per day; currently, only 6.5 million gallons per day are treated. The Naugatuck facility, therefore, has sufficient capacity to accept the Beacon Heights Landfill leachate for treatment. The additional amount of sludge produced during the course of leachate treatment will be incinerated at the facility as part of its normal operations.

Additional analytical data will be developed for the leachate for the design of pretreatment facilities if required by the State permit and other authorities. This data may include the impact of high concentrations of ammonia on the operation of the facility, the inhibition of nitrogen uptake from high ferrous iron concentrations contained in the leachate, and a sewer system inflow analysis to eliminate surges in waste water flows apparently related to rainfall events. In addition, DEP will review the adequacy of leachate quality. A state permit for discharge to the sanitary sewer is also required.

#### **XI. DETERMINATION OF CONTAMINANT LEVELS FOR SOIL EXCAVATION**

The 1985 ROD determined that contaminated soils in certain "satellite" areas outside the areas that were not practicable to cap would be excavated and consolidated with the wastes in the main landfill, to be covered by the main cap. The 1985 ROD determined that the selected remedy, including, such excavation and consolidation, would be protective of public health, welfare and the environment and would be cost effective.

Cleanup levels have been established for contaminants of concern in soil contiguous to the area of the landfill deemed impracticable to cap, found to pose an unacceptable risk to either public health, welfare or the environment. Cleanup levels have been set based on the appropriate ARARs (e.g. Drinking Water MCLGs and MCLs) if available. In the absence of a chemical specific ARAR, or other suitable criteria to be considered, a 10<sup>-6</sup> excess cancer risk level for carcinogenic effects or a concentration corresponding to a hazard index of one for compounds with non-carcinogenic effects was used to set cleanup levels. In instances, in which the values described above were

not feasible to quantify, the practical quantification limit was used as the cleanup level. Periodic assessments of the protection afforded by remedial actions will be made as the remedy is being implemented and at the completion of the remedial action. If the remedial action is not found to be protective, further action shall be required.

#### A. Soil Cleanup Levels

In the 1985 ROD a qualitative baseline risk assessment was performed; however, no quantitative cleanup levels for soils were established. The 1985 ROD reserved that determination for a later decision document. Therefore, EPA has established cleanup levels for soils in this supplemental ROD in order to protect both human health and the aquifer below the Beacon Heights Landfill Site from further potential contamination. Levels protective of human health from contamination due to dermal contact and ingestion of soils were based on EPA cancer potency factors. In addition, two leaching models based on contaminant mobility were used to predict soil contaminant levels deemed protective of the aquifer. Because the cleanup levels for aquifer protection from soil leachate are more stringent than the levels for ingestion and dermal contact with soils, the aquifer protection levels are used for contaminant levels for soil excavation. By employing the more stringent aquifer protection contaminant levels, both protection of human health from dermal contact and ingestion and protection of the aquifer will be achieved.

Compared values from both the Summers Model and the Designated Level Method were used to estimate residual soil levels that are not expected to impair future groundwater quality. ARARs in groundwater (MCLs) were used as input into the leaching models. In the absence of an ARAR, the level corresponding to a  $10^{-6}$  risk level (for carcinogens), a hazard index of (1) (for noncarcinogenic effects), or a proposed federal MCL was utilized as the point of departure. The hazard index is calculated by dividing the exposure level by the reference dose (RfD) or other suitable benchmark for noncarcinogenic health effects. Reference doses have been developed by EPA to protect sensitive individuals over the course of a lifetime and they reflect a daily exposure level that is likely to be without an appreciable risk of an adverse health effect. The lower of the two model values was chosen as the cleanup level unless these values were below analyte detection limits. If the values described above were not capable of being detected or were below regional background values, then the current practical quantitation limit was substituted.

Based on this analysis, EPA developed the soil cleanup levels for contaminated soils set out below. Tables 10 and 11 summarize the

soil cleanup values for the contaminants of concern developed to protect public health and the aquifer.

To ascertain that those areas which undergo excavation achieve the soil cleanup levels specified in this supplemental ROD, confirmatory sampling will occur once excavation is completed within and along the perimeters of all excavated areas. This sampling will be conducted to statistically determine whether a particular excavated area has achieved the soil cleanup levels or requires further excavation.

**TABLE 8: SOIL CLEANUP LEVELS FOR THE CARCINOGENIC CONTAMINANTS  
BASED ON THE SUMMERS MODEL AND THE DESIGNATED LEVEL MODEL,  
AND ASSOCIATED RISKS TO GROUNDWATER**

Carcinogenic Contaminants of Concern	Soil Cleanup Level (mg/kg)	Basis for Model Input (ug/l)	Residual Groundwater Risk
Benzene	0.08	5 <sup>a</sup>	4.1*10 <sup>-6</sup>
Bis(2-chloroethyl)ether	0.330	PQL <sup>c</sup>	3.0*10 <sup>-5</sup>
1,2 Dichloroethane	0.01	5 <sup>a</sup>	1.3*10 <sup>-5</sup>
Trichloroethene	0.10	5 <sup>a</sup>	1.6*10 <sup>-6</sup>
Vinyl Chloride	0.02	2 <sup>a</sup>	1.3*10 <sup>-4</sup>
Bis(2-ethylhexyl) phthalate	0.30	3 <sup>b</sup>	1.0*10 <sup>-6</sup>
Methylene Chloride	0.01	5 <sup>a</sup>	1.1*10 <sup>-6</sup>
1,1 Dichloroethene	0.09	7 <sup>a</sup>	1.2*10 <sup>-4</sup>

<sup>a</sup> Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act

<sup>b</sup> Excess carcinogenic risk level of  $1 * 10^{-6}$  assuming consumption of 2 liters water per day.

<sup>c</sup> Practical Quantitation Limit

**TABLE 9: SOIL CLEANUP LEVELS FOR THE NON-CARCINOGENIC CONTAMINANTS  
BASED ON THE SUMMERS MODEL AND THE DESIGNATED LEVEL MODEL,  
AND ASSOCIATED RISKS TO GROUNDWATER**

Non-carcinogenic Contaminants of Concern	Soil Cleanup Level (mg/kg)	Basis for Model (ug/l)	Target Endpoint of Toxicity	Residual Hazard Index
Chlorobenzene	10	100 <sup>a</sup>	liver and kidney	0.1
Ethyl Benzene	70	700 <sup>a</sup>	liver and kidney	0.2
Toluene	100	2,000 <sup>a</sup>	CNS	0.2
Xylene	500	10,000 <sup>a</sup>	none obs.	0.1
Bis(2-ethylhexyl) phthalate	0.3	3 <sup>b</sup>	increased liver wt.	0.01
Acetone	10	3,500 <sup>c</sup>	liver and kidney	1
2-Butanone	10	1,750 <sup>c</sup>	feto-toxicity	1
1,1 Dichloroethene	0.09	7 <sup>a</sup>	liver lesion	.02
4-Methyl 2-Pentanone	10	1,750 <sup>c</sup>	liver and kidney	1



- a Safe Drinking Water Act—Maximum Contaminant Level Goals (MCLGs)
- b Excess Carcinogenic Risk Level of  $1 \cdot 10^{-6}$  assuming consumption of 2 liters of water per day
- c Reference Dose (RfD)

EPA set these cleanup levels for soils in order to achieve ARARs in groundwater at the conclusion of the remedial action. These soil levels will be protective of public health risks posed by direct contact or incidental ingestion of the soils at the conclusion of the remedial action.

#### B. Soil Excavation Components

In accordance with the 1985 ROD, contaminated soils will be excavated and consolidated within the main landfill. These soils may be used in recontouring the landfill surface in preparation for landfill capping. Soil cleanup levels determine the quantity of contaminated soils to be excavated. All areas of the Site will either be capped, excavated to the top of bedrock, or excavated to soils containing levels of chemical constituents compatible with the soil cleanup goals set by EPA.

The 1985 ROD determined that the selected remedy, consisting (in part) of capping, and excavation and consolidation of contaminated soils in certain satellite areas, was cost effective and provided adequate protection of public health, welfare, and the environment. The cost estimates that formed the basis for the cost effectiveness determination in the 1985 ROD assumed the highest cost of capping and excavation (i.e., the largest cap and largest expected excavation).

Establishing the soil cleanup goals was reserved for a later decision document in the 1985 ROD. These soil cleanup goals establish the minimum levels to which soils must be excavated to meet ARARs and to be protective of human health and the environment. In setting the soil cleanup levels in this document, EPA has used MCLs and proposed MCLs as inputs to the Summers model groundwater equation in order to set specific cleanup levels that are protective of human health and the environment and comply with current ARARs.

The BHGC utilized the Designated Level Method Model to establish soil cleanup levels. EPA preferred the use of the Summers Model. Except for one contaminant, levels set in the Designated Level Method model were unacceptable since some of the variables in the equation are nationwide averages and are not site specific as they are in the Summers model. The level for this one

contaminant was retained based on information from similar sites within the Region. The levels in the Designated Level Method model may not meet ARARs and may not be protective.

At the other end of the spectrum are the Connecticut Action Levels which are more stringent than the levels in the Summers model. However, these Action Levels were not chosen for soil cleanup goals because they are not ARARs.

Because the soil cleanup goals set the minimum volume of soil necessary for excavation, this determination constitutes a component of a remedy determined to be cost effective as envisioned in the 1985 ROD.

## **XII. DETERMINATION FOR AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS**

The 1985 ROD determined that a gas venting system was necessary to prevent the buildup of gases under the cap, but reserved until a later decision document a determination whether air pollution controls were required on the venting systems.

### **A. No Air Pollution Controls Are Needed**

Until an impermeable cap has been installed on the landfill, there is no acceptable way of assessing volume and concentrations of gas generated at the Site. This is due to the fact that gas emanates from diffuse locations over the entire surface of the landfill and is therefore impracticable to capture. Once this cap is in place, and gas can be routed to and vented at predicted locations, an appropriate monitoring program which properly characterizes emission volumes and concentrations, can be implemented. If any federal or state ARARs or hazard risk ranges are exceeded, treatability studies will be performed.

Once the cap is in place, if EPA determines that treatment is necessary, it will consider an array of treatment technologies. These technologies include carbon adsorption, incineration, flaring, air stripping or other innovative or state-of-the-art technology designed to treat air emissions. Protection of human health and the environment will be achieved through continued monitoring and the application of best available control technology or lowest achievable emission rate, whichever is most appropriate according to Connecticut's Air Pollution Control Regulations.

Due to changing conditions as the landfill ages, properties and concentrations of landfill gasses may change over time. Continued monitoring may indicate that a different technology than initially selected would be more protective given a change in landfill gas properties and concentrations. Therefore, while the technology may change, the basic determination to employ air

pollution controls on the landfill gas vents, if necessary, remains unaltered. The performance levels specified in the ROD will be met by any new technology implemented.

#### **B. Continued Monitoring**

Since it is impracticable to collect and treat air emissions from the uncapped landfill, continued monitoring of the gas produced within the landfill after capping will be provided. Prior to capping, some perimeter monitoring will occur. The vents will be constructed in such a way as to facilitate the addition of pollution control devices should the continual monitoring reveal levels of air contaminants exceeding the Federal National Ambient Air Quality Standards (NAAQS), State MASC, Odor Threshold Levels, Hazard Limiting Values, fall outside the  $10^{-6}$  to  $10^{-6}$  cancer risk range, or exceed a hazard index of 1. The remedy will therefore be protective of human health and the environment once it is completed.

As part of the monitoring activities, the following may be required but not limited to:

1. On-site meteorological station;
2. Sampling at the landfill gas vents, at the landfill perimeter, and at other removed sampling stations to determine amounts and concentrations of hazardous landfill gas emissions to differentiate landfill source contribution from background levels of contamination;
3. Approved EPA sampling and analysis techniques suitable for quantitative risk evaluation;
4. Approved Quality Assurance/Quality Control Plan;
5. Sampling shall begin upon cap installation and continue through remedy completion. Samples will be conducted on a time weighted average basis to be determined during design phase.
6. Emission and/or dispersion modelling.

#### **XIII. FUTURE ACTIONS**

Periodic assessments of the protection afforded by remedial actions will be made as the remedy is being implemented and at the completion of the remedial action. If the remedial action is not found to be protective upon completion or fails to meet the cleanup levels established in this Record of Decision, further action shall be required.

To the extent required by law, EPA will review the Site at least once every five years after the initiation of remedial action at the Site to assure that the remedial action continues to protect human health and the environment. EPA will also evaluate any risks posed by the Site at the completion of the remedial action (i.e., before the Site is proposed for deletion from the NPL).

#### **XIV. STATUTORY DETERMINATIONS**

The selected alternative for leachate treatment and disposal is consistent with CERCLA and, to the extent practicable, the NCP. This remedial action along with the soil cleanup levels is protective of human health and the environment and attains ARARs. The total remedy for this Site which includes the selected alternative for leachate treatment and disposal and the determinations made in this supplemental ROD as well as the remedial actions chosen in the 1985 ROD, is cost effective. Additionally, the selected alternative for leachate treatment and disposal satisfies the statutory preference for treatment which permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element and utilizes treatment technologies to the maximum extent practicable.

##### **A. The Remedial Actions Specified in this Supplemental ROD are Protective of Human Health and the Environment**

The remedial actions selected in this supplemental ROD and the 1985 ROD will permanently reduce the risks posed to human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through treatment and engineering controls.

Since it is impracticable to collect and treat gas at the uncapped landfill, no air pollution controls will be installed on the landfill gas vents prior to capping. Monitoring after capping will provide information to allow EPA to determine whether or not controls are necessary in order to be protective. If controls are necessary, the chosen technology will be protective.

The selected alternative for leachate treatment and disposal will result in human exposure levels to groundwater that comply with ARARs and that are protective of public health. The selected leachate collection and treatment alternative will significantly reduce the risks of contaminant ingestion and dermal contact as well as preventing further degradation of the local groundwater, stream, and river systems.

Soils from areas contiguous to the main landfill will be excavated to levels designed to reduce migration of contaminants,

prevent further degradation of the groundwater and expedite restoration of the aquifer. When contaminant levels reach the soils target cleanup levels, the risks from direct contact to and incidental ingestion of soils will be reduced to a level protective of human health.

Moreover, the soil cleanup remedy specified in this supplemental ROD will result in human exposure levels through dermal contact and ingestion of soils that will be within the  $10^{-4}$  to  $10^{-6}$  incremental cancer risk range and that are within the hazard index of one (1) for noncarcinogens at the completion of the remedy.

**B. The Remedial Actions Specified in this supplemental ROD Attain ARARs**

The remedial actions specified in this supplemental ROD will attain all applicable or relevant and appropriate federal and state requirements that apply to the Site. Environmental laws from which ARARs for these remedial actions are derived, and the specific ARARs include:

Safe Drinking Water Act - Maximum Contaminant Levels (SDWA)  
 Clean Water Act (CWA)<sup>1</sup>  
 Clean Air Act (CAA)<sup>1</sup>  
 Occupational Safety and Health Standards (OSHA)  
 OSHA Recordkeeping, Reporting and Related Regulations  
 OSHA General Industry Standards  
 Federal Pretreatment Requirements for Discharge to Publicly Owned Treatment Works  
 Connecticut Water Discharge Permit Regulations  
 Connecticut Air Pollution Control Regulations  
 Connecticut Water Quality Standards and Classification  
 Connecticut Public Health Code-Standards for Quality of Public Drinking Water (Sec. 19-13-B102)

<sup>1</sup>NPDES permitting is delegated to the State of Connecticut as are the National Ambient Air Quality Standards.

**To Be Considered**

Clean Water Act--Sewage Exclusion (40 CFR Section 261.4(a) (1))

A discussion of why these requirements are applicable or relevant and appropriate may be found in the Pre-Design Studies Report at pages 13-23. The specific requirements and their citations can be found in Table 1 of the Pre-Design Studies Report which is appended to this ROD. Any changes to applicability or appropriateness or relevance are discussed below.

The remedial actions in this supplemental ROD involve off-site treatment and disposal of leachate, determining the extent of soil excavation and determining the appropriateness of installing pollution controls on landfill gas vents. During all construction and operation activities, OSHA requirements are applicable and will be met.

#### Leachate Treatment and Disposal

Section 22a-430 of the Connecticut General Statutes as Amended (RCSA) (State Permit for Discharges to "Waters of the State") is applicable to the Site since leachate will be discharged to the Beacon Falls sewer system. Leachate will be pretreated to acceptable levels prior to discharge as required by the permit. Even though untreated leachate meets the established categorical pretreatment standards of Section 22a-430-4 for metals and cyanide, this section is considered applicable.

Federal Pretreatment Requirements for Discharge to Publicly Owned Treatment Works (POTW), 40 CFR 403, are applicable to the discharge of leachate from the sanitary sewerage system to the Naugatuck facility. These requirements apply to the introduction of all non-domestic waste water into a POTW. This includes prohibited discharge standards, categorical discharge standards, and local limits. These pretreatment requirements will be met if necessary.

Naugatuck facility does not have a RCRA treatment, storage and disposal facility permit. While the leachate at the Site has not yet been classified as hazardous, the domestic Sewage Exclusion (40 CFR Section 261.4(a) (1)) provides that a hazardous waste, when mixed with domestic sewage, is no longer considered a hazardous waste. Therefore, even if the leachate is a RCRA hazardous waste, it may be mixed with domestic sewage and sent to the Naugatuck facility.

The State of Connecticut has been authorized by EPA to administer and enforce the NPDES provisions of the Clean Water Act. The state regulations are at least equivalent to federal regulations. NPDES provisions are applicable to the Site since treated effluent will be discharged to the Naugatuck River. The Naugatuck facility, which already has a NPDES permit, will be reviewed by CT DEP to ensure that its current NPDES permit requirements are met, along with any other limiting requirements of CT DEP based on that agency's review of the leachate quality.

The Naugatuck River is currently classified as Class C/B surface water according to Connecticut Water Quality Standards and Classification, RCSA 22a-426. The treated effluent discharged into the River will meet contaminant level goals set in the Pre-

Design Studies and will not impair the State's objective of improving the quality of the Naugatuck River nor will it affect the Naugatuck facility's ability to comply with its permit.

### Soil Excavation

The groundwater in the aquifer beneath the landfill is contaminated by leachate from the landfill and surrounding soils. An alternate public water supply was brought into the area in 1987. However, eight residences continue to use the aquifer as a drinking water source. Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act which regulate public drinking water supplies, are applicable to drinking water at the tap and are not applicable to groundwater. However, because the groundwater may be used as a potential drinking water source, MCLs are relevant and appropriate as a standard to be used in setting soil cleanup levels.

Connecticut's Water Quality Standards establish designated uses and classifications for surface water and groundwater and are applicable to the aquifer and to any discharges to the Naugatuck River. The soil cleanup levels were set using MCLs as input in order to prevent further degradation of the groundwater. Effluent discharged to the Naugatuck River will comply with all permit requirements.

Connecticut's Public Health Code--Standards for Quality of Public Drinking Water (Sec. 19-13-B102) establishes water quality standards for water supplies. This requirement is relevant and appropriate to setting the soil cleanup goals to prevent further degradation to groundwater since the aquifer is a potential source of public drinking water.

Connecticut Action Levels were useful in helping to determine soil cleanup goals which would be protective. However, because these action levels are not promulgated as required by §121(d)(2)(A)(ii) of CERCLA, they are not ARARs.

Because this supplemental ROD determines only levels of contaminants in the soils which will be protective of human health and the environment, Resource Conservation and Recovery Act (RCRA) regulations are not considered ARARs for this selection. Likewise, Land Disposal Restrictions (LDRs) provisions of RCRA do not apply.

### Air Pollution Controls on Landfill Gas Vents

The State of Connecticut has been authorized by EPA to administer and enforce the National Ambient Air Quality Standards (NAAQS) promulgated under the Clean Air Act. To implement these

standards, the State has promulgated the Connecticut Air Pollution Control Regulations.

The NAAQS, which specify maximum primary and secondary 24 hour concentrations for particulate matter, are applicable because the landfill gas emissions are discharged from a stationary source; that is, the landfill gas vents. These vents will be designed to accommodate pollution controls should continued monitoring reveal emissions in excess of the NAAQS or MASCs. In addition, fugitive dust emissions from Site activities will be controlled by water and other dust suppressants.

Hazard Limiting Values (HLVs), which are used to calculate the MASC value, are considered to be relevant and appropriate with respect to allowable contaminant concentrations in air beyond the Site boundary. Future monitoring will determine if conditions beyond the compliance boundary comply with HLVs.

RCSA Section 22a-174-23, Control of Odors, establishes odor threshold limits for individual constituents at the Site boundary. Continuous monitoring will reveal the presence of levels above threshold limits.

If necessary to install air pollution controls on the gas vents, emissions will comply with all other chemical, location, and action specific ARARs.

#### **C. The Remedial Action is Cost-Effective**

In the Agency's judgment, the selected alternative for leachate collection and treatment is cost effective, i.e., the alternative affords overall effectiveness proportional to its costs. In selecting this alternative, once EPA identified alternatives that are protective of human health and the environment and that attain, or, as appropriate, waive ARARs, EPA evaluated the overall effectiveness of each alternative by assessing the relevant three criteria--long term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short term effectiveness in combination. The relationship of the overall effectiveness of this alternative was determined to be proportional to its costs. The costs of the remedial alternatives evaluated are:



**Summary of Estimated Leachate Treatment Alternatives Costs  
(In Thousands of Dollars)**

<b>Alternative</b>	<b>Capital</b>	<b>O&amp;M</b>	<b>Net Present Worth</b>
Beacon Falls Facility* (LT-1)	668	948	1,501
Naugatuck Facility* (LT-2)	1,406	951	2,241
Trucking (LT-3)	147	5,927	5,354
On-Site II** (LT-4)	522	1,248	1,618
On-Site III** (LT-6)	980	1,063	1,914

\*Does not include pretreatment cost, if pretreatment is necessary.

\*\*Does not include the cost of trucking hazardous sludge to a RCRA facility if necessary.

Of those alternatives that are protective, attain ARARs and are implementable, LT-2 is the most cost-effective alternative evaluated. LT-2 provides the greatest degree of protectiveness proportionate to its costs. Treating and disposing of leachate at the Naugatuck facility, although slightly more costly than treatment and disposal via LT-4 or LT-6, it provides greater long- and short-term effectiveness, is easily implementable and is acceptable to the State of Connecticut and the BHGC. LT-5, although less expensive, did not meet ARARs since bioremediation and filtering would not remove sufficient priority pollutant organics to meet state and federal requirements. LT-3 does not offer a proportionate degree of protectiveness or long or short-term effectiveness for its cost. Had LT-1 met the implementability requirement, it would have been considered the most cost effective alternative evaluated.

LT-4 and LT-6, both on-site treatment alternatives with cost estimates under \$2 million, do not provide the same degree of protectiveness as LT-2 for the costs of these alternatives. The long-term effectiveness of LT-6 is not as reliable as other alternatives given its operation and maintenance difficulties. Further, both LT-4 and LT-6 will increase the toxicity and volume

of waste by creating on-site residual sludge from the treatment process which must be stored, treated and disposed. Both alternatives are difficult to implement in that they require a permit to discharge to the Hockanum Brook which the state has expressed reluctance to grant.

With respect to the determination of soil cleanup levels, the 1985 ROD examined the question of cost effectiveness of the selected remedial action, of which excavation and consolidation of contaminated soils in satellite areas was a significant component. The 1985 ROD found the selected remedy to be cost effective. Based on the soil cleanup goals determined in this document and the corresponding volume of soil necessary to excavate to meet these goals which are deemed to be protective, the total selected remedy still remains cost effective.

With respect to air pollution controls on the landfill gas vents, no controls will be required unless monitoring indicates that any standard or requirement is not being met or that conditions at the Site pose a threat to human health or the environment after capping. It is not necessary to make a determination as to the cost effectiveness of air pollution controls at this time. Should controls become necessary, cost-effective controls will be chosen.

**D. The Selected Alternative for Leachate Treatment and Disposal and the Determination for Air Pollution Controls Utilize Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable**

The general decision to collect and treat leachate was made in the 1985 ROD. The requirements of section 121 of CERCLA, as amended, were not in effect at that time and were therefore not applicable to the remedial decisions made in the 1985 ROD. This supplemental ROD is to determine the specific manner and location of treatment and disposal of the collected leachate. This selection of leachate treatment and disposal is consistent with section 121 of CERCLA, as amended, and the NCP to the extent practicable. Treatment of the leachate at the Naugatuck facility, when compared to the other leachate treatment alternatives considered in this supplemental ROD, utilizes a permanent solution to the maximum extent practicable.

Once the Agency identified those alternatives that attain or, as appropriate, waive ARARs and that are protective of human health and the environment, EPA identified which alternatives utilize solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provides the best balance of trade-offs among

alternatives in terms of: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility or volume through treatment; 3) short-term effectiveness; 4) implementability; and 5) cost. The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility and volume through treatment; and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and state acceptance. The selected alternative provides the best balance of trade-offs among the alternatives.

LT-1 would have provided the best combination of systems among the leachate treatment alternatives reviewed for effectively and permanently reducing the toxicity, mobility, and volume of leachate at the Site. Although there are similarities between LT-1 and LT-2 in that they both make use of existing treatment facilities and the sludge produced by either treatment process will be handled through the normal course of facility operations, the Beacon Falls alternative requires construction of only a 0.3 mile pipeline for leachate transport. The Naugatuck facility requires construction of a 5 mile pipeline for transport. In addition, the cost associated with implementing the Beacon Falls alternative versus that associated with the Naugatuck alternative is projected to be less for the same result. However, since LT-1 is not implementable, LT-2 is the next best solution based upon a comparison with the other alternatives and, therefore, becomes the selected alternative for leachate treatment and disposal at the Site.

LT-2, in contrast to LT-4 and LT-6 which involve filtration processes, does not produce on-site residual sludge nor does it have the potential for recontamination of the Site as does LT-3 which involves trucking leachate off-site. Moreover, LT-2 has fewer adverse short term effects in terms of the least disruption on the surrounding community than LT-3, LT-4 and LT-6. LT-4 and LT-6 require constructing facilities on-site which must operate for a minimum of 10 years. These two alternatives add another source of air emissions to the community. LT-3 requires 5,000 gallon trucks to make approximately 4,700 round trips to and from the Site through a residential neighborhood with steep streets over a span of 10 years.

With respect to air pollution controls on the landfill gas vents, no controls will be required unless monitoring indicates that any standard or requirement is not being met or that conditions at the Site pose a threat to human health or the environment after capping. If controls are required, they will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

**E. The Remedial Actions Selected in this Supplemental ROD Satisfy the Preference for Treatment Which Significantly Reduces the Toxicity, Mobility or Volume of the Hazardous Substances as a Principal Element**

The requirements of section 121 of CERCLA, as amended, were not in effect at the time of the 1985 ROD and were therefore not applicable to the remedial decisions made in the 1985 ROD, including the general decision to collect and treat leachate, and the decision to excavate and consolidate contaminated soils in the satellite areas. Nonetheless, the 1985 ROD selected a remedy that included collection and treatment of leachate as a principal element. With respect to the selection of a specific treatment location and method from among the six alternatives presented in the Pre-Design Studies report, all involve treatment that significantly reduces the toxicity, mobility or volume of the hazardous substances as a principal element.

With respect to the determination whether or not to require air pollution controls on the landfill gas vents, because it is not practicable to collect and treat air emissions at the Site prior to capping, no controls will be installed. Should monitoring indicate that any standard or requirement is not being met or that conditions at the Site pose a threat to human health or the environment after capping, such controls will be installed.

**IV. DOCUMENTATION OF SIGNIFICANT CHANGES**

EPA presented a Proposed Plan (preferred alternative) for remediation of the Site on May 9, 1990. The management of migration portion of the preferred alternative includes (1) pumping leachate collected on-site through a new pipeline to the Naugatuck sewer system then to the Naugatuck waste water treatment facility; (2) excavation of soil with contamination levels above EPA allowable levels for consolidation with the main landfill prior to capping; and (3) monitoring of gas vented from the landfill after capping.

To clarify any potential misunderstanding regarding capping or excavating of the area formerly known as Betkoski's Dump, the northernmost portion of Betkoski's Dump, which is not cost efficient to cap, will be excavated to the soil levels set in this supplemental ROD while the more southerly end will be covered by the landfill cap.

Also, this supplemental ROD did not carry forward the no-action alternative presented in the Proposed Plan. The scope of this supplemental ROD was limited to activities which completed the remedy outlined in the 1985 ROD. Since the 1985 ROD determined that leachate treatment was required, this document was limited

to selecting an alternative which most appropriately satisfied the nine criteria for the manner and location of leachate treatment and disposal. No action was, therefore, not an alternative for this determination.

#### **XVI. STATE ROLE**

The Connecticut Department of Environmental Protection has reviewed the various alternatives and has indicated its support for the selected alternative for leachate treatment and disposal and for the determination for pollution controls on the landfill gas vents.

The State has also reviewed the Pre-Design Studies to determine if the selected alternative for leachate treatment and disposal and the determinations for air pollution controls and soil cleanup levels are in compliance with applicable or relevant and appropriate State environmental laws and regulations. The CT DEP agrees that the remedial actions for leachate treatment and disposal and for pollution controls on the landfill gas vents in this supplemental ROD are in compliance with all promulgated ARARs.

The Connecticut DEP concurs with the selected alternative for leachate treatment and disposal and with the determination for air pollution controls, but does not concur with the soil remediation levels. A copy of the declaration of concurrence/non-concurrence is attached as Appendix D to this supplemental Record of Decision.

FIGURE 1

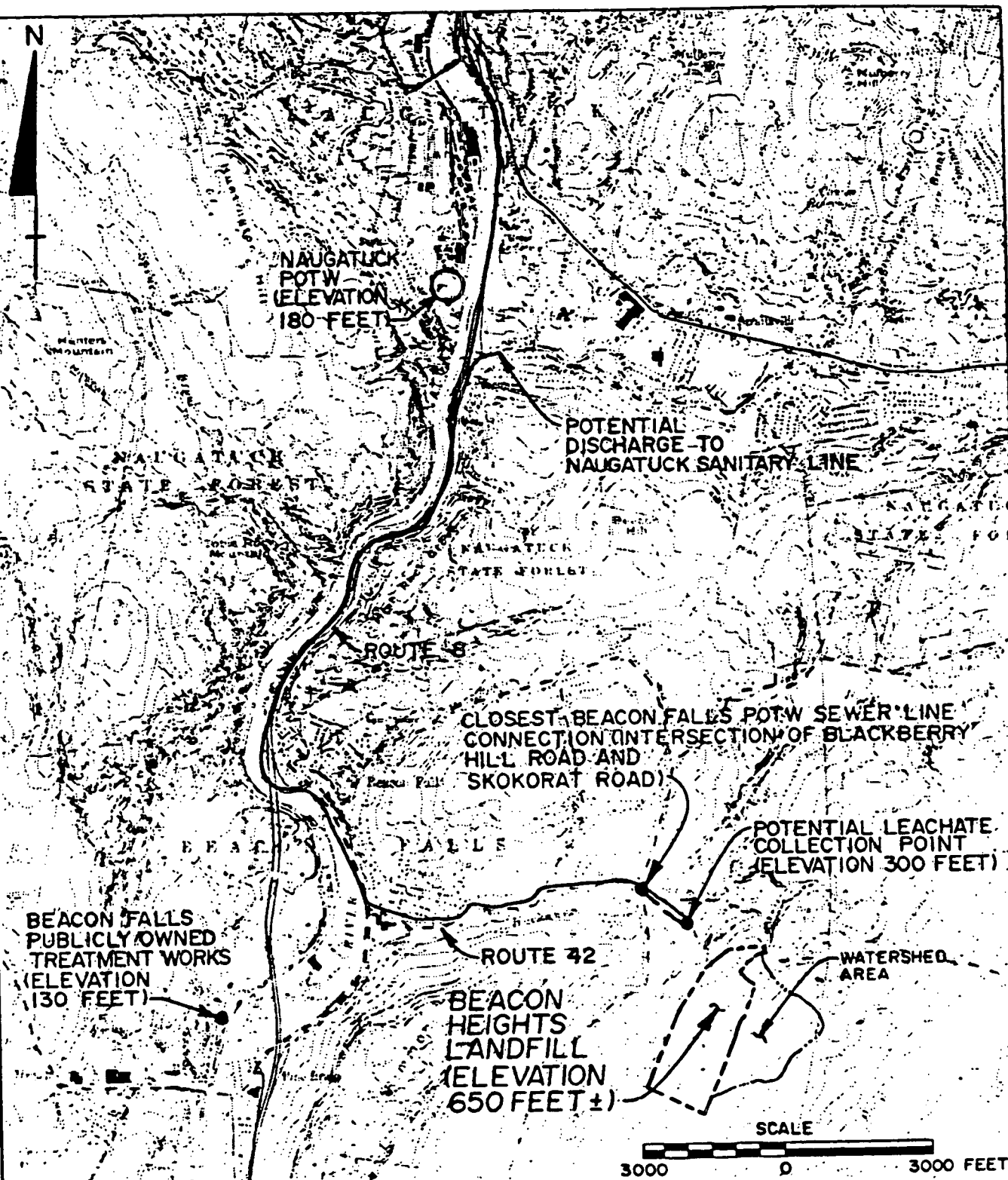
102340

DRAWING 85-133-A60  
NUMBER

CHECKED BY  
APPROVED BY

M.T.H.  
5-6-89

DRAWN BY



**LEGEND:**

- PIPELINE ALIGNMENT TO BEACON FALLS PUBLICLY OWNED TREATMENT WORKS (POTW)
- PIPELINE ALIGNMENT TO NAUGATUCK POTW

**NOTE:**

- 1. PIPELINES WILL DISCHARGE INTO EXISTING MAIN SEWAGE SYSTEM.

**REFERENCE:**

USGS 7.5 MINUTE SERIES  
 QUADRANGLE OF NAUGATUCK,  
 CONNECTICUT.  
 DATED: 1964. SCALE: 1" = 2000'  
 PHOTOREVISED: 1984.

VICINITY MAP  
 BEACON HEIGHTS LANDFILL  
 BEACON FALLS, CONNECTICUT

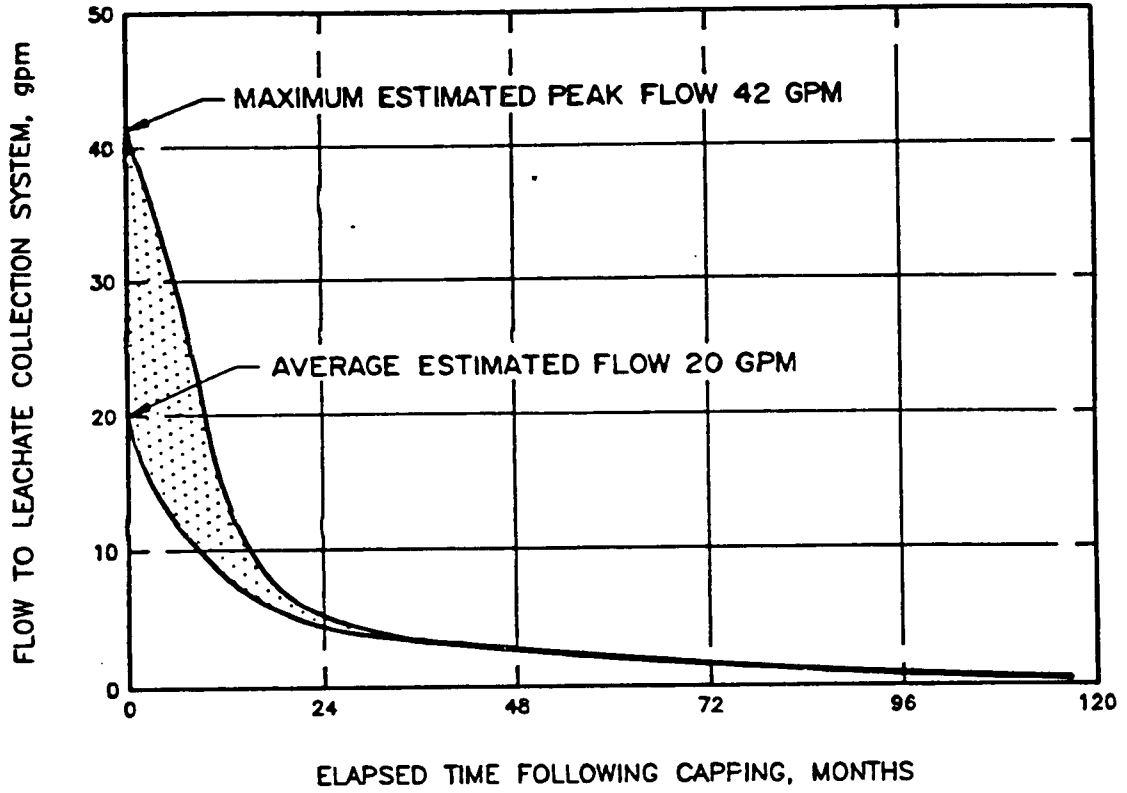
DATE: 5-6-89  
 SCALE AS SHOWN

DRAWING NUMBER  
 85-133-A60



DRAWN BY	M.B.H.	CHECKED BY	SLP	6-8-89	DRAWING NUMBER	85-133-A54
	5-4-89	APPROVED BY	OPW	6-8-89		

FIGURE 3



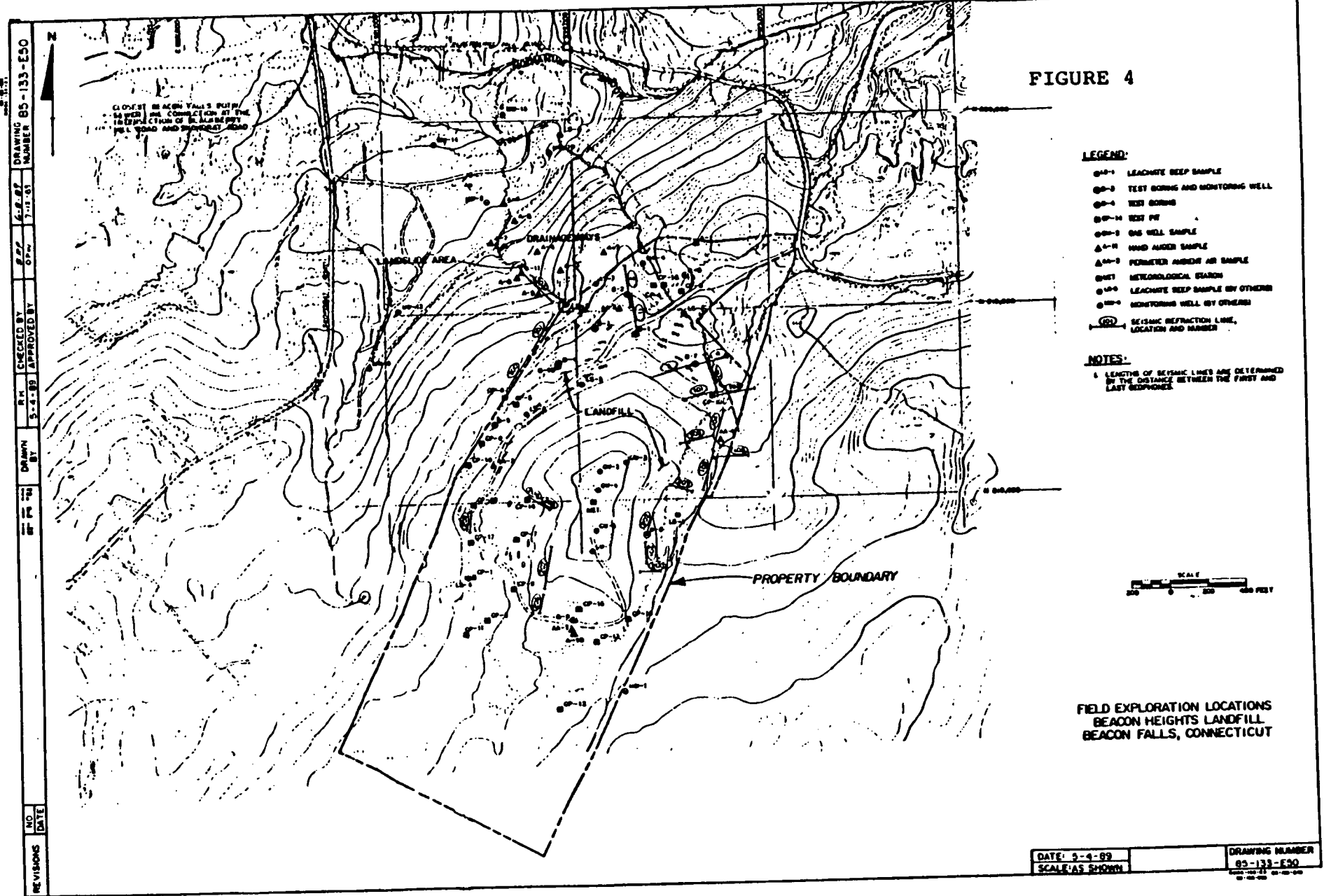
ESTIMATED LEACHATE PRODUCTION  
 BEACON HEIGHTS LANDFILL  
 BEACON FALLS, CONNECTICUT

DATE: 5-4-89  
 SCALE: AS SHOWN

DRAWING NUMBER  
 85-133-A54



FIGURE 4



CLOSEST BEACON FALLS PUMP  
STATION OR CONNECTION AT THE  
INTERSECTION OF B. J. STREET  
AND WINDY ROAD AND TRUNKAL ROAD

DRAINAGE DITCH

LANDFILL AREA

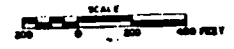
LANDFILL

PROPERTY BOUNDARY

- LEGEND:**
- ⊙-1 LEACHATE DEEP SAMPLE
  - ⊙-2 TEST BORING AND MONITORING WELL
  - ⊙-3 TEST BORING
  - ⊙-4 TEST PIT
  - ⊙-5 GAS WELL SAMPLE
  - △-6 HARD ANKER SAMPLE
  - △-7 FORMER AIRBORNE AIR SAMPLE
  - ⊙-8 METEOROLOGICAL STATION
  - ⊙-9 LEACHATE DEEP SAMPLE BY OTHERS
  - ⊙-10 MONITORING WELL BY OTHERS
  - ⊙-11 SEISMIC REFRACTION LINE, LOCATION AND NUMBER

**NOTES:**

1. LENGTHS OF SEISMIC LINES ARE DETERMINED BY THE DISTANCE BETWEEN THE FIRST AND LAST GEOPHONES.



FIELD EXPLORATION LOCATIONS  
BEACON HEIGHTS LANDFILL  
BEACON FALLS, CONNECTICUT

NO. OF REVISIONS	DATE	BY	DATE	CHECKED BY	DATE	DRAWING NUMBER
						85-133-E50

DATE: 5-4-89  
SCALE: AS SHOWN  
DRAWING NUMBER: 85-133-E50

**TABLE 1**

**SOIL SAMPLE ANALYSES - BTX AND LEAD (mg/kg)**

BTX ----- Analyte -----	DA-1 (A-6 Duplicate)							b				
	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	
Benzene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.125	0.26	ND 0.025	ND 0.125
Ethyl Benzene	ND 0.025	ND 0.025	NT	NT	NT	NT	NT	NT	ND 0.125	NT	ND 0.025	ND 0.125
Toluene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.125	ND 0.025	ND 0.025	ND 0.125
Xylene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.125	0.20	ND 0.025	ND 0.125
Lead	ND 5.0	40	45	25	6.8	8.0	25	27	32	16	20	19
<b>Halogenated Volatile Organics</b> -----												
Analyte -----												
Chlorobenzene	NT	NT	0.052	0.027	ND	ND	NT	NT	0.550	2.4	NT	ND
Trichlorofluoromethane	NT	NT	ND	ND	0.280	ND	NT	NT	ND	ND	NT	ND
1,1-Dichloroethane	NT	NT	ND	ND	3.7	ND	NT	NT	ND	ND	NT	ND
1,1-Dichloroethene	NT	NT	ND	ND	ND	0.047	NT	NT	ND	ND	NT	ND

**Notes:**

1. ND = Not detected at indicated concentration.
2. NT = Not tested.

<sup>a</sup> Halogenated Volatile Organic results were identified only by review of benzene, toluene, ethyl benzene, and xylene analytical data for additional constituents.

<sup>b</sup> Sample analyzed according to EPA Method 8240, see Table 15.

TABLE 1 (Cont.)

## SOIL SAMPLE ANALYSES - VOLATILE AND SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)

Volatile Organics EPA 8240	Concentration		Detection Limit	Semivolatile Organics EPA 8270	Concentration		Detection Limit
	A-8	A-11			A-8	A-11	
			0.125		ND	ND	0.330
1,1,1-Trichloroethane	ND	ND	0.125	1,2,4-Trichlorobenzene	ND	ND	0.330
1,1,2,2-Tetrachloroethane	ND	ND	0.125	1,2-Dichlorobenzene	ND	ND	0.330
1,1,2-Trichloroethane	ND	ND	0.125	1,3-Dichlorobenzene	ND	ND	0.330
1,1-Dichloroethane	ND	ND	0.125	1,4-Dichlorobenzene	ND	ND	0.330
1,1-Dichloroethene	ND	ND	0.125	2-Methylnaphthalene	ND	ND	0.330
1,2-Dichlorobenzene	ND	ND	0.125	2,4,6-Trichlorophenol	ND	ND	0.330
1,2-Dichloroethane	ND	ND	0.125	2,4-Dichlorophenol	ND	ND	0.330
1,2-Dichloropropane	ND	ND	0.125	2,4-Dimethylphenol	ND	ND	1.700
1,3-Dichlorobenzene	ND	ND	0.125	2,4-Dinitrophenol	ND	ND	0.330
1,4-Dichlorobenzene	ND	ND	0.125	2,4-Dinitrotoluene	ND	ND	0.330
1,4-Dichloroethene (Total)	ND	ND	0.250	2,6-Dinitrotoluene	ND	ND	0.330
2-Chloroethyl vinyl ether	ND	ND	0.125	2-Chloronaphthalene	ND	ND	0.330
Benzene	ND	ND	0.125	2-Chlorophenol	ND	ND	0.330
Bromodichloromethane	ND	ND	0.125	2-Nitrophenol	ND	ND	1.700
Bromoform	ND	ND	0.250	3,3'-Dichlorobenzidine	ND	ND	0.330
Bromomethane	ND	ND	0.125	4,6-Dinitro-2-Methylphenol	ND	ND	0.330
Carbon tetrachloride	0.550	ND	0.125	4-Bromophenyl-phenylether	ND	ND	0.330
Chlorobenzene	ND	ND	0.250	4-Chlorophenyl-phenylether	ND	ND	0.330
Chloroethane	ND	ND	0.125	4-Chloro-3-Methylphenol	ND	ND	1.700
Chloroform	ND	ND	0.250	4-Nitrophenol	ND	ND	0.330
Chloromethane	ND	ND	0.125	Acenaphthene	ND	ND	0.330
Cis-1,3-Dichloropropene	ND	ND	0.125	Acenaphthylene	ND	ND	0.330
Dichlorodifluoromethane	ND	ND	0.125	Anthracene	ND	ND	0.330
Dibromochloromethane	ND	ND	0.125	Benzidine	ND	ND	0.330
Ethyl Benzene	ND	ND	0.125	Benzo (a) Pyrene	ND	ND	0.330
Methylene Chloride	ND	ND	0.125	Benzo (b) Fluoranthene	ND	ND	0.330
Tetrachloroethene	ND	ND	0.125	Benzo (g,h,i) Perylene	ND	ND	0.330
Toluene	ND	ND	0.125	Benzo (k) Fluoranthene	ND	ND	0.330
Trans-1,3,-dichloropropene	ND	ND	0.125	Benzo(a)Anthracene	ND	ND	0.330
Trichloroethene	ND	ND	0.125	bis (2-Chloroethyl) Ether	ND	ND	0.330
Trichlorofluoromethane	ND	ND	0.250	bis (2-chloroisopropyl) Ether	0.380	ND	0.330
Vinyl Chloride	ND	ND	0.125	bis (2-Ethylhexyl) Phthalate	ND	ND	0.330
Xylene (Total)	ND	ND		bis (2-Chloroethoxy) Methane	ND	ND	0.330
				Butylbenzylphthalate	ND	ND	0.330
				Chrysene	ND	ND	0.330
				Dibenzo (a,h) Anthracene	ND	ND	0.330
				Diethylphthalate	ND	ND	0.330
				Dimethyl Phthalate	ND	ND	0.330
				Di-n-Butylphthalate	ND	ND	0.330
				Di-n-Octyl Phthalate	ND	ND	0.330
				Fluoranthene	ND	ND	0.330
				Fluorene	ND	ND	0.330
				Hexachlorobenzene	ND	ND	0.330
				Hexachlorobutadiene	ND	ND	0.330
				Hexachlorocyclopentadiene	ND	ND	0.330
				Indeno (1,2,3-cd) Pyrene	ND	ND	0.330
				Isophorone	ND	ND	0.330
				Naphthalene	ND	ND	0.330
				Nitrobenzene	ND	ND	0.330
				N-Nitrosodiphenylamine	ND	ND	1.700
				N-Nitroso-Di-Propylamine	ND	ND	0.330
				Pentachlorophenol	ND	ND	0.330
				Phenanthrene	ND	ND	0.330
				Phenol	ND	ND	0.330
				Pyrene	ND	ND	

Note: ND = Not detected at indicated concentration.

TABLE 2

COMPARISON OF PRE-DESIGN STUDY PHYSICAL PARAMETERS  
AND MISCELLANEOUS ANALYTES WITH PRIOR ANALYSES  
FOR LEACHATE/GROUND WATER

Analyte	Range of Water Concentration	
	Remedial Investigation Sampling 1984	Pre-Design Sampling 1988-1989
Alkalinity Total (as CaCO <sub>3</sub> ), mg/l	250 - 1,400	1,280 - 2,130
Cyanide, mg/l	0.023 - 0.030	0.019 - 0.23
Nitrate, mg/l	0.90 - 7.9	
(Endosulfan, mg/l)		0.57
Sulfate, mg/l	2.7 - 9.7	1.7 - 161
Total Dissolved Solids, mg/l		1,400 - 3,690
Specific Conductivity, umhos/cm	115 - 4,600	2,550 - 5,500
pH (std. units)	6.11 - 9.63	6.7 - 7.4
Biological Oxygen Demand	48 - 660	141 - 990
Chemical Oxygen Demand, mg/l		354 - 1,630
Total Organic Carbon, mg/l	1 - 1,555	70 - 740
(Chlorinated Dibenzofurans, ng/l)		
Tetra	0.07 - 2.2	
Penta	0.67 - 6.9	
Hexa	3.0 - 160	
Hepta	9.7 J - 1,300 J	
Octa	11 - 690	
(Dibenzo-P-Dioxins, ng/l:)		
Octa	6	

Notes:

1. ( ) = Analyte was not tested for during pre-design sampling phase.
2. J = Approximate value.

**RESPONSIVENESS SUMMARY**  
**BEACON HEIGHTS LANDFILL SUPERFUND SITE**  
**BEACON FALLS, CONNECTICUT**

**SEPTEMBER 28, 1990**

**U.S. ENVIRONMENTAL PROTECTION AGENCY**

**REGION I**

**BEACON HEIGHTS LANDFILL SUPERFUND SITE**

**RESPONSIVENESS SUMMARY**

**TABLE OF CONTENTS**

	Page
PREFACE. . . . .	1
I. OVERVIEW OF REMEDIAL ALTERNATIVES CONSIDERED IN THE PRE-DESIGN STUDIES, INCLUDING THE PREFERRED ALTERNATIVE	3
II. SITE HISTORY AND BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS . . . . .	5
III. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND EPA RESPONSES . . . . .	7
Part I - Citizen Comments . . . . .	7
A. Comments Regarding Treatment at the Beacon Falls Waste Water Treatment Facility . . . . .	7
B. Comments Regarding Treatment at the Naugatuck Waste Water Treatment Facility . . . . .	9
C. Comments Regarding On-Site Leachate Treatment . . . . .	11
D. General Comments . . . . .	12
Part II - Potentially Responsible Party Comments . . . . .	13
ATTACHMENT A -COMMUNITY RELATIONS ACTIVITIES CONDUCTED AT THE BEACON HEIGHTS LANDFILL SUPERFUND SITE	
ATTACHMENT B - TRANSCRIPT OF THE MAY 30, 1990 INFORMAL PUBLIC HEARING	

## Preface

The U. S. Environmental Protection Agency (EPA) held a 60-day public comment period from May 10, 1990 to July 9, 1990 to provide an opportunity for interested parties to comment on the draft Pre-Design Studies and the May 1990 Proposed Plan prepared for the Beacon Heights Landfill Superfund Site in Beacon Falls, Connecticut. The draft Pre-Design Studies examine and evaluate various options, called remedial alternatives, to address treatment and disposal of leachate generated at the Beacon Heights Landfill. The Pre-Design Studies also examined and evaluated contaminant levels for soils to be excavated and consolidated into the main landfill before capping as well as the need for air pollution controls on landfill gas vents. EPA identified its preferred alternative for addressing leachate contamination in the Proposed Plan issued on May 8, 1990, before the start of the public comment period. EPA extended the 30-day public comment period (May 10, 1990 to June 8, 1990) originally scheduled for this Site in response to a request from the public for a 30-day extension.

In 1985, EPA signed a Record of Decision (ROD) that determined a series of remedial actions at the Site to protect public health and the environment. These actions included: connection of homes surrounding the Site to the Beacon Falls municipal water supply; construction of an impermeable cap over the landfill, excavation of contaminated soil outside the area to be capped and consolidation of those soils within the main landfill area; installation of gas vents in the cap; and, treatment of leachate. The 1985 ROD called for additional studies to determine the extent to which the soils would be excavated, the manner and location for treatment and disposal of leachate and the need for air pollution controls on the landfill gas vents. A 1987 Consent Decree between EPA and 32 Potentially Responsible Parties (PRPs) required that the PRPs, among other actions, conduct the cleanup and perform the pre-design studies necessary to evaluate leachate treatment options and the soil and air pollution controls determinations.

The purpose of this Responsiveness Summary is to document EPA responses to the questions and comments raised during the public comment period on the Pre-Design Studies and the Proposed Plan. EPA will consider all of these questions and comments before making its final selection of a leachate treatment and disposal alternative or its final determinations on contaminant levels for soil excavation or the need for air pollution controls on the landfill gas vents at the Site.

This Responsiveness Summary is organized into the following sections:

- I. Overview of Leachate Treatment and Disposal Alternatives, Including the Preferred Alternative, and the Determinations for the Extent of Soil Excavation and the Need for Air Pollution Controls on Landfill Gas Vents Considered in the Pre-Design Studies - This section briefly outlines the leachate treatment and disposal alternatives evaluated in the Pre-Design Studies and the Proposed Plan, including EPA's preferred alternative.
- II. Background on Community Involvement and Concerns - This section provides a brief history of community interest and concerns regarding the Beacon Falls Landfill Site.
- III. Summary of Comments Received During the Public Comment Period and EPA Responses - This section summarizes and provides EPA responses to the oral and written comments received from state and local authorities, the public and PRPs during the public comment period. In Part I, the comments received from citizens and state and local government authorities are organized by subject. In Part II, the comments received from the PRPs and EPA's responses are addressed.
- IV. Remaining Concerns - This section describes issues that may continue to be of concern to the community during the design and implementation of EPA's selected remedy for the Beacon Falls Landfill Site. EPA will address these concerns during the Remedial Design and Remedial Action (RD/RA) phase of the cleanup process.

In addition, two attachments are included in this Responsiveness Summary. Attachment A provides a list of the community relations activities that EPA has conducted to date at the Beacon Falls Landfill Site. Attachment B contains a copy of the transcript from the informal public hearing held on May 30, 1990.



**I. OVERVIEW OF LEACHATE TREATMENT AND DISPOSAL ALTERNATIVES, AND THE DETERMINATIONS FOR THE EXTENT OF SOIL EXCAVATION AND THE NEED FOR AIR POLLUTION CONTROLS ON LANDFILL GAS VENTS CONSIDERED IN THE PRE-DESIGN STUDIES**

As directed in the 1985 ROD, leachate treatment and disposal alternatives which treated leachate either on or off-site were developed in the Pre-Design Studies. In addition, modeling for the contaminant levels to which soils must be excavated and the amount of air pollution generated by the landfill were included in the Studies. Based on the results of the Pre-Design Studies, EPA issued a supplemental ROD. The decisions made by EPA in the supplemental ROD are an integral part of the remedy documented in the 1985 ROD and will address the following principal threats to human health and the environment posed by the Site:

- Off-site migration of contaminants via leachate.
- Prevention of future groundwater degradation.
- Future ingestion and direct contact with contaminated soils and solid wastes adjacent to the main landfill.
- y. Inhalation of potentially harmful gas produced within the landfill.

EPA screened and evaluated several potential leachate treatment alternatives for the Beacon Heights Landfill Site. Additional information on each of the alternatives can be found in the supplemental ROD, copies of which are located in the Beacon Falls Town Clerk's Office in the Beacon Falls Town Hall, 10 Maple Avenue, and the EPA Records Center at 90 Canal Street in Boston, Massachusetts. The leachate treatment alternatives are described briefly below.

- Off-Site Treatment at the Naugatuck Waste Water Treatment Facility. This alternative would treat leachate off-site at the Naugatuck, Connecticut wastewater treatment facility. Implementing this alternative would require construction of a five-mile long pipeline to the Naugatuck sewer system which discharges to the Naugatuck facility. The Naugatuck facility is currently permitted to treat industrial sewage and has the hydraulic capacity to accept the leachate from the Beacon Heights site.

In the Proposed Plan issued prior to the public comment period, EPA recommended this alternative as its preferred remedy for addressing leachate contamination at the Site.

- Off-Site Treatment at the Beacon Falls Wastewater Treatment Facility. This alternative would treat leachate off-site at the Beacon Falls wastewater treatment facility. Implementing this alternative would require construction of a 0.3 mile pipeline to the Beacon Falls sewer system which discharges to the Beacon Falls facility, upgrading of the facility, and consent from governing authorities of the facility to accept the leachate.
- On-Site Treatment with Green Sand and Activated Carbon Filtration. In this alternative an on-site treatment facility would be constructed which would utilize a combination of green sand filtration to reduce iron and manganese levels, and carbon filtration to remove organic contaminants and reduce BOD levels. Chemical disinfection would control disease causing organisms. Treated leachate would be discharged to Hockanum Brook.
- Trucking to an Off-Site Disposal Facility. In this alternative, leachate in a collection structure would be transported off-site in five-thousand gallon tanker trucks to an appropriate waste treatment facility.
- On-Site Treatment with Parallel Bioreactors. This alternative would utilize microorganisms in an on-site treatment plant to remove VOCs from leachate. Green sand filtration would be used to remove manganese and iron, while chemical disinfection would control disease causing organisms.
- On-Site Treatment by Chemical Coagulation and Clarification, and Ultraviolet-Enhanced Oxidation. This alternative would treat leachate in two phases. First, certain metals and other contaminants would be removed by coagulation. Following this treatment, the water would be acidified and treated by ultraviolet light to reduce BOD and destroy organic contaminants. Treated water would be discharged to Hockanum Brook.
- No Action. Although analysis of a No Action alternative is normally required by Federal law, the no action alternative was not included in the supplemental ROD since the 1985 ROD had already directed that leachate treatment and disposal be performed. Therefore a no action alternative was not viable for leachate treatment and disposal.

Using the information gathered during the Pre-Design Studies concerning contaminant levels in soils, EPA used a groundwater modeling technique to determine levels of contaminants in the soils to establish the extent to which soils will be excavated.

Also based on the Pre-Design Studies, EPA made a determination that air pollution controls on landfill gas vents are not practicable to install on the landfill gas vents at this time. The vents will, however, be designed to allow the addition of controls if necessary based on continued monitoring of air emissions after capping.

## II. SITE HISTORY AND BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The Beacon Heights Landfill site is located south of Blackberry Hill Road near Skokorat Road in Beacon Falls, Connecticut, 10 miles south of Waterbury. The Site encompasses 82 acres, 34 of which comprise the actual Beacon Heights Landfill. Residential areas lie to the north of the Site along Blackberry Hill Road and to the west along Skokorat Road.

From the 1920s until 1970 the Site was known as "Betkoski's Dump". This dump area consisted of approximately 6 acres of active landfill in the northwest corner of the Site. According to Connecticut Department of Environmental Protection (CT DEP) records, a variety of waste materials including municipal garbage, rubber, plastics, and industrial chemicals and sludges were deposited on the Site. Waste disposal methods consisted primarily of open burning and burial of any remaining unburnable wastes.

In 1970, Beacon Heights, Inc. purchased the Betkoski property and adjacent properties and changed the name of the Site to the Beacon Heights Landfill. The landfill area then greatly expanded. CT DEP records show that rubber, plastics, oils, chemical liquids, sludges, and solvents were dumped at the Site along with municipal wastes.

By 1979 most landfill operations had reportedly ceased following numerous actions by the CT DEP to enforce waste disposal permit violations. However, wastewater treatment plant sludge continued to be spread over large areas of the Site until 1983. During the years of operation an estimated total of 650,000 cubic yards of waste were placed at the Site. The waste mound is up to 60 feet deep and extends down to bedrock in some areas.

The Site was listed on the EPA's National Priorities List on September 1, 1983. As a result of the listing, the Site became eligible for remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In 1984, EPA conducted a Remedial Investigation (RI) to determine the nature and extent of contamination at the landfill. During this investigation, EPA detected benzene and several other

solvents in two private wells on Skokorat Road at levels exceeding the State of Connecticut's drinking water standards. CT DEP subsequently supplied these two residences with bottled water until they, along with 42 other homes in the vicinity of the Site, were connected to the municipal water supply. By summer 1989, all owners of homes with wells threatened by contamination from the landfill desiring public water had been connected to the municipal water system.

EPA signed a ROD for the Site in 1985 following a comment period lasting from May 20, 1985 to June 14, 1985. Community concerns at that time focused most heavily on completion of a new drinking water supply for area residents. Residents were also concerned about two remedial alternatives evaluated in the 1985 Feasibility Study: 1) an on-site incineration facility, and 2) a RCRA-permitted landfill. Specifically, they were concerned that wastes from other hazardous waste sites could be brought to the Beacon Heights Landfill for treatment by or for disposal in one of these facilities.

In September, 1987, EPA entered a consent decree with 32 PRPs, now known as the Beacon Heights Generators Coalition (BHGC) under which the PRPs agreed to perform remedial actions at the Site. Among other things, the consent decree required the PRPs to perform pre-design studies to gather information which forms the basis for the determinations made in this supplemental ROD.

Community concern surrounding contamination at the Beacon Heights Site has been high during the Pre-Design Studies and public comment period. A public informational meeting held on May 9, 1990 concerning the results of the Pre-Design Studies and EPA's Proposed Plan was attended by approximately 20 people. The principal community concerns expressed at that time are summarized below.

- Potential Liability of the Town of Beacon Falls. Town officials and residents expressed concern that, if the Town were to accept leachate from the landfill and problems with treatment at the facility occurred in the future, the Town would bear financial or legal responsibility for those problems.
- Impacts on Neighboring Agricultural Lands. A resident questioned whether he was, or could be, at risk working in his orchards located adjacent and downstream of the Site and the proposed leachate collection system.

- Questions Concerning the Landfill Cap. Residents expressed interest in the effectiveness of the cap, whether leachate was formed as a result of groundwater infiltrating the landfill in the area of the cap or from infiltration of rainwater, and why EPA was installing gas vents in the landfill.

### III. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND EPA RESPONSES

This Responsiveness Summary addresses the comments received by EPA concerning the Pre-Design Studies and EPA's Proposed Plan for the Beacon Heights Landfill Site. Nine sets of written comments were received during the public comment period (May 10, 1990 - July 9, 1990). Comments were submitted by members of the general public, state and local government authorities, and representatives of the PRPs. Four oral comments were presented at the May 30, 1990 informal public hearing. Certain oral comments were accompanied by corresponding written comments. Commentors at the public hearing were either residents or local government officials. A copy of the public hearing transcript is included as Attachment B. Copies are also available at the Town Clerk's Office at the Beacon Falls Town Hall, the information repository that EPA has established for the site; and at the EPA Records Center at 90 Canal Street, Boston, Massachusetts, as part of EPA's Administrative Record.

#### Part I - Citizen, State and Local Government Comments

Comments from citizens, along with EPA responses, are summarized and organized into the following categories:

- A. Comments Regarding Treatment at the Beacon Falls waste water treatment facility;
  - B. Comments Regarding Treatment at the Naugatuck waste water treatment facility;
  - C. Comments Regarding On-Site Leachate Treatment; and
  - D. General Comments.
- A. **Comments Regarding Treatment at the Beacon Falls Wastewater Treatment Facility**

Comment No. 1: The Town of Beacon Falls, in a letter dated June 29, 1990, advised EPA of its willingness to accept leachate from the Beacon Heights Landfill Superfund Site, subject to the PRPs meeting certain technical and legal requirements. This comment reversed the Town's earlier decision, presented to EPA in an undated letter, not to accept the leachate.

EPA's Response: In the 1985 ROD EPA determined the Beacon Falls facility to be technically infeasible as an option based on the

condition of the facility at that time. Further studies performed in the Pre-Design Studies document indicated that the Beacon Falls facility could be upgraded to accommodate leachate from the Site. Therefore, the Beacon Falls facility became a viable option.

In accordance with Section 121 of CERCLA, as amended, and the National Contingency Plan (NCP) 40 CFR §300.68(i), EPA must select a cost effective leachate treatment and disposal alternative that effectively mitigates and minimizes threats to and provides adequate protection of human health and the environment which is cost effective. In reaching its decision for the selected leachate treatment and disposal alternative, EPA is required to compare alternatives developed in preliminary studies to each other using nine specific criteria set out in the NCP (see Section IX of the supplemental Record of Decision). In addition to community acceptance, EPA must also evaluate whether the selected leachate treatment and disposal alternative:

- Is protective of human health and the environment;
- Attains all Applicable or Relevant and Appropriate Requirements;
- Provides for long-term effectiveness and permanence;
- Provides for reduction of toxicity, mobility, or volume;
- Considers the short term effectiveness
- Is implementable;
- Is cost effective and;
- Has State acceptance.

When evaluated against the other alternatives using the above criteria from the NCP and taking into account the Beacon Falls upgrade, both Beacon Falls and the Naugatuck waste water treatment facility alternatives are protective, meet ARARs and meet the technical criteria for selection.

During the Proposed Plan process, the Naugatuck option was preferred for leachate treatment and disposal based upon the nine evaluation criteria listed above because the Town of Beacon Falls did not agree to accept the leachate for treatment and disposal at the time the Proposed Plan was issued. The Beacon Falls alternative was deemed unimplementable based on this lack of consent by the Town. Subsequently, the Town reversed its earlier position and agreed to accept the leachate for treatment if

certain conditions were met by the BHGC. Since receiving the June 29 letter, EPA actively considered the Beacon Falls alternative in the selection process. Negotiations between the PRPs and the Town of Beacon Falls relative to the conditions have taken place since June 29. However, at the time this supplemental ROD was signed, no agreement was reached and the Beacon Falls alternative was, therefore, deemed unimplementable.

Comment No. 2: In a letter to EPA dated July 9, 1990, the State of Connecticut DEP supported treatment of Beacon Heights leachate at the Beacon Falls facility, subject to approval of the Town and technical upgrading of the treatment facility.

EPA's Response: Based upon a review of the nine evaluation criteria for leachate treatment and disposal selection (see Comment I.A.) as applied to the on- and off-site alternatives, EPA concurs with the Connecticut Department of Environmental Protection's (CT DEP) comment to the extent that treatment of the leachate at the Beacon Falls facility is superior in many respects to most of the alternatives considered. The Beacon Falls option would, among other things, reduce both the cost of remediation as well as the potential for leakage/breakage as a function of pipeline length. However, as discussed in Section IX.6. of the supplemental ROD, because the Town of Beacon Falls has not agreed to accept the leachate for treatment and disposal, the Beacon Falls alternative is deemed unimplementable. Therefore, the Naugatuck wastewater facility alternative became the selected alternative based on the NCP criteria.

#### **B. Comments Regarding Treatment at the Naugatuck Waste Water Treatment Facility**

Comment No. 1: A resident expressed her opposition to piping Beacon Heights leachate to the Naugatuck facility. The resident noted her concerns over objectionable odors associated with current facility operations as well as potential negative impacts on two cemeteries in the vicinity of the facility. The resident entered into the record copies of articles from the Naugatuck Daily News reporting on odors associated with the facility. An article on an accident at an industrial pre-treatment facility was also submitted.

EPA's Response: One of the major contributors to malodorous characteristics of industrial type leachates is the compound hydrogen sulfide. Leachate emanating from the Beacon Heights Site does not contain this compound. In addition, the amount of sludge produced through leachate treatment will decrease proportionately within 5 to 10 years of capping as the amount of leachate generated within the landfill decreases. By the end of 10 years only minimal amounts of leachate are expected to be generated by the landfill as the refuse under the landfill dries

out. Sludge production will likewise decrease. (see Section V.C.1. of the supplemental ROD).

During the first year, leachate from the Beacon Heights Landfill Site will be generated at approximately 20 gallons per minute (gpm). This would constitute slightly less than 1% of the total inflow at the Naugatuck facility. Therefore, the introduction of leachate from the Beacon Heights Site would have negligible impacts on current operations at the facility in terms of odors being emitted from the plant.

In addition, State air pollution control requirements ensure that air emissions from the Naugatuck facility do not exceed odor threshold and hazard limits which are protective of human health. With regard to the danger of explosions at the facility as referenced by the newspaper article submitted by the commentor, concentrations of volatile organic compounds at the plant should be low due to the dilution of the leachate by sewage in the sewer pipes. Therefore, the danger of explosion at the facility due to the Beacon Heights leachate is minimal.

Comment No. 2: A local representative of the Town and Borough of Naugatuck noted the Borough's concern with odors from the treatment facility, but stressed that odors at the plant are not related to the facility's treatment of leachate from the Laurel Park Superfund site, nor would the facility produce increased odors as a result of receiving and treating Beacon Heights Leachate. The Borough representative entered into the record the Borough of Naugatuck's willingness to accept the leachate subject to conditions presented to the PRPs.

EPA's Response: Refer to response to comment I.B.1; EPA acknowledges the Borough of Naugatuck's willingness to accept the leachate from the Beacon Heights Landfill subject to conditions presented to the PRPs. Based on this consent, as well as the comparison of this alternative to the other five alternatives, and in the absence of consent from the Town of Beacon Falls to accept the leachate, EPA has selected the Naugatuck option as the most protective and cost effective alternative for treating and disposing of the Beacon Heights landfill leachate.

Comment No. 3: The State of Connecticut expressed its support for EPA's choice of the Naugatuck facility provided EPA is unable to choose the Beacon Falls facility as the off-site treatment location.

EPA's Response: Refer to responses to Comment I.A.1, I.A.2., and I.B.2.



### C. Comments Regarding On-Site Leachate Treatment

Comment No. 1: The State of Connecticut submitted its opposition to the use of an on-site treatment facility at the Site, noting concerns regarding water quality impacts to the Hockanum Brook.

EPA's Response: EPA acknowledges CT DEPs opposition to any on-site treatment alternatives requiring disposal of treated waste waters to the Hockanum Brook. EPA concurs that "on-site 'packaged' treatment systems require extensive upkeep and are subject to frequent upsets."

EPA does not necessarily agree that "creation of a treated leachate discharge would result in continued non-attainment of the water quality goal" of the Hockanum Brook. Effluent discharge to any surface water from an on-site treatment facility would be treated to NPDES standards. However, EPA understands that a discharge of this type could result in non-attainment of State water quality goals should an upset occur.

Finally, on-site treatment and disposal alternatives were found to be less protective and cost-effective than off-site alternatives based on the NCP criteria for selection of remedial actions.

Comment No. 2: A resident expressed his support for on-site treatment of landfill leachate, noting that this alternative would alleviate problems with the Towns of Beacon Falls and Naugatuck and move the cleanup along.

EPA's Response: The Agency acknowledges this resident's concern regarding the importance of expediting the remedial action. As with every Superfund Site, a specific schedule is developed for the progress of remedial actions. The schedule for the Beacon Heights Site was laid out in the Remedial Action Plan which was attached to the 1987 consent decree. EPA has adhered to this schedule. The only significant delay in the cleanup of this Site arose when legal access to the Site was denied by the Site owner after the 1985 ROD was signed. No delays have resulted from negotiations involving the Towns of Beacon Falls, Naugatuck or with the PRPs.

Included in the schedule referred to above is the process of selecting a remedial action for the Site. For the Beacon Heights Landfill Site, on- and off-site alternatives were developed, screened and compared against each other using the nine evaluation criteria set out in the NCP (See response to comment I.A.1.). EPA determined that piping to and subsequent treatment and disposal of the Beacon Heights leachate at the Naugatuck facility provides the best balance of the nine evaluation criteria (See Section IX of the ROD). The progress of the

selection process has not been influenced by any actions of either Town; the same amount of time is required whether the selected alternative was located on-site or off-site.

#### D. General Comments

Comment No. 1: CT DEP stated that it does not support EPA's soil excavation criteria. CT DEP noted that EPA's choice of soil excavation criteria, leaving soils in place with contamination levels exceeding Connecticut Action Levels, with no groundwater treatment or containment program planned, would not meet the State's groundwater quality goal.

EPA's Response: The removal of contaminated soils to Connecticut Action Levels, as advocated by CT DEP, is more stringent than is necessary to preserve federal drinking water standards at the Site. A certain amount of contaminants always remain in the soils and are not flushed through to groundwater by surface runoff or precipitation. Through the use of groundwater modeling which incorporate federal MCLs and proposed MCLs for drinking water, the levels of contaminants left in place will not endanger human health and the environment nor will they further degrade groundwater at the Site. EPA believes the soil excavation limits selected in the supplemental ROD are protective of human health and the environment and meet all promulgated ARARs.

Comment No. 2: CT DEP stated that landfill gas emissions must be monitored following cap construction, and that the CT DEP must be consulted on any decisions regarding the use of air pollution control devices.

EPA's Response: EPA has incorporated pre-cap monitoring and post-cap construction monitoring at the landfill gas vents, at the landfill perimeter, and at other removed sampling stations to determine concentrations of landfill gas emissions of hazardous compounds and to differentiate landfill source contribution from background levels of contamination as part of the final remedy. The remedial action also requires that the landfill gas vents be constructed in such a way that pollution control devices will be installed should air monitoring reveal that emissions from the landfill exceed federal or state standards or exceed any hazard risk range.

CT DEP will be consulted in the decision regarding the use of air pollution devices.

**Part II - Potentially Responsible Party Comments****Summary of Comments**

**Comment No. 1:** The PRPs (Beacon Heights Generators Coalition) state that on-site pretreatment of leachate, prior to pumping to an off-site wastewater treatment facility, is unnecessary and would result in increased environmental and safety risks in the site area.

**EPA's Response:** A State permit is required to discharge the leachate from the leachate collection structure to the sewer lines. Sampling and analysis during the design phase will determine what, if any, pretreatment elements are necessary to meet these permit requirements.

While environmental and safety risks are always present when activities concerning hazardous substances are performed, pretreatment, as necessary, will be conducted in accordance with all applicable federal and state standards including all OSHA standards for worker safety.

**Comment No. 2:** The PRPs (Beacon Heights Generators Coalition) state that the soil excavation levels established in the Pre-Design Studies are appropriate to protect public health and the environment.

**EPA's Response:** EPA disagrees that the soil excavation levels established through the Designated Level Method discussed in the Pre-Design Studies protect human health and the environment. The July 6, 1990 letter of comment from the PRPs states that the Designated Level Method has been used in other sites according to the EPA document entitled "Determining Soil Response Levels Based on Potential Contaminant Migration to Ground Water: A Compendium of Examples". However the only cases referenced were located in Region 9.

The degree of attenuation in soils is dependent on the chemical properties of the waste constituents, distance from the waste management unit to usable water, the geologic materials including the permeability, chemistry and structure, and the velocity of the ground or surface water. The "Compendium of Examples" document clearly states that one of the limitations of the Designated Level Method model is that it does not address site-specific considerations in detail. Therefore, the model uses a somewhat arbitrary attenuation factor for its calculations. Also, the model fails to assign specific attenuation factors to individual contaminants.

EPA calculated soil cleanup levels using primarily the Summers Model. This method has been used and accepted by EPA at

other similar sites in Region 1. The Summers model incorporates federal MCLs and proposed MCLs as well as Site specific information. The cleanup levels calculated through the Summers Model include a level for one compound which is also found in the Designated Level Method model results. This level was included based on similar sites in the Region. EPA believes that the soil cleanup levels established and documented in this supplemental ROD will be protective of human health and the environment at the completion of the remedy.

The Summers model assumes that a percentage of rainfall at the Site will infiltrate and desorb contaminants from the soil based on equilibrium soil/water partitioning. Using groundwater modeling, the soil cleanup level is calculated from the original soil concentration, the concentration of the infiltrating water, and an equilibrium coefficient.

The Summers model was developed to estimate the point at which contaminant concentrations in the soil will produce groundwater contaminate concentrations above acceptable levels. The resultant soil concentrations can then be used as guidelines in estimating extents of soil contamination and specifying soil cleanup goals for remediation.

With regard to specific areas of concern raised by the PRPs in terms of the Summers model, the following responses apply:

1) At superfund investigations throughout New England, total organic carbon (TOC) values below the soil horizon have routinely been found to be less than 1 percent. Therefore, the use of 0.4 percent, the lowest value determined for the site seems reasonable.

2) Published KOC values do vary in the literature. However, the range in values can still be used. (It should be noted that attenuation factors used in the Designated Level Method also vary.)

Comment No. 3: The PRPs (Beacon Heights Generators Coalition) suggest that EPA's supplemental ROD specify leachate treatment at an off-site wastewater treatment facility, and not specify the specific location of the facility to allow EPA the discretion to choose either Beacon Falls or Naugatuck following negotiations.

EPA's Response: EPA attempts to resolve all remedial cleanup decisions that are practicable to make. The two wastewater treatment facility alternatives are very different in terms of plant upgrades necessary, pipeline construction lengths and designs, costs, and community acceptance. EPA disagrees with the PRP comment that by specifying "that the leachate be discharged to a wastewater treatment facility approved by EPA rather than

stipulating a specific facility" would "promote an expedient conclusion to successful negotiations" with either facility. On the contrary, EPA believes that an "open-ended" decision would only lead to delays in the project.

Since the first draft of the Pre-Design Studies was delivered to EPA in August, 1989 negotiations with the respective wastewater treatment facility authorities and the PRPs have been ongoing. The public comment period was extended 30 days in accordance with the NCP at the request of the Town of Beacon Falls to facilitate the review of the Beacon Falls facility alternative by a private contractor. It has been EPA's experience at Superfund sites that only when faced with a reasonable deadline will issues become resolved. EPA believes that adequate time has passed for negotiations and that the decision to send leachate to the Naugatuck facility for treatment and disposal which is documented in this supplemental ROD is in the best interests of protecting human health and the environment, and allows EPA to maintain the schedules previously set for cleaning up the Site (see response to Comment I.C.2).

Comment No. 4: The third party defendants in the Murtha litigation argued that, should EPA choose the Naugatuck facility alternative as the remedial alternative due to the Town of Beacon Falls unwillingness to accept leachate at that Town's wastewater treatment facility, the difference in cost between these two treatment locations be allocated to the Town of Beacon Falls. The third party defendants also argued that the Town of Beacon Falls cannot refuse to treat Beacon Heights wastes at their facility, and that EPA has given illegal and improper weighting to the community acceptance criteria in choosing treatment at the Naugatuck facility.

EPA's Response: Section 107 of CERCLA, as amended, provides that any owner, operator, generator, or transporter of hazardous substances to a site shall be liable for all costs of removal or remedial action at the site. The leachate treatment and disposal component of the remedy is considered part of the remedial actions for which any of the named PRPs is liable. The location of this alternative does not alter, in any way, the PRPs liability for payment of this remedial cost. The Town of Beacon Falls has not been identified as a PRP at this Site and is therefore not liable to the Agency for the remedial costs at the Site.

EPA has no authority to order the Town of Beacon Falls, and any other municipality, to modify its legitimately licensed treatment facility.

The Agency's decision to select Naugatuck as the location for leachate treatment and disposal is documented in the supplemental ROD. In particular, Section IX details the Agency's

balancing of all the alternatives using the nine criteria set out in the NCP. The Beacon Falls location was determined not to be implementable and the Naugatuck facility became the selected location for leachate treatment and disposal.

## ATTACHMENT A

COMMUNITY RELATIONS ACTIVITIES CONDUCTED AT  
THE BEACON HEIGHTS LANDFILL SUPERFUND SITE

September, 1983 - EPA developed a Community Relations Plan outlining a strategy for communicating with residents and other interested parties.

February, 1984 - EPA distributed a fact sheet describing the upcoming remedial investigation activities.

March 26, 1984 - EPA held a public meeting to discuss remedial the investigation.

June, 1985 - EPA distributed a fact sheet outlining the feasibility study and soliciting public comment.

June 11, 1985 - EPA held a public hearing to accept public comments on the feasibility study

August, 1987 - EPA distributed a fact sheet describing the progress made on implementation of the remedy, including the extension of the municipal water line to 50 homes near the site.

August 24, 1987 - EPA held a public meeting on remedy progress and waterline extension.

May, 1990 - EPA distributed a Proposed Plan for the supplemental Record of Decision.

May 9, 1990 - EPA held a public meeting to explain the Proposed Plan.

May 30, 1990 - EPA held a public hearing to accept comments on the Proposed Plan.

**ATTACHMENT B**

**Transcript of the May 30, 1990 Informal Public Hearing**



P R O C E E D I N G S

[7:40 p.m.]

1  
2  
3 MARGARET LESHEN: Good evening and welcome.

4 I'm Maggie Leshen. I'm Chief of the  
5 Connecticut Superfund Section and I'll be running  
6 tonight's hearing.

7 I did want to tell you -- can everyone hear  
8 me? -- that these microphones are for the transcriber  
9 and they do not amplify. So if any point you can't  
10 hear us, just let us know.

11 I'm going to tell you how we're going to be  
12 running tonight's meeting.

13 We're going to have basically three parts.

14 First, Eric is going to give a very brief  
15 description of the site and the proposed plan, and then  
16 we're going to have the actual hearing part, where you  
17 come up and make comments into the record of which we  
18 do not respond to. We will be responding at a later  
19 point in a response in this summary when we make a  
20 decision on this site, and that will be a written  
21 document responding to all the comments raised tonight.

22 After everyone has had the opportunity to  
23 make their comments into the record, we will close the  
24 hearing and we will stick around as long as we can to  
25 answer any questions you might have informally at that

APEX REPORTING  
Registered Professional Reporters  
(617)416-3077

1 UNITED STATES OF AMERICA  
2 ENVIRONMENTAL PROTECTION AGENCY  
3 REGION I  
4

5 In the Matter of:

6 PUBLIC HEARING  
7 SUPERFUND PROGRAM  
8 BEACON HEIGHTS LANDFILL SITE  
9 BEACON FALLS, CONNECTICUT  
10

11 Town Hall  
12 10 Maple Avenue  
13 Beacon Falls, Connecticut

14 Wednesday  
15 May 30, 1990

16 The above entitled matter came on for hearing,  
17 pursuant to Notice at 7:40 p.m.

18 BEFORE: MARGARET LESHEN  
19 ERIC VAN GESTEL  
20 ERICA PEACH  
21 MIKE POWERS  
22 JAMES SEBASTIAN  
23  
24  
25

APEX REPORTING  
Registered Professional Reporters  
(617)426-3077

1 point.

2           Basically, we're going to open it up to the  
3 formal comments for each person for about ten minutes  
4 in the event people have -- I don't know how long your  
5 comments are, and so that gives each person a chance to  
6 speak in a relatively short amount of time, and then we  
7 will stick around for however long it does take,  
8 because I did notice some people have some very long  
9 comments at this point. But I just want to make sure  
10 you understood that.

11           Tonight is the hearing, a public hearing,  
12 for you to put your comments into the record orally.  
13 We will be accepting written comments until July 9th.  
14 We have made the decision to extend the public comment  
15 period to that time. That gives you an additional  
16 30 days to respond in writing.

17           The comments must be received in our office  
18 by July 9th and they need to be addressed to Eric Van  
19 Gestel, and his name is on the back of the fact sheet  
20 if anyone needs it.

21           As I said earlier, we have Eric Van Gestel,  
22 the EPA Site Manager with us.

23           We have Erica Peach, the State Site Manager,  
24 here tonight, as well as Mike Powers from the State.

25           And in the back, Jim Sebastian, our

1 Community Relations Specialist, with us this evening.

2 That's how it is going to be running. So,  
3 first, we're going to have Eric give a very short  
4 discussion of the proposed plan, so everyone  
5 understands what the hearing is on tonight.

6 And, as I said, we will open it up to your  
7 comments.

8 So Eric is going to run through it right  
9 now.

10 ERIC VAN GESTEL: This is a recap of the  
11 document that was presented at the public meeting.

12 The U. S. Environmental Protection Agency  
13 (EPA), has proposed a cleanup plan, referred to as a  
14 preferred alternative or proposed plan, to address  
15 leachate contamination at the Beacon Heights Landfill  
16 Superfund site at Beacon Falls, Connecticut. The  
17 preferred alternative is EPA's preliminary selection of  
18 a remedy and may be changed if public comments or new  
19 information is presented to EPA during the public  
20 comment period that significantly affects EPA's  
21 evaluation of the alternatives.

22 EPA recommends a method of leachate  
23 treatment and off-site disposal at a municipal sewage  
24 treatment facility. EPA selected this preferred  
25 alternative from among the treatment options that were

1 evaluated during the pre-design studies required by the  
2 1987 Consent Decree and the 1985 Record of Decision for  
3 the site.

4           After evaluating all of the reasonable  
5 alternatives, EPA proposes to pretreat the leachate  
6 on-site and pipe the treated leachate to the Naugatuck  
7 sewage treatment plant. That's the POTW in Naugatuck.

8           This alternative would require the  
9 construction of a five-mile-long pipeline from the site  
10 to a point in the pipes of the Naugatuck sewer system  
11 near the intersection of Cotton Hollow Road and Cross  
12 Street. The pipeline will be laid primarily in the  
13 rights of way of Bethany Road, Main Street and Route 8.  
14 This pipeline would carry the leachate from the site.  
15 This alternative would also require the installation of  
16 a leachate collection tank of approximately  
17 5,000-gallon capacity and a pump station near the site  
18 to pump the leachate to the Naugatuck sewer system.

19           The results of the pre-designed study  
20 indicate that the extended aeration activated sludge  
21 process at the Naugatuck POTW could effectively treat  
22 the contaminants of the leachate with no adverse  
23 effects on the plant's operations. The POTW  
24 incinerates any sludge remaining after treatment as  
25 part of its normal operation. Treated water from the

1 facility is then discharged to the Naugatuck River.

2 If public comment and further information  
3 change EPA's evaluation of this or any of the other  
4 alternatives, in particular, those involving Beacon  
5 Falls approvals or State approvals, EPA may decide on  
6 another alternative for its final selection.

7 I'd like to quickly run through the other  
8 alternatives evaluated in the Pre-Design Study Report.

9 Alternative No. 1 in the proposed plan  
10 document is similar to EPA's preferred alternative.

11 This alternative would discharge pretreated  
12 leachate into the Beacon Falls sewer system for  
13 treatment at an upgraded Beacon Falls POTW plant.  
14 Construction of a .3 mile pipeline from the landfill to  
15 the sewer system would be required.

16 The upgrade of the POTW would include the  
17 addition of oxygen to the air used in the activated  
18 sludge process, as well as an increase in the  
19 capacities of the sludge pumping and dewatering  
20 systems. Sludge from the Beacon Falls POTW is  
21 incinerated at the Naugatuck facility.

22 Alternative No. 2 would treat the leachate  
23 on-site, using granular activated carbon filtration,  
24 green sand filtration, and chemical disinfection. The  
25 treated disinfected water would then be discharged to

1 the Hockanum Brook. Any waste sludge will be trucked  
2 to an appropriate off-site disposal area.

3 Alternative No. 3 in the proposed plan  
4 advocates transporting the leachate via 5,000 gallon  
5 tanker trucks to an approved treatment, storage and  
6 disposal facility licensed to treat hazardous waste.

7 Alternative No. 4 requires the construction  
8 of an on-site treatment facility consisting of a pair  
9 of parallel bioreactors, green sand filters and  
10 disinfection equipment. The treated disinfected water  
11 would then be discharged to the Hockanum Brook. Any  
12 waste sludge will be trucked to an appropriate off-site  
13 disposal area.

14 Alternative No. 5 would require the  
15 construction of an on-site facility which would treat  
16 the leachate using chemical coagulation and  
17 clarification and ultraviolet-enhanced oxidation. The  
18 treated disinfected water would then be discharged to  
19 the Hockanum Brook and any waste sludge will be trucked  
20 to an appropriate off-site disposal area.

21 Alternative No. 6, the last in the proposed  
22 plan, is the analysis of a No Action remedy. This  
23 analysis is required by Federal law and is included for  
24 a comparison as a baseline against which all other  
25 alternatives would be evaluated. In this alternative,

1 the contaminated leachate would not be treated and  
2 contaminants would not be prevented from reaching  
3 surface and groundwater.

4           Again, if public comments and further  
5 information change EPA's evaluation of this or any of  
6 the other alternatives, in particular those involving  
7 Beacon Falls approvals or State approvals, EPA may  
8 decide on another alternative for its final selection.

9           MARGARET LESHEN: Thanks, Eric.

10           And now we are going to begin the comment  
11 round.

12           The first commentor that I have is Mr. Swan.  
13 Would you like to come forward?

14           WILFRED SWAN: Good evening, and good  
15 evening.

16           I'm glad to see some people are interested  
17 in what's going on, whether it's the dump or not. It's  
18 nice to see somebody here.

19           I will start off with saying that I gave a  
20 letter to Mr. Van Gestel of my opinion.

21           It is my opinion and my suggestion that the  
22 cleanup of the Beacon Falls Heights landfill be  
23 initiated soon by using the plan of installing the  
24 sewer plant method on-site.

25           This would eliminate all the problems with



1 the town and only need the approval of one person, me.  
2 That's why I say it. We're going through a rigamarole.

3 I want to say that this is what happens with  
4 a rigamarole. This is newspaper clippings, letters,  
5 pictures that I've accumulated for 25 years on the  
6 dump. It never stops, but it's still going on. And  
7 it's been going on, now, for two years since the -- I  
8 guess since the environmental people got in it, and it  
9 never seems to come to a completion.

10 So I'm saying, stop, start tomorrow and  
11 start digging, fill it in on my property. That's where  
12 the plant will be. We'll make a deal. But nobody has  
13 to worry about it. Don't have to have any meetings or  
14 anything. That's it.

15 MARGARET LESHEN: Thank you.

16 The next person that I have is Len D'Amico.

17 LEN D'AMICO: I'm going to sit down. I'm  
18 not as strong as Bill.

19 There are a couple of comments I'd like to  
20 make and I'd like to have them part of the record.

21 Just recently sent a letter to Eric Van  
22 Gestel at the EPA Office in Boston and it was in  
23 reference to the cleanup. And the letter is as such:

24 "Dear Mr. Van Gestel:

25 "As counsel to the Town of Beacon Falls, I

1 hereby request that the EPA extend the time allotted  
2 for reaching a decision on the supplemental cleanup  
3 plan for treating leachate from the Beacon Heights site  
4 in Beacon Falls, Connecticut.

5 "The Town of Beacon Falls has retained the  
6 engineering firm of Fossen O'Neil to evaluate the  
7 possibility of treating leachate from Beacon Heights at  
8 the Beacon Falls wastewater treatment facility.

9 "We anticipate that Fossen O'Neil will make  
10 its recommendations by the last week in June, at which  
11 time the town will be in a position to decide whether  
12 or not to accept the treatment of the leachate at its  
13 wastewater treatment plant."

14 This is signed by Donald Silitello, under  
15 our authority to request the extension.

16 We want to make that part of the record.

17 And now I'd like to briefly comment, if I  
18 may, at your initial hearing your preferred alternative  
19 was to take the leachate on-site pretreated and have it  
20 flow to the Naugatuck wastewater treatment plant which,  
21 of course, is prepared to accept this type of leachate.

22 The second alternative, as you've just read,  
23 would be the Beacon Falls wastewater treatment plant  
24 after it's been upgraded.

25 I just want to let the folks know that after

1 due consideration we did retain Fossen O'Neil, who are  
2 eminently qualified, to review the recommendations of  
3 Kimony and the generators and to evaluate and to  
4 recommend to the Town of Beacon Falls what would be in  
5 our best interest, both presently and in the future.

6 Now, in the meantime, I received a copy of a  
7 letter that was sent from the law firm of Adams &  
8 Harding out of Middletown, Connecticut, and it was sent  
9 to William A. Butler, Esquire, of the law firm of  
10 Dixtine, Shapiro & Morin in Washington, D. C.

11 Now, Bill Butler is the lead counsel for all  
12 the municipalities. He is representing all the  
13 municipalities in this Beacon Heights and Laurel Park  
14 cleanup. And the letter -- and I want it placed in  
15 record, the Proposed Supplemental Cleanup Beacon  
16 Heights Leachate.

17 "Dear Bill:

18 "I have finished reviewing the EPA Proposed  
19 Supplemental Cleanup plan to address leachate treatment  
20 and disposal at the Beacon Heights Landfill site, dated  
21 May 1990, in which various alternatives to the  
22 treatment of the Beacon Heights leachate is discussed.

23 "I noticed that the selected alternative is  
24 the \$2,241,000 not present value alternative of piping  
25 the leachate from Beacon Falls to the Naugatuck

1 treatment plant, a distance of five miles.

2 "One of the alternatives which evidently is  
3 not available is the piping of the leachate .3 miles  
4 and upgrading the Beacon Falls sewage treatment plant.  
5 The next present value of that alternative is  
6 \$1,501,000.

7 "The Beacon Falls alternative evidently is  
8 not available because of a" -- and I love this  
9 word -- "because of the recalcitrance of a member of  
10 your class, and that is the Town of Beacon Falls.

11 "While I have great sympathy for any  
12 community which is a host community by a mistake of  
13 geography rather than by choice, I cannot have sympathy  
14 for a community which wishes to increase the costs of  
15 the remedy by an amount of \$740,000 and have that cost  
16 allocated against all other parties to this action.

17 "In the event that the Naugatuck treatment  
18 plant alternative becomes a selected alternative, the  
19 transporters, as a class, are prepared to argue that  
20 the difference in net present value of the remedy of  
21 \$740,000 be allocated to the Town of Beacon Falls and  
22 then only an amount of \$1,501,000 will be shared by  
23 other parties to this suit."

24 I want to go on record as saying I received  
25 a copy of this letter and I resent it very much. I

1 think the Town of Beacon Falls and the people who are  
2 involved, our committee, have been working very, very  
3 hard to come up with a very fair and equitable  
4 settlement to all parties concerned.

5 We are not, we are not under any pressure by  
6 any law firm, going to take and agree to anything that  
7 15, 20 or 40 years from now; our children or our  
8 grandchildren are going to be burdened with a problem  
9 that's going to cost them much more than we envision  
10 today.

11 So I want that part of the record.

12 MARGARET LESHEN: Thank you.

13 The next commentor is Ray Fitzpatrick.

14 FROM THE FLOOR: No comment.

15 MARGARET LESHEN: Okay, we can come back.

16 The next person is Dorothy Mason.

17 DOROTHY MASON: I'm just a very ordinary  
18 citizen of Naugatuck. And I don't know whether -- I  
19 suppose our town officials have probably met with you  
20 but it has been my experience in life that -- I speak  
21 out for myself and a lot of people and I don't usually  
22 care what town officials say. I do what I think is  
23 right.

24 And as far as I'm concerned, I would like to  
25 say that I speak on behalf of myself and us who live in

1 the immediate area of the waste disposal plant. One is  
2 ninety years old, one will be eighty-eight, my mother,  
3 June 30th. And one is eighty-three years old.

4 Right now my aunt is very, very sick. And  
5 just the other day she said to me, Dolly, she said, I  
6 hate the summertime to come because the stench coming  
7 in those windows, we can't even open our windows.

8 They live on Gorman Street.

9 And I think it's every person's right to be  
10 able to breathe clean air, especially when you're  
11 ninety years old and eighty-eight and every day could  
12 be your last breath.

13 Let's see, what else do I want to say?

14 There is a possibility, I feel, that the  
15 people of Naugatuck have not drawn a clean breath of  
16 air in the last 100 years. Yet in the last few months  
17 a wood burning plant and this \$2-million-plus pipeline  
18 with its insidious contents have been proposed again in  
19 Naugatuck.

20 We have trailers hauling who knows what into  
21 our town, over our roads. I understand there are at  
22 least 25 different municipalities sending their sewer  
23 contents to our town.

24 Where does it all end?

25 Our taxes are escalating and so is the

APEX REPORTING  
Registered Professional Reporters  
(617)416-3077

1 stench.

2 I feel, also, that with all the pollution of  
3 our air in the vicinity of our cemeteries, St. James  
4 and Grove, both Catholic and Protestant, these are both  
5 directly across from the numerous smokestacks and the  
6 holding tanks and waste disposal plant. And I feel  
7 this is a total desecration of both Catholic and  
8 Protestant cemeteries. And I feel that perhaps the  
9 only way to stop some of this is a civil suit on behalf  
10 of some of us that have our loved ones buried there.

11 The Indians took care of their dead and  
12 preserved their burial grounds. Now, I don't think  
13 it's right that -- whether our town officials, whether  
14 a deal has been sealed already, I don't know, but I  
15 speak very genuinely here tonight, that I think that  
16 Naugatuck has had enough.

17 And I hope that this 2-million -- what was  
18 it? I just wrote it down -- \$2,041,000 pipe will never  
19 be built, heading to Naugatuck.

20 As far as I'm concerned we have enough pipes  
21 pointed to our town.

22 Let's see. Also, there were a couple of  
23 other things. Oh, I didn't take it with me.

24 But there are a couple of things I'd like to  
25 give to you to put in the record.

1           In 1985 -- you think I'm the only one  
2 complaining -- there were a group of people in that  
3 Cotton Hollow area, for what reason, I don't know, a  
4 lot of people in Naugatuck are deathly afraid to get up  
5 and speak. Perhaps because their families work for  
6 Uniroyal or for the chemical. And that's a sad case in  
7 the United States of America today, that people can't  
8 come and speak.

9           Also, in 19 -- was it -- '85, there was a  
10 young man that died. It was on a Friday. His name was  
11 Copeland. He was treating some kind of affluent. I  
12 have the story right in the paper. And I don't think  
13 it ever came out just what he died from. But I think  
14 that he was twenty-nine years old. And I think this  
15 makes us cognizant of the fact that some of that stuff  
16 pouring through their pipes can be very dangerous.

17           And I just hope that you will consider  
18 people like myself who have a substantial home there,  
19 pay substantial taxes, have paid the like for years,  
20 and I hope that you still listen to people like me.

21           Thank you very much. I appreciate it.

22           Do you want those papers ---

23           MARGARET LESHEN: Sure.

24           ERIC VAN GESTEL: Sure.

25           DOROTHY MASON: --- for evidence?



1 The next person is Brian Fitzpatrick.

2 FROM THE FLOOR: He's not here.

3 MARGARET LESHEN: Has Ray decided he wants  
4 to make any comment?

5 DOROTHY MASON: Here you go, dear. You  
6 should read that.

7 MARGARET LESHEN: Does anyone -- thank you.

8 DOROTHY MASON: This is 1985 and I think you  
9 should really read that.

10 And that man had just spoke to us the night  
11 before he was killed, telling some us that if we were  
12 interested in the Laurel Park Landfill, but we didn't  
13 have anything to worry about.

14 I submit that. Thank you.

15 MARGARET LESHEN: Thank you.

16 Would anyone else like to make a comment  
17 tonight into the record?

18 GARY WOODFIELD: Attorney Gary Woodfield for  
19 the Town of Naugatuck, for the Borough of Naugatuck.

20 And just briefly, we've had -- again, I've  
21 met with Eric in the past with regard to the Borough  
22 accepting the leachate in the future.

23 And the Borough, I think it came out  
24 incorrectly, prior, as far as what the Borough would be  
25 willing to do if the leachate were accepted into

1 Naugatuck.

2           What was not emphasized was the fact that  
3 the Borough is very concerned with the people of  
4 Naugatuck and the environmental effect of bringing the  
5 leachate to Naugatuck.

6           Mrs. Mason very eloquently stated the fact  
7 of the stench that currently exists with the water  
8 treatment facility.

9           But currently from the Laurel Park site,  
10 approximately 1 percent of what is being brought to the  
11 water treatment company is the leachate from Laurel  
12 Park. So that if there is a problem with the water  
13 treatment facility's aromas or whatever, I don't think  
14 that the leachate from Naugatuck, the Laurel Park site  
15 has really an impact on that. And the Beacon Heights  
16 leachate is even a lesser extent, by about one-tenth of  
17 what -- or Eric may be able to expound on that or  
18 someone from the treatment company.

19           But current, the effect of what the leachate  
20 or the amount of leachate that is coming from Laurel  
21 Park and in the future, if it does come from Beacon  
22 Heights, is of very minimal impact to the Borough  
23 of Naugatuck, in particular, the water treatment  
24 facility.

25           And with regard to the cemeteries, if the

1 leachate does come to Naugatuck, it would be through  
2 the sewer system, which is below ground and is  
3 currently below Route 8. And I don't know of really  
4 any major impact that it will have in that area.

5           There is a concern that we have in Cotton  
6 Hollow and at Cross Street. Obviously, there are  
7 people living there. And we, in our negotiations with  
8 the Beacon Heights Coalition, that was one of our major  
9 concerns, is that this is handled properly.

10           With regard to what has happened with  
11 this gentleman who was twenty-nine years old, I  
12 think -- well, I'd rather not get into that part of  
13 it.

14           The Borough of Naugatuck, for the record,  
15 would be willing to accept the leachate, subject to a  
16 quite extensive list that we have forwarded to the  
17 Beacon Heights Coalition, and the priority of which is  
18 the protection of human life and to ensure that all  
19 environmental impacts are handled properly.

20           Thank you.

21           MARGARET LESHEN: Thank you.

22           Would anyone else like to make a comment?

23           Seeing that there are no further comments, I  
24 would like to close the hearing.

25           We'll be staying around to answer any

1 questions if people have them.

2           As I was saying earlier, we encourage you to  
3 submit written comments, especially if you didn't  
4 present anything tonight. And they will be accepted in  
5 our office. They should be addressed to Eric Van  
6 Gestel. They need to be received in our office by  
7 July 9th, as we were saying.

8           After he receives all the comments, we will  
9 be preparing a document called the Record of Decision,  
10 which will document our decision. And it will be based  
11 on public comments and any new information that has  
12 been raised during the comment period.

13           The decision document will have appended to  
14 it responses to comment in a document called the  
15 Responses of Summary.

16           You will become aware of these documents  
17 through a press release and they can also be obtained  
18 -- at the Selectmen's Office we have a repository of  
19 all the documents, as well as our office in Canal  
20 Street.

21           If you have any questions at any time, feel  
22 free to call Eric. His number is on the back of the  
23 fact sheet, if you need any information or you have a  
24 question.

25           I don't hear any further comments. We will

1 close the hearing.

2 [Whereupon, at 8:05 p.m., May 30, 1990, the  
3 above matter was concluded.]

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

CERTIFICATE OF REPORTER AND TRANSCRIBER

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

This is to certify that the attached proceedings  
before: U.S. ENVIRONMENTAL PROTECTION AGENCY

in the Matter of:

PUBLIC HEARING  
SUPERFUND PROGRAM  
BEACON HEIGHTS LANDFILL SITE  
BEACON FALLS, CONNECTICUT

Place: Beacon Falls, Connecticut

Date: May 30, 1990

were held as herein appears, and that this is the true,  
accurate and complete transcript prepared from the notes  
and/or recordings taken of the above entitled proceeding.

L. Marshak  
Reporter

5-30-90  
Date

N. Beecroft  
Transcriber

6-6-90  
Date



# STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION



September 28, 1990

Ms. Julie Belaga  
Regional Administrator  
U.S. EPA Region 1  
J.F.K. Federal Building  
Boston, MA 02203

Dear Ms. Belaga:

The Connecticut Department of Environmental Protection has reviewed the Supplemental Record of Decision of remedial alternatives for the Beacon Heights Landfill. This letter reiterates the department's position as identified in my previous correspondence dated July 9, 1990.

The department supports the selected alternative for leachate treatment and disposal and for continued monitoring and evaluation of the landfill gasses upon completion of the cap.

However, the department believes that some of the water quality goals used to establish soil cleanup levels are inconsistent with Connecticut Action Levels for contaminants in drinking water and Connecticut's Water Quality Standards. Connecticut has set Action Levels for contaminants in drinking water that are equivalent to or more stringent than federal drinking water standards. As these standards have been established by the Connecticut Department of Health Services and have been timely and consistently applied by both the Departments of Health Services and Environmental Protection, the State contends that these Action Levels should be considered ARARs.

Additionally, the state's adopted and federally approved water quality standards classify the ground water at the site as GB/GA, the goal being GA. This goal classification requires action necessary to assure that the waters are suitable for drinking without need for treatment. It further requires that the water quality be free from pollutants other than those naturally occurring and that chemical constituents be subject to state and federal guidelines and advisories. The goal GA requires cleanup to meet this standard. The standards further limit the sources of discharge which would be permitted within the area classified and would preclude new landfills, leachate discharges and other chemical discharges.

To meet these GA standards, the department has required removal of contaminated soils to the drinking water standard level or the installation of collection and treatment systems as well as providing an alternative water supply to all persons potentially affected by the contaminated soil leaching. In cases where toxicity impacts on surface water would be realized from the site beyond drinking water standard levels, additional controls or removal would be required.

(Printed on Recycled Paper)

165 Capitol Avenue • Hartford, CT 06106

LTR: Beacon Heights  
Supplemental ROD  
Page 2  
September 28, 1990

Leaving soils in place at 100 times the drinking water standards at this site is inconsistent with the GA standard because there are no planned controls over the ground water plume movement, for further measures to collect and treat contaminants derived from those soils, or cap the soils, and no proposal to assure alternative water supplies.

Although the department agrees that excavation of contaminated soils is necessary to protect human health and the environment, we cannot concur with a soil remediation goal that would have contaminated soils left in place at the site.

Sincerely,



Leslie Carothers  
Commissioner

LAC:EMP:gt



## **Introduction**

This document is the index to the Administrative Record for the Beacon Heights Landfill National Priorities List (NPL) site. Section I of the index cites site-specific documents, and Section II cites guidance documents used by EPA staff in selecting a response action at the site.

The Administrative Record is available for public review at EPA Region I's Office in Boston, Massachusetts, and at the Beacon Falls Town Hall, 10 Maple Avenue, Beacon Falls, Connecticut, 06403. This Administrative Record includes, by reference only, all documents included in the June 9, 1988 Administrative Record (September 23, 1985 Record of Decision) for this NPL site. Questions concerning the Administrative Record should be addressed to the EPA Region I site manager.

The Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

**Beacon Heights Landfill  
NPL Site Administrative Record**

**Table of Contents**

**Volume I**

- 1.0 Pre-Remedial
  - 1.3 Site Inspection
- 3.0 Remedial Investigation
  - 3.9 Health Assessments
- 4.0 Feasibility Study (FS)
  - 4.1 Correspondence
  - 4.6 Feasibility Study (FS) Reports
  - 4.9 Proposed Plans for Selected Remedial Action
- 5.0 Record of Decision (ROD)
  - 5.1 Correspondence
  - 5.2 Applicable or Relevant and Appropriate Requirements (ARARs)
  - 5.3 Responsiveness Summary
  - 5.4 Record of Decision (ROD)
- 6.0 Remedial Design (RD)
  - 6.1 Correspondence

**VOLUME II**

- 6.4 Remedial Design Documents (continued)

**VOLUME III**

- 6.4 Remedial Design Documents (continued)

**VOLUME IV**

- 6.4 Remedial Design Documents (continued)

**Beacon Heights Landfill  
NPL Site Administrative Record**

**Table of Contents (continued)**

**VOLUME V**

**6.6 Work Plans and Progress Reports**

**10.0 Enforcement**

**10.8 EPA Consent Decree**

**10.9 Pleadings**

**13.0 Community Relations**

**13.3 News Clippings/Press Releases**

**13.4 Public Meetings**

**13.5 Fact Sheets**

**Administrative Record Index**

**SECTION I**  
**SITE-SPECIFIC DOCUMENTS**

**ADMINISTRATIVE RECORD INDEX  
for the  
Beacon Heights Landfill NPL Site**

**1.0 Pre-Remedial**

**1.3 Site Inspection**

1. "Potential Hazardous Waste Site - Site Inspection Report - Betkoski Dump," EPA Region I (March 25, 1986).

**3.0 Remedial Investigation (RI)**

**3.9 Health Assessments**

1. "Health Assessment for Beacon Heights Landfill National Priorities List (NPL) Site," U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR) (January 26, 1989).

**4.0 Feasibility Study (FS)**

**4.1 Correspondence**

1. Letter from Eric van Gestel, EPA Region I to Leonard D'Amico, Town of Beacon Falls (April 24, 1990). Concerning an invitation to meet prior to Proposed Plan Public Meeting to discuss critical issues.
2. Letter from Eric van Gestel, EPA Region I to Doug Ritchie, Naugatuck Treatment Company (April 25, 1990). Concerning an invitation to meet prior to Proposed Plan Public Meeting to discuss critical issues.

**4.6 Feasibility Study (FS) Reports**

1. Cross-Reference: "Pre-Design Studies - Revision 2," Canonic Environmental Services Corp. for Beacon Heights Generators Coalition (March 1990) [Filed and cited as entry number 3 in 6.4 Remedial Design Documents].
2. Letter Report from Francis C. Sampson, Fuss and O'Neill to Robert F. Carter, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) (June 27, 1990). Concerning Beacon Heights Landfill Leachate Treatment (CONFIDENTIAL).

#### 4.9 Proposed Plans for Selected Remedial Action

##### Reports

1. "EPA Proposes Supplemental Cleanup Plan to Address Leachate Treatment and Disposal at the Beacon Heights Landfill Site," EPA Region I (May 1990).

##### Comments

2. Letter from Brian D. Fitzgerald, Waste Water Treatment Plant Superintendent, Town of Beacon Falls, Connecticut to EPA Region I (May 9, 1990).
3. Letter from Nicholas J. Harding, Adams & Harding to William A. Butler, Dickstein, Shapiro & Morin (May 15, 1990). Concerning comments on the Proposed Plan.
4. Cross Reference: Letter from Donna Civitello, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) to Eric van Gestel, EPA Region I (May 25, 1990). Concerning request to extend the public comment period on the Proposed Plan. [Filed and cited as entry number 1 in 5.1 Correspondence].
5. Letter from Wilfred Swan, Beacon Falls Resident to Eric van Gestel, EPA Region I (May 30, 1990). Concerning comments on the Proposed Plan.
6. Letter from Oliver P. Wesley, Canonie Environmental to Eric van Gestel, EPA Region I (July 6, 1990). Concerning comments on the Proposed Plan. With attached:
  - A: Letter from Oliver P. Wesley, Canonie Environmental to Russell Bartley, Wehran Engineering Corp. (May 22, 1990). Concerning response to comments on the Beacon Falls Publicly Owned Treatment Works.
  - B: Letter from Oliver P. Wesley, Canonie Environmental to Russell Bartley, TRC Environmental Consultants (February 9, 1990). Concerning technical evaluation of the treatment of leachate from the Beacon Heights Landfill.
7. Letter from Leslie Carothers, Commissioner, Connecticut Department of Environmental Protection to Eric van Gestel, EPA Region I (July 9, 1990). Concerning the State of Connecticut's comments on the Proposed Plan.
8. Letter from Nicholas J. Harding, Adams & Harding to Eric van Gestel, EPA Region I (July 9, 1990). Concerning comments on the Proposed Plan.

#### 4.9 Proposed Plans for Selected Remedial Action (continued)

##### Comments (continued)

9. Letter from Dorothy (Mrs. Edward J.) Mason, Beacon Falls Resident to Eric van Gestel, EPA Region I. Concerning comments on the proposed supplemental cleanup plan. With attached:
  - A: Letters to the Editor - "Who's Minding Leachate Decisions?" Dorothy Mason, Naugatuck Resident - Naugatuck Daily News, Naugatuck, Connecticut.
  - B: Letter from Richard F. Meagher, Catholic Cemeteries Association of the Archdiocese of Hartford, Inc. to Dorothy Mason (March 21, 1990). Concerning odors affecting St. James Cemetery.
  - C: "Man Killed At Chemical" - Naugatuck Daily News, Naugatuck, Connecticut (July 27, 1990).
  - D: "Odor Bothers Area" - Naugatuck Daily News, Naugatuck, Connecticut (July 23, 1985).
  - E: "Uniroyal High In Toxic Releases" - Naugatuck Daily News, Naugatuck, Connecticut (January 19, 1990).
  - F: "Borough Renews Uniroyal Pact" - Naugatuck Daily News, Naugatuck, Connecticut (June 26, 1990).

#### 5.0 Record of Decision (ROD)

##### 5.1 Correspondence

1. Letter from Donna Civitello, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) to Eric van Gestel, EPA Region I (May 25, 1990). Concerning request to extend the public comment period on the Proposed Plan.
2. Letter from Donna Civitello, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) to Julie Taylor, Office of Regional Counsel, EPA Region I (June 29, 1990). Concerning provisional acceptance of leachate at the Beacon Falls POTW.
3. Letter from Donna Civitello, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) to David E. Rosengren, Pepe & Hazard (attorney for the Beacon Heights Coalition) (July 13, 1990). Concerning terms and conditions to be met by the Beacon Heights Coalition before the town POTW will accept leachate from the Beacon Heights Landfill.

## 5.1 Correspondence (continued)

4. Letter from Thomas F. Harrison, Beacon Heights Coalition to Donna Civitello, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) (July 26, 1990). Concerning response to the letter of July 13, 1990 from Donna Civitello regarding the Beacon Heights Leachate Treatment Proposal.
5. Letter from Robert F. Carter, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) to Thomas F. Harrison, (attorney for Beacon Heights Coalition) (September 12, 1990). Concerning terms and conditions to be met by the Beacon Heights Coalition before the town POTW will accept leachate from the Beacon Heights Landfill.
6. Letter from Thomas F. Harrison, (attorney for Beacon Heights Coalition) to Robert F. Carter, Carter, Rubenstein & Civitello (attorney for the Town of Beacon Falls) (September 17, 1990). Concerning terms and conditions to be met by the Beacon Heights Coalition before the town POTW will accept Leachate from the Beacon Heights Landfill.

## 5.2 Applicable or Relevant and Appropriate Requirements (ARARs)

1. Cross-Reference: Letter from Leslie Carothers, Commissioner, Connecticut Department of Environmental Protection to Julie Belaga, EPA Region I (September 28, 1990). Concerning Connecticut Department of Environmental Protection's concurrence with EPA Region I's Remedial Action remedy selection for the Beacon Heights Landfill Site, including the State's requirements for concurrence. [Filed and cited as entry number 1 in 5.4 Record of Decision (ROD) as Appendix D].

## 5.3 Responsiveness Summaries

1. Cross-Reference: "Responsiveness Summary, Beacon Heights Landfill Superfund Site, Beacon Falls, Connecticut," EPA Region I (September 28, 1990). [Filed and cited as entry number 1 in 5.4 Record of Decision (ROD) as Appendix C].

## 5.4 Record of Decision (ROD)

1. "Beacon Heights Landfill Supplemental Record of Decision, Beacon Heights Site, Town of Beacon Falls, New Haven County, Connecticut," EPA Region I (September 28, 1990).



## 6.0 Remedial Design

### 6.1 Correspondence

1. Letter from Geoff McGean, EPA Region I to Russell W. Bartley, TRC Environmental Consultants, Inc. (December 9, 1988). Concerning final approval of the Beacon Heights Pre-Design Work Plan.

### 6.4 Remedial Design Documents

#### Reports

1. "Pre-Design Studies," Canonie Environmental Services Corp. for Beacon Heights Coalition (July 1989).
2. "Pre-Design Studies - Revision 1," Canonie Environmental Services Corp. for Beacon Heights Coalition (December 1989).
3. "Pre-Design Studies - Revision 2," Canonie Environmental Services Corp. for Beacon Heights Coalition (March 1990).
4. "Evaluation of Leachate Treatment Alternatives," Canonie Environmental Services Corp. for Beacon Heights Coalition (May 1990).

#### Correspondence

5. Letter from Merrill S. Hohman, EPA Region I to Russell W. Bartley, TRC Environmental Consultants, Inc. (November 9, 1989). Concerning EPA comments on the July 1989 "Pre-Design Studies," Canonie Environmental Services Corp. for Beacon Heights Generators Coalition.
6. Letter from Eric van Gestel, EPA Region I to Russell W. Bartley, TRC Environmental Consultants, Inc. (January 10, 1990). Concerning pre-design studies and the Beacon Falls POTW.
7. Letter from Merrill S. Hohman, EPA Region I to Russell W. Bartley, TRC Environmental Consultants, Inc. (February 14, 1990). Concerning EPA comments on the December 1989 "Pre-Design Studies," Canonie Environmental Services Corp. for Beacon Heights Generators Coalition.
8. Letter from Eric van Gestel, EPA Region I to Russell Bartley, Wehran Engineering Corporation (April 19, 1990). Concerning compilation of nine evaluation criteria for evaluating remedial alternatives.

## 6.6 Work Plans and Progress Reports

### Reports

1. "Pre-Design Work Plan and Project Operation Plan," Canonie Environmental Services Corp. for Beacon Heights Generators Coalition (November 1987).

### Comments

2. Comments Dated January 20, 1988 from Karl W. Novak, EPA Region I on the November 1987 "Pre-Design Work Plan and Project Operation Plan," Canonie Environmental Services Corp. for Beacon Heights Generators Coalition.
3. Comments Dated November 14, 1988 from Geoff McGean, EPA Region I on the November 1987 "Pre-Design Work Plan and Project Operation Plan," Canonie Environmental Services Corp. for Beacon Heights Generators Coalition.

### Responses to Comments

4. Response Dated February 26, 1988 from Oliver P. Wesley, Canonie Environmental Services Corp. on the January 20, 1988 Comments from Karl W. Novak, EPA Region I.
5. Response Dated December 5, 1988 from Oliver P. Wesley, Canonie Environmental Services Corp. on the November 14, 1988 Comments from Geoff McGean, EPA Region I.

## 10.0 Enforcement

### 10.8 EPA Consent Decrees

1. Amended Consent Decree, United States of America v. The B.F. Goodrich Company et al., United States District Court for the District of Connecticut, (Civil Action No. N-87-286 (PCD)) (September 15, 1987) with "Appendix A - Remedial Action Plan".

### 10.9 Pleadings

1. Ruling on Motion for Order in Aid of Access and for Preliminary Injunction, The B.F. Goodrich Company et al. v. Harold Murtha, et al.; Uniroyal Chemical Company Inc. v. Harold Murtha, et al.; United States of America v. Harold Murtha, et al.; State of Connecticut v. Harold Murtha, et al., United States District Court for the District of Connecticut, (Civil Action No. N-87-52, -67, -74, &-73) (PCD) (October 24, 1988).

## 10.9 Pleadings (continued)

2. Order, The B.F. Goodrich Company et al. v. Harold Murtha, et al.; Uniroyal Chemical Company Inc. v. Harold Murtha, et al.; United States of America v. Harold Murtha, et al.; State of Connecticut v. Harold Murtha, et al., United States District Court for the District of Connecticut, (Civil Action No. N-87-52,-67,-74,&-73) (PCD) (October 24, 1988).

## 13.0 Community Relations

### 13.3 News Clippings/Press Releases

1. "Environmental News - Cleanup Plan for Beacon Heights Superfund Site Announced," EPA Region I (September 23, 1985).
2. "Environmental News - EPA Issues Administrative Order," EPA Region I (October 6, 1986).
3. "Environmental News - EPA Obtains Warrant for Access to Beacon Heights Landfill," EPA Region I (July 1, 1987).
4. "Environmental News," EPA Region I (July 8, 1987).
5. "Environmental News - EPA Announces Public Meeting on Beacon Heights Site," EPA Region I (August 12, 1987).
6. "Environmental News - Court Orders Waste Site Owners to Allow Cleanup to Start," EPA Region I (November 4, 1988).
7. "The U.S. Environmental Protection Agency Announces the Availability of the Administrative Record for the Beacon Heights Landfill Site," Naugatuck News - Naugatuck, Connecticut (December 12, 1988).
8. "Environmental News - EPA to Hold Meeting on Beacon Heights Cleanup Plan," EPA Region I (April 27, 1990).
9. "Environmental News - EPA Extends Comment Period on Beacon Heights Cleanup Plan," EPA Region I (June 5, 1990).

### 13.4 Public Meetings

1. "Summary of the Public Informational Meeting on the Proposed Plan for the Beacon Heights Landfill Superfund Site," EPA Region I (May 9, 1990).
2. Cross-Reference: Transcript, Public Hearing (May 30, 1990) [Filed and cited as entry number 1 in 5.4 Record of Decision (ROD) in Appendix C as Attachment A].

### 13.5 Fact Sheets

1. "Superfund Program Information Update - EPA Cleanup Activities Underway," EPA Region I (August 1987).
2. "EPA Information Update - Beacon Heights Landfill Superfund Site," EPA Region I (July 1988). Concerning update of waterline and landfill cap activities.

**SECTION II**  
**GUIDANCE DOCUMENTS**

## GUIDANCE DOCUMENTS

EPA guidance documents may be reviewed at EPA Region I, Boston, Massachusetts.

### General EPA Guidance Documents

1. U.S. Environmental Protection Agency. Office of Research and Development. Municipal Environmental Research Laboratory. Biodegradation and Treatability of Specific Pollutants (EPA-600/9-79-034), October 1979. [c007]
2. U.S. Environmental Protection Agency. Office of Research and Development. Municipal Environmental Research Laboratory. Carbon Adsorption Isotherms for Toxic Organics (EPA-600/8-80-023), April 1980. [2301]
3. U.S. Environmental Protection Agency. Office of Research and Development. Municipal Environmental Research Laboratory. Handbook for Evaluating Remedial Action Technology Plans (EPA-600/2-83-076), August 1983. [2307]
4. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Community Relations in Superfund: A Handbook (Interim Version) (EPA/hw-6), September 1983.
5. U.S. Environmental Protection Agency. Office of Ground-Water Protection. Ground-Water Protection Strategy, August 1984. [2403]
6. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response, and Office of Research and Development. Review of In-Place Treatment Techniques for Contaminated Surface Soils - Volume 1: Technical Evaluation (EPA-504/2-84-003a), September 1984. [2316]
7. "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule" (40 CFR Part 136), Federal Register, October 26, 1984. [c036]
8. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Hazardous Response Support Division. Standard Operating Safety Guides, November 1984. [c082]
9. "National Oil and Hazardous Substances Pollution Contingency Plan," Code of Federal Regulations (Title 40, Part 300), 1985.
10. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Guidance Document for Cleanup of Surface Tank and Drum Sites (OSWER Directive 9380.0-3), May 28, 1985. [2306]

General EPA Guidance Documents (continued)

11. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Guidance on Feasibility Studies under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) (EPA/540/G-85/003), June 1985. [c034]
12. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Guidance on Remedial Investigations under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) (EPA/540/G-85/002), June 1985. [c035]
13. Memorandum from Gene Lucero to the U.S. Environmental Protection Agency, August 28, 1985 (discussing community relations at Superfund Enforcement sites). [c053]
14. U.S. Department of Health and Human Services. National Institute for Occupational Safety and Health, and Occupational Safety and Health Administration. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985. [c065]
15. U.S. Environmental Protection Agency. Office of Research and Development. Hazardous Waste Engineering Research Laboratory. Handbook: Remedial Action at Waste Disposal Sites (Revised) (EPA/625/6-85/006), October 1985. [2309]
16. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Community Relations in Superfund: A Handbook (Interim Version) (EPA/HW-6, OSWER Directive 9230.0-3A) March 1986.
17. U.S. Environmental Protection Agency. Office of Research and Development. Hazardous Waste Engineering Research Laboratory. Treatment Technology Briefs: Alternatives to Hazardous Waste Landfills (EPA/600/8-86/017), July 1986. [2320]
18. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Mobile Treatment Technologies for Superfund Wastes (EPA 540/2-86/003 (f)), September 1986. [2311]
19. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Draft Guidance on Remedial Actions for Contaminated Groundwater at Superfund Sites (OSWER Directive 9283.1-2), September 20, 1986. [c022]
20. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Superfund Public Health Evaluation Manual (OSWER Directive 9285.4-1), October 1986. [5014]

General EPA Guidance Documents (continued)

21. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, amended October 17, 1986. [c018]
22. "Hazardous Waste Management Systems Land Disposal Restrictions Final Rule," (November 1986), 40 CFR Part 260 Et Al. [c103]
23. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Superfund Federal-Lead Remedial Project Management Handbook (EPA/540/G-87/001, OSWER Directive 9355.1-1), December 1986. [2010]
24. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Interim Guidance on Superfund Selection of Remedy (OSWER Directive 9355.0-19), December 24, 1986. [9000]
25. U.S. Environmental Protection Agency. Office of Research and Development. Hazardous Waste Engineering Research Laboratory. Technology Briefs: Data Requirements for Selecting Remedial Action Technology (EPA/600/2-87/001), January 1987. [c088]
26. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Data Quality Objectives for Remedial Response Activities: Development Process (EPA/540/G-87/003), March 1987. [2101]
27. Letter from Lee M. Thomas to James J. Florio, Chairman, Subcommittee on Consumer Protection and Competitiveness, Committee on Energy and Commerce, U.S. House of Representatives, May 21, 1987 (discussing EPA's implementation of the Superfund Amendments and Reauthorization Act of 1986). [c044]
28. Memorandum from J. Winston Porter to Addressees ("Regional Administrators, Regions I-X; Regional Counsel, Regions I-X; Director, Waste Management Division, Regions I, IV, V, VII, and VIII; Director, Emergency and Remedial Response Division, Region II; Director, Hazardous Waste Management Division, Regions III and VI; Director, Toxics and Waste Management Division, Region IX; Director, Hazardous Waste Division, Region X; Environmental Services Division Directors, Region I, VI, and VII"), July 9, 1987 (discussing interim guidance on compliance with applicable or relevant and appropriate requirements). [c055]
29. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. A Compendium of Superfund Field Operations Methods (EPA/540/P-87/001, OSWER Directive 9355.0-14), December 1987. [2100]



### General EPA Guidance Documents (continued)

30. U.S. Environmental Protection Agency. Interim Guidance on Potentially Responsible Party Participation in Remedial Investigations and Feasibility Studies (OSWER Directive 9835.1a) (May 1988). [8001]
31. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Community Relations in Superfund: A Handbook (Interim Version) (EPA/HW-6, OSWER Directive 9230.0-03B) (June 1988). [7000]
32. "Catalog of Superfund Program Directives," (July 1988), OSWER #9200.7-01. [c012]
33. "CERCLA Compliance with Other Laws Manual, Draft Guidance," (August 1988), OSWER #9234.1-01. [3002]
34. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01) (October 1988). [2002]
35. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Determining Soil Response Action Levels Based on Potential Contaminant Migration to Groundwater: A Compendium of Examples (EPA/540/2-89/057) October 1989. [c133]
36. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Personnel Protection and Safety. [c071]

### Beacon Heights NPL Site Specific Guidance Documents

1. "The Designated Level Methodology for Waste Classification and Cleanup Level Determination", Jon B. Marshack, California Regional Water Quality Control Board, 23 April 1987.